

# Coffman Park

## Phase I Construction

**June 11, 2013**

**2:00 p.m.**

Parks & Open Space

6555 Shier Rings Road

Dublin, Ohio 43016



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**June 11, 2013**

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Dublin, Ohio 43016



**CITY OF DUBLIN, OHIO**

**BID AND CONTRACT DOCUMENTS**

**For**

**Coffman Park Phase I Construction**

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**SECTION 1**  
**BIDDING REQUIREMENTS**

## **INVITATION TO BID**

Sealed proposals will be received from qualified bidders by:

**City of Dublin, Ohio  
Parks & Open Space  
6555 Shier Rings Road  
Dublin, Ohio 43016**

until **2:00 p.m.** local time on **Tuesday, July 11, 2013** at which time the sealed proposals will be opened by the **Director of Parks & Open Space**, for the following project:

### **Coffman Park Phase I Construction**

**For all labor, materials and equipment necessary for the construction and associated site work for COFFMAN PARK PHASE I CONSTRUCTION as indicated within the plans and associated documents.**

Service delivery shall be in accordance with contract documents.

Bidders shall submit with their proposals a certified check, cashier's check, letter of credit, or a satisfactory bid bond in an amount equal to five percent (5%) of the estimated value of the contract.

**ODOT Pre-qualification**

**NOT APPLICABLE**   X  

Bidders are required to be pre-qualified with the Ohio Department of Transportation. Bidders must present a current approved copy of ODOT Pre-qualification at the time proposals are picked up from City Engineer's Office.

**General Specifications**

**NOT APPLICABLE** \_\_\_\_\_

\*The general specifications for the Project are the following (as all are in effect at time of awarding of the contract):

- 1). City of Dublin, Ohio Streets and Highways General Provisions
- 2). Sections 200 through 1000 of the *Construction and Material Specifications of the City of Columbus, Ohio*, and
- 3). Sections 200 through 700 of the *Construction and Material Specifications of the State of Ohio Department of Transportation*

Copies of the *Construction and Material Specifications of the City of Columbus, Ohio* may be obtained from:

Director of Public Service  
City of Columbus, Ohio  
90 W. Broad Street, 3<sup>rd</sup> Floor  
Columbus, Ohio

Copies of the *Construction and Material Specifications of the State of Ohio Department of Transportation* may be obtained from:

Ohio Department of Transportation  
Bureau of Contract Sales  
P.O. Box 899  
Columbus, Ohio 43216-0899

**Contract Documents**

The contract documents will be available for examination during regular business hours until the date of bid opening at:

**City of Dublin, Ohio  
Parks & Open Space  
6555 Shier Rings Road  
Dublin, Ohio 43016**

and

F.W. Dodge Office  
1175 Dublin Road  
Columbus, Ohio

For Transportation –related construction projects, contractors pre-qualified with the Ohio Department of Transportation may obtain copies of the contract documents for bidding purposes, and all other persons may obtain copies of the contract documents for informational purposes only. Copies of the contract documents may be obtained upon request accompanied by a non-refundable deposit in the amount of **\$60.00** for each set of contract documents. Checks shall be made payable to "City of Dublin, Ohio." The contract documents may be obtained from:

**City of Dublin, Ohio  
Parks & Open Space  
6555 Shier Rings Road  
Dublin, Ohio 43016**

For bids related to all other commodities, services, or projects, copies of the contract documents may be obtained upon request accompanied by a non-refundable deposit in the amount of **\$60.00** for each set of contract documents. Checks shall be made payable to "City of Dublin, Ohio." The contract documents may be obtained from:

**City of Dublin, Ohio  
Parks & Open Space  
6555 Shier Rings Road  
Dublin, Ohio 43016**

**Prevailing Wages**

**APPLICABLE  X  NOT APPLICABLE \_\_\_\_\_**

Bidders shall comply with Chapter 4115 of the Ohio Revised Code (Wages and Hours on Public Works). Bidders are responsible for verifying that the most current wage rates are utilized in

their bids. The successful bidder is also responsible for any changes in the prevailing wage rates or classifications throughout its performance of work on the Project.

### **Bids and Attached Documents**

Bidders shall submit their bids on the form of proposal provided by the **Director of Parks & Open Space**

Each proposal shall be submitted in its entirety in a sealed envelope addressed to:

**Fred Hahn  
Director of Parks & Open Space  
City of Dublin, Ohio  
Parks & Open Space  
6555 Shier Rings Road  
Dublin, Ohio 43016**

Each sealed envelope containing a proposal shall be plainly marked on the outside as – “Bid for: **COFFMAN PARK PHASE I CONSTRUCTION.**” The envelope shall bear the name and address of the bidder.

If forwarded by mail, the sealed envelope containing the proposal must be enclosed in another envelope and the outside of the envelope must be addressed to and marked:

**Fred Hahn  
Director of Parks & Open Space  
City of Dublin, Ohio  
Parks & Open Space  
6555 Shier Rings Road  
Dublin, Ohio 43016**

### **BID FOR: COFFMAN PARK PHASE I CONSTRUCTION**

Bidders shall submit the following with their proposals:

1. Non-collusion Affidavit.
2. Bid Guaranty.
3. List of Subcontractors if applicable.
4. Delinquent Personal Property Tax Affidavit.
5. Affidavit of Authority (if Bidder is a corporation).
7. Experience Record/References.
8. Power of Attorney (if Bidder is an out-of-state corporation).

**The City of Dublin, Ohio reserves the right to reject any and all proposals and to waive any informalities or irregularities in the proposals.**

Bidders may address inquiries to:

SITE PLAN QUESTIONS:

Kerry Reeds  
MKSK  
462 S Ludlow Alley  
Columbus OH 43215  
614-621-2796

UTILITY BURIAL QUESTIONS:

Jim Dipple  
Burgess & Niple  
5085 Reed Road  
Columbus OH 43220  
614-459-2050

By order of the City Council of the City of Dublin, Ohio.

CITY OF DUBLIN, OHIO

Marsha Grigsby  
City Manager

**INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS**

Immediately notify **Laura Ball @ [lball@dublin.oh.us](mailto:lball@dublin.oh.us)** or **614-410-4707** upon finding discrepancies or omissions in the bidding documents.

Direct inquiries and questions to:

SITE PLAN QUESTIONS:

Kerry Reeds  
MKSK  
462 S Ludlow Alley  
Columbus OH 43215  
614-621-2796

UTILITY BURIAL QUESTIONS:

Jim Dipple  
Burgess & Niple  
5085 Reed Road  
Columbus OH 43220  
614-459-2050

1. Submit written request for clarification, correction or interpretation to the City not less than 7 days before the date for receipt of bids.
2. Modifications to the bidding documents will be issued as Addenda to the specifications and will become a part of the Contract.
3. No bidder shall rely on oral modifications or any other method of clarification, correction or interpretation of the bidding documents. Only modifications set forth in an Addendum will be binding.

# **PREVAILING WAGE DISKETTE**

**SECTION 2**  
**BIDDING FORMS**

**PROPOSAL**

**COFFMAN PARK PHASE I CONSTRUCTION**

\_\_\_\_\_ (the "Bidder") submits this Proposal having read and examined the contract documents, including but not limited to the Invitation to Bid; the City of Dublin, Ohio

All bids will be based upon elements indicated within the Drawings and Specifications. All changes to actual length, either additions or subtractions, will be through Change Order(s) using unit price(s) provided by contractor on proposal form.

Addenda Number

Date of Receipt

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

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

The Bidder proposes to provide the above named **COFFMAN PARK PHASE I CONSTRUCTION** in accordance with the contract documents for the following sum:

Total Bid (in figures):                      \$ \_\_\_\_\_

Total Bid (in words):                        \$ \_\_\_\_\_

Unless otherwise specified in the Bid Document the amount of the total bid is based on the unit prices or lump sum set forth in the Bid Schedule attached hereto and incorporated herein.

The Bidder understands and agrees that delivery under the Agreement for **COFFMAN PARK PHASE I CONSTRUCTION** shall be complete within **two hundred and fifty five (255) consecutive calendar days**, or as specified in bid documents unless an extension of time is granted by the **Director of Parks & Open Space**.

Upon failure to have all work completed within the project time, the City of Dublin, Ohio shall be entitled to retain or recover from the Bidder, as liquidated damages, and not as a penalty, the amounts set forth in the following table for each and every calendar day until completion. The right of the City of Dublin, Ohio to recover liquidated damages shall not

substitute for any recovery for additional costs in the event the Bidder fails to complete the Agreement for construction according to the contract documents.

Liquidated Damages:

<u>Contract Amount</u>	<u>Dollars Per Day</u>
\$0-25,000	\$ 100.00
25,001-50,000	150.00
50,001-100,000	200.00
100,001-500,000	300.00
500,001-1,000,000	500.00
1,000,001-2,000,000	750.00
2,000,001-5,000,000	1,000.00
5,000,001-10,000,000	1,500.00
Over \$10,000,001	2,000.00

**REPRESENTATIONS OF THE BIDDER**

The Bidder represents the following:

1. The Bidder has read and understands the contract documents and understands that it must comply with all requirements of the contract documents, regardless of whether the Bidder has actual knowledge of the requirements and regardless of any statement or omission made by the Bidder which might indicate a contrary intention.
2. The Proposal is based upon the items specified by the contract documents.
3. The Bidder has visited the site, become familiar with local conditions, and has correlated personal observations about the requirements of the contract documents. The Bidder has no outstanding questions regarding the interpretation of the contract documents.
4. The Bidder has submitted the following in connection with this Proposal and the information contained therein is complete and accurate:
  - a. Non-collusion Affidavit.
  - b. Bid Guaranty.
  - c. List of Subcontractors.
  - d. Delinquent Personal Property Tax Affidavit.

- e. Affidavit of Authority (if Bidder is a corporation).
  - f. Experience Record/References.
  - g. Power of Attorney (if Bidder is an out-of-state corporation).
6. The Bidder understands that the Agreement for **COFFMAN PARK PHASE I CONSTRUCTION** is subject to all of the provisions, duties, obligations, remedies and penalties of Ohio Revised Code Chapter.
7. Within ten (10) business days from the date of receipt the Notice of Intent to Award, the Bidder understands that it must enter into and execute an Agreement for **COFFMAN PARK PHASE I CONSTRUCTION** with the City of Dublin, Ohio if awarded on the basis of this Proposal. If the Bidder does not execute an Agreement for **COFFMAN PARK PHASE I CONSTRUCTION** for any reason, the Bidder and the Bidder's surety shall be liable to the City of Dublin, Ohio as provided in Ohio Revised Code Section 153.54(G).
8. Within ten (10) business days of the date of receipt of the Notice of Intent to Award, the Bidder understands that it must submit the following:
- a. Performance Bond.
  - b. Certificate of Insurance and a copy of Additional Insured Endorsement.
9. The Bidder understands that it must furnish any other information requested by the **Fred Hahn, Director of Parks & Open Space**.

The Bidder hereby signs this Proposal on the \_\_\_\_ day of \_\_\_\_\_, **2013**.

**If Bidder is an individual, complete the following:**

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

Name of Business: \_\_\_\_\_  
(if different than above)

Federal Identification Number: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone: ( ) \_\_\_\_\_

Fax: ( ) \_\_\_\_\_

**If Bidder is a partnership, complete the following:**

Name of Partnership: \_\_\_\_\_

By: \_\_\_\_\_  
(Signature)

Print Name: \_\_\_\_\_

Federal Identification Number: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone: ( ) \_\_\_\_\_

Fax: ( ) \_\_\_\_\_

Names and Addresses of all general partners:

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**If Bidder is a joint venture, complete the following:**

Name of Joint Venture: \_\_\_\_\_

By: \_\_\_\_\_  
(Signature)

Print Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone: ( ) \_\_\_\_\_

Fax: ( ) \_\_\_\_\_

Complete the following for each firm represented by the joint venture:

1. Name: \_\_\_\_\_

Federal Identification Number: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone: ( ) \_\_\_\_\_

Fax: ( ) \_\_\_\_\_

2. Name: \_\_\_\_\_

Federal Identification Number: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone: ( ) \_\_\_\_\_

Fax: ( ) \_\_\_\_\_

**If Bidder is a corporation, complete the following:**

Name of Corporation: \_\_\_\_\_

By: \_\_\_\_\_  
(Signature)

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Federal Identification Number: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone: ( ) \_\_\_\_\_

Fax: ( ) \_\_\_\_\_

State of Incorporation: \_\_\_\_\_

Names and addresses of Corporate Officers:

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

**If Bidder is an entity other than those described above, complete the following:**

Name of Bidder:

By: \_\_\_\_\_  
(Signature)

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Federal Identification Number: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone: ( ) \_\_\_\_\_

Fax: ( ) \_\_\_\_\_

Type of Business Entity: \_\_\_\_\_

Names and addresses of all Principals:

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

## BID BOND

### COFFMAN PARK PHASE I CONSTRUCTION

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned \_\_\_\_\_ (the “Principal”) and \_\_\_\_\_ (the “Surety”) are hereby held and firmly bound unto the City of Dublin, Ohio ("Dublin") as obligee in the penal sum of the dollar amount of the bid submitted by the Principal to Dublin on \_\_\_\_\_, 2013 to undertake the project known as:

### COFFMAN PARK PHASE I CONSTRUCTION

The penal sum referred to herein shall be the dollar amount of the Principal's bid to Dublin, incorporating any additive or deductive alternate proposals made by the Principal on the date referred to above to Dublin, which are accepted by Dublin. In no case shall the penal sum exceed the amount of \_\_\_\_\_ dollars (\$ \_\_\_\_\_). (If the foregoing blank is not filled in, the penal sum will be the full amount of the Principal's bid, including alternates. Alternatively, if the blank is filled in, the amount stated must not be less than the full amount of the bid including alternates, in dollars and cents. A percentage is not acceptable.)

For the payment of the penal sum well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that whereas the above-named Principal has submitted a bid for **COFFMAN PARK PHASE I CONSTRUCTION**.

NOW, THEREFORE, if Dublin accepts the bid of the Principal and the Principal fails to enter into a proper contract in accordance with the bid, plans, details, specifications, and bills of material; and in the event the Principal pays to Dublin the difference not to exceed five percent of the penalty hereof between the amount specified in the bid and such larger amount for which Dublin may in good faith contract with the next lowest bidder to perform the work covered by the bid, or in the event Dublin does not award the contract to the next lowest bidder and resubmits the project for bidding, the Principal will pay Dublin the difference not to exceed five percent of the penalty hereof between the amount specified in the bid, or the costs, in connection with the resubmission, of printing new contract documents, required advertising and printing and mailing notices to prospective bidders, whichever is less, then this obligation shall be null and void, otherwise to remain in full force and effect; if Dublin accepts the bid of the Principal and the Principal within ten days after the awarding of the contract, enters into a proper contract in accordance with the bid, plans, details specifications, and bills of material, which said contract is made a part of this bond the same as though set forth herein.

NOW ALSO, if the Principal shall well and faithfully do and perform the things agreed by Principal to be done and performed according to the terms of said contract; and shall pay all lawful claims of subcontractors, material men, and laborers, for labor performed and materials furnished in the carrying forward, performing, or completing of said contract; we

agreeing and assenting that this undertaking shall be for the benefit of any material man or laborer having a just claim, as well as for Dublin herein; then this obligation shall be void; otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

The Surety hereby stipulates and agrees that no modifications, omissions, or additions, in or to the terms of said contract or in or to the plans or specifications therefore shall in any wise affect the obligations of the Surety on the Surety's bond, and the Surety does hereby waive notice of any such modifications, omissions or additions to the terms of the contract or to the plans or specifications.

Signed this \_\_\_\_\_ day of \_\_\_\_\_, 2013.

**PRINCIPAL:**

\_\_\_\_\_

By: \_\_\_\_\_  
(Signature)

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Address:

\_\_\_\_\_

\_\_\_\_\_

Telephone: ( ) \_\_\_\_\_

**SURETY:**

\_\_\_\_\_

By: \_\_\_\_\_  
(Signature)

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Address:  
\_\_\_\_\_  
\_\_\_\_\_

Telephone: ( ) \_\_\_\_\_

**SURETY AGENT:**

\_\_\_\_\_

By: \_\_\_\_\_  
(Signature)

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Address:  
\_\_\_\_\_  
\_\_\_\_\_

Telephone: ( ) \_\_\_\_\_

**DELINQUENT PERSONAL PROPERTY TAX AFFIDAVIT**

**COFFMAN PARK PHASE I CONSTRUCTION**

STATE OF \_\_\_\_\_  
COUNTY OF \_\_\_\_\_, SS:

I, \_\_\_\_\_ (Affiant),  
\_\_\_\_\_ (Title) of \_\_\_\_\_ (the "Bidder"),  
after being cautioned and sworn, represent to the City of Dublin, Ohio, the following: (check the  
appropriate statement)

At the time the Proposal was submitted, the Bidder was not charged with delinquent personal property taxes on the General Tax Lists of Personal Property of a county in which the City of Dublin, Ohio has territory (Franklin, Delaware, and Union Counties).

**OR**

At the time the Proposal was submitted, the Bidder was charged with delinquent personal property taxes on the General Tax Lists of Personal Property of a county in which the City of Dublin, Ohio has territory (Franklin, Delaware, and Union Counties) and that the amounts of such due and unpaid delinquent taxes, including due and unpaid penalties and interest, are set forth below:

<u>Taxes:</u>	<u>Penalties and Interest:</u>	<u>Counties:</u>
\$ _____	\$ _____	_____
\$ _____	\$ _____	_____
\$ _____	\$ _____	_____

\_\_\_\_\_  
(Signature of Affiant)

\_\_\_\_\_  
(Print Name)

Sworn to and subscribed before me this \_\_\_\_ day of \_\_\_\_\_ 2013.

\_\_\_\_\_  
Notary Public

**NONCOLLUSION AFFIDAVIT**

**COFFMAN PARK PHASE I CONSTRUCTION**

STATE OF \_\_\_\_\_  
COUNTY OF \_\_\_\_\_, SS:

I, \_\_\_\_\_ (Affiant),  
\_\_\_\_\_ (Title) of \_\_\_\_\_ (the  
"Bidder"), after being cautioned and sworn, represent to the City of Dublin, Ohio the following:

1. The bid price contained in the Bidder's Proposal for the Project has been arrived at independently without collusion, consultation, communication, or agreement for the purpose of restricting competition as to any matter relating to such bid price with any other bidder or third party.
2. Unless otherwise required by law, neither the bid price nor the Proposal has been knowingly disclosed by the Bidder and will not knowingly be disclosed by the Bidder prior to the bid opening, directly or indirectly, to any other bidder or to any third party that would have any interest in the bid price.
3. No attempt has been made or will be made by the Bidder to induce any other individual, partnership, or corporation to submit or not to submit a bid for the purpose of restricting competition.

\_\_\_\_\_  
(Signature of Affiant)

\_\_\_\_\_  
(Print Name)

Sworn to and subscribed before me this \_\_\_ day of \_\_\_\_\_, 2013

\_\_\_\_\_  
Notary Public

**AFFIDAVIT OF AUTHORITY**

**COFFMAN PARK PHASE I CONSTRUCTION**

STATE OF \_\_\_\_\_  
COUNTY OF \_\_\_\_\_, SS:

I, \_\_\_\_\_ (Affiant), after being cautioned and sworn, state the following:

1. I am the Secretary of \_\_\_\_\_ (the "Company"), a corporation organized and existing under the laws of the State of \_\_\_\_\_.
2. I am familiar with the records of the Company.
3. \_\_\_\_\_ (name of officer) is authorized to sign the Proposal and to execute a contract on behalf of the Company for the above-referenced project.

\_\_\_\_\_  
(Signature of Affiant)

\_\_\_\_\_  
(Print Name)

Sworn to and subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_, **2013**

\_\_\_\_\_  
Notary Public

**LIST OF SUBCONTRACTORS**  
**Not Applicable \_\_\_\_\_**

**COFFMAN PARK PHASE I CONSTRUCTION**

NOTE: The bidder must perform at least 50% of the total contract cost with its own forces.

Complete the following information for all subcontractors, which will be employed on the Project.

**1. Name of Subcontractor:** \_\_\_\_\_

Federal Identification Number: \_\_\_\_\_

Address: \_\_\_\_\_

Type of Work  
Subcontractor to Provide: \_\_\_\_\_

Approximate Percentage of the Contract  
Cost to be Performed by Subcontractor: \_\_\_\_\_

Experience Record: \_\_\_\_\_

**2. Name of Subcontractor:** \_\_\_\_\_

Federal Identification Number: \_\_\_\_\_

Address: \_\_\_\_\_

Type of Work  
Subcontractor to Provide: \_\_\_\_\_

Approximate Percentage of the Contract  
Cost to be performed by Subcontractor: \_\_\_\_\_

Experience Record: \_\_\_\_\_

**3. Name of Subcontractor:** \_\_\_\_\_

Federal Identification Number: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Type of Work  
Subcontractor to Provide: \_\_\_\_\_

Approximate Percentage of the Contract  
Cost to be performed by Subcontractor: \_\_\_\_\_

Experience Record: \_\_\_\_\_

**4. Name of Subcontractor:** \_\_\_\_\_

Federal Identification Number: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Type of Work  
Subcontractor to Provide: \_\_\_\_\_

Approximate Percentage of the Contract  
Cost to be performed by Subcontractor: \_\_\_\_\_

Experience Record: \_\_\_\_\_

**5. Name of Subcontractor:** \_\_\_\_\_

Federal Identification Number: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Type of Work  
Subcontractor to Provide: \_\_\_\_\_

Approximate Percentage of the Contract  
Cost to be performed by Subcontractor: \_\_\_\_\_

Experience Record: \_\_\_\_\_

## EXPERIENCE RECORD/REFERENCES

### COFFMAN PARK PHASE I CONSTRUCTION

NOTE: Bids from contractors inexperienced in this particular type of work will not be considered.

Complete the following information with respect to previous purchasers.

**1. Name of Person to**

Contact for Reference: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Phone: (     ) \_\_\_\_\_

**2. Name of Person to**

Contact for Reference: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Phone: (     ) \_\_\_\_\_

**3. Name of Person to**

Contact for Reference: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Phone: (     ) \_\_\_\_\_

**SECTION 3**  
**CONTRACT FORMS**

**NOTICE OF INTENT TO AWARD**

**COFFMAN PARK PHASE I CONSTRUCTION**

To: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

You are hereby notified that the City of Dublin, Ohio has accepted the Proposal submitted by you on \_\_\_\_\_, **2013** in response to the Invitation to Bid for the above-referenced project.

Within ten (10) business days from the date of receipt of this Notice of Award, you are required to:

1. Execute an Agreement for Construction.
2. Submit a Performance Bond.
3. Submit a Certificate of Insurance and a copy of an Additional Insured Endorsement.
4. Submit an Affirmative Action Certificate of Compliance.

If you fail to execute the Agreement for construction or provide the required submittals within ten (10) business days from the date of receipt of this Notice of Intent to Award, you or your surety shall be liable to the City of Dublin, Ohio as provided in Ohio Revised Code Section 153.54(G) and the City of Dublin, Ohio may award the contract to the next lowest and best bidder.

You are required to prepare and submit a progress schedule prior to the pre-construction conference to be held on \_\_\_\_\_ **Not Applicable** \_\_\_\_\_

Return an acknowledged copy of this Notice of Intent to Award to:

**Fred Hahn, Director of Parks & Open Space**  
**Parks & Open Space**  
**6555 Shier Rings Road**  
**Dublin, Ohio 43016**

**CITY OF DUBLIN, OHIO**

Date: \_\_\_\_\_

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

**Fred Hahn**  
**Director of Parks & Open Space**

**RECEIPT OF NOTICE OF INTENT TO AWARD**

Receipt of this Notice of Intent to Award is hereby acknowledged this \_\_\_\_ day  
of \_\_\_\_\_, 2013.

Company Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Contract No: \_\_\_\_\_

**STANDARD AGREEMENT  
CITY OF DUBLIN, OHIO**

This Agreement is entered into this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by and between the City of Dublin, Ohio (**DUBLIN**), the Owner, located at 5200 Emerald Parkway, Dublin, Ohio 43017, and the

**SERVICE PROVIDER**

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

For services in connection with:

All materials and labor necessary for demolition of an existing road bed and entry drive; utility burial; grading; construction of three different park bridges; new entry drive with all associated entry drive amenities; shared-use path construction; landscape installation and all other associated site work.

**FOR THE FOLLOWING:**

**COFFMAN PARK PHASE I CONSTRUCTION**

The **ARCHITECT** of the Project is

**MKSK  
462 S LUDLOW ALLEY  
COLUMBUS OH 43215**

**THIS DOCUMENT HAS IMPORTANT LEGAL CONSEQUENCES. CONSULTATION WITH AN ATTORNEY IS ENCOURAGED WITH RESPECT TO ITS EXECUTION, COMPLETION AND MODIFICATION.**

## CONTRACT DOCUMENTS

This Agreement is for performance of a portion of the Work for the Project identified above. All Work by Service Provider shall be performed in accordance with the Contract Documents. The Contract Documents comprise of and include this Agreement, General and Supplemental Conditions, Plans and Specifications, Project Manuals and all amendments thereto. These Contract Documents are hereby specifically incorporated herein as part of this Agreement and shall govern the Service Provider for his portion of the Work related to the Project.

Service Provider shall furnish all materials, supplies, equipment, and other items proper or necessary to perform and complete the Work, including specifically providing all supervision and labor required for the completion of the Work in accordance with the Contract Documents.

Service Provider agrees and acknowledges that it has evaluated and is satisfied with the conditions and limitations under which the Work is to be performed, including, without limitation (i) the location, condition, layout and nature of the Project site and surrounding areas; (ii) generally prevailing weather and climatic conditions; (iii) anticipated labor supply and costs; (iv) availability and cost of materials, tools and equipment; and (v) other similar issues. Service Provider further represents and warrants that it is familiar with the entire Scope of its Work and that the Contract Price includes all of its Work that is specifically included in the Contract Documents or which is reasonably inferable from the Contract Documents.

### 1.4

In the event of inconsistencies within or between parts of the Contract Documents, or between the Contract Documents and applicable standards, codes, and ordinances, Service Provider shall (i) provide the better quality or greater quantity of Work or (ii) comply with the more stringent requirement.

## CONTRACT PRICE

As full compensation for performance of the Agreement, Dublin agrees to pay Service Provider in current funds the Contract Price for the satisfactory performance of the Work, in the manner described below, subject to all applicable provisions of the Agreement (check appropriate box):

- the firm fixed price of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) subject to additions and deductions as provided for in the Contract Documents; and/or
- unit prices in accordance with the attached Schedule of Unit Prices and estimated quantities, which is incorporated herein by reference and identified as Schedule; and/or
- time and material rates and prices in accordance with the attached Schedule of Labor and Material Costs which is incorporated herein by reference and identified as Schedule

## 2.2

The firm fixed-price, unit prices and/or time and material rates and prices are hereinafter referred to as the "Contract Price."

### **SURETY BONDING**

#### **BONDS**

Service Provider shall, if required, furnish to Dublin appropriate surety bonds to secure performance of the Work and to satisfy all Service Provider's payment obligations under the Agreement. The surety bond shall provide that the terms of the Agreement and Contract Documents are incorporated by reference therein. Any bond provided by Service Provider pursuant to this provision is hereby deemed to so incorporate the Contract Documents and it is understood that the surety is accepting each and every responsibility and obligation which Service Provider has assumed toward Dublin under this Agreement and the Contract Documents, including but not limited to liability for indemnity, attorneys' fees and delay damages.

Bond:             Required             Not Required

If a performance or payment bond, or both, are required of the Service Provider under this Agreement, then said bonds shall be in the full amount of the Contract Price, unless otherwise specified herein.

The cost of the bond, if required, is included in the Contract Price.

In the event Service Provider shall fail to provide the required bonds within seven days after date of signature of this Agreement by both Parties, Dublin after giving the Service Provider written notice and opportunity to cure this may terminate this Agreement and enter into a contract for the balance of the Work with another contractor. The Service Provider shall pay all Dublin's costs and expenses incurred by Dublin as a result of said termination.

### **PERFORMANCE OF WORK**

#### **TIME IS OF THE ESSENCE**

It is expressly understood and agreed by and between the Parties that time is of the essence regarding completion of the Work by Service Provider. Service Provider shall undertake all activities necessary for the performance of its Work immediately upon receipt of a letter of intent or notification of the award of this Agreement and shall commence work hereunder so that the entire Project may be completed in accordance with the Project Schedule. Service Provider shall perform, coordinate and schedule its Work so as not to cause any delay or disruption to the Project Schedule, the work of other entities on this Project or the completion date of the Project.

Service Provider acknowledges and agrees that Dublin will incur additional costs, damages, liabilities, lost profits or losses related to loss of use if this Project is not completed in accordance with any milestone or interim dates/deadlines or the substantial or final completion dates on the Project Schedule. As a result, Service Provider shall be liable for and shall reimburse Dublin for any such additional costs, damages, liabilities, lost profits or losses related to loss of use for its failure to meet all milestone, interim, substantial or final completion dates in accordance with the Project Schedule.

### **RELATIONSHIP OF THE PARTIES**

Service Provider accepts the relationship of trust and confidence established by this Agreement to exercise its skill and judgment to further Dublin's interests, and to perform the Work in an expeditious and economical manner consistent with Dublin's interests. Nothing in this Agreement shall be construed to constitute the relationship between Service Provider and Dublin as a partnership, association, or joint venture.

Service Provider shall perform its Work under the general direction of Dublin (and/or Dublin's representative, construction manager, architect, or other duly authorized individual/entity) and in accordance with this Agreement and as reasonably inferable from the Contract Documents as being necessary to produce the intended results as specified hereafter.

### **PROJECT SCHEDULE**

Service Provider agrees to perform its work in accordance with the sequence and schedule for this Project, and with any updates thereto (referred to in this Agreement as the "Project Schedule"). By agreeing to perform its Work in accordance with the Project Schedule, Service Provider has included reasonable allowances for out of sequence work, and weather and unusual or unforeseen delays. If requested by Dublin, Service Provider shall participate and cooperate in the development of the Project Schedule and any revisions thereto.

Service Provider shall continuously monitor the Project Schedule so as to be fully familiar with the timing, phasing and sequence of operations of Service Provider's Work and the other work being performed on the Project. Service Provider shall coordinate its Work with all other work on the Project to avoid conflict or interference with such other work.

If Dublin determines that Service Provider's Work has failed to meet the Project Schedule or any update thereof, Service Provider shall within seventy-two (72) hours of its receipt of written notice from Dublin prepare and submit a recovery schedule relating to its activities. Service Provider agrees that it shall at its sole cost and expense take such measures as are necessary, including adding manpower and/or equipment and/or working overtime to accelerate its activities to conform to the Project Schedule or any update thereto. Should Service Provider fail to undertake such measures Dublin shall have the right to supplement Service Provider's forces and/or equipment and back-charge Service Provider for the costs so incurred, together with a markup of ten percent (10%) for overhead and profit.

### **PERFORMANCE**

Service Provider shall use its best care, skill, and diligence in supervising, directing and

performing, the Work. Service Provider shall have sole responsibility for the performance of the Work, including the methods, techniques and means for completing all portions of the Work. Service Provider has the responsibility to ensure that all material suppliers and subcontractors adhere to the Contract Documents, and that they order materials in time, taking into account the current market regarding both pricing and delivery conditions.

#### **EXTRAORDINARY MEASURES BY DUBLIN**

If the performance of the Work, as of a milestone or interim date/deadline on the Project Schedule, has not progressed or reached the level of completion required by the Contract Documents, Dublin shall have the right to order Service Provider to take corrective measures necessary to expedite the progress of the Work, including, without limitation, (i) working additional shifts or overtime, (ii) supplying additional manpower, equipment, and facilities, and (iii) other similar measures (hereinafter referred to collectively as "Extraordinary Measures"). Such Extraordinary measures shall continue until the progress of the Work complies with the stage of completion required by the Contract Documents. Dublin's right to require Extraordinary Measures is solely for the purpose of ensuring the Contractor's compliance with the Project Schedule. Service Provider shall not be entitled to an adjustment in the Contract Price in connection with Extraordinary Measures required by Dublin.

#### **INTERPRETATION OF AGREEMENT INCONSISTENCIES AND OMISSIONS**

Should inconsistencies or omissions appear in the Contract Documents, it shall be the duty of Service Provider to so notify Dublin in writing within three (3) working days of Service Provider's discovery thereof. Upon receipt of said notice, Dublin shall instruct the Service Provider as to the measures to be taken and Service Provider shall comply with Dublin's instructions. If Service Provider performs work knowing it to be contrary to any applicable laws, statues, ordinances, building codes, rules or regulations without notice to Dublin and advance approval by appropriate authorities, then Service Provider shall assume full responsibility for such work and shall bear all associated costs, charges, fees and expenses necessarily incurred to remedy the situation.

#### **LAW AND EFFECT**

The performance of this Agreement and all of its terms and conditions shall be interpreted and governed by the laws of the State of Ohio, unless otherwise noted herein.

#### **SEVERABILITY**

The partial or complete invalidity of anyone or more provisions of this Agreement shall not affect the validity or continuing force and effect of any other provision.

## **ENTIRE AGREEMENT**

This Agreement is solely for the benefit of the signatories hereto and represents the entire and integrated agreement between the Parties hereto and, unless specifically referenced herein, supersedes any prior negotiations, representations, or agreements, either written or oral.

## **DUBLIN'S OBLIGATIONS**

### **FINANCING INFORMATION**

Upon written request from Service Provider, Dublin agrees to furnish reasonable evidence that financial arrangements have been made or otherwise exist to fulfill Dublin's payment obligations under the Agreement.

### **PROJECT FEES**

Except for permits and fees, which are the responsibility of Service Provider, Dublin agrees to secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

### **TIMELY COMMUNICATIONS**

Dublin, with reasonable promptness, shall transmit all submittals, transmittals, and written approvals relating to the Work. Any other information or services relevant to service Provider's performance of the Work under Dublin's control shall be furnished by Dublin after receipt from Service Provider of a written request for such information or services.

## **SERVICE PROVIDER'S OBLIGATIONS**

### **RESPONSIBILITIES**

Service Provider shall furnish all of the labor, materials, equipment, and services, including, but not limited to, competent supervision, shop drawings, samples, tools, and equipment as may be necessary for the proper performance of the Work in accordance with and as reasonably inferable from the Contract Documents.

### **SUBCONTRACTING**

Service Provider shall provide to Dublin written notice that it intends to subcontract any of the Work covered by the scope of the Contract Documents to a third party. Dublin shall have the right to approve any and all such subcontracts and Service Provider shall not allow any work to be performed by any subcontractor that has not been approved in writing by Dublin. Service Provider agrees that it shall not be entitled to any additional compensation in the event that Dublin does not approve a proposed subcontractor. Service Provider further agrees to incorporate the terms and conditions of this Agreement into every subcontract.

In the event that Service Provider has work performed by a subcontractor who has not been approved by Dublin, Dublin shall have the right to terminate this Agreement or supplement Service Provider's Work as necessary to have the same completed in accordance with the Contract Documents. Any and all costs incurred by Dublin as a result of such action shall be the responsibility of Service Provider and Dublin may back-charge Service Provider therefor.

### **SHOP DRAWINGS SAMPLES, PRODUCT DATA AND MANUFACTURERS' LITERATURE**

To the extent applicable or required, Service Provider shall promptly submit to Dublin for approval all shop drawings, samples, product data, manufacturers' literature and similar submittals as required by the Contract Documents or as required herein. Service Provider shall prepare and deliver its submittals to Dublin in such time and sequence so as not to delay the Project. The approval of any Service Provider submittal shall not be deemed to authorize deviations, substitutions or changes in the requirements of the Contract Documents unless express written approval is obtained from Dublin authorizing such deviation, substitution or change.

### **COORDINATION AND COOPERATION**

Service Provider shall:

- (a) cooperate with Dublin and all others whose work may interfere or interface with the Work;
- (b) before proceeding with the Work under this Agreement, accurately check all previous and surrounding work done by other entities, determine its correctness, specifically note and immediately advise Dublin of any interference or discrepancies with the Work. Failure of Service Provider to detect and report discrepancies shall relieve Dublin of any and all Service Provider claims to recover cost, expense or damage resulting there from; and
- (c) participate in the preparation of coordination drawings and work schedules involving the Work, to the extent required or requested by Dublin.

### **AUTHORIZED REPRESENTATIVE**

Unless otherwise stated in writing by Dublin, Service Provider shall have a competent foreman, superintendent, or representative, satisfactory to Dublin, on the Project at all times with authority to act on behalf of Service Provider with respect to the work and for the purpose of receiving notices, orders and instructions. Service Provider shall identify the person or persons so authorized to act on its behalf, in writing, before commencing work on the Project. All decisions, agreements or representations made by Service Provider's designated representative for this Project, whether oral or written, shall be binding on Service Provider.

## **TESTS AND INSPECTIONS**

Service Provider shall schedule all required tests, approvals and inspections of the Work or portions thereof at appropriate times so as not to delay the progress of the Work or the Project. Service Provider shall bear all expenses associated with tests, inspections and approvals required of the Service Provider by the Contract Documents, unless otherwise agreed to.

## **WORKMANSHIP**

Every part of the Work shall be executed in accordance with the Contract Documents in a workmanlike and professional manner. All materials used in the Work shall be furnished in sufficient quantities to facilitate the proper and expeditious execution of the Work, and shall be new.

## **MATERIALS FURNISHED BY OTHERS**

In the event the scope of the Work includes installation of materials or equipment furnished by others, it shall be the responsibility of Service Provider to examine those items, store and install the items, unless otherwise provided for in the Contract Documents, with such skill and care as to ensure a satisfactory and proper installation. Loss or damage due to acts of Service Provider shall be deducted from any amounts due or to become due Service Provider under this Agreement.

## **SUBSTITUTIONS**

No substitutions shall be made in the Work unless permitted in the Contract Documents and then only upon the Service Provider first receiving all approvals required under the Contract Documents for substitutions.

## **WARRANTY**

Service Provider warrants and guarantees that its Work conforms in all respects to the Contract Documents and that it is free from defects in material and/or workmanship. Service Provider hereby warrants and guarantees its work to be free of defects in material or workmanship for a period of one year from the date of substantial completion, or such longer period as may be required by the Contract Documents or provided by any manufacturer's warranty applicable thereto. Service Provider further agrees to furnish any special warranties required by the Contract Documents relating to its Work prior to and as a condition of final payment. Service Provider agrees to perform any remedial or corrective work necessary to satisfy its warranty obligations without cost to Dublin.

## **UNCOVERING/CORRECTION OF WORK**

If directed in writing by Dublin, Service Provider must uncover any portion of the Work, which has been covered by the Service Provider in violation of the Contract Documents or contrary to a directive issued by Dublin. Upon receipt of a written directive from Dublin, Service Provider shall uncover such Work for Dublin's inspection and then

restore the uncovered Work to its original condition at the Service Provider's time and expense.

Dublin may direct Service Provider to uncover portions of the Work for inspection by Dublin at any time. Service Provider is required to uncover such Work whether or not Dublin had requested to inspect the Work prior to it being covered. This Agreement shall be adjusted by Change Order for the cost and time of uncovering and restoring any Work which is uncovered for inspection and proves to be installed in accordance with the Contract Documents, provided Dublin had not previously instructed the Service Provider to leave the Work uncovered. If Service Provider uncovers Work pursuant to a directive issued by Dublin, and such Work upon inspection does not comply with the Contract Documents, then Service Provider shall be responsible for all costs and time of uncovering, correcting and restoring the Work so as to make it conform to the Contract Documents.

Service Provider is required to correct in a timely fashion any Work rejected by Dublin for failing to comply with the Contract Documents whether observed prior to the commencement of the warranty period(s) or during the warranty period(s). Service Provider shall correct at its own cost and time and bear the expense of additional services for any nonconforming Work for which it is responsible.

## **CLEANUP**

Service Provider shall at all times: (a) keep the Project and premises free from all rubbish and debris resulting from the Work; (b) broom clean each of its work areas prior to discontinuing work each day; and (c) clean up to the satisfaction of Dublin, including, but not limited to, dirt, grease, machine marks, etc., from walks, ceilings, floors, fixtures, etc. deposited or placed by or resulting from its Work.

If Service Provider fails to immediately commence compliance with cleanup duties within twenty-four (24) hours after written notification from Dublin of non-compliance, Dublin may implement appropriate cleanup measures without further notice and deduct the cost thereof from any amounts due or to become due to Service Provider under this Agreement.

## **SAFETY OF PERSONS AND PROPERTY**

Service Provider is responsible for the health and safety of its employees, agents, subcontractors, and other persons on and adjacent to the Project site. Service Provider, however, shall take all necessary and prudent safety precautions with respect to its Work and shall comply with all safety programs and measures, and with all applicable laws, ordinances, rules, regulations and orders of any public authority for the safety of persons or property, including, but not limited to, OSHA. Service Provider shall also coordinate work activities with Dublin, other contractors or entities, or any other parties involved with this Project to reduce the risk of an accident or injury occurring.

Service Provider shall protect any of its Work and materials susceptible to damage from moisture or hosting of mold at all times. Service Provider agrees to indemnify, hold harmless and defend

Dublin from any and all claims, losses, costs and expenses (including, but not limited to, all attorneys' and consultants' fees) relating to or arising from mold resulting from Service Provider's Work.

## **INSURANCE**

### **SERVICE PROVIDER'S INSURANCE**

Prior to start of the Work, Service Provider shall procure and maintain in full force and effect Workers' Compensation Insurance, Employer's Liability Insurance, Comprehensive or Commercial General Liability Insurance on an occurrence basis, and any additional insurance required of Service Provider. Service Provider shall deliver all certificates of insurance to Dublin, or upon request, copies of the actual insurance policies. All liability insurance policies described above shall be written on a comprehensive form and shall conform to the laws of the State of Ohio. Before any of the Service Provider's employees perform any work on the Project, Service Provider shall furnish Dublin with the Insurance Company's certificate that such coverage has been provided and each certificate shall contain the required limits. Dublin shall be specifically named and included as an additional insured party under all coverage required by this Agreement and coverage for such additional insured shall also be amended to include a waiver of subrogation and primary and noncontributing endorsements in favor of the additional insured.

The types of insurance, and minimum amount of limits, required hereunder are:

- (A) Workers' Compensation Insurance coverage: statutory requirements in the State of Ohio.
- (B) Employers Liability Insurance with limits of not less than \$1,000,000 to anyone person: USL&H; FELA; Jones Act; and, Continental Shelf Act Endorsements, if applicable.
- (C) Commercial General Liability Insurance, written on an occurrence form:
  - Standard Limits
  - Excess Liability Policy, if applicable: \$\_\_\_\_,000,000.
  - Professional Liability, if applicable, \$1,000,000 Each Occurrence, with not less than a Five Year Completed Operations period if claims-made coverage.
  - Other policies.

### **NUMBER OF POLICIES**

Commercial General Liability insurance and other liability insurance may be arranged under a single policy for the full limits required or by a combination of underlying policies with the balance provided by an Excess or Umbrella Liability Policy. The Umbrella Liability coverage must be as broad or broader than the Primary Insurance Policies.

## **PROPERTY INSURANCE**

Service Provider is responsible to provide insurance coverage for tools, equipment or personal belongings that are owned or leased by the Service Provider or its employees at Service Provider's own expense. Service Provider accepts and shall bear the risk of loss for its property, material, or equipment, which is stored on-site and off-site.

## **SUBROGATION**

Service Provider on behalf of itself, its insurers, successors and assigns does hereby waive any and all rights of subrogation against Dublin relating to or arising from any loss or damage which is within any insurance coverage of Service Provider, regardless of whether a claim has been submitted to or denied by the insurer.

## **INDEMNIFICATION AND DUTY TO DEFEND**

Except to the extent expressly prohibited by statute, Service Provider agrees to fully indemnify and hold harmless Dublin and its elected officials, agents, officers, representatives, attorneys, employees, volunteers, indemnities, independent contractors and invitees from and against any and all claims, causes of action, amounts, damages, demands, expenses, judgments, liabilities, losses, obligations, proceedings and costs, including actual attorneys' fees, expert witness fees and costs incurred, that in whole or in part, arise out of, involve, result from, relate to or are alleged to have been caused by:

- (a) The performance of any aspect of the Work by Service Provider or any of its subcontractors, independent contractors, suppliers, manufacturers, materialmen or persons or entities for whose acts Service Provider is or may be liable and/or their respective agents and/or employees;
- (b) Act(s), failure(s) to act, omission(s) or negligence of or by Service Provider or any of its subcontractors, suppliers, manufacturers, materialmen or persons or entities for whose acts Service Provider is or may be liable and/or any of their respective agents and/or employees.
- (c) Injury or death to persons or damage to property which arises out of, involves, results from, relates to or is caused by, in whole or in part, any action(s), inaction(s) and/or negligence of or by Service Provider or any of its subcontractors, independent contractors, suppliers, manufacturers, materialmen or persons or entities for whose acts Service Provider is or may be liable and/or any of their respective agents and/or employees.
- (d) The failure of Service Provider to pay its subcontractors, suppliers, materialmen, laborers, union fringe benefits or any other obligation arising in the performance of the Work.

This indemnification provision shall not be construed to negate, abridge or reduce any other rights of Dublin and its elected officials, agents, officers, representatives, attorneys, employees, volunteers, indemnities, independent contractors and invitees.

In the event that any such claims, loss, cost, expense, liability, damage or other injury arise or are made or threatened against any indemnity hereunder, Dublin shall have the right to withhold any payments due or to become due to Service Provider an amount sufficient in its judgment and sole discretion to protect and indemnify in accordance with this provision against any and all such claims, loss, damage, cost and expense.

All indemnity obligations set forth in this Agreement shall survive the termination of this Agreement or the completion of Service Provider's Work.

## **CHANGES, CLAIMS AND DELAYS**

### **CHANGES**

#### **Change to Agreement**

Without invalidating this Agreement, Dublin may change, add to or reduce the Work to be performed hereunder. Any such change may be authorized as set forth herein.

#### **Change Order**

A Change Order is a document prepared by Dublin and signed by Service Provider stating their agreement upon the change in the scope of the Work, adjustment in the Contract Price and/or to the Project Schedule.

#### **Adjustment in Contract Price**

Service Provider shall not be entitled to receive compensation for extra work, materials or changes of any kind regardless of whether ordered by Dublin or Dublin's Representative, unless a written Change Order has been previously issued and signed by Dublin. If a change was ordered by Dublin or Dublin's Representative, and Service Provider performed but did not receive a written Change Order, Service Provider shall be deemed to have waived any claim for extra compensation, including anything related to schedule impacts or lost productivity, regardless of any written or verbal protests or claims by Service Provider. Dublin's issuance of a signed, written Change Order shall be deemed and construed as a condition precedent to Service Provider's filing of a valid claim for extra compensation as a result of Service Provider's performance of any work not originally included as part of the original scope of Work. If a Change Order requires an adjustment in the Contract Price, the adjustment shall be established by one of the following methods:

- (a) mutual agreement on a lump sum, which shall be supported by sufficient information submitted by Service Provider to substantiate the amount, including specifically a labor, material, equipment and Service Provider's cost breakdown;
- (b) unit prices already established in the Agreement or if not established by the Agreement then established by mutual agreement for the adjustment;
- (c) on a time and material basis or, if none, then as otherwise allowed by the Contract Documents, or, if none, as jointly acceptable.

(d) for overtime work, Service Provider shall only be entitled to recover the premium time differential without mark-up of any kind.

Agreement on any Change Order shall constitute a final settlement, and full accord and satisfaction, of all matters relating to the change in the Work that is the subject of the Change Order, including, but not limited to, the cumulative effect on the Project of all change orders issued to the date thereof, all direct and indirect costs, home office overhead and any and all adjustments to the Contract Price or Project Schedule.

## **CLAIMS**

### **Claim**

A claim is a demand or assertion made in writing by Dublin or Service Provider seeking an adjustment to the Contract Price and/or Project Schedule, an adjustment or interpretation of the Agreement's terms, or other relief arising under or relating to this Agreement, including the resolution of any matters in dispute between Dublin and Service Provider in connection with the Project.

### **Timing of Claims**

Claims by Service Provider must be made within 21 days after occurrence of the event giving rise to such Claim. Claims must be initiated by written notice to Dublin and must be submitted through the "Statement of Claim" Form attached As Exhibit A to this Agreement. Any submitted "Statement of Claim" Forms must be complete, accurate and contain all information requested by the "Statement of Claim" Form. Failure by Service Provider to present written claims within 21 days of the event giving rise to the claim through the "Statement of Claim" shall constitute an express waiver of any rights to additional time, money or other relief.

### **Claim Documentation**

All Claims presented or submitted by Service Provider shall include all supporting documentation and information to allow Dublin to evaluate the Claim. Dublin may request any additional documentation or information from Service Provider (whether maintained in any form or medium) to assist in assessing and evaluating Service Provider's Claim, and Service Provider agrees to provide the same.

Within ten (10) days of its receipt of a written request, Service Provider shall make available to Dublin or Dublin's Representative any books, records or other documents or information in its possession, custody or control relating to any Claim. Service Provider shall also require its subcontractors and suppliers, regardless of tier, to do likewise.

## **DELAYS/TIME IMPACT**

Should Service Provider delay the progress of the Work so as to cause Dublin to suffer or become liable for any damages, Service Provider agrees to pay to Dublin the full amount of any and all such damages. Such damages, at Dublin's option, may be deducted from any payments due, or which become due, under the Agreement. Nothing in this paragraph shall limit Dublin's right to claim all actual damages sustained by it as a result

of Service Provider's delay. In addition, Dublin may terminate this Agreement for default as provided in Article 13 herein.

Dublin shall have the right, at any time, to delay or suspend the start or prosecution of the whole or any part of the Work under this Agreement, or to vary the sequence of performance thereof. Progress schedules may from time to time be modified to conform to contract completion requirements.

Dublin shall not be liable to Service Provider for delay to Service Provider's Work by reason of fire or other casualty; or on account of riots or of strikes, or other combined action of the workmen or other persons; or on account of any acts of God; or any other cause, whether foreseen or unforeseen, beyond Dublin's control.

All schedules incorporated into the Contract Documents or provided during the course of the performance of the Work are provided for the Service Provider's convenience. Dublin does not warrant or guarantee such Schedule(s) and Service Provider should not rely upon the sequence or duration of activities as set forth therein for any purpose, including the pricing of the Work. Service Provider specifically acknowledges that the sequence and duration of activities set forth in the Schedule(s) typically change on projects of this size, nature and complexity, and that they are likely to change on this Project. Dublin shall have the right to determine and, if necessary, change the time, order and priority in which the various portions of the Work is to be performed and all other matters relative to the timely and orderly conduct of the Work.

## **PAYMENT**

### **GENERAL PROVISIONS**

#### **Schedule of Values**

If the Agreement is not a unit price agreement, then the Service Provider shall prepare and submit to the Contractor prior to the due date for the submission of Service Provider's first application for payment, a Schedule of Values apportioned to the various divisions or phases of the Work. The Schedule of Values shall include line items for each portion of the Work. Each line item contained in the Schedule of Values shall be assigned an appropriate monetary price such that the total of all such items shall equal the Contract Price. The Schedule of Values shall be prepared in such detail as may be required by Dublin.

#### **Payment Use and Verification**

Service Provider is required to pay for all labor, materials, and equipment used in the performance of the Work. Reasonable evidence, satisfactory to Dublin, may be required to show that all obligations relating to Subcontract Work are current before releasing any payment due to Service Provider. If required by Dublin, before final payment is made for the Work, Service Provider shall submit evidence satisfactory to Dublin that all payrolls, bills for materials and equipment, and all known indebtedness connected with the Agreement and the Work, have been paid or otherwise satisfied.

## **Taxes**

Service Provider agrees to withhold all municipal income taxes due or payable under the provisions of Chapter 181 of the Codified Ordinances of Dublin, Ohio, for wages, salaries and commissions paid to its employees and further agrees to require that all of its subcontractors shall also withhold any such municipal income taxes due under such chapter for any work completed or services performed related to this Project.

### **Payment Not Acceptance**

Payment to Service Provider by Dublin does not constitute or imply acceptance of any portion of the Work.

## **PROGRESS PAYMENTS**

### **Applications**

Service Provider's Applications for Payment shall, unless otherwise required by Dublin or the Contract Documents, be submitted on the AIA 0702 form and shall be itemized and supported by the Service Provider's Schedule of Values, unit prices, and any other substantiating data as required by Dublin.

### **Partial Lien Waivers and Affidavits**

Service Provider shall obtain from all of its subcontractors, vendors and suppliers, regardless of tier, a waiver of claim under the relevant mechanic's lien laws for the Project of all claim or lien rights for the amounts for which they have received payments with respect to the Project in the form attached hereto as Exhibit B to the Agreement.

### **Rejection of Service Provider's Payment Application**

Dublin may reject a Service Provider's payment application or nullify a previously approved payment application, in whole or in part, as may reasonably be necessary to protect Dublin from loss or damage based upon:

- (a) Service Provider's repeated failure to perform the Work as required by the Contract Documents;
- (b) loss or damage arising out of or relating to the Contract Documents and caused by Service Provider to Dublin;
- (c) Service Provider's failure to properly pay for labor, materials, equipment or supplies furnished in connection with the Work;
- (d) rejected, nonconforming or defective Work, which has not been corrected in a timely fashion;
- (e) reasonable evidence of delay in performance of the Work such that the Work will not be completed in accordance with the Project Schedule, and that the unpaid balance of the Contract Price is not sufficient to offset the additional costs or damages that may be incurred by Dublin as a result of the anticipated delay caused by Service Provider;

- (f) reasonable evidence demonstrating that the unpaid balance of the Contract Price is insufficient to cover the cost to complete the Work; or
- (g) third party claims involving Service Provider or reasonable evidence demonstrating that third party claims are likely to be filed unless and until Service Provider furnishes Dublin with adequate security in the form of a surety bond, letter of credit or other collateral or commitment which are sufficient to discharge such claims if established.

### **Payment Amount**

Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

1. The portion of the Contract Price properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Price allocated to that portion of the Work in the schedule of values, less retainage of ten percent (10%). Pending final determination of cost to Dublin of changes in the Work, amounts not in dispute shall be included and paid upon approval and payment by Dublin.
2. The progress payment amount shall be further modified under the following circumstance: (a) Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Price, less such amounts as Dublin shall determine for incomplete Work, retainage applicable to such Work and unsettled claims.
3. Dublin shall not make advance payments to Service Provider for materials or equipment, which have not been delivered and stored at the site unless the Contract Documents allow otherwise.

### **Time of Application**

For each progress payment period, Service Provider shall submit its progress payment application to Dublin for the Work performed to date no later than the fifth day of each month, unless otherwise agreed.

### **Stored Materials and Equipment**

To the extent permitted by the Contract Documents, applications for payment may include materials and equipment not incorporated into the Work. Approval of payment applications for materials and equipment stored on or off the site shall be conditioned on submission by Service Provider of bills of sale and applicable insurance or such other procedures satisfactory to Dublin to establish the proper valuation of the stored materials and equipment.

### **Time of Payment**

Dublin shall make progress payments for all undisputed amounts to Service Provider for satisfactory performance of the Work no later than twenty (20) calendar days after receipt of Service Provider's complete payment application.

## **FINAL PAYMENT**

### **Application**

Service Provider may submit its final payment application to Dublin upon acceptance of the Work by Dublin, and upon Service Provider furnishing evidence of fulfillment of the Service Provider's obligations in accordance with the Agreement.

### **Requirements**

When submitting its final payment application, Service Provider shall furnish the following to Dublin:

- (a) the Final Waiver of Lien form attached hereto as Exhibit C. Such form shall be in the amount of the application for final payment and be accompanied by the same Final Lien Waiver form executed by Service Provider's subcontractors, materialmen and suppliers;
- (b) an affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which Dublin might in any way be liable, have been paid or otherwise satisfied;
- (c) consent of Service Provider's surety to final payment, if applicable and required;
- (d) satisfaction of closeout procedures required by Dublin;
- (e) current certificates of insurance establishing that all insurance coverage required by the Agreement shall remain in effect through the final acceptance of the Project by Dublin, or such later date as may be required by the Contract Documents, and that such coverage will not be materially altered, expire or terminate without thirty (30) days prior certified mail notice thereof; and
- (f) other data if required by Dublin, such as receipts, releases, and waivers of liens effective upon payment. Acceptance of final payment by Service Provider shall constitute a waiver of any and all claims (whether known or unknown) by Service Provider except those previously made in writing and identified by Service Provider as unsettled at the time of final application for payment.

### **Time of Payment**

Final payment of the undisputed balance due of the Contract Price shall be made to Service Provider within ten (10) calendar days after receipt of all information required under Section 12.3 of this Agreement.

## **DISPUTE RESOLUTION**

### **INITIAL DISPUTE RESOLUTION**

If a dispute arises out of, or relates to this Subcontract or the alleged breach thereof, the parties shall endeavor to settle the dispute first through direct discussions by and between the parties respective Project Managers or principals.

If the dispute cannot be settled through direct discussions, the parties shall then endeavor to settle the dispute by mediation in accordance with the Construction Industry Mediation Rules of the American Arbitration Association. Notice of demand for mediation shall be filed in writing with the other party to this Agreement with the American Arbitration Association. The demand for mediation shall be made within a reasonable time after written notice of the claim, dispute or other matter in question has been given, but in no event shall it be made when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statutes of limitation. The location of the proceedings shall be in Dublin, Ohio, unless the parties agree otherwise. The parties shall share all costs of the mediation equally.

### **ARBITRATION/LITIGATION**

In the event that a dispute is not resolved as set forth above, Dublin shall have the right, in its sole and exclusive discretion, to elect whether the dispute will then be decided by arbitration or litigation. In the event that Dublin should elect to resolve the dispute through Arbitration it shall so notify Service Provider in writing. The parties will then meet or confer to reach agreement on an arbitrator. The arbitration shall be conducted in general conformity with the Construction Industry Rules of the American Arbitration Association, however, the American Arbitration Association shall not administer the arbitration. The locale of any arbitration hearing shall be Dublin, Ohio. Any award rendered in the arbitration shall be final and binding upon the parties and may be enforced in any court of competent jurisdiction.

In the event that Contractor should elect to resolve the dispute through litigation jurisdiction thereof shall reside exclusively with the Common Pleas court of Franklin County, Ohio.

### **PREVAILING PARTY**

In the event of any arbitration, the prevailing party shall be awarded its share of the arbitration costs and arbitrator compensation. For the purpose of the application of this provision, the arbitrator(s) shall determine the prevailing party as follows: the prevailing party shall be that party who's last written settlement position (demand/offer) made before the commencement of the arbitration hearing(s) is closest to the final award rendered by the arbitrator(s). In order to be considered for the purpose of this provision, any settlement position (demand/offer) must be in writing and must have been delivered by certified mail to the other party. It is the intent of this provision for the arbitrator(s) to identify the true party prevailing in any arbitration proceeding. To that end, in the event that a party seeking relief has not taken a settlement position, i.e. the claimant, the

arbitrator(s) shall consider the settlement demand to be the full relief requested in the arbitration demand. In the event that the respondent has not taken a settlement position,

the arbitrator(s) shall consider the offer to be a complete rejection of the relief requested by the claimant. Where there are mixed claims and counterclaims, the determination of the prevailing party shall be within the discretion of the arbitrator(s) consistent with the intent of this provision."

## **WORK CONTINUATION AND PAYMENT**

Service Provider shall carry on the Work and maintain the Project Schedule pending final resolution of a Claim including mediation, arbitration or litigation, unless the Agreement has been terminated or the Work suspended as provided for in the Agreement, or the parties otherwise agree in writing to a partial or total suspension of the Work. If Service Provider is continuing to perform in accordance with the Agreement, Dublin shall continue to make undisputed payments as required by the Agreement.

## **RECOURSE BY DUBLIN FAILURE OF PERFORMANCE**

### **Notice to Cure**

If Service Provider refuses or fails to supply enough properly skilled workers, proper materials, or maintain the Project Schedule, or it fails to make prompt payment to its workers, subcontractors or suppliers, disregards laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, or otherwise is guilty of a breach of a provision of this Agreement, Service Provider may be deemed in default of this Agreement. If Service Provider fails within three (3) working days after written notification to commence and continue satisfactory correction of such default, with diligence and promptness, then Dublin without prejudice to any other rights or remedies, shall have the right to any or all of the following remedies:

- (a) supply such number of workers and quantity of materials, equipment and other facilities as Dublin deems necessary for the satisfactory correction of such default, which Service Provider has failed to complete or perform after the aforesaid notice, and charge the cost thereof to Service Provider, who shall be liable for the payment of same including reasonable overhead and profit;
- (b) contract with one or more additional contractors, to perform such part of the Work, as Dublin shall determine will provide the most expeditious correction of the default and charge the cost thereof to Service Provider;
- (c) without further notice to Service Provider, withhold payment of monies due the Service Provider in accordance with this Agreement; and
- (d) in the event of an emergency affecting the safety of persons or property (as determined in Dublin's sole discretion), Dublin may correct such default, without first giving three (3) working days' written notice to Service Provider, but shall

give prompt written notice of such action to Service Provider, and charge the cost thereof to the Service Provider.

Service Provider agrees to indemnify and hold Dublin harmless from and against any and all damage, loss, cost or expense, including the actual attorneys' fees incurred, arising from or relating to the default of Service Provider, regardless of whether Service Provider cures the default or is ultimately determined not to have been in default of its obligations under this Agreement, in which event the termination shall be deemed to have been a termination for Dublin's convenience.

### **Termination by Dublin**

#### Termination for Default/Cause

If Service Provider fails to commence and satisfactorily continue correction of a default within three (3) working days after written notification from Dublin, then the Agreement may be terminated and Dublin may use any materials, implements, equipment, appliances or tools furnished by or belonging to Service Provider to complete the Work. Dublin shall issue a written notice of termination to Service Provider at the time the Agreement is terminated.

Dublin may also furnish those materials, equipment, and/or employ such workers or subcontractors, as Dublin deems necessary to maintain the orderly progress of the Work. Service Provider hereby consents to the assignment of its subcontracts or agreements which Dublin, in its sole discretion, deems necessary for the orderly progress of the Work, immediately upon the issuance of a determination of default.

All costs incurred by Dublin in performing the Work, shall be deducted from any monies due or to become due Service Provider under this Agreement. Service Provider shall be liable for the payment of any amount by which such expense may exceed the unpaid balance of the Contract Price.

#### Termination for Convenience

Dublin shall have the right to terminate this Agreement for its convenience by providing Service Provider with written notice thereof. Upon Service Provider's receipt of such notification it shall immediately cease work on the Project and take all steps reasonably available to minimize the cost of termination. In the event of such termination, Service Provider shall be entitled to receive as full and complete compensation the value of Work that is properly completed up to the date of termination as identified on the schedule of values, the cost of any stored material not previously paid for or incorporated in the Work which can not be returned or restocked, and reasonable direct costs of demobilization. Service Provider shall not be entitled to compensation for any field or home office overhead or any profit on work not performed.

In the event that any court or arbitration panel should determine that a termination of Service Provider by Contractor for cause was a breach of the Agreement, any such termination shall immediately be converted to a termination for convenience and Service Provider's damages shall be so calculated.

### **Use of Service Provider's Equipment**

If Dublin performs work under this Article, or subcontracts such work to be so performed, Dublin and/or the persons to whom work has been subcontracted shall have the right to take and use any materials, implements, equipment, appliances or tools furnished by, belonging or delivered to Service Provider and located at the Project for the purpose of completing any remaining Work. Immediately upon completion of the Work, any remaining materials, implements, equipment, appliances or tools not consumed or incorporated in performance of the Work, and furnished by, belonging to, or delivered to the Project by or on behalf of Service Provider, shall be returned to Service Provider in substantially the same condition as when they were taken, normal wear and tear excepted.

### **BANKRUPTCY**

#### **Termination Absent Cure**

Should there be filed by or against Service Provider a petition in bankruptcy, or for a reorganization, or should Service Provider become insolvent or be adjudicated as bankrupt or go into receivership, liquidation or dissolution, either voluntarily, involuntarily or under court order, or make a general assignment for the benefit of creditors, or otherwise acknowledge insolvency, then in any such event, each of which shall constitute a default hereunder on the Service Provider's part, Dublin shall have the right, in addition to any other rights and remedies provided by this Agreement, the Contract Documents or by law, to proceed in accordance with the provisions of Article 14 of this Agreement.

#### **Interim Remedies**

If Service Provider is not performing in accordance with the Project Schedule at the time a petition of bankruptcy is filed, or at any subsequent time, Dublin may avail itself of such remedies under this Article as are reasonably necessary to maintain the Project Schedule.

### **EQUAL OPPORTUNITY EMPLOYMENT**

Service Provider shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, age or national origin. Service Provider shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, age or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Service Provider agrees to post in conspicuous places, available to employees and applicants for employment, notices, which may be provided by Dublin setting forth the provisions of this equal opportunity pledge and commitment.

Service Provider shall comply with all provisions of the DPW Regulation on EEO, and the implementing rules, regulations and applicable orders of the State Equal Employment Opportunity Coordinator.

**DUBLIN/OWNER:**

**SERVICE PROVIDER:**

CITY OF DUBLIN, OHIO

\_\_\_\_\_

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

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

Its: \_\_\_\_\_

Its: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

**APPROVED AS TO FORM:**

\_\_\_\_\_  
Law Director

Date: \_\_\_\_\_

## PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned (the "Principal") and \_\_\_\_\_ (the "Surety"), are hereby held and firmly bound unto the City of Dublin, Ohio ("Dublin") in an amount not to exceed one hundred percent (100%) of the agreed contract amount for the payment of which well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

THE CONDITION OF THE ABOVE OBLIGATION is such, that whereas the Principal did on this \_\_\_\_ day of \_\_\_\_\_, 20 \_\_, enter into a contract with Dublin which said contract is made a part of this bond the same as though set forth herein;

NOW, if the Principal shall well and faithfully do and perform the things agreed by the Principal to be done and performed according to the terms of said contract; and shall pay all lawful claims of subcontractors, material men and laborers, for labor performed and materials furnished in the carrying forward, performing or completing of said contract; we agreeing and assenting that this undertaking shall be for the benefit of any material man or laborer having a just claim, as well as for Dublin; then this obligation shall be void; otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety of any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

The Surety for value received, hereby stipulates and agrees that no modifications, omissions, or additions in or to the terms of the contract or to the work to be performed there under or in or to the plans or specifications therefore shall in any wise affect the Surety's obligations on this bond.

Signed this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

**PRINCIPAL:** \_\_\_\_\_

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

*(Signature)*

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Telephone: (    ) \_\_\_\_\_

**SURETY:** \_\_\_\_\_

By: \_\_\_\_\_  
(*Signature*)

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone: (    ) \_\_\_\_\_

**SURETY AGENT:** \_\_\_\_\_

By: \_\_\_\_\_  
(*Signature*)

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone: (    ) \_\_\_\_\_

**CERTIFICATION OF FUNDS**

**COFFMAN PARK PHASE I CONSTRUCTION**

I, Angel L. Mumma, Director of Finance of the City of Dublin, Ohio, certify that:

1. The Council of the City of Dublin, Ohio has appropriated \$\_\_\_\_\_ for the above-referenced project by Ordinance No. \_\_\_\_\_ adopted on \_\_\_\_\_, 20\_\_.
2. The amount so appropriated is on deposit or in the process of collection to the credit of the appropriate fund free from any outstanding obligations.

**CITY OF DUBLIN, OHIO**

Date: \_\_\_\_\_

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

Angel L. Mumma  
Deputy City Manager/Director of Finance

**NOTICE TO PROCEED  
Not Applicable \_\_\_\_**

**COFFMAN PARK PHASE I CONSTRUCTION**

To: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

You are hereby notified to commence work within ten (10) business days from the date of receipt of this Notice to Proceed. You are required to complete the work within **two hundred fifty five (255) consecutive calendar days.**

Return an acknowledged copy of this Notice to Proceed to:

**Fred Hahn, Director of Parks & Open Space  
Parks & Open Space  
6555 Shier Rings Road  
Dublin, Ohio 43016**

**CITY OF DUBLIN, OHIO**

Date: \_\_\_\_\_

By: \_\_\_\_\_  
**Fred Hahn  
Director of Parks & Open Space**

**RECEIPT OF NOTICE TO PROCEED**

Receipt of this Notice to Proceed is hereby acknowledged this \_\_\_\_ day of \_\_\_\_\_, 2013.

Company Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

**NOTICE OF COMMENCEMENT OF PUBLIC IMPROVEMENT**

**Not Applicable** \_\_\_\_

Section 1311.252, Ohio Revised Code

Notice is hereby given of the commencement of a public improvement as follows:

1. The public improvement is identified as:

Project Name: **COFFMAN PARK PHASE I CONSTRUCTION**  
Project Number: **GR9902**  
Location: **5200 EMERALD PARKWAY, DUBLIN OH**

2. The public authority responsible for the public improvement is:

City of Dublin, Ohio  
5200 Emerald Parkway  
Dublin, Ohio 43017

3. The principal contractor and its surety on the public improvement are as follows:

Principal Contractor: _____	Surety: _____
Name _____	Name _____
Address _____	Address _____
City, State _____	City, State _____
Zip Code _____	Zip Code _____
Telephone Number _____	Telephone Number _____

4. The City of Dublin, Ohio first executed a contract with a principal contractor for the public improvement on \_\_\_\_\_ 2013.

5. The name and address of the representative of the City of Dublin, Ohio upon whom service may be made for the purposes of serving an affidavit pursuant to Section 1311.26 of the Ohio Revised Code is:

**Fred Hahn, Director of Parks & Open Space  
Parks & Open Space  
6555 Shier Rings Road  
Dublin, Ohio 43016**

**CITY OF DUBLIN, OHIO**

By: \_\_\_\_\_  
**Fred Hahn  
Director of Parks & Open Space**

Sworn to and subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_, **2013**.

\_\_\_\_\_  
Notary Public

# CHANGE ORDER

## COFFMAN PARK PHASE I CONSTRUCTION

Change Order No. \_\_\_\_\_ Contractor Name: \_\_\_\_\_

Date: \_\_\_\_\_

Agreement Date: \_\_\_\_\_

**The following changes are made to the contract documents:**

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

**The changes are made for the following reasons:**

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

**Change to contract price:**

Original contract amount: \$ \_\_\_\_\_

Current contract amount  
adjusted by previous  
Change Orders: \$ \_\_\_\_\_

The contract will be (circle one:  
increased/decreased) due to this  
Change Order by: \$ \_\_\_\_\_

New contract amount (including  
this Change Order): \$ \_\_\_\_\_

**Change to contract time:**

The contract time will be (circle one: increased/decreased) due to this Change Order by \_\_\_\_\_ calendar days.

The date for completion of all work will be \_\_\_\_\_, **2013**.

This Change Order is signed this \_\_\_\_\_ day of \_\_\_\_\_, **2013**.

**CONTRACTOR**

**CITY OF DUBLIN, OHIO**

\_\_\_\_\_

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

Marsha I. Grigsby  
City Manager

\_\_\_\_\_

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

(signature)

Print Name: \_\_\_\_\_

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

Fred Hahn  
Director of Parks & Open Space

Title: \_\_\_\_\_

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

Angel L. Mumma  
Deputy City Manager/Director of Finance

**SECTION 4**  
**GENERAL PROVISIONS**

**CITY OF DUBLIN, OHIO**  
**PUBLIC IMPROVEMENTS GENERAL PROVISIONS**

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**CITY OF DUBLIN, OHIO  
STREETS AND HIGHWAYS  
GENERAL PROVISIONS**

**1010 - DEFINITIONS AND TERMS**

Whenever in these general provisions or in other contract documents the following terms or pronouns in place of them are used, the intent and meaning shall be interpreted as follows:

**101.01 Abbreviations.** Whenever the following abbreviations are used in these general provisions or in any other contract documents, they are to be construed the same as the respective expressions represented:

AAN	American Association of Nurserymen
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
AREA	American Railway Engineering Association
ASA	American Standards Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWG	American Wire Gage
AWS	American Welding Society
AWWA	American Water Works Association
CMSC	Construction and Material Specifications - City of Columbus
EEI	Edison Electric Institute
FHWA	Federal Highway Administration, Department of Transportation
FSS	Federal Specifications and Standards, General Services Administration
IEEE	Institute of Electrical and Electronic Engineers
IES	Illuminating Engineering Society
IMSA	International Municipal Signal Association
IPCEA	Insulated Power Cable Engineering Association
ITE	Institute of Transportation Engineers
NEMA	National Electrical Manufacturers Association
ODOTCMS	Ohio Department of Transportation Construction and Material Specifications
OMUTCD	Ohio Manual of Uniform Traffic Control Devices
OSHA	Occupation Safety & Health Act
SSPC	Steel Structures Painting Council
UL	Underwriters' Laboratories, Inc.

Unless otherwise stated in special provisions or in a drawing note, the latest revision of the above standards shall apply.

References made to dated Specifications shall govern, unless the Engineer approves later revisions.

**101.02 Advertisement.** The public announcement, as required by law, inviting bids for work to be performed or materials and equipment to be furnished.

**101.03 Award.** The written acceptance by the City Manager of a bid.

**101.04 Bidder.** Any individual, firm, partnership, or corporation submitting a bid for the advertised work, acting directly or through a duly authorized representative.

**101.05 Borrow Area.** The term borrow area as used in this section refers to locations outside the right-of-way from which natural materials are removed for use in the work.

**101.06 Bridge.** A structure, including supports, erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads and having a length measured along the center of roadway of more than twenty feet between the center line of bearing of abutments or extreme limits of openings for multiple boxes.

**101.07 Calendar Day or Day.** Every day shown on the calendar.

**101.08 Certified Test Data.** A test report from an independent laboratory listing test data for the specified requirements for the samples tested and a statement furnished by the Contractor by a person having legal authority to act for the supplier and/or manufacturer of the material that the test report furnished represents the material delivered to the project. The certification shall include the laboratory report number and the number of the project to which the material is delivered. Laboratory reports signed by a registered professional engineer and those signed by other personnel and notarized will be accepted for this purpose.

**101.09 Change Order.** A written order issued by the Director of Parks & Open Space to the Contractor, covering changes in the plans or quantities or both, within or beyond the scope of the contract and establishing the basis of payment and time adjustments for the work affected by the changes.

**101.10 City.** The City of Dublin, Ohio, acting through its Director of Parks & Open Space or properly authorized agents thereof; such agents acting severally within the scope of the particular duties entrusted to them.

**101.11 Completion.** Completion of the project shall occur when all of the following items are completed in compliance with the contract: (1) the work has been satisfactorily completed in all respects; (2) the project is ready for use by the City; and (3) the Contractor has satisfactorily executed and delivered to the Director of Parks & Open Space all documents, certificates and proofs of compliance.

**101.12 Completion Date.** The date, as shown in the proposal, on which the work contemplated shall be completed unless extended by an approved written extension.

**101.13 Conduit.** Any pipe or similar passageway for electricity, gas, water or other utility.

**101.14 Contract.** The agreement between the City and the Contractor as set forth in the contract documents setting forth the obligations of the parties thereunder, including but not limited to, the performance of the work, the furnishing of labor and materials, and the basis of payment.

**101.15 Contract Documents.** The contract documents include the invitation to bid; proposals; affidavits; contract forms and contract bond; General Provisions at the time of the award of the contract; supplemental specifications; special provisions; general and detailed plans; notices to the Contractor; and any change orders and supplemental agreements that are required to complete the construction of the work in an acceptable manner, including authorized extensions of the completion date, all of which constitute one instrument.

**101.16 Contract Bond.** The approved form of security, executed by the Contractor and the Contractor's surety or sureties, guaranteeing complete performance of the contract and all supplemental agreements pertaining thereto and the payment of all legal debts pertaining to the construction of the project.

**101.17 Contract Item (Pay Item).** A specifically described unit of work for which a price is provided in the contract.

**101.18 Contractor.** The individual, firm, partnership, corporation, or other entity contracting with the City for performance of prescribed work, acting directly or through a duly authorized representative.

**101.19 County.** The county in which the work is to be performed.

**101.20 Culvert.** Any structure not classified as a bridge, which provides an opening under the roadway.

**101.21 Department or Division.** All references to "Department," or "Division," or any particular department or division of the City of Dublin, Ohio or any particular department or division of the State of Ohio shall refer to the Parks and Recreation, Parks & Open Space of the City of Dublin, Ohio.

**101.22 Director.** All references to Director shall refer to the Director of Parks & Open Space.

**101.23 Director of Parks & Open Space.** The Director of Parks & Open Space of the City of Dublin, Ohio or the Director of Parks & Open Space designated representative.

**101.24 Equipment.** All machinery and equipment, together with the necessary supplies for upkeep and maintenance, and also tools and apparatus necessary for the proper construction and acceptable completion of the work

**101.25 Extra Work.** An item of work not provided for in the contract as awarded but found essential to the satisfactory completion of the contract within its intended scope.

**101.26 Extra Work Contract.** A contract concerning the performance of work or furnishing of materials involving extra work. Such extra work may be performed at agreed prices or on a force account basis.

**101.27 Fabricator.** The individual, firm, or corporation that fabricates structural metals or prestressed concrete members as an agent of the Contractor.

**101.28 Inspector.** The Director of Parks & Open Space's authorized representative assigned to make detailed inspections of contract performance.

**101.29 Invitation to Bid.** The invitation for proposals for all work or materials on which bids are required. Such Invitation to Bid will indicate with reasonable accuracy the quantity and location of the work to be done or the character and quality of the material and/or equipment to be furnished and the time and place of the opening of proposals.

**101.30 Laboratory.** A reputable testing laboratory that is designated by or acceptable to the Director of Parks & Open Space for rendering testing and inspection services on a contract where these specifications govern.

**101.31 Materials.** Any materials specified for use in the construction of the project and its appurtenances.

**101.32 National Holidays.** New Years Day, January 1; Martin Luther King's Birthday - the third Monday in January; Presidents' Day, the third Monday in February; Memorial Day, the last Monday in May; Independence Day, July 4; Labor Day, the first Monday in September; Thanksgiving Day, the fourth Thursday in November; Christmas Day, December 25.

**101.33 Notice to Proceed.** Written notice by the Director of Parks & Open Space to the Contractor, authorizing the beginning of work.

**101.34 Owner.** The City of Dublin, Ohio.

**101.35 Plans.** The plans, profiles, typical cross-sections, working drawings and supplemental drawings, approved by the Director of Parks & Open Space, or exact reproductions thereof, which show the location, character, dimensions and details of the work.

**101.36 Profile Grade.** The trace of a vertical plane along the centerline of roadway, or as indicated on the plans. Profile grade means either elevation or gradient of such trace according to the context.

**101.37 Project.** The specific section of the work together with all appurtenances and construction to be performed thereon under the contract.

**101.38 Proposal.** The offer of a bidder, on the prescribed form properly signed and guaranteed, to perform the work and to furnish the labor and materials at the prices quoted.

**101.39 Proposal Form.** The approved form on which the City requires bids to be prepared and submitted for the work.

**101.40 Proposal Guaranty.** The security furnished with a bid to guarantee that the bidder will enter into the contract if the bid is accepted.

**101.41 right-of-way.** A general term denoting land, property, or interest therein, usually in a strip, acquired for or devoted to the project.

**101.42 Road.** A general term denoting a public way for purposes of vehicular travel, including the entire area within the right-of-way.

**101.43 Roadbed.** The graded portion of a highway within top and side slopes, prepared as a foundation for the pavement structure and shoulder.

**101.44 Roadside.** A general term denoting the area adjoining the outer edge of the roadway. Extensive areas between the roadways of a divided highway may also be considered roadside.

**101.45 Roadside Development.** Those items necessary to the complete highway which provide for the preservation of landscape materials and features; the rehabilitation and protection against erosion of all areas disturbed by construction through seeding, sodding, mulching and the placing of other ground covers; such suitable planting and other improvements as may increase the effectiveness and enhance the appearance of the highway.

**101.46 Roadway.** The portion of a highway or street within limits of construction.

**101.47 Sewer.** Pipe or conduit intended for carrying storm drainage or sanitary drainage.

**101.48 Shoulder.** The portion of the roadway contiguous to the traveled way for accommodation of stopped vehicles, for emergency use, and for lateral support of base and surface courses.

**101.49 Sidewalk.** The facility within the public right-of-way primarily constructed for the use of pedestrians.

**101.50 Special Provisions.** Additions and revisions to the standard and supplemental specifications covering conditions peculiar to an individual project.

**101.51 Specifications.** The directions, provisions and requirements contained in General Provisions; all as supplemented by the supplemental specifications and special provisions.

**101.52 State.** The State of Ohio acting through its authorized representative.

**101.53 Street.** A general term denoting a public way for purposes of vehicular travel, including all improvements within the right-of-way such as sidewalks, bikepaths, sewers, and streetlights.

**101.54 Structures.** Bridges, culverts, catch basins, curb inlets, drop inlets, retaining walls, cribbing, manholes, end walls, buildings, curbs, pavements, sewers, water mains, service pipes, under drains, foundation drains and other features which may be encountered in the work and not otherwise classed herein.

**101.55 Subcontractor.** An individual, firm, partnership, corporation or other entity to whom the Contractor sublets part of the contract with the written approval of the Director of Parks & Open Space.

**101.56 Subgrade.** The surface upon which a structure or work and appurtenances are to be constructed.

**101.57 Substructure.** All of that part of a bridge or culvert below the bearings of simple and continuous spans, skewbacks of arches and tops of footings of rigid frames, together with back walls and wings.

**101.58 Superintendent.** The Contractor's authorized representative in responsible charge of the work.

**101.59 Superstructure.** The entire structure except the substructure.

**101.60 Supplemental Specifications.** Detailed specifications supplemental to or superseding these General Provisions or any other provisions.

**101.61 Surety.** The corporation, partnership or individual, other than the Contractor, executing a bond furnished by the Contractor.

**101.62 Titles (or Headings).** The titles or headings of the sections and subsections herein are intended for convenience of reference and shall not be considered as having any bearing on their interpretation.

**101.63 Water line.** Conduit for carrying public water supply.

**101.64 Work.** The furnishing of all labor, services, materials, equipment, and other incidentals necessary or convenient to the successful completion of the project and the carrying out of all duties and obligations imposed by the contract.

**101.65 Work Days.** Wherever indicated in these specifications, work days are defined as: Monday, Tuesday, Wednesday Thursday, Friday, and Saturday, excluding national holidays.

**101.66 Working Drawings.** Stress sheets, shop drawings, erection plans, false work plans, cofferdam plans, bending diagrams for reinforcing steel, or any other supplementary plans or similar data which the Contractor is required to submit for approval.

**101.67 Interpretations.** In order to avoid cumbersome and confusing repetition of expressions in these specifications, it is provided that whenever anything is, or is to be, done, if, as, or when, or where contemplated, required, determined, directed, specified authorized, ordered, given, designated, indicated, considered necessary, deemed necessary, permitted, reserved, suspended, established, approval, approved, disapproved, acceptable, unacceptable, suitable, accepted, satisfactory, unsatisfactory, sufficient, insufficient, rejected, or condemned, it shall be understood as if the expression were followed "by the Director of Parks & Open Space" or "to the Director of Parks & Open Space".

## **1020 - BIDDING REQUIREMENTS AND CONDITIONS**

<b>102. 01</b>	<b>Pre-qualification of Bidders</b>
<b>102. 02</b>	<b>Availability of Contract Documents</b>
<b>102. 03</b>	<b>Proposals</b>
<b>102. 04</b>	<b>Interpretation of Quantities in Proposal</b>
<b>102. 05</b>	<b>Examination of Plans, Specifications, Special Provisions, and Site of Work</b>
<b>102. 06</b>	<b>Preparation of Proposal</b>
<b>102. 07</b>	<b>Irregular Proposals</b>
<b>102. 08</b>	<b>Proposal Guaranty</b>
<b>102. 09</b>	<b>Delivery of Proposals</b>
<b>102. 10</b>	<b>Withdrawal of Proposals</b>
<b>102. 11</b>	<b>Public Opening of Proposals</b>
<b>102. 12</b>	<b>Statement of Materials</b>
<b>102. 13</b>	<b>Combination or Conditional Proposals</b>

**102.01 Pre-qualification of Bidders.** Not applicable to this contract.

**102.02 Availability of Contract Documents.** The contract documents are available to prospective bidders at the locations stated in the Invitation to Bid. The prospective bidder will be required to pay the City the sum stated in the Invitation to Bid for each set of the contract documents.

**102.03 Proposals.** The City reserves the right to disqualify or refuse to consider a proposal if a bidder is in default for any of the following reasons:

- (a) More than one proposal for the same work from an individual, partnership, joint venture, corporation or other entity under the same or different name, or corporation under the same name or corporations with one or more of the same persons as officers of such corporations, or corporations who are holding companies, parent companies or holding companies which are subsidiaries of such corporations.
- (b) Evidence of collusion among bidders. Participants in such collusion will receive no recognition as bidders for any future work of the City for a period of three years.
- (c) Bid prices which obviously are unbalanced.

- (d) Lack of competency and/or adequate machinery, plant and other equipment.
- (e) Uncompleted work, whether or not with the City, which, in the judgment of the City, might hinder or prevent the prompt completion of additional work if awarded.
- (f) Failure to comply with the Pre-qualification requirement of 102. 01.
- (g) Failure to perform previous contracts adequately or a breach of prior contracts, whether or not the breach was waived by the City at a prior time.
- (h) Any other reasonable cause.

**102.04 Interpretation of Quantities in Proposal.** Not applicable to this contract.

**102.05 Examination of Plans, Specifications, Special Provisions, and Site of Work.** The bidder is expected to examine carefully the site of the proposed work and the contract documents before submitting a proposal. The bidder may also make additional investigations of subsurface conditions prior to submitting the bid. Such soil tests and investigations shall be at the bidder's expense and at no cost to the City. Any physical variation at the site of the work from that indicated by the contract documents, noted by the Contractor during the required examination or during any additional investigation conducted by the bidder, shall be called to the attention of the Director of Parks & Open Space prior to submitting a proposal. The submission of a proposal shall be considered evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the contract documents.

No pleas of ignorance of any provisions of the contract documents or of available subsurface data which may have been obtained by the City or its authorized representatives for use in designing the project shall not be accepted as a basis for any claim for extra compensation, extra work or for any extension of time.

Data concerning subsurface materials or conditions may have been obtained by the City for use in designing the project. Said borings, test excavations, and other subsurface investigations even if incorporated into the plans, if any, are incomplete, are not a part of the contract documents, and are not warranted to show the actual subsurface conditions. Said subsurface data, if not in the plans, is available for review by bidders upon written request and execution of a release for subsurface information. Bidders shall not rely on subsurface information obtained from the City and the City will not be responsible in any way for additional compensation for excavation work performed under the contract due to the Contractor's assumptions or deductions based on said subsurface data. The Contractor agrees that no claims will be made against the City, if, in carrying out the work, it is found that the actual subsurface conditions encountered do not conform to those indicated by said borings, test excavations and other subsurface investigations.

All soil data obtained from the City is for information only and indicates conditions existing at the time of the tests. The information is not guaranteed to be indicative of any subsurface condition except at the particular and exact locations of the borings.

**102.06 Preparation of Proposal.** The bidder shall submit the proposal upon the forms furnished by the City. All the words and figures shall be in ink or typed.

When an item in the proposal contains a choice to be designated by the bidder, the bidder shall indicate that choice in accordance with the specifications for that particular item, and thereafter no further choice will be permitted.

The bidder's proposal must be signed with ink by the individual, by one or more members of the partnership, by one or more members or officers of each firm representing a joint venture, or by one or more officers of a corporation, or by an agent of the Contractor legally qualified and acceptable to the City. If the proposal is made by an individual, the name and business address of that individual must be shown; if as a partnership, the names and business addresses of all general partners must be shown; if as a joint venture, the name and business address of each member of the joint venture must be shown; if by a corporation, the name of the state under the laws of which the corporation is chartered, the name of the corporation and the names and business addresses of its corporate officers must be shown; or if by any other business entity, the names and addresses of the principals of such entity. Anyone signing a proposal on behalf of a corporation must file with the proposal legal evidence of one's authority to do so.

Before a contract will be awarded to a foreign corporation or a person or partnership non-resident of the State of Ohio, such foreign corporation, person, or partnership non-resident shall file with the Secretary of State of Ohio a power of attorney designating his or its agent or the Secretary of State of Ohio, as agent, for the purpose of accepting service of summons, in any action in law or equity, or both, brought in the State of Ohio.

**102.07 Irregular Proposals.** Proposals will be considered irregular and may be rejected for reasons including but not limited to the following:

(a) If the proposal is on a form other than that furnished by the City, or if the form is altered or any part thereof is detached.

(b) If there are unauthorized additions, conditional or alternate bids, or irregularities of any kind which may tend to make the proposal incomplete, indefinite, or ambiguous as to its meaning.

8 If the bidder adds any provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award. This does not exclude a bid limiting the maximum gross amount of awards acceptable to any one bidder at any one bid letting, provided that any selection of awards will be made by the City.

(d) If the proposal is not signed by the bidder.

(e) If the proposal is not typed or written legibly in ink.

**102.08 Proposal Guaranty.** No proposal will be considered unless accompanied by a certified check, cashier's check, letter of credit, or a satisfactory bid bond, in an amount not less than ten percent of the bidder's proposal, including the base bid and all alternates conditioned upon execution of the contract and the furnishing of a performance bond in the event the contract is awarded to the bidder.

**102.09 Delivery of Proposal.** The proposal shall be placed, together with the proposal guaranty, in a sealed envelope so marked as to indicate the identity of the project and the name and address of the bidder. If forwarded by mail, said envelope shall then be placed in another envelope which shall be sealed and addressed as indicated in the proposal. Proposals will be received until the hour and date set for the opening thereof and must be in the hands of the official indicated by such time. Proposals received after the time for opening of bids will be returned to the bidder unopened.

**102.10 Withdrawal of Proposals.** No bidder may withdraw his proposal unless a written request to do so is submitted to the Director of Parks & Open Space prior to the time set for opening of the proposals. When such request is received, the proposal will be returned to the bidder unopened.

**102.11 Public Opening of Proposals.** Proposals will be opened and read publicly at the time and place designated by the Director of Parks & Open Space. Bidders, their authorized agents and other interested parties are invited to be present.

**102.12 Statement of Materials.** Before any contract is awarded, the bidder may be required to furnish a complete statement of the origin, composition, and manufacture of any or all materials to be used in the construction of the work together with samples, which samples may be subjected to the tests provided for in the specifications to determine their quality and fitness for the work.

**102.13 Combination or Conditional Proposals.** If the City so elects, proposals may be issued for the project in combination, unless otherwise stated on the proposal form. The City reserves the right to make awards on combination bids or separate bids to the best advantage of the City. No combination bids, other than those specifically stated on the proposal form by the City, will be considered. Separate contracts will be written for each individual project included in the combination.

### **103. - AWARD AND EXECUTION OF CONTRACT**

- 103. 01        Consideration of Proposals**
- 103. 02        Award of Contract**
- 103. 03        Cancellation of Award**
- 103. 04        Return of Proposal Guaranty**
- 103. 05        Requirement of Contract Bond**
- 103. 06        Execution of Contract**
- 103. 07        Failure to Execute contract**
- 103. 08        Contractor's Insurance**

- 103.09**        **Fire and Builder's Risk Insurance**
- 103.10**        **Railroad Protective Insurance**
- 103.11**        **Workers' Compensation Insurance**

**103.01 Consideration of Proposals.** After the proposals are opened and read, they will be compared on the basis of the summation of the products of the approximate quantities shown in the proposal by the unit bid prices. In the event of a discrepancy between unit bid prices and extensions, the unit price shall govern.

The right is reserved to reject any or all proposals, to waive technicalities or to advertise for new proposals, if in the judgment of the awarding authority the best interests of the City will be promoted thereby.

The City reserves the right to hold proposals for a period of up to sixty days after the opening, and to award a contract at any time during that period.

**103.02 Award of Contract.** The award of the contract, if it be awarded, will be made as soon as is reasonably possible after the opening of the proposals to the lowest and best bidder whose proposal complies with all the requirements prescribed. In no case will an award be made until all necessary investigations are made as to the responsibility of the bidder to whom it intends to award the contract. The successful bidder will receive a Notice of Intent to Award sent to the bidder at the address shown in the proposal stating that its proposal has been accepted by the City.

**103.03 Cancellation of Award.** The City reserves the right to rescind the award of any contract at any time before the execution of said contract by all parties without any liability against the City.

**103.04 Return of Proposal Guaranty.** All proposal guaranties, except those of the three lowest bidders, will be returned immediately following the opening and checking of the proposals. The retained proposal guaranties of the three lowest bidders will be returned within ten days following the award of contract and that of the successful bidder will be returned after a satisfactory performance bond has been furnished and the Agreement for Construction has been executed.

**103.05 Requirement of Performance Bond.** The successful bidder must within ten days after receiving the Notice of Intent to Award and before execution of the Agreement for Construction by the City, furnish a performance bond in the form provided by Ohio Revised Code Section 153. 57 in the full amount of the proposal. Said bond shall cover the entire contract including the guarantee period required under 109. 11. The successful bidder's failure to submit a performance bond with the executed Agreement for Construction shall be deemed a refusal by the bidder to enter into a contract and shall release the City from all obligations to the bidder.

**103.06 Execution of Contract.** The Agreement for Construction shall be signed by the successful bidder and returned, together with the performance bond and other required contract documents, within ten days after the bidder has received the Notice of Intent to Award.

**103.07 Failure to Execute Contract.** Failure of the bidder to execute the Agreement for Construction and file an acceptable performance bond shall be just cause for the cancellation of the award and the forfeiture of the proposal guaranty which shall become the property of the City, not as a penalty, but in liquidation of damages sustained. Award may then be made to the next lowest and best bidder, or the work may be re-advertised as the Director of Parks & Open Space may decide.

**103.08 Contractor's Insurance.**

**(A) General.** The Contractor shall secure and maintain, at his/her own expense, until completion of the contract, general liability and property insurance as shall protect him and the City from claims for personal injury or property damage which may arise because of the nature of the work or from operations under this contract.

**(B) General Liability.** The Contractor shall have General Liability coverage on a per project basis, per occurrence, and in comprehensive form. General Liability coverage shall include Products/Completed Operations, Explosion Underground and Collapse Hazard, Premises Operations, Contractual, Independent Contractors, Broad Form Property Damage and Personal Injury.

The Contractor shall provide General Liability and Excess General Liability coverage in the following amounts, at a minimum:

Projects less than \$1,000,000: Contractor shall have total limits of insurance to include primary and excess coverage in an amount not less than \$2,000,000. (Examples: may be \$1,000,000 primary and \$1,000,000 excess, \$2,000,000 primary, or other equivalent combination.)

Projects greater than \$1,000,000: Contractor shall provide total limits of insurance to include primary and excess coverage in an amount of not less than \$5,000,000. (Examples: may be \$1,000,000 primary and \$4,000,000 excess, \$2,000,000 primary and \$3,000,000 excess, or other equivalent combination.)

**8 Automobile Liability.** The Contractor shall secure, and maintain, at his/her own expense, until the completion of the Contract, coverage for any auto, including non-owned and hired autos, with a combined single limit of \$1,000,000 per occurrence. The City shall be named as an Additional Insured.

**(D) Workers' Compensation Insurance.** Before beginning work, the Contractor shall furnish to the City satisfactory proof that he/she has, for the period covered under the Contract, full Workers' Compensation coverage for all persons whom he/she may employ directly, or through subcontractors, in carrying out the work contemplated under the Contract, and shall hold

the City free and harmless for all personal injuries of all persons whom the Contractor may employ directly or through subcontractors.

**(E) Additional Insured.** The Contractor shall name the City of Dublin, Ohio as an "Additional Insured" on all insurance policies, except Workers' Compensation, and this shall be reflected on the Certificate of Insurance.

**(F) Cancellation Notice or Material Change of Coverage.** The Contractor's required insurance shall be endorsed to provide that the policy(ies) will not be canceled, reduced, discontinued, or otherwise materially altered during the period of performance without thirty (30) days prior written notice to the Director of Parks & Open Space.

**(G) Certificate(s) of Insurance.** Prior to commencing work under each contract or subcontract, certificates of insurance shall be submitted and approved by the City. The Contractor is responsible for obtaining certificates of insurance establishing that the Contractor and all subcontractors have complied with insurance requirements previously stated.

**(H) Rating of Insurance Company(ies).** Any and all insurance company(ies) supplying coverage to the Contractor must have no less than an A- rating in accordance with the A. M. Best rating guide.

#### **104. - SCOPE OF WORK**

- 104. 01 Intent of Contract**
- 104. 02 Alteration of Plans or Character of the Work**
- 104. 03 Extra Work**
- 104. 04 Modification of Contract**
- 104. 05 Maintenance of Traffic and Accessibility to Utilities**
- 104. 06 Materials Found on the Work Site**
- 104. 07 Final Cleaning Up**

**104.01 Intent of Contract.** The intent of the contract is to provide for the construction and completion in every detail of the work described. The Contractor shall perform all items of work covered and stipulated in the proposal and perform altered and extra work, furnish all labor, materials, equipment, tools, transportation and supplies required to complete the work in accordance with the plans, specifications and terms of the contract. Should any misunderstanding arise as to the intent or meaning of the plans, specifications, special provisions or proposal, or any discrepancy appear, the decision of the Director of Parks & Open Space shall be final and conclusive.

**104.02 Alteration of Plans or Character of the Work.** The City reserves the right to make, at any time during the progress of the work, such increases or decreases in quantities and such alterations in the details of construction, including alterations or alignments of road structures, grades, etc..., as may be found to be necessary or desirable. Such increases or decreases and alterations shall not invalidate the contract nor release the surety, and the Contractor agrees to perform the altered work the same as if it had been a part of the original contract. The

Contractor shall insure that coverage provided by the surety is maintained at the same value as the altered project value.

Unless such alterations and increases or decreases materially change the character of the work to be performed or the cost thereof, the altered work shall be paid for at the same unit prices as other parts of the work. In this case, all expenses for increased alterations and increased costs shall be borne solely by the Contractor. If, however, the character of the work or the unit costs thereof are materially changed, an allowance shall be made on such basis as may have been agreed to in advance of the performance of the work, or in case no such basis has been previously agreed upon, then an allowance shall be made, either for or against the Contractor, in such amount as the Director of Parks & Open Space may determine to be fair and equitable.

Should the Contractor encounter or the Director of Parks & Open Space discover during the progress of the work or any conditions at the site differing materially from those indicated in this contract, or unknown physical conditions at the site of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the contract the Director of Parks & Open Space shall be promptly notified in writing of such conditions before they are disturbed. The Director of Parks & Open Space will thereupon promptly cause the investigation of conditions and if they are found to so materially differ and cause an increase or decrease in the cost of, or the time required for performance of the contract, an equitable adjustment will be made.

Latent physical subsurface conditions such as abandoned public and private utilities, ancient foundations or other such man-made structures of which the City and the Contractor could not have been aware, or reasonably could not have been aware of at the time of the execution of the contract, may qualify for adjustment in time of completion and increased cost of construction, all of which must be documented by the Contractor and submitted to the Director of Parks & Open Space for approval.

Any adjustment in compensation because of a change or changes resulting from one or more of the conditions described in the foregoing paragraphs will be made in accordance with the provisions of 104. 03 and 104. 04. Any adjustment in contract time because of changes will be made in accordance with the provisions of 108. 06.

**104.03 Extra Work.** Subject to 104. 04, the Contractor shall perform unforeseen work, for which there is no price included in the contract, whenever it is deemed necessary or desirable in order to complete fully the work as contemplated. Such work shall be performed in accordance with the specifications and as directed, and will be paid for as provided under 109. 04.

**104.04 Modification of Contract.** When it becomes necessary in the opinion of the Director of Parks & Open Space, in the prosecution of any work or improvement under contract, that alterations or extra work are needed, the same shall only be made upon a written change order approved by the City Manager. No such change order shall be effective until the price to be paid for the work or material, or both, under the altered or modified contract shall have been agreed upon in writing and signed by the Contractor and the City Manager on behalf of the City.

The Contractor shall have no claim for and nor be entitled to compensation for any such alterations or extra work until the same have been incorporated into appropriate change orders. All such change orders must be approved by the City Manager and have an appropriate Certification of Funds by the Finance Director of Dublin attached to the change order.

**104.05 Maintenance of Traffic and Accessibility to Utilities.** The Contractor shall at all times provide and maintain access to fire hydrants, water valves, water service boxes, gas valves, gas, service boxes, manholes and other similar appurtenances.

When so stated on the plans or in the proposal, public traffic shall be maintained during construction. This may be traffic through the project or it may be only cross traffic at intersections. Maintenance of traffic may be required only at certain stages of construction or at all times, if so noted.

At locations on the work where sewer or water line construction only is called for and a part of the existing pavement will remain in place, traffic will be maintained and ingress and egress to all public and private entrances shall be provided.

In the event of the complete closure of any street, alley or private drive, the Contractor shall notify the occupants of all premises affected by such closure as per 614. 04 of the CMSC.

Whenever the Contractor, for any reason, ceases operations on this contract for a period of fifteen or more calendar days, the Contractor, if so directed by the Director of Parks & Open Space, shall construct a temporary roadway to provide access to the premises affected by project operations. The temporary roadway shall be constructed of cinders, gravel, crushed stone or other acceptable materials and of suitable width and thickness to carry anticipated vehicles, as directed by the Director of Parks & Open Space. The temporary roadway shall be maintained by the Contractor in serviceable condition until such time that the contract work is resumed. The cost of constructing and maintaining the temporary roadway shall be borne by the Contractor.

Failure of the Contractor to perform the operations stated in this section when directed by the Director of Parks & Open Space, within a reasonable time as determined by the Director of Parks & Open Space, will give the City authority to perform the work and bill the cost of same to the Contractor.

All traffic control devices shall be furnished, erected, maintained and removed by the Contractor in accordance with the OMUTCD and paid for in accordance with the provisions of 614 of the CMSC. When the proposal does not include the cost of maintaining traffic, this work shall be performed but will not be paid for directly, and the cost of this work shall be included in the price bid for various items in the proposal. The provisions of these items and this section shall not in any way relieve the Contractor of any of his legal responsibilities or liabilities for the safety of the public. The attention of the bidder is directed to the provisions of 107. 02 (Permits, Licenses, and Taxes) and 107. 08 (Public Convenience and Safety).

**104.06 Materials Found on the Work Site.** The Contractor may use stone, gravel, sand or other material found on the work site subject to approval by the Director of Parks & Open Space.

The Contractor shall be paid for the excavation of such stone, gravel, sand or other material at the unit prices set forth in the proposal for such items; provided however that the cost of any additional inspections directed by the Director of Parks & Open Space for such materials shall be deducted from the payments to the Contractor for such materials. The Contractor, at its expense, shall replace the material removed with material approved by the Director of Parks & Open Space. The Contractor shall not excavate or remove any material from within the project location which is not within the grading limits, as indicated by the slope and grade lines, without written authorization from the Director of Parks & Open Space.

Unless otherwise provided, the material from any existing old structure may be used temporarily by the Contractor in the erection of the new structure. Such material shall not be cut or otherwise damaged except with the approval of the Director of Parks & Open Space.

**104.07 Final Cleaning Up.** Before final acceptance, all ground occupied by the Contractor in connection with the work shall be cleaned of all rubbish, excess materials, temporary structures, and equipment. These areas shall have suitable vegetative cover established by seeding and mulching or sodding as required by 659 or 660 of the CMSC, the cost of which to be included in various items bid, unless a separate bid item is provided in the proposal, and all parts of the work shall be left in an acceptable condition.

## **105. - CONTROL OF WORK**

- 105. 01 Authority of the Director of Parks & Open Space**
- 105. 02 Plans and Working Drawings**
- 105. 03 Conformity with Plans and Specifications**
- 105. 04 Coordination of Plans, Specifications, Supplemental Specifications and Special Provisions**
- 105. 05 Cooperation by Contractor**
- 105. 06 Night Work and Sundays**
- 105. 07 Work on National Holidays**
- 105. 08 Cooperation with Utilities**
- 105. 09 Cooperation Between Contractors**
- 105. 10 Construction Stakes, Lines and Grades**
- 105. 11 Photographs and Videos**
- 105. 12 Authority and Duties of the Inspector**
- 105. 13 Inspection of Work**
- 105. 14 Unauthorized Work**
- 105. 15 Load Restrictions**
- 105. 16 Maintenance During Construction**
- 105. 17 Failure to Maintain Roadway or Structures, Traffic Control Facilities and Other Appurtenances**
- 105. 18 Borrow and Waste Areas**
- 105. 19 Use of Fire Hydrants**
- 105. 20 Claims**
- 105. 21 Moving of Equipment**

**105.01 Authority of the Director of Parks & Open Space.** The Director of Parks & Open Space will decide all questions which may arise as to the quality and acceptability of materials furnished, work performed and rate of progress; all questions which may arise as to conformity with plans, specifications and other contract documents; all questions as to the acceptable fulfillment of the contract on the part of the Contractor; and all questions which may arise as to interpretation of the plans, specifications, and other contract documents.

The Director of Parks & Open Space has immediate charge of the engineering details of each construction project and is responsible to insure that the Contractor satisfactorily administers and completes the project. The Director of Parks & Open Space has the authority to reject defective material and to suspend any work that is being improperly performed.

The Director of Parks & Open Space will have the authority to suspend the work wholly or in part due to the failure of the Contractor to correct conditions unsafe for the workers or the general public; for failure to carry out provisions of the contract; for failure to carry out orders; and for such periods as may be deemed necessary due to unsuitable weather. The suspension of the work for the above reasons does not relieve the Contractor of responsibility according to 107.14.

In the event the Director of Parks & Open Space orders the work suspended for unsafe conditions (whether they be unsafe to workers or the public), unsuitable weather, use of defective material not in conformity with the specifications or because work is being improperly performed, the expense, whether direct or indirect, for such suspension shall be borne solely by the Contractor.

**105.02 Plans and Working Drawings.** The plans will show location and design details of all structures, lines, grades, and typical cross sections of roadways, conduits and all other items required by the contract. The Contractor shall keep one set of the plans available at the project site at all times.

The Contractor shall be responsible for the furnishing of copies of plans, specifications and special provisions, or the necessary portions thereof, to subcontractors and parties furnishing labor, materials and equipment for the project.

The plans will be supplemented by such working drawings as are necessary to adequately control the work. Working drawings for structures shall be furnished by the Contractor and shall consist of such detailed plans as may be required to adequately control the work and are not included in the plans furnished by the City. All working drawings must be approved by the Director of Parks & Open Space and such approval shall not operate to relieve the Contractor of any responsibility under the contract for the successful completion of the work. Where work consists of repairs, extensions or alterations of existing structures, the Contractor shall make such measurements of original construction as may be required to accurately join old and new work. Any measurements which may appear upon the plans to indicate the extent and nature of such repair or extension shall not relieve the Contractor of this responsibility. The contract price will include the cost of furnishing all working drawings.

**105.03 Conformity with Plans and Specifications.** All work performed and all materials furnished shall be in conformity with the lines, grades, cross sections, dimensions and material requirements, including tolerances, shown on the plans or indicated in the specifications.

In the event that the Director of Parks & Open Space finds the materials, or the finished product in which the materials are used, not in conformity with the plans and specifications, but that acceptable work has been produced, the Director of Parks & Open Space shall then make a determination if the work shall be accepted and remain in place. In this event, the Director of Parks & Open Space will document the basis of acceptance by change order which will provide for an appropriate adjustment in the contract price for such work or materials as the Director of Parks & Open Space deems necessary.

In the event the Director of Parks & Open Space finds the materials of the finished product in which the materials are used or the work performed are not in conformity with the plans and specifications and have resulted in an inferior or unsatisfactory product, the work or materials shall be removed, replaced or otherwise re-mediated by, and at the expense of, the Contractor.

Failure of the Contractor to follow the order of the Director of Parks & Open Space pursuant to this section shall give the City the unqualified right to remove, replace, or otherwise remediate the defective work or materials any and all expense incurred by the City, directly or indirectly, shall be deducted or billed to the Contractor at the option of the Director of Parks & Open Space.

**105.04 Coordination of Plans, Specifications, Supplemental Specifications and Special Provisions.** The specifications, the supplemental specifications, the plans, special provisions, proposal, and all supplementary documents are essential parts of the contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions, plan notes will govern over specifications, supplemental specifications will govern over specifications; proposals and special provisions will govern over both specifications and plans.

The Contractor shall take no advantage of any apparent error or omission in the plans or specifications. In the event the Contractor discovers such an error or omission, it shall immediately be made known to the Director of Parks & Open Space. The Director of Parks & Open Space will then make such corrections and interpretations as may be deemed necessary for fulfilling the intent of the plans and specifications.

**105.05 Cooperation by Contractor.** The Contractor must obtain one copy of the specifications and two sets of the plans at the Contractor's own cost and keep available at least one set of the specifications, the plans and all other contract documents including special provisions at the project site at all times.

Unless otherwise provided for in the plans or proposal, no work shall be commenced under this contract until a pre-construction conference has been held. In general, fourteen days are required to notify all interested parties of a pre-construction conference. Upon confirmation of a valid contract, the Director of Parks & Open Space will fax or mail, via U.S. postal service-first class, pre-construction conference notices to all parties. The Contractor shall take due note of this

requirement and aid in the timely scheduling of the pre-construction conference to avoid unnecessary delays in the commencement of the work. Following the pre-construction conference, the Director of Parks & Open Space will issue a Notice to Proceed to the Contractor. The Contractor is required to commence work within ten days from the date of receipt of the Notice to Proceed.

The Contractor shall give the work the constant attention necessary to facilitate the progress thereof, and shall cooperate with the Director of Parks & Open Space, inspectors and other Contractors in every way possible.

The Contractor shall have on the project at all times a competent superintendent, acting as an authorized agent, capable of reading and thoroughly understanding the plans and specifications and thoroughly experienced in the type of work being performed, who shall receive instructions from the Director of Parks & Open Space or an authorized representative. The superintendent shall have the full authority to execute orders or directions of the Director of Parks & Open Space without delay and to promptly supply such materials, equipment, tools, labor and incidentals as may be required. Such superintendence shall be furnished irrespective of the amount of work sublet.

Where the work extends across private property, the Contractor shall conduct operations in strict conformity with the terms and conditions of the easements and agreements obtained from the owners of the property. The City will not provide any points of access to any of these easements other than at points shown or described in the agreement with the property owner. Arrangements for the use of any additional points of access shall be made with the property owners by the Contractor at the Contractor's own expense.

The Contractor agrees to confine the work under this contract to the strict dimensions of easements, rights-of-way, or other work area authorized in writing by the City. Any failure of the Contractor, or the Contractor's agents, servants and employees to restrict the work in the defined area shall be the sole liability and responsibility of the Contractor who further agrees to save the City harmless from any activity of the Contractor's agents, servants, employees and subcontractors where such activity concerning work under this contract extends beyond the defined work area. The Contractor also agrees that where operations extend outside prescribed work areas, the City has the absolute right to suspend the work unless written evidence indicates permission from the property owner.

If the Contractor disperses any or all of its equipment to an area outside the work limits of the project, for any reason whatsoever, the re-marshaling and re-grouping of the equipment back to the work area shall be at the Contractor's expense. If the Contractor has been granted permission by the Director of Parks & Open Space to remove said equipment from the work area, then, at the discretion of the Director of Parks & Open Space, consideration may be given as to the amount of the City's participation, if any.

**105.06 Night Work and Sundays.** The Contractor agrees that all work on this contract which includes any and all subcontractors shall be only during the period from one-half hour before

sunrise and one-half hour after sunset as sunrise and sunset are determined by the U. S National Weather Service.

No work shall be permitted on Sundays unless authorized by the Director of Parks & Open Space.

Authorization of work during any other time shall only be upon written permission by the Director of Parks & Open Space, or as detailed on the plans or in the proposal, special provisions or supplemental specifications.

Failure of the Contractor to comply or failure of the Contractor to control any and all of his subcontractors for work under the contract to comply with the above provisions shall be cause to make all such work performed subject to removal and replacement at no additional expense to the City.

**105.07 Work on National Holidays.** No work will be permitted on National Holidays as listed in 101. 33 except as authorized or directed by the Director of Parks & Open Space. The provisions of 105. 06 shall apply with equal force to this provision.

**105.08 Cooperation with Utilities.** During the course of plan preparation for an improvement, the City shall notify all utility companies, all pipe line owners or other parties affected and endeavor to have all necessary adjustments of the public or private utility fixtures, pipe lines and other appurtenances within or adjacent to the limits of construction made as soon as possible so as not to interfere with the progress of the work. During the course of construction, the Contractor shall be solely responsible for notifying any utility or other service when such service is encountered as provided hereinafter.

The Contractor shall be solely and completely responsible for all above ground utilities, structures, and appurtenances, in regard to protection or replacement of same. The Contractor shall also be solely responsible for below ground utilities, structures, and appurtenances that may be accurately located by removing manhole covers, valve box covers, and other access point coverings, with reasonable effort using hand tools for such removal. The cost of protecting and/or replacing the utilities, structures, and appurtenances covered by this paragraph shall be borne solely by the Contractor and included in the various bid items in the contract.

Existing surface or overhead structures or utility lines are not necessarily shown on the drawings and those shown are only approximately correct. The Contractor shall make such investigations as are necessary to determine the extent to which existing surface or overhead structures may interfere with the prosecution of the work contemplated under this contract.

Existing subsurface structures or utility lines including sewer service connections but excluding all other service connections, which may be encountered during the construction of the work embraced under this contract or are located in such close proximity to the work under this contract as to require special precautions or methods for their protection, such as sewers, drains, sewage force mains, water mains, gas mains, telephone and electric conduits, together with appurtenances, are shown in the plans and drawings, insofar as there is public record of their

existence. The sizes, locations and depths shown are only approximately correct and the Contractor shall make such investigations or explorations as may be necessary to verify the accuracy of the information given. Furthermore, it is recognized that the exact locations of water mains are unknown, hence the Contractor shall, if so ordered, uncover and locate these mains ahead of the excavation for the work required by these specifications.

In accordance with Ohio Revised Code Section 153. 64, at least two working days prior to commencing construction operations, the Contractor shall notify the Director of Parks & Open Space, the registered utility protection service and the owners of each underground and overhead utility facility not members of the registered utility protection service.

Water lines, gas lines, wire lines, service connections, water and gas meter boxes, water and gas valve boxes, light standards, cable-ways, signals and all other utility appurtenances within the limits of the proposed construction which are to be relocated or adjusted are to be moved by the owners at their expense, except as otherwise provided for in the special provisions or as noted on the plans.

Water mains, services and appurtenances owned and/or maintained by the Division of Water, Department of Public Utilities, City of Columbus, Ohio shall be adjusted as indicated on the drawings or as specified at the Contractor's cost and expense in a manner approved by the Division of Water Department of Public Utilities, City of Columbus, Ohio, and no separate payment will be made unless a separate item is included in the contract therefore.

It is understood and agreed that the Contractor has considered in the Contractor's proposal all permanent and temporary utility appurtenances in their present or relocated positions and that no additional compensation will be allowed for any delays, inconvenience, or damage sustained by the Contractor due to any interference from said utility appurtenances or the operation of moving them, except that in those cases where, after written notification from the Contractor, the Director of Parks & Open Space determines that the character of the work to be performed or the cost thereof or the time provided therefore has been materially changed by such delays without the fault or negligence of the Contractor, an equitable adjustment shall be made.

If, through no fault of the Contractor, the progress of contract work is delayed for an unreasonable length of time from that proposed in the progress schedule of 108. 02 because of failure of a utility company to relocate or adjust its lines, the Contractor shall immediately file with the City a detailed statement describing the nature of the delay and its effect upon contract work progress.

It is the complete responsibility of the Contractor to determine the exact location of all substructures and utility lines of public utility facilities including but not limited to water, sewer, traffic, and electricity pipes or conduits shown on the plans including services lines not shown whether or not located on private property, public property, public or private right of ways, or public or private easements and of all surface or overhead structures, including but not limited to utility lines, telephone or electrical poles, growing things such as trees, sidewalks and driveways.

The Contractor shall have sole responsibility for paying for any damage done directly or indirectly to the above mentioned items as a result of the progress of the work performed under this contract, whether performed by the Contractor or the Contractor's subcontractor(s), agents, servants or employees, whether such damage results from negligence or otherwise, and whether the damage is to private or public property or real or personal property. The Contractor further agrees to save the City harmless from any such damages.

In the event that the Contractor fails to pay the entire cost of the damages as stated above within thirty days, or in the event litigation arises as a result of such damages, the Director of Parks & Open Space shall have the unqualified right to deduct and withhold the entire amount of the damages from the monies due or to become due to the Contractor until said damages are liquidated and the City is kept whole from any such expense.

The Contractor further covenants not to sue the City, either in law or equity, where such deduction and withholding is made by the City.

The City shall return, within a reasonable time thereafter not to exceed thirty days, the amount of the withheld funds which exceed the amount of damages paid by the City.

The Contractor further waives any and all rights, title or interest in any and all amounts of damages and court costs paid by the City.

**105.09 Cooperation Between Contractors.** The City reserves the right at any time to contract for and perform other or additional work on or near the work covered by the contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct its work so as not to interfere with or hinder the progress or completion of the work being performed by other contractors. Contractors working on the same project shall cooperate with each other as directed.

Each contractor involved shall assume all liability, financial or otherwise, in connection with his contract and shall protect and save harmless the City from any and all damages or claims that may arise because of inconvenience, delay, or loss experienced by him because of the presence and operations of other contractors working within the limits of the same project.

Each contractor shall arrange its work and shall place and dispose of the materials being used so as not to interfere with the operations of the other contractors within the limits of the same project. Each contractor shall join their work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

**105.10 Construction Stakes, Lines and Grades.** The Contractor shall furnish and place construction layout stakes for the project in accordance with 623 of the CMSC. The Contractor shall notify the City at least two working days prior to the time that control points for line and grade will be needed. There shall be no compensation to the Contractor for the cost occasioned by delay in establishing lines, grades and elevations or making other necessary measurements or

by inspection; but such costs shall be considered as having been included in the price stipulated for doing the work called for in the contract.

All construction staking shall be performed under the supervision of a registered professional engineer or land surveyor. All field notes, cut sheets, etc. , shall be submitted to the City.

**105.11 Photographs and Videos.** From time to time during the progress of the work, photographs or videos of the work may be taken by the Director of Parks & Open Space, inspectors or other duly authorized City personnel or agents, at no expense to the Contractor. The Contractor shall, however, furnish access to the work at all times for this purpose and shall furnish such assistance as may be required. The photographs or videos thus taken shall be the property of the City. Nothing herein contained shall be construed as prohibiting the taking of photographs or videos by the Contractor or its agents, provided, however, that it is done at no cost or expense to the City.

**105.12 Authority and Duties of the Inspector.** Inspectors employed by the City will be authorized to inspect all work and materials furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication or manufacture of the materials to be used. Inspectors are not authorized to alter or waive the provisions of the contract, but shall have the authority to reject materials which do not meet specification requirements and to suspend the portion of the work involved until any question at issue can be referred to and decided by the Director of Parks & Open Space. Inspectors are not authorized to issue instructions contrary to the plans and specifications, or to act for the Contractor.

**105.13 Inspection of Work.** All materials and each part or detail of the work shall be subject to inspection by the Director of Parks & Open Space. The Director of Parks & Open Space or an authorized representative of the Engineer shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the Director of Parks & Open Space requests it, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering or removing and the replacing of the covering or making good of the parts removed, will be at the Contractor's expense.

Any work done or materials used without supervision or inspection by the Director of Parks & Open Space or an authorized representative of the Director of Parks & Open Space may be ordered removed and replaced at the Contractor's expense. Failure to reject any defective work or material shall not in any way prevent later rejection when such defects be discovered, or obligate the City to final acceptance.

When any unit of government or political subdivision or railroad or any corporation is to pay a portion of the cost of the work covered by this contract, its respective representatives shall have the right to inspect the work. Such inspection shall in no sense make any unit of government or political subdivision or railroad or any corporation a part to this contract, and shall in no way interfere with the rights of either party hereunder.

**105.14 Unauthorized Work.** No work shall be done without control points having been given by the City. Work done contrary to the instructions of the Director of Parks & Open Space, work done beyond the control points, or any extra work done without authority will be considered as unauthorized and will not be paid for under the provisions of the contract. Work so done may be ordered removed or replaced at the Contractor's expense.

Upon failure on the part of the Contractor to comply with any order of the Director of Parks & Open Space under the provisions of this section, the Director of Parks & Open Space will have authority to cause unauthorized work to be removed and to deduct the costs from any monies due or to become due to the Contractor.

**105.15 Load Restrictions.** The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads. A special permit will not relieve the Contractor from the Contractor's sole liability for damage which may result from the moving of equipment or materials, whether caused by the equipment of the Contractor or the Contractor's subcontractors.

The operation of equipment of such weight or so loaded as to cause damage to structures or the roadway or to any other type of construction will not be permitted. Hauling of materials over the base course or surface course of a roadway under construction shall be limited as directed by the Director of Parks & Open Space. No loads will be permitted on a concrete pavement, base or structure before the expiration of the curing period. In no case shall legal load limits be exceeded unless permitted in writing. The Contractor shall be responsible for all damage done by the equipment of the Contractor or the Contractor's subcontractors.

**105.16 Maintenance During Construction.** The Contractor shall maintain the work during construction and until the project is accepted. This maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces to the end that the roadway, conduits or structures are kept in satisfactory condition at all times.

In the case of a contract for the placing of a paving course upon a roadway subgrade previously constructed, the Contractor shall maintain the previous paving course or subgrade during all construction operations.

All costs of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various pay items, and the Contractor will not be paid an additional amount for such work.

**105.17 Failure to Maintain Roadway or Structures, Traffic Control Facilities and Other Appurtenance.** If the Contractor, at any time, fails to comply with the provisions of 105. 17, the Director of Parks & Open Space will immediately notify the Contractor of such non-compli-

ance. If the Contractor fails to remedy unsatisfactory maintenance within twenty-four hours after receipt of such notice, the Director of Parks & Open Space may immediately proceed to maintain the project and the entire cost of this maintenance will be deducted from monies due or to become due the Contractor on this contract.

**105.18 Borrow and Waste Areas.** The terms "borrow area" and "waste area" as used in the specifications refer to locations outside the right-of-way from which natural materials are removed for use in the work or upon which materials from the work are to be deposited as waste.

Before any borrow or waste disposal operations are to begin, the Contractor shall submit his plan for operation, control of drainage water, cleanup, shaping, and restoration of the disturbed areas and obtain the Director of Parks & Open Space's written approval. The plan of operations shall include the saving of topsoil, and proposed measures to keep sediment and other contaminants from entering streams, lakes, and reservoirs by the use of methods such as diversion channels, dikes, sediment traps, and vegetation covers, etc. When it becomes necessary to locate such areas in or near streams, special precautions shall be taken.

The stability of borrow and waste areas and any damage to surrounding property resulting from movement of the area shall be the sole responsibility of the Contractor.

Restoration of all borrow or waste areas shall include cleanup, shaping, replacement of topsoil and establishment of vegetation cover by seeding and mulching in accordance with the requirements of 659 of the CMSC at no additional cost to the City. The restored area shall be well drained unless approval is given to convert a pit area into a pond or lake, in which case restoration measures shall be confined to the disturbed areas above the anticipated normal water level.

The cost of work described herein necessary to secure these results shall be included in the contract price bid for these items to which they apply.

**105.19 Use of Fire Hydrants.** The Contractor shall make the proper arrangements with the Dublin Service Department and the Division of Water, Department of Public Utilities, City of Columbus, Ohio for the use of fire hydrants when used for work performed under this contract.

Before the final estimate is paid, the Contractor shall submit a letter from the Division of Water, Department of Public Utilities, City of Columbus, Ohio, to the Director of Parks & Open Space stating that the Contractor and all subcontractors have returned the Siamese Valve to the Division of Water, Department of Public Utilities, City of Columbus, Ohio, and paid all costs arising from the use of the fire hydrants.

#### **105.20 Claims.**

**(A) Early Notice.** In the event the Contractor learns of circumstances ("Circumstances") perceived by the Contractor to be likely to give rise to a claim, the Contractor shall immediately inform the Director of Parks & Open Space of the Circumstances ("Early Notice"). The Contractor waives any part of the claim for costs incurred from the time the Contractor learns of

the Circumstances and before the Contractor notifies the Director of Parks & Open Space of same.

**Notice of Claim.** In the event the Contractor and the Director of Parks & Open Space disagree as to the responsibility of the parties under the contract concerning the Circumstances ("Disagreement"), then the Contractor shall submit to the Director of Parks & Open Space in writing within ten calendar days after the Contractor learns of the Disagreement, a Notice of Claim setting forth insofar as possible, the basis and the nature of the claim. The failure of the Contractor to timely submit a Notice of Claim constitutes a waiver of his right to any claim due to the Circumstances.

**Estimates of Additional Costs and/or Time.** Within ten calendar days of the date of submission of the Notice of Claim, the Contractor shall submit in writing to the Director of Parks & Open Space the Contractor's estimate of the additional cost to be incurred and any additional time required. If the Contractor fails to submit his estimate of additional cost and/or any additional time required within ten calendar days or such later date as agreed to with the Director of Parks & Open Space, the claim is abandoned and waived.

**Records.** From the time the Contractor learns of the Circumstances, the Contractor shall maintain complete and specific records of all matters relating to the preserved claim. The Director of Parks & Open Space shall have access to such records upon request.

**Continuation of Work.** Unless otherwise agreed to in writing, the Contractor shall, after giving Early Notice, continue with and carry on the work during the pendency of the claim, and the City will continue to make progress payments to the Contractor in accordance with the contract documents.

**(B) Submission of Claim.** As promptly as possible following the submission of the Notice of Claim, but in no event later than sixty calendar days after substantially all of the Contractor's costs are known to a reasonable certainty, the Contractor shall submit the claim to the Director of Parks & Open Space. If the Contractor fails to submit the claim within said sixty calendar days or such later date as agreed to with the Director of Parks & Open Space, the claim is abandoned and waived.

**Content of Claim.** The claim shall set forth clearly and in detail, for each item of additional compensation or extension of time requested:

- (a) The reasons for the claim.
- (b) References to the applicable provisions of the contract documents.
- (c) The nature and the specific cost ascribed to each element of the claim and for each period of time involved.
- (d) The basis used in describing each such element of cost or for each period of time.

- (e) Any other pertinent factual data.

Any claim, which in the opinion of the Director of Parks & Open Space is deficient in documentation, shall either be returned to the Contractor with comment as regards to the deficiencies or the Director of Parks & Open Space may, at the Director of Parks & Open Space's option, request additional information. The Contractor shall either furnish the additional information requested by the Director of Parks & Open Space within fifteen days of the request or such later time as agreed to with the Director of Parks & Open Space or state in writing to the Director of Parks & Open Space that the Contractor cannot or will not furnish such additional information, or the claim is abandoned and waived.

**(C) The Decision of the Director of Parks & Open Space.** The Director of Parks & Open Space shall render a written decision within sixty calendar days of the later of the date of receipt of the claim or the date of receipt of the supplemental information requested by the Director of Parks & Open Space. A failure of the Director of Parks & Open Space to render a decision within said sixty calendar days or such later time as agreed to with the Contractor constitutes a decision of denial. The decision of the Director of Parks & Open Space is final subject to an election by the Engineer to submit the matter to an alternative form of dispute resolution.

**(D) Alternative Dispute Resolution.** At the Director of Parks & Open Space's option and direction, the claim shall be submitted to arbitration, mediation, or some other form of alternative dispute resolution.

**105.21 Moving of Equipment.** Non-rubber tired vehicles or equipment shall not be moved on City streets. Exceptions may be granted by the Director of Parks & Open Space where short distances and special circumstances are involved. Exceptions must be in writing and any resulting damage must be repaired to the satisfaction of the Director of Parks & Open Space.

## **106. - CONTROL OF MATERIAL**

- 106. 01**      **Source of Supply and Quality Requirements**
- 106. 02**      **Samples, Tests, Cited Specifications**
- 106. 03**      **Plant Inspection**
- 106. 04**      **Storage of Materials**
- 106. 05**      **Handling of Materials**
- 106. 06**      **Unacceptable Materials**
- 106. 07**      **City-Furnished Material**

**106.01 Source of Supply and Quality Requirements.** The materials used on the work shall meet all requirements of the contract. In order to expedite the inspection and testing of materials, the Contractor shall notify the Director of Parks & Open Space of the proposed sources of materials prior to delivery. At the option of the Director of Parks & Open Space, materials may be inspected at the source of supply before delivery is started. If it is determined by the Director of Parks & Open Space after trial, that sources of supply for previously approved materials do not produce specified products the Contractor shall furnish materials from other sources which shall, in turn, be subject to controls set forth herein.

The Contractor shall furnish or cause to be furnished delivery tickets or documents for all materials to be incorporated in the work, which tickets or documents shall describe in detail the type, size, specification or data, fully denoting the material being delivered.

**106.02 Samples, Tests, Cited Specifications.** All materials will be inspected, tested and compliance determined by the Director of Parks & Open Space before incorporation into the work. Unless otherwise designated, tests shall be made in accordance with AASHTO, ASTM or other methods on file in the Office of the Engineer. Except as provided in 105.03, tests shall be made at the expense of the City. Samples will be taken by a qualified representative of the City.

References included in these specifications to AASHTO, ASTM or Federal Specifications shall be the test method, sampling method or specification as amended to its issue date next preceding the bid opening date.

All materials being used are subject to inspection, test or rejection at any time prior to incorporation into the work. Copies of all tests will be furnished to the Contractor's representative. The Contractor, in all cases, shall furnish the required samples without charge.

Transports and distributors hauling bituminous material shall be equipped with an approved submerged bituminous material sampling device.

If, in the judgment of the Director of Parks & Open Space, the quantity used of any one material is so inconsequential as to not warrant testing in accordance with the minimum requirements for sampling materials in Chapter 900 of the CMSC, verification of the quality of the material may be covered by a Field Inspection Report of Materials, prepared by the Director of Parks & Open Space.

**106.03 Plant Inspection.** The Director of Parks & Open Space or an authorized representative may undertake the inspection of materials at the source.

In the event plant inspection is undertaken the following conditions shall be met:

(a) The Director of Parks & Open Space shall have the cooperation and assistance of the Contractor and the producer with whom he has contracted for materials.

(b) The Director of Parks & Open Space or an authorized representative shall have full entry at all times to such parts of the plant as may concern the manufacture or production of the materials being furnished.

8 If required by the Director of Parks & Open Space, the Contractor shall arrange for an approved building for the use of the inspector; such building to be located conveniently near the plant, independent of any building used by the material producer.

(d) Adequate safety measures shall be provided and maintained.

It is understood that the City reserves the right to re-test all materials prior to incorporation into the work which have been tested and accepted at the source of supply after the same have been delivered and to reject all materials which, when re-tested, do not meet the requirements of the specifications, or those established for the specific project.

**106.04 Storage of Materials.** Materials shall be so stored as to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located so as to facilitate their prompt inspection. Approved portions of the right-of-way may be used for storage purposes and for the placing of the Contractor's plant and equipment, but any additional space required therefor must be provided by the Contractor at no expense to the City. Private property shall not be used for storage purposes without written permission of the owner or lessee, and if requested by the Director of Parks & Open Space, copies of such written permission shall be furnished. All storage sites shall be restored to their original condition by the Contractor at no expense to the City.

**106.05 Handling of Materials.** All materials shall be handled in such manner as to preserve their quality and fitness for the work. Aggregate shall be transported from the storage site to the work in tight vehicles so constructed as to prevent loss or segregation of materials after loading and measuring in order that there may be no inconsistencies in the quantities of materials intended for incorporation in the work as loaded, and the quantities as actually received at the place of operations.

**106.06 Unacceptable Materials.** All materials not conforming to the requirements of the specifications at the time they are used shall be considered unacceptable and shall be removed immediately from the site of the work unless otherwise instructed by the Director of Parks & Open Space. No materials, the defects of which have been corrected, shall be used until approval has been given. Upon failure on the part of the Contractor to comply immediately with any order of the Director of Parks & Open Space made under the provisions of this section, the Director of Parks & Open Space shall have authority to remove and replace defective materials and to deduct the cost of removal and replacement from any monies due or to become due to the Contractor.

**106.07 City-Furnished Material.** The Contractor shall furnish all materials required to complete the work, except when otherwise provided in the proposal.

Materials furnished by the City will be delivered or made available to the Contractor at the points specified in the special provisions.

The cost of handling and placing all materials after they are delivered to the Contractor shall be considered as included in the contract price for the item in connection with which they are used.

The Contractor will be held responsible for all delivered materials, and deductions will be made from any monies due the Contractor to make good any shortages and deficiencies, from any cause whatsoever, and for any damage which may occur after such delivery, and for any demurrage charges.

## **107. - LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC**

<b>107. 01</b>	<b>Laws to be Observed</b>
<b>107. 02</b>	<b>Permits, Licenses and Taxes</b>
<b>107. 03</b>	<b>Patented Devices, Materials and Processes</b>
<b>107. 04</b>	<b>Restoration of Surfaces Opened by Permit</b>
<b>107. 05</b>	<b>Federal Aid Provisions</b>
<b>107. 06</b>	<b>Sanitary Provisions</b>
<b>107. 07</b>	<b>First Aid</b>
<b>107. 08</b>	<b>Public Convenience and Safety</b>
<b>107. 09</b>	<b>Barricades and Warning Signs</b>
<b>107. 10</b>	<b>Maintenance of Traffic</b>
<b>107. 11</b>	<b>Use of Explosives</b>
<b>107. 12</b>	<b>Protection and Restoration of Property</b>
<b>107. 13</b>	<b>Responsibility for Damage Claims</b>
<b>107. 14</b>	<b>Contractor's Responsibility for Work</b>
<b>107. 15</b>	<b>Contractor's Responsibility for Utility Property and Services</b>
<b>107. 16</b>	<b>Furnishing Right-of-Way</b>
<b>107. 17</b>	<b>Personal Liability of Public Officials</b>
<b>107. 18</b>	<b>No Waiver of Legal Rights</b>
<b>107. 19</b>	<b>OSHA</b>

**107.01 Laws to be Observed.** The Contractor shall keep fully informed of all federal, state and local laws, ordinances, and regulations and all orders and decrees of authorities having any jurisdiction or authority, which in any manner affect those engaged or employed in the work, or which in any way affect the conduct of the work. The Contractor shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the City and its representatives against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by the Contractor or the Contractor's subcontractor(s), agents or employees.

The Contractor agrees that in the hiring of employees for the performance of work under this contract or any subcontract hereunder, neither the Contractor nor any of the Contractor's subcontractors, nor any person acting on behalf of the Contractor or any of its subcontractors, shall, by reason of race, creed or color, discriminate against any citizen of the United States in the employment of labor or workers, who is qualified and available to perform the work to which the employment relates and that neither the Contractor nor any of the Contractor's subcontractors, nor any of their employees or agents shall, in any manner, discriminate against or intimidate any employee hired for the performance of work under this contract on account of race, creed or color.

**107.02 Permits, Licenses and Taxes.** The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful prosecution of the work.

Prior to the closure of or working in or on any portion of a street the Contractor shall obtain a permit through the Director of Parks & Open Space.

**107.03 Patented Devices, Materials and Processes.** If the Contractor employs any design, device, material, or process covered by letters of patent or copyright, the Contractor shall provide for such use by suitable legal agreement with the patentee or owner. The Contractor and the surety shall indemnify and save harmless the City, any affected third party or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process or any trademark or copyright, and shall indemnify the City for any costs, expenses, and damages which it may be obliged to pay by reason of any infringement, at any time during the prosecution of or after the completion of the work.

In the case of patented pavements and wearing courses, where royalties, licensing and proprietary service charges, exacted or to be exacted by the patentees, are published and certified agreements are filed with the City, guaranteeing to prospective bidders free unrestricted use of all such proprietary rights and trademarked goods upon payment of such published charges, such patented payments may be specifically designated in the proposal and competition secured upon the item exclusive of the patent or proprietary charges.

**107.04 Restoration of Surfaces Opened by Permit.** The right to construct or reconstruct any utility service in the highway or street or to grant permits for same, at any time, is hereby expressly reserved by the Director of Parks & Open Space, and the Contractor shall not be entitled to any damages either for the digging up of the street or for any delay occasioned thereby.

Any individual, firm, or corporation wishing to make an opening in the street must secure a permit through the Director of Parks & Open Space. The Contractor shall allow parties bearing such permits, and only those parties, to make openings in the street. When ordered by the Director of Parks & Open Space, the Contractor shall make in an acceptable manner all necessary repairs due to such openings and such necessary work will be paid for as extra work, or as provided in these specifications, and will be subject to the same conditions as original work performed.

**107.05 Federal Aid Provisions.** When the United States Government pays all or any portion of the cost of a project, the Federal laws and the rules and regulations made pursuant to such laws must be observed by the Contractor and the work shall be subject to the inspection of the appropriate federal agency.

Such inspection shall in no sense make the federal government a party to this contract and will in no way interfere with the rights of either party hereunder.

**107.06 Sanitary Provisions.** The Contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of his employees and City representatives as may be necessary to comply with the requirements of the state and local boards of health, or of other authorities having jurisdiction.

**107.07 First Aid.** The Contractor shall provide and keep upon the work a completely equipped first aid kit and shall provide ready access thereto at all times when workers are employed on the work. The Contractor shall designate some proper person or persons to be in charge of administering first aid and shall cause such person or persons to receive proper instructions therein.

**107.08 Public Convenience and Safety.** The Contractor shall at all times so conduct contract work as to assure the least possible obstruction to traffic. The safety and convenience of the general public and the residents along the street and the protection of persons and property shall be provided for by the Contractor as specified under 104. 05.

The Contractor shall provide and maintain safeguards, safety devices and protective equipment and take any other needed actions as may be necessary to protect the public and property in connection with the work.

The presence of barricades or lights, provided and maintained by any party other than the Contractor, shall not relieve the Contractor of this responsibility.

**107.09 Barricades and Warning Signs.** Temporary traffic control devices and facilities shall be furnished, erected, maintained and paid for in accordance with the provisions of 614 of the CMSC (Maintaining Traffic). All traffic control devices shall conform to Part 7 of the OMUTCD for Streets and Highways as amended, as required under Ohio Revised Code Section 4511. 09. The provisions of this item and this section shall not in any way relieve the Contractor of any of the Contractor's legal responsibilities or liabilities, for the safety of the public.

**107.10 Maintenance of Traffic.** All work shall be performed in accordance with 614 of the CMSC, except that unless an item for maintaining traffic is included in this contract, the cost of this work shall be included in the prices bid for the various items of the contract and there will be no separate payment made therefor.

To avoid interruption of bus and coach operations, the Contractor shall give sufficient advance notice to the company or companies concerned, to permit rerouting of lines, if necessary, prior to the commencement of work.

When material is piled in the gutters, suitable drains of sufficient size to carry all the storm water flowing in the gutters, shall first be laid. Where the drainage from cross streets or alleys is interfered with or cut off by reason of the nature of the work, suitable crossings shall be provided for pedestrians. No material shall be piled within twenty feet of any fire hydrant.

The Contractor shall notify the appropriate fire department, and the City of Dublin Police Department whenever a street or section of street is about to be closed to traffic and also when it is to be opened.

**107.11 Use of Explosives.** Blasting shall not be permitted. Under certain special conditions, the Director of Parks & Open Space may request blasting. In such cases, the Contractor shall use the highest degree of care and adequate protective measures so as not to endanger life, completed portions of the project, and all other property, both public and private. Before conducting any blasting operations, the Contractor shall furnish the Director of Parks & Open Space, in writing, a schedule of intended blasting operations and the Contractor shall give the Director of Parks & Open Space prior written notification of any changes in such schedule. The Contractor shall provide proof of special hazard insurance as set forth under 103.08.

The use, handling, storage and transportation of explosives shall conform and be in accordance with the applicable requirements and/or provisions of:

- (a) the latest revision of "State of Ohio Administrative Code Chapter 4121:1-3," issued by the Department of Industrial Relations and the Industrial Commission of the State of Ohio;
- (b) the Ohio Explosive Laws, Ohio Revised Code Sections 3743.01 - 3743.26;
- 8 local regulations; and
- (d) as specified herein.

The Contractor shall secure a written permit from the appropriate fire department before any blasting work is begun.

Except in the case of continuous tunnel operations, all blasting shall be conducted during daylight hours only with the provision that when required by the Director of Parks & Open Space, blasting shall be limited to certain daylight hours. All firing shall be done by electrical means or any suitable, manufactured, non-electric blasting system which allows the blaster to control the exact moment in which firing of the shot will occur. The Contractor shall make suitable provisions to prevent the scattering of broken rock, earth, stones or other material during blasting operations.

**107.12 Protection and Restoration of Property.** The Contractor shall be responsible for the preservation of all public and private property.

The Contractor shall be responsible for all damage or injury to property during the prosecution of the work, resulting from any act omission, neglect, or misconduct in any manner or method of executing the work, or at any time due to defective work or materials.

Dust, mud, noise or other nuisance originating from any plant operations either inside or outside the right-of-way shall be controlled by the Contractor in accordance with local ordinances and regulations at the sole expense of the Contractor.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work; or in consequence of the non-execution thereof by the Contractor, the Contractor shall restore such property to a condition similar or equal to that existing before such damage or injury was done by repairing, rebuilding or otherwise restoring as may be directed by the Director of Parks & Open Space, or shall make good such damage or injury in an acceptable manner. The cost of all work associated with said restoration shall be at no additional cost to the City.

The Contractor shall cooperate with the Director of Parks & Open Space in protecting and preserving cornerstones and monuments that may be within the right-of-way. The Contractor shall not start grading or resurfacing operations until the Director of Parks & Open Space has referenced all known cornerstones, monuments and land-markers in the area to be improved. Monuments, cornerstones and land-markers unexpectedly encountered shall be protected, referenced and preserved in the same manner.

When cornerstones, monuments and land-markers are encountered in the performance of the work, and monument covers are not listed in the proposal, the City will furnish them and supervise their precise location and installation, and the Contractor will furnish all the labor, tools and other materials required incidental to such installations. Any labor, tools and materials so furnished shall be paid for as force account work.

The cost to the City for repair, re-evaluation of location and replacement of any cornerstone, monument or land-marker within the project, damaged, destroyed, or made inaccessible during the progress of the work by the Contractor or the Contractor's employees, in violation of these provisions, is a charge deductible from any estimate payable on account of the work.

**107.13 Responsibility for Damage Claims.** The Contractor and the surety shall save harmless the City and all of its representatives, or any participating railroad or railway company, from all suits, actions, or claims of any character brought on account of any injuries or damages sustained by any person or property in consequence of any neglect in safeguarding the work or through the use of unacceptable materials in the construction of the improvement or on account of any act or omission, by the Contractor, or its agents. The Contractor or the Surety shall pay any judgment obtained or growing out of any such claims or suits.

**107.14 Contractor's Responsibility for Work.** Until final written acceptance of the project by the Director of Parks & Open Space, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part thereof by the action of the elements, from vandalism, from vehicular accidents, or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God, of the public enemy or governmental authorities.

In case of suspension of work by the Contractor, or under the provisions of 105.09, the Contractor shall be responsible for the project and shall take such precautions as may be necessary to prevent damage to the project, provide for adequate drainage and shall erect any necessary temporary structures, signs, or other facilities at the Contractor's expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established plantings, seeding, and sodding furnished under the contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

**107.15 Contractor's Responsibility for Utility Property and Services.** At points where the Contractor's operations are adjacent to properties of railway, telegraph, telephone, and power companies, or are adjacent to other utilities or property, damage to which might result in considerable expense, loss, or inconvenience, work shall not be commenced until all arrangements necessary for the protection thereof have been made.

The Contractor shall cooperate with the owners of any underground or overhead utility lines in their protection and in removal and rearrangement operations in order that these operations may progress in a reasonable manner, that duplication of rearrangement work may be reduced to a minimum, and that services rendered by those parties will not be unnecessarily interrupted.

In the event of interruption to water or utility services as a result of accidental breakage or as a result of being exposed or unsupported, the Contractor shall promptly notify the proper authority and shall cooperate with the said authority in the restoration of service. If water or sewer service is interrupted, repair work shall be continuous until the service is restored. No work shall be undertaken around fire hydrants until provisions for continued service have been approved by the appropriate fire department.

**107.16 Furnishing Right-of-Way.** The City will be responsible for the securing of all necessary rights-of-way in advance of construction deemed necessary by the City. Any exceptions will be indicated in the contract.

**107.17 Personal Liability of Public Officials.** In carrying out any of the provisions of the specifications, or in exercising any power or authority granted to them by or within the scope of the contract, there shall be no liability upon the City Manager, the Director of Parks & Open Space, or their authorized representatives, either personally or as officials of the City, it being understood that in all such matters they act solely as agents and representatives of the City.

**107.18 No Waiver of Legal Rights.** Neither the inspection by the Director of Parks & Open Space, nor by any inspector or duly authorized City representatives nor any order, measurements, or certificate by the Director of Parks & Open Space, or said representatives, nor any order by the Director of Parks & Open Space, for the payments of money, nor any payment for, nor acceptance of any work by the Director of Parks & Open Space, nor any extension of time, nor any possession taken by the City or its duly authorized representatives, shall operate as a waiver of any provision of this contract, or of any power herein reserved to the City, or any right to damages herein provided; nor shall any waiver of any breach of this contract be held to be a waiver of any other subsequent breach.

**107.19 OSHA.** All Contractors shall comply with the provisions of the Occupational Safety and Health Act of 1972 and all amendments thereto.

## **108. - PROSECUTION AND PROGRESS**

- 108.01 Subletting of Contract**
- 108.02 Prosecution and Progress**
- 108.03 Suspension of Work**
- 108.04 Limitation of Operations**
- 108.05 Character of Workers, Methods, and Equipment**
- 108.06 Date for Completion**
- 108.07 Liquidated Damages**
- 108.08 Cancellation of Contract**
- 108.09 Certified Payroll**

**108.01 Subletting of Contract.** The Contractor shall not sublet, sell, transfer, assign, or otherwise dispose of the contract or contracts or any portion thereof, or of its right, title, or interest therein, without written consent of the Director of Parks & Open Space. In case such consent is given, the Contractor will be permitted to subcontract a portion thereof, but shall perform with the Contractor's own organization, work amounting to not less than fifty percent of the total contract cost, except that any items set forth in the proposal to be "specialty items" may be performed by subcontract and the cost of any such specialty items so performed by subcontract may be deducted from the total cost before computing the amount of work required to be performed by the Contractor's own organization. No subcontract, or transfer of contract, shall in any case release the Contractor of liability under the contract and bonds.

**108.02 Prosecution and Progress.** The Contractor shall submit a progress schedule on an approved form within ten days after the Notice to Proceed has been issued showing how the Contractor proposes to prosecute the work. If the Contractor's operations are materially affected by changes in the plan or in the amount of the work or if the Contractor has failed to comply with the approved schedule, the Contractor shall submit a revised progress schedule, if requested by the Director of Parks & Open Space, which schedule shall show how the Contractor proposes to prosecute the balance of the work. The Contractor shall submit the revised progress schedule within ten days after the date of the request. The Contractor shall incorporate into every progress schedule submitted, any contract requirements regarding the order of performance of portions of the work. The Contractor shall use all practicable means to make the progress of the work conform to that shown on the progress schedule which is in effect. Acceptance by the City of the revised progress schedule shall not serve as a time extension approval. Any extension of the contract completion date must be processed per 108.06. No payment will be made to the Contractor while the Contractor is delinquent in the submission of a progress schedule. Should the prosecution of the work, for any reason, be discontinued, the Contractor shall notify the Director of Parks & Open Space at least one working day in advance of resuming operations. No payment will be made to the Contractor if the Contractor is delinquent in the submission of a progress schedule. Should the prosecution of the work, for any reason, be discontinued, the

Contractor shall notify the Director of Parks & Open Space at least two working days in advance of resuming operations.

On contracts which are complicated and interdependent in nature, a Critical Path Method type progress diagram may be required by the special provisions to the contract.

Progress schedules and diagrams are to be included in unit price bids of the various contract items, unless a specific bid item is included in the contract.

**108.03 Suspension of Work.** The Director of Parks & Open Space may instruct the Contractor to delay the start of operations or suspend the Contractor's operations in whole or in part, for the length of time the Director of Parks & Open Space may deem necessary. The Contractor shall start or resume the operations when notified to do so by the Director of Parks & Open Space.

If, without the fault or negligence of the Contractor, the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted by an act of the Director of Parks & Open Space in the administration of the contract or by failure to act within the time specified in the contract (or if no time is specified within a reasonable time), an adjustment shall be made by the Director of Parks & Open Space for any increase in the cost of performance of the contract (excluding profit) necessarily caused by the unreasonable period of such suspension, delay, or interruption, and the contract shall be modified in writing.

If construction under these specifications is suspended, delayed, or interrupted through no fault of the Contractor by an order of a court of competent jurisdiction or the Environmental Protection Agency, such suspension, delay, or interruption will be considered to be an unreasonable suspension, delay, or interruption.

In the event that additional expense or loss due to suspension includes machinery or equipment idled by such act or failure to act, payment therefore may be allowed only for machinery or equipment actually on the project site required for those phases of the construction work to which such order applies, and such payment shall be made at the following rates: for idled machinery or equipment owned by the Contractor, fifty percent of the rental price; and for idled machinery or equipment rented by the Contractor, the actual rental price paid plus fifteen percent thereof. The maximum rental price shall be as set forth in the current Equipment Guide Blue Book.

**108.04 Limitation of Operations.** The Contractor shall conduct the work at all times in such a manner and in such sequence as will assure the least interference with traffic and other operations of the public. The Contractor shall have due regard to the location of detours and to the provisions for handling traffic. The Contractor shall not open up work to the prejudice or detriment of work already started. The Director of Parks & Open Space may require the Contractor to finish a section on which work is in progress before work is started on any additional sections if the opening of such section is essential to public convenience.

**108.05 Character of Workers, Methods, and Equipment.** The Contractor shall at all times employ sufficient competent labor and equipment for prosecuting the several classes of work to full completion in the manner and time required by these specifications.

All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform all work properly and satisfactorily.

Any person employed by the Contractor or by any subcontractor who, in the opinion of the Director of Parks & Open Space, does not perform their work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the Director of Parks & Open Space, be removed forthwith by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without the approval of the Director of Parks & Open Space. Should the Contractor fail to remove such person or persons as required above, or fail to furnish suitable and sufficient personnel for the proper prosecution of the work, the Director of Parks & Open Space may withhold all estimates, which are or may become due, or may suspend the work by written notice until the Contractor complies with such orders.

All equipment which is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet the requirements of the work and produce a satisfactory quality of work. Equipment used on any portion of the project shall be such that no injury to the roadway, adjacent property, or other streets or highways will result from its use.

When the methods and equipment to be used by the Contractor in accomplishing the construction are not prescribed in the contract, the Contractor is free to use any methods or equipment that is demonstrated to the satisfaction of the Director of Parks & Open Space will accomplish the contract work in conformity with the requirements of the contract.

When the contract specifies that the construction be performed by the use of certain methods and equipment, such methods and equipment shall be used unless others are authorized by the Director of Parks & Open Space. If the Contractor desires to use a method or type of equipment other than those specified in the contract, the Contractor may request authorization from the Director of Parks & Open Space to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed to be used and an explanation of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing construction work in conformity with contract requirements. If, after trial use of the substituted methods of equipment, the Director of Parks & Open Space determines that the work produced does not meet the contract requirements, the Contractor shall discontinue the use of the substitute methods or equipment and shall complete the remaining construction with the specified methods and equipment. The Contractor shall remove the deficient work and replace it with work of specified quality at no expense to the City, or take such other corrective action as directed by the Director of Parks & Open Space. No change will be made in basis of payment for the construction items involved nor in contract time as a result of authorizing a change in methods or equipment under these provisions.

**108.06 Date for Completion.** The Contractor shall have completed the work on or before the calendar date specified in the contract or on or before a later date determined as specified herein, otherwise the Director of Parks & Open Space shall proceed as provided in 108. 07 or 108. 08.

If the contract is revised in any material respect and it is determined that said revision will cause delay in the completion of the work, the Director of Parks & Open Space will postpone the completion date by the number of calendar days determined to be equitable. If the Contractor finds it impossible for reasons beyond the Contractor's control to complete the work by the date as specified or as extended in accordance with the provisions of this section, the Contractor at any time prior to the expiration of the contract time as extended, may make a written request to the Director of Parks & Open Space for an extension of time setting forth therein the reasons which will justify the granting of the Contractor's request. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time. If the Director of Parks & Open Space finds that the work was delayed because of conditions beyond the control and without the fault of the Contractor, then an extension of the time for completion in such amount as the conditions justify may be granted.

The extended time for completion shall then be in full force and effect the same as though it were the original time for completion.

If the Director of Parks & Open Space should suspend the work in whole or in part as provided in 108. 03, the date for completion shall be postponed the number of days that the suspension directly or indirectly delays the completion of the work.

**108.07 Liquidated Damages.** For each calendar day that any work shall remain uncompleted after the contract completion date, the sum specified herein will be deducted from any money due the Contractor, not as a penalty but as liquidated damages; provided however, that due account shall be taken of any adjustment of the completion date granted under the provisions of 108. 06. If the proposal contains a special provision for liquidated damages it shall be used in lieu of the schedule contained herein.

The Contractor shall complete the work by the calendar date specified in the contract, or by a later date determined in accordance with 108. 06. Requests for extension of the completion date shall be in writing and shall be submitted to the Director of Parks & Open Space, prior to the calendar date set for completion in the proposal. Failure to request an extension of the completion date, in writing, prior to the calendar date set for completion in the proposal and/or per 108. 06, will AUTOMATICALLY cause the deduction of liquidated damages, as set forth in 108. 07 or the proposal, from all estimates due and payable to the Contractor after such completion date.

Permitting the Contractor to continue and finish the work or any part of it after the date fixed for its completion, or after the date to which completion may have been extended, will in no way operate as a waiver on the part of the City of any of its rights under the contract.

The Director of Parks & Open Space may waive such portions of the liquidated damages as may accrue after the work is in condition for safe and convenient use.

In addition to the amounts specified hereinafter for each calendar day after the completion date, the Contractor will be charged for all inspection services regardless of any extension of time granted, unless such charges are waived by the Director of Parks & Open Space.

### SCHEDULE OF LIQUIDATED DAMAGES

Original Contract Amount (Total Amount of the Bid)		Amount of Liquidated Damages to be Deducted for Each Calendar Day of Overrun in Time
From More Than	To and Including	
\$ 0	\$ 25,000	\$ 100. 00
25,001	50,000	150. 00
50,001	100,000	200. 00
100,001	500,000	300. 00
500,001	1,000,000	500. 00
1,000,001	2,000,000	750. 00
2,000,001	5,000,000	1,000. 00
5,000,001	10,000,000	1,500. 00
Over \$10,000,001		2,000. 00

**108.08 Cancellation of Contract.** If the work to be done under this contract shall be abandoned by the Contractor; or if this contract shall be assigned or the work under this contract sub-let by the Contractor, otherwise than herein specified; or if before the completion of the work under this contract, the Contractor shall become financially unable to meet obligations or shall become bankrupt or shall make a general assignment for the benefit of the creditors or shall have a receiver appointed or to take charge of the Contractor's affairs or shall have the Contractor's property levied upon or taken in execution or under attachment; or if, at any time, the Director of Parks & Open Space shall be of the opinion that the performance of the contract is unnecessarily or unreasonably delayed or that the Contractor is violating any of the conditions or agreements of this contract, or is executing the same in bad faith or is not fulfilling the terms thereof, or is not making such progress in the execution of the work as to indicate its completion within the time specified in the contract, or within the time to which the completion of the contract may have been extended by the Director of Parks & Open Space, then the Director of Parks & Open Space, in the Director of Parks & Open Space's sole discretion and on behalf of the City, may at any time declare this contract or any portion thereof, terminated by serving a written notice upon the Contractor, a copy of which shall be given to the surety or the authorized agent of the surety.

Upon the service of such notice, the Contractor shall discontinue the work or such part thereof as the Director of Parks & Open Space shall designate. The surety may, at its option, assume this contract or that portion thereof on which the Director of Parks & Open Space has ordered the Contractor to discontinue work and proceed to perform the same and may, with the written consent of the Director of Parks & Open Space, sublet the work. However, the surety shall exercise its option, if at all, within two weeks after written notice to discontinue work has been served upon the Contractor and upon the surety or its authorized agent. The surety, in such event, shall take the Contractor's place in all respects and will be paid by the City for all work performed by it in accordance with the terms of this contract and if the surety, under the provisions hereof, shall assume said entire contract, all monies remaining due the Contractor at the time of default shall thereupon become due and payable to the surety as the work progresses, subject to all of the terms of this contract.

In the event the Director of Parks & Open Space has ordered the Contractor to discontinue work on the project, the City shall have the absolute right, without liability on the part of the City to the Contractor or its surety, to continue and complete the project herein described. The surety and the Contractor shall then be jointly and severally liable for all expenditures made by the City to complete the said project excepting and providing that the surety shall not be liable for any amount over the obligation of its bond.

Any and all balances of payments due the Contractor by the City shall be forfeited to the City and the Contractor agrees that it shall lose all right, title and interest to said balances, excepting and providing that said balances shall be used, after forfeiture, for a set off to the benefit of the Contractor and its surety on the expenditures of the City to complete this project.

**108.09 Certified Payroll.** The Contractor shall submit to the Prevailing Wage Coordinator of the City a weekly copy of all project employee payrolls for the duration of the time of construction. The copy shall be accompanied by a certified statement, signed by the Contractor or an agent of the Contractor, indicating that the payrolls are correct and complete and that the wage rates contained therein are not less than those required by the prevailing wage rates in the contract, or any subsequent revision of wage rates during the life of the contract. The Contractor shall be responsible for the submission of copies of payrolls of all subcontractors.

The Contractor shall make employment records available for inspection by authorized representatives of the City and will permit employees to be interviewed during working hours by these representatives.

All weekly payrolls shall contain or have attached the following:

- 1) the name and employer identification number of each employee;
- 2) the current address of the employee;
- 3) the job classification of the employee (same as shown on wage determination or provisional approval);

- 4) rate of pay;
- 5) hours worked each day and total for each week;
- 6) fringe payments and deductions made.

Failure to furnish and submit the above information as part of the required weekly Certified Payroll will be cause for the City to withhold the preparation of the monthly estimate. In the event of a violation of the wage rate provisions by the Contractor or any subcontractor, the City may, after notice to the Contractor, suspend further payments or proceed to terminate the contract as provided by other sections of the contract.

## **109. - ACCEPTANCE, MEASUREMENT AND PAYMENT**

- 109. 01 Measurement of Quantities**
- 109. 02 Scope of Payment**
- 109. 03 Compensation for Altered Quantities**
- 109. 04 Extra and Force Account Work**
- 109. 05 Eliminated Items**
- 109. 06 Partial Payments**
- 109. 07 Payment for Material on Hand**
- 109. 08 Final Inspection and Acceptance**
- 109. 09 Final Estimate**
- 109. 10 Release of Liability**
- 109. 11 Guarantee**

**109.01 Measurement of Quantities.** Where work is to be paid for by units of length, area, weight or volume, all work accepted under this contract will be measured by the Director of Parks & Open Space, and the quantities of various items of work performed will be determined by the Director of Parks & Open Space, as the basis for final settlement.

For the calculation of quantities in which the computation of area by geometric methods would be comparatively laborious, it is stipulated and agreed that the planimeter shall be considered an instrument of precision adapted to the measurement of such areas.

**109.02 Scope of Payment.** The Contractor shall receive and accept compensation provided in the contract as full payment for furnishing all materials and equipment for performing all work under the contract in a complete and acceptable manner and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the prosecution thereof, except as otherwise provided in 104. 02, 105. 22 and 107. 14.

If the "Basis of Payment" clause in the specifications relating to any unit price in the bid schedule requires that the said unit price cover and be considered compensation for certain work or material essential to the item, this same work or material will not also be measured or paid under any other pay item which may appear elsewhere in the specifications.

**109.03 Compensation for Altered Quantities.** When the accepted quantities of work vary from the quantities in the bid schedule, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract unit prices for the accepted quantities of work done. No allowance except as provided in 104. 02 will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor resulting either directly from such alterations or indirectly from unbalanced allocation among the contract items of overhead expense on the part of the bidder and subsequent loss of expected reimbursements therefor or from any other cause.

Increased work involving supplemental agreements shall be paid for as stipulated in such agreements. The Contractor shall furnish substantiating data required in the preparation of these agreements. The costs of increased work shall be developed using guidelines of 109. 04.

**109.04 Extra and Force Account Work.** Extra work performed in accordance with the requirements and provisions of 104. 03 will be paid for at the unit prices or lump sum stipulated in the order authorizing the work, or the City may require the Contractor to do such work on a force account basis to be compensated in the following manner:

**(a) Labor.** For all labor and for all foremen in direct charge of the specific operations, the Contractor shall receive the rate of wage and fringe benefits currently in effect at the time the work is performed for each and every hour that said labor and foremen are actually engaged in such work, to which may be added an amount equal to thirty percent of the sum thereof. The term fringe benefits shall be defined as the actual costs paid to, or in behalf of, workers by reason of health and welfare benefits, pension fund benefits or other benefits, when such amounts are required by collective bargaining agreement or other employment contract generally applicable to the classes of labor employed on the work. In addition to the above the Contractor shall receive the actual cost of Social Security Tax, Workers' Compensation and State and Federal Unemployment Insurance. In lieu of itemizing these four items, fifteen percent of the sum of wages and fringe benefits may be added.

The wages of any supervisor or timekeeper who is employed partly on force account work and partly in other work, shall be prorated between the two classes of work according to the number of men employed on each class of work as shown by the payrolls.

The Contractor shall receive the actual costs paid for subsistence and travel allowances when such payments are required by collectible bargaining agreement or other employment contract generally applicable to the classes of labor employed on the work. No percentage may be added to these costs.

**(b) Materials.** For materials accepted by the Director of Parks & Open Space and used, the Contractor shall receive the actual cost of such materials delivered on the work, including transportation charges paid (exclusive of machinery rentals as hereinafter set forth), to which cost fifteen percent may be added.

**8 Equipment.** For machinery or special equipment other than small tools which it may be deemed necessary or desirable to use, the Contractor shall be allowed a rental price to be agreed upon in writing before such work is begun, for the time that such equipment is in use on the

work. No profit or overhead shall be added to any charges in connection with the use of owned equipment, however fifteen percent of the basic amount payable for rented equipment may be added for overhead and profit. Proper invoices will be required for rental equipment. The maximum rental price shall be as set forth in the current Equipment Guide Blue Book.

**(d) Supervisor's Transportation.** A flat hourly rate, which includes fuel and lubricants, profit and overhead, and any other costs will be allowed for the supervisor's transportation.

**(e) Fuel and Lubricants.** For all equipment except the supervisor's transportation (for which an all inclusive flat rate is allowed) fifteen percent of the basic equipment allowance may be added for cost of fuel and lubricants unless the Blue Book rate includes such fuel and lubricants.

**(f) Subcontract Work.** For work performed by an approved subcontractor the Contractor will be allowed an amount to cover administrative costs, equal to five percent of the compensation provided in (a), (b) (c), (d), and (e) but not exceeding \$5,000. 00.

**(g) Compensation.** The compensation to the Contractor as above provided in (a), (b), (c), (d), (e) and (f) shall constitute payment in full for extra work done on a force account including administrative, superintendence, overhead, use of tools and equipment for which no rental is allowed, profit, taxes other than sales tax, premium on insurance, and any other expense incidental to performing the force account work. Sales tax will not be allowed on any item for which tax exemption may be obtained.

**(h) Statements.** Final payment will not be made for work performed on a force account basis until the Contractor has furnished the Director of Parks & Open Space with quadruplicate itemized statements of the cost of such force account work detailed as follows:

- (1) Name, classification, date, daily hours, total hours, rate, and extension for each laborer and supervisor.
- (2) Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.
- (3) Quantities of materials, prices, and extensions.
- (4) Transportation of materials.

The Contractor's representative and the Director of Parks & Open Space shall compare records daily of the cost of work done as ordered on a force account basis. The Director of Parks & Open Space shall certify that these records are correct.

Statements shall be accompanied and supported by proper invoices for all materials used, transportation charges, and rented equipment performing work on force account operations. However, if materials used on the force account work are not specifically purchased for such work, but are produced by the Contractor or taken from the Contractor's stock, then in lieu of the invoices the Contractor shall furnish an affidavit certifying that such materials were produced by or taken from the Contractor's stock, that the quantity claimed was actually used, and that the

price and transportation claimed represent the actual cost to the Contractor. Statements shall be filed not later than the twentieth day of the month following that in which the work was actually performed.

The above described force account provisions will also apply to work performed at agreed unit prices and agreed lump sums when the agreed prices are based on analyses of cost of labor, material and equipment.

**109.05 Eliminated Items.** Should any items contained in the proposal be found unnecessary for the proper completion of the work, the Director of Parks & Open Space may, upon written order to the Contractor, eliminate such items from the contract, and such action shall in no way invalidate the contract. When the Contractor is notified of the elimination of items, the Contractor will be reimbursed for actual work done and all costs incurred, including mobilization of materials prior to said notification.

**109.06 Partial Payments.** On or about the first of each month, the Contractor shall prepare and submit to the Director of Parks & Open Space for approval, an estimate of the amount of labor performed and/or acceptable materials delivered to the site.

Progress payments shall be at the rate of ninety-two percent (92%) of the amount certified by the Director of Parks & Open Space until the work is fifty percent (50%) complete as determined by the Director of Parks & Open Space, from which time progress payments shall be at the rate of one hundred percent (100%) of the amount certified by the Director of Parks & Open Space with no further funds being retained.

When the project is substantially completed and occupied, or in use, or otherwise accepted, and there exists no other reason to withhold retainage, the retained funds shall be paid to the Contractor, withholding only that amount necessary to assure completion of the work. Retained funds shall be paid to the Contractor with interest thirty days from the date of final completion or either acceptance or occupancy by the City.

Partial payments may, at any time, be withheld, if in the opinion of the Director of Parks & Open Space, the work is not proceeding in accordance with the provisions of 108. 02.

Before the second partial payment estimate is processed and for each subsequent partial estimate thereafter, the Contractor will be required to submit a notarized affidavit confirming that all bills for materials and for subcontracted work represented by the previous partial payment have been paid. Should any defective work, material or acceptable work that has been damaged by the Contractor's operations be discovered previous to the final acceptance or should a reasonable doubt arise previous to the final acceptance as to the integrity of any part of the completed work, the estimate and payment for such defective or questioned work shall not be allowed until the defect has been remedied and cause for doubt removed, by and at the expense of the Contractor upon the order of the Director of Parks & Open Space.

**109.07 Payment for Material on Hand.** Partial payments may be made to the extent of the delivered cost of approved materials to be incorporated in the work, when delivered on the

project or stored in acceptable storage places in the vicinity of the project. Delivered cost shall be evidenced by manufacturer's invoices bearing the statement that all previous invoices have been paid.

The Contractor shall make application for payment for materials on hand or stored on forms provided by the Director of Parks & Open Space. Information will be required as to the cost of the materials, when such materials will be incorporated in the work and such other information which will be considered for approval of advanced payment. Consideration will only be given to materials for major items of the contract.

**109.08 Final Inspection and Acceptance.** When the Contractor completes all or portions of the work to be accepted by the City, a request for a final inspection by the Contractor shall be made. If items remain which must be completed or remedied by the Contractor, the Contractor shall perform the work immediately upon being notified by the Director of Parks & Open Space. When such items have been corrected by the Contractor, final inspection will be made. The work must pass final inspection before it will be accepted by the City.

Where the City has made a final inspection and has accepted any portion of the work, the retained percentage for the entire contract will be appropriately reduced for the portion of the work accepted.

**109.09 Final Estimate.** As soon as practicable after the acceptance of the work by the City, there shall be issued a final estimate for payment based on the actual quantities of completed and accepted work performed under this contract. Such final estimates shall be approved by the Director of Parks & Open Space, after which the City shall pay the entire sum found to be due, after deducting all previous payments made under 109.06. All prior estimates are subject to correction in the final estimate payment.

The date of approval of the final estimate by the Director of Parks & Open Space shall be the date of acceptance for the project.

**109.10 Release of Liability.** No person or corporation other than the signer of this contract as Contractor, has any interest hereunder and no claim shall be made or be valid, and neither the City, nor any official or agent thereof, shall be liable for or be held to pay any money except as provided herein. The acceptance by the Contractor of payment shall operate as and shall be a release to the City, and every officer and agent thereof, from all claims and liability to the Contractor for anything done or furnished for, or relating to the work, or for any act or neglect of the City, or of any person relating to or affecting the work.

**109.11 Guarantee.** When any work is accepted by the City there shall be a guarantee period extending for one year from the date of acceptance of the work. The City will designate on the plans or in the proposal those portions of the project which may be accepted prior to completion of the entire project. If during the course of the construction, the City desires to accept and place in operation any additional portions of the work, written notification will be given to the Contractor by the City.

At any time during the guarantee period, the City may notify the Contractor and his surety that certain repairs are necessary. Within ten days after being so notified, the Contractor shall make such repairs as are declared necessary to restore the work to a good and serviceable condition. Specifications for the work performed under this contract shall govern in the making of repairs under this section. In the event that the Contractor fails to comply with the order to repair as provided, said repairs may be made by the City and it is hereby agreed by the Contractor that reimbursement shall be made to the City for said expense so incurred within ten days following the receipt of a statement rendered to the Contractor by the City for said expense. Further, the Contractor will receive no recognition as a bidder for any future work of the City for a period of three years.

If the cost of providing security to the City for the one year guarantee period is prohibitive, the Contractor may, with approval of the Director of Parks & Open Space, make an assignment of bonds or other form of acceptable security to the City in the amount of five percent of the contract cost for the duration of the guarantee period.

## PAYROLL INFORMATION

I, \_\_\_\_\_ (Name),  
\_\_\_\_\_(Title) of \_\_\_\_\_  
(Subcontractor/Contractor), state the following:

1. That I pay or supervise the payment of the persons employed by \_\_\_\_\_ (Subcontractor/Contractor) on the above-referenced project.
  
2. That during the payroll period commencing on the \_\_\_\_\_ day of \_\_\_\_\_, 2010, and ending on the \_\_\_\_\_ day of \_\_\_\_\_, 2010, all persons employed on said project have been paid the full weekly wages earned; that no rebates have been or will be made either directly or indirectly to or on behalf of said \_\_\_\_\_ (Contractor/Subcontractor) from the full weekly wages earned by such persons; and that no deductions have been made either directly or indirectly from the full wages earned by such persons, other than permissible deductions as defined in Regulations, Part 3 (29 CFR Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. 276c), and described below:  
  
\_\_\_\_\_  
  
\_\_\_\_\_  
  
\_\_\_\_\_
  
3. That any payrolls otherwise under this Agreement for Construction (the "Agreement") required to be submitted for the above period are correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the applicable wage rates contained in the specifications as supplied by the Department of Industrial Relations or any wage determination incorporated into the Agreement; and that the classifications set forth therein for each laborer or mechanic conform with the work he performed.
  
4. That any apprentices employed in the above period are duly registered in a bona fide apprenticeship program registered with the Ohio Apprenticeship Council.

5. That (check applicable box):

9 a. WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS:

In addition to the basic hourly wage rates paid to each laborer or mechanic listed in the above-referenced payroll, payments of fringe benefits listed in the Agreement have been or will be made to appropriate programs for the benefit of such employees, except as noted in Section 48 below.

9 b. WHERE FRINGE BENEFITS ARE PAID IN CASH:

Each laborer or mechanic listed in the above-referenced payroll has been paid as indicated on the payroll, and amount not less than the sum of the applicable basic hourly wage rate plus the amount of the required fringe benefits as listed in the Agreement, except as noted in Section 48 below.

c. Exceptions:

Exception (Craft):

Explanation:

_____	_____
_____	_____
_____	_____
_____	_____

Remarks:

\_\_\_\_\_

\_\_\_\_\_

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

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

The willful falsification of any of the above statements may subject the Contractor or Subcontractor to fines as described in Section 4115.99 of the Ohio Revised Code.

**FINAL PAYROLL AFFIDAVIT**

STATE OF \_\_\_\_\_  
COUNTY OF \_\_\_\_\_, SS:

I, \_\_\_\_\_ (Affiant),  
\_\_\_\_\_ (Title) of \_\_\_\_\_  
(Contractor/Subcontractor), do hereby certify that:

1. The Payroll Information reports submitted on behalf of (Contractor/Subcontractor) for this project are correct.
2. The wages paid to all employees for the full number of hours worked in connection with the Agreement for Construction (the "Agreement") for the above-referenced project during the period from \_\_\_\_\_ to \_\_\_\_\_ is in accordance with the prevailing wages prescribed by the Agreement.
3. No rebates or deductions for any wages due any person have been directly or indirectly made other than those provided by law.

\_\_\_\_\_  
(Signature of Affiant)

\_\_\_\_\_  
(Print Name)

Sworn to and subscribed in my presence this \_\_\_ day of \_\_\_\_\_, 2012.

\_\_\_\_\_  
Notary Public

The above affidavit must be executed and sworn to by the officer or agent or the Contractor/Subcontractor who supervised the payment of employees, before the City of Dublin, Ohio will release the surety and/or make final payment due under the terms of the Agreement.

**SECTION 5**  
**SPECIFICATIONS**

## SECTION 01 56 39 - TEMPORARY TREE AND PLANT PROTECTION

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the protection and trimming of existing trees that interfere with, or are affected by, execution of the Work, whether temporary or permanent construction.
- B. Related Sections include the following:
  - 1. Division 31 Section "Site Clearing" for removal limits of trees, shrubs, and other plantings affected by new construction.
  - 2. Division 31 Section "Earth Moving" for building and utility trench excavation, backfilling, compacting and grading requirements, and soil materials.
  - 3. Division 32 Section "Plants" for tree and shrub planting, tree support systems, and soil materials.

## 1.3 DEFINITIONS

- A. Tree Protection Zone: Area surrounding individual trees or groups of trees to remain during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.

## 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Tree Pruning Schedule: Written schedule from arborist detailing scope and extent of pruning of trees to remain that interfere with or are affected by construction.
- C. Qualification Data: For tree service firm and arborist.
- D. Certification: From arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.
- E. Maintenance Recommendations: From arborist, for care and protection of trees affected by construction during and after completing the Work.

## 1.5 QUALITY ASSURANCE

- A. Tree Service Firm Qualifications: An experienced tree service firm that has successfully completed tree protection and trimming work similar to that required for this Project and that will assign an experienced, qualified arborist to Project site during execution of tree protection and trimming.
- B. Arborist Qualifications: An arborist certified by ISA or licensed in the jurisdiction where Project is located.
- C. Tree Pruning Standard: Comply with ANSI A300 (Part 1), "Tree, Shrub, and Other Woody Plant Maintenance--Standard Practices (Pruning)."
- D. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."
  - 1. Before tree protection and trimming operations begin, meet with representatives of authorities having jurisdiction, Owner, Architect, consultants, and other concerned entities to review tree protection and trimming procedures and responsibilities.

## PART 2 - PRODUCTS

## 2.1 MATERIALS

- A. Drainage Fill: Selected crushed stone, or crushed or uncrushed gravel, washed, ASTM D 448, Size 24, with 90 to 100 percent passing a 2-1/2-inch sieve and not more than 10 percent passing a 3/4-inch sieve.
- B. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 1 inch in diameter; and free of weeds, roots, and toxic and other nonsoil materials.
  - 1. Obtain topsoil only from well-drained sites where topsoil is 4 inches deep or more; do not obtain from bogs or marshes.
- C. Filter Fabric: Manufacturer's standard, nonwoven, pervious, geotextile fabric of polypropylene, nylon, or polyester fibers.
- D. HD Snow Fence: Plastic snow fence, four foot height, color, orange. Provide straight, hardwood stakes, and plastic zip ties to provide complete temporary fencing system.
- E. Organic Mulch: Shredded hardwood free of deleterious materials.

## PART 3 - EXECUTION

## 3.1 PREPARATION

- A. Temporary Fencing: Install temporary fencing around tree protection zones to protect remaining trees and vegetation from construction damage. Maintain temporary fence and remove when construction is complete.
  - 1. Install HD plastic snow fence as indicated on the plans.
- B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.
- C. Mulch areas inside tree protection zones and other areas indicated.
  - 1. Apply 2-inch average thickness of organic mulch. Do not place mulch within 12 inches of tree trunks.
- D. Do not store construction materials, debris, or excavated material inside tree protection zones. Do not permit vehicles or foot traffic within tree protection zones; prevent soil compaction over root systems.
- E. Maintain tree protection zones free of weeds and trash.
- F. Do not allow fires within tree protection zones.

## 3.2 EXCAVATION

- A. Install shoring or other protective support systems to minimize sloping or benching of excavations.
- B. Do not excavate within tree protection zones, unless otherwise indicated.
- C. Where excavation for new construction is required within tree protection zones, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks and comb soil to expose roots.
  - 1. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches back from new construction.
  - 2. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.
- D. Where utility trenches are required within tree protection zones, tunnel under or around roots by drilling, auger boring, pipe jacking, or digging by hand.

1. Root Pruning: Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots with sharp pruning instruments; do not break or chop.

### 3.3 REGRADING

- A. Grade Lowering: Where new finish grade is indicated below existing grade around trees, slope grade beyond tree protection zones. Maintain existing grades within tree protection zones.
- B. Minor Fill: Where existing grade is 6 inches or less below elevation of finish grade, fill with topsoil. Place topsoil in a single uncompacted layer and hand grade to required finish elevations.
- C. Moderate Fill: Where existing grade is more than 6 inches but less than 12 inches below elevation of finish grade, place drainage fill, filter fabric, and topsoil on existing grade as follows:
  1. Carefully place drainage fill against tree trunk approximately 2 inches above elevation of finish grade and extend not less than 18 inches from tree trunk on all sides. For balance of area within drip-line perimeter, place drainage fill up to 6 inches below elevation of grade.
  2. Place filter fabric with edges overlapping 6 inches minimum.
  3. Place fill layer of topsoil to finish grade. Do not compact drainage fill or topsoil. Hand grade to required finish elevations.

### 3.4 TREE PRUNING

- A. Prune trees to remain that are affected by temporary and permanent construction.
- B. Prune trees to remain to compensate for root loss caused by damaging or cutting root system. Provide subsequent maintenance during Contract period as recommended by arborist.
- C. Pruning Standards: Prune trees according to ANSI A300 (Part 1), as follows:
  1. Type of Pruning: Cleaning, as required.
  2. Specialty Pruning: Restoration.
- D. Cut branches with sharp pruning instruments; do not break or chop.
- E. Chip removed tree branches and dispose of off-site.

### 3.5 TREE REPAIR AND REPLACEMENT

- A. Promptly repair trees damaged by construction operations within 24 hours. Treat damaged trunks, limbs, and roots according to arborist's written instructions.
- B. Remove and replace trees indicated to remain that die or are damaged during construction operations that Architect determines are incapable of restoring to normal growth pattern.

1. Provide new trees of 6-inch caliper size and of a species selected by Architect when damaged trees more than 6 inches in caliper size, measured 12 inches above grade, are required to be replaced. Plant and maintain new trees as specified in Division 32 Section "Plants."
  
- C. Aerate surface soil, compacted during construction, 10 feet beyond drip line and no closer than 36 inches to tree trunk. Drill 2-inch- diameter holes a minimum of 12 inches deep at 24 inches o.c. Backfill holes with an equal mix of augered soil and sand.

### 3.6 DISPOSAL OF WASTE MATERIALS

- A. Burning is not permitted.
  
- B. Disposal: Remove excess excavated material and displaced trees from Owner's property.

END OF SECTION 01 56 39

## SECTION 31 10 00 - SITE CLEARING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:

1. Protecting existing trees, shrubs, and grass to remain.
2. Removing existing trees, shrubs, and grass.
3. Stripping and stockpiling topsoil.
4. Removing above- and below-grade site improvements.
5. Disconnecting, capping or sealing, and abandoning site utilities in place.
6. Temporary erosion and sedimentation control measures.

- B. Related Sections include the following:

1. Division 01 Section "Temporary Tree and Plant Protection" for protecting trees remaining on-site that are affected by site operations.
2. Division 02 Section "Structure Demolition" for demolition of buildings, structures, and site improvements.
3. Division 31 Section "Earth Moving" for soil materials, excavating, backfilling, and site grading.
4. Division 32 Section "Turf and Grasses, and Plants" for finish grading including preparing and placing planting soil mixes and testing of topsoil material.

## 1.3 DEFINITIONS

- A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 1 inch in diameter; and free of subsoil and weeds, roots, toxic materials, or other non-soil materials.
- B. Tree Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.

## 1.4 MATERIAL OWNERSHIP

- A. Except for stripped topsoil or other materials indicated to remain Owner's (*City of Kettering*) property, cleared materials shall become Contractor's property and shall be removed from Project site.

## 1.5 SUBMITTALS

- A. Photographs or videotape, sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing.
- B. Record drawings, according to Division 01 Section "Project Record Documents," identifying and accurately locating capped utilities and other subsurface structural, electrical, and mechanical conditions.

## 1.6 QUALITY ASSURANCE

- A. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

## 1.7 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
  - 1. Do not close or obstruct streets, parking lots, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
  - 2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
- B. Improvements on Adjoining Property: Authority for performing site clearing indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.
  - 1. Do not proceed with work on adjoining property until authorized by the Owner.
- C. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.
- D. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.
- E. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.

## PART 2 - PRODUCTS (Not Applicable)

## 2.1 SOIL MATERIALS

- A. Satisfactory Soil Materials: Requirements for satisfactory soil materials are specified in Division 31 Section "Earth Moving."
  - 1. Obtain approved borrow soil materials off-site when satisfactory soil materials are not available on-site.

## PART 3 - EXECUTION

## 3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Locate and clearly flag trees and vegetation to remain or to be relocated.
- C. Protect existing site improvements to remain from damage during construction.
  - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

## 3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to sediment and erosion control Drawings specific to the site.
- B. Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- C. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

## 3.3 TREE PROTECTION

- A. Erect and maintain temporary fencing around tree protection zones before starting site clearing. Remove fence when construction is complete.
  - 1. Do not store construction materials, debris, or excavated material within fenced area.
  - 2. Do not permit vehicles, equipment, or foot traffic within fenced area.
  - 3. Maintain fenced area free of weeds and trash.
- B. Do not excavate within tree protection zones, unless otherwise indicated.

- C. Where excavation for new construction is required within tree protection zones, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.
  - 1. Cover exposed roots with burlap and water regularly.
  - 2. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
  - 3. Coat cut faces of roots more than 1-1/2 inches in diameter with an emulsified asphalt or other approved coating formulated for use on damaged plant tissues.
  - 4. Backfill with soil as soon as possible.
- D. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by Architect.
  - 1. Employ an arborist, licensed in jurisdiction where Project is located, to submit details of proposed repairs and to repair damage to trees and shrubs.
  - 2. Replace trees that cannot be repaired and restored to full-growth status, as determined by Architect.

### 3.4 UTILITIES

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
  - 1. Notify the City of Kettering not less than two days in advance of proposed utility interruptions.

### 3.5 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction.
  - 1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
  - 2. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.
  - 3. Grind stumps and remove roots, obstructions, and debris extending to a depth of 18 inches below exposed subgrade.
  - 4. Use only hand methods for grubbing within tree protection zone.
  - 5. Chip removed tree branches and dispose of off-site.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
  - 1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

## 3.6 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.
  - 1. Remove subsoil and nonsoil materials from topsoil, including trash, debris, weeds, roots, and other waste materials.
- C. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  - 1. Limit height of topsoil stockpiles to 72 inches.
  - 2. Do not stockpile topsoil within tree protection zones.
  - 3. Stockpile surplus topsoil to allow for respreading deeper topsoil.

## 3.7 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.
- B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
  - 1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically.
  - 2. Paint cut ends of steel reinforcement in concrete to remain to prevent corrosion.

## 3.8 DISPOSAL

- A. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.
  - 1. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.

END OF SECTION 31 10 00

## SECTION 31 20 00 - EARTHWORK

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:

1. Remove topsoil and stockpile for later use.
2. Excavate subsoil and stockpile for later use.
3. Grade and contour site to elevations indicated on Drawings.
4. Remove from site excess subsoil.
5. Compaction.
6. Excavation.
7. Fill for over excavation.
8. Finish grade subsoil.
9. Place, level, and compact topsoil.
10. Preparing subgrades for slabs-on-grade, walks, pavements, lawns and grasses and exterior plants.
11. Subbase course for concrete walks and pavements.
12. Subbase and base course for asphalt paving.

- B. Related Sections include the following:

1. Division 01 Section "Temporary Tree and Plant Protection" for protecting and trimming trees to remain.
2. Division 31 Section "Site Clearing" for temporary erosion and sedimentation control measures, site stripping, grubbing, stripping and stockpiling topsoil, and removal of above- and below-grade improvements and utilities.
3. Division 32 Section "Turf and Grasses" for finish grading, including preparing and placing topsoil and planting soil for lawns.
4. Division 32 Section "Plants" for planting bed establishment and tree and shrub pit excavation and planting.
5. Division 33 Section "Subdrainage" for drainage of slabs-on-grade and landscaped areas.

- C. PROJECT RECORD DOCUMENTS

1. Accurately record location of existing utilities remaining, rerouted utilities, new utilities by horizontal dimensions, elevations or inverts, and slope gradients.

## 1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM) C136-95 – Method for Sieve Analysis for Fine and Coarse Aggregates.
- B. ASTM D698-91 – Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb. Rammer and 12 inch Drop.
- C. ASTM D422-90 – Particle Size Analysis of Soils.
- D. ASTM D4318-93 – Liquid Limit, Plastic Limit, and Plastic Index of Soils.
- E. ASTM D2487-93 – Classification of Soils for Engineering Purposes (Unified Soil Classification System).
- F. ASTM D2488-93 – Description and Identification of Soils (Visual – Manual Procedure)
- G. ASTM D1556-90 – Test Method for Density of Soil in Place by the Sand-Cone Method.
- H. ASTM D2922-91 – Density of Soil and Soil Aggregate in Place by Nuclear Methods
- I. ASTM D3017-93 – Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
- J. Ohio Department of Transportation (ODOT); Construction and Materials Specifications, 2010 Edition.

## 1.4 DEFINITIONS

- A. Stripping: Removal of existing surficial unsuitable materials (see definition) to their entire depth or as indicated.
- B. Excavation: Cutting, digging, removing and wasting materials of every description, including soils, foundations, rock encountered to dimensions, limits, elevation and contours as indicated or required by either the Drawings or these Specifications.
- C. Rock: Boulders and detached stones having a volume of 2/3 cubic yard or more and any large masses of igneous, metamorphic, or sedimentary rocks, including firmly conglomerated deposits that cannot be removed with a 1 cubic yard capacity power shovel without drilling or blasting.
- D. Unsuitable Materials: Topsoil, loam, gumbo, mud, muck, silt, expansive clay, peat, soils with an organic content greater than 3% by weight, rubbish, debris, foundation and slab materials, paving materials, rock greater than 6 inches in diameter, soils with a maximum dry weight of less than 100 lbs. per cubic foot, vegetation and frozen or dry lumps. Expansive clay is any clay with a liquid limit in excess of 50 and / or Plasticity Index of 30 or greater.
- E. Unstable Materials: Materials which are not classified as unsuitable materials, but due to their condition of being wet, dry, or frozen, are unacceptable for use in fills.

- F. Imported Fill Material or Borrow: Approved soil materials from sources other than those made available by required excavation of Project. Unless specifically provided, no imported fill shall be obtained within limits of the Project site. Imported fill shall be free of unsuitable or unstable materials and shall be approved by the Testing Agency.
- G. Fill/Backfilling: Placing of approved soil materials in accordance with specified procedures and materials in conformity with lines, grades, contours, cross-sections and elevations shown on Drawings or required by these Specifications.
- H. Subgrade: Undisturbed soil or compacted fill material upon which additional fill, sub-base or base course, footing, foundation or slab cushion is placed.
- I. Engineered Fill: An acceptable soil, aggregate, or man-made material that is placed in a controlled manner to satisfy a defined compaction Specification. The defined compaction Specification would include a maximum lift thickness, an acceptable moisture content range, and a minimum required compaction percentage based on moisture/density relationship (proctor or relative density).

#### 1.5 QUALIFICATION TESTS

- A. Unless otherwise specified, Contactor shall arrange, supervise, and pay for a Testing Agency to perform the following required qualification test.
  - 1. Qualification test on each different fill material (on-site and imported).
- B. Fill Materials: Provide the following information and qualifications tests for each fill material, including select on-site material, prior to use on Project site.
  - 1. Location of sources for each required imported materials prior to delivery to Project site.
  - 2. Analysis of fine and coarse aggregate ASTM C-136.
  - 3. Particle size analysis of soils ASTM D422.
  - 4. Liquid Limit, Plastic Limit and Plasticity Index, ASTM D4318 – cohesive materials only.
  - 5. Proctor density or relative density information according to test method identified in the Compaction Requirements Schedule.
- C. Fill material shall not be used until qualification tests have been completed and the Testing Agency has approved the fill material.

#### 1.6 SUBMITTALS

- A. Product Data: For the following:
  - 1. Each type of plastic warning tape.
  - 2. Controlled low-strength material, including design mixture.
- B. Submit material qualification tests for each fill material used and field density test reports directly from Testing Agency.
- C. Submit Testing Agency Certificate of Inspection and Compliance with Specifications for the following:

1. Bearing capacity for all footing / foundation subgrades.
  2. Acceptability of both on-site and borrow fill materials, prior to use.
  3. Acceptability of subgrade prior to fill placement.
  4. Acceptability of fill placement.
- D. Preexcavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by earthwork operations. Submit before earthwork begins.
- 1.7 SAMPLES:
- A. Submit samples under provisions of General and Special Conditions.
  - B. Submit 10 lb. sample of each type of fill to Testing Agency in airtight containers.
  - C. Samples shall be submitted to the Testing Agency one (1) week prior to fill placement, in order to perform required qualification tests.
- 1.8 LAYOUT:
- A. Employ a professional Surveyor, registered in the State of Ohio, to lay out and establish all lines, grades, including road / path / structure centerlines.
  - B. Erect control points prior to excavation. Protect existing control points.
  - C. All surveying cost to be paid by General Trades Contractor.
- 1.9 PROJECT CONDITIONS
- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Owner and then only after arranging to provide temporary utility services according to requirements indicated.
    1. Notify Owner not less than two days in advance of proposed utility interruptions.
    2. Do not proceed with utility interruptions without Owner's written permission.
    3. Contact utility-locator service for area where Project is located before excavating.

## PART 2 - PRODUCTS

### 2.1 FILL MATERIALS:

- A. Granular material shall consist of natural or synthetic mineral aggregate such as broken or crushed rock, gravel, or sand; graded in accordance with ANSI / ASTM C136 within the following limits:

Sieve Size	Percent Passing
2 ½ inches	100
1 inch	70 to 100
No. 4	25 to 100
No. 40	5 to 50
No. 200	0 to 10

CC ITEM 310

- B. Pea gravel: Natural stone; washed, free of clay, shale, organic matter; graded in accordance with ANSI / ASTM C136, to the following:

Minimum size: ¼ inch.

Maximum size: 5/8inch

- C. Sand: Natural river or bank sand, washed; free of silt, clay, loam, friable or soluble materials, or organic matter graded in accordance with ANSI / ASTM C136, within the following limits:

Sieve Size	Percent Passing
No. 4	100
No. 14	10 to 100
No. 50	5 to 90
No. 100	4 to 30
No. 200	0

- D. Subsoil – Reused, select onsite or borrow soil materials conforming to the following:

1. ASTM D2487 Soil Classification Groups GW, GC, GM, SW, SC, SM, CL, and ML
2. Less than 3% organic material by weight.
3. Free of unstable or unsuitable material or construction debris.

- E. Coarse aggregate, washed gravel, carbonate stone, graded within the following limits.

Sieve Size	Percent Passing
1 ½ inches	100
1 inch	95 to 100
½ inch	25 to 60

No. 4                    0 to 10

No. 8                    0 to 5

ODOT ITEM 703 #57

- F. Topsoil: Fertile, friable, fine sandy clay loam, uniform in composition, capable of sustaining vigorous plant growth and free of subsoil, stones, lumps, clods, hard earth, plants, plant roots, sticks, noxious weeds, slag, cinders, demolition debris or other extraneous matter over 1 inch in the largest dimension.
- G. Concrete: Structural concrete with a compressive strength of 4,000 psi.
- H. Drainage Fill: ODOT Item 703, #8.
- I. Cement: Per ODOT Specification 701.01 or 701.04.
- J. Fly Ash: Shall meet ASTM C-618, Class C or Class F except that requirements for moisture and pozzolanic activity are waived for Class F fly ash and Loss-On-Ignition (LOI) shall not exceed 12% for Class F fly ash.
- K. Fine aggregate shall be natural or synthetic sand manufactured from stone, gravel, or air-cooled slag. The gradation of the sand shall meet the requirements of ODOT Specification 703.05, unless otherwise approved. The sand shall be fine enough to stay in suspension in the mixture to the extent required for proper flow.
- L. Water: Free from oils, slats, acid, strong alkalis, vegetable matter, and other impurities that would have an adverse effect on the quality of the backfill.
- M. Mixing design including synthetic sand shall be evaluated as non-corrosive by ASTM-674.
- N. Aggregate Base: ODOT Item 304- The aggregate shall be crushed carbonate stone or crushed gravel, graded in accordance with ANSI / ASTM C136 within the following limits:

Sieve Size	Percent Passing
2 inch	100
1 inch	70 to 100
¾ inch	50 – 90
No. 4	30 to 60
No. 30	9 to 33
No. 200	0 to 13

Prior to placement, aggregate shall have reasonably uniform moisture content at or near optimum for compaction.

- O. Bank Run Gravel: The material shall consist of bank run sand and gravel, free of frozen materials, wood and rubbish. It shall have no more than 20% passing the No. 200 sieve and no particle size larger than 3 inches. Sources of borrow shall be designated well in advance of construction and bulk samples procured and tested in a laboratory to determine compaction characteristics so that this data will be available for the control of fill when construction commences.
- P. Nonstabilized Drainage Base: ODOT Item 703 – Aggregate shall be crushed carbonate stone or gravel from approved sources graded in accordance with ASTM C136 within the following limits:

Sieve Size	Percent Passing		
	Type “NJ”	Type “1A”	Type “CE”
1 ½ inches	100	-	100
1 inch	95-100	100	90-100
¾ inch	-	-	55-90
½ inch	60-80	50-80	40-75
3/8 inch	-	-	30-65
No. 4	40-55	-	15-40
No. 8	5-25	10-35	5-25
No. 16	0-8	-	0-12
No. 50	0-5	0-15	0-6
No. 200	-	0-6	-

2.2 ACCESSORIES

- A. Construction Fence: Plastic construction fence, orange in color, with the following properties:
  1. Material: Co-polymer
  2. Typical Aperture Size – 1.3 inches x 1.3 inches.
  3. Minimum Tensile Strength: MD 850 lbs./ft. width; TD 1050 lbs./ft. width; MD 4800 psi; TD 5810 psi
  4. Junction Strength – 90% of rib strength (minimum).
  5. Nominal Porosity – 75%
  6. Ultraviolet Resistance – Fully stabilized.
  7. Temperature Range - -22 degrees F to 150 degrees F
  8. Tensar Safety Grid or equal.
- B. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored as follows:

- C. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:
1. Red: Electric.
  2. Yellow: Gas, oil, steam, and dangerous materials.
  3. Orange: Telephone and other communications.
  4. Blue: Water systems.
  5. Green: Sewer systems.

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 31 Section "Site Clearing."
- C. Protect and maintain erosion and sedimentation controls, which are specified in Division 31 Section "Site Clearing," during earthwork operations.

#### 3.2 DEWATERING

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

#### 3.3 EXPLOSIVES

- A. Explosives: Do not use explosives.

### 3.4 DUST CONTROL

- A. Use all means necessary to control dust on and near the Work and on and near all off-site borrow areas if such dust is caused by the Contractor's operations during the performance of the Work or if resulting from the condition in which the Contractor leaves the site.
- B. Thoroughly moisten all surfaces as required to prevent dust being a nuisance to the public, neighbors, and concurrent performance of other work on the site.

### 3.5 GENERAL GRADING OPERATIONS

- A. Grading operations shall be performed in such a manner as to direct and control storm water runoff so that no damage occurs. Saturation of cut and fill areas shall be prevented by directing storm water runoff and not allowing ponding to occur. Fills are to be crowned as required to maintain drainage at the end of each work day. Existing drainage routes shall not be choked or obstructed until new ones are available. Temporary culverts, pumps or other equipment shall be used to facilitate drainage of fills during construction, failure to drain storm water shall not be grounds for delay of this contract due to saturated site conditions. The Contractor shall remove and dispose of saturated materials in excess of allowable moisture content at compaction and shall maintain the project schedule at all times.
- B. Dewatering: All excavation, construction, and backfill of pipes or other facilities to be constructed under this Contract shall be constructed under dry conditions. The Contractor shall constantly maintain all excavation in a dewatered, workable condition, and shall be responsible for installing, operating, maintain and removing such dewatering systems as are required.

### 3.6 SITE GRADING

- A. Existing Conditions: Visit site and verify earthwork requirements prior to commencing work.
  - 1. Existing Grades: Existing grades and contours are indicated on Drawings and represent the best information available on actual existing site conditions. Verify existing grades prior to commencing work. Commencement of work is construed as acceptance of grades and/or contours as correct.
  - 2. Required contours and elevation are indicated and noted on the Drawings. Should indicated figures conflict with actual conditions and contours, notify Owner and Architect and await his/her directions before proceeding.

### 3.7 TOPSOIL EXCAVATION

- A. Excavate topsoil from areas to be further excavated, relandscaped, or regarded and stockpile in area designated on site for future use.

### 3.8 ROUGH GRADING

- A. Site Clearing and grubbing shall be done prior to any rough grading. All debris and delirious material shall be removed from areas to be filled or backfilled.

- B. Dispose of excess excavated material or supply additional suitable material as necessary to complete the rough grading to the required elevations.
- C. Finished subgrade surface shall be reasonably smooth and free from irregular surface changes and shall be no more than one tenth (0.1) of a foot above or below the approved subgrade elevation.

### 3.9 PROTECTION OF PERSONS AND PROPERTY

- A. Barricade open excavations occurring and post with warning lights from dusk till dawn each day and as otherwise required.
- B. Erect construction barriers to prevent public access to the area of the Work. Maintain in place throughout the new construction operations. Erection, maintenance, alterations, and removal of the barriers shall be the responsibility of the Contractor.
- C. Do not close or obstruct streets or sidewalks with proper permit. Conduct operations with minimum traffic interference.
- D. Protect all existing improvements to remain during construction.

### 3.10 SUBGRADE INSPECTION

- A. Notify Architect when excavations have reached required subgrade.
- B. If testing agency determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed by testing agency.
- C. Proof-roll subgrade below the building slabs and pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
  - 1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction (if feasible). Limit vehicle speed to 3 mph.
  - 2. Proof-roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
  - 3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by testing agency, and replace with compacted backfill or fill as directed.
- D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

### 3.11 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

## 3.12 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
  - 1. Construction below finish grade including, where applicable, subdrainage.
  - 2. Surveying locations of underground utilities for Record Documents.
  - 3. Testing and inspecting underground utilities.
  - 4. Removing concrete formwork.
  - 5. Removing trash and debris.
  - 6. Removing temporary shoring and bracing, and sheeting.
- B. Place backfill on subgrades free of mud, frost, snow, or ice.

## 3.13 SOIL FILL

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- B. Place and compact fill material in layers to required elevations as follows:
  - 1. Under grass and planted areas, use satisfactory soil material.
  - 2. Under walks and pavements, use satisfactory soil material.
  - 3. Under steps and ramps, use engineered fill.
- C. Place soil fill on subgrades free of mud, frost, snow, or ice.

## 3.14 SOIL MOISTURE CONTROL

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

## 3.15 COMPACTION OF SOIL BACKFILLS AND FILLS

- A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- C. Compact soil materials to not less than the following percentages of maximum dry density according to ASTM D 698:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 100 percent.
2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 95 percent.
3. Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.

### 3.16 GRADING

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

### 3.17 SUBSURFACE DRAINAGE

- A. Subdrainage Pipe: Specified in Division 33 Section "Subdrainage."

### 3.18 SUBBASE AND BASE COURSES

- A. Place subbase and base course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place subbase and base course under pavements and walks as follows:
  1. Place base course material over subbase course under hot-mix asphalt pavement, concrete walks.
  2. Shape subbase and base course to required crown elevations and cross-slope grades.
  3. Place subbase and base course 6 inches or less in compacted thickness in a single layer.
  4. Place subbase and base course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
  5. Compact subbase and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 100 percent of maximum dry density according to ASTM D 698.

### 3.19 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

- B. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:
  - 1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least 1 test for every 2000 sq. ft. or less of paved area or building slab, but in no case fewer than 3 tests.
  - 2. Trench Backfill: At each compacted initial and final backfill layer, at least 1 test for each 150 feet or less of trench length, but no fewer than 2 tests.
- C. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

### 3.20 PROTECTION

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

### 3.21 DISPOSAL OF SURPLUS AND WASTE MATERIALS

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

END OF SECTION 31 20 00

## SECTION 32 12 16 - HOT-MIX ASPHALT PAVING

## PART 1 – GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Hot-mix asphalt paving.
  - 2. Pavement marking paint.
- B. Related Sections include the following:
  - 1. "Earth Moving" for aggregate subbase and base courses and for aggregate pavement.

## 1.3 DEFINITIONS

- A. Hot-Mix Asphalt Paving Terminology: Refer to ASTM D 8 for definitions of terms.
- B. ODOT: Ohio Department of Transportation.

## 1.4 SYSTEM DESCRIPTION

- A. Provide hot-mix asphalt paving according to materials, workmanship, and other applicable requirements of standard specifications of ODOT.
  - 1. Standard Specification: ODOT

## 1.5 SUBMITTALS

- A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.
- B. Job-Mix Designs: Certification, by authorities having jurisdiction, of approval of each job mix proposed for the Work.
- C. Qualification Data: For qualified manufacturer and installer.
- D. Material Test Reports: For each paving material from manufacturer.
- E. Material Certificates: For each paving material, signed by manufacturers.

## 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer.
  - 1. Manufacturer shall be a paving-mix manufacturer registered with and approved by authorities having jurisdiction or ODOT.

- B. Testing Agency Qualifications: Qualified according to ASTM D 3666 for testing indicated.
- C. Regulatory Requirements: Comply with ODOT for asphalt paving work.
- D. Asphalt-Paving Publication: Comply with AI MS-22, "Construction of Hot Mix Asphalt Pavements," unless more stringent requirements are indicated.
- E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to hot-mix asphalt paving including, but not limited to, the following:
  - 1. Review condition of subgrade and preparatory work.
  - 2. Review requirements for protecting paving work, including restriction of traffic during installation period and for remainder of construction period.
  - 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver pavement-marking materials to Project site in original packages with seals unbroken and bearing manufacturer's labels containing brand name and type of material, date of manufacture, and directions for storage.
- B. Store pavement-marking materials in a clean, dry, protected location within temperature range required by manufacturer. Protect stored materials from direct sunlight.

#### 1.8 PROJECT CONDITIONS

- A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp or if the following conditions are not met:
  - 1. Prime Coat: Minimum surface temperature of 60 deg F.
  - 2. Tack Coats: Minimum surface temperature of 60 deg F.
  - 3. Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at time of placement.
  - 4. Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of placement.
- B. Pavement-Marking Paint: Proceed with marking only on a clean, dry surface and at a minimum ambient temperature of 40 degrees F for oil based materials, and 55 degrees F for water based materials, and not exceeding 95 degrees F.

## PART 2 - PRODUCTS

## 2.1 AGGREGATES

- A. General: Use materials and gradations that have performed satisfactorily in previous installations.
- B. Coarse Aggregate: ASTM D 692, sound; angular crushed stone, or crushed gravel.
- C. Fine Aggregate: AASHTO M 29, sharp-edged natural sand or sand prepared from stone, gravel, properly cured blast-furnace slag, or combinations thereof.
  - 1. For hot-mix asphalt, limit natural sand to a maximum of 20 percent by weight of the total aggregate mass.

## 2.2 ASPHALT MATERIALS

- A. Asphalt Binder: AASHTO MP 1, PG 64-22.
- B. Asphalt Concrete: ODOT 402 and 404, ASTM D 3381 for viscosity-graded material
- C. Tack Coat: ASTM D 977 emulsified asphalt, or ASTM D 2397 cationic emulsified asphalt, slow setting, diluted in water of suitable grade and consistency for application.
- D. Water: Potable.

## 2.3 AUXILIARY MATERIALS

- A. Herbicide: Commercial chemical for weed control, registered by the EPA. Provide in granular, liquid, or wettable powder form.
- B. Sand: ASTM D 1073, Grade Nos. 2 or 3.
- C. Paving Geotextile: AASHTO M 288, nonwoven polypropylene; resistant to chemical attack, rot, and mildew; and specifically designed for paving applications.
- D. Joint Sealant: ASTM D 6690, hot-applied, single-component, polymer-modified bituminous sealant.
- E. Pavement-Marking Paint: Latex, waterborne emulsion, lead and chromate free, ready mixed, complying with FS TT-P-1952, Type II, with drying time of less than 30 minutes.
  - 1. Dowel:#5 Rebar (2' Long)

## 2.4 MIXES

- A. Hot-Mix Asphalt: Dense, hot-laid, hot-mix asphalt plant mixes approved by authorities having jurisdiction and complying with the following requirements:
  - 1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.
  - 2. Base Course: ODOT 448.
  - 3. Surface Course: ODOT 448.

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Verify that subgrade is dry and in suitable condition to support paving and imposed loads.
- B. Proof-roll subbase using heavy, pneumatic-tired rollers to locate areas that are unstable or that require further compaction.
  - 1. Completely proof-roll subgrade in one direction. Limit vehicle speed to 3 mph.
  - 2. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by testing agency, and replace with compacted backfill or fill as direction. Re-test areas to verify satisfactory condition of subgrade.
- C. Proceed with paving only after unsatisfactory conditions have been corrected.

## 3.2 SURFACE PREPARATION

- A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.
  - 1. Sweep loose granular particles from surface of unbound-aggregate base course. Do not dislodge or disturb aggregate embedded in compacted surface of base course.
- B. Herbicide Treatment: Apply herbicide according to manufacturer's recommended rates and written application instructions. Apply to dry, prepared subgrade or surface of compacted aggregate base before applying paving materials.
  - 1. Mix herbicide with prime coat if formulated by manufacturer for that purpose.
- C. Prime Coat: Apply uniformly over surface of compacted inbound-aggregate base course at a rate of 0.15 gal./sq yd. Apply enough material to penetrate and seal, but not flood surface. Allow prime coat to cure.
  - 1. Protect primed substrate from damage until ready to receive paving.
- D. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal./sq. yd.
  - 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
  - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

### 3.3 HOT-MIX ASPHALT PLACING

- A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
  - 1. Place hot-mix asphalt surface course in number of lifts and thicknesses indicated.
  - 2. Spread mix at minimum temperature of 250 deg F.
  - 3. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes, unless otherwise indicated.
  - 4. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
- B. Place paving in consecutive strips not less than 6 feet wide unless infill edge strips of a lesser width are required.
  - 1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete a section of asphalt base course before placing asphalt surface course.
- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

### 3.4 JOINTS

- A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions with same texture and smoothness as other sections of hot-mix asphalt course.
  - 1. Clean contact surfaces and apply tack coat to joints.
  - 2. Construct transverse joints as described in AI MS-22, "Construction of Hot Mix Asphalt Pavements."
  - 3. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
  - 4. Compact asphalt at joints to a density within 2 percent of specified course density.

### 3.5 COMPACTION OF ASHALT PAVING

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or vibratory-plate compactors in areas inaccessible to rollers.
  - 1. Complete compaction before mix temperature cools to 185 deg F.

- B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
  - 1. Average Density: 96 percent of reference laboratory density according to AASHTO T 245, but not less than 94 percent nor greater than 100 percent.
  - 2. Average Density: 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent nor greater than 96 percent.
- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
- E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
- F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.
- G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

### 3.6 INSTALLATION TOLERANCES

- A. Thickness: Compact each course to produce the thickness indicated within the following tolerances:
  - 1. Base Course: Plus or minus ½ inch.
  - 2. Surface Course: Plus 1/4 inch, no minus.
- B. Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
  - 1. Base Course: 1/4 inch.
  - 2. Surface Course: 1/8 inch.
  - 3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.

## 3.7 PAVEMENT MARKING

- A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.
- B. Allow paving to age for 30 days before starting pavement marking
- C. Sweep and clean surface to eliminate loose material and dust.
- D. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mil (0.4 mm)
  - 1. Broadcast glass beads uniformly into wet pavement markings at a rate of 6 lb/gal. (0.72 kg/L).

## 3.8 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.
- C. Surface Smoothness: finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.
- D. In-Place Density: testing agency will take samples of uncompacted pavement mixtures and compacted pavement according to ASTM D 979.
  - 1. Reference maximum theoretical density will be determined by averaging results from four samples of hot-mix asphalt paving mixture delivered daily to site, prepared according to ASTM D 2041, and compacted according to job-mix specifications.
  - 2. In-place density of compacted pavement will be determined by testing core samples according to ASTM D 1188 or ASTM D 2726.
    - a. One core sample will be taken for every 1000 sq. yd. or less of installed pavement, with no fewer than 3 cores taken.
    - b. Field density of in-place compacted pavement may also be determined by nuclear method according to ASTM D 2950 and correlated with ASTM D 1188 or ASTM D 2726.
- F. Replace and compact hot-mix asphalt where core tests were taken.
- G. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.9 DISPOSAL

A. for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Do not allow excavated materials to accumulate on-site.

END OF SECTION 32 12 16

## SECTION 32 13 13 – CONCRETE PAVING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes exterior cement concrete pavement for the following:
  - 1. Walkways
  - 2. Unit paver base.
  - 3. Pavement joint sealants
- B. Related Sections include the following:
  - 1. Division 03 Section "Cast-in-Place Concrete" for general building applications of concrete.

## 1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans, and ground granulated blast-furnace slag.
- B. Construction Joint: Joint produced when one pour is placed up against an existing one (cold joint)
- C. Contraction Joint: Joint produced that isolates the crack (control joint).
- D. Isolation Joint: Joint containing expansion material and/or caulking material to allow the joint to “flex” based on air temperature (expansion joint).

## 1.4 SUBMITTALS

- A. Samples: 5’ sq. sample of standard finish (very light broom finish).
- B. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated, based on comprehensive testing of current materials:
  - 1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali-aggregate reactivity.
- C. Material Certificates: From manufacturers certifying that each of the following materials complies with requirements:

1. Steel reinforcement and reinforcement accessories.
2. Surface Retardants
3. Curing compounds.
4. Applied finish materials.
5. Bonding agent or epoxy adhesive.
6. Joint fillers.

D. Minutes of preinstallation conference.

#### 1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

B. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1077 and ASTM E 329 for testing indicated, as documented according to ASTM E 548.

1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.

C. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by requirements in the Contract Documents.

D. Mockups: Cast mockups of full-size sections of concrete pavement to demonstrate typical joints, surface finish, texture, color, and standard of workmanship for each finish specified.

1. Build mockups in the location and of the size indicated in the pre-construction meeting.
2. Notify Architect as soon as possible in advance of dates and times when mockups will be constructed.
3. Obtain Architect's approval of mockups before starting construction.
4. Maintain approved mockups during construction in an undisturbed condition as a standard for judging the completed pavement.
5. Demolish and remove approved mockups from the site when directed by Architect.

E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Meetings."

1. Before submitting design mixtures, review concrete pavement mixture design and examine procedures for ensuring quality of concrete materials and concrete pavement construction practices. Require representatives, including the following, of each entity directly concerned with concrete pavement, to attend conference:
  1. Contractor's superintendent.
  2. Concrete pavement subcontractor.

## 1.6 PROJECT CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

## PART 2 - PRODUCTS

## 2.1 FORMS

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, smooth exposed surfaces. If plywood or wood is used as form material, use materials or methods so that the wood grain does not show on finish surface after forms are removed.
  - 1. Use flexible or curved forms for curves with a radius 100 feet or less.
- B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

## 2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.
- B. Joint Dowel Bars: Plain steel bars, ASTM A 615/A 615M, Grade 60. Cut bars true to length with ends square and free of burrs.
- C. Tie Bars: ASTM A 615/A 615M, Grade 60, deformed.
- D. Hook Bolts: ASTM A 307, Grade A, internally and externally threaded. Design hook-bolt joint assembly to hold coupling against pavement form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.
- E. Zinc Repair Material: ASTM A 780.

## 2.3 CONCRETE MATERIALS

- A. Portland Cement: ASTM C150 Type I, II, or III. High early strength may be used with written approval and at the contractor's expense.
- B. Aggregates: equivalent to ODOT #57.
- C. Water: ASTM C 94/C 94M.
- D. Air-Entraining Admixture: ASTM C 260.
- E. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.
  - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
  - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.

3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

## 2.4 CURING MATERIALS

- A. Water: Potable.
- B. Evaporation Retarder: clear waterborne, monomolecular film forming; manufactured for application to fresh concrete. Curing compounds used on exposed concrete pavements shall NOT exhibit a white or milky film after application.
- C. Clear Waterborne Membrane-Forming Curing Compound for standard broomed finishes: ASTM C 309, Type 1, Class B.
  1. Acceptable products include:
    1. Anti-Hydro International, Inc.; AH Curing Compound #2 DR WB.
    2. Burke by Edoko; Aqua Resin Cure.
    3. ChemMasters; Safe-Cure Clear.
    4. Conspec Marketing & Manufacturing Co., Inc.; W.B. Resin Cure.
    5. Dayton Superior Corporation; Day Chem Rez Cure (J-11-W).
    6. Euclid Chemical Company (The); Kurez DR VOX.
    7. Lambert Corporation; Aqua Kure-Clear.
    8. L&M Construction Chemicals, Inc.; L&M Cure R.
    9. Meadows, W. R., Inc.; 1100 Clear.
    10. Nox-Crete Products Group, Kinsman Corporation; Resin Cure E.
    11. Symons Corporation; Resi-Chem Clear.
    12. Tamms Industries Inc.; Horncure WB 30.
    13. Unitex; Hydro Cure 309.
    14. Vexcon Chemicals, Inc.; Certi-Vex Enviocure 100.

Note: The curing compound shall not be used as the final sealer for the concrete.

## 2.5 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, plastic strips with a removable top for placing caulking or sealant that is designed specifically for expansion between concrete pours.
- B. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
  10. Vexcon Chemicals, Inc.; Certi-Vex Envioset.

## 2. CONCRETE MIXTURES

1. Prepare design mixtures, proportioned according to ACI 301, for each type and strength of normal-weight concrete determined by either laboratory trial mixes or field experience.

- 1) Use a qualified independent testing agency for preparing and reporting proposed concrete mixture designs for the trial batch method.
2. Proportion mixtures to provide normal-weight concrete with the following properties:
  - 1) Compressive Strength (28 Days): 4000 psi.
  - 2) Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.45.
  - 3) Slump Limit: 3 inches.
3. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows:
  - 1) Air Content: 5 percent plus or minus 1.5 percent for **3/4-inch** nominal maximum aggregate size
4. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
5. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.
  - 1) Use water-reducing admixture, high-range, water-reducing admixture, high-range, water-reducing and retarding admixture, plasticizing and retarding admixture in concrete, as required, for placement and workability.
  - 2) Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
6. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement according to ACI 301 requirements for concrete exposed to deicing chemicals as follows:
  - 1) Fly Ash or Pozzolan: 25 percent.

## 2.6 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Furnish batch certificates for each batch discharged and used in the Work.
  1. When air temperature is between 85 deg F and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

## 2.7 CONCRETE SEALER:

- A. 'Weather Worker' by Dayton Superior with min. 40% solids or equal. Formula shall be applied twice to all exposed concrete pavement surfaces per manufacturer's recommendations and only after the 28-day curing period.
- B. Other water-based siloxane sealers applied per manufacturer's recommendations and approval at the discretion of the Architect.

## 2.8 SEALANT:

- A. Two-part polyurathane by Sika, color 'Parchment' or equal.

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.
- C. Proceed with concrete paving operations only after nonconforming conditions have been corrected and subgrade is ready to receive pavement.
- D. Paving and aggregate thicknesses are as follows: Standard finish concrete: 4'' min.; Concrete subbase for unit pavers, 4'' min.; aggregate thickness shall be equal to the concrete it's supporting or as shown on the drawings. Any concrete paving thickness not shown in plan shall be 4'' min. thickness.

## 3.2 PREPARATION

- A. Remove loose material from compacted subbase surface immediately before placing concrete.

## 3.3 EDGE FORMS AND SCREED CONSTRUCTION

- A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
- B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

## 3.4 STEEL REINFORCEMENT

- A. General: If reinforcement is shown in drawings, comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
- C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.

## 3.5 JOINTS

- A. General: Form construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.
  - 1. When joining existing pavement, place transverse joints to align with previously placed joints, unless otherwise indicated.
- B. Construction Joints (Cold Joints): Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour unless pavement terminates at isolation joints.

1. Continue steel reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of pavement strips, unless otherwise indicated.
  2. Provide tie bars at sides of pavement strips where indicated.
  3. Butt Joints: Use bonding agent at joint locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
  4. Keyed Joints: Provide preformed keyway-section forms or bulkhead forms with keys, unless otherwise indicated. Embed keys at least 1-1/2 inches into concrete.
  5. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt-coat one-half of dowel length to prevent concrete bonding to one side of joint.
- C. Isolation Joints (Expansion Joints): Form isolation joints of plastic joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.
1. Locate expansion joints at intervals as shown, unless otherwise indicated.
  2. Extend joint fillers full width and depth of joint.
  3. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
  4. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
  5. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
  6. Protect top edge of joint filler during concrete placement with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.
- D. Contraction Joints (Control Joints): Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness as shown.
1. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.
  2. Doweled Contraction Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.
- E. Edging: Tool only edges of pavement, curbs, and joints in concrete after initial floating with an edging tool to a 3/8-inch radius. Do not re-tool edges after applying surface finishes. Eliminate tool marks on concrete surfaces. "Picture Framing" tooling anywhere is not to be done.

### 3.6 CONCRETE PLACEMENT

- A. Inspection: Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast in. Notify other trades to permit installation of their work.
- B. Remove snow, ice, or frost from subbase surface and reinforcement before placing concrete. Do not place concrete on frozen surfaces.

- C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete unless otherwise noted.
- E. Do not add water to concrete during delivery or at Project site.
- F. Do not add water to fresh concrete after testing.
- G. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
- H. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.
  - 1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement, dowels, and joint devices.
- I. Screed pavement surfaces with a straightedge and strike off.
- J. Commence initial floating using bull floats or darbies to impart an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.
- K. Curbs and Gutters: If automatic machine placement is used for curb and gutter placement, submit revised mix design and laboratory test results that meet or exceed requirements. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing as specified for formed concrete. If results are not approved, remove and replace with formed concrete.
- L. Slip-Form Pavers: If an automatic machine placement is used for pavement, submit revised mix design and laboratory test results that meet or exceed requirements. Produce pavement to required thickness, lines, grades, finish, and jointing as required for formed pavement.
  - 1. Compact subbase and prepare subgrade of sufficient width to prevent displacement of paver machine during operations.
- M. When adjoining pavements are placed in separate pours, do not operate equipment on concrete until pavement has attained 85 percent of its 28-day compressive strength. Do not drive vehicles on pavement until the full 28-day strength is attained.
- N. Concrete under unit pavers or stone shall have a bull floated finish.
- O. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
  2. Do not use frozen materials or materials containing ice or snow.
  3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mix designs.
- P. Hot-Weather Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:
1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water.
  2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
  3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

### 3.7 FLOAT FINISHING

- A. General: Do not add water to concrete surfaces during finishing operations.
- B. Bull float Finish: After striking off initial pour of concrete, both standard finish concrete and paver subbase concrete (mud slab) shall be bull floated.

### 3.8 BUFF WASH FINISH

- A. Monolithic Exposed-Aggregate Finish (a.k.a., Buff Wash): Expose fine aggregate in pavement surfaces as follows:
1. Immediately after final troweling, spray-apply chemical surface retarder to pavement according to manufacturer's written instructions.
  2. At the contractor's discretion and without dislodging aggregate, remove mortar paste by either lightly brushing surface with a stiff, nylon-bristle broom while rinsing with water; or by using a power scrubber and water, or by using a power washer with the proper nozzle to minimize streaking the surface.
  3. Fine-spray surface with water and brush if needed. Repeat water flushing and brushing cycle until cement film is removed from aggregate surfaces to depth required and that the appearance of the finish concrete matches that of the approved samples.
  4. Surfaces shall have a sandy-like appearance when completed.
  5. Finishes not noted to be a 'standard' finish shall be very lightly broomed.
  6. Seal finished concrete only after the curing period is over with product in as described in Section 2.8 above.

### 3.9 BROOM FINISH

- A. Monolithic very light broom finish. Brush marks shall be barely noticeable after finishing and before applying sealants

## 3.10 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Comply with ACI 306.1 for cold-weather protection.
- C. Evaporation Retarder: Apply evaporation retarder to standard concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before trowel finishing.
- D. Begin curing the surface after brooming concrete but not before free water has disappeared from concrete surface.
- E. Curing Methods:
  - 1. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
- F. Concrete sealer: Given proper site conditions, apply per this specification and to manufacturer's recommendations per 2.8 above.

## 3.11 PAVEMENT TOLERANCES

- A. Comply with tolerances of ACI 117 and as follows:
  - 1. Elevation: 1/4 inch.
  - 2. Thickness: Plus 3/8 inch, no minus.
  - 3. Surface: Gap below 10-foot- long, unlevelled straightedge not to exceed 1/4 inch.
  - 4. Lateral Alignment and Spacing of Tie Bars and Dowels: 1 inch.
  - 5. Vertical Alignment of Tie Bars and Dowels: 1/4 inch.
  - 6. Alignment of Tie-Bar End Relative to Line Perpendicular to Pavement Edge: 1/2 inch.
  - 7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Pavement Edge: Length of dowel 1/4 inch per 12 inches.
  - 8. Joint Spacing: 3 inches.
  - 9. Contraction Joint Depth: Plus 1/4 inch, no minus.
  - 10. Joint Width: Plus 1/8 inch, no minus.

## 3.12 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
  - 1. Testing Frequency: Obtain at least 1 composite sample for each 100 cu. yd. or fraction thereof of each concrete mix placed each day.

1. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
  2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.
  3. Air Content: ASTM C 231, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
  4. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
- C. Compressive-Strength Tests: ASTM C 39/C 39M; test 1 specimen at 7 days and 2 specimens at 28 days. A compressive-strength test shall be the average compressive strength from 2 specimens obtained from same composite sample and tested at 28 days.
- D. Strength of each concrete mix will be satisfactory if average of any 3 consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
- E. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
- F. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
- G. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.
- H. Remove and replace concrete pavement where test results indicate that it does not comply with specified requirements.
- I. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

### 3.13 REPAIRS AND PROTECTION

- A. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.
- B. Drill test cores, where directed by Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with portland cement concrete bonded to pavement with epoxy adhesive.

- C. Protect concrete from damage. Exclude traffic from pavement for at least 28 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 32 13 13

## SECTION 32 92 00 - TURF AND GRASSES

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. Section Includes:
  - 1. Seeding.
  - 2. Meadow grasses and wildflowers.
  - 3. Turf renovation.
  - 4. Erosion-control material(s).
- B. Related Sections:
  - 1. Division 32 Section "Plants" for border edgings.

## 1.3 DEFINITIONS

- A. Duff Layer: The surface layer of native topsoil that is composed of mostly decayed leaves, twigs, and detritus.
- B. Finish Grade: Elevation of finished surface of planting soil.
- C. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- D. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. This includes insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. It also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
- E. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. These include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
- F. Planting Soil: Standardized topsoil; existing, native surface topsoil; existing, in-place surface soil; imported topsoil; or manufactured topsoil that is modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
- G. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or top surface of a fill or backfill before planting soil is placed.

- H. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.
- I. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil, but in disturbed areas such as urban environments, the surface soil can be subsoil.

#### 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
  - 1. Pesticides and Herbicides: Include product label and manufacturer's application instructions specific to this Project.
- B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
  - 1. Provide National Turfgrass Evaluation Program (NTEP) data for each grass species used.
- C. Qualification Data: For qualified landscape Installer.
- D. Product Certificates: For soil amendments and fertilizers, from manufacturer.
- E. Material Test Reports: For existing in-place surface soil.
- F. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of turf and meadows during a calendar year. Submit before expiration of required initial maintenance periods.

#### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape Installer whose work has resulted in successful turf and meadow establishment.
  - 1. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.
  - 2. Experience: Five years' experience in turf installation in addition to requirements in Division 01 Section "Quality Requirements."
  - 3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
  - 4. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the Professional Landcare Network:
    - a. Certified Landscape Technician - Exterior, with installation, and maintenance specialty area(s), designated CLT-Exterior.
    - b. Certified Turfgrass Professional, designated CTP.
    - c. Certified Turfgrass Professional of Cool Season Lawns, designated CTP-CSL.

5. Maintenance Proximity: Not more than two hours' normal travel time from Installer's place of business to Project site.
  6. Pesticide Applicator: State licensed, commercial.
- B. Soil-Testing Laboratory Qualifications: An independent laboratory or university laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.
- C. Soil Analysis: For each unamended soil type, furnish soil analysis and a written report by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; sodium absorption ratio; deleterious material; pH; and mineral and plant-nutrient content of the soil.
1. Testing methods and written recommendations shall comply with USDA's Handbook No. 60.
  2. The soil-testing laboratory shall oversee soil sampling, with depth, location, and number of samples to be taken per instructions from Architect. A minimum of three representative samples shall be taken from varied locations for each soil to be used or amended for planting purposes.
  3. Report suitability of tested soil for turf growth.
    - a. Based on the test results, state recommendations for soil treatments and soil amendments to be incorporated. State recommendations in weight per 1000 sq. ft. or volume per cu. yd. for nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory planting soil suitable for healthy, viable plants.
    - b. Report presence of problem salts, minerals, or heavy metals, including aluminum, arsenic, barium, cadmium, chromium, cobalt, lead, lithium, and vanadium. If such problem materials are present, provide additional recommendations for corrective action.
- D. Preinstallation Conference: Conduct conference at Project site.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws, as applicable.
- B. Bulk Materials:
1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
  2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
  3. Accompany each delivery of bulk fertilizers and soil amendments with appropriate certificates.

## 1.7 PROJECT CONDITIONS

- A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of planting completion.
  - 1. Spring Planting: March 15 – May 15 for lawns. March – April for meadow seeding.
  - 2. Fall Planting: September 1 – October 15 for lawns. September 1 – soil freeze-up for meadow seeding.
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

## 1.8 MAINTENANCE SERVICE

- A. Initial Turf Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after each area is planted and continue until acceptable turf is established but for not less than the following periods:
  - 1. Seeded Turf: 60 days from date of planting completion.
    - a. When initial maintenance period has not elapsed before end of planting season, or if turf is not fully established, continue maintenance during next planting season.
- B. Initial Meadow Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after each area is planted and continue until acceptable meadow is established, but for not less than 90 days from date of planting completion.

## PART 2 - PRODUCTS

## 2.1 SEED

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.
- B. Seed Species: State-certified seed of grass species as follows:
- C. Seed Species: Seed of grass species as follows, with not less than 95 percent germination, not less than 85 percent pure seed, and not more than 0.5 percent weed seed:
- D. Grass Seed Mix: Proprietary seed mix as follows:
  - 1. Products: Subject to compliance with requirements, provide the following:

- a. Turf Grass: 80 percent tall fescue (*Festuca arundinacea*), a minimum of three (3) improved varieties shall be used (do not use Kentucky-31 and Alta). 10 percent Kentucky bluegrass (*Poa pratensis*), two improved varieties, and 10 percent perennial ryegrass (*Lolium perenne*).
- b. Tall Fescue (No-Mow Turf): 25 percent Red Fescue, 25 percent Chewing Fescue, 25 percent Stonehenge Hard Fescue, 25 percent Sheep Fescue.

## 2.2 MEADOW GRASSES AND WILDFLOWERS

- A. Wildflower and Native Grass Seed: Fresh, clean, and dry new seed, of mixed species as follows:
  1. 'Moist Meadow and Rain Garden' mix by Prairie Nursery (800) 476-9453.
- B. Seed Carrier: Inert material, sharp clean sand or perlite, mixed with seed at a ratio of not less than two parts seed carrier to one part seed.

## 2.3 INORGANIC SOIL AMENDMENTS

- A. Lime: ASTM C 602, agricultural liming material containing a minimum of 80 percent calcium carbonate equivalent and as follows:
  1. Class: T, with a minimum of 99 percent passing through No. 8 sieve and a minimum of 75 percent passing through No. 60 sieve.
  2. Class: O, with a minimum of 95 percent passing through No. 8 sieve and a minimum of 55 percent passing through No. 60 sieve.
- B. Provide lime in form of ground dolomitic limestone, containing a minimum of 90 percent sulfur, and with a minimum of 99 percent passing through No. 6 sieve and a maximum of 10 percent passing through No. 40 sieve.
- C. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.
- D. Aluminum Sulfate: Commercial grade, unadulterated.
- E. Perlite: Horticultural perlite, soil amendment grade.
- F. Agricultural Gypsum: Minimum 90 percent calcium sulfate, finely ground with 90 percent passing through No. 50 sieve.
- G. Sand: Clean, washed, natural or manufactured, and free of toxic materials.
- H. Diatomaceous Earth: Calcined, 90 percent silica, with approximately 140 percent water absorption capacity by weight.
- I. Zeolites: Mineral clinoptilolite with at least 60 percent water absorption by weight.

## 2.4 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1/2-inch sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:
  - 1. Organic Matter Content: 50 to 60 percent of dry weight.
  - 2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.
- B. Sphagnum Peat: Partially decomposed sphagnum peat moss, finely divided or of granular texture, with a pH range of 3.4 to 4.8.
- C. Muck Peat: Partially decomposed moss peat, native peat, or reed-sedge peat, finely divided or of granular texture, with a pH range of 6 to 7.5, and having a water-absorbing capacity of 1100 to 2000 percent.
- D. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture and free of chips, stones, sticks, soil, or toxic materials.
  - 1. In lieu of decomposed wood derivatives, mix partially decomposed wood derivatives with ammonium nitrate at a minimum rate of 0.15 lb/cu. ft. of loose sawdust or ground bark, or with ammonium sulfate at a minimum rate of 0.25 lb/cu. ft. of loose sawdust or ground bark.
- E. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

## 2.5 FERTILIZERS

- A. Bonemeal: Commercial, raw or steamed, finely ground; a minimum of 4 percent nitrogen and 20 percent phosphoric acid.
- B. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.
- C. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
  - 1. Composition: 1 lb/1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.
  - 2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.
- D. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:

1. Composition: 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.
2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

## 2.6 PLANTING SOILS

- A. Planting Soil: Existing, native surface topsoil formed under natural conditions with the duff layer retained during excavation process and stockpiled on-site. Verify suitability of native surface topsoil to produce viable planting soil. Clean soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.
  1. Mix existing, native surface topsoil with required soil amendments as indicated by soil analysis.

## 2.7 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.
- B. Sphagnum Peat Mulch: Partially decomposed sphagnum peat moss, finely divided or of granular texture, and with a pH range of 3.4 to 4.8.
- C. Muck Peat Mulch: Partially decomposed moss peat, native peat, or reed-sedge peat, finely divided or of granular texture, with a pH range of 6 to 7.5, and having a water-absorbing capacity of 1100 to 2000 percent.
- D. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of 2 to 5 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:
  1. Organic Matter Content: 50 to 60 percent of dry weight.
  2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.
- E. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic and free of plant-growth or germination inhibitors; with a maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.
- F. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.
- G. Asphalt Emulsion: ASTM D 977, Grade SS-1; nontoxic and free of plant-growth or germination inhibitors.

## 2.8 PESTICIDES

- A. General: Pesticide, registered and approved by EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as

required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

- B. Pre-Emergent Herbicide (Selective and Non-Selective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.
- C. Post-Emergent Herbicide (Selective and Non-Selective): Effective for controlling weed growth that has already germinated.

## 2.9 EROSION-CONTROL MATERIALS

- A. Erosion-Control Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6 inches long.
- B. Erosion-Control Fiber Mesh: Biodegradable burlap or spun-coir mesh, a minimum of 0.92 lb/sq. yd., with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6 inches long.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas to be planted for compliance with requirements and other conditions affecting performance.
  - 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
  - 2. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.
  - 3. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
  - 4. Uniformly moisten excessively dry soil that is not workable and which is too dusty.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.

### 3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
  - 1. Protect adjacent and adjoining areas from hydroseeding and hydromulching overspray.

2. Protect grade stakes set by others until directed to remove them.

B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

### 3.3 TURF AREA PREPARATION

A. Limit turf subgrade preparation to areas to be planted.

B. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 8 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

1. Apply superphosphate fertilizer directly to subgrade before loosening.

2. Spread approx. ½ the thickness of planting soil (topsoil) over loosened subgrade. Incorporate thoroughly into top 4 inches of subgrade. Spread remainder of planting soil (topsoil), apply soil amendments and fertilizer on surface as recommended by soils analysis, and thoroughly blend planting soil.

a. Delay mixing fertilizer with planting soil if planting will not proceed within a few days.

b. Mix lime with dry soil before mixing fertilizer.

C. Unchanged Subgrades: If turf is to be planted in areas unaltered or undisturbed by excavating, grading, or surface-soil stripping operations, prepare surface soil as follows:

1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.

2. Loosen surface soil to a depth of at least 6 inches. Apply soil amendments and fertilizers according to amount recommended by soil analysis and mix thoroughly into top 4 inches of soil. Till soil to a homogeneous mixture of fine texture.

a. Apply superphosphate fertilizer directly to surface soil before loosening.

3. Remove stones larger than 1 inch in any dimension and sticks, roots, trash, and other extraneous matter.

4. Legally dispose of waste material, including grass, vegetation, and turf, off Owner's property.

D. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit finish grading to areas that can be planted in the immediate future.

E. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

F. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

## 3.4 PREPARATION FOR EROSION-CONTROL MATERIALS

- A. Prepare area as specified in "Turf Area Preparation" Article.
- B. For erosion-control blanket or mesh, install from top of slope, working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material manufacturer.
- C. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

## 3.5 SEEDING

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
  - 1. Do not use wet seed or seed that is moldy or otherwise damaged.
  - 2. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.
- B. Sow seed at a total rate of 10 lb/1000 sq. ft.
- C. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.
- D. Protect seeded areas with slopes exceeding 1:3 with erosion-control fiber mesh installed and stapled according to manufacturer's written instructions.
- E. Protect seeded areas with erosion-control mats where shown on Drawings; install and anchor according to manufacturer's written instructions.
- F. Protect seeded areas with slopes not exceeding 1:6 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 3/4 inch loose thickness over seeded areas. Spread by hand, blower, or other suitable equipment.
  - 1. Anchor straw mulch by crimping into soil with suitable mechanical equipment.
  - 2. Bond straw mulch by spraying with asphalt emulsion at a rate of 10 to 13 gal./1000 sq. ft. Take precautions to prevent damage or staining of structures or other plantings adjacent to mulched areas. Immediately clean damaged or stained areas.
- G. Protect seeded areas from hot, dry weather or drying winds by applying compost mulch 24 hours after completing seeding operations. Soak areas, scatter mulch uniformly to a thickness of 3/16 inch and roll surface smooth.

## 3.6 TURF RENOVATION

- A. Renovate existing turf.
- B. Renovate existing turf damaged by Contractor's operations, such as storage of materials or equipment and movement of vehicles.

1. Reestablish turf where settlement or washouts occur or where minor regrading is required.
  2. Install new planting soil as required.
- C. Remove sod and vegetation from diseased or unsatisfactory turf areas; do not bury in soil.
- D. Remove topsoil containing foreign materials such as oil drippings, fuel spills, stones, gravel, and other construction materials resulting from Contractor's operations, and replace with new planting soil.
- E. Mow, dethatch, core aerate, and rake existing turf.
- F. Remove weeds before seeding. Where weeds are extensive, apply selective herbicides as required. Do not use pre-emergence herbicides.
- G. Remove waste and foreign materials, including weeds, soil cores, grass, vegetation, and turf, and legally dispose of them off Owner's property.
- H. Till stripped, bare, and compacted areas thoroughly to a soil depth of 6 inches.
- I. Apply soil amendments and initial fertilizers required for establishing new turf and mix thoroughly into top 4 inches of existing soil. Install new planting soil to fill low spots and meet finish grades.
- J. Apply seed and protect with straw mulch as required for new turf.
- K. Water newly planted areas and keep moist until new turf is established.

### 3.7 TURF MAINTENANCE

- A. Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.
1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
  2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
  3. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.
- B. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.
1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.

2. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.
- C. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than 1/3 of grass height. Remove no more than 1/3 of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:
  1. Mow turf areas to a height of 2 to 2 ½ inches.
- D. Turf Postfertilization: Apply fertilizer after initial mowing and when grass is dry.
  1. Use fertilizer that will provide actual nitrogen of at least 1 lb/1000 sq. ft. to turf area.

### 3.8 SATISFACTORY TURF

- A. Turf installations shall meet the following criteria as determined by Architect:
  1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches .
- B. Use specified materials to reestablish turf that does not comply with requirements and continue maintenance until turf is satisfactory.

### 3.9 MEADOW

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
  1. Do not use wet seed or seed that is moldy or otherwise damaged.
- B. Sow seed at a total rate of 10 oz./1000 sq. ft.
- C. Brush seed into top 1/16 inch of soil, roll lightly, and water with fine spray.
- D. Protect seeded areas from hot, dry weather or drying winds by applying peat or compost mulch within 24 hours after completing seeding operations. Soak areas, scatter mulch uniformly to a thickness of 3/16 inch, and roll surface smooth.
- E. Water newly planted areas and keep moist until meadow is established.

### 3.10 MEADOW MAINTENANCE

- A. Maintain and establish meadow by watering, weeding, mowing, trimming, replanting, and performing other operations as required to establish a healthy, viable meadow. Roll, regrade, and replant bare or eroded areas and remulch. Provide materials and installation the same as those used in the original installation.

1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and meadow damaged or lost in areas of subsidence.
  2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
  3. Apply treatments as required to keep meadow and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.
- B. Watering: Install and maintain temporary piping, hoses, and meadow-watering equipment to convey water from sources and to keep meadow uniformly moist.
1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
  2. Water meadow with fine spray at a minimum rate of 1/2 inch per week for six weeks after planting unless rainfall precipitation is adequate.

### 3.11 PESTICIDE APPLICATION

- A. Apply pesticides and other chemical products and biological control agents in accordance with requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.
- B. Post-Emergent Herbicides (Selective and Non-Selective): Apply only as necessary to treat already-germinated weeds and in accordance with manufacturer's written recommendations.

### 3.12 CLEANUP AND PROTECTION

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

END OF SECTION 32 92 00

## SECTION 32 93 00 - PLANTS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

## A. Section Includes:

1. Plants.
2. Planting soils.
3. Landscape edgings.

## B. Related Sections:

1. Division 01 Section "Temporary Tree and Plant Protection" for protecting, trimming, pruning, repairing, and replacing existing trees to remain that interfere with, or are affected by, execution of the Work.
2. Division 32 Section "Turf and Grasses" for turf (lawn) and meadow planting, hydroseeding, and erosion-control materials.

## 1.3 DEFINITIONS

- A. Backfill: The earth used to replace or the act of replacing earth in an excavation.
- B. Balled and Burlapped Stock: Plants dug with firm, natural balls of earth in which they were grown, with ball size not less than diameter and depth recommended by ANSI Z60.1 for type and size of plant required; wrapped with burlap, tied, rigidly supported, and drum laced with twine with the root flare visible at the surface of the ball as recommended by ANSI Z60.1.
- C. Balled and Potted Stock: Plants dug with firm, natural balls of earth in which they are grown and placed, unbroken, in a container. Ball size is not less than diameter and depth recommended by ANSI Z60.1 for type and size of plant required.
- D. Bare-Root Stock: Plants with a well-branched, fibrous-root system developed by transplanting or root pruning, with soil or growing medium removed, and with not less than minimum root spread according to ANSI Z60.1 for type and size of plant required.
- E. Container-Grown Stock: Healthy, vigorous, well-rooted plants grown in a container, with a well-established root system reaching sides of container and maintaining a firm ball when removed from container. Container shall be rigid enough to hold ball shape and protect root mass during shipping and be sized according to ANSI Z60.1 for type and size of plant required.

- F. Duff Layer: The surface layer of native topsoil that is composed of mostly decayed leaves, twigs, and detritus.
- G. Fabric Bag-Grown Stock: Healthy, vigorous, well-rooted plants established and grown in-ground in a porous fabric bag with well-established root system reaching sides of fabric bag. Fabric bag size is not less than diameter, depth, and volume required by ANSI Z60.1 for type and size of plant.
- H. Finish Grade: Elevation of finished surface of planting soil.
- I. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- J. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. This includes insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. It also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
- K. Pests: Living organisms that occur where they are not desired, or that cause damage to plants, animals, or people. These include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
- L. Planting Area: Areas to be planted.
- M. Planting Soil: Standardized topsoil; existing, native surface topsoil; existing, in-place surface soil; imported topsoil; or manufactured topsoil that is modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
- N. Plant; Plants; Plant Material: These terms refer to vegetation in general, including trees, shrubs, vines, ground covers, ornamental grasses, bulbs, corms, tubers, or herbaceous vegetation.
- O. Root Flare: Also called "trunk flare." The area at the base of the plant's stem or trunk where the stem or trunk broadens to form roots; the area of transition between the root system and the stem or trunk.
- P. Stem Girdling Roots: Roots that encircle the stems (trunks) of trees below the soil surface.
- Q. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.
- R. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.
- S. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.

#### 1.4 SUBMITTALS

- A. Product Data: For each type of product indicated, including soils.

1. Plant Materials: Include quantities, sizes, quality, and sources for plant materials.
  2. Pesticides and Herbicides: Include product label and manufacturer's application instructions specific to the Project.
- B. Samples for Verification: For each of the following:
1. Organic Mulch: 1-quart volume of each organic mulch required; in sealed plastic bags labeled with composition of materials by percentage of weight and source of mulch. Each Sample shall be typical of the lot of material to be furnished; provide an accurate representation of color, texture, and organic makeup.
  2. Mineral Mulch: 2 lb of each mineral mulch required, in sealed plastic bags labeled with source of mulch. Sample shall be typical of the lot of material to be delivered and installed on the site; provide an accurate indication of color, texture, and makeup of the material.
  3. Weed Control Barrier: 12 by 12 inches.
  4. Edging Materials and Accessories: Manufacturer's standard size, to verify color selected.
- C. Qualification Data: For qualified landscape Installer. Include list of similar projects completed by Installer demonstrating Installer's capabilities and experience. Include project names, addresses, and year completed, and include names and addresses of owners' contact persons.
- D. Product Certificates: For each type of manufactured product, from manufacturer, and complying with the following:
1. Manufacturer's certified analysis of standard products.
  2. Analysis of other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.
- E. Material Test Reports: For existing native surface topsoil.
- F. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of plants during a calendar year. Submit before start of required maintenance periods.
- G. Warranty: Sample of special warranty.

## 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape Installer whose work has resulted in successful establishment of plants.
1. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.
  2. Experience: Ten years' experience in landscape installation in addition to requirements in Division 01 Section "Quality Requirements."
  3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
  4. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the Professional Landcare Network:

- a. Certified Landscape Technician - Exterior, with installation, and maintenance specialty area(s), designated CLT-Exterior.
5. Pesticide Applicator: State licensed, commercial.
- B. Soil-Testing Laboratory Qualifications: An independent or university laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.
- C. Soil Analysis: For each unamended soil type, furnish soil analysis and a written report by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; deleterious material; pH; and mineral and plant-nutrient content of the soil.
1. Testing methods and written recommendations shall comply with USDA's Handbook No. 60.
  2. The soil-testing laboratory shall oversee soil sampling; with depth, location, and number of samples to be taken per instructions from Architect. A minimum of three representative samples shall be taken from varied locations for each soil to be used or amended for planting purposes.
  3. Report suitability of tested soil for plant growth.
    - a. Based upon the test results, state recommendations for soil treatments and soil amendments to be incorporated. State recommendations in weight per 1000 sq. ft. or volume per cu. yd. for nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory planting soil suitable for healthy, viable plants.
    - b. Report presence of problem salts, minerals, or heavy metals, including aluminum, arsenic, barium, cadmium, chromium, cobalt, lead, lithium, and vanadium. If such problem materials are present, provide additional recommendations for corrective action.
- D. Provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1.
- E. Measurements: Measure according to ANSI Z60.1. Do not prune to obtain required sizes.
1. Trees and Shrubs: Measure with branches and trunks or canes in their normal position. Take height measurements from or near the top of the root flare for field-grown stock and container grown stock. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip to tip. Take caliper measurements 6 inches above the root flare for trees up to 4-inch caliper size, and 12 inches above the root flare for larger sizes.
  2. Other Plants: Measure with stems, petioles, and foliage in their normal position.
- F. Plant Material Observation: Architect may observe plant material either at place of growth or at site before planting for compliance with requirements for genus, species, variety, cultivar, size, and quality. Architect retains right to observe trees and shrubs further for size and condition of balls and root systems, pests, disease symptoms, injuries, and latent defects and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from Project site.

1. Notify Architect of sources of planting materials fourteen days in advance of delivery to site.

G. Preinstallation Conference: Conduct conference at Project site.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws if applicable.

B. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Accompany each delivery of bulk fertilizers, and soil amendments with appropriate certificates.

C. Deliver bare-root stock plants freshly dug. Immediately after digging up bare-root stock, pack root system in wet straw, hay, or other suitable material to keep root system moist until planting.

D. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.

E. Handle planting stock by root ball.

F. Store bulbs, corms, and tubers in a dry place at 60 to 65 deg F until planting.

G. Deliver plants after preparations for planting have been completed, and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.

1. Heel-in bare-root stock. Soak roots that are in dry condition in water for two hours. Reject dried-out plants.
2. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.
3. Do not remove container-grown stock from containers before time of planting.
4. Water root systems of plants stored on-site deeply and thoroughly with a fine-mist spray. Water as often as necessary to maintain root systems in a moist, but not overly-wet condition.

## 1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify actual grade elevations, service and utility locations, irrigation system components, and dimensions of plantings and construction contiguous with new plantings by field measurements before proceeding with planting work.
- B. Interruption of Existing Services or Utilities: Do not interrupt services or utilities to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary services or utilities according to requirements indicated:
  - 1. Do not proceed with interruption of services or utilities without Owner's written permission.
- C. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
  - 1. Spring Planting: April 15 – June 1.
  - 2. Fall Planting: September 1 – November 1.
- D. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions and warranty requirements.
- E. Coordination with Turf Areas (Lawns): Plant trees, shrubs, and other plants after finish grades are established and before planting turf areas unless otherwise indicated.
  - 1. When planting trees, shrubs, and other plants after planting turf areas, protect turf areas, and promptly repair damage caused by planting operations.

## 1.8 WARRANTY

- A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner, or incidents that are beyond Contractor's control.
    - b. Structural failures including plantings falling or blowing over.
    - c. Faulty performance of tree stabilization, edgings.
    - d. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
  - 2. Warranty Periods from Date of Substantial Completion:
    - a. Trees, Shrubs, Vines, and Ornamental Grasses: 12 months.
    - b. Ground Covers, Biennials, Perennials, and Other Plants: 12 months.
  - 3. Include the following remedial actions as a minimum:

- a. Immediately remove dead plants and replace unless required to plant in the succeeding planting season.
- b. Replace plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period.
- c. A limit of one replacement of each plant will be required except for losses or replacements due to failure to comply with requirements.
- d. Provide extended warranty for period equal to original warranty period, for replaced plant material.

## 1.9 MAINTENANCE SERVICE

- A. Initial Maintenance Service for Trees and Shrubs: Provide maintenance by skilled employees of landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established but for not less than maintenance period below.
  1. Maintenance Period: Three months from date of Substantial Completion.
- B. Initial Maintenance Service for Ground Cover and Other Plants: Provide maintenance by skilled employees of landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established but for not less than maintenance period below.
  1. Maintenance Period: Three months from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 PLANT MATERIAL

- A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Plant Schedule or Plant Legend shown on Drawings and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.
  1. Trees with damaged, crooked, or multiple leaders; tight vertical branches where bark is squeezed between two branches or between branch and trunk ("included bark"); crossing trunks; cut-off limbs more than 3/4 inch in diameter; or with stem girdling roots will be rejected.
  2. Collected Stock: Do not use plants harvested from the wild, from native stands, from an established landscape planting, or not grown in a nursery unless otherwise indicated.
- B. Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to Architect, with a proportionate increase in size of roots or balls.

- C. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which shall begin at root flare according to ANSI Z60.1. Root flare shall be visible before planting.
- D. Labeling: Label each plant of each variety, size, and caliper with a securely attached, waterproof tag bearing legible designation of common name and full scientific name, including genus and species. Include nomenclature for hybrid, variety, or cultivar, if applicable for the plant as shown on Drawings.
- E. If formal arrangements or consecutive order of plants is shown on Drawings, select stock for uniform height and spread, and number the labels to assure symmetry in planting.

## 2.2 INORGANIC SOIL AMENDMENTS

- A. Lime: ASTM C 602, agricultural liming material containing a minimum of 80 percent calcium carbonate equivalent and as follows:
  - 1. Class: T, with a minimum of 99 percent passing through No. 8 sieve and a minimum of 75 percent passing through No. 60 sieve.
  - 2. Class: O, with a minimum of 95 percent passing through No. 8 sieve and a minimum of 55 percent passing through No. 60 sieve.
  - 3. Provide lime in form of ground dolomitic limestone.
- B. Sulfur: Granular, biodegradable, and containing a minimum of 90 percent sulfur, with a minimum of 99 percent passing through No. 6 sieve and a maximum of 10 percent passing through No. 40 sieve.
- C. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.
- D. Aluminum Sulfate: Commercial grade, unadulterated.
- E. Perlite: Horticultural perlite, soil amendment grade.
- F. Agricultural Gypsum: Minimum 90 percent calcium sulfate, finely ground with 90 percent passing through No. 50 sieve.
- G. Sand: Clean, washed, natural or manufactured, and free of toxic materials.
- H. Diatomaceous Earth: Calcined, 90 percent silica, with approximately 140 percent water absorption capacity by weight.
- I. Zeolites: Mineral clinoptilolite with at least 60 percent water absorption by weight.

## 2.3 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1/2-inch sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:

1. Organic Matter Content: 50 to 60 percent of dry weight.
  2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.
- B. Sphagnum Peat: Partially decomposed sphagnum peat moss, finely divided or granular texture, with a pH range of 3.4 to 4.8.
- C. Muck Peat: Partially decomposed moss peat, native peat, or reed-sedge peat, finely divided or of granular texture, with a pH range of 6 to 7.5, and having a water-absorbing capacity of 1100 to 2000 percent.
- D. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture and free of chips, stones, sticks, soil, or toxic materials.
1. In lieu of decomposed wood derivatives, mix partially decomposed wood derivatives with ammonium nitrate at a minimum rate of 0.15 lb/cu. ft. of loose sawdust or ground bark, or with ammonium sulfate at a minimum rate of 0.25 lb/cu. ft. of loose sawdust or ground bark.
- E. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, debris, and material harmful to plant growth.

#### 2.4 FERTILIZERS

- A. Bonemeal: Commercial, raw or steamed, finely ground; a minimum of 4 percent nitrogen and 20 percent phosphoric acid.
- B. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.
- C. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
1. Composition: 1 lb/1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.
  2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.
- D. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
1. Composition: 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.
  2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

- E. Planting Tablets: Tightly compressed chip type, long-lasting, slow-release, commercial-grade planting fertilizer in tablet form. Tablets shall break down with soil bacteria, converting nutrients into a form that can be absorbed by plant roots.
  - 1. Size: 10-gram tablets.
  - 2. Nutrient Composition: 20 percent nitrogen, 10 percent phosphorous, and 5 percent potassium, by weight plus micronutrients.
- F. Chelated Iron: Commercial-grade FeEDDHA for dicots and woody plants, and commercial-grade FeDTPA for ornamental grasses and monocots.

## 2.5 PLANTING SOILS

- A. Planting Soil: Existing, native surface topsoil formed under natural conditions with the duff layer retained during excavation process and stockpiled on-site. Verify suitability of native surface topsoil to produce viable planting soil. Clean soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.
  - 1. Mix existing, native surface topsoil with the recommended soil amendments as indicated by soil analysis.
- B. Planting Soil: Existing, in-place surface soil. Verify suitability of existing surface soil to produce viable planting soil. Remove stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth. Mix surface soil with the recommended soil amendments recommended by soil analysis to produce planting soil:

## 2.6 MULCHES

- A. Organic Mulch: Free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of one of the following:
  - 1. Type: Shredded hardwood.
  - 2. Size Range: 2 inches maximum, 1/2 inch minimum.
  - 3. Color: Natural.
- B. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of 2 to 5 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:
  - 1. Organic Matter Content: 50 to 60 percent of dry weight.
  - 2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.

## 2.7 WEED-CONTROL BARRIERS

- A. Nonwoven Geotextile Filter Fabric: Polypropylene or polyester fabric, 3 oz./sq. yd. minimum, composed of fibers formed into a stable network so that fibers retain their relative position.

Fabric shall be inert to biological degradation and resist naturally-encountered chemicals, alkalis, and acids.

- B. Composite Fabric: Woven, needle-punched polypropylene substrate bonded to a nonwoven polypropylene fabric, 4.8 oz./sq. yd.

## 2.8 PESTICIDES

- A. General: Pesticide registered and approved by EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.
- B. Pre-Emergent Herbicide (Selective and Non-Selective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.
- C. Post-Emergent Herbicide (Selective and Non-Selective): Effective for controlling weed growth that has already germinated.

## 2.9 TREE STABILIZATION MATERIALS

- A. Stakes and Guys:
  - 1. Upright and Guy Stakes: Rough-sawn, sound, new hardwood free of knots, holes, cross grain, and other defects, 2-by-2-inch nominal by length indicated, pointed at one end.
  - 2. Tree Ties: Deeproot Arbortie (800) 458-7668, (or approved equal).
  - 3. Flags: Standard surveyor's plastic flagging tape, white, 6 inches long.
- B. Root-Ball Stabilization Materials:
  - 1. Upright Stakes and Horizontal Hold-Down: Rough-sawn, sound, new hardwood or softwood, free of knots, holes, cross grain, and other defects, 2-by-2-inch nominal by length indicated; stakes pointed at one end.
  - 2. Wood Screws: ASME B18.6.1.

## 2.10 LANDSCAPE EDGINGS

- A. Steel Edging: Standard commercial-steel edging, rolled edge, fabricated in sections of standard lengths, with loops stamped from or welded to face of sections to receive stakes.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Border Concepts, Inc.
    - b. Collier Metal Specialties, Inc.
    - c. Russell, J. D. Company (The).

## d. Sure-Loc Edging Corporation.

2. Edging Size: 3/16 inch wide by 4 inches deep.
3. Stakes: Tapered steel, a minimum of 15 inches long.
4. Accessories: Standard tapered ends, corners, and splicers.
5. Finish: Standard paint.
6. Paint Color: Black.

## 2.11 MISCELLANEOUS PRODUCTS

- A. Wood Pressure-Preservative Treatment: AWPAC2, with waterborne preservative for soil and freshwater use, acceptable to authorities having jurisdiction, and containing no arsenic; including ammoniacal copper arsenate, ammoniacal copper zinc arsenate, and chromated copper arsenate.
- B. Antidesiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's written instructions.
- C. Burlap: Non-synthetic, biodegradable.
- D. Planter Drainage Gravel: Washed, sound crushed stone or gravel complying with ASTM D 448 for Size No. 8.
- E. Planter Filter Fabric: Woven geotextile manufactured for separation applications and made of polypropylene, polyolefin, or polyester fibers or combination of them.
- F. Mycorrhizal Fungi: Dry, granular inoculant containing at least 5300 spores per lb of vesicular-arbuscular mycorrhizal fungi and 95 million spores per lb of ectomycorrhizal fungi, 33 percent hydrogel, and a maximum of 5.5 percent inert material. (Plant Health Care (PHC) Tree Saver or approved equal).

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine areas to receive plants for compliance with requirements and conditions affecting installation and performance.
  1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
  2. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.
  3. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
  4. Uniformly moisten excessively dry soil that is not workable and which is too dusty.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

- C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.

### 3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities and turf areas and existing plants from damage caused by planting operations.
- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Lay out individual tree and shrub locations and areas for multiple plantings. Stake locations, outline areas, adjust locations when requested, and obtain Architect's acceptance of layout before excavating or planting. Make minor adjustments as required.
- D. Apply antidesiccant to trees and shrubs using power spray to provide an adequate film over trunks (before wrapping), branches, stems, twigs, and foliage to protect during digging, handling, and transportation.
  - 1. If deciduous trees or shrubs are moved in full leaf, spray with antidesiccant at nursery before moving and again two weeks after planting.
- E. Wrap trees and shrubs with burlap fabric over trunks, branches, stems, twigs, and foliage to protect from wind and other damage during digging, handling, and transportation.

### 3.3 PLANTING AREA ESTABLISHMENT

- A. Loosen subgrade of planting areas to a minimum depth of 6 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
  - 1. Apply superphosphate fertilizer directly to subgrade before loosening.
  - 2. Spread topsoil to a depth of 6 inches, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil.
    - a. Delay mixing fertilizer with planting soil if planting will not proceed within a few days.
    - b. Mix lime with dry soil before mixing fertilizer.
- B. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.
- C. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.
- D. Application of Mycorrhizal Fungi: At time directed by Architect, broadcast dry product uniformly over prepared soil at a rate of 3 lb / 1,000 sf. Gently rake into top 1" – 2" of amended soil.

## 3.4 EXCAVATION FOR TREES AND SHRUBS

- A. Planting Pits and Trenches: Excavate circular planting pits with sides sloping inward at a 45-degree angle. Excavations with vertical sides are not acceptable. Trim perimeter of bottom leaving center area of bottom raised slightly to support root ball and assist in drainage away from center. Do not further disturb base. Ensure that root ball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.
1. Excavate approximately three times as wide as ball diameter for balled and burlapped, and container-grown stock.
  2. Excavate at least 12 inches wider than root spread and deep enough to accommodate vertical roots for bare-root stock.
  3. Do not excavate deeper than depth of the root ball, measured from the root flare to the bottom of the root ball.
  4. If area under the plant was initially dug too deep, add soil to raise it to the correct level and thoroughly tamp the added soil to prevent settling.
  5. Maintain required angles of repose of adjacent materials as shown on the Drawings. Do not excavate subgrades of adjacent paving, structures, hardscapes, or other new or existing improvements.
  6. Maintain supervision of excavations during working hours.
  7. Do not excavate tree / shrub pits that cannot receive plant material on the same work day.
- B. Subsoil and topsoil removed from excavations may be used as planting soil.
- C. Obstructions: Notify Architect if unexpected rock or obstructions detrimental to trees or shrubs are encountered in excavations.
1. Hardpan Layer: Drill 6-inch-diameter holes, 24 inches apart, into free-draining strata or to a depth of 10 feet, whichever is less, and backfill with free-draining material.
- D. Drainage: Notify Architect if subsoil conditions evidence unexpected water seepage or retention in tree or shrub planting pits.
- E. Fill excavations with water and allow to percolate away before positioning trees and shrubs.

## 3.5 TREE, SHRUB, AND VINE PLANTING

- A. Before planting, verify that root flare is visible at top of root ball according to ANSI Z60.1. If root flare is not visible, remove soil in a level manner from the root ball to where the top-most root emerges from the trunk. After soil removal to expose the root flare, verify that root ball still meets size requirements.
- B. Remove stem girdling roots and kinked roots. Remove injured roots by cutting cleanly; do not break.
- C. Set balled and burlapped stock plumb and in center of planting pit or trench with root flare 2 inches above adjacent finish grades.
1. Use planting soil for backfill.

2. After placing some backfill around root ball to stabilize plant, carefully cut and remove burlap, rope, and wire baskets from tops of root balls and from sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.
  3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
  4. Apply Plant Health Care (PHC) Tree Saver at rate recommended by manufacturer based on caliper size of tree.
  5. Continue backfilling process. Water again after placing and tamping final layer of soil.
- D. Set and support bare-root stock in center of planting pit or trench with root flare 2 inches adjacent finish grade.
1. Use planting soil for backfill.
  2. Spread roots without tangling or turning toward surface, and carefully work backfill around roots by hand. Puddle with water until backfill layers are completely saturated. Plumb before backfilling, and maintain plumb while working backfill around roots and placing layers above roots.
  3. Apply Plant Health Care (PHC) Tree Saver at rate recommended by manufacturer based on caliper size of tree.
  4. Continue backfilling process. Water again after placing and tamping final layer of soil.
- E. When planting on slopes, set the plant so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of the root ball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of the root ball.

### 3.6 MECHANIZED TREE SPADE PLANTING

- A. Trees shall be planted with an approved mechanized tree spade at the designated locations. Do not use tree spade to move trees larger than the maximum size allowed for a similar field-grown, balled-and-burlapped root-ball diameter according to ANSI Z60.1, or larger than the manufacturer's maximum size recommendation for the tree spade being used, whichever is smaller.
- B. When extracting the tree, center the trunk within the tree spade and move tree with a solid ball of earth.
- C. Cut exposed roots cleanly during transplanting operations.
- D. Use the same tree spade to excavate the planting hole as was used to extract and transport the tree.
- E. Plant trees as shown on Drawings, following procedures in "Tree, Shrub, and Vine Planting" Article.
- F. Where possible, orient the tree in the same direction as in its original location.

## 3.7 TREE, SHRUB, AND VINE PRUNING

- A. Remove only dead, dying, or broken branches. Do not prune for shape.
- B. Prune, thin, and shape trees, shrubs, and vines as directed by Architect.
- C. Do not apply pruning paint to wounds.

## 3.8 TREE STABILIZATION

- A. Install trunk stabilization as follows unless otherwise indicated:
  - 1. Upright Staking and Tying: Stake trees of 2- through 5-inch caliper. Stake trees of less than 2-inch caliper only as required to prevent wind tip out. Use a minimum of two stakes of length required to penetrate at least 18 inches below bottom of backfilled excavation and to extend least 72 inches above grade. Set vertical stakes and space to avoid penetrating root balls or root masses.
  - 2. Use two stakes for trees up to 12 feet high and 2-1/2 inches or less in caliper; three stakes for trees less than 14 feet high and up to 4 inches in caliper. Space stakes equally around trees.
  - 3. Support trees with two sections of Arbortie at contact points with tree trunk. Provide suitable knot at stake, and trunk that will not slip. Allow enough slack in Arbortie to avoid rigid restraint of tree.

## 3.9 GROUND COVER AND PLANT PLANTING

- A. Set out and space ground cover and plants other than trees, shrubs, and vines at spacing as indicated on the plans in even rows with triangular spacing.
- B. Use planting soil for backfill.
- C. Dig holes large enough to allow spreading of roots.
- D. For rooted cutting plants supplied in flats, plant each in a manner that will minimally disturb the root system but to a depth not less than two nodes.
- E. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water.
- F. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.
- G. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

## 3.10 PLANTING AREA MULCHING

- A. Mulch backfilled surfaces of planting areas and other areas indicated.

1. Trees and Tree-like Shrubs in Turf Areas: Apply organic mulch ring of 3-inch average thickness, with 24-inch radius around trunks or stems. Do not place mulch within 3 inches of trunks or stems.
2. Organic Mulch in Planting Areas: Apply 3-inch average thickness of organic mulch over whole surface of planting area, and finish level with adjacent finish grades. Do not place mulch within 3 inches of trunks or stems.

### 3.11 EDGING INSTALLATION

- A. Shovel-Cut Edging: Separate mulched areas from turf areas with a 45-degree, 4- to 6-inch-deep, shovel-cut edge as shown on Drawings.

### 3.12 PLANT MAINTENANCE

- A. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting and repairing tree-stabilization devices, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings. Spray or treat as required to keep trees and shrubs free of insects and disease.
- B. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.
- C. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.

### 3.13 PESTICIDE APPLICATION

- A. Apply pesticides and other chemical products and biological control agents in accordance with authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.
- B. Pre-Emergent Herbicides (Selective and Non-Selective): Apply to tree, shrub, and ground-cover areas in accordance with manufacturer's written recommendations. Do not apply to seeded areas.
- C. Post-Emergent Herbicides (Selective and Non-Selective): Apply only as necessary to treat already-germinated weeds and in accordance with manufacturer's written recommendations.

### 3.14 CLEANUP AND PROTECTION

- A. During planting, keep adjacent paving and construction clean and work area in an orderly condition.

- B. Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.
- C. After installation and before Substantial Completion remove nursery tags, nursery stakes, tie tape, labels, wire, burlap, and other debris from plant material, planting areas, and Project site.

3.15 DISPOSAL

- A. Remove surplus soil and waste material including excess subsoil, unsuitable soil, trash, and debris and legally dispose of them off Owner's property.

END OF SECTION 32 93 00

## SECTION 33 41 00 - STORM UTILITY DRAINAGE PIPING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

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

## 1.2 SUMMARY

- A. This Section includes gravity-flow, non-pressure storm drainage outside the building, with the following components:
  - 1. Special fittings for expansion and deflection.
  - 2. Cleanouts.
  - 3. Drains.
  - 4. Precast concrete manholes.

## 1.3 DEFINITIONS

- A. ABS: Acrylonitrile-butadiene-styrene plastic.
- B. EPDM: Ethylene-propylene-diene-monomer rubber.
- C. FRP: Fiberglass-reinforced plastic.
- D. LLDPE: Linear low-density, polyethylene plastic.
- E. PE: Polyethylene plastic.
- F. PP: Polypropylene plastic.
- G. PVC: Polyvinyl chloride plastic.
- H. RTRF: Glass-fiber-reinforced, thermosetting-resin fitting.
- I. RTRP: Glass-fiber-reinforced, thermosetting-resin pipe.
- J. TPE: Thermoplastic elastomer.

## 1.4 PERFORMANCE REQUIREMENTS

- A. Gravity-Flow, Nonpressure, Drainage-Piping Pressure Rating: 10-foot head of water. Pipe joints shall be at least silttight, unless otherwise indicated.

## 1.5 SUBMITTALS

## A. Product Data: For the following:

1. Special pipe fittings.
2. Backwater valves.
3. Drains.
4. Channel drainage systems.
5. Storage and leaching chambers.

## B. Shop Drawings: For the following:

1. Manholes: Include plans, elevations, sections, details, and frames and covers. Include design calculations, and concrete design-mix report for cast-in-place manholes.

## C. Field quality-control test reports.

## 1.6 DELIVERY, STORAGE, AND HANDLING

## A. Do not store plastic manholes, pipe, and fittings in direct sunlight.

## B. Protect pipe, pipe fittings, and seals from dirt and damage.

## C. Handle manholes according to manufacturer's written rigging instructions.

## D. Handle catch basins and stormwater inlets according to manufacturer's written rigging instructions.

## 1.7 PROJECT CONDITIONS

## A. Interruption of Existing Storm Drainage Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:

1. Notify Owner (City of Kettering) no fewer than five (5) days in advance of proposed interruption of service.
2. Do not proceed with interruption of service without Owner's written permission.

## PART 2 - PRODUCTS

## 2.1 MANUFACTURERS

## A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Manufacturers: Subject to compliance with requirements, provide products by the manufacturer: ADS

## 2.2 PIPING MATERIALS

- A. Refer to Part 3 "Piping Applications" Article for applications of pipe, fitting, and joining materials.

## 2.3 PE PIPE AND FITTINGS

- A. Corrugated PE Drainage Pipe and Fittings NPS 10 and Smaller: AASHTO M 252M, Type S, with smooth waterway for coupling joints.
  - 1. Silttight Couplings: PE sleeve with ASTM D 1056, Type 2, Class A, Grade 2 gasket material that mates with tube and fittings.
  - 2. Corrugated PE Pipe and Fittings NPS 12 to NPS 48: AASHTO M 294M, Type S, with smooth waterway for coupling joints.
  - 3. Silttight Couplings: PE sleeve with ASTM D 1056, Type 2, Class A, Grade 2 gasket material that mates with pipe and fittings.
- B. Corrugated PE Pipe and Fittings NPS 56 and NPS 60: AASHTO MP7, Type S, with smooth waterway for coupling joints.
  - 1. Silttight Couplings: PE sleeve with ASTM D 1056, Type 2, Class A, Grade 2 gasket material that mates with pipe and fittings.

## 2.4 NONPRESSURE-TYPE PIPE COUPLINGS

- A. Comply with ASTM C 1173, elastomeric, sleeve-type, reducing or transition coupling, for joining underground nonpressure piping. Include ends of same sizes as piping to be joined, and corrosion-resistant-metal tension band and tightening mechanism on each end.
- B. Sleeve Materials:
  - 1. For Plastic Pipes: ASTM F 477, elastomeric seal or ASTM D 5926, PVC.
- C. Ring-Type Flexible Couplings: Elastomeric compression seal with dimensions to fit inside bell of larger pipe and for spigot of smaller pipe to fit inside ring.

## 2.5 CLEANOUTS

- A. PVC Cleanouts: PVC body with PVC threaded plug. Include PVC sewer pipe fitting and riser to cleanout of same material as sewer piping.
  - 1. Manufacturers:
    - a. Canplas Inc.
    - b. IPS Corporation.
    - c. NDS Inc.
    - d. Plastic Oddities, Inc.
    - e. Sioux Chief Manufacturing Company, Inc.
    - f. Zurn Industries, Inc.; Zurn Light Commercial Specialty Plumbing Products.

## 2.6 MANHOLES

- A. Designed Precast Concrete Manholes: ASTM C 913; designed according to ASTM C 890 for A-16 (ASSHTO HS20-44), heavy-traffic, structural loading; of depth, shape, and dimensions indicated, with provision for sealant joints.
1. Ballast: Increase thickness of one or more precast concrete sections or add concrete to manhole, as required to prevent flotation.
  2. Joint Sealant: ASTM C 990, bitumen or butyl rubber.
  3. Resilient Pipe Connectors: ASTM C 923, cast or fitted into manhole walls, for each pipe connection.
  4. Steps: Individual FRP steps, FRP ladder, or ASTM A 615/A 615M, deformed, 1/2-inch steel reinforcing rods encased in ASTM D 4101, wide enough to allow worker to place both feet on 1 step and designed to prevent lateral slippage off of step. Cast or anchor steps into sidewalls at 12- to 16-inch intervals. Omit steps if total depth from floor of manhole to finished grade is less than 36 inches.
  5. Adjusting Rings: Interlocking rings with level or sloped edge in thickness and diameter matching manhole frame and cover. Include sealant recommended by ring manufacturer.
  6. Grade Rings: Reinforced-concrete rings, 6- to 9-inch total thickness, to match diameter of manhole frame and cover.
  7. Protective Coating: Plant-applied, SSPC-Paint 16, coal-tar, epoxy-polyamide paint 15-mil minimum thickness applied to exterior and interior surfaces, except exposed top.
  8. Manhole Frames and Covers: Ferrous; 24-inch ID by 7- to 9-inch riser with 4-inch-minimum width flange and 26-inch-diameter cover. Include indented top design with lettering cast into cover, using wording equivalent to "STORM SEWER."
- a. Material: ASTM A 536, Grade 60-40-18 ductile iron, unless otherwise indicated.
- B. General: Cast-in-place concrete according to ACI 318/318R, ACI 350R, and the following:
1. Cement: ASTM C 150, Type II.
  2. Fine Aggregate: ASTM C 33, sand.
  3. Coarse Aggregate: ASTM C 33, crushed gravel.
  4. Water: Potable.
- C. Portland Cement Design Mix: 4000 psi minimum, with 0.45 maximum water-cementitious materials ratio.
1. Reinforcement Fabric: ASTM A 185, steel, welded wire fabric, plain.
  2. Reinforcement Bars: ASTM A 615/A 615M, Grade 60, deformed steel.
- D. Ballast and Pipe Supports: Portland cement design mix, 3000 psi minimum, with 0.58 maximum water-cementitious materials ratio.
1. Reinforcement Fabric: ASTM A 185, steel, welded wire fabric, plain.
  2. Reinforcement Bars: ASTM A 615/A 615M, Grade 60 (420 MPa), deformed steel.

## 2.7 MISCELLANEOUS MATERIALS

- A. Paint: SSPC-Paint 16.

- B. PE Sheeting: ASTM D 4397, with at least 8-mil thickness.

### PART 3 - EXECUTION

#### 3.1 EARTHWORK

- A. Excavation, trenching, and backfilling are specified in Division 31 Section "Earth Moving."

#### 3.2 PIPING APPLICATIONS

- A. Gravity-Flow, Nonpressure Sewer Piping: Use the following pipe materials for each size range:
  1. NPS 3: Corrugated PE drainage pipe and fittings, silttight couplings, and coupled joints.
  2. NPS 4 and NPS 6: Corrugated PE drainage pipe and fittings, silttight couplings, and coupled joints.
  3. NPS 8 to NPS 12: Corrugated PE drainage pipe and fittings in NPS 8 and NPS 10 and corrugated PE pipe and fittings in NPS 12, silttight couplings, and coupled joints.
  4. NPS 15: Corrugated PE pipe and fittings, silttight couplings, and coupled joints.
  5. NPS 18 to NPS 36: Corrugated PE pipe and fittings, silttight couplings, and coupled joints.

#### 3.3 PIPING INSTALLATION

- A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take design considerations into account. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.
- B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.
- C. Install manholes for changes in direction unless fittings are indicated. Use fittings for branch connections unless direct tap into existing sewer is indicated.
- D. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.
- E. Install gravity-flow, nonpressure drainage piping according to the following:
  1. Install piping pitched down in direction of flow, at minimum slope of 1 percent, unless otherwise indicated.
  2. Install PE corrugated sewer piping according to CPPA's "Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings."
- F. Basic pipe joint construction is specified in Division 33 Section "Common Work Results for Utilities." Where specific joint construction is not indicated, follow piping manufacturer's written instructions.

- G. Join gravity-flow, nonpressure drainage piping according to the following:
  - 1. Join corrugated PE piping according to CPPA 100 and the following:
    - a. Use silttight couplings for Type 2, silttight joints.

### 3.4 CLEANOUT INSTALLATION

- A. Install cleanouts and riser extension from sewer pipe to cleanout at grade. Use cast-iron soil pipe fittings in sewer pipes at branches for cleanouts and cast-iron soil pipe for riser extensions to cleanouts. Install piping so cleanouts open in direction of flow in sewer pipe.
  - 1. Use light-duty, top-loading classification cleanouts in earth or unpaved foot-traffic areas.
- B. Set cleanout frames and covers in earth in cast-in-place concrete block, 18 by 18 by 12 inches deep. Set with tops 1 inch above surrounding earth grade.

### 3.5 DRAIN INSTALLATION

- A. Install type of drains in locations indicated.
  - 1. Use heavy-duty, top-loading classification drains in all areas.
- B. Fasten grates to drains if indicated.
- C. Set drain frames and covers with tops flush with pavement surface.

### 3.6 MANHOLE INSTALLATION

- A. General: Install manholes, complete with appurtenances and accessories indicated.
- B. Install precast concrete manhole sections according to ASTM C 891.
- C. Set tops of frames and covers flush with finished surface of manholes that occur in pavements. Set tops 1 inch above finished surface elsewhere, unless otherwise indicated.

### 3.7 DRAINAGE SYSTEM INSTALLATION

- A. Assemble and install components according to manufacturer's written instructions.
- B. Install with top surfaces of components, except piping, flush with finished surface.

### 3.8 CONNECTIONS

- A. Connect nonpressure, gravity-flow drainage piping in building's storm building drains specified in Division 22 Section "Facility Storm Drainage Piping."

## 3.9 CLOSING ABANDONED STORM DRAINAGE SYSTEMS

- A. Abandoned Piping: Close open ends of abandoned underground piping indicated to remain in place. Include closures strong enough to withstand hydrostatic and earth pressures that may result after ends of abandoned piping have been closed. Use either procedure below:
  - 1. Close open ends of piping with threaded metal caps, plastic plugs, or other acceptable methods suitable for size and type of material being closed. Do not use wood plugs.
- B. Backfill to grade according to Division 31 Section "Earth Moving."

## 3.10 PAINTING

- A. Clean and prepare concrete manhole surfaces for field painting. Remove loose efflorescence, chalk, dust, grease, oils, and release agents. Roughen surface as required to remove glaze. Paint the following concrete surfaces as recommended by paint manufacturer:
  - 1. Precast Concrete Manholes: All exterior and interior, except exposed top.
- B. Prepare ferrous frame and cover surfaces according to SSPC-PA 1 and paint according to SSPC-PA 1 and SSPC-Paint 16. Do not paint surfaces with foundry-applied, corrosion-resistant coating.

## 3.11 IDENTIFICATION

- A. Materials and their installation are specified in Division 31 Section "Earth Moving." Arrange for installation of green warning tape directly over piping and at outside edge of underground structures.
  - 1. Use detectable warning tape over nonferrous piping and over edges of underground structures.

## 3.12 FIELD QUALITY CONTROL

- A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.
  - 1. Submit separate reports for each system inspection.
  - 2. Defects requiring correction include the following:
    - a. Alignment: Less than full diameter of inside of pipe is visible between structures.
    - b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
    - c. Crushed, broken, cracked, or otherwise damaged piping.
    - d. Infiltration: Water leakage into piping.
    - e. Exfiltration: Water leakage from or around piping.
  - 3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
  - 4. Reinspect and repeat procedure until results are satisfactory.

- B. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.
1. Do not enclose, cover, or put into service before inspection and approval.
  2. Test completed piping systems according to authorities having jurisdiction.
  3. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice.
  4. Submit separate report for each test.
  5. Gravity-Flow Storm Drainage Piping: Test according to requirements of authorities having jurisdiction, UNI-B-6, and the following:
    - a. Exception: Piping with soiltight joints unless required by authorities having jurisdiction.
    - b. Option: Test plastic piping according to ASTM F 1417.
- C. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

### 3.13 CLEANING

- A. Clean interior of piping of dirt and superfluous materials. Flush with potable water.

END OF SECTION 33 41 00