

PROJECT MANUAL

City of Greenfield Utilities Franklin Street Sanitary Sewer Extension

June 2025



Prepared By:



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AMERICAN
STRUCTUREPOINT
INC.

CONTRACT DOCUMENTS

FOR

FRANKLIN STREET SANITARY SEWER EXTENSION

**Department of Engineering
City of Greenfield**

Guy Titus.....Mayor
Nicholas Dezelan.....Wastewater Utility Manager

PROCUREMENT AND CONTRACTING REQUIREMENTS

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NOTICE TO BIDDERS
City of Greenfield

Department: **Department of Engineering**
10 S. State Street
Greenfield, Indiana 46140

Project/Work: **Franklin Street Sanitary Sewer Extension**

Notice is hereby given that the City of Greenfield will receive sealed bids for the above described "Project/Work" at Clerk-Treasurer's Office, 10 S. State Street, Greenfield, Indiana, until 9:30 a.m. prevailing local time, 10 S. State Street, on **June 4, 2025** and commencing as soon as practicable thereafter on the same date such bids will be publicly opened. No late Bids will be accepted.

A Bid Bond or certified check in an amount not less than five percent (5%) of the amount bid must be submitted with each Bid. A one hundred percent (100%) Performance and Payment Bond will also be required of the successful Bidder.

The Work consists of, but is not necessarily limited to the following:

Base Bid 1 – 1,405 linear feet of 12-inch, 10-inch and 8-inch sanitary sewer, 3 – 6-inch service lines, 8 manholes and associated site restoration.

Mandatory Alternate Bid No. 1 – 863 linear feet of 16-inch and 12-inch water main and associated site restoration.

Mandatory Alternate Bid No. 2 – 2,407 linear feet of 15-inch and 12-inch sanitary sewer, 7 - 6-inch service lines, 10 manholes, 1,487 feet of a 10-foot-wide pedestrian asphalt trail and associated site restoration.

Contract Documents for the Project/Work have been assembled into one or more bound Project Manuals which, together with Drawings, may be examined at the Clerk-Treasurer's Office or the Department of Engineering at 10 S. State Street, Greenfield, Indiana 46140.

Electronic copies of the Drawings and Project Manuals will be available on the City of Greenfield website at <https://www.greenfieldin.org/government/engineering>. Bidders will be responsible to contact the Clerk-Treasurers office to be added to the plan-holders list if downloading electronic contract documents.

Bidders shall assure that they have obtained complete sets of drawings and Contract Documents and shall assume the risk of any errors or omissions in Bids prepared in reliance on incomplete sets of drawings and Contract Documents.

A pre-bid conference will be held at 2:00 p.m. (local time) on May 27, 2025, at the Richard J. Pasco Council Chambers, 10 South State Street, Greenfield, Indiana to familiarize Bidders with this project.

Questions will be due in writing to the engineer, Bryan Hood, PE (bhood@structurepoint.com) and Pawel Trawinski (ptrawinski@structurepoint.com) **by 5:00 PM on May 29, 2025.**

For accommodations needed by persons with disabilities to attend the public bid opening meeting, please call (317) 477-4320.

The City of Greenfield reserves the right to reject any or all bids or to waive any informalities and to accept the bid which it deems most favorable to the interests of the City after all bids have been examined and canvassed.

INSTRUCTIONS TO BIDDERS

City of Greenfield

Department (“Owner”): **Department of Engineering**
10 S. State Street
Greenfield, Indiana 46140

Project/Work: **Franklin Street Sanitary Sewer Extension Project**

Owner’s Representative: **American Structurepoint**
116 E. Berry Street, Suite 1515
Fort Wayne, IN 46802

Engineer: **Bryan Hood, PE** **Pawel Trawinski**
bhood@structurepoint.com ptrawinski@structurepoint.com
260-417-6312 **317-547-5580 ex. 2452**

1. GENERAL

- 1.1 Submission of a Bid shall constitute an unconditional agreement and acknowledgment by the Bidder to be bound by all terms and conditions set forth herein and in any of the documents assembled or referred to in the bound Project Manual of which these Instructions to Bidders are a part.
- 1.2 Sample forms are included in the Project Manual to acquaint Bidders with the form and provisions of various Bid Documents and other documentation required by the Contract Documents to be executed, completed and submitted by some or all Bidders, either as part of a Bid Submission or after the Bid Date. Such sample forms are not to be detached from the Project Manual or filled out or executed. Separate copies of such forms and any other required documentation prescribed by the Contract Documents have been or will be furnished separately by the Owner and must be obtained directly from the City.
- 1.3 Instructions and requirements printed on any sample form included in the Project Manual or any form not so included but required to be completed, signed or furnished by a Bidder as part of a Bid Submission or after receipt and opening of Bids shall be deemed requirements established by these Instructions to Bidders to the same extent as if fully restated herein.
- 1.4 By submitting bid the Bidder agrees the bid proposal and price(s) contained herein shall be valid for ninety (90) days from bid opening.

2. DEFINITIONS

The following definitions shall apply to these Instructions to Bidders (ITB):

- 2.1 Bidder - Any person or entity who submits a Bid.
- 2.2 Bid - A written proposal submitted by a Bidder as part of the form prescribed herein offering to perform and complete the Work and to fulfill all other requirements of the Contract Documents for one or more specified prices.

- 2.3 Bid Documents - All documents and completed forms required to be submitted by a Bidder with and as integral parts of a Bid Submission, whether or not included as sample forms assembled in the Project Manual of which these Instructions to Bidders are a part. Such Bid Documents are listed and more fully described in ITB Section 5.3 hereof.
- 2.4 Bid Date - The date when Bids are to be received, opened and publicly read aloud as established by the Notice to Bidders as may be modified by Addenda.
- 2.5 Bid Submission - All documents presented by a Bidder for receipt and opening on the Bid Date.
- 2.6 Contract Documents - The Agreement and any exhibits thereto, Addenda (which pertain to the Contract Documents), Instructions to Bidders, Advertisement, Notice to Bidders, Bidder's Bid (including documentation accompanying the Bid and any post-Bid documentation submitted prior to the Notice of Award), Notice to Proceed, the Bonds, the General Conditions, the Additional Requirements Section, any supplemental or special conditions, the Specifications and the Drawings, as the same are more specifically identified in the Agreement.
- 2.7 E-Verify Program - An electronic verification of work authorization program of the Illegal Immigration Reform and Immigration Responsibility Act of 1996 (P.L. 104-208), Division C, Title IV, s.403(a), as amended, operated by the United States Department of Homeland Security or successor work authorization program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work authorization status of newly hired employees under the Immigration Reform and control Act of 1986 (P.L. 99-603).
- 2.8 Owner - The City of Greenfield acting by and through the Department or other agency designated above.
- 2.9 Project Manual - The bound set of documents, sample forms, and Contract Documents (excluding plans and Addenda) approved by the Owner for the Work and/or Project described in the Notice to Bidders and of which these Instructions to Bidders are a part.

In all other respects, terms used herein shall have the meanings as stated in the General Conditions or other Contract Documents.

3. EXAMINATION OF SITE AND DOCUMENTS

- 3.1 Before the Bid Date, all Bidders shall carefully and thoroughly examine and inspect the entire site of the proposed Work and adjacent premises and the various means of approach and access thereto by means of a site inspection visit, and make all necessary investigations to inform themselves thoroughly as to the facilities necessary for delivering, placing and operating the necessary construction equipment, and for delivering and handling materials at the site, and shall inform themselves thoroughly as to any and all actual or potential difficulties, hindrances, delays and constraints involved in the commencement, prosecution and completion of the proposed Work in accordance with the requirements of the Contract Documents.
- 3.2 It shall be the sole responsibility of Bidders to make borings, test pits and to conduct such other investigations at or near the site of the proposed Work as they deem necessary to determine the character, location, and amount of materials to be encountered or other subsurface conditions which could affect the manner, cost or time required to perform the Work.

- 3.3 Bidders shall carefully and thoroughly examine the plans, specifications and other Contract and/or Project Manual Documents and shall assume the full risk of their own judgments as to the nature, quality and amount of the whole of the Work to be done, and for the price bid must assume all risk of any and all variances or errors in any computation or statement of amounts or quantities necessary to complete the Work in strict compliance with the Contract Documents.
- 3.4 Elevations of the existing ground surface or structures at the site of the Work as shown on the plans are believed to be reasonably correct but are not guaranteed to be absolutely so and are presented only as an approximation. Bidders shall satisfy themselves as to the correctness of all elevations.
- 3.5 Information stated or depicted on plans concerning the location, dimensions, depth and other characteristics of underground structures and utilities is given only as general information and shall not be construed or relied upon by Bidders as a representation or assurance that such structures or utilities will be found or encountered as plotted, or that such information is complete or accurate. Bidders, therefore, shall satisfy themselves by such means as they may deem proper as to the location of all structures and utilities that may be encountered in construction of the Work and shall bear the risk of the number, type, location, dimensions and depth of all structures and utilities thus encountered.
- 3.6 The City of Greenfield Standard General Conditions for Construction Contracts, August 2018, is incorporated by reference as part of this bid. Copy of General Conditions are available at <https://www.greenfieldin.org/government/engineering>.

4. CLARIFICATIONS AND ADDENDA

- 4.1 If a Bidder finds conflicts, errors, discrepancies or ambiguities in the Contract Documents or any sample form, or if the Bidder is in doubt as to the intended meaning of any portion or provision therein, the Bidder shall at once give written notice thereof to the Owner's Representative, at least seven (7) consecutive calendar days prior to the Bid Date. No Bidder shall be allowed any extra compensation or time extension by reason of any conflict, error, discrepancy or ambiguity of which the Bidder had actual knowledge or reasonably should have known and which he/she failed to report within the period and in the manner required by these Instructions to Bidders.
- 4.2 No material changes, clarifications or interpretations of the Contract Documents will be issued except by written or graphic Addenda mailed or delivered to record holders of Contract Documents not less than three (3) days prior to the Bid Date. All such Addenda must be acknowledged by the Bidder and will become a part of the Contract Documents. The Owner will not be responsible for or bound by any oral or written interpretations or clarifications of the Contract Documents which anyone presumes to make on its behalf, except by an Addendum issued in accordance with this Section.

5. BID SUBMISSION

- 5.1 All Bid Documents shall be placed within a sealed envelope which shall be plainly labeled on the outside with the name and address of the Bidder, Project name and number (if applicable) and Due Date. If forwarded by mail, the sealed envelope must be enclosed in another envelope addressed to: City of Greenfield, Clerk-Treasurer, 10 S. State Street, Greenfield, Indiana 46140.
- 5.2 All Bid Documents as herein prescribed must be submitted with and as integral parts of each Bid Submission and shall be subject to all requirements of the Contract Documents, including

drawings and these Instructions to Bidders. Bid Documents must be properly filled in and completed in every material respect and without interlineations, excisions, special conditions, qualifications or exceptions. Each Bid Document requiring a signature shall be signed by an individual duly authorized to execute such document on Bidder's behalf. A bid executed by a corporation, joint venture, or other entity with an assumed name shall have the legal and correct name thereof followed by the word "by" and the signature and title of the officer or other person authorized to sign for it.

5.3 The Bid Documents to be thus submitted by each Bidder shall consist of all the following (5.3.1, 5.3.2, 5.3.3):

.1 Bidder's Itemized Proposal and Declarations. A sample of this form is included in the Project Manual and must be utilized by all Bidders. Such document includes and consists of the following constituent "Parts":

"Part 1 - Bidder Information"

"Part 2 - Proposal (Bid)"

"Part 3 - Contract Items and Unit Prices"

"Part 4 - Contract Documents and Addenda"

"Part 5 - Exceptions"

"Part 6 - Nepotism Disclosure Form"

"Part 7 - Additional Declarations, including certification required by IC 5-22-16.5"

"Part 8 - Drug Testing"

"Part 9 - Non-Collusion Affidavit"

"Part 10 - E-Verify Affidavit"

"Part 11 - Signatures"

.2 Bid Security in the form of a Bid Bond or Certified Check in an amount not less than five percent (5%) of the bid price. Such Bid Security shall serve as security to insure the execution of the Agreement and the furnishing of other required documents by the successful Bidder, including Performance and Payment Bonds. A sample Bid Bond form is included in the Project Manual and such form, or such other form as may be approved in advance by Owner, shall be utilized if such a bond is furnished as Bid Security. A Bid Bond shall be executed by a surety company licensed to transact such business in the State of Indiana and qualified as a surety under the underwriting limitations on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the U.S. Treasury Department Circular No. 570; the Bidder shall also furnish as part of the Bid Submission a signed power of attorney establishing the authority of the person executing such Bid Bond on behalf of the surety. Bid Security shall be held until the Contract is executed with the successful Bidder. In the event that all bids are rejected, the Bid Security of all Bidders will be returned upon request. No "Annual" bid bonds, cash deposits or cashiers' checks will be accepted.

.3 Contractor's Bid for Public Work (State Form 96). Such form is included in this Project Manual on pages BID-10 to BID-15 and shall be used in consideration of a Bidder's ability to perform its obligations under the terms of the contract Documents and in determining other material factors bearing upon a Bidder's responsibility. If Bid is under \$150,000 either of these forms may be submitted as a Post-Bid submittal under Section 6, Post Bid Requirements.

- 5.4 Bids may be withdrawn in person by a Bidder during normal hours of business prior to the time fixed for opening of Bids. In the event of a valid withdrawal of a Bid, the Bid Security of the withdrawing Bidder will be returned promptly. No Bid may be withdrawn after opening of Bids has commenced except after expiration of such period following the Bid Date as specifically provided by law, plus any extension thereof as provided elsewhere in these Instructions to Bidders. Bidder's failure to provide all completed documentation as required in ITB Section 5.3 may result in Bid being deemed non-responsive.

6. POST-BID REQUIREMENTS

Within five (5) business days of notification by Owner, the apparent lowest responsive Bidder will be required to submit additional documents and satisfy additional requirements as conditions to such Bidder being found by the Owner to be a responsible Bidder, as follows:

- 6.1 Proof of Insurability. The Bidder shall furnish: (1) proof of insurance showing existing coverage in accordance with the terms and amounts stated in the General Conditions, or (2) a letter or statement certifying that, in the event that the bid is awarded by the Owner, an insurance company will provide the required coverage to the Bidder submitting the bid. Such proof of insurance or the letter/statement shall be issued by a financially responsible insurance company authorized to do business in the State of Indiana.
- 6.2 Surety Letter of Intent. The Bidder shall furnish a written statement or letter from a Surety company licensed to transact such business in the State of Indiana and qualified as a surety under the underwriting limitations on the current list of "Surety Companies Acceptable on Federal Bonds" as published in U.S. Treasury Department Circular No. 570, which assures the Owner that, in the event the Bid is accepted and a contract is awarded by Owner, said Surety will execute and deliver both a Performance Bond and Payment Bond as required by the Contract Documents.
- 6.3 Joint Venture Agreement. If the Bidder is a joint venture, partnership or other combination of two or more persons or entities, the Bidder shall submit a copy of the joint venture or other agreement by which such joint venture, partnership or other association has been formed, executed by all such participating persons or entities. If the Bid is signed by less than all parties that comprise the Bidder, suitable written evidence of the authority of such signing party to bind all such parties must also be furnished.
- 6.4 Subcontractor/Supplier List. The Bidder shall submit all subcontractors and suppliers that will be used on the project, as required (POST-BID-1).
- 6.5 Manufacturers List. The Bidder shall submit a complete list of all equipment and supplies that are listed in the Manufacturer's List (POST-BID-2).
- 6.6 E-Verify Documentation. - The Bidder shall submit verification that it is enrolled in and participating in the E-Verify program (POST-BID-3).

7. BID EVALUATION AND AWARD

- 7.1 **Award of the Contract will be made to the lowest, responsive and responsible Bidder, where the Bid is reasonable and does not exceed the funds available for the project.** The Owner reserves the right to reject all Bids and may waive or allow a Bidder to correct errors,

omissions or other irregularities in Bid Documents that are found not to have afforded the Bidder a substantial competitive advantage over other Bidders.

- 7.2 The Owner shall have the right to reject any Bid if investigation of the Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations and complete the Work. Any or all Bids will be rejected if there is reason to believe that collusion exists among Bidders.
- 7.3 For unit price Contract Items, estimated quantities and unit prices will serve as the basis for determining the proposed price of each Bid. Patent math errors in statements of Bid prices or totals may be corrected by the Owner or Engineer, in which case the corrected amounts will be used for the purpose of Bid evaluation, comparison and other award considerations. However, neither the Owner nor the Engineer shall be required to discover or correct any error or omission in a Bid and the Bidder shall assume the risk of and be bound to the consequences of any such error or omission.
- 7.4 The Owner may, at its sole option, award the Contract to a Bidder on a conditional basis to afford the Bidder additional time and opportunity to submit required documents or to fulfill other requirements. In such case, the Owner will furnish to the Bidder a notice of conditional award which will establish (i) the additional conditions to be fulfilled for the award to become effective, and (ii) the time limit within which such conditions shall be satisfied. If the Bidder fails to satisfy the conditions in the manner and within the time specified in such notice, the Owner may declare such Bidder to be non-responsible and award the Contract, conditionally or unconditionally, to another Bidder. Time limitations governing the Owner's award of the Contract shall be extended for such additional period as may be required to effectuate the conditional award procedure set forth in this sub-section, and no Bid may be withdrawn during such period of extension.

8. CONTRACT EXECUTION; SUBMITTALS

- 8.1 Within five (5) business days after the award notice, the successful Bidder shall sign and deliver at least three (3) counterparts of the Agreement, utilizing the form thereof included in the Project Manual and make delivery thereof to the Owner, along with other documents as prescribed by the Contract Documents. After execution and delivery of the Agreement and other required documents, and acceptance thereof by the Owner, the Bid Security furnished by each Bidder will be returned to the respective Bidders upon request.
- 8.2 If the Bidder fails or neglects to execute and deliver the Agreement and other required documents as prescribed by the preceding sub-section, the Bidder shall be deemed to have repudiated the Contract and thereupon the award shall be null and void; and the Bid Security provided by the Bidder shall be forfeited to and retained by the Owner as liquidated damages for such failure of the Bidder to execute the Contract, it being understood and agreed that the character and amount of actual damages sustained by the Owner cannot reliably be ascertained and measured and that the amount of the Bid Security is intended as a reasonable prospective estimate of such actual damages.
- 8.3 Concurrently with the execution and delivery of the Agreement to the Owner, or within such other period as the Owner may prescribe, the successful Bidder (Contractor) shall submit the following as conditions to the Bidder's right to proceed with and receive payment for any Work:
- .1 Proof of all required insurance coverage, a one hundred percent (100%) Performance Bond and a one hundred percent (100%) Payment Bond as prescribed by the General Conditions or other Contract Documents. Such bonds shall be executed utilizing the

sample forms included in the Project Manual or alternative forms approved in advance by the Owner. Indemnification clauses between successful Bidder and the Surety shall not be binding upon the Owner;

- .2 The preliminary schedules required by Paragraph 2.7 of the General Conditions;
- .3 Other Post-Bid submittals required by the Contract Documents.

9. LIQUIDATED DAMAGES

- 9.1 The Contract Documents provide for the payment of liquidated damages in the event of unexcused failure by the Contractor to complete the Work within the time required by the Contract Documents. **Such liquidated damages are to be assessed and recovered at the rate of \$500 per day for delay in achieving the Substantial Completion, and at the rate of \$1000 per day for delay in achieving the Final Completion.**

Base Bid No. 1: Substantial Completion date of August 8, 2025, and Final Completion date of August 15, 2025.

Mandatory Alternate Bid No. 1: Substantial Completion date of July 25, 2025, and Final Completion date of August 8, 2025.

Mandatory Alternate Bid No. 2: Substantial Completion date of October 17, 2025, and Final Completion date of November 14, 2025.

- 9.2 The per diem rate(s) of liquidated damages established by the preceding sub-section have been determined and are intended as reasonable prospective estimate(s) of the type and amount of actual damages which the Owner may sustain in the event of such delay(s). Submission of a Bid shall constitute an unconditional acknowledgment and agreement by the Bidder that such liquidated damages are fair and reasonable and do not and will not constitute a penalty, and that such liquidated damages may be assessed and recovered by the Owner as against the successful Bidder/Contractor and its Surety in lieu of actual damages for delayed completion.

10. CHANGE ORDERS

- 10.1 During the course of the Work, should the Owner or Bidder determine that additional work which was foreseeable is required, such work shall not be automatically awarded through change orders. However, the Owner reserves the right to award additional work which was foreseeable to the original Bidder where doing so is in the best interest of the Owner. All such awards are and will remain subject to necessary approvals.

END OF INSTRUCTIONS TO BIDDERS

PART 1
BIDDER'S ITEMIZED PROPOSAL
AND DECLARATIONS
City of Greenfield

Instructions to Bidders:

This form shall be utilized by all Bidders. Except as otherwise specifically provided, all Parts shall be fully and accurately filled in and completed and notarized.

Project: Franklin Street Sanitary Sewer Extension

Proposal For Construction of:

Base Bid 1 – 1,405 linear feet of 12-inch, 10-inch and 8-inch sanitary sewer, 3 – 6-inch service lines, 8 manholes and associated site restoration.

Mandatory Alternate Bid No. 1 – 863 linear feet of 16-inch and 12-inch water main and associated site restoration.

Mandatory Alternate Bid No. 2 – 2,407 linear feet of 15-inch and 12-inch sanitary sewer, 7 - 6-inch service lines, 10 manholes, 1,487 feet of a 10-foot-wide pedestrian asphalt trail and associated site restoration.

Date: _____

To: **City of Greenfield, Department of Engineering**
10 S. State Street, Greenfield, Indiana 46140

PART 1

BIDDER INFORMATION

(Print)

1.1 Bidder Name: _____

1.2 Bidder Address: Street Address: _____
City: _____ State: _____ Zip: _____
Phone #: () _____ Fax #: () _____

1.3 Former Business names of Bidder: _____

1.4 Bidder is a/an [mark one]:
 Individual Partnership Indiana Corporation
 Foreign (Out of State) Corporation
 Joint Venture
Other: _____

PART 2
PROPOSAL (BID)

- 2.1 The undersigned Bidder proposes to furnish all necessary labor, machinery, tools, apparatus, materials, equipment, service and other necessary supplies, and to perform and fulfill all obligations incident thereto in strict accordance with and within the time(s) provided by the terms and conditions of the Contract Documents for the above described Work and Project, including any and all addenda thereto, for the total lump sum as noted below.
- 2.2 By submitting bid the Bidder agrees the bid proposal and price(s) contained herein shall be valid for ninety (90) days from bid opening.
- 2.3 In accordance with the Instructions to Bidders, all items appearing in the Basis of Bid Form as additive work items are contingent work items that may be selected for inclusion in the work prior to the notice of award at the sole discretion of Owner. Bidder acknowledges that bidder's total bid does not include such additive bid items but that the initial contract price will depend on the number of additive bid items selected for inclusion in the work prior to the notice of award.

PART 3
CONTRACT ITEMS AND UNIT PRICES

FRANKLIN STREET SEWER EXTENSION CITY OF GREENFIELD					
BASE BID No. 1					
Item	Description	Quantity	Unit	Unit Price	Item Total
1	MOBILIZATION AND DEMOBILIZATION (5%)	1	LS		
2	CONSTRUCTION CONTINGENCY	1	LS	\$50,000.00	\$50,000
4	VIDEO DOCUMENTATION OF CONDITIONS	1	LS		
17	6" PVC, SDR 26, SANITARY SERVICE LATERALS	152	LF		
18	8" PVC, SDR 26, SANITARY SEWER	214	LF		
19	8" PVC, SDR 35, SANITARY SEWER	341	LF		
20	10" PVC, SDR 26, SANITARY SEWER	426	LF		
21	12" PVC, SDR 35, SANITARY SEWER	424	LF		
27	48" SANITARY MANHOLES	7	EA		
28	60" SANITARY MANHOLES	1	EA		
22	END CAPS	2	EA		
11	COMPACTED AGGREGATE, NO. 53 / 73	950	CY		
46	DRAIN TILE REPAIR (Assumed Quantity)	2	EA		
8	TEMPORARY SEEDING	1	LS		
Total Base Bid					
MANDATORY ALTERNATE BID No 1					
Item	Description	Quantity	Unit	Unit Price	Item Total
32	16" DUCTILE IRON WATER MAIN	313	LF		
33	12" DUCTILE IRON WATER MAIN	550	LF		
34	16" FITTINGS	1	EA		
35	16" x 12" TEE	2	EA		
36	12" FITTINGS	4	EA		
37	16" GATE VALVE	2	EA		
38	12" GATE VALVE	3	EA		
39	3/4" TEST RISER	3	EA		
40	END PLUG	2	EA		
41	WATERMAIN REMOVAL	313	LF		
42	FIRE HYDRANT ASSEMBLY	2	EA		
12	COMPACTED AGGREGATE, NO. 53 / 73	550	CY		
47	DRAIN TILE REPAIR (Assumed Quantity)	2	EA		
Total Mandatory Alternate Bid No. 1					

MANDATORY ALTERNATE BID No 2

Item	Description	Quantity	Unit	Unit Price	Item Total
5	VIDEO DOCUMENTATION OF CONDITIONS	1	LS		
3	CONSTRUCTION CONTINGENCY	1	LS	\$50,000.00	\$50,000
6	MAINTENANCE AND PROTECTION OF TRAFFIC	1	LS		
16	PEDESTRIAN TRAIL (with pavement markings)	1,487	SY		
10	GRADING / SWALE CONSTRUCTION	1	LS		
44	12" RCP CULVERT WITH END SECTION	35	LF		
45	SAW CUT EXISTING 24" CONCRETE CULVERT / INSTALL HEADWALL	1	EA		
43	19"X30" ELLIPTICAL RCP CULVERT WITH HEADWALL	15	LF		
23	6" PVC, SDR 26, SANITARY SERVICE LATERALS	320	LF		
24	12" PVC, SDR 35, SANITARY SEWER	579	LF		
25	12" PVC, SDR 26, SANITARY SEWER	436	LF		
26	15" PVC, SDR 26, SANITARY SEWER	1,392	LF		
29	60" SANITARY MANHOLES	1	EA		
30	48" SANITARY MANHOLES	8	EA		
31	48" SANITARY DROP MANHOLE	1	EA		
15	ASPHALT PAVEMENT REPAIR	302	SY		
13	COMPACTED AGGREGATE, NO. 53 / 73	620	CY		
14	RIP RAP	12	CY		
48	DRAIN TILE / CULVERT REPAIR (Assumed Quantity)	2	EA		
9	SEEDING / GRADING	1	LS		
7	EROSION CONTROL	1	LS		
Total Mandatory Alternate Bid No. 2					

<i>A. Total of Base Bid Items (in words):</i>	<i>(In figures)</i>
	\$
<i>B. Total of Base Bid & Mandatory Alternate Bid No. 1 Items (in words):</i>	<i>(In figures)</i>
	\$
<i>C. Total Base Bid & Mandatory Alternative Bids No. 1 & 2 (in words):</i>	<i>(In figures)</i>
	\$

PART 4
CONTRACT DOCUMENTS AND ADDENDA

4.1 The Bidder agrees to be bound by the terms and provisions of all Contract Documents as defined in the General Conditions and incorporates such Contract Documents herein by reference

4.2 The Bidder acknowledges receipt of the following addenda:

Addendum Number

Date

PART 5
EXCEPTIONS

Instructions to Bidders:

- 5.1 *The Bidder shall fully state each exception taken to the Specifications or other Contract Documents in Section 5.3 of this Part.*
- 5.2 *Bidder is cautioned that any exception taken by Bidder and deemed by Owner to be a material qualification or variance from the terms of the Contract Documents may result in this Bid being rejected as non-responsive.*

5.3 *Exceptions:*

PART 6
NEPOTISM DISCLOSURE

Contractor: _____

Project: _____

For purposes of compliance with Indiana Code Chap. 36-1-21, please specify below whether Contractor (individual), or a person who wholly or partially owns Contractor (business), is a relative, as that term is defined by Indiana Code § 36-1-21-3, of either the Mayor of Greenfield, Indiana, or a member of the City Council of Greenfield, Indiana.

Contractor (individual) or Contractor (business) does NOT have a relative who is either the Mayor of Greenfield, Indiana or a member of the City of Greenfield, Indiana.

Contractor (individual) or Contractor (business) DOES have a relative who is either the Mayor of Greenfield, Indiana or member of the City Council of Greenfield, Indiana (must specify all relatives below):

Mayor Guy Titus

City Councilor [please specify name of Councilor(s)]

Name of Authorized Representative (Printed)

Signature of Authorized Representative:

Date: _____

PART 7
ADDITIONAL DECLARATIONS

- 7.1 Bidder certifies for itself and all its subcontractors compliance with existing laws of the City of Greenfield, the State of Indiana and the United States regarding (a) prohibition of discrimination in employment practices on the basis of race, sex, disability, religion, national origin, disabled veteran status and Vietnam-era veteran status.
- 7.2 Bidder certifies that it has thoroughly examined the site of the Work and informed itself fully regarding all conditions under which it will be obligated to operate and that in any way affect the Work, and knows, understands and accepts the existing conditions. Bidder further certifies that it has thoroughly reviewed the Contract Documents, including all Addenda, and has had the opportunity to ask questions and obtain interpretations or clarifications concerning Contract Documents.
- 7.3 Hiring Practices. The Bidder shall, upon request of the Owner, make available its policies, practices and standards for the hiring of applicants, except as prohibited under Indiana Code section 22-2-17-3, to the extent such information is related to the provision of services under this Bid.
- 7.4 Bidder Qualifications. Bidder certifies to Owner the following:
- .1 That Bidder is eligible to work in the State of Indiana;
 - .2 That Bidder's labor force participates in apprenticeship or training programs approved by and registered with the United States Department of Labor's Office of Apprenticeship, or its successor organization;
 3. That Bidder has implemented an employee drug testing plan that meets, or exceeds, the requirements set forth in IC 36-1-12-24;
 - .4 That Bidder will utilize project managers and superintendents with sufficient relevant management experience to complete bidder's scope of work;
 - .5 That Bidder and its management personnel possess any and all professional trade licenses required by law for any trade or specialty area in which Bidder is seeking a contract award, and said licensures have not been suspended or revoked within the previous five (5) years;
 - .6 That Bidder is utilizing a surety company which is on the United States Department of Treasury's listing of approved sureties; and
 - .7 For contracts estimated to be over \$300,000.00, that Bidder and sub-contractors expected to be awarded at least \$300,000 for the project are qualified under IC 4-13.6-4 or IC 8-23-10.

Violation of this certification shall constitute a material breach of the contract to result from this Bid, and upon such a violation Owner may terminate the contract. In addition, upon a violation of this certification, Owner shall report such violation to the City Legal Department who may, at its discretion, debar the Bidder from eligibility for future city purchasing, bids, contracts, quotes and/or projects.

PART 8
DRUG PROGRAM

- 8.1 Pursuant to IC 4-13-18-5, the Bidder must submit with the Bid a written plan for a program to test the Bidder's employees for drugs. A contractor that is subject to a collective bargaining agreement that establishes an employee drug testing program shall only submit a copy of the relevant part of the collective bargaining agreement establishing the program. Failure to submit a written plan for an employee drug testing program, or relevant parts of a collective bargaining agreement establishing an employee drug testing program shall result in the Bid being rejected as non-responsive.
- 8.2 Attach a copy of your drug testing program or the relevant parts of your collective bargaining agreement establishing a drug testing program to this page.

PART 9
NON-COLLUSION AFFIDAVIT

The individual person(s) executing this Proposal, being first duly sworn, depose(s) and state(s) that the Bidder has not directly or indirectly entered into a combination, collusion, undertaking or agreement with any other bidder or person (i) relative to the price(s) proposed herein or to be bid by another person, or (ii) to prevent any person from bidding, or (iii) to induce a person to refrain from bidding; and furthermore, this Bid Proposal is made and submitted without reference to any other bids and without agreement, understanding or combination, either directly or indirectly, with any persons with reference to such bidding in any way or manner whatsoever.

PART 10
E-VERIFY PROGRAM

Pursuant to Indiana Code 22-5-1.7-11.1, the contractor awarded the Bid is required to enroll in and verify the work eligibility status of all its newly hired employees through the E-Verify program. The contractor who is awarded the Bid is not required to verify the work eligibility status of all its newly hired employees through the E-Verify program if the E-Verify program no longer exists.

The individual person(s) executing this Proposal, being first duly sworn, depose(s) and state(s) that the Bidder does not knowingly employ an unauthorized alien. The undersigned further affirms that, prior to entering into an agreement for this Bid, the undersigned business entity will enroll in and agrees to verify the work eligibility status of all its newly hired employees through the E-Verify program.

PART 11
SIGNATURES

[Signature by or on behalf of the Bidder in the spaces provided below shall constitute execution of each and every Part of this Itemized Proposal and Declarations document. SIGNATURE MUST BE PROPERLY NOTARIZED.]

Written Signature: _____

Printed Name: _____

Title: _____

Important - Notary Signature and Seal Required in the Space Below

STATE OF _____

SS:

COUNTY OF _____

Subscribed and sworn to before me this _____ day of _____, 20_____.

My commission expires: _____ (Signed) _____

Residing in _____ County, State of _____



CONTRACTOR'S BID FOR PUBLIC WORK – FORM 96

State Form 52414 (R2 / 2-13) / Form 96 (Revised 2013)
Prescribed by State Board of Accounts

PART I

(To be completed for all bids. Please type or print)

Date (month, day, year): _____

1. Governmental Unit (Owner): City of Greenfield, Indiana
2. County: Hancock
3. Bidder (Firm): _____
Address: _____
City/State/ZIP code: _____
4. Telephone Number: _____
5. Agent of Bidder (if applicable): _____

Pursuant to notices given, the undersigned offers to furnish labor and/or material necessary to complete the public works project of _____
(Governmental Unit) in accordance with plans and specifications prepared by _____
_____ and dated _____ for the sum of
_____ \$ _____

The undersigned further agrees to furnish a bond or certified check with this bid for an amount specified in the notice of the letting. If alternative bids apply, the undersigned submits a proposal for each in accordance with the notice. Any addendums attached will be specifically referenced at the applicable page.

If additional units of material included in the contract are needed, the cost of units must be the same as that shown in the original contract if accepted by the governmental unit. If the bid is to be awarded on a unit basis, the itemization of the units shall be shown on a separate attachment.

The contractor and his subcontractors, if any, shall not discriminate against or intimidate any employee, or applicant for employment, to be employed in the performance of this contract, with respect to any matter directly or indirectly related to employment because of race, religion, color, sex, national origin or ancestry. Breach of this covenant may be regarded as a material breach of the contract.

CERTIFICATION OF USE OF UNITED STATES STEEL PRODUCTS (If applicable)

I, the undersigned bidder or agent as a contractor on a public works project, understand my statutory obligation to use steel products made in the United States (I.C. 5-16-8-2). I hereby certify that I and all subcontractors employed by me for this project will use U.S. steel products on this project if awarded. I understand that violations hereunder may result in forfeiture of contractual payments.

ACCEPTANCE

The above bid is accepted this _____ day of _____, 20 ____, subject to the following conditions: _____

Contracting Authority Members:

_____	_____
_____	_____
_____	_____

PART II
(For projects of \$150,000 or more - IC 36-1-12-4)

Governmental Unit: City of Greenfield, Indiana

Bidder (Firm): _____

Date (month, day, year): _____

These statements to be submitted under oath by each bidder with and as a part of his bid. Attach additional pages for each section as needed.

SECTION I EXPERIENCE QUESTIONNAIRE

1. What public works projects has your organization completed for the period of one (1) year prior to the date of the current bid?

Contract Amount	Class of Work	Completion Date	Name and Address of Owner

2. What public works projects are now in process of construction by your organization?

Contract Amount	Class of Work	Expected Completion Date	Name and Address of Owner

3. Have you ever failed to complete any work awarded to you? _____ If so, where and why?

4. List references from private firms for which you have performed work.

SECTION II PLAN AND EQUIPMENT QUESTIONNAIRE

1. Explain your plan or layout for performing proposed work. *(Examples could include a narrative of when you could begin work, complete the project, number of workers, etc. and any other information which you believe would enable the governmental unit to consider your bid.)*

2. Please list the names and addresses of all subcontractors *(i.e. persons or firms outside your own firm who have performed part of the work)* that you have used on public works projects during the past five (5) years along with a brief description of the work done by each subcontractor.

3. If you intend to sublet any portion of the work, state the name and address of each subcontractor, equipment to be used by the subcontractor, and whether you will require a bond. However, if you are unable to currently provide a listing, please understand a listing must be provided prior to contract approval. Until the completion of the proposed project, you are under a continuing obligation to immediately notify the governmental unit in the event that you subsequently determine that you will use a subcontractor on the proposed project.

4. What equipment do you have available to use for the proposed project? Any equipment to be used by subcontractors may also be required to be listed by the governmental unit.

5. Have you entered into contracts or received offers for all materials which substantiate the prices used in preparing your proposal? If not, please explain the rationale used which would corroborate the prices listed.

SECTION III CONTRACTOR'S FINANCIAL STATEMENT

Attachment of bidder's financial statement is mandatory. Any bid submitted without said financial statement as required by statute shall thereby be rendered invalid. The financial statement provided hereunder to the governing body awarding the contract must be specific enough in detail so that said governing body can make a proper determination of the bidder's capability for completing the project if awarded.

SECTION IV CONTRACTOR'S NON - COLLUSION AFFIDAVIT

The undersigned bidder or agent, being duly sworn on oath, says that he has not, nor has any other member, representative, or agent of the firm, company, corporation or partnership represented by him, entered into any combination, collusion or agreement with any person relative to the price to be bid by anyone at such letting nor to prevent any person from bidding nor to include anyone to refrain from bidding, and that this bid is made without reference to any other bid and without any agreement, understanding or combination with any other person in reference to such bidding.

He further says that no person or persons, firms, or corporation has, have or will receive directly or indirectly, any rebate, fee, gift, commission or thing of value on account of such sale.

SECTION V OATH AND AFFIRMATION

I HEREBY AFFIRM UNDER THE PENALTIES FOR PERJURY THAT THE FACTS AND INFORMATION CONTAINED IN THE FOREGOING BID FOR PUBLIC WORKS ARE TRUE AND CORRECT.

Dated at _____ this _____ day of _____, 20__

(Name of Organization)

By _____

(Title of Person Signing)

ACKNOWLEDGEMENT

STATE OF _____)
) SS
COUNTY OF _____)

Before me, a Notary Public, personally appeared the above-named _____ and swore that the statements contained in the foregoing document are true and correct.

Subscribed and sworn to before me this _____ day of _____, 20__.

Notary Public

My Commission Expires: _____

County of Residence: _____

BID OF

(Contractor)

(Address)

**FOR
PUBLIC WORKS PROJECTS
OF**

Filed _____

Action taken _____

POST-BID SUBMITTAL
SUBCONTRACTOR/SUPPLIER PARTICIPATION

A. SUBCONTRACTORS AND SUPPLIERS LIST

Instructions to Bidders: The Bidder shall submit a completed Subcontractor/Supplier list (see below) as required in ITB 6.4.

The Bidder shall enter the names, the type of work to be done, and the price, in the Subcontractors/Suppliers List for each subcontractor/supplier that the Bidder proposes to use for any part of the Work for the Project at an agreed price of \$_____ or greater, as part of the total amount bid as stated above in Part 2.

Only one subcontractor/supplier shall be listed for each line. Upon award of a contract, the named subcontractors/suppliers shall be employed to perform the work, unless changes are specifically authorized by the Owner. Failure to furnish all information requested may render the bid non-responsive if it is determined that such omission materially affords the Bidder a substantial advantage over other Bidders.

Except as otherwise specifically stated by the Bidder in this Part, omission of any names of subcontractors/suppliers herein shall constitute an affirmative representation and statement that the Bidder proposes to use its own work force for that portion of the Work

Bidder's attention is directed to paragraphs 6.8, 6.9, and 6.11 of the City of Greenfield Standard General Conditions for Construction Contracts as they relate to use of subcontractors/suppliers.

Subcontractor Name	Work	Price
		\$
		\$
		\$
		\$
		\$
		\$
		\$
Supplier Name	Work	Price
		\$
		\$
		\$
		\$
		\$
		\$

(please duplicate and use this form, if additional sheets are necessary)

POST-BID SUBMITTAL
MANUFACTURERS LIST

Instructions to Bidders:

The Bidder shall enter, in the spaces provided below, the name of the manufacturer for ALL material and equipment listed below, to be incorporated into the Work.

Failure to furnish all information for each listed material or equipment item(s) may render the bid non-responsive.

Preliminary acceptance of equipment listed by the manufacturer's name shall not in any way constitute a waiver of the Drawing and Specification requirements covering such equipment. Acceptance will be based on full conformity with the Drawings and Specifications covering the equipment.

The information submitted on this Post-Bid-2 page does not alleviate the Bidder from submitting the required Subcontractor/Supplier Information on the Post-Bid-1 page.

Material/Equipment Item

Manufacturer

POST BID SUBMITTAL
E-VERIFY DOCUMENTATION
SEE ITB SECTION 6.6

Pursuant to Indiana Code 22-5-1.7-11.1 the Contractor shall provide documentation that it has enrolled and is participating in the E-Verify program. Contractor is required to submit proof from the E-Verify Program that it is currently enrolled in the Program. An example of confirmation is the confirmation e-mail received from E-Verify that the Contractor has successfully enrolled in E-Verify.

BID BOND
City of Greenfield

Instructions to Bidders

Bidders may use this form or other form containing the same material conditions and provisions as approved in advance by Owner/Obligee.

Bidder/Surety must attach a signed, certified and effective dated copy of the Power of Attorney or Attorney-In-Fact establishing the authority of the person(s) signing this Bid Bond on behalf of the Surety.

Surety company executing this bond shall appear on the most current list of "Surety Companies Acceptable on Federal Bonds" as specified in the U.S. Treasury Department Circular 570, as amended, and be authorized to transact business in the State of Indiana.

KNOW ALL MEN BY THESE PRESENTS, that the undersigned

"Bidder": _____
and

"Surety": [Name] _____
[Address] _____

a corporation chartered and existing under the laws of the State of _____, and authorized to do business in the State of Indiana,

are held and firmly bound unto the City of Greenfield, Indiana ("Owner/Obligee") in the full and just sum equal to five percent (5%) of the price stated in the Bid Proposal described below, including accepted alternates, if any, to be paid upon demand of the Owner/Obligee, together with interest at the maximum legal rate from date of demand and any attorney fees and court costs incurred by Owner/Obligee to enforce this instrument, to which payment well and truly to be made we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally and firmly by these presents.

WHEREAS, the Owner/Obligee has solicited bids for certain Work for or in furtherance of construction of public improvements described generally as:

Franklin Street Sanitary Sewer Extension Project

pursuant to plans, specifications and other "Contract Documents" included as parts of and designated by such solicitation; and

WHEREAS, the Bidder has submitted to the Owner/Obligee a Bid Proposal to perform such Work.

NOW THEREFORE: The conditions of this obligation are such that if the Bid Proposal be accepted, with or without conditions, the Bidder shall within such time thereafter as prescribed by the Contract Documents (i) fulfill all conditions of such award that remain to be fulfilled, (ii) execute a Contract in accordance with the Bid Proposal and in the form and manner required by the Contract Documents, and (iii) thereafter provide all bonds, and other documentation required by the Contract Documents to be delivered to Owner/Obligee prior to commencing Work, including without limitation a sufficient and satisfactory Performance Bond and Payment Bond payable to Owner/Obligee, each in an amount of one hundred percent (100%) of the total Contract price as awarded and in form and with surety satisfactory to said Owner/Obligee, then this obligation to be void; otherwise to be and remain in full force and virtue in law, and the Surety shall, upon failure of the Bidder to comply with any or all of the foregoing requirements within the time specified above and as prescribed by the Contract Documents, immediate pay to the Owner/Obligee, upon demand, the amount hereof, in good and lawful money of the United States of America, not as a penalty, but as liquidated damages.

IN TESTIMONY THEREOF, the Bidder and Surety have caused this instrument to be duly signed and sealed this ____ day of _____, 20____.

This Bid Bond shall bind the undersigned Surety whether or not also signed by the Bidder.

“Bidder”

“Surety”

By: _____

By: _____

Printed: _____

Printed: _____

WARRANTY BOND
City of Greenfield

Instructions:

Successful Bidder must use this form or other form containing the same material conditions and provisions as approved in advance by Owner.

Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute bond.

Surety company executing this bond shall appear on the most current list of "Surety Companies Acceptable on Federal Bonds" as specified in the U.S. Treasury Department Circular 570, as amended, and be authorized to transact business in the State of Indiana.

KNOW ALL MEN BY THESE PRESENTS: that

"Contractor": _____

and

"Surety": [name] _____
[Address] _____

a corporation chartered and existing under the laws of the State of _____, and authorized to do business in the State of Indiana,

are held and firmly bound unto the City of Greenfield, Indiana hereinafter called Owner/Obligee, in the penal sum of _____ Dollars, (\$_____) in lawful money of the United States, for the payment of which sum well and truly to be made, together with interest at the maximum legal rate from date of demand and any attorney fees and court costs incurred by Owner/Obligee to enforce this instrument, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Contractor has entered into a certain Agreement with the Owner/Obligee, dated as of the _____ day of _____, 20 ____, by which Contractor has agreed to perform and furnish certain Work for or in furtherance of construction of public improvements described generally as

Franklin Street Sanitary Sewer Extension Project

which Agreement, and the "Contract Documents" as referred to therein, are hereby incorporated herein by reference;

WHEREAS, Contractor has installed and completed and met all improvements, installations and requirements applicable to the above described Work, but said improvements and installations have not yet been accepted for public maintenance; and

WHEREAS, the Owner/Obligee requires a guarantee from the Contractor against defective materials and workmanship in connection with such maintenance.

NOW, THEREFORE, Contractor warrants the workmanship and all materials used in the construction, installation and completion of said Work, including all improvements and installations thereof, to be of good quality and constructed and completed in a workmanlike manner in accordance with the Agreement and Contract Documents and all local, state and federal laws, ordinances, rules, standards and regulations applicable to said Work;

FURTHERMORE, the conditions of the Surety's obligation hereunder are such that if Contractor at his own expense, for a period of 3 years, commencing on the date of Substantial Completion, shall make all repairs or replacements thereto which may become necessary by reason of improper or defective workmanship or materials, or any failure thereof to conform to the provisions of the Agreement or Contract Documents, then Surety's obligation is to be null and void; otherwise such obligation shall remain in full force and effect. Any repairs or replacements made under this Bond shall in like manner be subject to the terms and conditions hereof.

Contractor and Surety covenant that all action required by law to be taken by them to authorize the execution and delivery of this bond have been previously been taken, that the officers whose signatures appear below have been fully empowered to execute and deliver this instrument and that once executed and delivered, it shall represent the lawful and binding obligation of the parties.

IN WITNESS WHEREOF, this instrument is executed in _____ (number) counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20_____.

CONTRACTOR: _____
[name]

By: _____
[signature] [printed name]

ATTEST: _____, Secretary
[signature]

SURETY: _____
[name]

By: _____, Attorney-in-Fact
[signature]

[printed name] [address]

PAYMENT BOND
City of Greenfield

Instructions:

Successful Bidder must use this form or other form containing the same material conditions and provisions as approved in advance by Owner.

Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute bond.

Surety company executing this bond shall appear on the most current list of “Surety Companies Acceptable on Federal Bonds” as specified in the U.S. Treasury Department Circular 570, as amended, and be authorized to transact business in the State of Indiana.

KNOW ALL MEN BY THESE PRESENTS: that

“Contractor”: _____

and

“Surety”: [name] _____
 [Address] _____

a corporation chartered and existing under the laws of the State of _____, and authorized to do business in the State of Indiana,

are held and firmly bound unto the City of Greenfield, Indiana hereinafter called Owner/Obligee, in the penal sum of _____ Dollars, (\$_____) in lawful money of the United States, for the payment of which sum well and truly to be made, plus interest at the maximum legal rate from date of demand and any attorney fees and court costs incurred by Owner/Obligee to enforce this instrument, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Contractor has entered into a certain Agreement with the Owner/Obligee, dated as of the _____ day of _____, 20 ____, by which Contractor has agreed to perform and furnish certain Work for or in furtherance of construction of public improvements described generally as

Franklin Street Sanitary Sewer Extension Project

which Agreement, and the “Contract Documents” as referred to therein, are hereby incorporated herein by reference.

NOW, THEREFORE, the conditions of this obligation are such that if the Contractor shall promptly make payments of all amounts due to all Claimants, then this obligation shall be void; otherwise to remain in full force and effect. “Claimant” shall mean any subcontractor, material supplier or other person, firm, or corporation furnishing materials or equipment for or performing labor or services in the prosecution of the Work provided for in such Agreement, including lubricants, oil, gasoline, coal and coke, repairs on machinery, and tools, whether consumed or used in connection with the construction of such work, and all insurance premiums on said work, and for all labor, performed in such work.

PROVIDED, FURTHER, that the said Surety, for value received, hereby stipulates and agrees:

1. that no defect or irregularity in the contract or in the proceedings preliminary to the letting of the contract will operate to release or discharge Surety.
2. that no change, omission, extension of time, alteration or addition to the terms of the Agreement, Contract Documents or to any Work to be furnished thereunder, and no delay by the Owner/Obligee in enforcement of the Agreement or this Bond shall in any way affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Agreement, Contract Documents or to the Work.
3. that no final settlement between the Owner/Obligee and the Contractor shall abridge any right of the Owner/Obligee hereunder as to any claim that may remain unsatisfied.
4. that this Payment Bond and Surety shall not be released until one (1) year after the Owner/Obligee's final settlement with the Contractor.

IN WITNESS WHEREOF, this instrument is executed in _____ (number) counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20_____.

CONTRACTOR: _____
[name]

By: _____
[signature] [printed name]

ATTEST: _____, Secretary
[signature]

SURETY: _____
[name]

By: _____, Attorney-in-Fact
[signature]

[printed name] [address]

PERFORMANCE BOND
City of Greenfield

Instructions:

Successful Bidder must use this form or other form containing the same material conditions and provisions as approved in advance by Owner.

Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute bond.

Surety company executing this bond shall appear on the most current list of "Surety Companies Acceptable on Federal Bonds" as specified in the U.S. Treasury Department Circular 570, as amended, and be authorized to transact business in the State of Indiana.

KNOW ALL MEN BY THESE PRESENTS: that

"Contractor": _____

and

"Surety": [name] _____
[Address] _____

a corporation chartered and existing under the laws of the State of _____, and authorized to do business in the State of Indiana,

are held and firmly bound unto the City of Greenfield, Indiana hereinafter called Owner/Obligee, in the penal sum of _____ Dollars, (\$_____) in lawful money of the United States, for the payment of which sum well and truly to be made, together with interest at the maximum legal rate from date of demand and any attorney fees and court costs incurred by Owner/Obligee to enforce this instrument, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Contractor has entered into a certain Agreement with the Owner/Obligee, dated as of the _____ day of _____, 20 ____, by which Contractor has agreed to perform and furnish certain Work for or in furtherance of construction of public improvements described generally as

Franklin Street Sanitary Sewer Extension Project

which Agreement, and the "Contract Documents" as referred to therein, are hereby incorporated herein by reference;

NOW, THEREFORE, the conditions of this obligation are such that if the Contractor shall well, truly and faithfully perform his duties, all the undertakings, covenants, terms and conditions of said Agreement whether during the original term thereof, and any extensions thereof which may be granted by the Owner/Obligee, with or without notice to the Surety and during any period of guaranty or warranty provided therein or arising thereunder, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the Owner/Obligee from all costs and damages which he may suffer by reason of failure to do so, and shall reimburse and repay the

Owner/Obligee all outlay and expense which the Owner/Obligee may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received, hereby stipulates and agrees:

1. that no defect or irregularity in the contract or in the proceedings preliminary to the letting of the contract will operate to release or discharge Surety.
2. that no change, omission, extension of time, alteration or addition to the terms of the Agreement, Contract Documents or to any Work to be furnished thereunder, and no delay by the Owner/Obligee in enforcement of the Agreement or this Bond shall in any way affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Agreement, Contract Documents or to the Work.
3. that no final settlement between the Owner/Obligee and the Contractor shall abridge any right of the Owner/Obligee hereunder as to any claim that may remain unsatisfied.
4. that this Performance Bond and Surety shall not be released until one (1) year after the Owner/Obligee's final settlement with the Contractor.

IN WITNESS WHEREOF, this instrument is executed in _____ (number) counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20_____.

CONTRACTOR: _____
[name]

By: _____
[signature] [printed name]

ATTEST: _____, Secretary
[signature]

SURETY: _____
[name]

By: _____, Attorney-in-Fact
[signature]

[printed name] [address]

AGREEMENT
City of Greenfield

THIS AGREEMENT is made and entered into as of the _____ day of _____, 20_____.

by and between

“OWNER”: City of Greenfield, Indiana, by and through its Board of Public Works
10 S. State Street, Greenfield, Indiana 46140

and

“CONTRACTOR”:

concerning the following:

“PROJECT”: **Franklin Street Sanitary Sewer Extension Project**

Base Bid 1 – 1,405 linear feet of 12-inch, 10-inch and 8-inch sanitary sewer, 3 – 6-inch service lines, 8 manholes and associated site restoration.

Mandatory Alternate Bid No. 1 – 863 linear feet of 16-inch and 12-inch water main and associated site restoration.

Mandatory Alternate Bid No. 2 – 2,407 linear feet of 15-inch and 12-inch sanitary sewer, 7 - 6-inch service lines, 10 manholes, 1,487 feet of a 10-foot-wide pedestrian asphalt trail and associated site restoration.

“ENGINEER”: **American Structurepoint Inc.**

RECITALS:

- A. The OWNER has heretofore caused to be prepared certain plans, specifications and other “Contract Documents” as hereinafter listed pertaining to the above described Project and Work, and the CONTRACTOR has filed Proposal to furnish said labor, tools, material, equipment, services, and perform said Work upon the terms and for the price(s) therein fully stated and set forth;
- B. The said Contract Documents accurately and fully describe the terms and conditions upon which the CONTRACTOR is willing to furnish the labor, tools, material, equipment, services, and perform the Work called for by the Contract Documents and in the manner and time and for the price(s) set forth herein.

THE OWNER AND CONTRACTOR AGREE AS FOLLOWS:

1. Contract Documents

1.1 This Agreement consists of the following Contract Documents all of which are as fully a part of this Agreement as if set out verbatim herein or attached hereto and the same do in all particulars become the Agreement between the parties hereto in all matters and things set forth herein and described:

- .1 This Agreement;
- .2 All Addenda issued prior to receipt of Bids, whether or not receipt thereof has been acknowledged by CONTRACTOR in its Bid;
- .3 Special Conditions;
- .4 General Conditions;
- .5 CONTRACTOR's Itemized Proposal and Declarations;
- .6 Technical Specifications;
- .7 Plans;
- .8 City Standards and Specifications;
- .9 Additional Requirements Section of the Bid Documents (change order forms, Indiana Code 5-16-13, etc.);
- .10 Instructions to Bidders;
- .11 Advertisement or Notice to Bidders; and
- .12 Performance, Payment and Warranty Bonds.

1.2 In resolving conflicts, errors, discrepancies and disputes concerning the nature, character, scope or extent of Work to be performed or furnished by the CONTRACTOR, or other rights and obligations of the OWNER and CONTRACTOR, arising from or prescribed by one or more of the Contract Documents, the following rules shall govern:

- .1 A requirement occurring in one Contract Document is as binding as though occurring in all Contract Documents;
- .2 Calculated dimensions shall govern over scaled dimensions;
- .3 The Contract Documents shall be given precedence in the order listed in Paragraph 1.1 above; and

.4 In documents of equal priority, if any such conflict, error, discrepancy or dispute cannot be resolved or reconciled by application of the rules stated in Subparagraphs 1.2.1 through 1.2.3, then the provision expressing the greater quantity, quality, or scope of work, or imposing the greater obligation upon the CONTRACTOR or affording the greater right or remedy to the OWNER shall govern, without regard to the party who drafted such provision.

2. Contract Price

- 2.1 The CONTRACTOR shall, in strict conformity with the Contract Documents, furnish all labor, tools, materials, equipment, services, assume and fulfill all obligations and perform all Work required to construct, complete, and make ready for use by the OWNER for the lump sum of _____ Dollars (\$_____).
- 2.2 The above stated Contract Sum will be paid to the CONTRACTOR in the manner and at such times as set forth in the Contract Documents.

3. Contract Time

- 3.1 It is hereby understood and mutually agreed, by and between the CONTRACTOR and OWNER, that the date of commencement and the time for completion of the Work as specified in the Contract Documents are ESSENTIAL CONDITIONS of this Agreement.
- 3.2 The CONTRACTOR agrees that the Work shall be commenced no later than the date indicated in the Notice to Proceed and that the Work shall be prosecuted regularly, diligently and uninterruptedly at such a rate of progress as will insure **Substantial Completion and Final Completion dates as follows.**

Base Bid 1 – 1,405 linear feet of 12-inch, 10-inch and 8-inch sanitary sewer, 3 – 6-inch service lines, 8 manholes and associated site restoration.

Mandatory Alternate Bid No. 1 – 863 linear feet of 16-inch and 12-inch water main and associated site restoration.

Mandatory Alternate Bid No. 2 – 2,407 linear feet of 15-inch and 12-inch sanitary sewer, 7 - 6-inch service lines, 10 manholes, 1,487 feet of a 10-foot-wide pedestrian asphalt trail and associated site restoration.

- 3.4 The CONTRACTOR and OWNER acknowledge and agree that the time allotted by this Agreement for the performance and completion of the Work is reasonable and takes into account any and all risks and adverse conditions assumed by CONTRACTOR hereunder.

[REST OF PAGE INTENTIONALLY LEFT BLANK]

4. Liquidated Damages

The CONTRACTOR and OWNER recognize and contemplate that unexcused failure by the CONTRACTOR to complete the Work within the Contract Time will cause the OWNER and the Public to suffer financial losses or inconvenience the full and exact extent and character of which cannot be measured as a basis for recovery by the OWNER of actual damages, and that liquidated damages as prescribed in the Contract Documents represent a fair, reasonable and appropriate estimate thereof. Accordingly, the CONTRACTOR agrees that such liquidated damages may be assessed and recovered by the OWNER, as against CONTRACTOR and its Surety, in the event of delayed completion and without the OWNER being required to present any evidence of the amount or character of actual damages sustained by reason thereof. **Such liquidated damages shall be assessed and recovered at the rate of \$500 per day for delay in achieving Substantial Completion and at the rate of \$1000 per day in achieving Final Completion of the Work.**

5. Effective Date

This Agreement shall be deemed effective as of the date and year first above written notwithstanding the date on which this Agreement has been executed by the respective parties or their representatives as stated below.

[REST OF PAGE INTENTIONALLY LEFT BLANK]

“CONTRACTOR” SIGNATURE:

IN TESTIMONY THEREOF, the CONTRACTOR has hereunder set his hand this _____ day of _____, 20____.

Firm Name _____

Address _____

Telephone No. _____ Fax No. _____

By: _____
Signature

Printed: _____

Title: _____

“OWNER” SIGNATURES:

IN WITNESS WHEREOF, the OWNER does hereby accept the foregoing Agreement, and has herewith set his/her hand this _____ day of _____, 20____.

For and on behalf of the City of Greenfield by its Board of Public Works.

Guy Titus, Mayor,

Brent Robertson, Member

Larry J. Breese, Member

Katherine N. Locke, Member

Glenna Shelby, Member

ATTEST:

Lori Elmore, Clerk Treasurer

Date: _____

ADDITIONAL REQUIREMENTS

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City of Greenfield Sample Change Order Forms	AR-2
Additional Indiana Code (IC) Requirements	AR-7
IC 5-16-13	AR-7
IC 4-13-18	AR-9

Following are specimen forms proposed to be used for the issuance of change orders, field orders, and work directive changes. Procedure for the development, submittal and processing of these forms will be discussed during the preconstruction conference.

CITY OF GREENFIELD

OWNER: CITY OF GREENFIELD

FIELD ORDER NUMBER: _____

DATE: _____

PROJECT NAME: _____

PROJECT NO: _____

You are hereby directed to execute promptly this Field Order which interprets the Contract Documents or orders minor changes in the Work without change in Contract Sum or Contract Time.

If you consider that a change in Contract Sum or Contract Time is required, please submit your itemized proposal to the Engineer immediately and before proceeding with this Work. If your proposal is found to be satisfactory and in proper order, this Field Order will in that event be superseded by a Change Order.

Description:

Attachments:

PROJECT MANAGER:

By: _____

Date: _____

CITY OF GREENFIELD

TO:

WORK DIRECTIVE CHANGE NO. _____

DATE: _____

PROJECT NAME: _____

PROJECT NO.: _____

Specification Reference: _____

Drawing Reference: _____

DESCRIPTION OF WORK COVERED BY THIS DIRECTIVE CHANGE:

REASON FOR THIS ORDER:

AUTHORIZATION:

THIS WORK DIRECTIVE CHANGE AUTHORIZES THE WORK TO BE COMPLETED AS OUTLINED. A Contract Change Order in the amount of \$_____ will be issued to you in the near future to cover this Work Directive Change.

PROJECT COMPLETION DATE: ADD/DEDUCT/UNCHANGED _____ DAYS.

By: _____
Project Manager

By: _____
City Engineer

CITY OF GREENFIELD

TO: REQUEST FOR PROPOSAL NO.: _____
DATE: _____
PROJECT NAME: _____
PROJECT NO.: _____

Specification Reference: _____

Drawing Reference: _____ Drawing Date: _____

Identification of Attachments: _____

Please submit within fifteen calendar days of this request date a proposal showing increase, decrease or no change in contract price and/or contract time. Proposal shall be accompanied by four (4) copies of breakdown showing quantities, cost of material, equipment, labor, overhead, profit and basis for the additional time if any.

DESCRIPTION OF PROPOSED CHANGE COVERED BY THIS REQUEST:

REASON FOR CHANGE:

SPECIAL INSTRUCTIONS:

THIS REQUEST DOES NOT AUTHORIZE YOU TO PROCEED WITH THE ABOVE WORK NOR STOP PREVIOUSLY SCHEDULED WORK. Upon approval a Contract Change Order and a Notice to Proceed will be issued.

Please state in your proposal the effect the acceptance of this REQUEST will have on the project completion, if accepted within ___ days of proposal due date.

YOUR PROPOSAL DUE DATE: _____

By: _____
Project Manager Date

CITY OF GREENFIELD

TO: CONTRACT CHANGE REQUEST NO.: _____
DATE: _____
PROJECT NAME: _____

FROM: _____

IT IS REQUESTED THAT A CONTRACT CHANGE BE MADE TO THE ABOVE REFERENCED CONTRACT.

1. SCOPE OF WORK (USE ADDITIONAL PAGES IF REQUIRED. ALSO LIST OTHER CONTRACTS INVOLVED.)

2. REASON FOR CHANGE:

3. APPROXIMATE COST CHANGE TO CONTRACT PRICE: _____

4. WILL THE CONTRACT NEED ADDITIONAL CONTRACT TIME TO COMPLETE THE CHANGE IN WORK SCOPE? ____ -YES ____ -NO ____ -(CALENDAR DAYS)

5. WILL THE CONTRACTOR NEED ADDITIONAL PERSONNEL TO COMPLETE THE CHANGE IN WORK SCOPE? ____ -YES ____ -NO

IF NO, TRADE(S): _____

NO. OF PERSONNEL: _____

DURATION: _____

6. IDENTIFICATION OF ATTACHMENTS:

DATE: _____ DATE: _____

PREPARED BY: _____ REVIEWED BY: _____
Project Manager

Comments and Recommendation:

CITY OF GREENFIELD

TO: CONTRACT CHANGE ORDER NO.: _____
DATE: _____
PROJECT NAME: _____
ORIGINAL CITY P.O. NO.: _____

I. You are directed to make the following changes in this contract:

<u>ITEM</u>	<u>AMOUNT</u>	<u>SCHEDULED ADJUSTMENT</u> <u>(+) OR (-) DAYS</u>
-------------	---------------	---

II. The following referenced documents further describe the changes outlined in Paragraph I, and are to be considered a part of this Change Order:

R.F.P.: _____ W.D.C.: _____

The changes result in the following adjustment of Contract Price and Contract Time:

Contract Sum prior to this Change Order \$ _____

Contract Sum will be increased/decreased by this Change Order \$ _____

New Contract Sum including this Change Order \$ _____

Contract Time Prior to this Change Order _____ Substantial Completion Date

_____ Final Completion Date

Net increased/decreased resulting from this Change Order ____ Days

Current Contract Time including this Change Order _____ Substantial Completion Date

_____ Final Completion Date

This Change Order is for full and final settlement of all direct, indirect, impact costs and time extension incurred at any time resulting from the performance of the changed work.

The Above Changes Are Recommended:

The Above Changes Are Accepted:

Approved:

Engineer

Contractor

Owner

Address

Address

Address

City/State/Zip

City/State/Zip

City/State/Zip

By _____

By _____

By _____

Phone _____

Phone _____

Phone _____

Date _____

Date _____

Date _____

INDIANA CODE (IC) ADDITIONAL REQUIREMENTS

I. IC 5-16-13

1. The definitions in IC 5-16-3 are incorporated by reference into this Section.
2. In accordance with IC 5-16-13-9, the Bidder, as a “Tier 1 contractor” (as defined in IC 5-16-3-4), if awarded a contract for the Work contemplated by this Bid must contribute:
 - (a) Work performed by the tier 1 contractor’s employees;
 - (b) Materials supplied directly by the tier 1 contractor;
 - (c) Services supplied directly by the tier 1 contractor’s employees; or
 - (d) Any combination of subdivisions (a) through (d);at least fifteen percent (15%) of the tier 1 contractor’s total contract price as determined at the time the contract is awarded.

NOTE: In accordance with Subsection 6.8.1 of the City of Greenfield Standard General Conditions for Construction Contracts (August 2018), the successful Bidder is required to perform with its own organization Work amounting to **not less than thirty percent (30%)** of the original or revised contract amount, whichever is less.

3. In accordance with IC 5-16-13-10, if awarded a contract for the Work contemplated by this Bid, the Bidder, as a “Tier 1 contractor”, and each “Tier 2 contractor” and “Tier 3 contractor” (as defined in IC 5-16-3-4 (i.e., subcontractors and sub-subcontractors)) employed to perform Work on the Project must maintain general liability insurance in at least the following amounts:
 - (a) For the each occurrence limit, one million dollars (\$1,000,000).
 - (b) For the general aggregate limit, two million dollars (\$2,000,000).

NOTE: The successful Bidder, its subcontractors and sub-subcontractors, are required to maintain all insurance coverage as provided for in Article 5 of the City of Greenfield Standard General Conditions for Construction Contracts (August 2018).

4. In accordance with IC 5-16-13-11, if awarded a contract for the Work contemplated by this Bid, the Bidder as a “Tier 1 contractor” and each “Tier 2 contractor” and “Tier 3 contractor” employed to perform Work on the Project:
 - (a) Shall submit, before Work begins, the E-Verify case verification number for each individual who is required to be verified under IC 22-5-1.7. An individual who is required to be verified under IC 22-5-1.7 whose final case result is final non-confirmation may not be employed on the Project.
 - (b) May not pay cash to any individual employed by the contractor for Work done by the individual on the Project.
 - (c) Must be in compliance with the federal Fair Labor Standards Act of 1938, as amended (29 U.S.C. 201-209) and IC 22-2-2-1 through IC 22-2-2-8.
 - (d) Must be in compliance with IC 22-3-5-1 and IC 22-3-7-34.
 - (e) Must be in compliance with IC 22-4-1 through IC 22-4-39.5.
 - (f) Must be in compliance with IC 4-13-18-1 through IC 4-13-18-7.
 - (g) Must comply with IC 5-16-13-12, if applicable.

5. In accordance with IC 5-16-13-12, if awarded a contract for the Work contemplated by this Bid, the Bidder as a “Tier 1 contractor” and each “Tier 2 contractor” employed to perform Work on the Project, if they employ fifty (50) or more journeymen:

- (a) Must provide access to a training program applicable to the tasks to be performed in the normal course of the employee's employment with the contractor.
 - (b) Shall participate in an apprenticeship training program that meets the standards established by the United States Department of Labor, Bureau of Apprenticeship and Training.
 - (c) May comply with this section through any of the following:
 - (1) An apprenticeship program.
 - (2) A program offered by Ivy Tech Community College of Indiana.
 - (3) A program offered by Vincennes University.
 - (4) A program established by or for the contractor.
 - (5) A program offered by an entity sponsored by the United States Department of Labor, Bureau of Apprenticeship and Training.
 - (6) A program that results in the award of an industry recognized portable certification.
6. In accordance with IC 5-16-13-13, if awarded a contract for the Work contemplated by this Bid, the payroll and related records of the Bidder as a "Tier 1 contractor" and each "Tier 2 contractor" and "Tier 3 contractor" employed to perform Work on the Project, must be:
- (a) Preserved by the contractor for a period of three (3) years after completion of the Project Work; and
 - (b) Open to inspection by the Indiana Department of Workforce Development (DWD).

In accordance with IC 5-16-13-14, if the City of Greenfield suspects a misclassification of one (1) or more workers by a contractor in any contractor tier working on the Project may request in writing that DWD investigate the suspected worker misclassification, and in so doing shall provide to DWD any information or records that the City has concerning the misclassification. DWD may investigate such a request, and if it finds information or records that support a finding that worker misclassification has occurred, DWD may refer the matter to the appropriate agency or official for further action.

7. In accordance with IC 5-16-13-15, if the City of Greenfield reasonably suspects the Bidder awarded a contract for the Work contemplated by this Bid or any "Tier 2 contractor" and "Tier 3 contractor" employed to perform Work on the Project has violated a provision of IC 5-16-13, the City is required to do one (1) of the following:
- (a) If the suspected violation concerns or is related to any of the following provisions, the City shall refer the matter to the appropriate agency as follows:
 - (1) For a suspected violation of IC 5-16-13-11(1) (E-Verify), the Indiana Department of Labor.
 - (2) For a suspected violation of IC 5-16-13-11(3) (the federal FLSA or state minimum wage law), the Indiana Department of Labor.
 - (3) For a suspected violation of IC 5-16-13-11(4) (worker's compensation or occupational diseases), the Worker's Compensation Board of Indiana.
 - (4) For a suspected violation of IC 5-16-13-11(5) (unemployment insurance), the Department of Workforce Development.
 - (b) If the suspected violation concerns a provision of IC 5-16-13 other than a provision listed in subdivision (a), the City shall require the contractor to remedy the violation not later than thirty (30) days after the City notifies the contractor of the violation in accordance with IC 5-16-13-15(b)(2). During the thirty (30) day period, the contractor may continue to work on the Project; however, if the contractor fails to remedy the violation within the thirty (30) day period, the City shall find the contractor not responsible and shall determine the length of time the contractor is considered not responsible by the City based on the severity of the violation. The period during which a contractor is considered not responsible:
 - (1) May not exceed forty-eight (48) months; and

(2) Begins on the date of substantial completion of the Project.

A finding by the City that a contractor is not responsible under this section may not be used by another public agency in making a determination as to whether the contractor is responsible for purposes of that public agency's award of a public works contract to that contractor.

II. IC 4-13-18 (A response to "Part 11—Drug Testing" of the "Bidder's Itemized Proposal and Declarations" fulfills this requirement)

1. IC 4-13-18 applies if the Bid is one hundred fifty thousand dollars (\$150,000) or more.
2. The definitions in IC 4-13-18 are incorporated by reference into this Section.
3. In accordance with IC 4-13-18-5, the Bidder must submit with the Bid a written plan for a program to test the Bidder's employees for drugs. A contractor that is subject to a collective bargaining agreement that establishes an employee drug testing program shall only submit a copy of the relevant part of the collective bargaining agreement establishing the program. Failure to submit a written plan for an employee drug testing program, or relevant parts of a collective bargaining agreement establishing an employee drug testing program shall result in the Bid being rejected as non-responsive.
4. The Bidder's employee drug testing program must satisfy all of the following requirements:
 - (a) In accordance with IC 4-13-18-4, if the Bidder's employee drug testing program is established by a collective bargaining agreement it shall include the following:
 - (1) Provides for the random testing of the contractor's employees.
 - (2) Contains a five (5) drug panel that tests for the following substances:
 - (A) amphetamines;
 - (B) cocaine;
 - (C) opiates (2000 ng/ml);
 - (D) PCP;
 - (E) THC
 - (3) Imposes disciplinary measures on an employee who fails a drug test which includes at a minimum all of the following:
 - (A) the employee is subject to suspension or immediate termination;
 - (B) the employee is not eligible for reinstatement until the employee tests negative on a five (5) panel test certified by a medical review officer;
 - (C) the employee is subject to unscheduled sporadic testing for at least one (1) year after reinstatement; and
 - (D) the employee successfully completes a rehabilitation program recommended by a substance abuse professional if the employee fails more than one (1) drug test.
 - (b) In accordance with IC 4-13-18-5, if the Bidder has its own employee drug testing program (which is not included as part of a collective bargaining unit), the Bidder's program shall include the following:
 - (1) Subject each of the contractor's employees to a drug test at least one (1) time each year.
 - (2) Provide for random employee testing, with at least two percent (2%) of the contractor's employees randomly selected each month for testing.
 - (3) Contain at least a five (5) drug panel that tests for:
 - (A) amphetamines;
 - (B) cocaine;
 - (C) opiates (2000 ng/ml);
 - (D) PCP;
 - (E) THC.

- (4) Impose progressive discipline on an employee who fails a drug test with at least the following progression:
- (A) after the first positive test, an employee must be:
 - (i) suspended from work for 30 days;
 - (ii) directed to a program of treatment or rehabilitation; and
 - (iii) subject to unannounced drug testing for one (1) year from the day the employee returns to work.
 - (B) after a second positive test, an employee must be:
 - (i) suspended from work for 90 days;
 - (ii) directed to a program of treatment or rehabilitation; and
 - (iii) subject to unannounced drug testing for one (1) year from the day the employee returns to work.
 - (C) after a third or subsequent positive test, an employee must be:
 - (i) suspended from work for one (1) year;
 - (ii) directed to a program of treatment or rehabilitation; and
 - (iii) subject to unannounced drug testing for one (1) year from the day the employee returns to work.

The program may require dismissal of the employee after any positive drug test or other discipline more severe than described above. An employer complies with the requirement to direct an employee to a program of treatment or rehabilitation if the employer either advised the employee of any such program covered by employer-provided insurance, or, if the employer's insurance does not provide insurance coverage, the employer advises the employee of agencies that provide such programs.

5. In accordance with IC 4-13-18-7, if awarded a contract for the Project, the Bidder must implement the employee drug testing program as described in the plan or collective bargaining agreement. The City of Greenfield shall cancel the contract with the successful Bidder if it:
- (a) Fails to implement its employee drug testing program during the term of the contract;
 - (b) Fails to provide information regarding implementation of the employee drug testing program at the request of the City; or
 - (c) Provides the City with false information regarding the contractor's employee drug testing program.

III. IC 8-23-10 or IC 4-13.6-4

1. The requirements of this Section III are effective for Bids awarded by the City of Greenfield **after December 31, 2016**.
2. The definitions in IC 5-16-3 are incorporated by reference into this Section.
3. In accordance with IC 8-23-10-0.5, if the total amount of the contract awarded under this Bid is **three hundred thousand dollars (\$300,000) or more** and the Project is for the construction, improvement, alteration, repair, or maintenance of a road (as defined by IC 8-23-1-23), highway, street, or alley, then the Bidder, as a "Tier 1 contractor" (as defined in IC 5-16-3-4), and each "Tier 2 contractor" and "Tier 3 contractor" (as defined in IC 5-16-3-4 (i.e., subcontractors and sub-subcontractors)) employed to perform Work on the Project must be qualified by the Indiana Department of Transportation under IC 8-23-10 before performing any Work on the Project.
4. In accordance with IC 4-13.6-4-2.5, if the total amount of the contract awarded under this Bid is **three hundred thousand dollars (\$300,000) or more** and the Project is for any work other than for the construction, improvement, alteration, repair, or maintenance of a road (as defined by IC

8-23-1-23), highway, street, or alley, then the Bidder, as a “Tier 1 contractor” (as defined in IC 5-16-3-4), and each “Tier 2 contractor” and “Tier 3 contractor” (as defined in IC 5-16-3-4 (i.e., subcontractors and sub-subcontractors)) employed to perform Work on the Project must be qualified under IC 4-13.6-4 by the Indiana Certification Board established by IC 4-13.6-3-3 before performing any Work on the Project.

PROJECT TECHNICAL SPECIFICATIONS

The Contractor shall be responsible for referring to the current version of the Public Improvement Design standards and Specifications Manual for the City of Greenfield (Specs). The Specs can be found and downloaded at <https://www.greenfieldin.org/engineering-documents?download=7002%3Apublic-improvement-and-design-standards>. The Contractor shall be responsible for adhering to all sections of the Specs. Items listed in the Specs, without a specific payment designation shall be considered incidental to the project and the costs shall be merged into applicable pay items included in the project. Quantity estimates below shall be a maximum authorized amount, not to exceed without written approval by the Engineer. The following pay items are applicable to this project:

MOBILIZATION AND DEMOBLIZATION

Prevailing Greenfield Public Improvement Design Standards and Specifications, Division N/A

Method of Measurement

1. Payment for Mobilization and Demobilization shall be on a lump sum price.
2. The lump sum price bid for this item shall not be more than 5 percent of the total of all other bid items included in the Work.
3. For the purpose of payment, the pay quantity for the mobilization portion of Mobilization and Demobilization will be limited to 60 percent of the total amount bid for this Work Item, which will be included in the first partial payment estimate.
4. The balance of the amount bid shall be considered as demobilization and will be paid for when all work is completed on the job and final clean-up is completed.
5. No additional payment will be made for demobilization and remobilization, initiated by the Contractor, due to shutdowns, suspensions of the Work, or for other mobilization activities.
6. The lump sum price listed on the submitted Basis of Bid Form for Mobilization and Demobilization shall include all costs to complete all Work necessary for, but not limited to, furnishing bonds, acquiring insurance, acquiring permits, preparing schedules, delivering submittals, construction staking, performance of construction preparatory operations, coordination and administration, notifications of other utilities, agencies or individuals associated with the Work, all supervision, labor, equipment and materials necessary for the movement of personnel, equipment, and materials to and from the project Site, the establishment of all other facilities necessary to the performance of Work and testing where not otherwise specified.
7. Such lump sum price shall also include the cost of maintaining secure storage and work areas, including the security of personnel, open trenches, equipment, and materials.

Basis of Payment

- 1.) 1 LSUM Mobilization and Demobilization, Max 5% (Base Bid No.1)

CONSTRUCTION CONTINGENCY

Prevailing Greenfield Public Improvement Design Standards and Specifications, Division N/A

Description

- A. When Work is required under this Item, the Owner or authorized representative will request a proposal for Work from the Contractor.
- B. Contractor shall prepare proposal for Work including, but not limited to, cost estimate, scheduled, impacts to overall project schedule, and subcontractors.

- C. No Work shall be performed under this Item without the direct authorization to proceed from the Owner.

Method of Measurement

- 1. The Contractor shall furnish all labor, materials, and equipment necessary to perform the additional miscellaneous work as directed by the Owner. This is Work not shown or specified on the drawings or specifications, but which is subsequently identified by the Owner as being necessary to complete the project.
- 2. Payment for Construction Contingency shall be made on a lump sum basis.
- 3. At the completion of the Contract, all remaining funds for this Item will be deducted from the final contract price by means of a Change Order.

Basis of Payment

- 2.) 1 LSUM **Construction Contingency (Base Bid No.1)**
- 3.) 1 LSUM **Construction Contingency (Mandatory Alternate Bid No.2)**

VIDEO DOCUMENTATION OF CONDITIONS

Prevailing Greenfield Public Improvement Design Standards and Specifications, Division N/A

Description

- A. Prior to the beginning of construction, Contractor shall create a video with audio sound, of the entire Project Site, and any off-site areas used for hauling, dumping, access, storage, etc. This video shall include all Right-of-Entry Sites.
- B. A copy of the completed video(s) shall be submitted to the Owner prior to beginning of construction for the Owner’s use during the Project. The discs shall remain available for viewing by the Contractor and Engineer and may be reviewed by the Contractor or Engineer at any time for assistance in resolving disputes that arise with property owners claiming improper restoration of their properties or damage to their properties during construction. The video(s) shall be used as a guide by the Owner and Engineer, prior to issuance of final payments, in determining the adequacy of restoration and/or determination of the extent of damages attributable to the Contractor’s Work. The video(s) shall also be used by the Owner to address any complaints received by property owners during construction and after the completion of the Project.
- C. Notify Owner or Engineer in writing at least 48 hours in advance of video activities.
- D. If requested by Owner, conduct all documentation in the presence of Owner or Engineer.
- E. The video shall become property of the Owner who shall maintain same for viewing by the Contractor for a period not to exceed 1 year after completion of the Project.
- F. Coverage:
 - 1. The recording shall include coverage of all surface features located within construction zone-of-influence including, but not limited to:
 - a. The area within the permanent and temporary easements and areas adjacent to these easements which may be affected by routine construction operations.

- b. The road right-of-way and areas adjacent to these right-of-ways which may be affected by routine construction operations.
 - c. The areas directed by the Owner.
2. The surface features within the construction zone shall include, but not be limited to, all roadways, pavements, curbs, driveways, sidewalks, culverts, headwalls, retaining walls, buildings, landscaping, shrubbery and fences. Of particular concern shall be existence or non-existence of any faults, fractures, or defects.

Products

- A. Videography:
 1. The camera shall be a high quality color unit.
 2. The video portion of the recording shall reproduce bright, sharp, clear pictures with accurate colors and shall be free from distortion, tearing, rolling, or any other form of imperfection.
 3. The video(s) shall be submitted as electronic format.
 4. The video(s) shall be formatted with separate chapters for each section or Work area of the Project.
 5. The audio portion of the recording shall reproduce precise and concise explanatory notes by the camera operator with proper volume, clarity and freedom from distortions.
 6. The video(s) shall clearly show all physical features along the route and shall provide a complete record of the physical conditions of the entire Project before construction.

Execution

- A. At the start of production and at the beginning of a new street or easement, an identification summary shall be read into the record while using a wide-angle view of the video to display numeric displays for visual record. This summary shall include:
 1. Job Title.
 2. Job Location.
 3. Positional location at start of job.
 4. Date and Time.
 5. Weather.
 6. Any other notable conditions.
- B. Visibility:
 1. No recording shall be performed during periods of significant precipitation, mist or fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the subjects of recording. No recording shall be performed when the ground area is covered with snow unless otherwise authorized by the Engineer or Owner.
- C. Rate of Travel:
 1. The rate of travel of the vehicle used to perform the recording or the walking speed shall not exceed 48 feet per minute. The rate of travel shall be indirectly proportional to the number, size, and value of the surface features within the construction area's zone-of-influence.

Method of Measurement

1. Payment under this item shall be on a lump sum basis. All requirements shall be met to receive full pre-construction video payment.
2. The lump sum price shall constitute full compensation for providing all labor, materials, and equipment, both temporary and permanent, and other cost associated with this item.

Basis of Payment

4.)	<u>1</u>	LSUM	Video Documentation of Conditions (Base Bid No.1)
5.)	<u>1</u>	LSUM	Video Documentation of Conditions (Mandatory Alternate Bid No.2)

MAINTENANCE OF TRAFFIC

Prevailing Greenfield Public Improvement Design Standards and Specifications, Division 300

Description

- A. Contractor shall keep all streets and traffic ways open for passage of traffic during the Work, unless otherwise approved by owner of the street, traffic way, or right-of-way, as applicable. Construction traffic shall access the Site only via previously approved entrance(s) or as noted on the Drawings.
- B. When required to cross, obstruct or temporarily close a street or traffic way, provide and maintain suitable bridges, detours or other approved temporary expedient for the accommodation of traffic. Closings shall be for shortest time practical, and passage shall be restored immediately after completion of backfill and temporary paving or bridging. Fire hydrants under pressure, valve pit covers, valve boxes, curb stop boxes, or other utility controls shall be left unobstructed and accessible during the construction period.
- C. Contractor shall notify and coordinate with the fire department, police department, and other emergency services prior to the implementation of the proposed construction operations. Emergency traffic must have access to the Project area at all times.
- D. Give reasonable notice to owners or tenants of private property who may be affected by construction operations. Give minimum seventy-two (72) hours' notice.
- E. Provide signs, signals, barricades, flares, lights and other equipment, service, and personnel required to regulate and protect all traffic and warn of hazards. Such Work shall conform to requirements of Owner and authority having jurisdiction at the Site. Remove temporary equipment and facilities when no longer required, and restore grounds to original or to specified conditions, as applicable.

Traffic Signals and Signs

- A. Provide and operate traffic control and directional signals required to direct and maintain an orderly flow of traffic in all areas under Contractor's control, and areas affected by Contractor's operations.
- B. All signs, barricades, and lights shall be in good condition and conform to Indiana Manual on Uniform Traffic Control Devices and Section 801 of the Indiana Department of Transportation (INDOT) Standard Specifications (Latest Edition).
- C. As a minimum provide traffic control and directional signs, mounted on barricades or standard posts at the following locations:
 - 1. Each change of direction of a roadway and at each crossroad.
 - 2. Detours and hazardous areas.

Flagmen

- A. Provide qualified and suitably equipped flagmen when construction operations encroach on traffic lanes, as required for regulation of traffic and in accordance with requirements of the authority having jurisdiction.

Parking Control

- A. Control all Contractor-related vehicular parking within limits of the Work to preclude interfering with: public traffic or parking, access by emergency vehicles, Owner's operations, and construction operations. Provide temporary parking facilities for the public, as required, because of construction or operations.
- B. Monitor parking of all construction and private vehicles at the Site:
 - 1. Maintain free vehicular access to and through parking areas.
 - 2. Prohibit parking on or adjacent to access roads, and in non-designated areas.
 - 3. Construction vehicles must possess current vehicle registration.
 - 4. Private vehicles shall park only in designated areas.

Haul Routes

- A. Consult with authorities having jurisdiction to establish thoroughfares that will be used as haul routes and Site access.
- B. Confine construction traffic to designated haul routes.
- C. Provide traffic control at critical areas of haul routes to expedite traffic flow, and to minimize interference with normal traffic.

Street Sweeping

- A. All open streets upon which construction activities have occurred shall be broom cleaned at the end of each workday. These construction activities include, but are not limited to, deliveries, hauling, and equipment transport. Large pieces of debris shall be removed immediately.

Method of Measurement

1. Payment for Maintenance and Protection of Traffic shall be on a lump sum basis.
2. The pay quantity for this item shall be the percentage of Work completed at the time of billing (i.e., 10 percent of the lump sum amount for Maintenance and Protection of Traffic will be earned at 10 percent of earned Contract amount).

Basis of Payment

6.) 1 LSUM Maintenance of Traffic (Mandatory Alternate Bid No.2)

EROSION CONTROL

Prevailing Greenfield Public Improvement Design Standards and Specifications, Division 412

Description

- A. Contractor shall provide and maintain methods, equipment, and temporary construction as required to control conditions at the Site and adjacent areas.
- B. Contractor shall maintain all controls until Contractor warranty period is complete, or until controls are no longer needed, whichever is earlier. Upon completion of the Work, remove temporary controls and restore Site to specified condition; if condition is not specified, restore Site to pre-construction condition.

Quality Assurance

- A. Comply with applicable provisions and recommendations of the following:
 1. Erosion Control methods and procedures shall comply with 327 IAC 15-5. Any inconsistencies with 327 IAC 15-5 will not apply except if inconsistency has been approved by IDEM or the IDNR Division of Soil Conservation.
 2. Indiana Storm Water Quality Manual, formerly the Indiana Handbook for Erosion Control in Developing Areas. Copies are available from Indiana State Department of Agriculture, Division of Soil Conservation 101 W. Ohio Street, Suite 1200, Indianapolis, IN 46204, or downloaded at <http://www.in.gov/idem/4899.htm>.
 3. Indiana Department of Transportation (INDOT) Standard Specifications, current edition.

Submittals

- A. Erosion Control Plan:
 1. Contractor will be responsible for submitting any revisions to the Engineer that deviate from the erosion control drawings/details as provided for approval.
- B. Product Data, Manufacturer Installation and Maintenance Instructions:
 1. Submit manufacturer product data, installation instructions and maintenance instructions for all erosion control products included in this specification, this includes the sediment control sacks and the dewatering bags.
- C. Erosion Control Inspection Log
 1. Contractor shall submit a copy of all erosion control inspection logs, completed in accordance with Section 3.2, with each monthly pay application.
 2. Pay application will not be approved without the submittal of the erosion control inspection log.

Stormwater Runoff

- A. Stormwater Control – General:
 - 1. Provide methods to control stormwater runoff (surface drainage) and water from excavations and structures to prevent damage to the Work, the Site, and adjoining properties.
 - 2. Control fill, grading, and ditching to direct water away from excavations, pits, tunnels and other construction areas and to direct drainage to proper runoff courses to prevent erosion, damage, or nuisance.
- B. Equipment and Facilities for Stormwater Control: Provide, operate, and maintain equipment and facilities of adequate size to control storm water runoff.
- C. The Contractor shall at all times during construction provide and maintain ample means and devices with which to remove promptly and dispose of properly all stormwater runoff entering the excavations or other parts of the Work and shall keep said excavations dry until the structures to be built or pipelines to be placed therein are completed. No stormwater shall be allowed to rise over or come in contact with masonry until the concrete and mortar have attained a satisfactory set, except in cases where the concrete has been tremied into place with the approval of the Engineer. In water bearing sand, well points and/or sheeting shall be supplied, together with pumps and other appurtenances of ample capacity to keep the excavation free of stormwater.
- D. Discharge and Disposal: Dispose of stormwater in manner to prevent flooding, erosion, and other damage to any and all parts of the Site and adjoining areas, and that conforms to Laws and Regulations.
 - 1. Water used for working or processing, resulting from dewatering operations, or containing oils or sediments that will reduce the quality of the water downstream of the point of discharge, shall not be directly discharged. Such waters shall be diverted through a settling basin, filter or other approved method, before being discharged.
 - 2. Contractor will be held responsible for the condition of any pipe, conduit or channel used for drainage purposes and all such pipes, conduits or channels shall be left clean and free of sediment.

Erosion Control – General Requirements

- A. Plan and execute construction and earthwork by methods to control surface drainage from cuts and fills, and from borrow and waste disposal areas, to prevent erosion and sedimentation.
- B. Hold to a minimum the areas of bare soil exposed at one time.
- C. Provide temporary control measures such as berms, dikes, and drains.
- D. Construct fills and waste areas by selective placement to reduce surface silts or clays that will erode.

- E. Periodically inspect earthwork to detect evidence of the start of erosion; apply corrective measures as required to control erosion. Continue inspections and corrective measures until permanent vegetation has been established.
- F. The Contractor shall maintain drainage flow at all times through any ditches disturbed during construction. The Contractor shall minimize disturbance and sedimentation due to excavation in ditches and shall restore the ditches to their original condition and performance.
- G. Periodically inspect impacted ditches and streams to detect evidence of the start of erosion; apply corrective measures as required to control erosion. Continue inspections and corrective measures until permanent erosion control and vegetation have been established.

Warranty

- A. General Warranty: The special warranties specified in this Section shall not deprive Owner of other rights or remedies that Owner may otherwise have under the Contract Documents and shall be in addition to, and run concurrent with, other warranties required by Contractor under the Contract Documents.
- B. Special Warranties: The Contractor shall guarantee a good stand vegetation that is part of permanent erosion controls, by watering, regrading and reseeding eroded areas and otherwise maintaining all permanent erosion controls until final acceptance. Any areas which do not show uniform growth or has bare spots shall be replanted and repaired at the Contractor's expense with the plantings and materials as originally used thereon and such replanting and repairs shall be repeated until all affected areas are repaired. Final acceptance of all permanent erosion control measures may be required by the Contractor after 60 days from the date of installation. The above does not release the Contractor from the standard provisions included in the Guaranty or Maintenance Bond agreement.

Maintenance

- A. Contractor shall maintain erosion controls during Contractor warranty period, including inspections after rain events, and restoration to original design condition as required.

Products

- A. General Erosion and Control
 - a. All erosion control products shall be in accordance with the Indiana Department of Transportation Standards Specifications (INDOTSS).
 - b. All materials provided under this Specification shall meet the requirements of the applicable sections of the Indiana Department of Transportation Standards Specifications (INDOTSS), latest edition or Indiana Storm Water Quality Handbook.

B. Site Preparation

a. Temporary Construction Entrance

- i. Construction of temporary construction entrances shall conform to the details provided in the Contract Documents.
- ii. Manufacturers: The following geosynthetic material will be accepted:
 - 1. Mirafi HP270
 - 2. Or approved equal
- iii. A woven geotextile fabric shall be installed for separation of subbase and base aggregate materials. Geotextile fabrics for use in construction entrances shall conform to the following table:

Woven Geotextile Fabric Requirements				
Construction Entrance Installation				
Physical Properties	Test Method	Unit	Minimum Value	
			MD	CD
Tensile Strength (at ultimate)	ASTM D4595	lbs/ft	2640	2460
Tensile Strength (at 2% strain)			480	588
Tensile Strength (at 5% strain)			1212	1356
Tensile Strength (at 10% strain)			2340	2412
Factory Sewn Seam	ASTM D4884	lbs/ft	1250	
Flow Rate	ASTM D4491	gal/min/ft ²	50	
Permeability		cm/sec	0.04	
Permittivity		sec-1	0.70	
Apparent Opening Size (AOS)	ASTM D4751	U.S. Sieve	30	
UV Resistance (at 500hrs)	ASTM D4355	% strength retained	80	

- iv. Base aggregate material shall consist of INDOT #2 aggregate and capped with INDOT #5 aggregate. Thickness of each aggregate layer shall conform to the dimensions indicated on the Drawings.
- v. Prior to installation, all vegetation shall be removed from foundation area.
- vi. Foundation area shall be graded for positive drainage.
- vii. Where possible, divert all stormwater runoff and drainage from the temporary construction entrance.
- viii. Construction of sediment barriers shall conform to the details provided in the Contract Documents.
- ix. Sediment barriers shall be designed and used in situations in which only sheet or overland flows are expected.
- x. Geotextile fabrics for use in sediment barriers shall conform to the following table:

Woven Geotextile Fabric Requirements
Sediment Barrier Installation

Physical Property	Test Method	Unit	Min. Value
Grab Tensile Strength	ASTM D 4632	lbs.	95-125
Grab Tensile Elongation	ASTM D 4632	%	15
Puncture Strength	ASTM D 4833	lbs.	60
Apparent Opening Size (AOS)	ASTM D 4751	U.S. Sieve	#30
Permittivity	ASTM D 4491	sec ⁻¹	0.1
Flow Rate	ASTM D 4491	gal/min/ft ²	10

- xi. Sediment barriers shall be removed when they have served their useful purpose, but not before the upslope area has been permanently stabilized.
- xii. Sediment barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Any required repairs shall be made immediately.
- xiii. Should the sediment barrier decompose or become ineffective prior to the upslope area being permanently stabilized, the barrier shall be replaced promptly.
- xiv. Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately one-half the height of the barrier.
- xv. Any sediment deposits remaining, in place, after the barrier has been removed shall be dressed to conform to the existing grade, prepared, and seeded.

b. Temporary Perimeter Protection - Silt Fence

- i. Construction of sediment barriers shall conform to the details provided in the Contract Documents.
- ii. Sediment barriers shall be designed and used in situations in which only sheet or overland flows are expected.
- iii. Geotextile fabrics for use in sediment barriers shall conform to the following table:

Woven Geotextile Fabric Requirements			
Sediment Barrier Installation			
Physical Property	Test Method	Unit	Min. Value
Grab Tensile Strength	ASTM D 4632	lbs.	95-125
Grab Tensile Elongation	ASTM D 4632	%	15
Puncture Strength	ASTM D 4833	lbs.	60
Apparent Opening Size (AOS)	ASTM D 4751	U.S. Sieve	#30
Permittivity	ASTM D 4491	sec ⁻¹	0.1
Flow Rate	ASTM D 4491	gal/min/ft ²	10

- iv. Sediment barriers shall be removed when they have served their useful purpose, but not before the upslope area has been permanently stabilized.

- v. Sediment barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Any required repairs shall be made immediately.
 - vi. Should the sediment barrier decompose or become ineffective prior to the upslope area being permanently stabilized, the barrier shall be replaced promptly.
 - vii. Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately one-half the height of the barrier.
 - viii. Any sediment deposits remaining, in place, after the barrier has been removed shall be dressed to conform to the existing grade, prepared, and seeded.
- c. Temporary Perimeter Protection - Filter Sock
- i. Manufacturers: The following proprietary sediment control devices will be accepted for use as perimeter protection:
 - 1. Filtrexx Sediment Control
 - 2. Or equal
 - ii. Construction of sediment barriers shall conform to the details provided in the contract documents.
 - iii. Sediment barriers shall be used and installed as recommended by the manufacturer.
 - iv. Filtrexx Sediment Control Soxx for use in sediment barriers shall conform to the following table:

Filtrexx Sediment Control					
Filtrexx Soxx Material					
Material Type	3mil HDPE	5mil HDPE	5mil HDPE	Multi-Filament Polypropylene (MFPP)	Multi-Filament Polypropylene Safety Soxx
Material Characteristics	Photodegradable	Photodegradable	Biodegradable	Photodegradable	Photodegradable
Design Diameters (inch)	5 8 12 18	5 8 12 18 24 32	8 12 18 24 32	8 12 18 24 32	8 12 18 24 32
Mesh Opening (inch)	3/8	3/8	3/8	3/8	1/8
Tensile Strength (psi)	ND	26	26	44	202
% Original Strength form Ultraviolet Exposure (ASTM G-155)	23% at 1,000 hr	23% at 1,000 hr	ND	100% at 1,000 hr	100% at 1,000 hr
Functional Longevity/Project Duration	6 mo–2 yr	9 mo–3 yr	6 –12 months	1 –4 year	2 –5 year

- v. Filtrexx Sediment Control Soxx shall contain a coarse composted material that is a Certified Filtrexx Filter Media.
- vi. Sediment barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Any required repairs shall be made immediately.
- vii. Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately one-half the height of the barrier.
- viii. Any sediment deposits remaining, in place, after the barrier has been removed shall be dressed to conform to the existing grade, prepared, and seeded.
- ix. Filtrexx Sediment Control, including Filtrexx Filter Media, shall be properly disposed of offsite.

C. Concrete Washout Area

a. General

- i. A concrete washout location shall be designated and a system shall be implemented to reduce the discharge of pollutants associated with concrete washout waste.

- ii. Construction/Installation of a concrete washout system shall be complete prior to concrete delivery.
- iii. Do not wash out concrete trucks or equipment into storm drains, wetlands, streams, rivers, creeks, ditches, or streets.
- iv. Signage shall be installed to designate location of concrete washout system.
- v. Washout system shall utilize a pit or bermed area designed and maintained at a capacity to contain all liquid and concrete waste generated by washout operations, between scheduled cleanout periods.
- vi. Pit shall be lined with ten millimeter polyethylene lining to control seepage.
- vii. Place flags, safety fencing, or equivalent to provide a barrier to construction equipment and other traffic.
- viii. Inspect the overall washout system daily for leaks, spills, tracking of soil by equipment, lining failure, and hardened concrete.
- ix. Once concrete wastes have hardened, remove and dispose off-site.
- x. Excess concrete shall be removed when the washout system reaches 50 percent of the design capacity.
- xi. Replace the plastic liner after each cleaning of the concrete washout system.
- xii. Concrete washout systems shall be cleaned, removed, filled, graded, and stabilized at the completion of concrete operations.

D. Temporary Inlet Protection

a. Temporary Inlet Protection – Geotextile Fabric

i. Application

- 1. Geotextile fabric inlet protection shall be installed at existing and new-construction storm sewer drop inlets, where area immediately surrounding inlet is not paved.
- 2. Geotextile fabric inlet protection is not permitted for use where area immediately surrounding inlet is paved.

ii. Structure

- 1. Inlet protection shall be constructed and installed in conformance with the details provided in the contract documents.
- 2. Structure shall be constructed to a height 12” to 18” above the top of the storm drain inlet; maximum post spacing is 36”.
- 3. Geotextile fabric shall be woven and shall conform to the requirements listed in the following table:

Woven Geotextile Fabric Requirements			
Temporary Inlet Protection Installation			
Physical Property	Test Method	Unit	Min. Value
Grab Tensile Strength	ASTM D 4632	lbs.	124
Grab Tensile Elongation	ASTM D 4632	%	15
Puncture Strength	ASTM D 4833	lbs.	60
Apparent Opening Size (AOS)	ASTM D 4751	U.S. Sieve	#30

Permittivity	ASTM D 4491	sec ⁻¹	0.1
Flow Rate	ASTM D 4491	gal/min/ft ²	10

4. Structure shall be constructed and braced as required to withstand 1 ½ foot head of water and sediment without collapsing or undercutting.
 5. Pre-manufactured and site constructed structures, meeting the requirements of this specification and details provided in the Drawings, are permitted.
- iii. Installation
1. Inlet protection installation shall conform to the requirements of the details provided in the contract documents.
- iv. Maintenance
1. Inspect all inlet protection controls daily and make required repairs immediately.
 2. Remove sediment when it has accumulated to four inches anywhere along the inlet protection.
 3. All sediment shall be removed and disposed of off-site.
 4. When contributing drainage area has been stabilized, remove inlet protection, remove sediment, grade area to the required elevation and stabilize immediately.
 5. If area around inlet is to be paved, prior to stabilization of all contributing drainage area, remove and replace inlet protection with an inlet protection approved for paved areas.
- b. Temporary Inlet Protection – Sediment Control Sack
- i. Application
1. Temporary sediment control sacks shall only be installed at all existing and new-construction storm sewer inlets and catch basins, where area immediately surrounding inlet is paved.
 2. Temporary sediment control sacks are not permitted for use where area immediately surrounding inlet is not paved.
- ii. General
1. Temporary sediment control sacks shall be proprietary devices and shall be submitted for approval prior to installation.
 2. Proprietary inlet protection devices shall provide a filtering efficiency that removes at least 80% of the Total Suspended Solids.
 3. Proprietary devices shall not slow the runoff into the structure such that ponding occurs on the travel lanes of street.
 4. Temporary sediment control sacks shall include framework or basket.
 5. Inlet protection shall be designed and installed with a bypass to allow stormwater to flow into the storm system during excessive storm events.
 6. Inlet protection shall be designed and installed with dumping straps to allow for ease of maintenance.
- iii. Material

1. Frame or basket shall have a top width and length such that it will fit into the inlet and be supported by the inlet, grate, or storm sewer.
 2. Temporary sediment control sacks shall only be used for the specific type of inlet they were designed and recommended by the manufacturer.
- iv. Installation
 1. Inlet protection installation shall conform to the manufacturer requirements for each specific type of inlet or catch basin.
 - v. Maintenance
 1. Inspect all inlet protection controls daily and make required repairs immediately.
 2. Remove accumulated sediment and debris after each storm event.
 3. Remove sediment when it has accumulated to four inches in the sediment control sack.
 4. All sediment shall be removed and disposed of off-site.
 5. Inlet protection devices shall be removed when contributing drainage area has been stabilized.
- c. Temporary Inlet Protection – Stone Bags
- i. Application
 1. The use of stone bag inlet protection is permitted at existing and new-construction storm sewer drop inlets and curb inlets, in both paved and un-paved areas.
 - ii. Structure
 1. Stone bag inlet protection shall be constructed and installed in conformance with the details provided in the contract documents.
 2. Structure shall be constructed to a height of one to three layers of bags (as necessary).
 3. Structure shall be constructed to surround storm drain inlets in sump (depression) areas or to a minimum of three feet long at the up-slope side of storm drain inlets and curb inlets (as necessary).
 - iii. Materials
 1. Bags shall be constructed of non-woven geotextile fabric.
 2. Traffic Barricades – As needed, to prevent vehicles from hitting the barrier.
 3. INDOT #5 washed aggregate. Aggregate must be larger than storm sewer grate openings.
 - iv. Installation
 1. Inlet protection installation shall conform to the requirements of the details provided in the contract documents.
 2. Where bags meet existing curbs, overlap bags onto curb, at least half a bag in length.
 3. Additional layers of bags shall be overlapping with the layer below, with staggered joints.
 4. Construct a spillway as shown on the Drawings.
 - v. Maintenance
 1. Inspect all inlet protection controls daily and make required repairs immediately.

2. Remove sediment when it has accumulated to four inches anywhere along the inlet protection.
3. All sediment shall be removed and disposed of off-site.
4. When contributing drainage area has been stabilized, remove inlet protection, remove sediment, grade unpaved areas to the required elevation and stabilize immediately.

d. Temporary Inlet Protection – Filter Sock

i. Inlet Protection- Filtrexx Inlet Protection

1. Manufactures: The following proprietary sediment control devices will be accepted for use as inlet protection:
 - a. Filtrexx Inlet Protection
 - b. Or equal
2. Inlet protection shall be used and installed as recommended by the manufacture.
3. Filtrexx Soxx for use in inlet protection shall conform to the following table:

Filtrexx Inlet Protection					
Filtrexx Soxx Material					
Material Type	3mil HDPE	5mil HDPE	5mil HDPE	Multi-Filament Polypropylene (MFPP)	Multi-Filament Polypropylene Safety Soxx
Material Characteristics	Photodegradable	Photodegradable	Biodegradable	Photodegradable	Photodegradable
Design Diameters (inch)	5	5	8	8	8
	8	8	12	12	12
	12	12	18	18	18
	18	18	24	24	24
			32	32	32
Mesh Opening (inch)	3/8	3/8	3/8	3/8	1/8
Tensile Strength (psi)	ND	26	26	44	202
% Original Strength form Ultraviolet Exposure (ASTM G-155)	23% at 1,000 hr	23% at 1,000 hr	ND	100% at 1,000 hr	100% at 1,000 hr
Functional Longevity/Project Duration	6 mo–2 yr	9 mo–3 yr	6 –12 months	1 –4 year	2 –5 year

4. Filtrexx Inlet Control Soxx shall contain a coarse composted material that is a Certified Filtrexx Filter Media.

5. Sediment barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Any required repairs shall be made immediately.
6. Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately one-half the height of the barrier.
7. Any sediment deposits remaining, in place, after the barrier has been removed shall be removed offsite.
8. Filtrexx Inlet Control including Filtrexx Filter Media, shall be properly disposed of offsite.

Execution

A. General Installation and Maintenance of Erosion Control

- a. All erosion and sediment control items shall be installed in strict conformance with the manufacturer’s instructions for proprietary items. On-site construction methods shall conform to the Indiana Storm Water Quality Handbook.
- b. Prior to site work, erosion control measures shall be installed to control erosion and prevent sediment laden water from exiting the site. This shall include, but not be limited to, the installation of temporary earthen berms, silt fences, filter curtains, riprap, drainage piping, catch basins, inlet protection and other items that are needed to control sediment.
- c. Both temporary and final seeding is required. Should any areas outside of the project area remain inactive for a period of 15 days or more, it shall be seeded with a temporary or permanent vegetative cover such as oats, wheat or rye.
- d. Construction operations shall be carried out in such a manner and sequence that erosion shall be minimized and held within acceptable limits. It is important that material excavated from this Project be contained.

B. Inspection and Maintenance Schedule

- a. The Project area shall be inspected no less than once per week, and after every rainfall event greater than 0.5” in 24 hours. Deficiencies and damages to the erosion control measures must be rectified within 24 hours.
- b. An Inspection and Maintenance form or record log shall be kept by the Contractor.
- c. The following Erosion Control Schedule shall be used for this Project:

CONTROL MEASURE	INSTALLATION SEQUENCE	INSPECTION AND MAINTENANCE
Construction Entrance	Prior to Clearing and Grading	Minimum of 1 Entrance shall be Provided

CONTROL MEASURE	INSTALLATION SEQUENCE	INSPECTION AND MAINTENANCE
Silt Fence Perimeter Protection	Prior to Clearing and Grading	Weekly, after Storm Events and as Needed
Existing Inlet/Drain Pipe Protection	Prior to Clearing and Grading	Weekly, after Storm Events and as Needed
Tree Protection	Along with Rough Grading	Weekly, after Storm Events and as Needed
Temporary Seeding	After Rough Grading	Water as Needed
Permanent Seeding	After Finish Grading	Water as Needed
Erosion Control Matting (Blankets)	After Finish Grading	Weekly, after Storm Events and as Needed
Inlet Protection	After Each Inlet is Placed	Weekly, after Storm Events and as Needed
Soil Stabilization (Seeding)	After Finish Grading Around Finished Inlets	Water as Needed
Removal of Inlet Protection	After All Areas Draining to These Areas Are Stabilized	N/A
Removal of Perimeter Protection	After All Areas Draining to These Areas Are Stabilized	N/A

Method of Measurement

- A. Payment for Erosion and Sedimentation Control shall be a lump sum price.
- B. The lump sum price shall constitute full compensation for providing all labor, materials, and equipment, both temporary and permanent, and all other cost associated with the installation and maintenance of all control devices, with the removal of sediment deposits and temporary erosion control devices as required, cleaning of paved surfaces and all other cost associated with erosion and sediment protection.

Basis of Payment

7.) 1 LSUM **Erosion Control (Mandatory Alternate Bid No.2)**

SEEDING

Prevailing Greenfield Public Improvement Design Standards and Specifications, Division N/A

Description

- A. Scope:
 - 1. Contractor shall provide all labor, materials, tools, equipment and incidentals as shown, specified and required to furnish and install all lawns and grasses.
 - 2. Extent of lawns and grasses is shown.
 - 3. Types of products required include the following:
 - a. Topsoil.
 - b. Lawn grass seed.

- c. Fertilizers.
 - d. Mulches.
 - e. Erosion-control materials.
 - f. Accessories.
- B. Coordination:
- 1. Review installation procedures under other sections and coordinate the installation of items that must be installed with, or before, lawns and grasses.
 - 2. If applicable, notify other contractors in advance of the planting of lawns and grasses to provide them with sufficient time for the installation of items that must be installed with, or before, lawns and grasses.

References

- C. ASTM International.
 - 1. ASTM D5268, Specification for Topsoil Used for Landscaping Purposes.
 - 2. ASTM D977, Specification for Emulsified Asphalt.
- D. Indiana Department of Transportation Standard Specifications 621 Seeding and Sodding.

Definitions

- A. The term “finish grade” shall be used to describe the finished surface elevation of planting soil.
- B. The term “subgrade” shall be used to describe the surface of subsoil remaining after completing excavation; or the top surface of a fill or backfill immediately beneath topsoil and which has not been tested for acceptable use as topsoil.
- C. The term “topsoil” is defined as friable, clay loam, surface soil present in depth of at least 4 inches. Topsoil shall be free of subsoil, clay lumps, stones, and other objects over 1 inch diameter and other objectionable material.
- D. Weeds include but are not limited to: Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nible Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

Quality Assurance

- A. Source Quality Control:
 - 1. Provide topsoil that is of good, rich, uniform quality, free from any material such as hard clods, stiff clay, hardpan, partially disintegrated stone, cement, bricks, ashes, cinders, slag, concrete, bitumen or its residue, boards, sticks, chips, or other undesirable material harmful or unnecessary to plant growth. Topsoil shall be reasonably free from perennial weeds and perennial wood seeds, and shall not contain objectionable plant material.

2. Seed that has been stored at temperatures, or under conditions not recommended by the seed Supplier, or has become wet, moldy, or otherwise damaged, shall not be acceptable.

Submittals

- A. Action Submittals: Submit the following:
 1. Product Data:
 - a. Composition and analysis of commercial fertilizers.
 - b. Seed mixture for each type of seed and each seed lot. Include bulk weight of seed required to equal one pound of 100 percent pure, germinated seed.
- B. Informational Submittals: Submit the following:
 1. Source Quality Control Submittals
 - a. Certification of Grass and Wildflower Seed: For each grass-seed monostand and seed mixture, furnish seed supplier's certification stating the botanical and common name, and percentage by weight of each species and variety, and percentage of purity, germination and weed seed. Include the year of production and date of packaging. Certify that seed has been stored in compliance with all recommendations of the seed supplier.

Product Delivery, Storage and Handling

- A. Material delivery, storage and handling must conform to requirements in Contract Documents. Refer to Section 01 65 00 Product Delivery Requirements and Section 01 66 00 Product Storage and Handling Requirements.

Project Conditions

- A. Environmental Requirements:
 1. Proceed with and complete lawn and grass planting as rapidly as portions of the Site become available, working within the seasonal limitations for each type of lawn and grass planting required.
 2. Proceed with planting only when current and forecasted weather conditions are favorable to successful planting and establishment of lawns and grasses.
 - a. Do not spread seed when wind velocity exceeds five miles per hour.
 - b. Do not plant when drought, or excessive moisture, or other unsatisfactory conditions prevail.
 3. Begin maintenance immediately after each area is planted and continue until acceptable growth is established.
 4. Herbicides, chemicals and insecticides shall not be used on areas bordering wetlands.
- B. Scheduling:
 1. Plant during one of the following periods:
 - a. Spring Planting: April 1 to June 15.
 - b. Fall Planting: September 1 to October 30.
 - c. During other periods, the time of planting shall be determined by the

Engineer.

Warranty

- A. General Warranty: The special warranties specified in this Section shall not deprive Owner of other rights or remedies that Owner may otherwise have under the Contract Documents and shall be in addition to, and run concurrent with, other warranties required by Contractor under the Contract Documents.
- B. Special Warranties: The Contractor shall guarantee a good stand of grass in seeded areas by watering, regrading and reseeding eroded areas and otherwise maintaining all seeded areas until final acceptance. Any areas which do not show a uniform stand or have bare spots shall be reseeded and remulched at the Contractor's expense with the same seed mixture and mulch as originally used thereon and such reseeding and remulching shall be repeated until all affected areas are covered with grass. Final acceptance of all lawn areas may be required by the Contractor after 60 days from the date of installation. The above does not release the Contractor from the standard provisions included in the Guaranty or Maintenance Bond agreement.

Products

- C. Materials
 - 1. Topsoil:
 - a. All soil accepted as topsoil, whether obtained from on-site or off-site sources, shall comply with specified topsoil requirements.
 - b. Provide fertile, friable, natural topsoil, surface soil, capable of sustaining vigorous plant growth; free of any admixture of subsoil, clods of hard earth, plants or roots, sticks, stones larger than 1/2 inch in diameter, or other extraneous material harmful to plant growth, in compliance with ASTM D5268.
 - c. Topsoil Source: Reuse surface soil stockpiled on-site, where possible. Verify suitability of stockpiled surface soil to produce topsoil, as specified. If not suitable, amend topsoil to meet requirements approved by the Engineer. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.
 - 1) Supplement acceptable on-site soil with manufactured topsoil from off-site sources, when quantities available on-site are insufficient to complete the Work.
 - 2. Lawn Grass Seed:
 - a. Lawn Grass Seed Mixture: Provide fresh, clean, new-crop seed complying with the tolerance for purity and germination established by INDOT 621. Provide seed of the grass species, proportions and minimum percentages of purity, germination, and maximum percentage of weed seed, specified.
 - b. Seed Species:
 - 1) Apply "Lawn Grass Seed" at proportioned by weight as follows:
 - a) 50 percent Premium Grade Kentucky Bluegrass (2 types).
 - b) 50 percent perennial ryegrass (2 types).
 - c) 0 percent noxious weeds
 - 2) Apply "No Mow Grass Seed" at proportioned by weight as follows:
 - a) 50 percent Fawn Tall Fescue (contains Endophytes).

- b) 25 percent Annual Ryegrass.
 - c) 25 percent Perennial Ryegrass.
 - d) 0 percent noxious weeds
- 3. Fertilizers:
 - a. Provide commercial grade complete fertilizer of neutral character, consisting of fast and slow release nitrogen with an analysis of 12-12-12.
- 4. Mulches:
 - a. Provide air-dry, clean, mildew-free and certified seed-free and weed-free, mulch. Mulch may consist of straw or wood cellulose fiber mulch for hydroseeding.
- 5. Water:
 - a. Provide water acceptable for lawn and grass application, containing no material harmful to plant growth and establishment, and be free from oil, acids, alkalis, and salts.

Execution

D. Inspection

- 1. Contractor shall examine the areas and conditions under which lawn and grass Work is to be performed, and notify Engineer, in writing, of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to Engineer.

E. Preparation

- 1. Incorporate fertilizers, after spreading Topsoil, as specified, and at a rate of:
 - a. Fertilizer: 18 pounds per 1,000 square feet.
- 2. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
- 3. Provide erosion-control measures, in accordance with Section 01 57 13 Erosion and Sedimentation Control, to prevent erosion or displacement of seeded soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- 4. Excavate or fill subgrade, as required, to bring subgrade to elevations shown. Maintain all angles of repose. Confirm that subgrade is at proper elevations and that no further earthwork is required to bring the subgrade to proper elevations. Provide subgrade elevations that slope parallel to finished grade and towards subsurface drains shown. Refer to Section 31 00 05, Trenching and Earthwork.
- 5. Remove all construction debris, trash, rubble and all extraneous materials from subgrade. In the event that fuels, oils, concrete washout or other material harmful to plant growth or germination have been spilled into the subgrade, excavate the subgrade sufficiently to remove all such harmful materials and fill with approved fill, compacted to the required subgrade compaction level.

F. Fine Grading

- 1. Immediately prior to dumping and spreading topsoil, clean subgrade of all stones greater than 1 inch and all other extraneous matter. Remove all such material from Site. Notify Engineer that subgrade has been cleaned, and obtain approval prior to spreading topsoil.

2. Do not attempt to spread excessively wet, muddy or frozen topsoil. Do not spread topsoil more than five days before seeding or planting.
3. Spread topsoil to a depth of 2-inches but not less than required to meet finish grades after light rolling and natural settlement.
 - a. The area to be seeded shall be made smooth and uniform and shall conform to the finished grade and cross section shown on the Drawings or as directed by the Engineer.

G. Conventional Seeding

1. General: Maintain grade stakes until removal is mutually agreed upon by all parties concerned.
2. Rake or harrow all seedbeds immediately prior to seeding to produce a rough, grooved surface, no deeper than 1 inch. Seed only when seedbed is in a friable condition and not muddy or hard.
3. Sow seed using a spreader or seeding machine.
4. Distribute seed evenly over entire area by sowing equal quantity in two directions at right angles to each other.
5. Sow lawn grass seed mixture at the rate of not less than 5 pounds for every 1,000 square feet.
6. All seeded areas shall be thoroughly mulched by a method approved by the Engineer. Mulching material shall be applied uniformly in a continuous blanket at a rate of 92 pounds per 1,000 square feet. Mulch shall be punched into the soil so that it is partially covered. The punching operation shall be performed longitudinally with a mulch tiller. Care shall be exercised to obtain a reasonably even distribution of mulch incorporated into the soil.
7. Using a uniform fine spray, irrigate lawn and grass plantings as required to obtain adequate establishment of lawns and grasses.
8. Reseed areas that remain without mulch for longer than 3 days.
9. Take precautions to prevent damage or staining of construction or other plantings adjacent to mulched areas. Immediately clean damaged or stained areas.
10. Prevent foot or vehicular traffic, or the movement of equipment, over the mulched areas. Reseed areas damaged as a result of such activity.

H. Reconditioning Existing Lawns and Grass Areas

1. Recondition existing lawn damaged by Contractor's operations, including areas used for storage of materials or equipment and areas damaged by movement of vehicles. Recondition existing lawn and grass areas where minor regrading is required.
2. Recondition other existing lawn and grass areas shown.
3. Provide fertilizer, seed or sod and soil amendments, as specified for new lawns and grass areas, and as required to provide satisfactorily reconditioned lawns and grass areas. Provide new topsoil as required to fill low spots and meet new finish grades.
4. Till stripped, bare, and compacted areas thoroughly to a depth of 12 inches.
5. Remove diseased or unsatisfactory lawn and grass areas; do not bury into soil. Remove topsoil containing extraneous materials resulting from Contractor's operations including oil drippings, stone, gravel and other construction materials.
6. In areas approved by Engineer, where substantial lawns and grass areas remain (but are thin), mow, dethatch, core aerate and rake. Fill low spots, remove humps,

cultivate soil, fertilize, and seed. Remove weeds before seeding or if extensive, apply selective chemical weed killers, as required. Apply seedbed mulch, if required, to maintain moist condition.

7. Water newly planted areas and keep moist until new lawns are established, as specified.

I. Acceptance Criteria for Lawns and Grasses

1. Lawn and grass Work will be considered acceptable when:
 - a. Areas Seeded with “Lawn Grass Seed” Mixture: When a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 square feet and bare spots not exceeding 5 inches by 5 inches.
 - b. Areas Seeded with “No-Mow Grass Seed” Mixture: When a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 20 square feet and bare spots not exceeding 12 inches by 12 inches.

J. Cleanup and Protection

1. Promptly remove soil and debris, created by lawn and grass Work, from paved areas. Clean wheels of vehicles before leaving Site to avoid tracking soil and topsoil onto roads, walks, or other paved areas.
2. Erect barricades and warning signs as required protecting newly planted areas from traffic. Maintain barricades throughout extended service period and remove when service period ends. Treat, repair or replace damaged lawns and meadows.

K. Inspection and Acceptance

1. Where lawns and grass areas do not comply with specified acceptance criteria, reestablish lawns and grasses and continue extended service period until lawns and grasses comply with criteria for acceptance.

Method of Measurement

1. Payment for seeding and grading shall be on a lump sum basis.
2. Surfaces seeded shall be made of the area within the rights-of-way or easements designated by the Engineer for restoration.
3. This pay item also includes reconditioning of adjacent areas disturbed by construction, required landscaping, and grading.

Basis of Payment

8.)	<u>1</u>	LS	Temporary Seeding (Base Bid No.1)
9.)	<u>1</u>	LS	Seeding/Grading (Mandatory Alternate Bid No.2)

SWALE

Prevailing Greenfield Public Improvement Design Standards and Specifications, Division 418

Method of Measurement

1. Payment for Grading/Swale Construction shall be on a lump sum basis.
2. Payment for Grading / Swale Construction shall include any required sodding or rip-rap as required by the City Specifications.

3. This pay item shall include necessary grading to maintain existing swale downstream route and ensure positive drainage.

Basis of Payment

10.) 1 LS Grading / Swale Construction (Mandatory Alternate Bid No.2)

AGGREGATE AND BACKFILL MATERIALS

Prevailing Greenfield Public Improvement Design Standards and Specifications, Division N/A

Description

Scope:

1. Contractor shall provide all labor, materials, equipment and incidentals required to perform all excavating, backfilling, filling and grading, and disposing of earth materials as shown, specified, and required for construction of structures, manholes, vaults, utilities, conduits, pipelines, roads, and any other facilities required to complete the Work in every respect.
2. All necessary preparation of subgrade for walks, drives, slabs, and pavements is included.
3. No classification of excavated materials will be made. Excavation includes all materials regardless of type, character, composition, moisture, or condition thereof.

Quality Assurance

A. Testing Services:

1. General: Testing of materials, testing for moisture content during placement and compaction of fill materials, and testing of compaction for compliance with technical requirements of these Specifications shall be performed by a testing laboratory as specified in the Contract Documents. Testing shall conform to ASTM D422, ASTM D427, ASTM D1557, ASTM D 2166, ASTM D 698, and ASTM D4318.
2. Contractor's Laboratory Services Scope:
 - a. Test proposed materials in the laboratory and/or field for compliance with the Contract Documents.
 - b. Perform field moisture content and density tests to verify that the specified compaction of backfill materials has been obtained.
 - c. Inspect and approve subgrades and fill layers are in compliance with the Contract Documents before further Work is performed thereon.
 - d. Report test results to the Engineer.
3. Authority and Duties of Testing Agency: Technicians representing the testing laboratory shall inspect the materials in the field, perform tests, and report their findings to the Engineer and Contractor. When the materials furnished or the Work performed fails to fulfill Specification requirements, the technician will direct the attention of the Engineer and Contractor to such failure.
 - a. The technician shall not act as foreman or perform other duties for Contractor. Work will be checked as it progresses. Failure to detect any defective Work or materials at the time of installation shall not in any way prevent later rejection of the Work if defects are later discovered, nor shall it obligate the Engineer for final acceptance. Technicians are not authorized to revoke, alter, relax, enlarge, or release any requirements of the Contract Documents, nor to approve or accept any portion of the Work.

4. Responsibilities and Duties of Contractor, relative to testing:
 - a. The use of testing services shall in no way relieve Contractor of the responsibility to provide Work in full compliance with the Contract Documents.
 - b. To facilitate testing services, Contractor shall:
 - 1) Secure and deliver to the Engineer or to the testing agency, without cost, preliminary representative samples of the materials the Contractor proposes to use which are required to be tested.
 - 2) Furnish such casual labor as is necessary to obtain and handle samples at the Site or at other sources of material.
 - 3) Advise the laboratory service at least two days in advance of any backfill operations to allow for completion of quality tests and for the assignment of personnel.
 - c. It shall be the responsibility of the Contractor to accomplish the specified compaction for backfill, fill, and other earthwork. It shall be the responsibility of the Contractor to control their operations by confirmation tests to verify and confirm that Contractor has complied, and is complying at all times, with the requirements of these Specifications concerning compaction, control, and testing.
 - d. Contractor shall demonstrate the adequacy of compaction equipment and procedures to the Engineer before exceeding any of the following amounts of earthwork quantities:
 - 1) 200 linear feet of Special Trench Backfill.
 - 2) 10 cubic yards of structural backfill.
 - 3) 100 cubic yards of embankment work.
 - 4) 50 cubic yards of base material.
 - e. Until the specified degree of compaction on the previously specified amounts of earthwork is achieved, no additional earthwork of the same kind shall be performed.
 - f. Periodic compliance tests may be made by the Engineer to verify that compaction is conforming to the requirements previously specified, at no cost to Owner. Contractor shall remove the overburden above the level at which the Engineer wishes to test and shall backfill and recompact the excavation after the test is complete.
 - g. If compaction fails to conform to the specified requirements, Contractor shall remove and replace the backfill at proper density or shall bring the density up to specified level by other means acceptable to the Engineer. Subsequent tests required to confirm and verify that the reconstructed backfill has been brought up to specified density shall be paid by Contractor. Contractor confirmation tests shall be performed in a manner acceptable to the Engineer. Frequency of confirmation tests for remedial Work shall be double the amount specified for initial confirmation tests.

- B. Quality Control Testing During Construction: Testing service shall inspect and approve subgrades and fill layers before construction Work is performed thereon. Tests of subgrades and fill layers shall be taken as follows:
 1. The frequency of Contractor confirmation tests shall be not less than as follows: Each test location for trenches shall include tests for each layer, type, or class of backfill from bedding to finish grade.

- 1) Trenches for Underground Facilities:
 - a) In open fields: Two locations every 1,000 linear feet.
 - b) Along dirt or gravel roads or off traveled Right-of-Way: Two locations every 500 linear feet.
 - c) Crossing paved roads: Two locations along each crossing.
 - d) Under pavement cuts or within two feet of pavement edges: One location every 400 linear feet.
 - 2) For Structural Backfill: On 30-foot intervals on all sides of the structure for every compacted lift, but no less than one per lift on each side of the structure for structures less than 60 feet long on a side.
 - 3) In Embankment or Fill: One per 1,000 square feet on every compacted lift.
 - 4) Base Material: One per 1,000 square feet on every compacted lift.
2. Copies of the test reports shall be submitted promptly to the Engineer. Contractor tests shall be performed by a soils testing laboratory acceptable to the Engineer.
 3. Footing Subgrade: For each strata of soil on which footings will be placed, conduct at least 1 test to verify required design bearing capacities. Subsequent verification and approval of each footing subgrade may be based on a visual comparison of each subgrade with related tested strata, when acceptable to Engineer.

C. Permits and Regulations:

1. Contractor shall obtain all necessary permits for Work in roads, right-of-ways, railroads, and other property where permits are required. Also, obtain permits as required by local, state and federal agencies for discharging water from excavations.
2. Perform excavation Work in compliance with applicable requirements of governing authorities having jurisdiction.

Submittals

A. Action Submittals: Submit the following:

1. Product Data:
 - a. Submit source of materials, and gradation for all stone used, submit gradation test for each type of material specified.

B. Informational Submittals: Submit the following:

2. Delegated Design Submittals:
 - a. Contractor shall prepare Shop Drawings for the following items:
 - 1) Sheeting and bracing, or other protective system(s).
 - 2) Dewatering Plan
 - 3) Dewatering system.
 - 4) Cofferdams.
 - b. Shop Drawings shall be prepared by a Professional Engineer, registered in the State of Indiana, recognized as expert in the specialty involved. Also, submit for approval, calculations and all other pertinent information. Contractor, however, will be responsible for designing, installing, operating

and maintaining the system(s) as required to satisfactorily accomplish all necessary sheeting, bracing, protection, underpinning, and dewatering.

- c. Drawings shall be prepared by a Professional Engineer, registered in the State of Indiana, recognized as expert in the specialty involved. Drawings shall be submitted to Engineer for record purposes only. Calculations shall not be submitted. Drawing submittals will not be checked and will not imply approval by Engineer of the Work involved. Contractor shall be solely responsible for designing, installing, operating and maintaining whatever system is necessary to satisfactorily accomplish all necessary sheeting, bracing, protection, underpinning, and dewatering.
3. Site Quality Control Submittals:
 - a. Test Reports for Borrow, Backfill, and Grading: Testing laboratory shall submit copies of the following reports directly to Engineer, with copy to the Contractor:
 - 1) Tests on borrow material.
 - 2) Test of excavation subgrade, including footers.
 - 3) Field density tests.
 - 4) Optimum Moisture: Maximum density curve for each soil used for backfill.
 - 5) Tests of actual unconfined compressive strength or bearing tests of each strata.
 - 6) Tests of Flowable Fill.
 - b. Submit the proposed compaction procedure and equipment to be used.
 - c. Submit the proposed sheet shoring and bracing procedure and equipment to be used.
 - d. Submit any additional reports from required field testing as specified in Part 3 of this specification.
 4. Qualifications Statements:
 - a. Submit qualifications for earthwork testing agency.

Job Conditions

- B. Subsurface Information: Data on subsurface conditions is included in the Project Manual. It is not intended as a representation or warranty of continuity of conditions between soil borings nor of groundwater levels at dates and times other than date and time when measured. Owner will not be responsible for interpretations or conclusions drawn therefrom by Contractor. Data is solely made available for the convenience of Contractor.
 1. Additional test borings and other exploratory operations may be made by Contractor, at no additional cost to the Owner.
- C. Existing Underground Facilities: The Drawings show certain surface and underground structures and utilities adjacent to the Work. This information has been obtained from existing records. It is not guaranteed to be correct or complete and is shown for the convenience of Contractor. Contractor shall explore ahead of the required excavation to determine the exact location of all structures. They shall be supported and protected from damage by Contractor. If they are broken or damaged due to the Contractor's

construction activities, then they shall be restored immediately by Contractor at no additional cost to the Owner.

1. Locate existing Underground Facilities in the areas of the Work. If facilities are to remain in place, provide adequate means of protection during all operations.
2. Should uncharted or incorrectly charted piping, structures, or other utilities be encountered during excavation, consult utility owner and Engineer immediately for directions as to how to proceed. Cooperate with Owner and utility owner in keeping services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
3. In general, service lines to individual houses and businesses are not shown. Contractor shall assume that services exist for each utility to each house or business.
4. Do not interrupt existing utilities serving facilities occupied and used by Owner or others, except when permitted in writing by Engineer and utility owner and then only after acceptable temporary utility services have been provided.
5. Demolish and completely remove from the Site existing Underground Facilities indicated to be removed. Coordinate with utility owner for shut-off of services if lines are active.

D. The use of explosives will not be permitted.

E. Roadways and Walks: Unless otherwise approved by Engineer, excavated material and materials of construction shall be stockpiled, and the Work shall be conducted to maintain open and free for pedestrian traffic in all crosswalks, and for vehicular traffic, provide a roadway driving lane not less than ten feet wide. All hydrants, valves, fire alarm boxes, letterboxes, and other facilities which may require access during construction shall be kept accessible for use. During the progress of the Work, Contractor shall maintain such crosswalks, sidewalks, and roadways in satisfactory condition, and the Work shall at all times be conducted to cause a minimum inconvenience to public travel and to permit safe and convenient access to private and public property along the line of the Work.

Materials

A. Backfill and Fill:

1. Materials acceptable for use as backfill against walls, foundations, underground ductbanks, and other structures shall be stockpiled native sandy clay or granular soils obtained from on-site excavations and which are uniformly mixed, contain no organic matter, nor contain rocks or fragments greater than 3 inches in size, nor have greater than 40 percent passing the 200 sieve. The maximum expansion of on-site materials shall be 1.5 percent as performed on a sample remolded to approximately 95 percent of the maximum dry density as determined in accordance with ASTM D698 at two percent below optimum moisture content under a 100 psf surcharge pressure.
2. Backfill and fill materials from off-site sources shall consist of silty or clayey sand soils that are uniformly mixed, contain no organic matter and which have a Plasticity Index less than ten. The maximum particle size of imported soils shall be 3-inches or less, if required to satisfy trenching, landscaping, or other

requirements. The maximum expansion of off-site materials shall be 1.5 percent as performed on a sample remolded to approximately 95 percent of the maximum dry density as determined in accordance with ASTM D698 at two percent below optimum moisture content under a 100 psf surcharge pressure.

3. All materials for use as backfill and fill material shall be tested by the laboratory services, as requested by the Engineer.
4. If on-site material is unsuitable, as determined by the Engineer, Special Backfill or approved off-site fill shall be used.

B. Special Backfill:

1. Special backfill for use beneath structures, concrete slabs and asphalt pavements (and where shown or specified below and around structures) shall be in accordance with the Indiana Department of Transportation (INDOT) Standard Specifications latest edition, Sections 211 and 904.
2. The material shall be acceptable quality, free from large or frozen lumps, wood, or other extraneous matter.
3. Special backfill shall be in accordance with gradations for No. 53 or No. 73 coarse aggregate in accordance with the gradation requirements of INDOT Standard Specifications latest edition, Section 904.03(e). Coarse Aggregate No. 53 or No. 73 shall be crushed stone or air-cooled blast furnace slag (ACBF), Class D or higher.
4. Use of “B” Borrow is not acceptable.
 - a. “B” Borrow is defined in accordance with the Indiana Department of Transportation (INDOT) Standard Specifications latest edition, Sections 211 and 904.

C. Rip Rap

1. Revetment Riprap
 - a. Provide revetment Riprap in accordance with INDOT Section 904.04, class F or higher, with a maximum dimension of 3 times the minimum dimension.
 - b. The aggregate shall be as defined by INDOT Standards for revetment riprap, must be crushed stone, and must meet the following gradations:

INDOT Revetment Riprap Gradation	
Percent Smaller	
Size, in.	Revetment
30	
24	
18	100
12	90-100
8	
6	20-40
3	0-10
1	
Depth of Riprap	18 inches

D. Bedding

1. Refer to City of Greenfield Public Improvement Design Standards and Specifications Manual for bedding materials and requirements.

E. INDOT Sieve Analysis Requirements

1. The following lists the coarse aggregate sieve analysis requirements in accordance with INDOT Section 903:

INDOT – Sieve Analysis Requirements

Sieve Sizes	COARSE AGGREGATE SIZES (PERCENT PASSING)									
	COARSE GRADED							DENSE GRADED		
	2	5	8	9	11	12	43(1)	91	53(1)	73(1)
4 in. (100 mm)										
3 1/2 in. (90 mm)										
2 1/2 in. (63 mm)	100									
2 in. (50 mm)	80-100									
1 1/2 in. (37.5 mm)		100					100		100	
1 in. (25 mm)	0-25	85-98	100				70-90	100	80-100	100
3/4 in. (19 mm)	0-10	60-85	75-95	100			50-70		70-90	90-100
1/2 in. (12.5 mm)	0-7	30-60	40-70	60-85	100	100	35-50		55-80	60-90
3/8 in. (9.5 mm)		15-45	20-50	30-60	75-95	95-100				
No. 4 (4.75 mm)		0-15	0-15	0-15	10-30	50-80	20-40		35-60	35-60
No. 8 (2.36 mm)		0-10	0-10	0-10	0-10	0-35	15-35		25-50	
No. 30 (600 µm)						0-4	5-20		12-30	12-30
No. 200 (75 µm)(2)							0-6.0		5.0-10.0(4)	5.0-12.0
Decant (PCC)(3)		0-1.5	0-1.5	0-1.5	0-1.5	0-1.5		0-1.5		
Decant (Non-PCC)	0-2.5	0-2.5	0-3.0	0-2.5	0-2.5	0-2.0		0-2.5		

Notes: 1. The liquid limit shall not exceed 25 (35 if slag) and the plasticity index shall not exceed 5. The liquid limit shall be determined in accordance with AASHTO T 89 and the plasticity index in accordance with AASHTO T 90. 2. Includes the total amount passing the No. 200 (75 µm) sieve as determined by AASHTO T 11 and T 27. 3. Decant may be 0-2.5 for stone and slag. 4. When slag is used for separation layers as defined in 302.01, the total amount passing the No. 200 (75 µm) sieve shall be 10.0 to 12.0.

Execution

F. Inspection

1. Provide Engineer with 2 business days' notice and with means to examine the areas and conditions under which excavating, filling, and grading are to be performed. Engineer will notify Contractor, in writing, if conditions are found that may be detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected in an acceptable manner.

G. Test Pits

1. General:
 - a. Contractor shall excavate and backfill, in advance of the construction, test pits to determine conditions or location of the existing utilities and structures. Contractor shall perform all the Work required in connection with excavating, stockpiling, maintaining, sheeting, shoring, backfilling and replacing pavement for the test pits.
 - 1) Contractor shall be responsible for the definite location of each existing facility involved within the area of excavation for the Work under this Contract. Care shall be exercised during such location work to avoid damaging and/or disrupting the affected facility. Contractor shall be responsible for repairing, at his expense, damage to any structure, piping, or utility caused by his Work.

H. Excavation

1. Perform all excavations required to complete the Work as shown, specified and required. Excavations shall include earth, sand, clay, gravel, hardpan, boulders not requiring drilling and blasting for removal, decomposed material, pavements, rubbish, abandoned utilities and all other materials within the excavation limits.
2. Provide excavation protection system(s) required by ordinances, codes, Laws, and Regulations to prevent injury to workers and to prevent damage to new and existing structures or utilities.
3. Where the structure or utility is to be placed below the ground water table, use well points, cofferdams or other acceptable methods to permit construction of said structure or pipeline under dry conditions. Dry conditions shall be maintained until concrete has reached sufficient strength to withstand earth and hydrostatic loads and until the pipelines are properly jointed, tested and acceptably backfilled. Water level shall be maintained below subgrade until backfilling and compaction is completed.
4. Pumping of water from excavations shall be completed in such a manner to prevent the carrying away of unconsolidated concrete materials, and to prevent damage to the existing subgrade.
5. When excavations are made below the required grades, without the written order of Engineer, they shall be backfilled with compacted gravel or concrete, as directed by Engineer in writing, at the expense of Contractor.
6. Subgrades for roadways, structures and trench bottoms shall be firm, dense, and thoroughly compacted and consolidated; shall be free from mud, muck, and other soft or unsuitable materials; and shall remain firm and intact under all construction operations. Subgrades which are otherwise solid, but which become soft or mucky on top due to construction operations, shall be reinforced with crushed stone or gravel. The finished elevation of stabilized subgrades shall not be higher than subgrade elevations shown.

7. Prior to placement of aggregate base for roadways, subgrade more than 100 feet in length shall be proof-rolled with a tri-axle dump truck loaded with 20 tons and approved by the Engineer. There shall be one or two complete coverages as directed by the Engineer. Tire tracks, irregularities, or failures shall be corrected.
8. Pipe Trench Preparation:
 - a. No more than 100 feet of trench may be opened in advance of pipe laying. Trenches in rock shall be fully opened at least 30 feet in advance of where pipe is being laid.
 - b. Trench width shall be minimized to the greatest extent practical, but shall conform to the following:
 - 1) Sufficient to provide room for installing, jointing and inspecting piping.
 - 2) Sufficient for shoring and bracing, or shielding and dewatering.
 - 3) Sufficient to allow thorough compaction of backfill adjacent to bottom half of pipe.
 - 4) Where the existing material beneath the bedding material is considered unsuitable by Engineer, Contractor shall remove and replace it with backfill or fill material as approved by Engineer.
 - c. Depth of trench shall be as shown. If required and approved by Engineer, in writing, depths may be revised.
9. Material Storage: Stockpile satisfactory excavated materials in approved areas, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage.
 - a. Locate and retain soil materials away from edge of excavations.
 - b. Do not store within drip line of trees to be protected.
 - c. Dispose of excess soil material and waste materials as specified hereinafter.
 - d. Stockpiled excavated soils for use as subsequent fill shall be classified by laboratory as on-site granular or sandy clay soils. Use and placement of fill shall be performed as specified for each class.
 - e. Excess soil from excavations shall be disposed off-site. Disposal shall be in accordance with state and local regulatory requirements.

I. Unauthorized Excavation

1. All excavation outside the lines and grades shown, and which is not approved by Engineer, together with the removal and disposal of the associated material shall be restored at Contractor's expense. Unauthorized excavations shall be filled and compacted with backfill, or fill material as approved by Engineer, or concrete by Contractor at no additional cost to the Owner. Claims and damages resulting from unauthorized excavation will be the sole responsibility of the Contractor.

J. Sheeting, Shoring and Bracing

1. General:
 - a. Material utilized for sheeting, shoring, and bracing shall be in good condition, not damaged or excessively pitted. All steel or wood sheeting designated to remain in place shall be new. New or used sheeting may be used for temporary Work.
 - b. Unless otherwise shown, specified, or directed, all materials used for temporary construction shall be removed when Work is completed. Such removal shall be made in a manner not injurious to the structure or its appearance or to adjacent Work.

- c. Safe and satisfactory sheeting, shoring and bracing shall be the entire responsibility of Contractor.
2. Shop Drawings for sheeting, shoring and bracing shall be submitted for record; they will not be reviewed.

K. Trench Shields

1. Excavation of earth material below the bottom of a shield shall not exceed the limits established by ordinances, codes, Laws, and Regulations.
2. When using a shield for the installation of structures, the bottom of the shield shall not extend below the top of the bedding for the structures.
3. When a trench shield is removed or moved ahead, care shall be taken to prevent the movement of pipe or structures and the disturbance of the placed bedding and backfill for pipe or structures. Pipe, structures, bedding and backfill that are disturbed shall be removed and reinstalled as specified.

L. General Requirements for Bedding, Backfill, and Compaction

1. Furnish, place and compact all Special Backfill, backfill, fill and other materials required for structures, embankments, pipelines, ductbanks, and other requirements.
2. Provide the finished grades as shown and as described herein to be furnished, placed and compacted by Contractor.
3. Backfill excavations as promptly as Work permits, but not until completion of the following:
 - a. Inspection, successful completion and acceptance of testing, approval, and recording of locations of Underground Facilities.
 - b. Removal of concrete formwork.
 - c. Removal of shoring and bracing, and backfilling of voids with satisfactory materials.
 - d. Removal of trash and debris.
4. Fill containing organic materials or other unacceptable material shall be removed and replaced with approved fill material as specified.
5. Placement of Bedding
 - a. Bedding materials, both below the bottom and above the crown of the pipe, classes of bedding to be used, and placement and compaction of bedding materials shall conform to the following requirements:
 - 1) Granular bedding shall be spread and the surface graded to provide a uniform and continuous support beneath the pipe at all points between bell holes or pipe joints. It will be permissible to slightly disturb the finished subgrade surface by withdrawal of pipe slings or other lifting tackle. After each pipe has been graded, aligned, placed in final position on the bedding material and shoved home, sufficient pipe bedding material shall be deposited and compacted under and around each side of the pipe and back of the bell or end thereof to hold the pipe in proper position and to maintain alignment during subsequent pipe jointing and bedding operations. Bedding material shall be deposited and compacted uniformly and simultaneously on each side of the pipe to prevent lateral displacement. The bedding material shall then be placed and compacted to a level elevation 12 inches above the top of pipe across the trench.

- 2) Compacted backfill shall be required for the full depth of the trench above the granular pipe bedding material. Where the trench for one pipe passes beneath the trench for another pipe or electrical ductbank, the lower trench shall be compacted to the level of the bottom of the upper trench.
 - 3) Each layer of bedding material shall be compacted by at least two complete coverages of all portions of the surface of each lift using approved compaction equipment. One coverage is defined as the conditions reached when all portions of the fill lift have been subjected to the direct contact of the compacting surface of the compactor.
 - 4) The method of compaction and the equipment used shall be appropriate for the material to be compacted and shall not transmit damaging shocks to the pipe.
 - 5) The degree of compaction required for granular bedding is expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D698.
6. General - Placement of Special Backfill, Backfill, and Fill:
- a. Special backfill and backfill shall be placed to the grades shown. Bring special backfill, backfill around structures and piping up evenly on all sides. The lift thickness and compaction moisture content range given herein is approximate. These values shall be finally determined from the laboratory test results on the materials.
 - b. All special backfill shall be placed in horizontal loose lifts, not exceeding 8 inches in thickness, and shall be mixed and spread in a manner assuring uniform lift thickness after placing. Each lift shall be compacted by not less than two complete coverages of the specified compactor. Special backfill shall be placed to the underside of all concrete slabs. The material shall extend a minimum of 2 feet outside the face of each structure and be 12 inches below finished grade on all structures. When used under concrete slabs with exposed edges, the maximum slope of special backfill to the subgrade shall be one vertical to one horizontal.
 - c. Backfill and fill around and outside of structures and over special backfill shall be deposited in layers not to exceed 8 inches in uncompacted thickness and mechanically compacted, using platform type tampers.
 - d. Keep excavations dry during backfilling operations. No special backfill, backfill or fill material shall be placed when free water is standing on the surface of the area where the fill is to be placed.
7. General – Compaction of Special Backfill, Backfill, and Fill:
- a. Compaction of structures backfilled by rolling will be permitted provided the desired compaction is obtained and damage to the structure is prevented.
 - b. Compaction of special backfill and/or backfill by inundation with water will not be permitted. All materials shall be deposited as specified herein and as shown on the Drawings.
 - c. The material shall be placed at a moisture content and density as specified. Contractor shall provide equipment capable of adding measured amounts of water to the backfill and/or special backfill material to bring it to a condition within the range of the required moisture content.

- d. Contractor shall provide equipment capable of discing, aerating, and mixing the soil to ensure reasonable uniformity of moisture content throughout the fill material and to reduce the moisture content of the borrow material by air drying, if necessary. If the subgrade or lift of earth material must be moisture conditioned before compaction, the fill material shall be sufficiently mixed or worked on the subgrade to ensure a uniform moisture content throughout the lift of material to be compacted. Materials at moisture content in excess of the specified limit shall be dried by aeration or stockpiled for drying.
- e. No compaction of fill will be permitted with free water on any portion of the fill to be compacted. No fill shall be placed or compacted in a frozen condition or on top of frozen material.
- f. Any fill containing organic materials or other unacceptable material previously described shall be removed and replaced with approved fill material prior to compaction.
- g. Compaction shall be performed with equipment suitable for the type of material being placed. Contractor shall select equipment that is capable of providing the minimum density required by these Specifications. Hand operated compacting equipment shall be used within a distance of ten feet from the wall of any completed below grade structure. Equipment shall be provided that is capable of compacting in restricted areas next to structures and around piping. The effectiveness of the equipment selected by Contractor shall be tested at the commencement of compaction Work by construction of a small section of material within the area where the material is to be placed. If tests on this section of material show that the specified compaction is not obtained, Contractor shall increase the amount of coverage, decrease the lift thicknesses or obtain a different type of compactor.
- h. Levels of special backfill or backfill against concrete walls shall not differ by more than 2 feet on either side of walls, unless walls are adequately braced or all floor framing is in place up to and including grade level slabs. Particular care shall be taken to compact structure special backfill or backfill, which will be beneath pipes, roads, or other surface construction or structures. In addition, wherever a trench passes through structure special backfill or backfill, the structure special backfill or backfill shall be placed and compacted to an elevation 12 inches above the top of the pipe before the trench is excavated. Compacted areas, in each case, shall be adequate to support the item to be constructed or placed thereon.
- i. The compaction requirements specified are predicated on the use of normal materials and compaction equipment. In order to establish criteria for the placement of a controlled fill so that it will have compressibility and strength characteristics compatible with the proposed structural loadings, a series of laboratory compaction and/or compressive strength tests shall be performed on the samples of materials submitted by Contractor. From the results of the laboratory tests, the final values of the required percent compaction, the acceptable compaction moisture content range, and the maximum permissible lift thickness will be established for the fill material and construction equipment proposed.
- j. Control the water content of fill material during placement within the range necessary to obtain the compaction specified. In general, the moisture

- content of the fill shall be within three percent of the optimum moisture content for compaction as determined by laboratory tests. Perform all necessary Work to adjust the water content of the material to within the range necessary to permit the compaction specified.
- k. Compact fill shall be compacted by at least 2 coverages of all portions of the surface of each lift by compaction equipment. One coverage is defined as the condition obtained when all portions of the surface of the fill material have been subjected to the direct contact of the compactor.
 - l. If the specified densities are not obtained because of improper control of placement or compaction procedures, or because of inadequate or improperly functioning compaction equipment, Contractor shall perform whatever Work is required to provide the required densities. This Work shall include complete removal of unacceptable special backfill, backfill and fill areas, and replacement and recompaction until acceptable material is provided, at no additional cost to the Owner.
 - m. Contractor shall repair, at his own expense, any after settlement that occurs, during the warranty period. Contractor shall make all repairs and replacements required within 30 days after notice from Engineer or Owner.
8. Backfill or Special Backfill in Pipe Trenches:
- a. Place all backfill or special backfill in pipe trenches which are below structures, other pipes, or paved areas, in horizontal layers or lifts not exceeding 6 inches in depth and thoroughly compact each before the next layer or lift is placed. In other pipe trenches, compacted layers shall be 6 inches up to the pipe center line and 8 inches thereafter.
 - b. Where pipe is laid in rock excavation, crushed stone or gravel bedding shall be carefully placed and tamped over the rock before the pipe is laid. Depth of crushed stone or gravel shall be at least 6 inches for pipe that is 16 inches and smaller and 9 inches for pipe that is 18 inches and larger. After laying pipe, the balance of the backfill shall be placed as described herein.
 - c. Prior to the installation of pipes which are to be installed in fill sections, place the fill as described herein, until a minimum height of two feet above the soffit of the pipe is reached, unless otherwise required in other Sections. The fill for the trench width shall then be excavated and the pipe installed and backfilled. The remainder of the fill shall then be placed.
 - d. Pipeline trenches may be backfilled prior to pressure testing, but no structure shall be constructed over any pipeline until it has been tested.
9. Backfill or Special Backfill Around Manholes and Drainage Structures:
- a. Backfill or special backfill should be placed evenly around manhole in 6-inch maximum lifts and should be thoroughly tamped to standard proctor density referenced below, before the next layer is installed.
 - b. Backfill material shall be subject to approval by the Engineer.
10. Compaction Density Requirements:
- a. The degree of compaction required for all types of fills shall be 95 percent density as determined by the Modified Proctor Test or as approved by Engineer. Compaction may be obtained by mechanically tamping the material in 6-inch lifts. Material shall be moistened or aerated as necessary to provide the moisture content that will facilitate obtaining the specified compaction.

- 1) All backfill, special backfill and fill must be wetted and thoroughly mixed to achieve +2% or -1% of the optimum moisture content, with the following exceptions: On-site clayey soils optimum to plus 3 percent.
 - 2) Natural undisturbed soils or compacted soil subsequently disturbed or removed by construction operations shall be replaced with materials compacted as specified above.
 - b. Testing service shall perform tests required to provide data for selection of backfill, special backfill and fill material and control of placement water content.
 - c. Field density tests, to ensure that the specified density is being obtained, shall be performed by testing service during each day of compaction Work.
 - d. If the tests indicate unsatisfactory compaction, Contractor shall provide the additional compaction necessary to obtain the specified degree of compaction. All additional compaction Work shall be performed by Contractor, at no additional cost to the Owner, until the specified compaction is obtained. This Work shall include complete removal of unacceptable (as determined by the Engineer) fill areas and replacement and recompaction until acceptable backfill, special backfill and fill is provided.
11. Complete compaction testing requirements for water services excavations within roadway. Compaction testing for water service excavations outside of roadway will be on an as need basis and paid for by Contractor at no additional cost to the Owner.
 12. Replacement of Unacceptable Excavated Materials: In cases where over-excavation for the replacement of unacceptable soil materials is required, the excavation shall be backfilled to the required subgrade with special backfill material and thoroughly compacted as specified. Sides of the excavation shall be sloped in accordance to the maximum inclinations specified for each structure location.

M. Grading

1. General: Uniformly grade areas within limits of grading as shown or specified, including adjacent transition areas. Smooth subgrade surfaces within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.
2. Grading Outside Building Lines: Grade areas adjacent to building lines to drain away from structures and to prevent ponding. Finish surfaces free from irregular surface changes, and as follows:
 - a. Turfed Areas or Areas Covered with Gravel, Stone, Wood Chips, or Other Special Cover: Finish areas to receive topsoil or special cover to within not more than 1-inch above or below the required subgrade elevations.
 - b. Walks: Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 1-inch above or below the required subgrade elevation.
 - c. Pavements: Shape surface of areas under pavement to line, grade and cross-section, with finish surface not more than 1/2 inch above or below the required subgrade elevation.
3. Compaction:
 - a. After grading, compact subgrade surfaces to the depth and percentage of maximum required for each area classification.

N. Pavement Subbase Course

1. General: Place subbase material, in layers of specified thickness, over subgrade surface to support pavement base course.
 - a. Refer to City of Greenfield Public Improvement Design Standards and Specifications Manual for pavement requirements.
2. Grade Control: During construction, maintain lines and grades including crown and cross-slope of subbase course.
3. Shoulders: Place shoulders along edges of subbase course to prevent lateral movement. Construct shoulders of acceptable soil materials, placed in such quantity to compact to thickness of each subbase course layer. Compact and roll at least a 12 inch width of shoulder simultaneously with compacting and rolling of each layer of subbase course.
4. Placing: Place subbase course material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting subbase material during placement operations.
 - a. When a compacted subbase course is shown to be 6 inches thick or less, place material in a single layer. When shown to be more than 6 inches thick, place material in equal layers, except no single layer more than 6 inches or less than 3 inches in thickness when compacted.

O. Disposal of Excavated Materials

1. Materials removed from the excavations which do not conform to the requirements for fill or are in excess of that required for backfill shall be hauled away from the Site by Contractor and disposed of in compliance with ordinances, codes, Laws and Regulations, at no additional cost to the Owner.
2. Contractor shall notify Owner in writing of all offsite locations for the disposal of excavated material.
3. Pavement, gutters, curbs, sidewalks, driveways or roadways disturbed or damaged by Contractor operations, except in areas designed as proposed Work, shall be restored by Contractor at his own expense to a condition equal to or greater than they were previous to the commencement of the Work and in accordance with applicable local and state highway Specifications or requirements.

Method of Measurement

1. This item shall include all costs to furnish all labor, materials, equipment, tools, and compacting required to place and compact Compacted Aggregate and rip rap material described as herein. Compacted Aggregate is to be placed under pavements, parking lots, and driveways, within the road right-of-way, or as shown on the Drawings. Rip rap is to be placed as shown on the Drawings.
2. The cost for complete removal and hauling away of excavated material is included in respective items for pipe material, manholes, structures, etc.
3. The quantity of Compacted Aggregate underneath asphalt pavement sections shall be calculated with a maximum pay depth as shown on the Drawings.
4. The quantity of Compacted Aggregate underneath pedestrian trail shall be calculated with a maximum pay depth as shown on the Drawings.
5. The quantity of Rip Rap shall be calculated with a maximum pay depth as shown on the Drawings.

6. The payment of Compacted Aggregate shall be based on the unit price per cubic yard as listed on the submitted Bid schedule for required pipe backfill, cast-in-place and pre-cast structures, sub-grade under asphalt paving, and subgrade under pedestrian trail. All other required backfill shall be included in the cost of the item.

Basis of Payment

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|------|------------|-----|---|
| 11.) | <u>950</u> | CYS | Compacted Aggregate, No. 53/73 (Base Bid No.1) |
| 12.) | <u>550</u> | CYS | Compacted Aggregate, No. 53/73 (Mandatory Alternate Bid No.1) |
| 13.) | <u>620</u> | CYS | Compacted Aggregate, No. 53/73 (Mandatory Alternate Bid No.2) |
| 14.) | <u>12</u> | CYS | Rip Rap (Mandatory Alternate Bid No.2) |

ASPHALT PAVEMENT REPAIR

Prevailing Greenfield Public Improvement Design Standards and Specifications, Division 300, 404

Method of Measurement

1. The payment for asphalt pavement repair shall be based on the Contract unit price per square yard for the depth shown.
2. The asphalt pavement repair shall be measured in square yards per the thickness installed.

Basis of Payment

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|------|------------|-----|--|
| 15.) | <u>302</u> | SYS | Asphalt Pavement Repair (Mandatory Alternate Bid No.2) |
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PEDESTRIAN TRAIL

Prevailing Greenfield Public Improvement Design Standards and Specifications, Division 310

Method of Measurement

1. The payment for pedestrian trail shall be based on the Contract unit price per square yard for the depth shown.
2. The pedestrian trail shall be measured in square yards per the thickness installed.

Basis of Payment

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| 16.) | <u>1,487</u> | SYS | Pedestrian Trail, with Pavement Markings (Mandatory Alternate Bid No.2) |
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SANITARY SEWER

Prevailing Greenfield Public Improvement Design Standards and Specifications, Division 406

Method of Measurement

1. This item is measured by the number of linear feet as measured horizontally along the centerline of the successfully installed, backfilled, and tested sanitary sewer from outside wall of structure to outside wall of structure as shown and specified. Measurement shall include length of fittings.
2. Includes all excavation; permanent and temporary shoring of the excavation; existing pavement saw cutting, removal, and disposal; groundwater control, treatment and disposal; furnishing and installing pipe, fittings and wye; bedding, haunching, cover, flowable fill, testing; bypass pumping; televising; protection, replacement or repair of utilities, drainage systems, structures, and miscellaneous property; maintaining service; removal, replacement, and reconnection of all existing lateral lines as part of the Work; support of any utility crossings; removal and legal disposal of surplus excavated material; erosion control; seeding

and grading; and clean up, all in accordance with the Contract Documents.

3. Lateral pay items shall include all excavation; existing pavement saw cutting, removal, and disposal; groundwater control, treatment and disposal; furnishing and installing pipe and fittings, PVC repair couplings, non-shear couplings, bedding, haunching, cover, flowable fill, permanent and temporary shoring of the excavation; testing; watertight plugs; bypass pumping; televising; protection, replacement or repair of utilities, drainage systems, structures, and miscellaneous property; maintaining service, support of any utility crossings; removal and legal disposal of surplus excavated material; connection of new sanitary lateral to existing lateral; all in accordance with the Contract Documents.

Basis of Payment

17.)	<u>152</u>	LFT	6" PVC, SDR 26, Sanitary Sewer Laterals (Base Bid No.1)
18.)	<u>214</u>	LFT	8" PVC Sanitary Sewer, SDR 26 (Base Bid No.1)
19.)	<u>341</u>	LFT	8" PVC Sanitary Sewer, SDR 35 (Base Bid No.1)
20.)	<u>426</u>	LFT	10" PVC Sanitary Sewer, SDR 26 (Base Bid No.1)
21.)	<u>424</u>	LFT	12" PVC Sanitary Sewer, SDR 35 (Base Bid No.1)
22.)	<u>2</u>	EA	End Caps (Base Bid No.1)
23.)	<u>320</u>	LFT	6" PVC, SDR 26, Sanitary Sewer Laterals (Mandatory Alternate Bid No.2)
24.)	<u>579</u>	LFT	12" PVC Sanitary Sewer, SDR 35 (Mandatory Alternate Bid No.2)
25.)	<u>436</u>	LFT	12" PVC Sanitary Sewer, SDR 26 (Mandatory Alternate Bid No.2)
26.)	<u>1,392</u>	LFT	15" PVC Sanitary Sewer, SDR 26 (Mandatory Alternate Bid No.2)

SANITARY MANHOLES

Prevailing Greenfield Public Improvement Design Standards and Specifications, Division 406

Method of Measurement

1. Payment for Manholes shall be on a unit price basis for each size and type.
2. The pay quantity shall be the actual number of sanitary manholes in each size and type successfully furnished and installed.
3. This Work will be at the unit price as listed on the submitted Bid schedule for size and type of the concrete manholes and structures and shall include the following: temporary bypass pumping, pavement removal, excavation, disposal of excess excavated material, base stabilization, dewatering, sheeting, riser rings, utility marking posts, castings and lids, external wraps and seals, precast sections or cast in place concrete, channels, inverts, drop piping, connecting pipes, placing and compacting backfill, testing, utility adjustments, temporary pavement replacement if necessary, and any other requirements to complete the Work in accordance with the drawings and specifications, unless otherwise classified as a separate Work item.

Basis of Payment

27.)	<u>7</u>	EA	48" Sanitary Manholes (Base Bid No.1)
28.)	<u>1</u>	EA	60" Sanitary Manholes (Base Bid No.1)
29.)	<u>1</u>	EA	60" Sanitary Manholes (Mandatory Alternate Bid No.2)
30.)	<u>8</u>	EA	48" Sanitary Manholes (Mandatory Alternate Bid No.2)
31.)	<u>1</u>	EA	48" Sanitary Drop Manholes (Mandatory Alternate Bid No.2)

DUCTILE IRON WATER MAIN, FITTINGS, AND VALVES

Prevailing Greenfield Public Improvement Design Standards and Specifications, Division 408

Method of Measurement – Water Main

1. This item is measured by the number of linear feet as measured horizontally along the centerline of the successfully installed, backfilled, and tested ductile iron water main, from outside wall of structure to outside wall of structure as shown and specified. Measurement shall include length of fittings.
2. Includes all excavation; permanent and temporary shoring of the excavation; existing pavement saw cutting, removal, and disposal; groundwater control, treatment and disposal; furnishing and installing pipe, fittings and wye; bedding, haunching, cover, flowable fill, pressure testing; bypass pumping; televising; protection, replacement or repair of utilities, drainage systems, structures, and miscellaneous property; maintaining service; support of any utility crossings; removal and legal disposal of surplus excavated material; erosion control; seeding and grading; and clean up, all in accordance with the Contract Documents.

Method of Measurement – Fittings, Valves and Test Risers

1. Payment for water main fittings, valves, and test risers shall be on a unit price basis for each size and type.
2. The pay quantity shall be the actual number of fittings, valves and test risers in each size and type successfully furnished and installed.
3. This Work will be at the unit price as listed on the submitted Bid schedule for size and type of the water main fittings, valves, and test risers and shall include the following: temporary bypass pumping, pavement removal, excavation, disposal of excess excavated material, base stabilization, dewatering, sheeting, fittings, valves, test risers, utility marking posts, connection to water main, placing and compacting backfill, testing, pressure testing, utility adjustments, temporary pavement replacement if necessary, and any other requirements to complete the Work in accordance with the drawings and specifications, unless otherwise classified as a separate Work item.

Method of Measurement – Water Main Removal

1. This item is measured by the number of linear feet as measured horizontally along the centerline of the successfully removed water main.
2. Includes all excavation; permanent and temporary shoring of the excavation; existing pavement saw cutting, removal, and disposal; groundwater control, treatment and disposal; removing all specified pipe and fittings; bypass pumping; protection of utilities to remain, replacement or repair of utilities, drainage systems, structures, and miscellaneous property; support of any utility crossings; removal and legal disposal of excavated material and removed watermain materials; erosion control; seeding and grading; and clean up, all in accordance with the Contract Documents.

Basis of Payment

32.)	<u>313</u>	LFT	16" Ductile Iron Water Main (Mandatory Alternate Bid No. 2)
33.)	<u>550</u>	LFT	12" Ductile Iron Water Main (Mandatory Alternate Bid No. 2)
34.)	<u>1</u>	EA	16" Ductile Iron Fittings (Mandatory Alternate Bid No. 2)
35.)	<u>2</u>	EA	16" X 12" Ductile Iron Tee (Mandatory Alternate Bid No. 2)
36.)	<u>4</u>	EA	12" Ductile Iron Fittings (Mandatory Alternate Bid No. 2)

37.)	<u>2</u>	EA	16" Gate Valve (Mandatory Alternate Bid No. 2)
38.)	<u>3</u>	EA	12" Gate Valve (Mandatory Alternate Bid No. 2)
39.)	<u>3</u>	EA	3/4" Test Riser (Mandatory Alternate Bid No. 2)
40.)	<u>2</u>	EA	End Plug (Mandatory Alternate Bid No. 2)
41.)	<u>313</u>	LFT	Water Main Removal (Mandatory Alternate Bid No. 2)

FIRE HYDRANT ASSEMBLY

Prevailing Greenfield Public Improvement Design Standards and Specifications, Division 408

Fire hydrant assemblies shall include anchor tee, valve, valve box, adapter pipe, and hydrant per Greenfield Standard Specifications.

Method of Measurement – Fire Hydrant Assemblies

1. Payment for fire hydrant assemblies shall be on a unit price basis for each size and type.
2. The pay quantity shall be the actual number of fire hydrant assemblies in each size and type successfully furnished and installed.
3. This Work will be at the unit price as listed on the submitted Bid schedule for size and type of the fire hydrant assemblies and shall include the following: anchor tee, valve box, valve, adapter pipe, and hydrant assembly, temporary bypass pumping, pavement removal, excavation, disposal of excess excavated material, base stabilization, dewatering, sheeting, fittings, utility marking posts, connection to water main, placing and compacting backfill, testing, pressure testing, utility adjustments, temporary pavement replacement if necessary, and any other requirements to complete the Work in accordance with the drawings and specifications, unless otherwise classified as a separate Work item.

Basis of Payment

42.)	<u>2</u>	EA	Fire Hydrant Assembly (Mandatory Alternate Bid No.1)
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REINFORCED CONCRETE PIPE (RCP)

Prevailing Greenfield Public Improvement Design Standards and Specifications, Division 410

Method of Measurement - Pipe

1. This item is measured by the number of linear feet as measured horizontally along the centerline of the successfully installed, backfilled, and tested reinforced concrete pipe from outside wall of structure to outside wall of structure as shown and specified. Measurement shall include length of fittings.
2. Includes all excavation; permanent and temporary shoring of the excavation; existing pavement saw cutting, removal, and disposal; groundwater control, treatment and disposal; furnishing and installing pipe, fittings; headwall structures, bedding, haunching, cover, flowable fill, testing; bypass pumping; televising; protection, replacement or repair of utilities, drainage systems, structures, and miscellaneous property; support of any utility crossings; removal and legal disposal of surplus excavated material; erosion control; seeding and grading; and clean up, all in accordance with the Contract Documents.

Method of Measurement – Saw Cut and Install Headwall

3. Payment for saw cut and install headwall shall be on a unit price basis.
4. The pay quantity shall be the actual number of saw cut and installed headwall successfully completed.

5. This Work will be at the unit price as listed on the submitted Bid schedule for size and type of the saw cut and install headwall and shall include the following: temporary bypass pumping, pavement removal, excavation, disposal of excess excavated material, saw-cutting of existing pipe, furnishing and placing headwall, base stabilization, dewatering, sheeting, precast sections or cast in place concrete, channels, inverts, connecting pipes, placing and compacting backfill, testing, utility adjustments, temporary pavement replacement if necessary, and any other requirements to complete the Work in accordance with the drawings and specifications, unless otherwise classified as a separate Work item.

Basis of Payment

- 43.) 15 LFT 19" X 30" Elliptical RCP Culvert with Headwall (Mandatory Alternate Bid No.2)
- 44.) 35 LFT 12" RCP Culvert with End Section (Mandatory Alternate Bid No.2)
- 45.) 1 EA Saw-Cut Existing 24" RCP Culvert / Install Headwall (Mandatory Alternate Bid No.2)

DRAIN TILE REPAIR

Prevailing Greenfield Public Improvement Design Standards and Specifications, Division 408

Method of Measurement

1. Payment drain tile repairs shall be on a unit price basis.
2. The pay quantity shall be the actual number of drain tile repairs successfully completed.
3. This Work will be at the unit price as listed on the submitted Bid schedule for drain tile repair and shall include the following: temporary bypass pumping, pavement removal, excavation, disposal of excess excavated material, saw-cutting of existing pipe, furnishing and placing any required fittings, furnishing and placing any required additional pipe materials, base stabilization, dewatering, sheeting, channels, inverts, connecting pipes, placing and compacting backfill, testing, utility adjustments, temporary pavement replacement if necessary, and any other requirements to complete the Work in accordance with the drawings and specifications, unless otherwise classified as a separate Work item.

Basis of Payment

- 46.) 2 EA Drain Tile Repair, Assumed Quantity (Base Bid No.1)
- 47.) 2 EA Drain Tile Repair, Assumed Quantity (Mandatory Alternate Bid No.1)
- 48.) 2 EA Drain Tile Repair, Assumed Quantity (Mandatory Alternate Bid No.2)

