
SPECIFICATIONS

FOR

***MAIN STREET INTERSECTION AND SIDEWALK
IMPROVEMENTS***

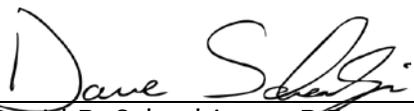
WEST BRANCH, IOWA

SPECIFICATIONS
FOR
MAIN STREET INTERSECTION AND SIDEWALK IMPROVEMENTS
WEST BRANCH, IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signed:

Date:



4/20/2016

David R. Schechinger, P.E.

Iowa License No. 16538

My license renewal date is December 31, 2016



Detailed parts covered by this seal:

ALL

Prepared by
VEENSTRA & KIMM, INC.
Coralville,
Iowa

INDEX

MAIN STREET INTERSECTION AND SIDEWALK IMPROVEMENTS
WEST BRANCH, IOWA

<u>TITLE</u>	<u>PAGE</u>
NOTICE OF HEARING AND LETTING	NHL-1
INSTRUCTIONS TO BIDDERS	IB-1
PROPOSAL	P-1
<u>SPECIAL BIDDING REQUIREMENTS</u>	
<u>BIDDER STATUS FORM</u>	
BID BOND	BB-1
CONTRACT	C-1
BOND	B-1
GENERAL CONDITIONS	GC-1
SPECIAL CONDITIONS	SC-1
PLANS LIST	PL-1
DETAILED SPECIFICATIONS	
<u>PART NO.</u>	
1 GENERAL REQUIREMENTS	1-1
2 SPECIAL CONSTRUCTION	2-1
3 EXCAVATION, BACKFILL AND SITEWORK	3-1
4 PIPES AND STRUCTURES	4-1
5 WATER MAINS AND APPURTENANCES	5-1
6 EARTHWORK AND INCIDENTALS FOR PAVEMENT	6-1
7 PORTLAND CEMENT CONCRETE PAVEMENT	7-1
8 HOT MIX ASPHALT PAVEMENT	8-1
9 PAVEMENT MARKING	9-1

NOTICE OF HEARING AND LETTING

NOTICE OF PUBLIC HEARING ON PROPOSED PLANS AND SPECIFICATIONS,
PROPOSED FORM OF CONTRACT AND ESTIMATE OF COST FOR CONSTRUCTION
OF MAIN STREET INTERSECTION AND SIDEWALK IMPROVEMENTS FOR THE CITY OF
WEST BRANCH, IOWA, AND THE TAKING OF BIDS THEREFOR

Notice is hereby given that the City Council of West Branch, Iowa will meet in the Council Chambers at the City Library, 110 North Poplar Street, West Branch, Iowa, on the 2nd day of May, 2016 at 7:00 p.m. at which time a hearing will be held and said Council proposes to adopt plans, specifications, form of contract and estimate of cost for the construction of the Main Street Intersection and Sidewalk Improvements and work incidental thereto for said City.

Sealed proposals will be received by the City Clerk of the City of West Branch, Iowa, at City Hall, 110 North Poplar Street, West Branch, Iowa, until 2:00 p.m. on the 12th day of May, 2016, for the construction of Main Street Intersection and Sidewalk Improvements as described in the plans and specifications therefor, now on file in the office of the City Clerk. Proposals will be opened and the amount of the bids announced by the City Clerk at the time and date specified above. Proposals will be acted upon by said City at the May 16th City Council Meeting or at such later time and place as then may be fixed.

The location of the work to be done and the kinds and sizes of materials proposed to be used are as follows:

MAIN STREET INTERSECTION AND SIDEWALK IMPROVEMENTS

Construct Main Street Intersection and Sidewalk Improvements including all labor, equipment, and materials necessary for approximately 1,042 square yards of pavement and sidewalk removal, 493 square yards of 4" PCC sidewalk, HMA sidewalk, 198 square yards of 7" PCC pavement, 38 linear feet of storm sewer, pavement markings, retaining walls, fixture adjustments, hydrant relocation, excavation, traffic control, seeding, and associated work.

All work and materials are to be in accordance with the proposed plans, specifications, form of contract and estimate of cost now on file in the office of the City Clerk of West Branch, Iowa, and by this reference made a part thereof as though fully set out and incorporated herein.

At said hearing, the City Council will consider the proposed plans, specifications, form of contract and estimate of cost for the project, the same now being on file in the office of the City Clerk, reference to which is made for a more detailed and complete description of the proposed improvements, and at said time and place the said Council will also receive and

consider any objections to said plans, specifications and form of contract or to the estimate cost of said improvements made by any interested party.

All proposals and bids in connection therewith shall be submitted to the City Clerk of said City on or before the time herein set for receiving bids. All proposals shall be made on official bidding blanks furnished by the City, and any alternations in the official form of proposal will entitle the Council, at its option, to reject the proposal involved from consideration. Each proposal shall be sealed and plainly identified.

Each proposal shall be made out on a blank form furnished by the municipality and must be accompanied in a sealed envelope by either (1) a certified or cashier's check drawn on a solvent Iowa bank or a bank chartered under the laws of the United States or a certified share draft drawn on a credit union in Iowa or chartered under the laws of the United States, in an amount equal to five percent (5%) of the bid, or (2) a bid bond executed by a corporation authorized to contract as a surety in the State of Iowa, in the penal sum of five percent (5%) of the bid.

The bid security should be made payable to the CITY OF WEST BRANCH, IOWA. The bid security must not contain any conditions either in the body or as an endorsement thereon. The bid security shall be forfeited to the City as liquidated damages in the event the successful bidder fails or refuses to enter into a contract within 10 days after the award of contract and post bond satisfactory to the City insuring the faithful fulfillment of the contract and the maintenance of said work, if required, pursuant to the provisions of this notice and other contract documents. Bidders shall use the bid bond form bound in the specifications.

By virtue of statutory authority, preference will be given to products and provisions grown and coal produced within the State of Iowa, and to Iowa domestic labor, to the extent lawfully required under Iowa Statutes.

The City Council reserves the right to reject any or all bids and to waive informalities or technicalities in any bid and to accept the bid which it deems to be in the best interest of the City.

The Council reserves the right to defer acceptance of any proposal for a period not to exceed thirty (30) calendar days from the date of Hearing and Letting.

The successful bidder will be required to furnish a bond in an amount equal to one hundred percent (100%) of the contract price, said bond to be issued by a responsible surety approved by the City Council and shall guarantee the faithful performance of the contract and the terms and conditions therein contained and shall guarantee the prompt payment for all materials and labor and protect and save harmless the City from claims and damages of any kind caused by the operations of the Contractor, and shall guarantee

the work against faulty workmanship and materials for a period of four (4) years after its completion and acceptance by the City Council.

The work under the contract shall commence within ten (10) days after date set forth in written Notice to Proceed but no sooner than June 1, 2016. All work shall be completed by July 15, 2016, subject to any extensions of time which may be granted by the City Council.

Liquidated damages in the amount of Five Hundred Dollars (\$500.00) per consecutive calendar day will be assessed for each day that work shall remain uncompleted after the end of the contract period, with due allowance for extensions of the contract period due to conditions beyond the control of the Contractor.

Payment to the Contractor for said improvements will be made in cash derived from the proceeds of the issuance and sale of such bonds and/or from such cash funds of the City as may be legally used for said purposes. Any combination of the above methods of payment may be used at the discretion of the City Council.

Payment to the Contractor will be on the basis of monthly estimates equivalent to ninety-five percent (95%) of the contract value of the work completed and payments made to material suppliers for materials ordered specifically for the project or delivered to the site during the preceding calendar month. Estimates will be prepared on the last day of each month by the Contractor, subject to the approval of the Engineer, who will certify to the City for payment each approved estimate on or before the tenth (10th) day of the following month. Such monthly payments shall in no way be construed as an act of acceptance for any part of the work partially or totally completed. Upon completion of the work and its acceptance by the Council, the Contractor will be paid an amount which, together with previous payments, will equal ninety-five percent (95%) of the contract price of the contract. Final payment of the remaining five percent (5%) will be made not less than thirty-one (31) days after completion and acceptance by resolution of the City Council of the completed contract, subject to the conditions and in accordance with the provisions of Chapter 573 of the Code of Iowa, as amended. No such partial or final payments will be due until the Contractor has certified to the City that the materials, labor and services involved in each estimate have been paid for in accordance with the requirements stated in the specifications.

The City will issue a sales tax exemption certificate applicable for all materials purchased for the project.

Plans and specifications governing the construction of the proposed improvements, and also the prior proceedings of the City Council referring to and defining said proposed improvements are hereby made a part of this notice and the proposed contract by reference and the proposed contract shall be executed in compliance therewith.

Notice of Hearing and Letting

Copies of said plans and specifications are now on file in the office of the City Clerk, for examination by bidders. Copies may be obtained from TECHNIGRAPHICS, 415 Highland Avenue, Suite 100, Iowa City, Iowa 52240. Contact Jill Chambers at 319-354-5950 or email jillc@rapidsrepro.com. A refundable deposit of \$30 is required. Please make checks to Veenstra & Kimm, Inc. Mail said deposit checks to Technigraphics, 415 Highland Avenue, Suite 100, Iowa City, Iowa 52240, Attn: Jill Chambers. Upon receiving deposit check, plans and specifications will be mailed out. When plans and specifications are returned in good condition within 14 days of the award date of the project, deposit checks will be returned.

This notice is given by order of the Council of the City of WEST BRANCH, Iowa.

CITY OF WEST BRANCH, IOWA

Roger Laughlin, Mayor

ATTEST:

Matt Muckler, City Administrator

INSTRUCTIONS TO BIDDERS

MAIN STREET INTERSECTION AND SIDEWALK IMPROVEMENTS WEST BRANCH, IOWA

INDEX

- | | |
|------------------------------|--|
| 1. DEFINITION OF TERMS | 11. CONTRACT TERMINATION |
| 2. CONTRACT DOCUMENTS | 12. TAXES |
| 3. METHOD OF BIDDING | 13. PREFERENCE FOR LABOR AND MATERIALS |
| 4. QUALIFICATIONS OF BIDDERS | 14. PAYMENT |
| 5. SUBMISSION OF BIDS | 15. APPROVAL OF MATERIALS |
| 6. EVALUATION OF BIDS | 16. PERIOD OF GUARANTEE AND BOND |
| 7. WITHDRAWAL OF BIDS | 17. DESCRIPTION OF SCOPES |
| 8. BID SECURITY | |
| 9. EXAMINATION OF WORK | |
| 10. EXECUTION OF CONTRACT | |

1. DEFINITION OF TERMS

- A. "Owner", and "City" shall mean the City of West Branch, Iowa, acting through the City Council or an authorized representative of the City Council.
- B. "Person" shall mean any individual, partnership, society, association, joint stock company, corporation, estate, receiver, trustee, assignee or referee, whether appointed by a court or otherwise, and any combination of individuals.
- C. "Bidder" shall mean any person who submits a proposal to furnish the work described in the Contract Documents.
- D. "Contractor" shall mean the person with whom the Owner may enter into contract for the execution of the work specified.
- E. "Subcontractor" shall mean the person supplying materials, labor, equipment, and appurtenances for the work, such person having contractual relations with the Contractor, but not with the Owner.
- F. "Engineer" shall mean VEENSTRA & KIMM, INC., Coralville, Iowa.
- G. "Standard Drawings" shall mean construction detail drawings bound with these specifications.

- H. "Work" shall mean the work to be done and the equipment, supplies and materials to be furnished under the contract, unless some other meaning is indicated by the context.
- I. "Station", "Sta." shall mean one hundred (100) linear feet measure.

2. CONTRACT DOCUMENTS

- A. Contract Documents, sometimes referred to as the "plans and specifications", shall mean and include the following parts as used herein:
 - 1. Notice of Hearing and Letting
 - 2. Instructions to Bidders
 - 3. Proposal
 - 4. Contract
 - 5. Bond
 - 6. General Conditions
 - 7. Special Conditions
 - 8. Plans List
 - 9. Detailed Specifications
 - 10. Plans listed in the Specifications
 - 11. Numbered addenda issued to the foregoing.

3. METHOD OF BIDDING

- A. Bidders shall submit unit and lump sum prices for work covered by the plans and specifications. Prices shall cover complete work and include all costs incidental thereto, unless indicated otherwise.
- B. Bids will be computed using quantities shown on Proposal. Where unit price bids are called for, quantities are approximate and only for comparison of bids. Engineer retains right to change location, quantities and combination of units be required during progress of construction. Compensation due Contractor will be computed on basis of final quantities of completed work.
- C. In the event of discrepancies between unit prices and unit price extensions listed in bidder's proposal, unit prices shall govern and unit price extensions shall be corrected, as necessary, for agreement with unit prices. The total price will be determined on the basis of corrected extensions of the unit price.
- D. Unit prices for payment items included in the specifications, but not listed in the Proposal, will be negotiated, if needed.

- E. Bidder shall submit bid for Project Scope 1 and Project Scope 2; prices for identical bid items in different project scope proposals may differ; Owner will make award of contract for project scope selected which is in the best interest of the Owner; Owner will select one project scope design; selection of project scope is at sole discretion of Owner; Owner is not obligated to select project scope with lowest overall bid; award of contract will be made to lowest responsible bidder submitting lowest acceptable bid for selected project scope

4. QUALIFICATIONS OF BIDDERS

- A. Bidders shall be prepared to satisfy Owner as to integrity, experience, adequacy of equipment and personnel, and financial ability to perform work specified.
- B. If successful bidder is a non-Iowa corporation, he shall submit proof to Owner prior to execution of contract that he has been authorized by Secretary of State to do business in Iowa.

5. SUBMISSION OF BIDS

- A. Bidders shall submit the Proposal stamped "Official Bid" and the Proposal stamped "Engineer's Copy". The Proposal stamped "Official Bid" is considered the original Proposal and shall be used for bidding. The copy of the Proposal stamped "Engineer's Copy" is for the use of the Engineer. The copy of the Proposal stamped "Bidder's Copy" is for the use of the Bidder. Submit in a sealed envelope. Envelope shall bear return address of the bidder and shall be addressed as follows:

To:

City Clerk
City of West Branch
110 Poplar Street
West Branch, IA 52358

Proposal for:

Main Street Intersection and Sidewalk
Improvements

- B. Bids shall be signed by a legally authorized representative of the bidder.
- C. Bidders shall submit the Bidder Status Form with the Proposal.
- D. Bidders shall submit the specified bid security with the Proposal.

6. EVALUATION OF BIDS

- A. Award of contract will be made on the lowest, responsive, responsible bid that is in the best interest of the City of West Branch.
- B. Time of completion of the work, delivery dates, experience, and responsibility of the bidder will be considered in determining which bid is in the Owner's best interests.
- C. Low bid will be determined on basis of lowest responsive bid from responsible bidder based on project scope selected by the City.

7. WITHDRAWAL OF BIDS

- A. A bidder may withdraw his bid at any time prior to scheduled closing time for a receipt of bids, but no bid shall be withdrawn for a period of 30 calendar days from the date of receiving bids.

8. BID SECURITY

- A. Each bid shall be accompanied by bid security in the form and amount set out in the Notice of Hearing and Letting.
- B. Bid security shall be enclosed in the sealed envelope with the bid or in a separate sealed envelope.
- C. The bid security shall be forfeited and become the property of the Owner in case the Bidder fails or refuses to enter into contract and to furnish bond within 10 calendar days after his proposal shall have been accepted.
- D. Bid security of the unsuccessful bidders will be returned as soon as the successful bidder is determined or within 30 calendar days, whichever is sooner; bid security of successful bidder will be returned upon execution of contract and furnishing of bond.
- E. Bidders shall use bid bond form included with specifications.

9. EXAMINATION OF WORK

- A. Bidders shall familiarize themselves with the specifications and with all conditions which will affect construction. It will be assumed that bidders have

made a personal examination of the job and the physical conditions affecting the work.

10. EXECUTION OF CONTRACT

- A. The successful bidder shall enter into a written contract with the Owner, within 10 days after acceptance of his proposal on the forms included with these specifications, for the performance of the work awarded to him.
- B. The contract, when executed, shall be deemed to include the entire agreement between the parties hereto, and the Contractor shall not claim any modification thereof resulting from any representation or promise made at any time by any representative of the Owner or any other person.

11. CONTRACT TERMINATION

- A. Provisions of law, as contained in Chapter 573A of the Code of Iowa shall apply to and be a part of this contract. Chapter 573A provides for termination of contracts for construction of public improvements when construction or work thereon is stopped because of a national emergency. The provisions of Chapter 573A shall be binding upon all parties thereto, including subcontractors and sureties upon any bond given or filed in connection therewith.

12. TAXES

- A. The City will issue a sales tax exemption certificate for all materials purchased on the project. The City will issue the appropriate tax exemption certificates and authorization letters to the Contractor and all subcontractors completing work on the project. Tax exemption certificates are applicable only for the specific project for which the tax exemption certificate is issued.
- B. Contractor shall provide a listing to the City identifying all appropriate subcontractors qualified for use of the tax exemption certificate. Contractor and subcontractors may make copies of the certificate and provide, to each supplier providing construction material, a copy of the tax exemption certificate.
- C. Successful bidder is subject to payment of Iowa income tax on income from this work in amounts prescribed by law. If successful bidder is a non-Iowa partnership, individual or association, he shall furnish evidence prior to execution of contract, that bond or securities have been posted with the Iowa Department of Revenue in the amount required by law.

13. PREFERENCE FOR LABOR AND MATERIALS

- A. By virtue of statutory authority, preference will be given to products and provisions grown and coal produced within the State of Iowa, and to Iowa domestic labor, to the extent lawfully required under Iowa Statutes; provided that the award of contract will be made to the lowest responsible bidder submitting the lowest responsive bid.
- B. The Iowa Reciprocal Preference Act (SF2160) applies to the contract with respect to bidders who are not Iowa residents.
 - 1. In accordance with the requirements of the Iowa Department of Labor all bidders must submit a fully completed Bidder Status Form. The Bidder Status Form must be included with and is considered an essential attachment to the Quotation. Any Quotation that does not include a fully completed Bidder Status Form may result in the Quotation being determined non-responsive.

14. PAYMENT

- A. Payment will be made in accordance with the payment provisions set out in Notice of Hearing and Letting.
- B. Payment will be made on the basis of estimates prepared by Contractor and approved by Engineer, solely for the purpose of payment; approval by Engineer shall not be deemed approval of workmanship or materials.

15. APPROVAL OF MATERIALS

- A. Approval of substitutions of any materials or equipment other than that specified shall be obtained in writing from Engineer. Otherwise, it will be assumed Contractor will furnish materials or equipment specified.

16. PERIOD OF GUARANTEE AND BOND

- A. Contractor shall guarantee work for period of four (4) years from date of final acceptance as provided for in the Code of Iowa. Surety bond furnished by Contractor shall run for a like period.

17. DESCRIPTION OF SCOPES

- A. Project Scope 1: Construct Main Street Intersection and Sidewalk Improvements including all labor, equipment, and materials necessary for approximately 788 square yards of pavement and sidewalk removal, 500 square yards of 4" PCC sidewalk, HMA sidewalk, 198 square yards of 7" PCC pavement, 38 linear feet of storm sewer, pavement markings, retaining walls, fixture adjustments, hydrant relocation, excavation, traffic control, seeding, and associated work.

- B. Project Scope 2: Construct Main Street Intersection and Sidewalk Improvements except Thomas Street intersection and sidewalk from Thomas Street to 121 feet east including all labor, equipment, and materials necessary for approximately 610 square yards of pavement and sidewalk removal, 404 square yards of 4" PCC sidewalk, HMA sidewalk, 152 square yards of 7" PCC pavement, 38 linear feet of storm sewer, pavement markings, retaining walls, fixture adjustments, hydrant relocation, excavation, traffic control, seeding, and associated work.

PROPOSAL

MAIN STREET INTERSECTION AND SIDEWALK IMPROVEMENTS
WEST BRANCH, IOWA

Name of Bidder _____

Address of Bidder _____

To: City Council
City of West Branch
110 Poplar Street
West Branch, Iowa 52358

The undersigned bidder submits herewith bid security amounting to five percent (5%) of the total amount of the bid which shall become the property of the City of West Branch should the undersigned fail or refuses to execute a contract and to furnish bond as called for in the specifications within the time provided.

The undersigned bidder, having examined the Contract Documents, and having familiarized himself with the nature and location of the work to be done and the conditions under which the work will be performed, hereby proposes to provide the required labor, services and materials and to perform the work described in the specifications, and addenda __, __, __, __ and __, within the time and for the sum or sums stated hereinafter on attached proposal schedule, which proposal schedule is hereby made a part of this Proposal.

The undersigned bidder certifies that this proposal is made in good faith, without collusion or connection with any other person or persons bidding on the work.

The undersigned bidder states that this proposal is made in conformity with the specifications and agrees that in the event of any discrepancies or differences between any conditions of his proposal and the specifications prepared by VEENSTRA & KIMM, INC., that the provisions of the latter shall prevail.

Bidder _____

By _____

Title _____

PROPOSAL SCHEDULE

MAIN STREET INTERSECTION AND SIDEWALK IMPROVEMENTS

1. Project Scope 1: Construct Main Street Intersection and Sidewalk Improvements for the following unit and lump sum prices:

	<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Extended Price</u>
1.1	Mobilization	LS	1	\$ _____	\$ _____
1.2	Traffic Control	LS	1	_____	_____
1.3	Construction Staking	LS	1	_____	_____
1.4	Seeding	Acre	0.41	_____	_____
1.5	Remove HMA Sidewalk	SY	254	_____	_____
1.6	Remove Wood Hand Rail	LF	8	_____	_____
1.7	Remove & Reinstall Mailboxes	LS	1	_____	_____
1.8	Remove PCC Curb & Gutter	LF	139	_____	_____
1.9	Remove Pavement	SY	349	_____	_____
1.10	Remove PCC Sidewalk	SY	439	_____	_____
1.11	Remove Retaining Wall	LF	70	_____	_____
1.12	Field Fence (Remove & Replace)	LF	300	_____	_____
1.13	Grind Curb	LF	32	_____	_____
1.14	HMA Sidewalk	Tons	83	_____	_____
1.15	4" PCC Sidewalk	SY	493	_____	_____
1.16	7" PCC Pavement	SY	198	_____	_____
1.17	7" HMA Pavement	Tons	5	_____	_____
1.18	PCC Driveway w/ PCC Curb & Gutter	SY	105	_____	_____
1.19	PCC Driveway	SY	20	_____	_____
1.20	Modified Subbase	CY	48	_____	_____
1.21	Combined Retaining Wall-Sidewalk	SF	307	_____	_____
1.22	Modular Block Retaining Wall	SF	130	_____	_____
1.23	3/4" Crushed Rock or Stone	CY	9	_____	_____
1.24	Type B Concrete Stairs with Handrail	Ea.	2	_____	_____
1.25	Relocate Hydrant	Ea.	1	_____	_____
1.26	Raise Fixture	Ea.	2	_____	_____
1.27	15" RCP Pipe	LF	38	_____	_____
1.28	Slope Protection, Wood Excelsior	SQ	2	_____	_____
1.29	Detectable Warning	SF	160	_____	_____
1.30	Signs	Ea.	10	_____	_____
1.31	Painted Pav't Mark, Durable	Sta.	6.48	_____	_____

Proposal

<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Extended Price</u>
1.32 Topsoil, Salvage, Strip, and Spread	CY	214	\$ _____	\$ _____
1.33 Excavation CL 10	CY	450	_____	_____
1.34 Fill For Pedersen - NPS	CY	120	_____	_____
TOTAL BID				
(Items 1.1 – 1.34)			\$ _____	

2. Project Scope 2: Construct Main Street Intersection and Sidewalk Improvements for the following unit and lump sum prices:

<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Extended Price</u>
2.1 Mobilization	LS	1	\$ _____	\$ _____
2.2 Traffic Control	LS	1	_____	_____
2.3 Construction Staking	LS	1	_____	_____
2.4 Seeding	Acre	0.32	_____	_____
2.5 Remove HMA Sidewalk	SY	254	_____	_____
2.6 Remove Wood Hand Rail	LF	8	_____	_____
2.7 Remove & Reinstall Mailboxes	LS	1	_____	_____
2.8 Remove PCC Curb & Gutter	LF	139	_____	_____
2.9 Remove Pavement	SY	260	_____	_____
2.10 Remove PCC Sidewalk	SY	350	_____	_____
2.11 Remove Retaining Wall	LF	70	_____	_____
2.12 Field Fence (Remove & Replace)	LF	300	_____	_____
2.13 Grind Curb	LF	32	_____	_____
2.14 HMA Sidewalk	Tons	83	_____	_____
2.15 4" PCC Sidewalk	SY	397	_____	_____
2.16 7" PCC Pavement	SY	152	_____	_____
2.17 7" HMA Pavement	Tons	5	_____	_____
2.18 PCC Driveway w/ PCC Curb & Gutter	SY	69	_____	_____
2.19 PCC Driveway	SY	7	_____	_____
2.20 Modified Subbase	CY	40	_____	_____
2.21 Combined Retaining Wall-Sidewalk	SF	307	_____	_____
2.22 Modular Block Retaining Wall	SF	130	_____	_____
2.23 3/4" Crushed Rock or Stone	CY	9	_____	_____
2.24 Type B Concrete Stairs with Handrail	Ea.	2	_____	_____
2.25 Relocate Hydrant	Ea.	1	_____	_____
2.26 Raise Fixture	Ea.	2	_____	_____

Proposal

<u>Description</u>	<u>Unit</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>	<u>Extended Price</u>
2.27 15" RCP Pipe	LF	38	\$ _____	\$ _____
2.28 Slope Protection, Wood Excelsior	SQ	2	_____	_____
2.29 Detectable Warning	SF	140	_____	_____
2.30 Signs	Ea.	10	_____	_____
2.31 Painted Pav't Mark, Durable	Sta.	5.67	_____	_____
2.32 Topsoil, Salvage, Strip, and Spread	CY	164	_____	_____
2.33 Excavation CL 10	CY	250	_____	_____
2.34 Fill For Pedersen - NPS	CY	120	_____	_____
TOTAL BID				
(Items 2.1 – 2.34)			\$ _____	_____

3. The work will commence within ten (10) calendar days after the date set forth in written Notice to Proceed. All work on the project shall be completed as set out in the Notice of Hearing and Letting.

4. Liquidated damages in the amount of Five Hundred Dollars (\$500.00) per consecutive calendar day will be assessed for each day that the work shall remain uncompleted after the end of the contract period, with due allowance for extensions of the contract period due to conditions beyond the control of the Contractor.

Bidder Status Form

To be completed by all bidders

Part A

Please answer "Yes" or "No" for each of the following:

- Yes No My company is authorized to transact business in Iowa.
(To help you determine if your company is authorized, please review the worksheet on the next page).
- Yes No My company has an office to transact business in Iowa.
- Yes No My company's office in Iowa is suitable for more than receiving mail, telephone calls, and e-mail.
- Yes No My company has been conducting business in Iowa for at least 3 years prior to the first request for bids on this project.
- Yes No My company is not a subsidiary of another business entity or my company is a subsidiary of another business entity that would qualify as a resident bidder in Iowa.

If you answered "Yes" for each question above, your company qualifies as a resident bidder. Please complete Parts B and D of this form.

If you answered "No" to one or more questions above, your company is a nonresident bidder. Please complete Parts C and D of this form.

To be completed by resident bidders

Part B

My company has maintained offices in Iowa during the past 3 years at the following addresses:

Dates: ____ / ____ / ____ to ____ / ____ / ____ Address: _____

City, State, Zip: _____

Dates: ____ / ____ / ____ to ____ / ____ / ____ Address: _____

City, State, Zip: _____

Dates: ____ / ____ / ____ to ____ / ____ / ____ Address: _____

You may attach additional sheet(s) if needed. City, State, Zip: _____

To be completed by non-resident bidders

Part C

1. Name of home state or foreign country reported to the Iowa Secretary of State:

2. Does your company's home state or foreign country offer preferences to bidders who are residents? Yes No

3. If you answered "Yes" to question 2, identify each preference offered by your company's home state or foreign country and the appropriate legal citation.

You may attach additional sheet(s) if needed.

To be completed by all bidders

Part D

I certify that the statements made on this document are true and complete to the best of my knowledge and I know that my failure to provide accurate and truthful information may be a reason to reject my bid.

Firm Name: _____

Signature: _____ Date: _____

**You must submit the completed form to the governmental body requesting bids
per 875 Iowa Administrative Code Chapter 156.**

This form has been approved by the Iowa Labor Commissioner.

Worksheet: Authorization to Transact Business

This worksheet may be used to help complete Part A of the Resident Bidder Status form. If at least one of the following describes your business, you are authorized to transact business in Iowa.

- Yes No My business is currently registered as a contractor with the Iowa Division of Labor.
- Yes No My business is a sole proprietorship and I am an Iowa resident for Iowa income tax purposes.
- Yes No My business is a general partnership or joint venture. More than 50 percent of the general partners or joint venture parties are residents of Iowa for Iowa income tax purposes.
- Yes No My business is an active corporation with the Iowa Secretary of State and has paid all fees required by the Secretary of State, has filed its most recent biennial report, and has not filed articles of dissolution.
- Yes No My business is a corporation whose articles of incorporation are filed in a state other than Iowa, the corporation has received a certificate of authority from the Iowa secretary of state, has filed its most recent biennial report with the secretary of state, and has neither received a certificate of withdrawal from the secretary of state nor had its authority revoked.
- Yes No My business is a limited liability partnership which has filed a statement of qualification in this state and the statement has not been canceled.
- Yes No My business is a limited liability partnership which has filed a statement of qualification in a state other than Iowa, has filed a statement of foreign qualification in Iowa and a statement of cancellation has not been filed.
- Yes No My business is a limited partnership or limited liability limited partnership which has filed a certificate of limited partnership in this state, and has not filed a statement of termination.
- Yes No My business is a limited partnership or a limited liability limited partnership whose certificate of limited partnership is filed in a state other than Iowa, the limited partnership or limited liability limited partnership has received notification from the Iowa secretary of state that the application for certificate of authority has been approved and no notice of cancellation has been filed by the limited partnership or the limited liability limited partnership.
- Yes No My business is a limited liability company whose certificate of organization is filed in Iowa and has not filed a statement of termination.
- Yes No My business is a limited liability company whose certificate of organization is filed in a state other than Iowa, has received a certificate of authority to transact business in Iowa and the certificate has not been revoked or canceled.

BID BOND

KNOW ALL MEN BY THESE PRESENTS: That we, _____

_____ of _____ as Principal and _____

_____ of _____

as Surety, are held and firmly bound unto the City of West Branch, Iowa, hereinafter defined as Obligee, in the penal sum of five percent (5%) of the total amount of the bid (\$ _____), for which payment said Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents.

The condition of the above obligation is such that whereas the Principal has submitted to the City of West Branch, Iowa, a certain bid, in a sealed envelope, and hereby made a part hereof to enter into a contract in writing, for: Main Street Intersection and Sidewalk Improvements.

NOW THEREFORE, if the said bid by said Principal be accepted, and the Principal shall enter into a contract with the Obligee in accordance with the terms of such bid, and give such bond as may be specified in the contract documents with good and sufficient surety for the faithful performance of such contract, for the prompt payment of labor and material furnished in the prosecution thereof, and for the maintenance of said improvements as may be required therein, then this obligation shall become null and void or in the event of the failure of the Principal to enter such contract and give such bond, the Principal shall pay to the Obligee the full amount of the bid bond, together with court costs, attorney's fees, and any other expense of recovery.

Signed and sealed this _____ day of _____, 2016.

Principal

By _____
Contractor's Signature

Surety

By _____
Attorney-in-Fact

CONTRACT

THIS AGREEMENT, made and entered into this _____ day of _____, 2016, by and between the City of West Branch, Iowa, party of the first part, hereinafter referred to as the "Owner", and _____, party of the second part, hereinafter referred to as the "Contractor".

WITNESSETH: THAT WHEREAS, the Owner has heretofore caused to be prepared certain specifications and proposal blanks, dated the _____ day of _____, 2016, for Main Street Intersection and Sidewalk Improvements, under the terms and conditions therein fully stated and set forth, and,

WHEREAS, said specifications and proposal blanks accurately and fully describe the terms and conditions upon which the Contractor is willing to perform the work specified:

NOW, THEREFORE, IT IS AGREED:

1. That the Owner hereby accepts the proposal of the Contractor for the work, as follows:

2. That this contract consists of the following component parts which are made a part of this agreement and contract as fully and absolutely as if they were set out in detail in this contract:
 - A. Contract Documents, including:
 1. Notice of Hearing and Letting
 2. Instructions to Bidders
 3. Proposal
 4. Bond
 5. General Conditions
 6. Special Conditions
 7. Plans List
 8. Detailed Specifications
 9. Plans listed in the specifications.
 10. Numbered addenda issued to the foregoing.
 - B. This Instrument.
 - C. The above components are complementary and what is called for by one shall be as binding as if called for by all.
3. That payments are to be made to the Contractor in accordance with and subject to the provisions embodied in the documents made a part of this contract.
4. That this contract is executed in triplicate.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hand and seal the date first written above.

CONTRACTOR

CITY OF WEST BRANCH, IOWA

By _____

Mayor

Title _____

ATTEST:

ATTEST:

City Administrator

Title _____

BOND

KNOW ALL MEN: That we, _____,
of _____, hereinafter called the Principal, and
_____,
hereinafter called the surety, are held and firmly bound unto the City of West Branch,
Iowa, hereinafter called the Owner in the sum of _____
Dollars (\$ _____), for the payment whereof the Principal and Surety bind
themselves, their heirs, executors, administrators, successors and assigns, jointly and
severally, firmly, by these presents.

WHEREAS, the principal has, by means of a written Agreement dated _____,
2016, entered into a Contract with the Owner for Main Street Intersection and Sidewalk
Improvements, which Agreement includes a guarantee of all work against defective
workmanship and materials for a period of four (4) years from the date of final acceptance
of the work by the Owner, a copy of which Agreement is by reference made a part hereof;

NOW, THEREFORE, the condition of this Obligation is such that, if the Principal shall
faithfully perform the Contract on his part and shall fully indemnify and save harmless the
Owner from all costs and damage which he may suffer by reason of failure so to do and
shall fully reimburse and repay the Owner all outlay and expense which the Owner may
incur in making good any such default,

And Further, that if the Principal shall pay all persons who have contracts directly with the
Principal for labor or materials, failing which such persons shall have a direct right of
action against the Principal and Surety under this Obligation, subject to the Owner's
priority,

Then this Obligation shall be null and void, otherwise it shall remain in full force and
effect.

Provided, however, that no suit, action or proceeding by reason of any default whatever
shall be brought on this Bond after five (5) years from the date of final acceptance of the
work.

And Provided, that any alterations which may be made in the terms of the Contract, or in
the work to be done under it, or the giving by the Owner of any extension of time for the
performance of the Contract, or any other forbearance on the part of either the Owner or
the Principal to the other shall not in any way release the Principal and the Surety, or
either of them, their heirs, executors, administrators, successors or assigns from their
liability hereunder, notice to the Surety of any such alteration, extension or forbearance
being hereby waived.

And Further Provided, the Principal and Surety on this Bond hereby agree to pay all
persons, firms, or corporations having contracts directly with the Principal or with
subcontractors all just claims due them for labor performed or material furnished, in the
performance of the Contract on account of which this Bond is given, when the same are
not satisfied out of the portion of the contract price which the Owner shall retain until
completion of the improvements, but the Principal and Surety shall not be liable to said
persons, firms, or corporations unless the claims of said complaints against said portions of
the contract price shall have been established as provided by law.

The Surety on this Bond shall be deemed and held, any contract to the contrary notwithstanding, to consent without notice:

- a. To the extension of time to the Principal in which to perform the Contract.
- b. To changes in the plans, specifications, or Contract, when such changes do not involve an increase of more than twenty percent (20%) of the total contract price, and shall then be released only as to such excess increase.
- c. That no provision of this Bond or of any other contract shall be valid which limits to less than five (5) years from the date of final acceptance of the work the right to sue on this Bond for defects in workmanship or materials not discovered or known to the Owner at the time such work was accepted.

The Bond is executed in triplicate.

Signed and Sealed this ____ day of _____, 2016.

PRINCIPAL:

Contractor

Signature

Title

SURETY:

Surety Company

Signature, Attorney-in-Fact

Name of Attorney-in-Fact

Company Name

Company Address (Including Zip Code)

Company Telephone Number

GENERAL CONDITIONS

MAIN STREET INTERSECTION AND SIDEWALK IMPROVEMENTS WEST BRANCH, IOWA

INDEX

- | | |
|---|---|
| 1. CONTRACT DOCUMENTS | 17. TESTS |
| 2. SURETY BOND | 18. TIME |
| 3. CONTRACTOR'S RESPONSIBILITY | 19. DELAYS |
| 4. SUBCONTRACTS | 20. CHANGES |
| 5. CONTRACTOR'S EMPLOYEES | 21. EXTRA WORK |
| 6. PERMITS AND REGULATIONS | 22. OWNERSHIP OF MATERIALS |
| 7. PATENTS | 23. OTHER CONTRACTS |
| 8. GUARANTEE | 24. OWNER'S RIGHT TO DO WORK |
| 9. SHOP DRAWINGS | 25. OWNER'S RIGHT TO TERMINATE CONTRACT |
| 10. THE ENGINEER | 26. CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT |
| 11. PLANS AND SPECIFICATIONS | 27. PAYMENTS WITHHELD |
| 12. INTERPRETATION OF PLANS AND SPECIFICATIONS | 28. ACCEPTANCE AND FINAL PAYMENT |
| 13. DECISIONS BY ENGINEER | 29. SUSPENSION OF WORK |
| 14. WORKMANSHIP AND MATERIALS | 30. CLEANING UP |
| 15. ON-SITE REVIEW OR OBSERVATION | 31. HAZARDOUS MATERIALS |
| 16. RESIDENT ENGINEER AND/OR ENGINEER TECHNICIANS | 32. IOWA HAZARDOUS CHEMICAL RISKS RIGHT-TO-KNOW LAW |

1. CONTRACT DOCUMENTS

- A. All documents listed or identified as part of contract are each and all essential and component parts of agreement between Owner and Contractor.
- B. Contract Documents shall be signed in triplicate by Owner and Contractor.
- C. Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all. The intention of documents is to include all labor and materials, equipment and transportation necessary for proper execution of work. It is not intended that materials or work not covered by or properly inferable from any heading, branch, class or trade of the specifications shall be supplied unless distinctly noted. Materials or work described in words, which have a well known technical or trade meaning, shall be held to refer to such recognized standards.

2. SURETY BOND

A. Contractor shall furnish a good and sufficient surety bond in full amount of contract prior to signing contract. Surety bond shall guarantee faithful performance of all provisions of contract and payment of all bills and obligations arising from said contract. Should surety become irresponsible during time contract is in force, Owner may require additional and sufficient sureties. Contractor shall furnish said additional sureties to satisfaction of Owner within ten (10) days after written notice to do so. In default thereof, contract may be suspended as hereinafter provided.

3. CONTRACTOR'S RESPONSIBILITY

A. Contractor shall assume full responsibility for safekeeping of all materials and equipment and for all unfinished work until final acceptance by Owner. Materials and equipment which are damaged or destroyed from any cause shall be replaced at Contractor's expense.

B. Contractor shall indemnify and save harmless Owner against any liens filed for non-payment of Contractor's bills in connection with contract work. Contractor shall furnish Owner satisfactory evidence that all persons who have done work or furnished materials, equipment, or service of any type, under the contract have been fully paid prior to acceptance of work by Owner.

C. Contractor shall erect and maintain such barriers and lights as will prevent accidents as a consequence of its work. It shall indemnify and save harmless the Owner and its agents from all suits brought against Contractor for any injuries received or sustained by any person or persons by or through Contractor, its servants, or agents, in construction of work, or by or in consequence of any acts or omissions or negligence in performing contract work.

4. SUBCONTRACTS

A. Contractor shall not assign, sub-let or transfer the whole or any part of work herein specified without written consent of Owner. Assignment, sub-letting or transfer shall not relieve Contractor from its responsibilities set forth herein.

- B. Detailed specifications are separated into titled parts for convenience or reference and to facilitate letting of contracts and subcontracts. Such arrangement shall not obligate Engineer to establish limits on contracts between Contractors and subcontractors.

5. CONTRACTOR'S EMPLOYEES

- A. Contractor shall personally supervise its work or provide a capable superintendent satisfactory to Engineer. Superintendent shall be authorized to receive instructions from Engineer.
- B. Incompetent or incorrigible employees shall be dismissed by the Contractor or its representative when requested by Engineer. Such dismissed persons shall not be permitted to return to work without written consent of Engineer.
- C. Contractor shall give preference to local labor in execution of this contract, insofar as is practicable.

6. PERMITS AND REGULATIONS

- A. In execution of work specified herein, Contractor shall conform to regulations and ordinances of any governmental body which may apply in execution of specified work. Contractor shall obtain such permits and licenses as may be required for construction of work.

7. PATENTS

- A. All fees or royalties for patented inventions, equipment or arrangements used in construction or erection of work, or any part thereof, shall be included in contract price. Contractor shall protect and hold harmless Owner against any and all claims or litigation by reason of infringement of any patent rights on any materials, equipment of construction furnished by Contractor.

8. GUARANTEE

- A. Contractor shall guarantee all work against faulty workmanship and materials for the period specified after date of final acceptance of work by Owner unless otherwise set out in "SPECIAL CONDITIONS" or "INSTRUCTIONS TO BIDDERS." Contractor shall repair or replace any defective workmanship and materials in a manner acceptable to Owner, without expense to Owner, within ten (10) days after written notification by Owner of such defect. If said repairs or replacements are not made within ten (10) days, Owner may make said repairs or replacements and charge the cost to Contractor.

- B. Contractor shall provide Owner with a good and sufficient surety maintenance bond in the full amount of contract prior to signing contract. Maintenance bond shall run for the period specified from time of acceptance to protect Owner from faulty workmanship and materials as outlined in preceding paragraph.

9. SHOP DRAWINGS

- A. Contractor shall provide Engineer with drawings, data and information regarding materials or equipment specified, or as may be called for by Engineer, for its review, within a reasonable time after award of contract. After review, Engineer shall return to Contractor one copy within a reasonable time after receipt.
 - 1. Submit 5 copies of all shop drawing submittals.
- B. Fabrication and shipment of materials or equipment prior to Engineer's review of drawings, data and information mentioned above shall be at Contractor's risk.

10. THE ENGINEER

- A. Engineer shall make general observation of work as agent of Owner. Engineer's general observation shall not be construed that it shall direct or control operations of Contractor.

11. PLANS AND SPECIFICATIONS

- A. Engineer shall provide Contractor with 5 sets of plans and specifications after execution of contract. If additional plans and specifications are required, Contractor shall compensate Engineer for costs of printing.
- B. Engineer shall provide Contractor with additional and supplemental plans as may be required to show details of construction after approval of manufacturers' drawings and data on materials and equipment.
- C. Engineer will provide Contractor with such revised plans and specifications as may be required to show any authorized changes or extra work.

12. INTERPRETATION OF PLANS AND SPECIFICATIONS

- A. Plans and specifications shall be interpreted by Engineer. Its decision shall be final and binding on all parties concerned.

- B. Contractor will not be allowed to take advantage of errors or omissions in plans and specifications. Engineer will provide full instructions when errors or omissions are discovered.

13. DECISIONS BY ENGINEER

- A. Engineer shall make decisions, in writing, on claims between Contractor and Owner within a reasonable time after presentation. Such decisions shall be regarded as final except for appropriate legal recourse.

14. WORKMANSHIP AND MATERIALS

- A. All work done and all materials and equipment furnished by Contractor shall conform to plans and specifications. Competent labor and tradesmen shall be used on all work. Experienced manufacturers' representatives shall be used to supervise installation of equipment.
- B. In absence of detailed specifications in other sections, all materials shall conform to standards of American Society for Testing Materials.
- C. Wherever items of materials or equipment are specified by a manufacturer's name and type, or equal, it is the intent that materials or equipment of other manufacturers, equal in quality and performance, may be substituted. Such substitution may be made only with written authorization of Engineer.
- D. Wherever items of materials or equipment are specified by a manufacturer's name and type, or equal, and additional features of items are specifically required by specifications, additional features specified shall be provided whether or not they are normally included in standard manufacturer's items listed.
- E. Wherever items of materials or equipment are specified by a manufacturer's name and type, or equal, and specified items are or become obsolete and no longer available, Contractor shall provide acceptable equal items which are currently available at no change in contract price.
- F. When proposing "or equal" items or substitutions, Contractor shall furnish general arrangement drawings, full descriptive data, manufacturer's specifications and such performance data as required to satisfy Engineer that materials or equipment proposed are equal to that specified. Burden of proof of equality shall be responsibility of Contractor.

- G. Whenever items of materials or equipment are specified by a manufacturer's name and type and "or equal" is not listed, Contractor shall provide specified equipment without substitution, unless prior approval of Engineer is obtained for any substitution.
- H. Contractor shall abide by Engineer's decision when proposed substitutes of material or equipment are deemed to be unacceptable and in such an event Contractor shall furnish items of equipment or materials specified.
- I. Engineer reserves right to consider such factors as overall project arrangement, overall project cost, and similar factors in determining whether proposed substitutions will be acceptable.

15. ON-SITE REVIEW OR OBSERVATION

- A. All materials used and all work done by Contractor shall be subject at all times to review, observation, tests and approval by Engineer. Contractor shall furnish samples of materials for observation and tests as requested by Engineer. Contractor shall furnish any information required concerning nature or source of any proposed materials or equipment.
- B. Construction, fabrication and manufacture of equipment or materials specified herein may be observed by Engineer at plant or factory.
- C. Materials, equipment or work which do not satisfactorily meet specifications may be condemned by Engineer by written notice to Contractor. Condemned materials, equipment or work shall be promptly removed and replaced.
- D. Defective materials, equipment or work may be rejected by Engineer at any time prior to final acceptance by Owner even though said defective items may have been previously overlooked.

16. RESIDENT ENGINEER AND/OR ENGINEER TECHNICIANS

- A. Resident engineer and/or engineer technicians may be appointed by Engineer or Owner to ensure that work is performed in accordance with plans and specifications.
- B. Resident engineer and/or engineer technicians shall have authority to notify Contractor in writing of work which is not being properly performed. Contractor shall be liable for any work determined by Engineer as not being properly performed.

- C. Resident engineer and/or engineer technicians shall have no authority to permit deviation from plans and specifications and Contractor shall be liable for any deviations made without written order from Engineer.

17. TESTS

- A. Tests shall be performed by Contractor upon materials and equipment specified, to determine if the materials and equipment meet requirements of specifications, conditions of operation and guarantees of Contractor.
- B. Equipment shall be subject to factory tests specified herein. Certified evidence of tests shall be furnished when requested by Engineer.
- C. Tests shall be made in accordance with standards of American Society of Mechanical Engineers, Institute of Electrical and Electronic Engineers, American Society for Testing Materials, and other recognized standards.

18. TIME

- A. Contractor shall commence work within time specified and shall complete work within time specified in contract.

19. DELAYS

- A. Delays caused by injunction or legal actions, damages by elements, or other causes beyond control of Contractor (of which Owner shall be sole judge) shall entitle Contractor to a reasonable extension of time within which to complete work.
- B. Application for extension of time shall be made to Owner by Contractor and shall state reasons for request for extension of time.
- C. No extension of time shall be valid unless made in writing by Owner.
- D. Normal weather conditions shall not form the basis of request for extension of time. Abnormal weather conditions shall form basis of request for extension of time only to the delay in excess of that resulting from normal weather conditions.

20. CHANGES

- A. Engineer shall have the right to make changes in location and quantities of work as may be deemed advisable with consent of Owner and without notice to sureties on Contractor's bond.
- B. No change shall be made under this paragraph which will increase or decrease total contract amount more than twenty percent (20%) of original contract price and no changes shall be made in plan of improvement that would necessitate additional or different construction processes and equipment.
- C. Amount due Contractor shall be adjusted for changes in following manner:
 - 1. Where unit prices have been bid, these unit prices shall be used to compute adjustment in compensation.
 - 2. Where no such unit prices have been bid, Engineer and Contractor shall negotiate a reasonable adjustment in Contractor's compensation. Limitations on compensation in B. of "21. EXTRA WORK" shall apply to changes where compensation is negotiated.
 - 3. No changes shall be authorized unless they are shown on revised plans or in written instructions of Engineer.
 - 4. Authorized changes which require additional time to complete shall entitle Contractor to proportionate extension of time to completion which shall be determined by Engineer.

21. EXTRA WORK

- A. Required extra work not specified under this contract shall be done at an agreed price satisfactory to Contractor and Owner, or on basis of actual cost of work plus not more than ten percent (10%) for Contractor's overhead and profit. Actual cost shall include expense for equipment, materials, and labor and shall include no overhead items or profit. Where extra work is done by a subcontractor, with approval of Owner, there may be included in Contractor's actual cost, ten percent (10%) for subcontractor's profit.
- B. The term "extra work" as used herein shall not be construed to apply to changes described in "20. CHANGES".
- C. No compensation shall be allowed Contractor for extra work unless such work has been authorized in writing by Engineer and approved by Owner.
- D. Contractor shall submit a statement of costs to Engineer for approval when extra work is performed on an actual cost plus basis. After such a statement is approved, Engineer shall certify its correctness to Owner.

22. OWNERSHIP OF MATERIALS

- A. All materials and work covered by partial payments shall become sole property of Owner, but this provision shall not be construed as relieving Contractor from sole responsibility for all materials and work for which payments have been made, for restoration of damaged work, or as a waiver of rights of Owner to require fulfillment of all terms of contract.

23. OTHER CONTRACTS

- A. Owner reserves right to let other contracts in connection with this work. Contractor shall afford other contractors reasonable opportunity for introduction and storage of their materials and execution of their work, and shall properly connect and coordinate its work with theirs.
- B. When proper execution of Contractor's work depends upon work of another contractor, it shall inspect other work and report any defects to Engineer. Contractor's failure to inspect and report shall constitute an acceptance of other contractor's work except for defects which may develop in work after completion.
- C. To ensure proper execution of its subsequent work, Contractor shall measure work already in place and shall at once report to the Engineer any discrepancy between the executed work and drawings.

24. OWNER'S RIGHT TO DO WORK

- A. If Contractor neglects to prosecute work properly or fails to perform any provision of this contract, Owner, after three (3) days' written notice to Contractor, may, without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor, provided, however, that Engineer shall approve both such action and amount charged to Contractor.

25. OWNER'S RIGHT TO TERMINATE CONTRACT

- A. Owner, upon certification of Engineer that there is sufficient cause to justify termination of contract, may, without prejudice to any other right or remedy, and after giving Contractor seven (7) days' notice may terminate employment of Contractor for any of following reasons:
 - 1. Contractor makes a general assignment for benefit of its creditors, or if adjudged a bankrupt.
 - 2. Receiver is appointed on account of Contractor's insolvency.

3. Contractor persistently or repeatedly fails or refuses, except when extension of time to complete is granted, to provide enough skilled workmen or proper materials.
 4. Contractor fails to make prompt payment to subcontractors for material or labor.
 5. Contractor persistently disregards laws and ordinances or instructions of Engineer.
 6. Contractor violates a provision of contract.
- B. If Owner terminates employment of Contractor, it shall take possession of premises and all materials, tools and appliances thereon. It shall finish work by whatever method it may deem expedient. In such case Contractor shall not be entitled to receive any further payment until work is finished.
- C. If unpaid balance of contract price exceeds expense of finishing the work including compensation for additional managerial and administrative services, excess shall be paid to Contractor. If expense exceeds unpaid balance, Contractor shall pay difference to Owner. Expense incurred by Owner as herein provided, and damage incurred through Contractor's default, shall be certified by Engineer.

26. CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

- A. If Engineer fails to issue any certificate for payment within fifteen (15) days after it is due, or if Owner fails to pay to Contractor within thirty (30) days of its maturity and presentation, any sum certified by Engineer, then Contractor may, upon seven (7) days simultaneous written notice to Owner and Engineer, stop work or terminate this contract. If Contractor elects to stop work by written notice, work shall be resumed promptly upon payment by Owner. If Contractor elects to terminate this contract by written notice it shall recover from Owner payment for all work executed to date of notice and any loss sustained upon any plant or materials plus a reasonable profit.

27. PAYMENTS WITHHELD

- A. Engineer may withhold or nullify the whole or a part of payment certificate, on account of subsequently discovered evidence, to such extent as may be necessary to protect Owner from loss on account of:
1. Defective work not remedied.
 2. Claims filed or reasonable evidence indicating probable filing of claims.
 3. Failure of Contractor to make payments properly to subcontractors or for materials or labor.
 4. A reasonable doubt that contract can be completed for balance then unpaid.

5. Damage to another contractor.
6. Claims of Owner for liquidated damages.

B. Payments shall be made for amounts withheld when above grounds are removed.

28. ACCEPTANCE AND FINAL PAYMENT

A. When work has been satisfactorily completed, Engineer will certify Contractor's final estimate stating that work has been completed in accordance with terms and conditions thereof with qualifications, if any, as stated. Balance found to be due Contractor according to the terms of payment shall be paid by Owner as provided in contract, provided, however, that any state laws which designate manner of final payment shall be followed in lieu of manner of final payment outlined above.

B. Making and acceptance of final payment shall constitute a waiver of all claims by Owner, except those arising from unsettled liens, from faulty work or materials appearing after final payment or from requirements of the specifications, and of all claims by Contractor, except those previously made and still unsettled.

29. SUSPENSION OF WORK

A. Owner may suspend the work, or any part thereof, at any time, by giving ten (10) days' written notice to Contractor. The work shall be resumed by Contractor within ten (10) days after date fixed in written notice from Owner to Contractor to do so.

B. If work, or any part thereof, shall be suspended and if Owner does not give written notice to Contractor to resume work within one (1) year of date of suspension, Contractor may abandon suspended portion of work. Contractor will be entitled to estimates and payments for all work done on the portions so abandoned, if any.

30. CLEANING UP

A. Contractor shall keep premises free from accumulations of waste material or rubbish caused by its employees or work. After completion of work it shall remove all its rubbish and all its tools, scaffolding and surplus materials from work site. It shall leave its work "broom clean" or its equivalent, unless more exactly specified. In case of dispute the Owner may remove rubbish and charge costs to Contractor as Engineer shall determine to be just.

31. HAZARDOUS MATERIALS

- A. The use of Asbestos Construction Building Materials (ACBM) is specifically prohibited. The Contractor, suppliers, and subcontractors shall warrant that all products used are asbestos free. In the event that a specified product contains asbestos, it shall be the responsibility of the Contractor to notify the Owner so that an appropriate substitution can be made in a timely manner so as not to delay the project.
- B. The Contractor shall provide the Owner a certificate that warrants that no materials, products, items or equipment contains any asbestos upon completion of the work of this Contract. If asbestos is found to exist in any of the materials, products, items or equipment provided as part of this Contract, the Contractor shall be financially responsible for all costs resulting from removal in accordance with an Owner approved method and replacement of an asbestos free condition to finished drawings and specifications. The financial responsibility of the Contractor shall not terminate with the end of the surety maintenance bond period, but shall continue through the life of the facility.

32. IOWA HAZARDOUS CHEMICAL RISKS RIGHT-TO-KNOW LAW

- A. Owner's responsibility:
 - 1. Owner shall provide to the Contractor a list of known hazardous chemicals within the project site to which their employees may be exposed and suggestions for appropriate protective measures.
- B. Contractor's responsibility:
 - 1. Contractor shall inform his/her employees of the Iowa Hazardous Chemical Risks Right-to-Know Law.
 - 2. Contractor shall provide to the Owner a list of known hazardous chemicals that they anticipate will be used on site as well as all pertinent information relating to employee protection. Contractor's Material Safety Data Sheets (MSDS) shall be available to Owner upon request.

SPECIAL CONDITIONS

INDEX

- | | |
|---|--|
| 1. INTENT | 8. INSURANCE BY CONTRACTOR |
| 2. LOCATION | 9. EMPLOYMENT PRACTICES |
| 3. RIGHT-OF-WAY | 10. INSPECTION BY STATE AND
FEDERAL PERSONNEL |
| 4. INTERRUPTIONS TO SERVICE | 11. HISTORICAL/ARCHAEOLOGICAL
FINDS |
| 5. SERVICE FACILITIES | 12. LINE AND GRADE |
| 6. STORAGE OF MATERIALS AND
EQUIPMENT | 13. ORDER OF CONSTRUCTION |
| 7. CONSTRUCTION FACILITIES BY
CONTRACTOR | |

1. INTENT

A. To supplement the provisions of the GENERAL CONDITIONS by outlining special conditions applicable to project.

2. LOCATION

A. Work is located on Main Street at various intersections.

B. Transportation facilities:

1. Interstate 80.
2. County Highways X30 and F44.

3. RIGHT-OF-WAY

A. Owner will provide easements for construction on private lands.

B. Contractor will be provided list of construction easement widths.

C. Confine movements of equipment and personnel, storage of materials, excavation, spoil banks, and all other construction operations within right-of-way and easements provided.

D. Contractor will be held liable by City and adjacent property owners for damages outside right-of-way and easements; failure of Engineer to warn Contractor about incidence of trespassing does not relieve liability.

4. INTERRUPTIONS TO SERVICE

- A. Existing utilities shall remain in substantially continuous operation during construction.
- B. Do work which will interrupt utility service only at times approved by Engineer; hold interruptions of service to a minimum.

5. SERVICE FACILITIES

- A. Water, electricity, compressed air, and other services shall be furnished by Contractor to meet his own requirements.

6. STORAGE OF MATERIALS AND EQUIPMENT

- A. Limited storage space for materials and equipment will be available at project sites and along easements.
- B. Storage areas shall be subject to approval of Owner and Engineer.
- C. Store materials and equipment in manner which will preserve their quality and fitness.

7. CONSTRUCTION FACILITIES BY CONTRACTOR

- A. Provide telephone at which Contractor can be reached by Owner or Engineer at all times during the working day.
- B. Provide suitable storage buildings necessary for proper storage of materials and equipment.
- C. Location of all construction facilities, subject to approval by Engineer; remove all construction facilities upon completion of work.
- D. Provide and maintain suitable sanitary facilities for construction personnel for duration of work; remove upon completion of work.
- E. Provide fence, barricades, and/or watchmen to prevent access of unauthorized persons to site where work is in progress.
- F. Provide telephone number(s) at which responsible representative of Contractor can be contacted evenings, weekends, and holidays in event of emergency.

8. INSURANCE BY CONTRACTOR

- A. Provide and maintain insurance throughout construction period in the following minimum amounts:
1. Workmen's compensation and occupational disease insurance in accordance with laws of the State of Iowa covering all employees who perform any obligations assumed under the contract.
 2. Public liability and property damage liability insurance covering all operations under the contract; limits of bodily injury or death not less than \$500,000 for one person and \$1,000,000 for each accident; for property damage, not less than \$250,000 for each accident and \$500,000 aggregate for accidents during the policy period.
 3. Automobile liability insurance on all self-propelled vehicles used in connection with the contract, whether owned, non-owned, or hired; public liability limits of not less than \$500,000 for one person and \$1,000,000 for each accident; property damage limit of \$500,000 for each accident.
- B. Provide addendum language attached to the Certificate of Insurance which preserves the Owner's immunities. The addendum language is as follows:

"The Companies affording coverage and the Additional Insured, City of West Branch, Cedar County, Iowa expressly agree and state that the purchase of this policy of insurance by the insured and the listing of the City of West Branch as an Additional Insured hereunder to not waive any of the defenses of governmental immunity available to the Additional Insured under Iowa Code Section 670.4 as it now exists and as it may be amended from time to time.

The Companies and the Additional Insured further agree that this policy of insurance shall cover only those claims not subject to the defense of governmental immunity under Iowa Code Section 670.4 as it now exists and as it may be amended from time to time.

The Additional Insured shall be responsible for asserting any defense of governmental immunity, and may do so at any time and shall do so upon the timely written request of the Companies.

The Companies shall not deny coverage under this policy and the Companies shall not deny any of the rights and benefits accruing to the Insured or the Additional Insured under this policy for reasons of governmental immunity unless and until a court of competent jurisdiction has ruled in favor of the defense(s) of governmental immunity asserted by the Additional Insured."

Special Conditions

- C. Owner shall have right at any time to require public liability insurance and property damage liability insurance greater than required in above paragraphs. Additional premiums payable solely as result of such additional insurance shall be added to bid price.
- D. Furnish certificates of insurance to Engineer made in favor of Owner showing compliance with foregoing requirements.
- E. Owner shall be listed as an additional insured by endorsement.
- F. Notification in event of liability damage: upon occurrence of any event, the liability of which is herein assumed, Contractor agrees to forthwith notify Owner, in writing, such happenings, which notice shall forthwith give details as to the happening, cause as far as can be ascertained, estimate of loss or damage done, names of witnesses, if any, and stating amount of any claim.

9. EMPLOYMENT PRACTICES

- A. Contractor, or his subcontractors, shall not employ any person whose physical or mental condition is such that his employment will endanger the health and safety of himself or others employed on the project.

10. INSPECTION BY STATE AND FEDERAL PERSONNEL

- A. Provide full access and cooperation for inspection of work by representatives of participating State and Federal agencies.

11. HISTORICAL/ARCHAEOLOGICAL FINDS

- A. If, during course of construction, evidence of deposits of historical or archaeological interest is found, cease operations affecting find and notify Owner who shall notify Iowa Department of Natural Resources and Director and Historic Preservation Officer, State Historical Department, East 12th and Grand, Des Moines, Iowa 50319. No further disturbance of deposits shall ensue until notification by Owner that work may proceed. Owner will issue notice to proceed only after state official has surveyed find and made determination to Department of Natural Resources and Owner. Compensation to Contractor, if any, for lost time or changes in construction to avoid find, determined in accordance with changed conditions or change order provisions of specifications.

12. LINE AND GRADE

- A. Construct to line and grades shown on plans or as specified hereinafter.
- B. Engineer to establish required benchmarks and control points as shown on plans.
- C. Contractor will perform detailed survey and staking for location, elevation, and grade of construction.
- D. These conditions supersede conflicting provisions of GENERAL CONDITIONS.
- E. Check all detailed surveys and stakeouts; assume full responsibility for accuracy and correctness thereof.
- F. Contract shall provide, without extra compensation, all men, and necessary tools to make all test holes and exploration, at any time, for purpose of determining location of existing utilities beneath ground surface which might conflict with work of Contractor.
- G. Contractor shall preserve all monuments, reference points, stakes, and bench marks set by Engineer. In case of destruction by Contractor's negligence or carelessness, he will be charged with resulting expense of replacement, and responsibility for any mistakes or loss of time caused thereby.

13. ORDER OF CONSTRUCTION

- A. Provide Engineer with proposed schedule of construction showing dates of starting and completing various portions of work.
- B. Contractor shall establish schedule of working hours for construction, subject to approval of Engineer.
- C. Schedule construction to minimize use of street barricades and detours; clean up each portion of work as it is completed.
- D. Adequate protection shall be provided for pedestrians. If a section of sidewalk is closed, appropriate signing and barricading shall be utilized; signing and barricading shall remain in place until sidewalk is reopened for pedestrian use.

PLANS LIST

MAIN STREET INTERSECTION AND SIDEWALK IMPROVEMENTS
WEST BRANCH, IOWA

1. PLANS

A. The work on Main Street Intersection and Sidewalk Improvements shall conform with the following drawings (bound separately) and Standard Drawings which constitute the "plans" and are an integral part of the Contract Documents.

<u>Title</u>	<u>Drawing Number</u>	<u>Revision Number</u>
Index & Title Sheet	1	
Details Sheets	2-8	
Survey Control Points Sheets	9-10	
Quantities & Estimate Reference	11	
Earthwork Table	12	
Demolition Plan Sheets	13-17	
Site Plan Sheets	18-22	
Plan & Profile Sheets	23-33	
Storm Plan & Profile	34	
Sidewalk Staking Sheets	35-40	
Signage Plan Sheet	41-42	
Cross Section Sheets	43-54	

DETAILED SPECIFICATIONS

MAIN STREET INTERSECTION AND SIDEWALK IMPROVEMENTS WEST BRANCH, IOWA

PART 1 – GENERAL REQUIREMENTS

INDEX

- | | |
|------------------------------------|-------------------------------------|
| 1. FORM | 8. PLANS AND SPECIFICATIONS |
| 2. INTENT | 9. STANDARDS AND CODES |
| 3. INTERPRETATION | 10. TESTS |
| 4. WORK INCLUDED | 11. RESPONSIBILITY OF
CONTRACTOR |
| 5. STARTING AND COMPLETION
TIME | 12. TEMPORARY WORK |
| 6. INFORMATION FOR ENGINEER | 13. BARRICADES AND LIGHTS |
| 7. SHOP DRAWINGS | 14. FINAL REVIEW AND ACCEPTANCE |

1. FORM

- A. Detailed specifications are in outline form and include incomplete sentences. Omission of words or phrases is intentional. Supply omitted words or phrases by inference.

2. INTENT

- A. To set forth requirements of performance, type of equipment or structure desired, and standards of materials and construction.
- B. To describe work set out in Contract Documents, unless otherwise specifically indicated.
- C. To require performance of complete work in spite of omission of specific reference to any minor component parts.
- D. To provide for new materials and equipment, unless otherwise indicated.

3. INTERPRETATION

- A. Report errors or ambiguities in specifications to Engineer as soon as detected; Engineer will answer questions regarding and interpret intended meaning of specifications; Engineer's interpretation shall be accepted as final.

4. WORK INCLUDED

- A. Furnish all materials, labor and equipment to construct Pedersen & Scott Street Sidewalk Improvements as set out in the Notice of Hearing and Letting.

5. STARTING AND COMPLETION TIME

- A. Start work within 10 calendar days after date set forth in written Notice to Proceed. It is anticipated that Notice to Proceed will be issued within 30 calendar days after date of receiving bids. Complete work within the times set out in Advertisement for Bids.

6. INFORMATION FOR ENGINEER

- A. After award of contract submit following information for Engineer's review. Total number of review copies required for distribution: 4 plus copies required by Contractor.
 - 1. Purchase orders and subcontracts without prices.
 - 2. Shipping papers for all materials.
 - 3. All materials test reports.
 - 4. Portland cement concrete mix design; submit 8 days before proposed mix is to be used.
 - a. Include certified gradation of aggregates to be used.
 - 5. Details of proposed method of sheeting, shoring and bracing.
 - 6. Manufacturer's specifications and catalog data for manholes, intakes, pipe, castings and other special items.
 - 7. Such other information as Engineer may request.
- B. Within 15 days after award of contract, provide construction schedule showing dates of starting and completing various portions of work.

7. SHOP DRAWINGS

- A. Intent of Engineer's review: to assist Contractor in interpreting plans and specifications.
- B. Contractor's responsibility: to check drawings prior to submission of coordination and conformance with contract; do not submit without checking.
- C. Engineer's review is only for general conformance with design concept of project and general compliance with information given in contract documents; any action shown is subject to requirements of plans and specifications; Contractor responsible for dimensions which must be confirmed and correlated at job site;

General Requirements

fabrication processes and techniques of construction; coordination of work with that of all other trades and satisfactory performance of work.

- D. Prior to submission of shop drawings and catalog data to Engineer: affix Contractor's stamp with signature of responsible person to show material submitted has been checked and approved by Contractor; shop drawings submitted without appropriate stamp and signature will be returned without Engineer's review.

8. PLANS AND SPECIFICATIONS

- A. Engineer will furnish up to 5 sets of plans and specifications after award of contract. Contractor shall compensate Engineer for printing costs for additional copies required.
- B. Subcontractors will be furnished copies only at request of Contractor. Engineer will be compensated for printing costs.
- C. Provide one set of plans and specifications for each foreman or superintendent in charge of each crew on job.

9. STANDARDS AND CODES

- A. Do work in accordance with best present-day installation and construction practices.
- B. Conform to and test materials in accordance with applicable sections of latest revisions or tentative revisions of following codes and standards unless specifically noted to contrary.
 - 1. American Association of State Highway and Transportation Officials (AASHTO).
 - 2. American Concrete Institute (ACI).
 - 3. American Institute of Steel Construction (AISC).
 - 4. American National Standards Institute (ANSI).
 - 5. American Society for Testing and Materials (ASTM).
 - 6. American Standards Association (ASA).
 - 7. American Water Works Association (AWWA).
 - 8. American Welding Society (AWS).
 - 9. Current Iowa Manual on Uniform Traffic Control Devices (MUTCD).
 - 10. Federal Specifications (FS).
 - 11. Iowa Department of Transportation (IDOT); latest edition of standard specifications and addenda.

General Requirements

12. Iowa Occupational Safety and Health Act of 1972 (Chapter 88, Code of Iowa 2015) (IOSHA).
13. Manual of Accident Prevention in Construction by Associated General Contractors of America, Inc. (AGC).
14. National Institute for Occupational Safety and Health (NIOSH).
15. National Safety Council (NSC).
16. Occupational Safety and Health Act of 1970 (Public Law 91-596) (OSHA).
17. Standards and codes of the State of Iowa, Cedar County and applicable local standards and codes of the City of West Branch.
18. Other standards and codes which may be applicable to acceptable standards of the industry for equipment, materials and installation under the contract.

10. TESTS

- A. Includes all material tests or tests specified hereinafter.
- B. Owner shall employ and pay for approved testing laboratory for tests required to show compliance with specifications.
- C. Provide samples of materials required for laboratory tests.
- D. Incorporate no materials in work until laboratory tests have been furnished which show compliance of materials with the specifications.
- E. All materials subject to sampling, testing, inspection and rejection at site by Engineer.
- F. Laboratory tests include the following:
 1. Cement: bin sample for entire requirement, ASTM C150.
 2. Concrete aggregates: one (1) sample of each, ASTM C33.
- G. Provide samples of excavated materials to determine moisture-density relations of soils and perform moisture and density tests during construction as specified in EARTHWORK AND INCIDENTALS FOR PAVEMENT; Contractor is to hire independent testing company to perform tests.
- H. Compaction tests on subgrade: ASTM D1557; one (1) tests per 200 LF of embankment where compacted or ordinary backfill is specified; at each location; cooperate with Engineer and provide necessary excavations to allow compaction tests to be taken; Contractor is to hire independent testing company to perform tests.

General Requirements

- I. Portland cement and aggregates for concrete pavements: certify that sources are IDOT approved; provide analysis of materials used.
- J. Provide concrete testing for slump and entrained air test at project site, Comply with IDOT I.M 204; prepare cylinders for compression strength test, 3 cylinders each day concrete is paved; Contractor to hire independent testing laboratory to conduct tests; Contractor to coordinate and pay for testing.

11. RESPONSIBILITY OF CONTRACTOR

- A. Protection of his work.
- B. Protection of all property from injury or loss resulting from his operations.
- C. Replace or repair objects sustaining any such damage, injury or loss to satisfaction of Owner and Engineer.
- D. Cooperation with Owner, Engineer and representatives of utilities in locating underground utility lines and structures. Incorrect, inaccurate or inadequate information concerning location of utilities or structures shall not relieve Contractor of responsibility for damage thereto caused by his operation.
- E. Keep cleanup current with construction operations.
- F. Maintain set of record drawings of any changes made as work progresses which may vary from contract drawings.
- G. Comply with all Federal, State of Iowa, Cedar County and City of West Branch, Iowa laws and ordinances.

12. TEMPORARY WORK

- A. Make all temporary connections necessary for maintaining utility service during course of work.
- B. Construct temporary drains or bulkheads to keep work in the dry.

13. BARRICADES AND LIGHTS

- A. Erect and maintain barricades and lights in conformance with current Manual of Uniform Traffic Control Devices (MUTCD) for protection and warning of pedestrians and vehicles. All barricades, lights and/or watchmen at expense of Contractor.

General Requirements

- B. Engineer will not allow work to proceed until all signs, barricades and lights are in place; requirements for type of signs and number of signs will be strictly enforced; improper signing during construction will constitute "improper work" and Engineer will cause Contractor to suspend work.
- C. All signs, barricades, and other traffic control devices used on the project shall be furnished, installed and maintained by Contractor; all traffic control devices shall be maintained in a state of good repair and shall be cleaned and washed periodically as needed.
- D. Certain sections of public streets, and sidewalks can be closed with the following restrictions:
 - 1. Adequate protection shall be provided for pedestrians; if a section of sidewalk is closed, appropriate signing and barricading shall be utilized; signing and barricading shall remain in place until sidewalk or trail is opened for pedestrian use.
 - 2. Provide notice to City and homeowners if access will be blocked. Provide flaggers or necessary signage.
 - 3. Notify City 48 hrs. prior to sidewalk closing.
- E. At the end of each working day place barricades and lights as required; maintain barricades and lights at all times including non-working hours; maintain lights in operable condition at all times.

14. FINAL REVIEW AND ACCEPTANCE

- A. Notify Engineer when installation is considered complete and ready for final review.
- B. Owner will accept work and make final payment to Contractor:
 - 1. When Engineer has certified that he has reviewed the work of the Contractor and stated that the work is complete and in conformance with the plans and specifications.
 - 2. When Contractor has filed with Owner or Engineer documents called for in specifications.
 - 3. When all government agencies involved have indicated, in writing, work is complete and acceptable.

PART 2 – SPECIAL CONSTRUCTION

INDEX

- | | |
|----------------------------|-------------------------|
| 1. GENERAL | 6. CONSTRUCTION STAKING |
| 2. COOPERATION WITH OTHERS | 7. TRAFFIC CONTROL |
| 3. SURVEY MARKERS | 8. PAYMENT |
| 4. CONTAMINATED SOIL FINDS | |
| 5. WEATHER LIMITATIONS | |

1. GENERAL

- A. Procedures outlined below are not intended to fully cover all special procedures or emergencies which may arise during construction but are offered as an aid to Contractor in planning work; Contractor will cooperate with Owner and Engineer to minimize inconvenience and construction delays.
- B. Determine location of underground utilities and piping before starting work; locations of underground appurtenances are approximate and not guaranteed by Owner or Engineer.
- C. Remove and replace all signs, mail boxes, fences and other appurtenances which interfere with construction operations; replace damaged items at no cost to Owner.
 - 1. Maintain mail service to residents and businesses at all times.
- D. Remove and replace culverts as required for construction; if damaged, replace in kind with new culvert at no cost to Owner.
- E. Limit construction operations to property, right-of-way and easements provided by Owner; provide barricades, lights, signs and detours as necessary to reroute traffic around construction areas.
- F. Arrange with operating utilities for relocation or temporary removal of utilities in conflict with construction and for services needed during construction.
- G. Dispose of materials removed during construction at locations approved by Owner or Engineer.
 - 1. Dispose of waste products containing putrescible materials at approved landfill.
 - 2. Dispose of surfacing, broken concrete or rubble, brush, trees, excess excavated materials or spoil not suitable for backfill at site obtained by Contractor.

Special Construction

- H. Notify residents or businesses 2 days in advance when construction will disrupt or block access to property. Provide door hangers with notification. Limit disruption to seven (7) calendar days.
 - I. Remove, stockpile and replace fencing where required for construction as shown on plans; replace fences as work progresses.
 - J. Provide snowfence along boundaries of construction area as specified hereinafter and as directed by Engineer.
 - 1. Install snowfence when area is prepared for excavation; install on steel posts with maximum spacing of 8'; maintain until work is completed.
 - 2. Provide snowfence around all open trenches or open structures when left unattended.
 - 3. Provide snowfence along boundaries of construction area in developed areas to prevent access of unauthorized persons to construction area.
 - K. Clean up and provide surface restoration as construction progresses.
 - L. Submit complete detailed construction procedure schedule after award of contract for planning, scheduling and controlling construction of project.
 - M. Contractor will be expected to provide adequate personnel and equipment to perform work within specified time of construction.
 - N. If delays in delivery of materials become apparent, notify Owner and Engineer promptly; take action to accomplish one of the following:
 - 1. Substitute alternate materials with approval of Owner and Engineer.
 - 2. Expedite delivery of materials.
 - O. Extensions of contract period will be given consideration upon written request of Contractor; request must include valid supporting data and bona fide reasons for requesting extension; Owner expects work to be complete and ready for final acceptance within completion time specified.
 - P. Maintain reasonable access to private properties along route of sidewalk unless property owners agree to other arrangements and Owner approves; provide temporary granular surfacing for access to private properties; cost of maintaining access is incidental to construction.
2. COOPERATION WITH OTHERS
- A. Advise all utilities prior to excavating in area where construction might affect gas, electrical, telephone or water service.

Special Construction

1. Advise telephone company of proposed construction schedule as it relates to telephone service.
 2. Advise power company of proposed construction schedule as it relates to electrical power.
 3. Advise gas company of proposed construction schedule as it relates to gas service.
 4. Advise Owner of proposed construction schedule as it relates to water and sewer mains including services.
 5. Advise cable television of proposed construction schedule as it relates to cable television service.
- B. Cooperate with State and Federal regulatory agencies in matters under their jurisdiction over construction operations.
- C. Cooperate with local governmental agencies; secure necessary building permits and arrange for inspections at proper time.
3. SURVEY MARKERS
- A. Contractor responsible for hiring registered land surveyor to inventory existing pipe, pins and registered survey lot corners disturbed by construction; land surveyor responsible for setting reference markers required to re-establish location of existing pipe, pins and registered survey lot corners. Replace in Accordance with Chapter 355 of the Iowa Code. Work is incidental to construction.
4. CONTAMINATED SOIL FINDS
- A. If during course of construction evidence of deposits of contaminated soils are found, cease operations affecting find and notify Owner who will notify Iowa Department of Natural Resources; no further disturbance of deposits will ensue until notification by Owner that work may proceed; Owner will issue notice to proceed only after contaminated soils have been identified and procedures for remediating contaminated soils have been identified and procedures for remedial action have been determined and approved by Iowa Department of Natural Resources and Owner; compensation to Contractor, if any, for lost time or changes in construction due to changed conditions will be in accordance with change order provisions of specifications.

5. WEATHER LIMITATIONS

- A. Owner will not pay extra for surfacing replaced prior to winter shutdown and removed at beginning of next construction season to expose temporary end of construction.
- B. Owner expects paving of improvements during suitable weather within contract time period; contract time period includes calendar days for inclement weather; contract time period will not be extended for claims of wet weather or freezing weather; Owner will consider suspension of contract time period for winter months only after completion of cleanup.

6. CONSTRUCTION STAKING

- A. Contractor responsible for providing all necessary construction staking to allow for project construction.
- B. Contractor responsible for accuracy and completeness of all construction staking.
- C. Owner or Engineer may review accuracy of construction staking at its own discretion at any time.

7. TRAFFIC CONTROL

- A. Provide barricades, signs and lights to protect vehicular and pedestrian traffic during construction; comply with GENERAL REQUIREMENTS; see plans for details.
- B. Conform to requirements of MUTCD and Iowa DOT.

8. PAYMENT

- A. No separate payment will be made for work covered under this part of the specifications except as set forth below. Include all costs in appropriate unit prices.
- B. Mobilization, LS: Lump sum price includes all costs for transporting all necessary equipment and tools to and from site and cleanup of equipment and tools from site upon completion of work.

Special Construction

- C. Construction Staking, LS: Lump sum price includes all costs for labor, equipment and material to provide all construction staking and re-staking necessary for the complete construction of the project.
- D. Traffic Control, LS: Lump sum price includes furnishing signs, flagmen, barricades, flashers, channelizing devices, detour markers, and other miscellaneous traffic control items specified or required by City of West Branch during construction; includes set up, removal and miscellaneous associated work.

PART 3 – EXCAVATION, BACKFILL AND SITEWORK

INDEX

- | | |
|----------------------------------|-------------------------------------|
| 1. GENERAL | 9. TRENCH BACKFILL |
| 2. DEFINITIONS | 10. SURFACE RESTORATION |
| 3. EXCAVATION FOR STRUCTURES | 11. TOPSOILING |
| 4. TRENCH EXCAVATION | 12. UNCLASSIFIED EXCAVATION |
| 5. SHEETING, SHORING AND BRACING | 13. MONITORING OF FILL FOR NPS |
| 6. DEWATERING | 14. WOOD EXCELSIOR SLOPE PROTECTION |
| 7. EXISTING UTILITIES | 15. PAYMENT |
| 8. BACKFILL FOR STRUCTURES | |

1. GENERAL

- A. Excavate all materials encountered to depth indicated on plans or specified; comply with safety rules of state and federal agencies.
- B. Protect existing pavement from damage during construction if not shown on plans for removal; if damage occurs, replace in kind at no cost to Owner.
- C. Remove, replace and repair items such as mail boxes, fences, culverts, storm drains, signs, hanging wires and other obstructions to accommodate construction equipment or to facilitate excavation; cost to remove and replace is incidental to construction.
- D. Stockpile excavated material suitable for backfill or embankment; dispose of remaining material at site secured by Contractor.
- E. Remove spoil not suitable for backfill; dispose of at site secured by Contractor; removal is incidental to construction, include cost in appropriate unit prices.
- F. Where new work crosses existing utilities or utility services, excavate in advance of pipe laying; determine crossing arrangement including exact construction line and grade.
- G. Reference to percent maximum density shall mean a soil density not less than stated percent of maximum density for soil as determined by ASTM D698 Moisture-Density Relations of Soils using 5.5-lb. Rammer and 12-in. Drop (Standard Proctor method).
- H. Install signing and barricades for traffic control in accordance with Manual on Uniform Traffic Control Devices; include cost in appropriate unit or lump sum price.

2. DEFINITIONS

- A. Earth: all materials, including clay, silt, sand, gravel, hardpan, disintegrated shale, highly weathered and broken limestone, debris, junk, brick, loose stones and boulders which can be removed by use of suitable excavating equipment and pneumatic tools.

3. EXCAVATION FOR STRUCTURES

- A. Includes excavation for intakes, manholes and other appurtenances.
- B. Excavate as required to firm, undisturbed soil; if excavation is carried below bottom of foundations as shown on plans, fill with Class B concrete or pipe bedding material as directed by Engineer at no expense to Owner.
- C. Provide sheeting, shoring and bracing where required to hold walls of excavation or to protect existing structures, pavement or utilities or to provide safety for workmen.
- D. When unstable material is encountered which will not, in opinion of Engineer, provide suitable foundation, Engineer will authorize in writing and direct removal and replacement with granular bedding material; authorized overexcavation and backfill will be paid for as Stabilizing Material.
 - 1. Authorized remedial measures not covered by contract unit prices will be paid for as Extra Work.

4. TRENCH EXCAVATION

- A. Keep width of trench as narrow as possible and still provide adequate room for backfill and jointing.
- B. Keep sides of trench as nearly vertical as practicable; maintain vertical walls of excavation below top of pipe. Use sheeting and shoring as required to protect pavement not shown for removal.
- C. Bottom of sewer and culvert trench:
 - 1. Provide hand shaped trench bottom in undisturbed earth for pipe support; if trench depth is overexcavated, backfill with pipe bedding to elevation of top of hand shaped section.
 - 2. Where type of sewer pipe bedding requires granular material it is referred to as Pipe Bedding on Standard Drawings and specifications.
 - 3. Excavate full depth by machine; place pipe bedding in bottom of trench if trench depth exceeds depth for hand shaped pipe support.

Excavation, Backfill and Sitework

4. Pipe bedding: sharp, clean crushed stone; comply with the following gradation, dependent upon pipe diameter.

<u>Sieve</u>	<u>Pipe Diameter</u>	
	<u>8"-18"</u> <u>% Passing</u>	<u>Over18"</u> <u>% Passing</u>
1-1/2"		100
1"	100	95-100
3/4"	80-90	35-70
1/2"	35-70	25-50
3/8"	20-40	10-30
No. 4	0-5	0-5

- a. Engineer may authorize change in gradation subject to materials available locally at time of construction.
5. Compact pipe bedding by rodding or slicing with shovel.
6. Provide bell holes at each pipe joint in pipe bedding; provide access around circumference of pipe for proper jointing.
7. Pipe bedding is incidental to construction; include cost in unit price for Sewer Pipe in Place.

D. When unstable material is encountered which may not provide a suitable foundation for pipe:

1. Notify Engineer immediately.
2. Engineer will investigate questionable material to determine its suitability for pipe foundation.
3. If material is considered unsuitable for foundations, Engineer will specify and authorize remedial measures in writing.
4. If removal of unsuitable material is authorized:
 - a. Replace with stabilizing material.
 - b. Stabilizing material: sharp, clean crushed stone; comply with following gradation:

<u>Sieve</u>	<u>% Passing</u>
2-1/2"	100
2"	90-100
1-1/2"	35-70
1"	0-15
1/2"	0-5

- c. Place pipe bedding on top of stabilizing material.
 - d. Authorized overexcavation and stabilizing material will be paid for as Stabilizing Material.
5. Authorized remedial measures not covered by contract unit prices will be paid for as Extra Work.

- E. Excavate by hand:
 - 1. Under tree roots 3" and larger.
 - 2. Under and around utilities.
 - 3. Where overhead clearance prevents use of machine.
 - 4. To protect trees and shrubs where shown on plans.
- F. Trenches in parks, parkings, lawns, street rights-of-way, pastures and farm fields:
 - 1. Remove top 18" of topsoil and store in segregated stockpiles for backfill prior to trench excavation.

5. SHEETING, SHORING AND BRACING

- A. Construct tight sheeting, shoring and bracing to hold walls of excavation where shown on plans or at other locations, to provide safety for workmen, to protect existing utilities or structures or to permit construction in the dry; provide method to contain work within construction limits.
- B. Sheeting, shoring and bracing is incidental to construction; include cost in appropriate unit price.

6. DEWATERING

- A. Do all work in the dry; obtain Engineer's approval on methods of dewatering.
- B. Provide for handling of water encountered during construction.
- C. Lay no pipe in or pour no concrete on excessively wet soil.
- D. Prevent surface water from flowing into excavation; remove water as it accumulates.
- E. Divert stream flow away from areas of construction.
- F. Do not pump water onto adjacent property without approval of Engineer.
- G. Cost of dewatering is incidental to construction.

7. EXISTING UTILITIES

- A. Locations of utility lines, mains, cables and appurtenances are in accordance with information provided by utility companies and from records of Owner;

Excavation, Backfill and Sitework

- confirm locations of underground utilities by excavating ahead of work; Contractor fully responsible for damage to utilities during construction.
- B. Conflicting utilities not shown on plans, except services: notify Engineer immediately.
 - C. Utility services are not generally shown on plans; protect services during construction.
 - D. Water main and sanitary sewer conflicts: notify Owner and Engineer immediately; provide all necessary shut-down, repair and relocation where conflicts occur; furnish labor, equipment, pipe and fittings; when broken due to carelessness, repair is incidental to construction.
 - E. Utility lines, poles and appurtenances, except water mains and sewer lines, in direct conflict with line and grade of work will be relocated by utility company before or during construction at no expense to Contractor unless plans direct Contractor to perform work; Owner will advise utility companies of lines, poles and appurtenances to be moved after award of contract; cooperate with utility companies in relocation of lines, poles and appurtenances.
 - F. Support and protect, by timbers or other means, all utility pipes, conduits, poles, wires or other apparatus not to be moved; protective measures subject to approval of Engineer.
 - G. No utility or utility service will be moved to accommodate equipment, method of operation or for convenience of Contractor when utility or utility services does not conflict directly with line and grade of work; arrange with utility company for relocation with approval of new location by Owner and Engineer; relocation is incidental to construction.

8. BACKFILL FOR STRUCTURES

- A. Backfill after concrete or masonry has cured, and waterproofing, if specified, has been inspected and approved by Engineer.
- B. Backfill with material removed from excavation; use no debris, frozen earth, large clods, stones or other unsuitable material.
- C. Backfill simultaneously on all sides of structure; save structure from damage at all times.

- D. Compact backfill at manholes and intakes to density not less than specified for adjacent trench.
- E. Terminate at elevation shown on plans; dispose of excess excavation as directed by Engineer.
- F. Prepare backfill for surface restoration as specified for adjacent trench.

9. TRENCH BACKFILL

- A. Backfill trench immediately after Engineer has recorded location of connections and appurtenances and testing has been completed, or at Engineer's direction.
- B. Allow no more than 50' of trench to be open at one time; construct manholes and appurtenances and backfill as work progresses; do not leave trenches open more than 24 hours; fence all open trenches with snowfence; place steel posts at maximum 8' intervals.
- C. Use no large stones, large clods, organic matter, rubbish, frozen or unsuitable materials, in backfill.
- D. Backfill simultaneously on both sides of pipe to prevent displacement.
- E. Hand place and carefully compact backfill to 1' over top of pipe.
- F. Backfill to 1' over top of sewer in layers not to exceed 6"; moisten if required; compact to 90% maximum density; compact backfill above 1' over top of pipe to minimum 90% maximum density.
- G. Fill upper 18" portion of trench with topsoil where construction area is to be seeded; shape roadways and ditches to original grades, replace surfacing material where trench is in streets, driveways or parking areas.
- H. New line below existing water or gas main: backfill under existing water or gas main with pipe bedding material; compact to 95% maximum density; length of pipe bedding material backfill at elevation of existing utility: equal to depth of excavation below utility; pipe bedding material backfill is incidental to sewer construction.
- I. If removal of sheeting disturbs compacted backfill, recompact backfill to comply with specifications.

- J. If settlement of any trench occurs within period of guarantee and bond; refill, compact, level off and restore surfacing.

10. SURFACE RESTORATION

- A. Parks, parkings, lawns, street and railroad rights-of-way, pastures and farm fields: replace 18" of topsoil removed during excavation.
- B. Grade tops of trenches to smooth, uniform lines without large lumps, clods or debris.
- C. Dispose of all brush and rubbish as specified in SPECIAL CONSTRUCTION.
- D. Seed all areas disturbed by construction unless otherwise shown on plans or directed by Engineer; do not seed cultivated land.
- E. Prepare site for seeding by discing, harrowing and hand raking or other means following site grading; work soil to depth of 3".
- F. Precede seeding with uniform application of commercial grade fertilizer at rate per acre of 20 lbs. of nitrogen, 40 lbs. of phosphorous and 20 lbs. of potassium (400 lbs. of fertilizer grade 5-10-5 per acre, or approved equal); cultivate area 3" deep and work with harrow within 24 hrs. before seeding; smooth surface to eliminate clods and lumps before seeding.
- G. Seeding in street parkings, lawns and developed areas (Type 1):
 - 1. Seed at rate of 85 lbs. per acre with following mixture proportioned by weight:

<u>Seed</u>	<u>Percent</u>
Kentucky Bluegrass	35
Annual Rye	25
Perennial Rye	20
Creeping Red Fescue	10
Chewing Fescue	10

- 2. Provide Type 1 seeding where indicated on plans.

- H. Seeding in railroad right-of-ways, pastures, farm fields and creek banks (Type 2):
1. Seed at rate of 150 lbs per acre with the following mixture proportioned by weight:

<u>Seed</u>	<u>Percent</u>
Smooth Brome Grass	5
Red Clover	15
Annual Ryegrass	15
Tall Fescue	10
Perennial Ryegrass	10

2. Provide Type 2 seeding where indicated on plans.
- I. Seed all areas by method of hydraulic seeding.
1. Provide all material, seed, fertilizer and mulch and place in hydraulic-mulching equipment specifically manufactured for hydraulic mulching.
 2. Provide mulch material consisting of natural or cooked cellulose fiber processed from whole wood chips which will disperse readily in water to form a homogenous slurry and remain in such state when agitated in hydraulic mulching unit; mulch material shall be dyed green to facilitate visual metering during application.
- J. Water areas in accordance with IDOT Standard Specification 2601.08.
- K. Water seeded area sufficiently to saturate seed bed; continue watering all areas until growth is established.
- L. Contractor is responsible for turning over to Owner full stand of grass; replant or redevelop bare spots or areas not attaining full stand of grass during first growing season.

11. TOPSOILING

- A. Work shall consist of furnishing and placing of topsoil in accordance with Statewide Urban Design and Specifications (SUDAS) specifications Section 2010, 2.01, C.
1. Engineer to approve topsoil quality prior to seeding.

12. UNCLASSIFIED EXCAVATION

- A. Prepare site, excavate, place and compact excavated materials to required elevations and cross sections.

Excavation, Backfill and Sitework

- B. Scarify, disc, and roll foundation areas as necessary to provide proper bond with first layer of new fill.
- C. Place no roots, brush, grass or other organic material in embankment; place no material on embankment when material or foundation is frozen.
- D. Use fill material free of lenses, pockets, streaks or layers of materials differing from surrounding materials.
- E. Cut bench in existing grade at toe of new embankment.
- F. Construct embankment in horizontal layers not more than 8" in loose thickness.
- G. Deposit each layer over full width of embankment as separate and distinct operation.
- H. After layer is deposited, smooth to uniform depth by means of suitable motor patrol or bulldozer.
- I. Compact selected materials in horizontal layers with tamping or sheepsfoot roller; use roller designed to provide at least 250 psi distributed on one row of knobs.
- J. Compact layer by rolling with tamping type roller until full weight of roller is supported by tamping feet, but with not less than one pass per inch of loose thickness of layer.
- K. Roller will be considered to be supported entirely on its tamping feet when feet do not penetrate more than 3" into material being compacted.
- L. If soil is wet so that it will not sufficiently compact by one passage of roller per inch of loose thickness, provide one discing per 2" of loose thickness.
 - 1. Cut and stir full depth of layer.
 - 2. Allow interval of not longer than 2 hours between successive discings, or as directed by Engineer.
 - 3. After discing is completed, compact layer by specified rolling
- M. If soil is dry so that it will not satisfactorily compact by rolling, moisten material before compaction; manipulate material to secure proper distribution of moisture before compaction.
- N. Place fill and compact on all sides of structures to same level as fill operation progresses to protect structures against displacement or other damage.

- O. Areas adjacent to structures which cannot be tamped with rollers: hand tamp with mechanical tamper to same degree of compaction as specified for other parts of embankment.
- P. Whenever operations are suspended during period rain is likely to occur, smooth and compact surface to shed water readily.
- Q. Compact all excavated material used for embankment to not less than 95% maximum density with moisture content between -1% and +3% of optimum; maximum density determined by ASTM D698.

13. MONITORING OF FILL FOR NPS

- A. Contractor is required to retain a qualified archaeologist to monitor earthmoving activities due to the extremely sensitive character of the landform for the section of asphalt trail south of Main Street on National Parks Services property. Monitoring must be conducted throughout the process of placing fill in this area. All fill material imported for embankment must be free of materials that could be categorized as archaeologically or historically significant. A letter summarizing the results of the construction excavation monitoring shall be submitted to the engineer within 60 days of completion of onsite archaeological monitoring work. The letter shall certify that the fill material placed on NPS property was free of any such materials.

14. WOOD EXCELSIOR SLOPE PROTECTION

- A. Provide wood excelsior slope protection at locations specified on plans, or as directed by Engineer. Install in accordance with manufacturer's instructions. Wood excelsior slope protection shall be degradable straw blankets with lightweight plastic netting on both sides and shall have a functional longevity of at least 12 months.
- B. Wood excelsior slope protection shall be placed after seeding has been completed and area has been cleared of all debris.

15. PAYMENT

- A. No separate payment will be made for work covered in this part of the specifications except as set forth below. Contract unit prices shall include all costs for each item of work.

Excavation, Backfill and Sitework

- B. If items, for which no unit prices are shown on Proposal, are required during construction, contract price shall be adjusted on basis of unit price negotiated with Contractor.
- C. Fill for Pedersen – NPS, CY: Unit price includes all labor, material, and equipment necessary to perform grading including providing fill material, excavating, hauling, grading, compacting, testing, and miscellaneous associated work. Includes cost for archaeologist to monitor soil during placement and report certifying fill is free of archaeological or historical significant materials.
- D. Wood Excelsior Slope Protection, Sq: Unit price includes furnishing wood excelsior slope protection, handling, laying, anchors, anchoring, materials, and equipment necessary for installation and miscellaneous associated work.
- E. Seeding, Acre: Unit price includes all labor, materials and equipment necessary for site preparation, fertilizing, seeding, mulching, watering and miscellaneous associated work.
- F. Topsoil Borrow Material, CY; Unit price includes extra cost of labor, materials, equipment, hauling, placing and spreading of topsoil imported to site.
 - 1. Does not include topsoil stockpiled and salvaged from excavated areas.
- G. Unclassified Excavation, CY: Unit price includes all labor, material and equipment necessary to excavate and waste excess soil from roadway grade adjustment, rock excavation, rubble excavation where noted on plans and in the specifications, and miscellaneous associated work, and to excavate and waste soil not suitable for trench and structure backfill.
- H. Removal & Reinstall Mailboxes, LS: Lump sum price includes cost of equipment, labor and materials and incidentals necessary to remove, temporary relocate, and reinstall mailboxes as specified on plans.
- I. Curb Grinding, LF: Unit price includes all materials, equipment, and labor necessary to grind curb and dispose of materials at locations identified for grinding on plans.
- J. Retaining Wall Removal, LF: Unit price includes all materials, equipment, and labor necessary to remove retaining walls.
- K. Field Fence Removal & Reinstallation, LF: Unit price includes cost of equipment, labor and materials and incidentals necessary to remove, store, and reinstall field fence as specified on plans.

Excavation, Backfill and Sitework

- L. Wood Hand Rail Removal, LF: Unit price includes cost of equipment, labor and materials and incidentals necessary to remove, and deliver hand rail to property owner as specified on plans.

PART 4 – PIPES AND STRUCTURES

INDEX

- | | |
|---------------------------------------|---|
| 1. WORK INCLUDED | 6. SEWER PIPE INSTALLATION |
| 2. GENERAL | 7. CONNECTIONS BETWEEN
DISSIMILAR PIPE |
| 3. PIPE MATERIALS | 8. WATER MAIN CONFLICTS |
| 4. PIPE JOINTS | 9. FIXTURE ADJUSTMENT |
| 5. JOINT PROTECTION AND
INSPECTION | 10. PAYMENT |

1. WORK INCLUDED

A. All sewers, piping, intakes, and appurtenances.

2. GENERAL

A. Before installation, verify all measurements including:

1. Location of appurtenances and connections to existing sewers.
2. Type and location of joints on existing sewers at points of connection.
3. Outside diameter of existing sewers.

B. Make necessary field measurements to determine pipe laying lengths; work pipe into place without forcing or springing.

C. Details of existing pipe not guaranteed.

3. PIPE MATERIALS

A. Reinforced concrete pipe (RCP): ASTM C76, tongue and groove Class III, Wall B; install on hand shaped trench bottom.

B. Reinforced concrete flared end section: construct with reinforcing steel and concrete in accordance with ASTM C76; strength not less than adjoining pipe sections; use where shown on plans.

1. Provide two pipe connectors on last three pipe joints at each flared end section. Provide toe wall.

C. Corrugated polyethylene pipe (PE): conform to IDOT 4143.01 for longitudinal subdrains.

4. PIPE JOINTS

- A. Reinforced concrete pipe (RCP): cold applied rubber asphalt jointing material, FS SS S 0210; apply cold joint compounds to bottom half of groove and top half of matching tongue; wipe joint clean for smooth invert; wrap joints with filter fabric; use filter fabric wrapped joint without joint compound every 50' for dewatering groundwater.

5. JOINT PROTECTION AND INSPECTION

- A. Carefully protect joints from injury while handling and storing pipe.
- B. Use no deformed, gouged or otherwise impaired joints.
- C. Clean bell and spigot surface of dirt and foreign matter before jointing pipe.
- D. Make joints in strict accordance with manufacturer's recommendations.

6. SEWER PIPE INSTALLATION

- A. Before laying pipe, verify all measurements at site; make necessary field measurements to accurately determine sewer make-up lengths or closures.
- B. Begin at lowest point in line; lay groove or bell ends pointing upstream.
- C. Keep pipe free of all dirt and foreign material.
- D. Use no defective pipe; check each length for defects and hairline cracks at ends prior to lowering into trench.
- E. Lower pipe carefully into trench; lay true to line and grade.
- F. Provide a smooth and uniform invert; hand shape trench bottom; bear spigots against bell shoulders.
- G. Pull joints together with equipment recommended by pipe manufacturer; do not use backhoe to push joints together.
- H. Line and grade:
 - 1. Provide, install and operate laser light equipment for line and grade control.
 - 2. Provide and install detection equipment to constantly monitor laser light to prevent movement or drift of light from line and grade.

3. Check line and grade of each pipe with laser light.
 4. Provide stakes for line and grade as specified hereinbefore.
- I. Continuously check alignment of sewer by flashing light between manholes or between last piece of pipe laid and opening at downstream manhole. Correct misalignment, displacement or otherwise defective sewer at Contractor's expense.
7. CONNECTIONS BETWEEN DISSIMILAR PIPE
 - A. Provide manufactured adaptor or coupling; if not available: provide concrete collar 6" thick and 12" each way from joint; reinforce with 6x6-W2.9 x W2.9 welded wire fabric.
 - B. Cover joint with burlap diaper band; bind at edge with No. 9 tie wires.
8. WATER MAIN CONFLICTS
 - A. Notify Engineer of any water main or service line conflicts.
9. PAYMENT
 - A. No separate payment will be made for work covered in this part of the specifications except as set forth below. Contract unit prices include all costs for each item of work.
 - B. Storm Sewer Pipe in Place, LF:
 1. Unit price includes furnishing pipe, flared end sections, handling, laying, hand shaped trench bottom, materials, trench excavation, dewatering, connections between dissimilar pipes, sheeting, shoring and bracing and miscellaneous associated work.
 2. Does not include additional cost of sheeting left in place at Engineer's direction, extra pipe bedding and sand backfill at Engineer's direction; Engineer will direct Contractor to use crushed stone pipe bedding material where trench is excavated below bottom of pipe and hand shaping of trench bottom below pipe is not in undisturbed earth.
 3. Length will be measured along centerline of pipe from end of flared end section to inside face of structure or intake wall with no deduction for intakes in between.

PART 5 – WATER MAINS AND APPURTENANCES

INDEX

- | | |
|----------------------|----------------------|
| 1. WORK INCLUDED | 6. VALVE AND HYDRANT |
| 2. GENERAL | INSTALLATION |
| 3. PIPE MATERIALS | 7. TESTS |
| 4. PIPE INSTALLATION | 8. DISINFECTION |
| 5. THRUST BLOCKS | 9. PAYMENT |

1. WORK INCLUDED

- A. Pipe, fittings, valves, special valves and accessories necessary for construction of water mains and appurtenances and connecting improvements to existing system.
- B. Modifications to existing water mains to connect the improvements.

2. GENERAL

- A. Before installation, verify all measurements including:
 - 1. Location of appurtenances and connections to existing water mains.
 - 2. Type and location of joints on existing water mains at points of connections.
 - 3. Outside diameter of existing piping.
- B. Owner will shut off existing water mains when notified by Contractor.
- C. Make necessary field measurements to determine pipe laying lengths; work pipe into place without forcing or springing.
- D. Details of existing pipe not guaranteed.

3. PIPE MATERIALS

- A. Ductile iron pipe (DI): ANSI/AWWA C150/A21.50, manufactured in accordance with ANSI/AWWA C151/A21.51; pressure Class 350.
 - 1. Ductile iron pipe with push-on joints may be used in lieu of polyvinylchloride pipe; substitutions must be complete; do not mix pvc and DI beyond that shown on plans.
 - 2. Use elastomeric gasketed push-on joints, ANSI/AWWA C111/a21.11; use restrained or locked joints on fittings and adjacent to downward, vertical bends or where indicated on plans.
 - a. In areas of contaminated soil use petroleum resistant gaskets.

Water Mains and Appurtenances

3. Enameline pipe using standard cement lining; ANSI/AWWA C104/A21.4.
 4. Coat outside of pipe with standard coating.
 5. Shipment and storage: do not telescope small pipe inside larger pipe for shipment or storage.
 6. Pipe with damage to cement mortar lining will be rejected; field patching not permitted except on cut pipe.
 7. When pipe is field cut, smooth and bevel rough and cut edges with a file or portable grinder to prevent gasket damage.
- B. Fittings: ductile iron, mechanical joint fittings, ANSI/AWWA C153/A21.53 compact design with joint meeting ANSI/AWWA C111/A21.11, 150 psi pressure rating; furnish fittings complete with all necessary accessories.
1. Anchoring Couplings: Clow Corporation, or equal.
 2. Anchoring Tees: Clow Corporation, or equal.
 3. Anchoring Pipe: Clow Corporation, or equal.
 4. Retainer Glands: Clow Corporation, or equal.
 5. Caps: Clow Corporation, or equal.
 6. Plugs: Clow Corporation, or equal.
 7. Cutting-in Sleeves: Clow Corporation, or equal.
 8. Cast Couplings: Rockwell 441, or equal.
 9. Offsets: Clow Corporation, or equal.
 10. Reducers: Clow Corporation, or equal.
 11. Wrap fittings with polyethylene film, as specified for iron pipe.
- C. Water service pipe: Type K (heavy) soft annealed copper (Cu), ASTM B88, seamless; use for 3/4" to 2" service pipe.
- D. Polyethylene film: 8 mil thickness; black pigmentation; wrap DI pipe as recommended by manufacturer; AWWA C105; Clow Corporation F-192, or equal; wrap and tape all ductile iron pipe, fittings, appurtenances and buried, bolted connections.
1. Use flat tube width recommended by manufacturer for various pipe diameters.
 2. Use 2" x 8 mil polyethylene adhesive tape with paper backing.
- E. Marking: Pipe shall be legibly and permanently marked in ink with the following information:
1. Manufacturer and Trade Name
 2. Nominal Size & SCH Rating
 3. Manufacturing Date Code
 4. (NSF- 61)

- F. Installation: Installation shall be in strict accordance with manufacturer's procedures and recommendations. Prior to installation, pipe shall be visually inspected to ensure there is not dirt or foreign matter in the pipe, and any such material which is found shall be removed before installation.

4. PIPE INSTALLATION

- A. Lay pipe in dry; 5'-6" minimum earth cover over top of pipe, except where shown otherwise on plans, as required to provide clearance at existing utilities, or when otherwise directed by Engineer.
 - 1. Install water main and appurtenances in accordance with AWWA C600, C605, and C900.
 - 2. Make pipe joints in accordance with AWWA C600, C605, and C900 and as recommended by manufacturer; use minimum amount of gasket lubricant; apply to gasket only; do not apply to inside of bell.
- B. Clean pipe interior of foreign material before lowering into trench; keep clean at all times; when pipe laying is not in progress, including lunch breaks, nights, weekends and other non-working periods, securely close open ends of pipe and fittings with watertight plugs.
- C. Place in trench in sound, undamaged condition; do not injure pipe coating or lining; use web slings to install or move pipe; use of end hooks and dropping pipe are prohibited.
- D. Cut pipe in neat and workmanlike manner without damage to pipe; bevel ends of pipe.
 - 1. Completely coat damaged ends of cut DI pipe with bituminous sealer; use spray-on sealer which will adhere to liner at any temperature; do not install pipe and fittings showing blisters or holes.
- E. Before installation of ductile iron pipe, tap pipe lightly with light hammer to detect cracks; visually inspect pipe lining for defects; do not install defective, damaged or unsound pipe.
- F. Deflect ductile iron pipe joints as required in accordance with recommendations of pipe manufacturer or 3° per joint, whichever is less; use suitable fittings for larger deflections in alignment or grade at no additional cost.
- G. Water mains shall be separated from gravity sewers by a horizontal distance of at least 10', unless bottom of water main is at least 1'-6" above top of sewer and water main is placed in a separate trench or on a bench of undisturbed earth in

- same trench. If a bench is used, a minimum horizontal separation of 3' must be maintained.
1. If above separations cannot be achieved, replace sewer with ductile iron pipe as specified for water mains. A linear separation of 2' shall be provided.
- H. Water mains shall be separated from sewer force mains by a horizontal distance of at least 10' unless force main is constructed of water main materials; a minimum horizontal separation of 4' must be maintained.
- I. Vertical separation of water mains crossing over any sanitary sewer should be at least 1'-6" when measured from bottom of water main to top of sewer; maintain minimum separation of 6" if water main is over sewer, or 1'-6" if water main is under sewer; separation distance to be maximum possible in all cases.
1. One full length of water main pipe shall be centered at sewer crossing; water main and sewer shall be adequately supported and have watertight joints; use low permeability soil for backfill within 10' of point of crossing.
 2. Sewer pipe crossing over water main shall be replaced with one full length of sewer pipe constructed of water main material with joints located as far as possible from the water main. A linear separation of 2' shall be provided.
- J. Water mains shall be separated from sewer manholes by a horizontal distance of at least 3'.
- K. Plug or cap all pipe ends or fittings left for future connections; construct concrete thrust blocks as shown on Standard Drawing.
- L. Construct concrete thrust blocks at all fittings and at dead ends.
- M. Construct thrust blocks as specified hereinafter.
- N. Uncover existing mains a sufficient time ahead of pipe laying operations to determine fittings required to make connections; make connections between existing and new water main with specials and fittings as required.
1. Do not deflect pipe or apply force to existing pipe.
 2. Do not force pipe, pipe joints or appurtenances in place.
 3. Cut and remove existing pipe as necessary; install new appurtenances and piping to exact length with minimum clearances between pipe ends at repair sleeve.
- O. Use tracer wire with water main:
1. Tracer wire: #12 solid copper wire with 45 mil LDPE insulation.

2. Splice kits: 3M - Scotchcast No. 3832, or equal.
3. Ground rods:
 - a. Provide uniform covering of electrolytic copper metallically bonded to steel rod.
 - b. Minimum diameter: 3/8".
 - c. Minimum length: 60".
 - d. Blackburn Catalog #3755, or equal.
4. Ground rod clamp: corrosion resistant copper alloy ground rod clamp; Blackburn Catalog #G3 or equal.
5. For finished water main include terminal box at each hydrant:
 - a. Provide heavy duty cast iron cover and collar with locking bolt.
 - b. Provide terminal boards with threaded stainless steel screws with nuts.

5. THRUST BLOCKS

- A. Provide concrete thrust blocks at all fittings and at dead ends.
- B. Extend thrust block to undisturbed edge of trench provide minimum thickness of 1'-6".
 1. Does not apply to anchor-type thrust blocks.
- C. Refer to Standard Drawings for general arrangement of thrust blocks; place plastic film between fittings and thrust block; do not plug end of fitting with concrete.
- D. Minimum bearing area of thrust blocks, except anchor- type thrust blocks, CF:

<u>Pipe Size</u> (Inches)	<u>90°</u> <u>Bend</u>	<u>45°</u> <u>Bend</u>	<u>11-1/4°</u> <u>22-1/2° Bend</u>	<u>Tee or</u> <u>Dead End</u>
4	4	2	2	3
6	8	5	3	6
8	14	8	4	10
10	21	11	6	15
12	29	16	8	21
14	39	21	11	28
16	51	28	14	36

1. Provide Class B concrete for all thrust blocks except anchor-type thrust blocks.

E. Minimum dimensions and anchor rod requirements for anchor-type thrust blocks for vertical 45° bends:

<u>Pipe Size</u> (Inches)	<u>Height</u>	<u>Width</u>	<u>Depth</u>	<u>Concrete</u> <u>Volume</u> (CY)	<u>Anchor</u> <u>Rods</u>
8	3'-8"	3'-8"	3'-8"	2	2 No. 4
10	4'-3"	4'-3"	4'-3"	3	2 No. 5
12	4'-9"	4'-9"	4'-9"	4	2 No. 6

1. Use Class A Concrete for anchor-type thrust blocks.
2. Fabricate anchor rods from ASTM A615 Grade 60 billet steel reinforcing steel rods; cold bend rods to conform to contour of elbow; no splicing of rods allowed.
3. Anchor rods shall penetrate concrete to within 6" of bottom of thrust block; terminate in standard 90° hooks.
4. Coat exposed portions of rods with asphalt mastic and wrap in polyethylene film.
5. Construct anchor-type thrust blocks and install anchor rods as directed by Engineer.

6. VALVE AND HYDRANT INSTALLATION

A. Valves:

1. Install valve with stem vertical and centered in box, support as required.
2. Wrap valves with polyethylene film, as specified for iron pipe.
3. Check all valve bolts when installed; tighten as necessary after water main is at operating pressure.
4. Carefully tamp backfill around each valve box to distance of 4' on all sides of box or to undisturbed trench face, if less than 4'.

B. Hydrants:

1. Install plumb; set at elevation so that cover will not be less than for adjacent main; set grade mark on hydrant barrel at finish ground surface.
2. Set on concrete foundation.
3. Wrap hydrant barrel section and fittings with polyethylene film, as specified for iron pipe.
4. Carefully tamp backfill around hydrant to distance of 4' on all sides of hydrant or to undisturbed trench face, if less than 4'.
5. Tighten all stuffing boxes as hydrant is installed; operate hydrant in open and closed position to assure all parts are in working condition.
6. Block hydrant in place.

7. Install as shown on Standard Drawing.

7. TESTS

- A. Water test all piping in accordance with AWWA C600 and C605 after installation is complete.
- B. Pressure and leakage test:
1. Provide test pumps, test plugs, pipe and gauges necessary and make connections required for tests.
 2. Flush water main before test to remove air and construction debris; insert taps to release trapped air; flush at water flow rate which will provide approximately 2.5 feet per second velocity in water main.
 3. Quantity of water used for flushing will be measured by Owner; Owner will provide water without charge for flushing for first four changes of water main contents; additional water will be billed to Contractor at prevailing rates.
 4. Approximate contents per 100' of water main:

<u>Water Main Diameter, in.</u>	<u>Approximate Pipe Contents, gal.</u>
4	65
6	147
8	261
10	408
12	588
16	1,044

C. Required flow and openings to flush water mains with 40 psi pressure in water main:

<u>Water Main Diameter, in.</u>	<u>Flow Required for Approx. 2.5 ft/sec. Velocity, gpm.</u>	<u>Size of Tap, in.</u>			<u>Number of 2 1/2 in. Hydrant Nozzles</u>
		<u>1</u>	<u>1 ½</u>	<u>2</u>	
4	100	1	-	-	
6	200	-	1	1	1
8	400	-	2	1	1
10	600	-	3	2	1
12	900	-	-	2	2
16	1,600	-	-	4	2

Water Mains and Appurtenances

1. Measure flow rate with pitot gauge if pressure is other than 40 psi in new water main; ensure flow rate is 2.5 feet per second, or greater.
2. Test at 150 psi for 2 hrs.; allowable pressure drop during test period: 5 psi.
3. Provide and measure make-up water to maintain pressure between 145 psi and 150 psi during test period.
4. Maximum allowable leakage (L), gallons per hour:

$$L = \frac{(S)(D)(P)^{1/2}}{148,000} \text{ where:}$$

S = length of pipe section under test, feet

D = nominal pipe diameter, inches

P = average test pressure, psig

5. Allowable leakage per 1,000 feet of water main with average test pressure of 150 psig:

<u>Water Main Diameter, in.</u>	<u>Allowable Leakage, gal./hour</u>
4	0.33
6	0.50
8	0.66
10	0.83
12	0.99
16	1.32

6. Examine trench for leakage during test; if test pressure cannot be maintained within limit set out hereinbefore or if quantity of make-up water exceeds computed maximum allowable leakage, pipe section fails test.
 - a. Excavate, replace defective pipe and fittings, remake defective pipe joints and backfill at no cost to Owner; repeat test until requirements have been met.

8. DISINFECTION

- A. Disinfect and sample prior to placing main in service; disinfect prior to making any water service connections; AWWA C651.
- B. Disinfect by injecting a solution of calcium hypochlorite and water or use chlorine tablets securely fastened to pipe in accordance with manufacturer's recommendations followed by slowly filling water main in such a manner as to

Water Mains and Appurtenances

not dislodge tablets from wall of pipe; provide a minimum residual chlorine content of 25 mg/l in water main; allow system to stand full of solution for 24 hrs.

- C. Minimum chlorine residual at pipe extremities: 10 mg/l at end of test period; if requirement is not met, repeat disinfection procedure.
- D. Operate valves, under supervision of Owner, in new water main to ensure full disinfection; ensure no highly chlorinated water enters water mains already in service.
- E. Flush water main after test until extremities indicate same chlorine residual as supply water.
 - 1. Quantity of water used for flushing will be measured by Owner; Owner will provide water without charge for flushing for first two changes of water main contents; additional water will be billed to Contractor at prevailing rates.
- F. Two days after completion of disinfection, Owner will collect bacteriological sample from representative locations along new water mains as directed by Owner or Engineer; samples must test "SAFE"; if any samples test "UNSATISFACTORY" or "UNSAFE", repeat disinfection procedure until all samples test "SAFE", Contractor to pay for testing of samples.
 - 1. Water shall not be used and connections to water main shall not be made until all water samples test "SAFE".

9. PAYMENT

- A. No separate payment will be made for work covered in this part of the specifications except as set forth below. Contract unit prices include all costs for each item of work.
- B. Hydrant Relocation, Ea.: Unit price includes relocating existing hydrant, hydrant extensions, anchoring coupling, anchoring pipe, anchoring elbow (where required), concrete pad, thrust block, pipe bedding, concrete blocking, excavation and backfill, painting, and miscellaneous associated work.
- C. Fixture Adjustment, Ea.: Unit price includes furnishing all labor, materials, and equipment for adjusting fixtures to finished pavement grade or side slope including removal and replacement of valves, valve box, lid, plugs and appurtenances for valves as necessary.

PART 6 – EARTHWORK AND INCIDENTALS FOR PAVEMENT

INDEX

- | | |
|-------------------------|--------------------------|
| 1. GENERAL | 7. ABUTTING PAVEMENTS |
| 2. STRIPPING | 8. EXISTING UTILITIES |
| 3. SURFACE REMOVAL | 9. CLEARING AND GRUBBING |
| 4. EXCAVATION | 10. MODIFIED SUBBASE |
| 5. SUBGRADE PREPARATION | 11. PAYMENT |
| 6. SUBGRADE TREATMENTS | |

1. GENERAL

- A. This part of the specifications includes earthwork and incidentals to complete grading for placement of pavement.
- B. Reference to percent maximum density shall mean a soil density not less than the stated percent of maximum density of optimum moisture content for soils as determined by ASTM D698 Moisture-Density Relations of Soils using 5.5-lb. Rammer and 12-in. Drop. (Standard Proctor Method).
- C. Do work in accordance with best present-day installation and construction practices.

2. STRIPPING

- A. Strip vegetation and organic materials within construction limits; remove from project site and dispose of removed materials at site obtained by Contractor.
- B. Grade and shape earth surfaces within construction limits to specified cross section; finish earth surfaces as specified hereinafter.
- C. Grade and shape borrow site earth surfaces to drain; finish earth surfaces as specified hereinafter.
- D. Stockpile excess on-site excavated materials at location as directed by Engineer; stockpile excess topsoil in segregated stockpile; excess excavated materials remain property of Owner.
- E. Include costs associated with stripping and grading in unit price for excavation.

3. SURFACE REMOVAL

- A. Remove existing surfacing to limits shown on plans.

1. Cut vertically and horizontally on straight lines; saw cut full depth of surfacing.
 2. Portland cement concrete pavement: remove to nearest joint or as directed by Engineer and as shown on plans; cut steel as necessary.
 3. Asphalt pavement: cut to a neat line. Mill or grind asphalt paving to break up surface into particles that can be blended with granular subbase. Asphalt shall be processed such that 100% of the material is a nominal 2" maximum size. Material shall be of sufficiently stable quality to resist distortion during pavement construction.
 4. Milling of existing surfacing can include 2" asphalt surfacing and any depth of granular base material beneath paving that is required to facilitate milling operation. Milled pavement is to be blended evenly with existing granular base material and stockpiled for reuse beneath new paving.
 5. If remaining surfacing along saw cut line becomes cracked or broken during construction, provide additional saw cuts, surface removal and surface replacement as directed by Engineer at no cost to Owner.
- B. Dispose of waste and excess material not suitable for reuse at acceptable disposal area.

4. EXCAVATION

- A. Excavate all materials encountered to depth indicated or specified; comply with safety rules of state and federal governments. Excavate to subgrade required for pavement construction.
- B. Schedule work to keep streets, roads and utilities in usable condition; avoid inconvenience to property owners insofar as practicable during construction.
- C. Remove, replace and repair items such as fences, culverts, signs, hanging wires, shrubbery, flowers, trees and other obstructions to accommodate construction equipment or to facilitate excavation.
- D. Remove trees, plantings and shrubbery where shown on plans; remove other plantings only with written authorization of Engineer; any plantings removed or damaged for convenience of Contractor: replace with equal plantings at no cost to Owner.
- E. Dispose surplus excavated material as directed.
- F. Provide temporary drainage facilities to prevent damage to public or private interests when necessary to interrupt natural drainage or flow of artificial drains.

- G. Restore original drains as soon as work will permit.
- H. Contractor liable for damage resulting from neglect to provide for interrupted natural or artificial drainage.
- I. Do not damage pavement or disturb subgrade beneath existing pavement which will not be removed.
- J. Grade and shape earth surfaces within grading limits to specified cross section; finish earth surfaces as specified hereinafter.
- K. Install signing and barricades for traffic control in accordance with Manual on Uniform Traffic Control Devices; include cost in appropriate unit or lump sum Price.
- L. Include all earthwork cost in lump sum price for Excavation.

5. SUBGRADE PREPARATION

- A. Provide uniform composition at least 6" below pavement subbase for full width of pavement plus 2' beyond edge of pavement; roll and scarify materials, mix and re-compact, or otherwise treat to produce a uniform condition.
- B. Remove and dispose of stones over 4" in size from loosened portion of subgrade.
- C. Construct subgrade with uniform density for a width of proposed pavement plus 2' beyond edge of pavement; density: not less than 95% maximum density.
- D. In areas where roller cannot compact; provide approved selected material; 12" minimum thickness; compact to 95% maximum density with vibrator tamper.
- E. Construct subgrade such that after rolling, surface will be at required grade and cross section.
- F. Fill depressions that develop during rolling with suitable material; continue rolling until subgrade is uniformly firm, properly shaped and true to grade and cross section.
 - 1. Maintain until pavement is placed.
 - 2. Remove materials which will not compact readily under roller; replace with materials which will compact readily; again roll that portion of subgrade.

- G. If ruts or other objectionable irregularities form in subgrade during construction, reshape and re-roll subgrade before placing pavement; fill ruts or other depressions with material similar to other subgrade material.

6. SUBGRADE TREATMENTS

- A. Use only to correct subgrade condition where specified density cannot be obtained by other methods prior to placement of pavement.
- B. Granular subbase for pavement: use uniform mixture of granular material, uniformly moistened, placed on prepared subgrade; Contractor may use as suitable material to fill depressions in subgrade, such use considered incidental to construction at Contractor's expense.
 - 1. Use crusher run limestone, Iowa DOT Gradation No. 10.
 - 2. Use mixture uniform in composition, with no visible segregation of constituent materials.

7. ABUTTING PAVEMENTS

- A. Drill into existing portland cement concrete slabs abutting new portland cement concrete construction and install dowels as detailed in IDOT Standard Road joint detail PV-101; dowels 18" long at 12" centers; ¾" dowels for 7" thick pavement; cost is incidental to pavement construction.

8. EXISTING UTILITIES

- A. Locations of utility lines, mains, cables and appurtenances are in accordance with information provided by utility companies and from records of Owner; confirm locations of underground utilities by excavating ahead of work; Contractor fully responsible for damage to utilities during construction.
- B. Conflicting utilities not shown on plans, except services: notify Engineer immediately.
- C. Utility services are not generally shown on plans; protect services during construction.
- D. Water main and sanitary sewer conflicts: notify Owner and Engineer immediately; provide all necessary shut-down, repair and relocation where conflicts occur; furnish labor, equipment, pipe and fittings; when broken due to carelessness, repair is incidental to construction.

- E. Utility lines, poles and appurtenances, except water mains and sewer lines, in direct conflict with line and grade of work will be relocated by utility company before or during construction at no expense to Contractor unless plans direct Contractor to perform work; Owner will advise utility companies of lines, poles and appurtenances to be moved after award of contract; cooperate with utility companies in relocation of lines, poles and appurtenances.
- F. Support and protect, by timbers or other means, all utility pipes, conduits, poles, wires or other apparatus not to be moved; protective measures subject to approval of Engineer.
- G. No utility or utility service will be moved to accommodate equipment, method of operation or for convenience of Contractor when utility or utility services does not conflict directly with line and grade of work; arrange with utility company for relocation with approval of new location by Owner and Engineer; relocation is incidental to construction.

9. CLEARING AND GRUBBING

- A. Remove trees only in conflict with alignment of new PCC sidewalk.
- B. Notify Owner and obtain written authorization before removing any tree; Owner reserves right to remove and use trees approved for removal.
- C. Removal includes grubbing and removing stump and roots, removal from site, disposal of debris and backfilling.
- D. Contractor liable for damages to trees not agreed for removal by Owner and Engineer.
- E. Trees and plantings under 2" diameter are incidental to construction.

10. MODIFIED SUBBASE

- A. Provide modified subbase to width and thickness as shown on plans and as directed by Engineer.
- B. Material: uniformly moistened material conforming to IDOT Section 4109, Graduation No. 14, and IDOT Section 2115.02.
- C. Place and compact in accordance with IDOT Sections 2115.03 and 2115.04D.

11. PAYMENT

- A. No separate payment will be made for work covered in this part of the specifications. Include all costs in appropriate unit price.
- B. Pavement Removal, SY or LF: Unit price includes full depth sawing, grinding, removal, trucking, salvage or disposal and miscellaneous associated work. Includes removal of PCC pavement, HMA pavement, brick, curb and gutter, and sidewalk.
- C. Signage, Ea.: Unit price includes cost of equipment, labor and materials and incidentals necessary to furnish and install new signs as specified on plans.
- D. Modified Subbase, CY: Unit price includes equipment, labor, materials, necessary to place, grade and compact materials as specified.

PART 7 – PORTLAND CEMENT CONCRETE PAVEMENT

INDEX

- | | |
|---|---|
| 1. GENERAL | 8. CURING AND PROTECTION |
| 2. MATERIALS | 9. RESTRICTIONS |
| 3. STORAGE AND PROTECTION OF MATERIALS | 10. DEFECTS |
| 4. PROPORTIONS FOR MIX | 11. SIDEWALK CONSTRUCTION AND DRIVEWAY APPROACH |
| 5. MIXING | 12. COMBINED RETAINING WALL-SIDEWALK |
| 6. EQUIPMENT REQUIREMENTS FOR PAVEMENT CONSTRUCTION | 13. MODULAR BLOCK RETAINING WALL |
| 7. PAVEMENT CONSTRUCTION | 14. PAYMENT |

1. GENERAL

- A. This part of the specifications includes construction of portland cement concrete pavement, curb and gutter, and sidewalks, using preset forms on prepared subgrade or subbase.
 - 1. Prepare subgrade or subbase as specified in EARTHWORK AND INCIDENTALS FOR PAVEMENT.
 - 2. Construct curb and gutter as specified hereinafter.
- B. Non-reinforced portland cement concrete pavement includes deformed tie bars and joints as shown on plans.

2. MATERIALS

- A. Portland cement: ASTM C150, Type I.
- B. Admixtures:
 - 1. Air entraining: ASTM C260; no admixtures containing chlorides will be permitted.
 - 2. Retarding: a suitable retarding admixture may be used during hot weather, with approval of Engineer.
 - 3. Calcium chloride not permitted.
- C. Fine aggregate:
 - 1. Clean, hard, durable particles of natural sand, free from injurious amounts of silt, shale, coal, organic matter or other deleterious substances.
 - 2. Deleterious substances: not more than 2.0% shale and coal by weight retained on No. 16 sieve.

Portland Cement Concrete Pavement

3. Organic matter: other than coal, not more than standard reference color; ASTM C40.
4. Conform to following sieve analysis:

<u>Sieve Size</u>	<u>% Passing</u>
3/8"	100
No. 4	90-100
No. 8	70-100
No. 200	0-1.5

5. Percent passing one sieve and retained on next higher number sieve not more than 40% when sieved through 4 and 8 numbered sieves.
6. Mortar strength at 7 days not less than 1.5 times standard sand strength when tested in accordance with IDOT Laboratory Test Method 212.

D. Coarse aggregate:

1. Clean, hard, durable particles of crushed limestone free from injurious amounts of objectionable materials.
2. Objectionable materials not more than:

	<u>Percent</u>
Clay lumps	0.5
Coal and carbonaceous shale	0.5
Sticks (wet weight)	0.1
Total of all shale and coal combined	1.0
Organic material other than coal and sticks	0.0
Unsound chert particles retained on 3/8" sieve	3.0

- a. Chert particles breaking into three or more pieces in freezing and thawing test, IDOT Laboratory Test Method 211, Method A, are considered unsound.
3. Conform to following sieve analysis:

<u>Sieve Size</u>	<u>% Passing</u>
1-1/2"	100
1"	50-90
3/4"	30-80
1/2"	20-75
3/8"	5-55
No. 4	0-10
No. 8	0-5
No. 200	0-1.5

Portland Cement Concrete Pavement

4. Percent of wear, AASHTO T96, Grading A or B, not to exceed 35 for gravel, 50 for crushed stone which contains 90% or more calcium carbonate or 45 for all other crushed stone.
 5. Particle durability: IDOT Section 4115.01, Class 2 or Class 3.
- E. Water: clean and clear, free from salt, oil, acid, strong alkalis, vegetable matter or other substances injurious to concrete.
1. Water may be heated for cold weather paving operations; anti-freezing agents not permitted.
- F. Reinforcing steel:
1. Deformed bars: billet steel; ASTM A615, Grade 40 or 60; epoxy coated.
 2. Plain and smooth dowel bars: carbon steel; ASTM A615, Grade 40 or 60; epoxy coated.
 3. Welded wire fabric: ASTM A185.
- G. Metal expansion tubes:
1. Fabricated steel tubes; conform to requirements of IDOT; provide tubes with internal diameter 1/16" larger than dowel bar; bar stop capable of withstanding 20 lb. push, minimum.
- H. Metal keyways:
1. Fabricated 24 gauge sheet steel; conform to requirements of IDOT; provide lengths in multiples of tie bar spacing; punch to receive tie bars.
- I. Supports for reinforcing steel:
1. Support tie bars as required to place and maintain correct location during construction.
 2. Welded wire fabric supports: heavy gauge wire, welded or bent to form four-legged chair.
 3. Support dowel bars at expansion and contraction joints.
- J. Joints:
1. Bituminous joint filler and sealer: hot poured joint filler: ASTM D3405; use with backer rope; comply with IDOT 2301.25.
 2. Preformed expansion joint filler: asphalt saturated fiber strips; AASHTO M213; furnish in strips of plan dimensions; use IDOT preformed joint seal.
- K. Liquid curing compound protecting: Comply with IDOT 2301.03K; Liquid curing compound: IDOT 4105.05; do not use in areas to receive asphalt overlay; use plastic or burlap.

- L. Plastic film: opaque, white pigmented polyethylene plastic, 0.00085" minimum thickness, use only once if less than 0.0034" thick.
- M. Fly ash: permitted as substitute for portland cement when source and mix design is in conformance with Iowa DOT Standard Specifications and Supplemental Specifications.

3. STORAGE AND PROTECTION OF MATERIALS

A. Aggregates:

- 1. Store fine and coarse aggregate in separate stockpile; avoid contamination of aggregates; place fine aggregate with more than 5.0% moisture in separate stockpile and allow to drain.
- 2. Stockpile coarse aggregate and unscreened gravel in horizontal layers; maximum depth: 4'.
- 3. Handle aggregates to avoid frequent variations in specific gravity, sieve analysis or moisture content; prevent variations of more than 0.5% in moisture content of aggregates in successive batches.
- 4. Coarse aggregate having absorption greater than 0.5%: wet 1 hr. before use.
- 5. Place fine aggregate in proportioning bin only when uniform moisture content can be maintained in successive batches for one day's run.

B. Cement:

- 1. Store cement in suitable weatherproof structure; prevent loss of cement during handling.
- 2. Use cement containing lumps only after careful screening through 20 mesh screen; retest in accordance with ASTM C150 before use.

4. PROPORTIONS FOR MIX

A. Mix proportions for street pavement, curb and gutter, drive approaches and sidewalks adjacent to street pavement:

- 1. Basic absolute volumes of materials per unit volume of concrete as per IDOT I.M 529:

	<u>M-4</u>	<u>C-4</u>
Cement Minimum	0.156	0.118
Water	0.160	0.160
Entrained Air	0.06	0.06
Fine Aggregate	0.312	0.331
Coarse Aggregate	0.312	0.331

Portland Cement Concrete Pavement

2. Above quantities based on specific gravity of cement: 3.14; specific gravity of aggregates: 2.65; air voids: 6.0%.
 3. Air entraining admixture: produce 6.5% \pm 1.5% air voids in fresh concrete measured by pressure method.
 4. Use C-4 mix for sidewalks, and use M-4 mix for street pavement and driveways where shown on plans.
- B. Proportion adjustments:
1. Basis: when actual quantity of concrete is more than 101% or less than 99% of calculated quantity or if combination of materials does not produce quality of concrete specified.
 - a. Fine aggregate shall not exceed 50% of total aggregate in any adjustment.
 - b. Do not exceed maximum water-cement ratio specified.
- C. Water quantity and concrete consistency:
1. Use proper amount of mixing water to produce concrete of uniform consistency; adapt to mix, characteristics of materials used, methods of consolidation, weather conditions and slope of finished surface.
 2. Modify proportion if maximum water-cement ratio does not produce workability; increase cement to aggregate proportion to produce specified degree of workability without exceeding maximum water-cement ratio.
- D. Tests on trial batches and concrete placed at project site:
1. Slump: ASTM C143; 1-1/2" to 3" for machine finished concrete; 4", maximum, for hand finished concrete.
 2. Air voids, of fresh concrete, by pressure method: ASTM C231; 6.5% \pm 1.5%.
 3. Minimum compressive strength: ASTM C39; 3,100 psi when tested at 3 days and 4,000 psi when tested at 28 days.
 4. Quantity of compression cylinders as specified in GENERAL REQUIREMENTS; cast, protect and cure cylinders in accordance with ASTM C31.
5. MIXING
- A. Batch mix:
1. Handle batches and charge mixer to insure complete introduction of batches separately without loss of materials; add water with other materials.
 2. Portland cement concrete mixing equipment: Comply with IDOT 2001.021.
- B. Ready-mix:
1. Applies to either central plant-mixed concrete or central plant-proportioned, truck-mixed concrete.

2. Time lapse from addition of water until placing on subgrade: not to exceed 30 min. when concrete is hauled in non-agitating trucks; 1-1/2 hrs. when hauled in truck mixers or agitating trucks; provide reliable re-set revolution counter on truck mixer.
3. Place concrete in plastic and workable condition; do not re-temper partially hardened concrete.

6. EQUIPMENT REQUIREMENTS FOR PAVEMENT CONSTRUCTION

- A. Batch or ready-mix plant: IDOT 2001.06, 2001.20 and 2001.21.
 1. Automatic cut-off gates at cement batching scale not required.
 2. Scales and measuring devices certified at Contractor's expense.
- B. Concrete mixing equipment: IDOT 2001.21.
- C. Forms: IDOT 2301.03 A3.
- D. Form-line excavating machine: IDOT 2301.03 A.3.
- E. Consolidating and finishing equipment: IDOT 2301.03.03 A.3.a.6 and 2301.03 A.3.b.
- F. Equipment for hand methods: IDOT 2301.03 A.3.d.
- G. Alternate equipment and methods for finishing and consolidating pavement may be permitted by Engineer if satisfactory operation and construction on previous projects can be demonstrated.

7. PAVEMENT CONSTRUCTION

- A. Setting and removing forms:
 1. Set forms accurately to required grade and alignment on properly compacted subgrade or subbase; for forms to support mechanical subgrader, mechanical spreader, mechanical finisher or other similar heavy equipment, excavate with machine designed to shape subgrade for forms.
 2. Set base of form at or below subgrade elevation and with top of form at pavement surface elevation at edge of slab.
 - a. Extra height forms may be used to back up integral curb; set base at or below subgrade elevation and top of form at top of curb elevation.
 - b. Comply with IDOT 2301.03 C if base of form is set below subgrade elevation; additional excavation and concrete at no cost to Owner.
 3. Secure forms in place to maintain grade and alignment while concrete is placed and finished.

Portland Cement Concrete Pavement

- a. If voids occur under forms, remove forms and bring special backfill to proper elevation as specified in EARTHWORK AND INCIDENTALS FOR PAVEMENT.
 - b. Check form joints with 10' straight edge; adjust forms to proper grade and alignment.
 4. If supporting soil becomes softened by rain or standing water so form is inadequately supported, reset form on suitable material before placing concrete.
 5. Oil forms before concrete is placed; prevent adherence of concrete.
 6. Leave side forms in place not less than 6 hours after concrete is placed; if form removal causes damage to concrete, leave remaining forms in place longer than 6 hours, as required.
 7. Remove forms with care to prevent cracking, spalling or overstressing concrete; remove form stakes prior to raising forms.
 8. Clean forms before resetting.
 9. Forms not required where abutting existing pavement.
- B. Concrete and steel placement:
1. Uniformly moisten subgrade or place plastic film, specified hereinbefore, on prepared subgrade or subbase; lap plastic film 12", minimum.
 2. Adjust manhole and other castings within area to be paved to conform to finished surface; clean outside of casting.
 3. Place dowel and tie bars as shown on plans or specified; secure in position by approved method.
 4. Place concrete to full depth of pavement in single operation; do not pile concrete more than 8" above design elevation of surface; allow no segregation of material when concrete is deposited on subgrade.
 5. Carefully place concrete and subgrade to require minimum re-handling; minimize disturbance of reinforcement.
 6. Vibrate and consolidate to prevent formation of voids; do not displace or distort reinforcement.
- C. Finishing:
1. Begin finishing operations promptly after concrete has been placed and consolidated.
 2. Screed surface to grade and crown shown on plans.
 3. Finish surface with 10' long lightweight float; finish from both sides simultaneously if pavement is placed to full width of street with one pass of paving machine.
 4. Provide uniformly gritty surface with Astroturf drag; round edges of pavement to 1/8" radius.

Portland Cement Concrete Pavement

5. Check pavement surface with 10' long straightedge; maximum permissible deviation: 1/8"; grind high spots, over 1/8", with carborundum grinding wheel.
- D. Construct joints as shown on plans and specified; seal as specified hereinafter.
 1. Provide transverse contraction joints every 15 LF of portland cement concrete pavement.
 2. Round edges of concrete adjacent to header boards and expansion joint material to 1/8" radius.
 3. Provide supplemental vibration adjacent to header boards and expansion joint material as required.
 4. Begin saw cutting as soon as concrete can be sawed without objectionable tearing of sawed edges; complete such work within 24 hours after concrete is placed.
 5. For weather conditions, end of day's work, or when 30 min. elapse between concrete placement, install header board and 3/4" smooth dowels 1'-3" long at 1'-6" spacing through header board; grease protruding ends prior to next concrete placement.
- E. Seal all joints before pavement is opened to Contractor's forces and general traffic; seal only dry and clean joint surfaces; slightly under-fill joints, keep sealer off of adjacent pavement.
 1. Heat joint sealer to required temperature in thermostatically controlled heating kettle approved by Engineer; do not overheat.

8. CURING AND PROTECTION

- A. Apply liquid curing compound in fine spray to form continuous, uniform film on surface and vertical edges of pavement and curbs.
 1. Apply compound with power sprayer, operating at 40 psi or less; rate of application: 0.03 gal. per square yard (1 gal. per 300 SF); do not dilute compound.
 2. Apply to pavement surface after finishing and after surface moisture has disappeared; apply to pavement edges within 30 min. after forms are removed.
- B. Apply plastic or burlap cover where liquid curing compound not permitted; keep continuously damp for 48 hours after placement of concrete.
- C. Concrete pavement in place for less than 36 hours shall be protected during cold weather as follows:

Portland Cement Concrete Pavement

<u>Forecast or Actual Temperature</u>	<u>Protection</u>
35° to 32°F.	One layer of burlap for concrete placed after October 1.
31° to 25°F.	Two layers burlap or one layer plastic film on one layer burlap.
Below 25°F.	One layer burlap or plastic film and 6" layer of straw or hay.

1. Burlap: AASHTO M182, Class 3.
2. Commercial insulation may be substituted for straw or hay, when approved by Engineer.
3. Protect straw, hay or insulation from disturbance by wind; leave in place for 5 days, minimum, or until pavement is opened to traffic.
4. Lap plastic film 18" at junctions.

D. Concrete damaged by rain or freezing shall be removed and replaced at Contractor's expense.

9. RESTRICTIONS

A. Weather:

1. Place no concrete when stormy or inclement weather prevents good workmanship, when subgrade is frozen or if air temperature is 38°F. or below; use no aggregates containing frozen lumps.
2. With favorable weather conditions, start paving operations when temperature of concrete delivered to subgrade is 40°F. or higher.
3. Continue paving operations as long as concrete temperature requirement is met and air temperature remains above 38°F.

B. Night operation:

1. Place no concrete when darkness prevents good workmanship in placing and finishing.
2. Do not place or finish concrete under artificial light.

C. Use of pavement:

1. Time for opening pavement for use will be determined by results of tests on cylinders taken during concrete placement.
2. Pavement may be opened to Contractor's forces after 2 days for purpose of removing coverings if tests of cylinders from section show compressive strength of 2,750 psi or higher.

Portland Cement Concrete Pavement

3. Open pavement to general traffic when authorized by Engineer.
4. Concrete placed in cold weather may require additional curing time, as directed by Engineer; keep all vehicles off pavement until such curing time has been completed.

10. DEFECTS

- A. Pavement containing fractures, spalls, more than one random crack per panel or other defects: remove and replace at no cost to Owner; rout and seal random cracks including placement of saw cut and epoxy cemented tie bars at 30" centers transverse to crack where crack is 1/8" or wider.
- B. Water ponding deeper than 1/4" in gutter: remove and replace panel, or grind gutter in adjacent panels to drain; Owner reserves the right to select method of correcting defects at no cost to Owner.
- C. Remove and replace pavement more than 0.50" deficient in thickness.

11. SIDEWALK CONSTRUCTION AND DRIVEWAY APPROACH

- A. Conform to details shown on Standard Drawing and plans for driveway approaches and sidewalks; prepare subgrade as specified under EARTHWORK AND INCIDENTALS FOR PAVEMENT.
- B. Remove existing concrete as shown on Standard Drawings or plan; use saw or other devices to cut smooth, even lines perpendicular to existing pavement surface.
- C. Concrete materials:
 1. Portland cement, admixtures, fine aggregate and water; as specified for pavement.
 2. Coarse aggregate: as specified for pavement, except conform to following sieve analysis:

<u>Sieve Size</u>	<u>% Passing</u>
1-1/2"	100
1"	95-100
1/2"	25-60
No. 4	0-10
No. 8	0-5
No. 200	0-1.5

- D. Concrete mix: use IDOT I.M 529 M-4 mix as specified for street pavement. Use C-4 mix on driveways and on sidewalks in driveway areas as indicated on plans.

- E. Concrete quality:
1. Minimum compressive strength: psi at 28 days: 4,000.
 2. Water-cement ratio: gallons per sack, maximum, including water in aggregates: 6-1/2.
 3. Cement contents: sacks per cubic yard, minimum: 6.
 4. Admixtures: per manufacturer's recommendations.
 5. Concrete mix: meet approval of Engineer.
 6. Slump: 2" to 4"; measure according to ASTM C143.
 7. Air entrainment: use for all concrete: 5% to 7%, measure in accordance with ASTM C231; number of tests as required by Engineer.
 8. Concrete compression cylinders: two cylinders for each day's pour, or as directed by Engineer.
- F. Curb ramps
1. Pedestrian curb ramps scheduled for installation or replacement shall comply with the requirements of the Americans with Disabilities Act.
 - a. Ramps shall contain a strip of detectable warnings measuring 2' in the direction of pedestrian travel and extend the full width of curb ramp.
 - b. Detectable warning strip shall be located adjacent to the curb and shall be constructed of contrasting color and texture; color to be selected by Owner.
 - c. Detectable Warnings shall be fiberglass panels as manufactured by Armor-Tile or equal.
 - d. See plans for details and location of pedestrian curb ramps.
- G. Form setting and placing concrete:
1. Use wood or steel forms along edge of sidewalk; set true to line and grade and hold rigidly in place by stakes placed outside forms and flush with or below top edge of forms; form height equal to full specified depth of sidewalk; wood form minimum nominal thickness: 2".
 2. Cross section: conform to type shown on plans.
 3. Spreading: deposit concrete on subgrade in manner requiring as little rehandling as possible; prevent segregation of concrete when discharged; spread with shovels; do not walk on freshly mixed concrete with boots or shoes coated with earth or other foreign substances.
 4. Construction joints: place at end of each day's work or any other time when process of depositing concrete is stopped for more than 30 min.; sections less than one division into which walk is being divided not permitted; construct construction joint using header board made from clean lumber having minimum 2" nominal thickness; set header board accurately and hold perpendicular to surface.

Portland Cement Concrete Pavement

5. Expansion joints: install transverse or longitudinal expansion joints whenever sidewalk or driveway concrete is placed against curb, driveway or pavement slab, existing sidewalk or structure; install expansion joint at property side of crosswalks in intersections and at intervals not greater than 100'; construct expansion joints by installing 1/2" thick strip of approved non-extruded, premolded joint material full depth of concrete; carefully trim any expansion joint material protruding above finished work to level or abutting concrete.
- I. Placement of Reinforcing Steel
1. In a 5' sidewalk, 4" thick, a minimum of two 1/2" pieces of rebar will be centered in the pour, approximately 6" from each edge, continuous through the whole pour.
 2. In a 5' sidewalk, 6" thick, a minimum of two 5/8" pieces of rebar will be centered in the pour, approximately 6" from each edge, continuous through the whole pour.
 3. In a driveway 6" thick pour a minimum of three 5/8" rebar will be centered in the pour, approximately 6" from each edge with one placed in the middle, continuous through the whole pour.
 4. The cost of reinforcing steel is incidental to construction of the sidewalk or driveway.
- J. Concrete finishing
1. Place concrete to slightly overfill space between forms; spread immediately and consolidate with vibrator; smooth with straight edge; float with wooden float to depress large aggregate and create dense surface; after floating, allow to set until shine has disappeared from surface.
 2. Use steel trowel or magnesium float to smooth concrete surface free from defects and blemishes.
 3. Finish concrete edges with edging tool having radius of approximately 1/2".
 4. Provide soft broom finish; broom at right angles to surfacing.
- K. Cure and protect sidewalks and driveway approaches as specified for pavement.
- L. Form removal
1. Timing: remove forms after initial set has taken place but not less than 6 hours after concrete has been placed; Engineer may vary minimum time according to weather and temperature conditions.
 2. Concrete protection: backfill areas adjacent to concrete immediately after forms are removed or construct check dams or other protection to prevent saturation or erosion of subgrade under or near concrete.
- M. Cleaning sidewalks and driveway crossings

Portland Cement Concrete Pavement

1. Clean sidewalk or driveway immediately after end of curing period of all liter, construction materials and tools; remove excess dirt from site and broom sidewalk or driveway clean.

N. Restrictions on construction and use of pavement apply to sidewalks and driveway approaches.

12. COMBINED RETAINING WALL-SIDEWALK

A. Work shall consist of designing, furnishing, and construction of a combined retaining wall-sidewalk in accordance with Statewide Urban Design and Specifications (SUDAS) specifications Section 9070-Retaining Walls.

1. See plans for details and location of combined retaining wall-sidewalks.
2. Provide sloped face on walls where indicated on plans to match existing.

13. MODULAR BLOCK RETAINING WALL

A. Work shall consist of designing, furnishing, and construction of a modular block retaining wall system in accordance with Statewide Urban Design and Specifications (SUDAS) specifications Section 9070-Retaining Walls.

1. See plans for details and location of modular block retaining walls.
2. Provide Keystone Compac II straight split units. Color: Kingston or as selected by owner.
3. Units shall be capable of interlock with ½" diameter nylon or fiberglass pins.
4. Provide geogrid tieback, granular backfill, and drainage tile as required by design.

14. PAYMENT

A. No separate payment will be made for work covered under this part of the specifications except as set forth below. All other items are incidental to construction. Surfacing damaged by Contractor beyond removal limits replaced by Contractor at no cost to Owner.

B. Portland Cement Concrete Pavement, SY: Unit price includes furnishing all labor, materials and equipment necessary for construction of portland cement concrete pavement including jointing, tie bars, forming, manhole and water valve fixture adjustment, subgrade preparation, concrete, backfill, finished grading, testing, consolidating, finishing and curing of concrete and incidental work including cleanup. Measurement based on surface area of new pavement from back of curb to back of curb and including headers, curb and gutter, and buried lugs; integral concrete curb and gutter is incidental to portland cement concrete pavement.

Portland Cement Concrete Pavement

1. Includes full width pavement, partial width pavement, patches, and concrete slab under brick pavers.
- C. Portland Cement Concrete Driveways, SY: Unit price includes furnishing all labor, materials and equipment necessary for construction of portland cement concrete driveways or parking lots including jointing, reinforcing steel, forming, subgrade preparation, concrete, backfill, finished grading, testing, consolidating, finishing, curing of concrete, and incidental work including cleanup. Measurement based on surface area of new driveway or parking lot segment.
- D. Portland Cement Concrete Driveways w/PCC Curb & Gutter, SY: Unit price includes furnishing all labor, materials and equipment necessary for construction of portland cement concrete driveways or parking lots including jointing, reinforcing steel, forming, subgrade preparation, concrete, backfill, finished grading, testing, consolidating, finishing, curing of concrete, and incidental work including cleanup. Measurement based on surface area of new pavement from back of curb to back of curb and including headers, curb and gutter, and buried lugs; integral concrete curb and gutter is incidental to portland cement concrete driveway.
- E. Reinforced PCC Sidewalk, SY: Unit price includes furnishing all labor, equipment and materials necessary to complete work required for construction of new reinforced portland cement concrete sidewalks including subgrade preparation, forming, reinforcing steel, placing, consolidating, testing, finishing, jointing, curing, and miscellaneous associated work including cleanup.
1. Sidewalk thickness: minimum thickness is 4" except at section through driveways where minimum thickness is 6" and except at pedestrian curb ramps where minimum thickness is 6" and thickened to 8" where sidewalk forms or abuts curb.
 2. 6" thick sidewalk sections through driveways will be paid for as 6" thick sidewalk; all other sidewalk including pedestrian curb ramps and thickened edges will be paid for as 4" thick sidewalk.
 3. Reinforcing steel required for sidewalk.
 4. Detectable Warnings will be paid separately from the underlying sidewalk.
- F. Detectable Warnings, SF: Unit price includes cost of equipment, labor and materials and incidentals necessary to complete work required for construction of detectable warnings in curb ramps as specified and shown on plans.
- G. Type B Concrete Steps with Handrail, Ea.: Unit price includes cost of equipment, labor, materials, and incidentals necessary to complete work as required for construction of steps including demolition of existing concreted steps, truncated domes, and retaining wall as specified and shown on plans.

Portland Cement Concrete Pavement

- H. Combined Retaining Wall-Sidewalk, SF: Unit price includes cost of equipment, labor, materials, design, and incidentals necessary to construct combined retaining wall-sidewalk as specified and shown on plans.
- I. Modular Block Retaining Wall, SF: Unit price includes cost of equipment, labor, materials, design, and incidentals necessary to construct combined retaining wall-sidewalk as specified and shown on plans.

PART 8 – HOT MIX ASPHALT PAVEMENT

INDEX

- | | |
|--|-------------------------------|
| 1. WORK INCLUDED | 7. HANDLING AND DELIVERY |
| 2. MATERIALS | 8. HAND SPREADING |
| 3. PAVING PLANT AND EQUIPMENT | 9. ROLLING |
| 4. JOB MIXING FORMULA | 10. JOINTS |
| 5. SURFACE PREPARATION | 11. SMOOTHNESS |
| 6. BASE, INTERMEDIATE AND
SURFACE COURSES | 12. LIMITATIONS ON OPERATIONS |
| | 13. SAMPLES |
| | 14. PAYMENT |

1. WORK INCLUDED

- A. Hot asphalt mix base, intermediate and surface mixtures of aggregate, mineral filler and asphalt binder; heated, mixed, spread and compacted to dimensions shown on plans.
- B. Construction of hot mix asphalt pavement on prepared subgrade or subbase.
- C. Preparation of subgrade; as specified in EARTHWORK AND INCIDENTALS FOR PAVEMENT.
- D. Meet requirements of IDOT Section 2303, except asphalt binder and samples will not be measured and paid for separately. Include in cost for hot mix asphalt pavement.
- E. Certified plant inspection not required
- F. Includes minor full depth HMA fillets at abutments to existing pavements.
- G. Includes roto milling existing pavement where shown on plans.

2. MATERIALS

- A. Asphalt binder:
 - 1. Petroleum asphalt binder, IDOT 4137.
 - 2. Performance grade asphalt PG 58-28.
- B. Other materials: meet requirements of IDOT Section 2303.02.

3. PAVING PLANT AND EQUIPMENT

A. Meet requirements of IDOT Section 2303.02.F.

4. JOB MIXING FORMULA

A. Certify that sources of aggregates and binder are IDOT approved. Provide analyses of samples of materials to be used.

B. Base course: Type A 1/2" mixture size, 1M ESAL, min. 60% crushed particles.

C. Surface course: Type A 1/2" mixture size, 1M ESAL, min. 60% crushed particles.

5. SURFACE PREPARATION

A. Remove all loose and foreign material from pavement surface; provide clean surface for placement of asphaltic concrete paving mixture.

B. Surface must be dry prior to application of tack coat and asphaltic concrete paving mixtures.

C. Set grade of fixtures to finished pavement grade or side slope grade.

6. BASE AND SURFACE COURSES

A. Spread with finishing machine in areas of uniform width.

B. Adjust forward speed of finishing machine as necessary to provide least amount of stopping.

C. Place in thicknesses as shown on plans.

D. Use string line to maintain edge alignment.

E. At exposed edges, slope base and surface courses at 45° from vertical; smooth and compress with finishing machine.

F. Make provisions for clean, sharp edges by sawing or other means.

G. Do not rake or disturb layer spread by machine; do all hand raking in area before placement with finishing machine.

- H. Allow all courses to cool to air temperature before placing additional course
- I. Surfaces requiring three or more adjacent passes of finishing machine:
 - 1. Outer lanes laid first.
 - 2. Closure of surface made by interior lanes near centerline.
- J. Surfaces requiring two adjacent passes of finishing machine; complete to full width within 24 hours.
- K. Spread no more hot mix asphalt than can be finished in daylight hours.
- L. If surface of layer becomes dirty, clean and reapply tack coat, at no expense to Owner.
- M. Provide approved weight tickets for hot mix asphalt incorporated into pavement.

7. HANDLING AND DELIVERY

- A. Control handling and manipulation of hot mix asphalt paving mixture from mixer to final spread to maintain uniform composition; prevent segregation of course particles.
- B. Maintain continuous and uniform delivery rate to provide least amount of stopping of spreading unit.
- C. Keep all trucks covered when delivering asphalt mixture to job site.
- D. Do not use cleaning solutions such as kerosene, distillate or petroleum fractions over pavement surfaces.
 - 1. Do not carry such cleaning solutions on spreading unit.
 - 2. Wait 5 hours before using spreader unit after cleaning with above materials.
- E. Keep hand tools clean by heating and scraping.

8. HAND SPREADING

- A. Use hand method of spreading only in areas not accessible to finishing machine.
- B. Do not dump truckloads of hot mix asphalt paving mixture on area to be hand spread.
- C. Spread uniformly with hot rakes and shovels; smooth with lute.

- D. Use hand rakes designated for use with asphalt mixtures.
- E. Do not stand on loose mixture while raking.

9. ROLLING

- A. Roll each layer to proper density.
- B. Use power or driving roll for initial contact.
- C. Begin at edge and work toward centerline; reverse trip lapping 2/3 to 3/4 of previous track.
- D. Stagger ends of roller tracks not less than 3' in a manner that tracks will not hold water on surface.
- E. Do not pass roller over end of course unless laying has been discontinued.
- F. Following initial rolling, start intermediate rolling to close surface tears and voids.
 - 1. Roll entire area not less than four times.
 - 2. Roll until pavement has a density not less than 94% of density obtained in laboratory on mixture.
 - 3. Meet requirements of Class IC Compaction, IDOT Section 2303.03.D.

10. JOINTS

- A. Separate longitudinal construction joints between courses at least 3".
- B. Separate transverse construction joints at least 6'.
- C. Pave along longitudinal joints to secure closure of joint and full compression of mixture with smooth surface after compaction.
- D. Saw transverse joints at right angles to centerline of pavement.
- E. Provide paper or burlap under ramp at end of day's run.

11. SMOOTHNESS

- A. After second rolling, check base course and surface course with 10' straight edge in direction of rolling.

- B. For variations greater than 1/4" in base and binder courses and 1/8" in surface course: heat bumps to soften mixture; smooth with rakes; roll to obtain proper density.
- C. For depressions 1/2" and smaller: heat and loosen surface; add mixture free of coarse particles; lute to proper elevation and roll to obtain proper density.
- D. For depressions greater than 1/2": remove asphaltic concrete paving mixture; replace with fresh mixture; compact and roll to proper density.
- E. Pavement smoothness testing in accordance with IDOT Section 2316 is not required.

12. LIMITATIONS ON OPERATIONS

- A. Do not apply asphaltic concrete paving mixtures at pavement temperatures of less than 40°F.; do not apply to wet or damp surface.
- B. Place no asphaltic concrete paving mixtures between November 15 and April 15 of following year without written approval of Owner and Engineer.

13. SAMPLES

- A. Provide and test uncompacted samples of each mixture at location designated by Engineer in accordance with IDOT Section 2303.04.D.; split sample with Owner not required.
- B. Cut samples and test from any course or from finished pavement in accordance with IDOT Section 2303.04; cut additional samples as directed by Engineer if deficiencies occur in pavement thickness, density or stability.
 - 1. If cores taken are less than the specified thickness or density, adjustments in payment will be made in accordance with IDOT section 2303.06.
- C. Engineer will require changes in mix design, or placement and compaction procedures if asphalt mixture or pavement density fails to meet requirements specified.

14. PAYMENT

- A. No separate payment will be made for work covered under this part of the specifications, except as set forth below.

Hot Mix Asphalt Pavement

- B. Hot Mix Asphalt Sidewalk, Tons: Unit price includes furnishing labor, materials, equipment, sampling and testing, and incidentals for constructing paving as shown on plans; measurement based on delivery tickets at job site, subject to adjustment based on core samples.
- C. Hot Mix Asphalt Pavement, Tons: Unit price includes furnishing labor, materials, equipment, sampling and testing, water valve fixture adjustments, and incidentals for constructing paving as shown on plans; measurement based on delivery tickets at job site, subject to adjustment based on core samples.

PART 9 – PAVEMENT MARKING

INDEX

- | | |
|------------------|------------------------------|
| 1. WORK INCLUDED | 4. LIMITATIONS ON OPERATIONS |
| 2. MATERIALS | 5. PAYMENT |
| 3. PAINTING | |

1. WORK INCLUDED

- A. Cleaning and preparation of pavement surfaces for painting.
- B. Measurement and layout of pavement markings: all painting for crosswalks, parking stalls, and stop bars.
- C. Pavement marking: IDOT Section 2527 pavement marking, except payment.

2. MATERIALS

- A. Pavement paint: IDOT Section 4183 traffic paints.

3. PAINTING

- A. Clean all loose and foreign materials from pavement surface by brooming or other means.
- B. Remove dirt, dust and miscellaneous objects from pavement surface by wetting and brooming areas to be painted.
- C. Surface must be dry prior to application of paint.
- D. Provide string lines or other means to ensure straight and uniform lines.
- E. Paint line width: as shown on plans; provide 2 coats of paint.

4. LIMITATIONS ON OPERATIONS

- A. Do not paint when stormy or inclement weather prevents good workmanship.
- B. Do not apply paint at surface temperatures of less than 50°F.; do not apply to wet or damp surfaces.

5. PAYMENT

- A. No separate payment will be made for work covered under this part of the specifications, except as set forth below.
- B. Pavement Marking, Sta.: Unit price includes furnishing labor, materials, equipment, and incidentals for cleaning and preparation of pavement surfaces, measurement, and layout of markings and miscellaneous associated work, including cleanup.