

CITY OF SPRINGFIELD CONSTRUCTION AND MATERIAL SPECIFICATIONS

December 2022

Construction (Methods and Materials) shall be performed in accordance with the latest edition of City of Springfield Construction and Material Specifications and Standard Drawings. If no City Specification is available, the latest edition of the Ohio Department of Transportation “Construction and Material Specifications” shall apply.

TABLE OF CONTENTS

	Page
100 GENERAL PROVISIONS	
101 Information and Instruction to Bidders.....	1
102 Definitions and Terms	9
103 General Conditions	13
104 Supplemental Conditions for Federally Funded Projects.....	38
200 EARTHWORK	
202 Removal of Structures and Obstructions	43
250 PAVEMENT REPAIRS	
261 Pavement Restoration	44
262 Base Pulverizing and Shaping with Calciment.....	46
500 STRUCTURES	
503 Rock Excavation	49
600 INCIDENTALS	
608 Drives, Walks, Curb Ramps and Steps	50
609 Curbing	53
614 Maintaining Traffic.....	54
630 Traffic Signs and Sign Supports.....	56
632 Traffic Signal Equipment.....	57
633 Traffic Signal Controllers.....	58
650 ROADSIDE	
659 Seeding and Mulching	61
800 UTILITIES	
803 Sanitary and Storm Sewers.....	63
804 Manholes and Catch Basins	68
838 Water Mains	72
839 Valves.....	80
840 Fire Hydrants.....	83
841 Property Services.....	86
1000 MISCELLANEOUS	
1001 Premium for Owners Protective Insurance.....	88
1002 Premium for Contract Performance and Payment Bond.....	88



STANDARD CONSTRUCTION DRAWINGS

Standard Manhole.....	MH-1
Drop Manhole.....	MH-2
Large Diameter Pipe Manhole.....	MH-5
Single Catch Basin.....	CB-1
Double Catch Basin.....	CB-2
Drive and Alley Details.....	DW-1
Curbing.....	CU-1
Pipe Bedding Details.....	PB-1
Headwall Detail.....	HW-1
Fire Hydrant Detail.....	FH-1
Water Meter Installation.....	WM-1
Water Line Blocking Details.....	WB-1
Street Name Sign Detail.....	SN-1
Signal Support Detail.....	SS-1
Tree Grate Detail.....	TG-1
Core District Sidewalk Detail.....	SW-2
Hydrant Nozzle Threads.....	HN-1
Decorative Street Light Detail.....	SL-1

100 GENERAL PROVISIONS

101 INFORMATION AND INSTRUCTIONS TO BIDDERS

101.01 Submission of Bids. Sealed Bids for the Work will be received by the City of Springfield at the office of the Purchasing Agent until the date and time set in the Notice to Bidders, at which hour the Bids will be publicly opened and read aloud. Bidders or their representatives are invited to attend the bid opening.

101.011 Each Bid must be submitted in a sealed envelope, addressed to the Purchasing Agent at City Hall. Each sealed envelope containing a Bid must bear on the outside the name of the Bidder, the Bidder's address, and the title of the Work for which the Bid is submitted.

101.012 The City of Springfield will not be held responsible if a Bid is opened prior to the opening time and date due to improper identification on face of envelope.

101.013 Bids to receive consideration must be received PRIOR to the specified time of opening and reading of Bids as designated in the Legal Notice. Bids received later than this time and date will not be considered.

101.014 All Bids must be made on the forms furnished by the CITY as none other will be acceptable. All blank spaces for Bid prices must be filled in, and the Bid form must be fully completed and executed when submitted. If there is an error made in the extensions, by the Bidder, the total shall be changed as only the unit price shall govern. Bids must have an original signature where a signature is required.

101.015 The Bid shall be legibly prepared with ink or typed. Bids having any erasure or corrections thereon may be rejected unless explained or noted over the signature of the Bidder.

101.016 Facsimile transmissions of formal sealed bids will not be accepted.

101.017 The submitted bids shall include:

- a. Two (2) complete sets of the Bid Sheet, Warranty/Guarantee, and technical literature, if applicable.
- b. One (1) copy of all other items required by the bid specifications.

101.018 If a pre-bid meeting has been planned or is mandatory, it will be noted in the detailed technical specifications.

101.02 Bid Identification. Every Bid submitted shall contain the full name and address of the Bidder, and shall specify whether the Bidder is an individual, partnership,

association or corporation. Each Bidder shall further set forth the names and addresses of every person, partnership, or firm, if any other than the Bidder, who might be interested in the Bid or any contract or benefit which might accrue therefrom.

101.03 Bid Security (Bond). Each Bid submitted shall be accompanied by a Bid Bond (form provided) in the amount of ten percent 10% of the total amount of the Bid. A certified check or a cashier's check drawn upon a solvent bank and made payable to the treasurer of The City of Springfield, for like amount, may be used in lieu of Bid Bond, but subject to all the conditions enumerated therein. Every Bid Bond shall be executed by an authorized Surety licensed to do business in the State of Ohio, with a properly executed "Power-of-Attorney" authorizing the attorney-in-fact to bind the Surety and certified to include the date of the Bond. The Obligee therein shall be The City of Springfield, Ohio. The Bid Bond shall have original signatures and notary seal. Copies of the Bid Bond will not be accepted.

101.031 In case of alternate bids, only one Bid Bond will be required provided the same is in the amount equal to at least ten percent (10%) of the highest gross bid.

101.032 Nonconstruction Bids shall require a 5 percent (5%) Bid Bond.

101.04 Performance and Payment Bonds. The successful Bidder shall furnish and pay for Bonds covering the faithful performance and payment of all obligations under the Contract Documents. Performance and Payment Bonds or a certified check on a solvent bank payable to the Treasurer of the City of Springfield, Ohio, each in the amount of one hundred percent (100%) of the Contract Price will be required. Bonds shall be executed on the forms included with the Bid Documents and with such Sureties as are licensed to do business in the State of Ohio, with a properly executed Power-of-Attorney, authorizing the attorney-in-fact to bind the Surety and certified to include the date of the Bond.

101.041 Bonds shall be in a specific amount equal to not less than 100% of the amount of the contract award.

101.042 Bonds shall remain in full force and effect for the period of time as set forth in the General Conditions, paragraph "Guarantee" (103.41)

101.043 Successful Bidder shall execute and deliver said Bonds and properly executed Contract to the City Law Director within ten (10) days after Notice of Award as successful Bidder has been given. Failure or neglecting to deliver said Bonds as specified shall be considered as having abandoned the Contract and the Bid Security will be retained by the City as liquidated damages.

101.05 Non-collusion Affidavit and Disqualification. Bidder shall execute a Non-Collusion Affidavit on form furnished by the CITY, a copy of which is provided in the Bid Documents. No Contract shall be deemed to be fully executed until said Affidavit has been properly executed.

101.051 The City reserves the right to disqualify Bids, before or after opening, upon evidence of collusion with intent to defraud or other illegal practices upon the part of the Bidder(s).

101.06 Affirmative Action Assurance Plan. CONTRACTOR shall be required to have an Affirmative Action Plan which declares that it does not discriminate on the basis of race, color, religion, creed, national origin, ancestry, sex, or age and which specifies goals and target dates to assure the implementation of that plan. All Bidders whose Bids will be for \$15,000.00 or more shall submit as part of their Bid Documents the information requested on the "Affirmative Action Assurance Forms."

101.07 Taxes. Bidders are to be advised that materials purchased for this contract are exempt from Sales Tax under Ohio Revised Code 5739.02 and material prices quoted should reflect such exemption. The City will furnish necessary Certificates of Exemption upon request.

101.08 Municipal Income Tax. Before beginning Work on the Project, the CONTRACTOR and all Subcontractors shall:

a. Contact the Income Tax Bureau of the City of Springfield, Ohio, for the purpose of establishing an account number with the Bureau. To obtain the proper City tax forms or have specific questions answered, please contact the Income Tax Division at (937) 324 7699 or (937) 324-7306.

b. Furnish such information as may be legally required by the Income Tax Bureau.

c. Comply with all ordinances of the City of Springfield, Ohio pertaining to Municipal Income Taxation, including the filing of income tax returns covering net profit and withholding reports on all employees subject to the tax and shall pay all said tax found to be due.

d. If the CONTRACTOR or Subcontractor shall fail to comply with these provisions, the CITY will withhold payment for Work or services until such compliance has been effected.

101.09 Questions and/or Changes to Bid Documents. Submit all questions about specifications to the Engineering Department or appropriate Buyer of the City of Springfield, in writing. To the extent possible, copies of all changes will be issued to all Bidders of record as addenda. All such changes or Addenda shall become part of the Contract and all Bidders shall be bound by such changes or Addenda whether or not received by the Bidder.

101.091 Copies of all addenda issued will be available for inspection and will be on file in the office of the Purchasing Agent. It shall be the Bidder's responsibility to make inquiry as to changes or Addenda issued.

101.092 Only a written interpretation, clarification or correction by Addendum, shall be binding. No Bidder shall rely upon any interpretation, clarification or correction given

by any other method.

101.093 Any inquiry received within a reasonable time prior to the date fixed for the opening of bids will be given consideration.

101.094 The CITY reserves the right to postpone the bid opening.

101.10 Subcontractors / Material Suppliers. The low Bidder shall supply the names and addresses of all major material suppliers and Subcontractors when requested to do so by the CITY. All materials must meet the approval of the ENGINEER and a sample of said materials with the manufacturer's specifications shall be submitted when requested by the CITY.

101.11 Withdrawal of Bid. Any Bid may be withdrawn prior to the scheduled time set for the opening of Bids or authorized postponement thereof, if withdrawal is requested in person by a Bidder or his authorized representative. The Bidder or his authorized representative must sign a receipt for withdrawal of the Bid. Sealed bids may be submitted again prior to bid opening. No Bidder may withdraw a Bid within sixty (60) days after the actual date of the bid opening. Should there be reasons why the Contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the City and the Bidder.

101.12 Qualifications of Bidders. Upon request, by the City, Bidders must furnish satisfactory evidence of their ability to do the class of Work required and have the necessary equipment available to do the Work. The City reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the CITY that such Bidder is properly qualified to carry out the obligations of the Contract and to complete the Work contemplated therein.

101.121 Bidders who have not previously been awarded a Contract in the City of Springfield are required to state what Work of a character similar to that included in the proposed Contract the Bidder has done to give references and such other detailed information as will enable the ENGINEER to judge the Bidder's responsibility, experience, skill and financial resources required for the performance of the Work, on the form designated by the CITY.

101.122 Failure to have performed satisfactorily any Contract previously awarded to the Bidder by the CITY may be sufficient cause for rejection of the Bid.

101.13 Minimum Wages. The CONTRACTOR shall pay the rate of wages attached to the Bid Form as determined by the Department of Industrial Relations or as specified by the Federal Register Labor Rates, whichever controls, and submit an affidavit of compliance on the form included in the Contract Documents for himself and subcontractors prior to final payment.

101.14 Assignment of Contract. The CONTRACTOR shall not assign his Contract or any part thereof without the approval of the CITY, nor without the consent of the Surety, unless the Surety has waived its right to notice of assignment.

101.15 Laws and Regulations. All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the Contract throughout.

101.151 Bidders wishing to avail themselves to protection of trade secrets should review the provisions of the Codified Ordinances of the City of Springfield, Section 149.09 entitled "Records Submitted to the City; Trade Secrets." Contact Finance/Purchasing at (937) 324-7326 for this information.

101.16 Employment Requirements. The CONTRACTOR agrees that in the hiring of employees for the manufacture, processing, furnishing of such goods and services or performance of work under this contract or any subcontract; no contractor, subcontractor, or any person acting on his behalf, shall by reason of race, creed, color, or national origin discriminate against any person who is qualified and available to perform the work to which the employment relates.

101.161 The CONTRACTOR further agrees that no contractor, subcontractor, nor any person on his behalf shall, in any manner discriminate against or intimidate any employee hired for the performance of work under this contract on account of race, creed, or color, or national origin.

101.162 The CONTRACTOR agrees that there shall be deducted from the amount payable to the CONTRACTOR by the City under this contract, a forfeiture of ONE HUNDRED Dollars (\$100.00) for each person who is discriminated against or intimidated in violation of such contract. This contract shall be canceled or terminated by the CITY and all money to become due thereunder may be forfeited, for a second or subsequent violation of the terms of this section of the contract.

101.163 Particular attention is called to the statutory requirements of the laws of Ohio relative to licensing of corporations organized under the laws of any other state. Instructions for obtaining a Contractor's license are included as Supplement No. 1 attached to Information and Instructions to Bidders.

101.17 Quantities. The quantities appearing on the Bid Form are approximate. Payment will be made only for the actual quantities of Work performed and accepted, or materials furnished and accepted. The scheduled quantities of Work to be done, and materials furnished may be increased, decreased, or omitted as hereinafter provided or as directed by the ENGINEER.

101.18 Examination or Work Site. Bidders must satisfy themselves of the accuracy of the estimated quantities in the Bid schedule by examination of the site and a review of

the drawings and specifications including Addenda. The submission of a Bid will be deemed as acknowledgment that this has been done, and that the specifications and form of Contract are fully understood. After Bids have been submitted, the Bidder shall not assert that there was a misunderstanding concerning the quantities of Work or of the nature of the Work to be done.

101.19 Subsurface Structures. Prospective Bidders are advised that the CITY does not guarantee the location of any subsurface structures, nor the character of any subsurface materials shown on the plans. The indications of such structures and of such materials on the drawings are based on the best available data and should not be regarded as conclusive.

101.20 Lands and Right of Way. The CITY shall provide to Bidders, prior to bidding, all information that is pertinent to and delineates and describes the land owned and rights-of-way acquired or to be acquired.

101.21 Fugitive Dust. The successful Bidder shall be required to comply with the following Air Pollution regulations that apply to renovation and/or demolition activities with the City of Springfield, Ohio:

a. Section 839.15 of the Codified Ordinance of the City of Springfield, Ohio, "Restrictions of Fugitive Dust.

b. Rule OAC-3745-170-08 of the Ohio Administrative Code as promulgated by the Ohio Environmental Protection Agency (EPA).

101.22 Award of Contract. Award of contract will be made to a responsible bidder submitting the lowest and best bid complying with the conditions of the Bid Invitation. No Contract can be awarded if the lowest and best bid is in excess of one hundred ten percent of the estimate for the Project.

101.221 The party to whom the Contract is awarded will be required to execute the Contract, obtain the Performance and Payment Bond and Certificate of Insurance within ten (10) Calendar Days from the date when Notice of Award is delivered to Bidder. The Notice of Award shall be accompanied by the necessary Contract and bond forms. In case of failure of the Bidder to execute and return the Contract, file acceptable Performance and Payment Bonds, and required Certificates of Insurance within the ten (10) day period, the CITY may, at its option, consider the Bidder in default, in which case, the Bid Bond or certified or cashier's check accompanying the Bid shall become the property of the CITY, not as a penalty, but as liquidated damages sustained. Award may then be made to the next lowest and best bidder, or the work may be re-advertised as the CITY may decide.

101.222 The CITY within ten (10) days of receipt of acceptable Performance and Payment Bond, Certificate of Insurance and Contract signed by the party to whom the Contract was awarded, shall sign the Contract and return to such party an executed and certified duplicate of the Contract. Should the CITY not execute the Contract within such

period, the Bidder may by Written Notice withdraw his signed contract. Such notice of withdrawal shall be effective upon receipt of the notice by the CITY.

101.223 The Contract Documents contain the provisions required for the construction of the Project. Information obtained from an officer, agent, or employee of the CITY or any other person shall not affect the risks or obligations assumed by the CONTRACTOR or relieve him from fulfilling any of the conditions of the Contract.

101.224 The City in its best interests reserves the right to award separate contracts as indicated in the bid documents unless otherwise specified by the Bidder.

101.23 Rejection of Bids. The City reserves the right to reject any or all bids, and to waive informalities and minor irregularities in bids received whenever the best interest of the City will be served.

101.24 Retainage. The provisions of Sections 153.12 through 153.14 and Section 153.63 of the Ohio Revised Code shall not apply to this project's AGREEMENT. No retainage shall be escrowed and the CONTRACTOR shall not be entitled to receive any interest earned on retainage. Interest earned on retainage shall belong to the OWNER.

101.25 Prevailing Wage. As required by the State Department of Labor, state prevailing wage rates shall be paid should the project exceed the threshold levels as indicated in the project Bid Documents.

101.251 "Construction" projects subject to Ohio's prevailing wage law are:

1. Any new construction of any public improvement, the total overall project cost of which is fairly estimated to be more than the dollar amount indicated in the Bid Documents, adjusted biannually by the Director of Industrial Relations pursuant to Section 4115.034 of the Ohio Revised Code and performed by other than full-time employees who have completed their probationary periods in the classified service of a public authority;

2. Any reconstruction, enlargement, alteration, repair, remodeling, renovation, or painting of any public improvement, the total overall project cost of which is fairly estimated to be more than the dollar amount indicated in the Bid Documents, adjusted biannually by the Director pursuant to Section 4115.034 of the Revised Code and performed by other than full-time employees who have completed their probationary period in the classified civil service of a public authority.

(See Section 4115.03 O.R.C.)

101.252 If the appropriate threshold is met or exceed, the Bidder shall include in his bid and, if awarded this work, he shall pay applicable and current prevailing wage rates and shall submit certified copies of payroll related to the project to the City's Prevailing Wage Coordinator.

101.253 Current prevailing wage determination is available for viewing in the Purchasing Division located on the fourth floor of City Hall, 76 E. High Street, Springfield, Ohio 45502. To request a copy of the prevailing wage determination, call (937) 324-7326 or to view the current State of Ohio prevailing wage rates on the internet go to (<http://198.234.41.198/w3/webwh.nsf?Opendatabase>).

101.26 Bid Protests. Bidders whose bids are refused or rejected by the Purchasing Agent and bidders who object to the Purchasing Agent's recommendation of a contract award who desire reconsideration of the Purchasing Agent's acts must submit a written request for reconsideration to the City's Finance Director, stating all reasons the bidder objects to the Purchasing Agent's decisions.

101.261 All requests for reconsideration must be submitted within five (5) days after the Purchasing Agent has posted notice of his or her recommendation for award. Bidders who fail to submit a petition for reconsideration within the said five (5) day period, waive any objections to the decisions of the Purchasing agent.

101.27 Minority and Disadvantaged Business Enterprises. It is the policy of the City of Springfield, Ohio, that Minority and Disadvantaged Business Enterprises, as defined in Chapter 153 of the City of Springfield Codified Ordinances, shall have a maximum practical opportunity to participate in the performance of contracts let by the City of Springfield, Ohio.

101.271 By submitting a signed bid, said Bidder assures the required percentage goals for MBE/DBE utilization shall be met on a Federally funded project on which he bids, unless said bidder timely demonstrates to the City good faith efforts to attain the required percentage goals.

102 DEFINITIONS AND TERMS

Wherever in these specifications or in any documents or instruments used in connection with a contract where these specifications govern and the following terms are used, the intent and meaning of the terms shall be interpreted as follows:

102.01 Abbreviations. Where abbreviations are used in these specifications or on the plans, they are to be construed the same as the respective expressions represented. Abbreviations shall be as indicated in Section 101.01 of the Construction and Material Specifications of the State of Ohio or as defined in these specifications.

102.02 Addendum. A written instrument issued by the City prior to the execution of the Contract which modifies or interprets the Bidding Documents, including drawings and specifications, by additions, deletions, clarifications, or corrections. Addenda will become part of the Contract Documents when the Contract is executed.

102.03 Bid. The offer or proposal of a Bidder submitted on the prescribed form properly signed and guaranteed, setting forth the prices for the work to be performed.

102.04 Bid Bond (Proposal Guarantee). The security furnished with a Bid to guarantee that the Bidder will enter into the Contract if his Bid is accepted.

102.05 Bidder. An individual, firm, or corporation submitting a Bid for the work.

102.06 Calendar Day or Day. Every day shown on the calendar.

102.07 Change Order. A written order issued by the City and approved by the City Commission to the CONTRACTOR, signed by the CITY MANAGER, its ENGINEER, and CONTRACTOR covering changes in the plans or quantities, or both, within the scope of the Contract and establishing the basis of payment and time adjustments for the work affected by the changes.

102.08 CITY. The City of Springfield, Ohio acting through its City Manager or properly authorized agent(s); such agent(s) acting severally within the scope of the particular duties entrusted to them.

102.09 City Manager. The City Manager of the City of Springfield, Ohio acting in his official capacity on behalf of the City of Springfield, Ohio.

102.10 Contract. The written agreement including all Contract documents between the CITY and the CONTRACTOR setting forth the obligations of the parties thereunder, including, but not limited to, the performance of the work, the furnishing of labor and materials, and the basis of payment. The Contract includes the Invitation for Bid, CONTRACTOR'S Bid (or portions thereof awarded), Instructions to Bidders, Contract Form and Contract Bond, Specifications, general conditions, supplemental conditions,

general and detailed plans, Notice of Award, Notice to Proceed and any Change Orders and supplemental agreements that are required to complete the construction of the work in an acceptable manner, including authorized extensions thereof, all of which constitute one instrument.

102.11 Contract Bond (Performance and Payment). The approved form of security, executed by the Contractor and his Surety or Sureties, guaranteeing complete execution of the Contract and all supplemental agreements pertaining thereto and the payment of all legal debts pertaining to the construction of the project.

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

102.13 Contract Price. The total moneys payable to CONTRACTOR under the Contract Documents.

102.14 Contract Time. The number of days stated in the Bid Documents for the completion of the work, or the date set forth in this agreement.

102.15 CONTRACTOR. The individual, firm, partnership or corporation that has entered into a Contract with the CITY for the performance of prescribed work, acting directly or through a duly authorized representative.

102.16 Completion Date. The date shown in the Bid, on which the work contemplated shall be completed, as stated in the Notice to Proceed or any extensions thereof as may be provided for in these General Conditions.

102.17 ENGINEER. The City Engineer of the City of Springfield, Ohio, or other properly authorized agents acting within the scope of duties assigned to them by the Engineer or City Manager.

102.18 Estimate. The form provided by the CITY and used by CONTRACTOR in requesting periodic payments, including accompanying documentation required by Contract Documents.

102.19 Extra Work. An item of work not provided for in the Contract as awarded but found essential to the satisfactory completion of the contract within its intended scope, and not otherwise provided for under Modifications of Contract.

102.20 Field Order. A written or oral order issued by ENGINEER that clarifies or interprets the Contract Documents.

102.21 Inspector/Project Representative. The Engineer's authorized representative of the City assigned to make detailed inspections of Contract performance for the Project.

102.22 Interpretations. Wherever in the specifications or upon the drawings the words "directed", "required", "permitted", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the directions, requirement, permission, order, designations, or prescription of the CITY is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import, shall mean approved by, acceptable or satisfactory to the CITY, unless otherwise expressly stated.

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

102.24 Notice of Award. The Written Notice by the CITY to the apparent successful Bidder stating that upon compliance with the conditions precedent to be fulfilled by him within the time specified, CITY will execute and deliver the Contract to him.

102.25 Notice to Proceed. A Written Notice given by CITY to CONTRACTOR fixing the date on which the Contract Time shall commence to run and on which CONTRACTOR shall start to perform his obligations under the Contract Documents.

102.26 Plans/Drawings. The plans, profiles, elevations, typical cross sections, working drawings, supplemental drawings, standard drawings reviewed or approved by the Engineer, or exact reproductions thereof, which show the location, character, dimensions and details of the Work.

102.27 Project. The specific section of the Work together with all appurtenances and construction to be performed thereon under the Contract.

102.28 Specifications. Those portions of the contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work.

102.29 Supplemental General Conditions. Additions and revisions to the standard and General Conditions covering conditions peculiar to an individual project.

102.30 Subcontractor. An individual, firm or corporation to whom the CONTRACTOR sublets part of the Contract to be performed on the job site, who prior to such undertaking receives the written consent of the City.

102.31 Surety. The corporation, partnership or individual other than the CONTRACTOR, executing a Bond furnished by the CONTRACTOR.

102.32 Superintendent. The CONTRACTOR'S authorized representative in responsible charge of the Work.

102.33 Supplier. Any person, supplier, or organization that supplies materials or equipment for the Work, including that fabricated to a special design, but who does not

perform labor at the site.

102.34 Work. Work shall mean the furnishing of all labor, materials, equipment and other incidentals necessary or convenient to the successful completion of the Project and the carrying out of all the duties and obligations imposed by the Contract.

102.35 Working Days. Any day, except legal holidays, Saturdays and Sundays on which the City of Springfield permits the CONTRACTOR to work. If permission is granted to work on any of those excepted days, such time will be counted as a Working Day.

102.36 Written Notice. A letter sent by registered mail by the City to the last known business address of the firm or delivered in person to the individual or officer in the firm.

103 GENERAL CONDITIONS

103.01 Intent of Contract. The intent of the Contract is to provide for the construction and completion in every detail of the Work described. The CONTRACTOR shall perform all items of Work covered by this Contract, perform altered and extra work, furnish all labor, materials, equipment, tools, transportations and supplies necessary to complete the Work in conformance with the plans, specifications and terms of the Contract.

103.011 It is understood that, except as otherwise specifically stated in the Contract Documents, the CONTRACTOR shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, superintendence, temporary construction of every nature and all other services and facilities of every nature whatsoever necessary to execute, complete and deliver the Work within the time stipulated.

103.02 Plans, Specifications and Special Conditions. The plans, specifications, special provisions and all supplementary documents are essential parts of the Contract and a requirement occurring in one is as binding as occurring in all. They are intended to be complementary and to describe and provide for a complete Work.

103.021 Should any misunderstanding arise as to the intent or meaning of the plans, specifications, or special provisions, or any discrepancy appear, the explanation of the ENGINEER shall be final and conclusive. Any correction of errors or omission in drawings and specifications may be made when such correction or omission is necessary for the proper fulfillment of their intent as determined by the ENGINEER.

103.022 Any correction made pursuant to the above paragraph shall not be retroactive but will take effect at the date of notification to the CONTRACTOR of such correction.

103.023 The CONTRACTOR shall take no advantage of any apparent error or omission in the plans or specifications. In the event the CONTRACTOR discovers such an error or omission, he shall immediately notify the ENGINEER. The ENGINEER will then make such corrections and interpretations as may be deemed necessary for fulfilling the intent of the plans and specifications.

103.03 Authority of the Engineer and Decision. The ENGINEER will decide all questions which may arise as to the amounts, quality, acceptability and fitness of materials furnished and Work performed and as to the rate of progress of the Work; all questions which may arise as to the interpretation of the plans and specifications; all questions as to the acceptable fulfillment of the Contract on the part of the Contractor and as to compensation. The decision of the ENGINEER shall be final and conclusive unless within ten (10) days after any decision, the CONTRACTOR applies in writing to the City Manager for a review of such decision.

103.031 When an application for review of the decision of the ENGINEER is presented, the City Manager shall, within ten (10) days thereafter, give opportunity for the CONTRACTOR to appear before him and the ENGINEER, and present evidence bearing upon such decision, and any claim for modification or reversal thereof.

103.032 The City Manager shall render his decision within ten (10) days after such appearance and his decision shall be final unless the CONTRACTOR shall, within ten (10) days after receiving the decision, give notice in writing of his intention to file suit in court for final determination of the matter.

103.04 Authority of Inspectors. The Inspectors employed or contracted by the CITY are authorized to inspect all work done and materials furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication or manufacture of the materials to be used. The Inspector is not authorized to alter or waive the provisions of the Contract. He is authorized to call to the attention of the CONTRACTOR any failure of the work or materials to conform to the specifications and Contract. He is authorized to reject materials that do not meet specification requirements or suspend the portion of the work involved until any question at issue can be referred to and decided by the ENGINEER. The Inspector is not authorized to issue instructions contrary to the plans and specifications, or to act for the CONTRACTORS. No work shall be done unless the Contractor has notified the Engineer prior to undertaking such work of day and time he intends to undertake such work. Any work done after the Inspector has ordered it stopped, or any work done in the absence of the Inspector, after such order has been given shall at once be removed by the CONTRACTOR.

103.05 Cooperation by Contractor. The CONTRACTOR shall have on the Work at all times, as his agent, a competent Superintendent capable of reading and thoroughly understanding the plans and specifications and thoroughly experienced in the type of work being performed, who shall receive instructions from the ENGINEER or other authorized representatives. This person shall have full authority to execute orders or directions of the ENGINEER without delay, and to promptly supply such materials, equipment, tools, labor and incidentals as may be required. Such superintendence shall be furnished irrespective of the amount of work sublet. Should the CONTRACTOR or his Superintendent object to or refuse to perform an oral order, the ENGINEER shall send a written order to the Contractor.

103.06 Inspection of Work. No material of any kind may be used until it has been inspected, tested, and accepted by the ENGINEER. Before accepting any material or equipment, the ENGINEER may order such tests of material and/or equipment as may be necessary to determine compliance with the specifications for such material or equipment. The CONTRACTOR must furnish all labor necessary in handling such materials for inspection. All materials rejected must be promptly removed from the Project area. Materials and workmanship found at any time to be defective shall be promptly replaced or remedied by the CONTRACTOR, regardless of previous inspection.

103.061 The ENGINEER, together with other parties who may enter into contracts with the CITY for doing work within the territory covered by the Contract, shall for all purposes which may be required by their Contracts, have access to the Work and the premises used by the CONTRACTOR, and the CONTRACTOR shall provide safe and proper facilities for them. Furthermore, the ENGINEER or other duly authorized representative of the CITY, shall at all times have immediate access to all places of manufacture and shipment of materials made for use under this Contract for inspecting the same.

103.062 During the course of the CONTRACTOR'S performance of the work, the CITY's Inspector will conduct on-site observations of the general progress of the work and will consult with the City and the CONTRACTOR giving his opinions and suggestions, based on his observations, as to any defects or deficiencies in the CONTRACTOR'S work relating to compliance with drawings, specifications, and design and planning concepts. Neither the CITY nor its Inspector shall have the responsibility for the superintendence of construction site conditions, safety conditions, operations, equipment or other personnel other than employees of the CITY. This service will in no way relieve the CONTRACTOR of complete supervision of the work or the CONTRACTOR'S obligation for complete compliance with the drawings and specifications. The CONTRACTOR shall have sole responsibility for safety and for safe practices or conditions.

103.07 Notice to Proceed. The Contract Time will commence on the date stated in the Notice to Proceed; or if a Notice to Proceed is not given, will commence thirty (30) calendar days after the day on which the executed Contract is delivered by the City to the CONTRACTOR. Unless the CONTRACTOR is otherwise notified by the CITY, in no event will the Contract Time commence later than ninety (90) calendar days after the day on which the CITY delivers the executed Contract to CONTRACTOR. A Notice to Proceed may be given at any time within thirty (30) days after the day on which CITY delivers the executed Contract to CONTRACTOR.

103.071 The CONTRACTOR shall begin the Work as specified in the Notice to Proceed, or by mutual agreement between the CITY and the CONTRACTOR. If the CONTRACTOR has not begun the work as specified, or by a mutually agreed date, the CITY may suspend Work as described in Suspension of Work.

103.072 The Work will begin at such point as stated on the plans or as agreed upon by the CONTRACTOR and the ENGINEER. Whenever, in the opinion of the ENGINEER, it is necessary that certain portions of the Work be done immediately, the CONTRACTOR, upon Written Notice, shall proceed with such Work without delay. If he fails to do so, the City Manager may do, or cause to be done, such Work, either by direct labor or by re-letting such portion of the Contract, and deduct the cost of same from any money due or to become due the CONTRACTOR under this Contract.

103.073 If the Work done under this Contract conflicts with other Work done for or

by the CITY or with its consent, the ENGINEER shall determine the time and manner of procedure of the operations carried on under this Contract.

103.08 Compensation for Altered Quantities. When the accepted quantities of Work vary from the quantities in the Bid schedule, the CONTRACTOR shall accept as payment in full, so far as Contract items are concerned, payment at the original unit prices for the accepted quantities of work done. No allowance except as provided in Extra Work will be made for any increased expenses, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the CONTRACTOR resulting either directly or indirectly from unbalanced allocation among the Contract items of overhead expense on the part of the Bidder and subsequent loss of expected reimbursement therefor or from any other cause.

103.081 Additional work involving supplemental agreements shall be paid for as stipulated in such agreements. The CONTRACTOR shall furnish substantiating data required in the preparation of these agreements.

103.09 Alteration of Plans or Character of Work (Modification of Contract). The CITY reserves the right to make, at any time during the progress of the Work, such increases or decreases in the quantities of the Work, modifications in the specifications and plans as may be found to be necessary or desirable. Such increases and decreases or alterations shall not in any way violate or annul the Contract nor release the Surety. The CONTRACTOR shall perform the Work as altered, the same as if it had been a part of the original Contract.

103.091 Unless such alterations, increases or decreases materially change the character of the Work to be performed or the cost thereof, the altered Work shall be paid for at the same unit prices as other parts of the Work. If, however, the character of the Work or the unit costs thereof are materially changed, the price to be paid for such work shall be determined in accordance with the provisions of "Extra and Force Account Work."

103.092 No claim shall be made by the CONTRACTOR for any loss of anticipated profits because of such alteration or by reason of variation between the approximate quantities and the quantities of Work as done.

103.093 A material change of Work will be considered proper grounds for extending the time of completion. Any adjustment in Contract Time because of such changes will be made in accordance with the provisions of "Extensions of Time."

103.094 All modifications or alterations of the Contract resulting in an increase of Contract cost or an extension of time shall be of no effect until such alteration or modification has been agreed upon in writing and signed by the CONTRACTOR, the City Engineer, approved in advance by the City Commission and signed by the CITY Manager.

103.10 Equivalent Equipment Materials and Supplies. Whenever a material, article, or piece of equipment is identified on the plans or in the specifications by reference to manufacturers' or vendors' names, trade names, catalog numbers, etc., it is intended merely to establish a standard; and, any material, article or equipment of other manufacturers and vendors which will perform adequately the duties imposed by the general design will be considered equally acceptable provided the material, article, or equipment so proposed is in the opinion of the ENGINEER, of equal substance and function. It shall not be purchased or installed by the CONTRACTOR without the ENGINEER'S written approval, except as noted on the plans or specification that replacement or added equipment or material must be of the same manufacturer to be compatible with an existing operation.

103.11 Subletting or Assigning of Contract. It is the intent of these specifications that the majority of the Work will be performed under the CONTRACTOR'S supervision utilizing his own forces and equipment.

103.111 The CONTRACTOR may utilize Subcontractors for the performance of Work under the Contract. The CONTRACTOR shall not award any Work to any Subcontractor without prior written approval of the CITY.

103.112 The CONTRACTOR shall be as fully responsible to the CITY for the acts and omissions of his Subcontractors and of persons either directly or indirectly employed by such Subcontractor, as he is for the acts and omissions of persons directly employed by him.

103.113 The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the Work to bind Subcontractors to the Contractor by the terms of the General Conditions and other Contract Documents insofar as applicable to the Work of Subcontractors and to give the CONTRACTOR the same power as regards terminating any Subcontract that the City may exercise over the CONTRACTOR under any provision of the Contract Documents.

103.114 Nothing contained in this CONTRACT shall create any contractual relation between any Subcontractor and the CITY.

103.115 Subletting or assigning the whole of, or any portion of the Contract shall not release the CONTRACTOR or his Surety from any portion of the Contract.

103.116 In case the CONTRACTOR assigns any part of any monies due or to become due under this Contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any monies due or to become due to the CONTRACTOR shall be subject to prior liens of all persons, firms and corporations for services rendered or materials supplied for the performance of the Work called for in this Contract.

103.12 Lines and Grades. All Work to be performed under this Contract must be in accordance with the lines, grades, and centerlines shown on the plans and instructions as given by the ENGINEER. The ENGINEER will establish the location and elevation of control points on the Project site, if required. The CONTRACTOR shall establish and be responsible for all other lines and grades.

103.121 The CONTRACTOR will be required to furnish such materials and give such assistance as may be required and shall notify the ENGINEER twenty-four (24) hours in advance of any need for the ENGINEER'S services in staking out Work, if such services are to be provided under this Contract.

103.122 The CONTRACTOR shall be held responsible for the preservation of all stakes and marks, and if any of the construction stakes or marks have been carelessly or willfully destroyed or disturbed by the CONTRACTOR, the cost of replacing them will be charged against him and will be deducted from payment from the Work.

103.123 The ENGINEER will be responsible for the accuracy of lines, slopes, grades and other engineering work performed by the CITY as set forth under this section.

103.13 Interference with Existing Structures. Existing structures which may be encountered in or along the Work, whether or not shown on the plans, shall be removed and replaced, or shall be maintained by the CONTRACTOR at his expense, unless otherwise noted on the plans, and in such a manner as to secure the safety of the public and the structure. Excepted from the foregoing are the public service poles, which will be removed by the corporation owning the same at no expense to the CONTRACTOR, unless noted otherwise on the plan.

103.131 Subsurface structures encountered in the prosecution of the Work shall be protected and maintained in complete operation, unless permission for their removal or relocation is given. Existing subsurface structures, including old sewers, abandoned drains, etc., which may appear within the limits of the excavation shall be removed and plugged if required by the CITY, but such removal and plugging will not be paid separately, being included in the price bid for the excavation of other items requiring such excavation, unless otherwise noted on the plans.

103.132 If the uncovering of subsurface structures necessitates a change in the alignment or grade of the proposed Work, the CONTRACTOR shall call such obstructions to the attention of its ENGINEER and shall cease work at such obstructions until ordered to proceed.

103.133 If any change of grade or alignment shall serve to delay the Work, the time allowed for completion of the Contract will be extended to the extent to which the delay shall have operated, the decision of the CITY upon this point being final.

103.134 If the CONTRACTOR damages any utilities that were identified by the utility having jurisdiction, he shall promptly, repair the damaged utility or shall permit the utility to repair the same, at its option, or shall pay all reasonable bills sent him by the affected utility for work performed by them.

103.135 The CONTRACTOR is advised that he will be responsible to immediately repair and place back in service any water main, water service, sewer main or sewer lateral which he damages during the course of construction on this Contract. These water mains, water services, sewer mains or sewer laterals shall be repaired to the satisfaction of the ENGINEER. If the CONTRACTOR does not repair these damaged lines immediately, the CITY may repair the lines and will bill the CONTRACTOR for all costs incurred in effecting said repairs. The only exceptions to the above requirements will be that if the CONTRACTOR has properly notified the CITY to locate these lines prior to working in the area and it is found that they were not properly marked or were in such deteriorated condition that failure of the lines was not due to CONTRACTOR'S negligence. The ENGINEER will make the determination as to the CONTRACTOR'S responsibility for damage. If the CONTRACTOR is found not responsible for damage, the CITY will make the necessary repairs. If the ENGINEER determines that the CONTRACTOR is not responsible for the damaged line, and the repairs required an excess of 24 hours to complete, the Contract Completion Time will be extended to the extent of time to which it took to complete the repair. No additional compensation shall be paid to the CONTRACTOR due to any line breakage.

103.14 Interference with Existing Traffic. At least forty-eight (48) hours before commencing Work, the CONTRACTOR shall notify all the CITY departments and Public Service Corporations whose tracts, wires, pipes, conduits or other structures may be affected by his Work. The Contractor shall notify the Engineer concerning any interference with traffic operations. The ENGINEER shall notify the Fire Chief and Police Chief of the temporary blocking or closing, and subsequent reopening, of any street or intersection, the Contractor shall not interfere with the operations of the local bus system without permission of the ENGINEER.

103.141 During the progress of the Work, the CONTRACTOR shall accommodate both vehicular and pedestrian traffic as required on the plans or by the Engineer, and shall at all times provide free access to fire hydrants, manholes, water valves, gas valves and other similar appurtenances. Gutters or waterways must be kept open or other provisions made for the removal of storm water.

103.142 Street intersections may be blocked but one-half at a time. The CONTRACTOR shall lay and maintain temporary driveways, bridges, and crossings, such as in the opinion of the ENGINEER are necessary to reasonably accommodate the public unless designated otherwise on the plans.

103.143 In the event of the CONTRACTOR'S failure to comply with these provisions, the City Manager may with or without notice, cause the same to be done, and

will deduct the cost of such work from any money due or to become due to the CONTRACTOR under this Contract. The performance of such work by the CITY, or at its order, shall in no way relieve the CONTRACTOR of his legal responsibilities or liabilities for the safety of the public or the Work.

103.15 Protection and Restoration of Easement Areas. When it is required as part of the Contract to perform work within the limits of temporary or permanent easements, such work shall be done in conformance with all agreements between the CITY and such owners. Care shall be taken to avoid injury to the premises entered. The area shall be left in a neat and orderly condition by the removal of rubbish, construction materials, equipment, grading or surplus excavation and the property to the same general condition as at the time of entry for work to be performed under this Contract, or as designated on the plan. If additional storage areas are required, it shall be the CONTRACTOR'S responsibility to make proper arrangements for its use with the affected property owners.

103.151 All structures, fences, trees, shrubs and other objects located in the easement or right of way areas or adjacent thereto must be properly safeguarded and protected unless noted to be removed on the plan. If it is found necessary to remove any of the above-mentioned objects, they shall be replaced by the CONTRACTOR at his expense. If any object is injured or damaged in any way, that object shall be repaired or replaced by the CONTRACTOR at his own expense.

103.16 Land for Construction Purposes. The CONTRACTOR may be permitted to use available space belonging to the CITY, on or near the site of the Work, for construction purposes and for the storage of materials and equipment. The availability, location and extent of the areas so used shall be as designated and approved by the CITY.

103.161 Any such space utilized by the Contractor shall when the space is no longer required, or upon completion of the Project restore the area to the sites original or better condition at his sole expense.

103.162 The CONTRACTOR shall be solely responsible for obtaining and shall pay all costs in connection with any additional work area, storage sites, access to the site, or temporary right-of-way which may be required for proper completion of the Work.

103.163 It shall be clearly understood that the responsibility for the protection and safekeeping of equipment and materials on or near the site will be entirely that of the CONTRACTOR and that no claim shall be made against the CITY by reason of any act of an employee or trespasser. It shall be further understood that should any occasion arise necessitating access to the sites occupied by these stored materials and equipment, the CONTRACTOR owning or responsible for the stored materials or equipment shall immediately move same. No materials or equipment may be placed upon the property of the CITY until the CITY has approved the location contemplated by the CONTRACTOR to be used for storage.

103.164 All materials and equipment, delivered or found upon the location of the improvement, shall be neatly piled up so as not to impede travel upon walks or driveways, interfere with the operations of any other Contractor or prevent the use of existing facilities more than is actually necessary in the proper performance of this Contract.

103.17 Use of Sewers, Water Mains, Streets, or Other Portions of the Project. At any time during the progress of the Work, the CITY may, by Written Notice to the CONTRACTOR, take over and utilize the whole or part of the Project that has been completed. The CONTRACTOR will be relieved from the maintenance of such part as may be used, except as provided under, "Guarantee."

103.18 Sewer and Water Line Crossing Construction Requirements at Railroads and Highways. Wherever the requirements of a Project necessitates the crossing over or under railroad tracks, streets or highways, the CONTRACTOR shall furnish to the ENGINEER, or other officials of the Railroad, Street, or Highway Authority, drawings and information as required on the plans and in the specifications or as required by the Railroad, Street or Highway Authority with regards to the crossing. The CONTRACTOR shall not proceed with any work on a crossing over or under railroad tracks, streets or highways, until he or the CITY has received written approval from the Railroad, Street, or Highway Authority as to the method and procedure to be used in making the crossing.

103.181 The CONTRACTOR shall notify such Railroads, Streets or Highway Authority not less than one week in advance of any operations at the crossing. He shall also make arrangements for the protection and maintenance of traffic and of structures as will satisfy the ENGINEER, or officials of said Railroad, Street, or Highway Authority in connection therewith shall be paid by the CONTRACTOR without expense to the CITY.

103.182 Jacking, tunneling or boring methods may be used to place pipe under railroad tracks, streets and highways, unless the CITY, Railroad, Street or Highway Authority shall require or prohibit one or more of the above mentioned methods.

103.183 Any methods that employ simultaneous boring and jacking or the auguring method will not be permitted.

103.19 No Estoppel. The CITY shall not be precluded or estopped by any return or certificate made or given by it, from at any time either before or after the final completion and acceptance of the Work and payment made therefor showing true and correct amount and character of the Work done and materials furnished by the CONTRACTOR or any other person under this Contract, or from showing at any time that any such return or certificate is untrue and incorrect or improperly made in any particular, or that the Work or materials or any part thereof, do not conform to the specifications. The CITY shall not be precluded or estopped, notwithstanding any such return or certificate and payment in accordance therewith, from demanding and payment in accordance therewith, from

demanding and recovering from the CONTRACTOR such losses and costs as it may sustain by reason of his failure to comply with the specifications.

103.191 Neither the acceptance by the CITY, nor any order, measurements, or certificate by the CITY, nor any order for payment of money, nor any payment for, nor any possession taken by the CITY, or its employees, shall operate as a waiver of any portion of this CONTRACT or of any power herein reserved to the CITY, or any rights to recover for damages herein provided; nor shall the waiver of any breach of this Contract be held to be a waiver of any subsequent breach.

103.20 Patents. The CONTRACTOR shall hold and save the CITY, its agents and employees harmless from liability for or on account of, any patented or unpatented invention, process, article or appliance manufactured or used in the performance of the Contract, including its use by the CITY, unless otherwise stipulated in the Contract.

103.201 If the CONTRACTOR employs any design, device, material, or process covered by letters of patent or copyright, he shall provide for such use by suitable legal agreement, with the patentee or owner of the design, device, material or process. It is mutually agreed and understood that, without exception the Contract prices shall include all royalties or costs arising from the use of such design, device, material or process, in any way involved in the Work. The CONTRACTOR and/or the Surety shall indemnify and save the CITY harmless from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright and shall indemnify the CITY for any costs, expenses and damages which it may be obliged to pay by reason of any infringement, at any time during the prosecution or after the completion of the Work.

103.21 Laws and Regulations. The CONTRACTOR shall keep fully informed and comply with all Federal and State laws, city ordinances, and all rules and regulations which in any manner affect those engaged or employed on the Work or the materials used in the Work, or in any way affect the conduct of the Work. CONTRACTOR shall obtain all necessary permits and licenses and shall pay all fees and charges incidental to the due and lawful conduct of the Work.

103.211 The CONTRACTOR shall at all times observe and comply with, and shall cause all his agents, employees and Subcontractors to observe and comply with all such existing and future laws, ordinances, regulations, orders and decrees, and shall protect and save harmless the CITY and its representatives against any claim or liability arising out of or resulting from, or based upon the violation of any such law, ordinance, regulation, order or decree whether by himself, his employees, agents or Subcontractors.

103.212 The CONTRACTOR shall comply with all safety requirements of the Industrial Commission of Ohio Relating to Construction, which requirements are by reference made a part of these Contract Documents.

103.213 The CONTRACTOR agrees that in the hiring of employees for the performance of Work under this Contract or any Subcontract, no Contractor, Subcontractor, or any person acting on his behalf, shall by reason of race, creed, or color, discriminate against any person who is qualified and available to perform the Work to which the employment relates.

103.214 The CONTRACTOR further agrees that neither he nor any Subcontractor or any person on contractor's or subcontractor's behalf shall, in any manner, discriminate against or intimidate any employee hired for the performance of Work under this Contract on account of race, creed or color.

103.215 The CONTRACTOR agrees that there shall be deducted from the amount payable to the CONTRACTOR by the CITY under this Contract, a forfeiture of ONE HUNDRED Dollars (\$100.00) for each such person who is discriminated against or intimidated in violation of such Contract. This Contract shall be cancelled or terminated by the CITY and all money to become due thereunder may be forfeited, for a second or subsequent violation of the terms of this paragraph of the Contract.

103.216 Arbitration shall not be an acceptable means for resolving disputes, claims and other matters between the Owner and Contractor. Any and all litigation arising out of or pertaining to the contract shall be engaged in Clark County Ohio, or, if Federal Court jurisdiction is applicable, in the Federal District Court for the Southern District of Ohio in Dayton, Ohio, or if the State of Ohio is a party, in the Court of Claims.

103.217 Bidders should contact the Inspections Office, (937) 324-7389, for permit and license information necessary to complete bid and contract award. Concerning a "Street Opening Permit" or "Sidewalk, Curb, and Gutter Permit" contact the City Engineering Department, (937) 324-7313.

103.22 Sanitary Provisions. The CONTRACTOR shall provide and maintain in a neat, sanitary condition such accommodations for the use of his employees and department representatives as may be necessary to comply with the requirements of the State and Local Boards of Health or of other authorities having jurisdiction in such matters.

103.23 Liability of Contractor for Project Safety. The CONTRACTOR is hereby notified to comply with the Specific Safety Requirements of the Industrial Commission of Ohio, Division of Safety and Hygiene, Relating to Construction, OAC4121:1-3(k), and other applicable local, State or Federal requirements, during construction.

103.231 The CONTRACTOR shall take all responsibility for the Work, and take all precautions for preventing injuries to persons and property on or about the Work. He shall assume the defense of, indemnify and save harmless the CITY, its officers and agents from all claims relating to injuries to any person or corporation received or

sustained by or from the CONTRACTOR, his agents or employees in doing the Work, or handling materials, or implements, work methods or labor used, or any omission or neglect of the CONTRACTOR, his agents or employees.

103.232 If CONTRACTOR shall claim compensation for any damages sustained by reason of the acts of the CITY, he shall, within five (5) days after the sustaining of such damage, make a written statement to the CITY of the nature of the damage sustained. On or before the fifteenth (15) day of the month succeeding that in which any such damage shall have been sustained, the CONTRACTOR, shall file with the CITY an itemized statement of the details and amount of such damage, and unless such statement shall be made, he shall not be entitled to any payment on account of such damage.

103.233 The CONTRACTOR shall also protect the public by such barricades, detour and/or other signs, lights or watchmen as may be necessary, and shall save harmless the CITY from any and all claims and judgments for injuries or damages arising out of or resulting from such neglect.

103.234 The mention of any specific duty or liability of the CONTRACTOR in any part of the specifications shall not be construed as a limitation or restriction upon any general liability or duty imposed upon the CONTRACTOR by the specifications, as a whole, said reference to any specific duty or liability being merely for purposes of explanation.

103.24 Protection of Work and General Public. The CONTRACTOR shall take all necessary precautions for the protection and safeguarding of the Work, public and private property and for the health and safety of the employees engaged in the Work.

103.241 The CONTRACTOR shall provide protection through the use of traffic control barricades, lights, signs and other devices to provide warning and protection for vehicular traffic, pedestrians and the Work.

103.242 The CONTRACTOR shall cooperate with the ENGINEER in protection and preserving cornerstones, monuments, property pins and other such items in the Project area. Prior to actual construction, the CONTRACTOR shall erect barricades around all visible survey monuments that are in or adjacent to the construction area as noted on the Drawings. Any other monument or property corner stake, pin or marker discovered or uncovered during progress of the Work shall be protected from damage or loss and the ENGINEER shall be notified in writing as to the exact location. Any survey monument, property corner, right-of-way or other marker damaged or destroyed by the CONTRACTOR'S forces shall be replaced and the CONTRACTOR shall be obligated to pay all costs of the replacement survey required and the cost shall be deducted from monies due the CONTRACTOR.

103.243 Work under this Contract is to be performed at the Project site on property of the CITY or within public streets, highways, or alleys or with specified rights-of way

or easements acquired for the purpose. The CONTRACTOR is cautioned that the activities of his agents and employees and of all equipment operators, truckers and delivery men employed by him or his Subcontractors or material supplies must be confined to such areas. Any damages to property, streets, highways, rights-of-way or easements are the sole responsibility of the CONTRACTOR and must be properly settled by him.

103.25 Injunctions. If legal obstructions to the prosecution of the Work arise, the delay shall operate to extend the time for the completion of the part or parts of the Work obstructed for the length of time the obstruction continues and no longer, but no damages shall be claimed or allowed the CONTRACTOR for any such delay.

103.26 Character of Workmen, Methods and Equipment. The CONTRACTOR shall at all times employ sufficient labor and equipment for prosecuting the several classes of Work to full completion in the manner and time required by these Contract Documents.

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

103.262 Any person employed by the CONTRACTOR or by any Subcontractor who, in the opinion of the CITY, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the CITY, be removed, forthwith by the CONTRACTOR or Subcontractor employing such person, and shall not be employed again in any portion of the Work without the approval of the CITY.

103.263 Should the CONTRACTOR, or Subcontractor, fail to remove such person or persons as required above, or fail to furnish suitable and sufficient personnel for the proper prosecution of the Work, the CITY, may withhold all monies due, which are or may become due, or may suspend the Work by Written Notice until the CONTRACTOR, or Subcontractor, complies with such orders.

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

103.265 When the methods and equipment to be used by the CONTRACTOR in accomplishing the construction are not prescribed in the Contract, the Contractor is free to use any methods or equipment that he demonstrates to the satisfaction of the ENGINEER will accomplish the contract Work in conformity with the requirements

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

103.267 The CONTRACTOR alone shall be responsible for the safety, efficiency, and adequacy of his plant, appliances and methods, the direction of his employees, and for any damage which may result from their failure or their improper construction, maintenance or operation.

103.27 Sunday and Night Work. The CONTRACTOR is required to prosecute Work done under this Contract during daylight hours in accordance with CITY Charter provisions. No work will be permitted at night or on Sundays except to save property or life or in case of emergency or special conditions as authorized or directed by the ENGINEER. Any work necessary to be performed at night, on Sundays or on legal holidays shall be performed without additional expense to the CITY unless otherwise specifically provided for in the Contract Documents.

103.28 Cleaning Up. The CONTRACTOR shall remove surplus excavated materials and materials for construction as the Work progresses, and shall render the streets suitable, safe and convenient for traffic. Before final acceptance of the Work, the CONTRACTOR shall clean the street surface, walks, gutters, fences, lawns, private property, right-of-way, and structures, leaving them in as good a condition as originally found, and shall remove all machinery, tools, surplus materials, temporary buildings and other structures from the site of the Work and any adjacent areas affected during construction.

103.29 Suspension of Work. The CITY, on account of public necessity, adverse weather conditions, or for other reasons, may order all Work suspended and thereupon the CONTRACTOR shall cease operation and take means to protect all materials, construction sites and the general public from the construction areas. He shall also maintain pedestrian and vehicular traffic as directed by the ENGINEER. In case of such stoppage of work, the time allowed for the completion of the Work may be extended in an

amount equal to that lost by the CONTRACTOR in such manner, but the CONTRACTOR shall be entitled to no additional claim for damages by the reason of the suspension of the Work. The CONTRACTOR shall be notified of any suspension of the Work by Written Notice.

103.291 The City charter provides that no member of the City Commission, the City Manager, or any other officer or employee of the City, shall directly or indirectly be interested in any Contract, job, work, or service with or for the City; nor in the profits or emoluments thereof, nor in the expenditure of any money on the part of the City other than his fixed compensation; and any contract with the City in which any such officer or employee is, or becomes, interested may be declared void by the City Commission. In any such case the City may notify the CONTRACTOR, in writing, to discontinue all Work or any part thereof, and thereupon the CONTRACTOR shall discontinue the Work or such part thereof as may be designated.

103.30 Measurements. The ENGINEER will determine the final quantities of the items of Work performed as basis for the final payment. The CONTRACTOR, in case of unit price items, will be paid for the actual amount of Work performed in accordance with these specifications as provided under the various items. When an item is listed as a "lump sum" item, the measurement shall refer to completion of all work as described for the completion of that item before payment for that item.

103.301 Where the computation of areas or volumes by exact geometric methods is unduly laborious or refined, the planimeter will suffice as an instrument of precision and will be used in the determination of quantities upon which payments are based. The measurements of the CITY as to the amount of Work done shall be final and conclusive.

103.302 Payment will be made for Work done within the lines prescribed by the specifications, and in accordance with the unit prices for the items under which the Work is done.

103.31 Prices. The CITY shall pay, and the CONTRACTOR shall accept as full compensation for each item of Work performed in accordance with the price quoted for each said item in the Contract or Bid Proposal and/or as agreed to under "Extra and Force Account Work."

103.32 Date for Completion. The CONTRACTOR shall complete the Work on or before a date arrived at by adding the agreed construction period in Calendar Days to the date determined by applying the provisions of "Notice to Proceed", or on or before another date as specified herein. Otherwise, the CITY by its City Manager shall proceed as provided in "Unsatisfactory Progress and Termination of Contract".

103.321 If the Contract is revised in any material respect and it is determined by the CITY that said revision will cause delay in the completion of the Work, the CITY will extend the completion date by the number of Calendar Days it determines to be

applicable.

103.33 Extension of Time. If the CONTRACTOR finds it impossible for reasons beyond his control to complete the Work by the date as specified or as extended in accordance with the provisions of this Section, he may, at any time prior to the end of the Contract period or Contract time as extended, make a written request to the CITY for an extension of time setting forth therein the reasons which he believes will justify the granting for his request.

103.331 Extensions of time to complete the Work may be granted by the CITY for occurrences which may be caused by an act or neglect of the CITY, the ENGINEER, an employee of the CITY, any other Contractors employed by the CITY; by strikes, fire or other cause outside of and beyond the control of the Contractors, and which, in the opinion of the ENGINEER could have been neither anticipated nor avoided.

103.332 If the CITY finds that the Work was delayed because of conditions beyond the control and without the fault of the CONTRACTOR, it may extend the time for completion in such amount as the conditions justify. The extended time for completion shall be postponed by the number of days that the suspension directly or indirectly delays the completion of the Work.

103.333 Extensions of time will not be granted for delays caused by unfavorable weather (except as provided under "Suspension of Work"), unsuitable ground conditions, inadequate construction force or the failure of the CONTRACTOR to place orders for equipment or materials in sufficient time to insure delivery when needed. The insufficiency of time as specified in the Contractor's Bid Proposal is not a valid reason for an extension of time.

103.34 Failure to Complete on Time. It is understood and mutually agreed by and between the CONTRACTOR and the CITY that time is of the essence of each and every portion of the contract, and that it is impossible to anticipate or calculate with any reasonable degree of certainty the actual monetary value of the damages which will be sustained by the CITY in the event that the Work is not completed within the time required by the Contract. It is, therefore, agreed that the CONTRACTOR shall pay to the CITY for each and every Calendar Day that any Work shall remain uncompleted beyond the time fixed in this Agreement for completion, or any authorized extension thereof, the sum as specified in the schedule of Liquidated Damages, not as a penalty but as liquidated damages; provided however, that due account shall be taken of any adjustment of the completion date granted under the provisions of Extension of Time.

103.341 Permitting the CONTRACTOR to continue and finish the Work or any part of it after the day fixed for its completion, or after the date to which completion may have been extended, will in no way operate as a waiver on the part of the CITY or any of its rights under the Contract. The CITY may waive such portions of the liquidated damages as may accrue after the Work has reached substantial completion, as determined by the

CITY and is in condition for safe and convenient use, but not before such time as substantial completion has been determined by the CITY.

SCHEDULE OF LIQUIDATED DAMAGES

Original Contract Amount		Amount of Liquidated Damages for Each Calendar Day of Overrun in Time
More than	but not exceeding	Daily Liquidated Damages
\$0.00	\$500,000	\$500.00
500,000	2,000,000	700.00
2,000,000	10,000,000	1,250.00
over 10,000,000		2,000.00

103.342 The CITY shall have the right to deduct any and all liquidated damages from any funds due or to become due to the CONTRACTOR, or to sue for compensation for damages for non-performance of this Contract within the time stipulated and provided for.

103.35 Unsatisfactory Progress and Termination of Contract. If the Work to be done under this Contract shall be abandoned by the CONTRACTOR, or if this Contract, or any part thereof shall be assigned or the Work under this Contract sublet by the CONTRACTOR, otherwise than herein specified, or without the previous consent of the CITY; or if before the completion of the Work under this Contract, the CONTRACTOR shall become financially unable to meet his current obligations or shall become bankrupt or shall make a general assignment for the benefit of the creditors or shall have a receiver appointed for him or to take charge of his affairs or shall have his property levied upon or taken in execution or under attachment; or if, at any time, the CITY shall be of the opinion that the performance of the Contract is unnecessarily or unreasonably delayed or that the CONTRACTOR is violating any of the conditions or agreements of this Contract, or is executing the same in bad faith or is not fulfilling the terms thereof, or is not making such progress in the execution of the Contract, or within the time to which the completion of the Contract may have been extended by the CITY, then the CITY, at its discretion, may at any time declare this Contract or any portion thereof, terminated by a Written Notice served upon the CONTRACTOR, a copy of which shall be given to the Surety or the authorized agent of the Surety. Such notice shall include reasons for the termination of the Contract, and shall be effective upon mailing to CONTRACTOR and Surety.

103.351 Upon the service of such notice of termination, the CONTRACTOR shall cease all work and vacate the construction site or such part thereof as the CITY shall designate, whereupon the Surety may, at its option, assume this Contract or that portion thereof on which the CITY has ordered the CONTRACTOR to discontinue work and proceed to perform the same and may, with the written consent of the CITY, sublet the Work, or portion of same taken over, provided, however, that the Surety shall exercise its option, if at all, within twenty (20) days after written notice to discontinue Work has been served upon the Surety or its authorized agent. The Surety, in such event, shall take the CONTRACTOR'S place in all respects and shall be paid by the CITY for all Work

performed by it in accordance with the terms of the Contract and if the Surety under the provisions hereof, shall assume said entire CONTRACT, all monies remaining due the CONTRACTOR, at the time of his default, shall thereupon become due and payable to the Surety as the Work progresses, subject to all of the terms of this Contract.

103.352 In case the Surety does not, within the specified time, exercise its right and option to assume this Contract or that portion thereof on which the CITY has ordered the CONTRACTOR to discontinue Work, then the City shall have the power to work it and to complete the Work herein described, furnishing the necessary labor and material therefor, without advertising for bids or letting a contract, or to contract to complete the same as herein provided for, in the manner provided by law for the letting of contracts by the CITY. All costs for completing the Work and any damages resulting from non-completion of the Work within the contract time shall be deducted from any money due the original CONTRACTOR or paid by him and/or his Surety.

103.36 Extra and Force Account Work. The CONTRACTOR shall perform extra work for which there is no price included in the Contract whenever it is deemed necessary or desirable by the CITY in order to fully complete the Work.

103.361 The CONTRACTOR shall perform all extra work under the direction of the ENGINEER. Changes or credits for the Work covered by the approved change shall be determined by one or more, or a combination of, the following methods:

- (a) By agreed unit prices; or
- (b) By agreed lump sum; or
- (c) If neither (a) or (b) is agreed upon before the extra work is started, the CONTRACTOR shall be paid the "Actual Field Cost" of the Work plus fifteen percent (15%) for Work which he performs himself, or plus twenty percent (20%) for Work performed by the Subcontractor.

103.362 Where Extra Work is performed under paragraph 103.361(c), the term "Actual Field Cost" of such Extra Work is hereby defined to be and shall include:

- (a) The cost of all workmen, such as foreman, timekeeper, mechanics, and laborers;
- (b) all materials and supplies;
- (c) all tractors, trucks, and rentals on machinery and equipment for the item actually employed or used in the performance of said Extra Work;
- (d) any transportation charges necessarily incurred in connection with any equipment authorized by the ENGINEER for use on said Extra Work and which is not already on the job;
- (e) all power, fuel, lubricants, water and similar operation expenses;
- (f) all incidental expenses incurred as a direct result of such Work, including payroll taxes and reasonable proportion of premiums on construction bonds and, where the premiums therefore are based on payroll costs, on public liability and property damage, Workers' Compensation, and other insurance required by the Contract.

103.363 The ENGINEER may direct the CONTRACTOR as to the form in which

accounts of the Actual Field Cost shall be kept and may also specify in writing, before the Work commences, the method of doing Work and the type and kind of machinery and equipment, if required, which shall be used in the performance of Extra Work under paragraph 37.2(c). In the event that machinery and heavy construction equipment are required for such Extra Work, the authorization and basis for payment for the use, thereof shall be stipulated in the written Extra Work order. The applicable additional percentage (15% - 20%) of the Actual Field Cost to be allowed and paid to the CONTRACTOR shall cover and be full compensation for, profit (to CONTRACTOR and to Subcontractor, if any), overhead, superintendence, field office expense, and all other elements of cost not embraced with the "Actual Field Cost" herein defined.

103.364 No claim for Extra Work of any kind will be allowed unless the Extra Work is ordered in writing by the ENGINEER. In case any orders or instructions, either oral or written, appear to the CONTRACTOR to involve Extra Work for which he should receive compensation, he shall make a written request to the ENGINEER for a written order authorizing such Extra Work. Should a difference of opinion arise as to what does or does not constitute Extra Work, or concerning the payment thereof, and the ENGINEER insists on its performance, the CONTRACTOR shall proceed with the Work after making a written request for a written Extra Work order and shall keep an accurate account on the Actual Field Cost thereof as provided for in Extra Work.

103.365 If Extra Work orders are given in accordance with the provisions of this contract, such Work shall be considered a part hereof and subject to each and all of its terms and requirements.

103.366 Without invalidating the Contract, the CITY may order additional Work of the kind bid upon, the Contract sum being adjusted accordingly. All Work of the kind bid upon shall be paid for at the price stipulated in the Proposal.

103.37 Partial Payments to Contractors. The CITY will pay the Contractor once each month an amount equivalent to ninety-two percent (92%) of the Estimate made that month for Work and materials in place to date. The CONTRACTOR will submit to the ENGINEER a partial payment Estimate filled out and signed by the CONTRACTOR covering the work performed during the period covered by the partial payment estimate and supported by such data as the ENGINEER may reasonably require. The ENGINEER will, within five (5) working days after receipt of each partial payment Estimate, either indicate in writing his approval of payment or return the partial payment Estimate to the CONTRACTOR indicating in writing his reasons for refusing to approve payment. In the latter case, the CONTRACTOR may make the necessary corrections and resubmit the partial payment Estimate. The CITY will, within twenty (20) days of presentation of an approved partial payment Estimate, accompanied by proper certified payroll records and any other required documentation, pay the CONTRACTOR a progress payment on the basis of the approved partial Estimate.

103.371 The CITY shall retain eight percent (8%) of the amount of each payment

until final completion and acceptance of all Work covered by the Contract Documents except, the CITY at any time, after fifty percent (50%) of the Work has been completed, and if satisfactory progress is being made, may reduce retainage to four percent (4%) on the current (including all accepted work to date) and remaining Estimates.

103.372 Before the payment of any Estimate is made, the CONTRACTOR shall certify under oath:

- (a) The names and addresses of all Subcontractors and Suppliers furnishing labor, material or services of all persons furnishing material included in such Estimate,
- (b) That all bills for materials and labor included in the preceding Estimates have been paid in full (or if not paid in full, a list of unpaid bills giving the amount paid to each Supplier or Subcontractor, together with the reason for non-payment), and
- (c) That all bills for materials and labor included in such Estimate have been or will be paid from the proceeds thereof.

103.373 In addition to the foregoing, the ENGINEER or the CITY may require the CONTRACTOR to furnish waivers of lien signed by all persons furnishing labor or materials included in any Estimate submitted by or on behalf of the CONTRACTOR.

103.374 Retainage. The provisions of Sections 153.12 through 153.14 and Section 153.63 of the Ohio Revised Code shall not apply to this project's AGREEMENT. No retainage shall be escrowed and the CONTRACTOR shall not be entitled to receive any interest earned on retainage. Interest earned on retainage shall belong to the OWNER.

103.38 **Payment for Material on Hand.** If payment is required on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the CITY as will establish the CITY'S title to the material and equipment and protect its interest therein, including applicable insurance.

103.381 Material delivered on the site of the Work, or a railroad station, siding, or other point in the vicinity of the Work, or other approved storage site during the previous month shall be paid for at the rate of ninety-two percent (92%) of its value, as shown by manufacturer's invoices, with the amount not to exceed any applicable Bid price for the material, and provided that such material has been inspected and found to meet the Specifications, and, in addition, for material held at an "off-site" location, the CONTRACTOR furnishes the following information to the ENGINEER:

- (a) A list of the materials consigned to the Project, (which shall be clearly identified), giving the place of storage, together with copies of manufacturer's invoices.
- (b) Certificate that all items have been tagged for delivery to the Project, that they will not be used for any other purpose, and that they will be fully protected during storage.
- (c) A letter from the Surety indicating agreement to the arrangements and that payment to the CONTRACTOR shall not relieve either party of their responsibility to complete the facility.

- (d) Evidence of insurance covering the replacement value of the material in storage.
- (e) Evidence that representatives of the ENGINEER have visited the CONTRACTOR'S place of storage and checked all items on the CONTRACTOR'S certificate.

103.382 Bonding, profit, overhead and other markup costs shall not be included in any payment for material stored.

103.383 Material so paid for shall become the property of the CITY, but if such material is stolen, destroyed or damaged by casualty before being used, the CONTRACTOR shall be required to replace it at his own expense.

103.384 The balance of the involved value will be paid when such material is incorporated into and becomes a part of the Contract.

103.385 No partial payment will be made on living or perishable materials until planted.

103.39 Final Inspection and Acceptance. When the CONTRACTOR indicates that the Work has been completed, the ENGINEER shall be notified and final inspections made. If there remain items to be completed or remedied, the CONTRACTOR shall perform the Work immediately. The Work must pass final inspection before it will be accepted by the CITY.

103.40 Final Estimate. Upon completion and acceptance of the Work by the CITY, the entire balance found to be due the CONTRACTOR, including the retained percentages, but except such sums as may be lawfully retained by the CITY, shall be paid to the CONTRACTOR within thirty (30) days of completion and acceptance of the Work providing the CONTRACTOR shall first have submitted to the CITY the following four (4) separate affidavits (forms provided in the Proposal) fully executed:

- (a) Material and Labor Affidavit (must be signed by Surety)
- (b) Prevailing Wage Law Compliance Affidavit (State or Federal, as applicable).
- (c) City Income Tax Compliance Affidavit.
- (d) Performance Bond to cover one (1) year Guarantee Period.

103.401 The affidavits are to show that (a) all claims and obligations relevant to the performance of the Contract have been satisfactorily settled and that all claims and obligations for labor and materials have been settled, (b) that CONTRACTOR and Subcontractors have complied in all respects with Section 4115 of the Revised Code of Ohio pertaining to Prevailing Wage Rates and/or the Federal Labor Standards, (c) that CONTRACTOR and Subcontractors have complied with all ordinances of the CITY of Springfield, Ohio, pertaining to Municipal Income Taxation, and (d) guarantee that all defects in Work done by CONTRACTOR will be corrected within the Guarantee Period.

103.402 No payment shall be made for any unauthorized work.

103.41 Guarantee. The CONTRACTOR hereby agrees that all defects in the Work done under this Contract or damage to utilities or other property which become apparent during the period of one (1) year after the date of acceptance for the project by the CITY and which, in its opinion, are traceable to the use of defective materials or improper workmanship, shall be remedied by the CONTRACTOR without cost to the CITY. The CONTRACTOR further agrees to make such repairs when and as directed by the CITY, such direction to be in writing. If after receiving such notice CONTRACTOR fails to make such repairs within five (5) days, the CITY may cause said repairs to be made and charge the expense thereof to the CONTRACTOR, its Surety, or withhold such amounts as may be necessary to pay for such repairs from any retained moneys. All engineering, inspection, legal and other costs and expense to the CITY occasioned by or resulting from such defect or failure shall be paid by the CONTRACTOR upon demand by the CITY.

103.411 In case of an emergency where, in the opinion of the ENGINEER, delay would cause serious loss or damage, the CITY may make repairs, without previous notice, and at the expense of the CONTRACTOR or its Surety.

103.412 Such Work may include, but is not limited to, resetting of castings, pipe repair or replacement, refilling and leveling off of sunken trenches, replacement of sidewalk, curb and gutter, repair of pavement and repair of utilities.

103.413 The Performance Bond covering the one (1) year guarantee period shall be in effect until the CITY shall evidence release of the Performance Bond in writing.

103.42 Insurance Requirements. Prior to commencing any work under this Contract, the CONTRACTOR shall obtain and shall require each Subcontractor to obtain, at no additional cost to the CITY, the following insurance:

- (a) Workers' Compensation in accordance with the laws of the State of Ohio. Successful bidder will be required to furnish a copy of the Certificate issued by the Industrial Commission and Bureau of Workers' Compensation, which shall be current.
- (b) Owner's Protective Liability Insurance with the CITY as the Named Insured and the limits of coverage being not less than (\$250,000) per person and (\$500,000) per occurrence for bodily injury, including death, and not less than (\$300,000) for property damage; however, in lieu of requiring a Subcontractor to obtain his own Owner's Protective Liability insurance policy with the CITY as the Named Insured, the CONTRACTOR may, if he chooses, provide for such Subcontractor to be included as a designated Contractor performing work for the CITY in the Owners Protective Liability insurance policy obtained by the CONTRACTOR.
- (c) Comprehensive General And Automobile Liability Insurance with the CONTRACTOR and Subcontractor as the Named Insured; however, in lieu of requiring a Subcontractor to obtain his own Comprehensive General and Automobile Liability insurance policy, the CONTRACTOR may, if he chooses, provide for such Subcontractor to be named as an additional insured in the

Comprehensive General and Automobile Liability insurance policy obtained by the CONTRACTOR. Coverage shall include owned, non-owned and hired automobiles under the Automobile Liability Insurance policy, and shall include, but not be limited to, premises operations, independent Contractors and complete operations under the Comprehensive General Liability insurance policy. The limits of coverage for each of the Named Insureds to any such policy shall be not less than (\$250,000) per person and (\$500,000) per occurrence for bodily injury including death, and not less than (\$300,000) for property damage.

- (d) The CONTRACTOR shall maintain the foregoing insurance during the entire time he is performing work under this contract, and shall require each Subcontractor to maintain the same during this Contract. Moreover, each insurance policy shall be endorsed to cover property damage arising from blasting, or use of mechanical equipment for excavating or drilling if any such work is performed by the CONTRACTOR. (A Blasting permit must be obtained from the Fire Chief before blasting begins).
- (e) Prior to commencing any work under this Contract, the CONTRACTOR and each Subcontractor shall submit to the Law Director of the CITY, for his approval, Certificates of Insurance indicating that all of the foregoing insurance has been obtained. All policies and certificates shall contain a provision that said insurance will not be modified or cancelled during the term thereof until ten (10) days written notice has been given to the CITY.
- (f) Should any insurance described in any certificate expire or be terminated during any period when the same is required under this Contract, the CITY shall be notified immediately and such expired or terminated insurance must be replaced with new insurance and new certificates prior to date of such expiration or termination.
- (g) If the Legal Department shall so request, the original policies of insurance or certified copies thereof shall be submitted by the CONTRACTOR to the CITY for examination.

103.43 Delinquent Personal Property Tax Affidavit. Bidders, if awarded a contract, must agree that if this contract is awarded to them they will execute and submit the affidavit required by Section 5719.042 of the Ohio Revised Code. The affidavit is to be incorporated into and made a part of the contract, and no payment shall be made with respect to this contract unless such statement has been completed (form of affidavit included in the Proposal).

103.44 Prevailing Wages. CONTRACTOR and each of its subcontractors are required under Sections 4115.03 to 4115.16 of the Ohio Revised Code, and are obligated in performance of the Work to pay not less than the prevailing rate of wages applicable under the laws of the State of Ohio and under the terms of the Contract to each laborer, workman, or mechanic, employed by the CONTRACTOR or subcontractor about or upon the public work described in these specifications. The CONTRACTOR and each of its subcontractors shall make full payment of such wages in legal tender, without any deduction for food, sleeping accommodations, transportation, use of small tools, or any

other thing of any kind or description. This section does not apply where the employer and employee enter into an agreement in writing at the beginning of any term of employment covering deduction for food, sleeping accommodations, or other similar item, provided such agreement is submitted by the employer to the CITY and is approved by the CITY as fair and reasonable. The schedule of prevailing wages, included in the Proposal for the work, are made a part of and incorporated in to these specifications by this reference as if fully rewritten herein.

103.441 CONTRACTOR and each of its subcontractors subject to Sections 4115.03 to 4115.16 of the Ohio Revised Code, shall keep full and accurate payroll records with respect to wages paid each employee and the number of hours worked by each employee, covering all disbursements of wages to their employees to whom they are required to pay not less than the prevailing rate of wages. Such payroll records shall be open to inspection by any authorized representative of the CITY, including the CITY'S prevailing wage coordinator or the Ohio Department of Industrial Relations at any reasonable time and as often as may be necessary, and such records shall not be destroyed or removed from the state for the period of one year following the completion of the public improvement in connection with which the records are made. There shall be posted in a prominent and accessible place on the site of the work a legible statement of the schedule of wage rates specified in the Contract to the various classifications of laborers, workmen, and mechanics employed, said statement to remain posted during the life of the Contract. The CONTRACTOR shall file with the CITY, upon completion of the public improvement and prior to final payment therefor, for itself and for each of its subcontractors, affidavits stating that the CONTRACTOR and each of its subcontractors have fully complied with Sections 4115.03 to 4115.16 of the Ohio Revised Code.

103.442 The CONTRACTOR and each of its subcontractors who are subject to Sections 4115.03 to 4115.16 of the Ohio Revised Code shall, as soon as it begins performance of the Work under this contract, supply to the CITY'S prevailing wage coordinator a schedule of the dates during the life of this Contract on which it is required to pay wages to employees. The CONTRACTOR and each of its subcontractors shall also deliver to the CITY'S prevailing wage coordinator a certified copy of its payroll, within two weeks after the initial pay date, and supplemental reports for each month thereafter which shall exhibit for each employee paid any wages, his name, current address, social security number, number of hours worked during each day of the pay periods covered and the total for each week, his hourly rate of pay, his job classification, fringe payments, and deductions from his wages. If the life of the Contract is expected to be no more than four months from the beginning of performance by the CONTRACTOR, such supplemental reports shall be filed each week after the initial report. The certification of each payroll shall be executed by the certifying employer, or its duly appointed agent and shall recite that the payroll is correct and complete and that the wage rates shown are not less than those required by this Contract.

103.443 Employers who are subject to Sections 4115.03 to 4115.16 of the Ohio Revised Code and who have not established a plan, by a labor agreement or otherwise, for

the provision of wages as defined in division (E) (2) of Section 4115.03 of the Ohio Revised Code shall pay the prevailing rates of wages in full in cash.

103.444 On the occasion of the first pay date for the Work performed pursuant to these specifications, the CONTRACTOR and each of its subcontractors shall furnish each employee not covered by a collective bargaining agreement or understanding between his employer and a bona fide organization of labor with individual written notification of the job classification to which the employee is assigned, the prevailing wage determined to be applicable to that classification, separated into the hourly rate of pay and the fringe payments, and the identity of the CITY'S prevailing wage coordinator. The CONTRACTOR and each of its subcontractors shall furnish the same notification to each affected employee every time the job classification of the employee is changed.

103.445 The CONTRACTOR shall enter in to written contracts with each of its subcontractors and shall incorporate into each such contract the duties imposed upon the subcontractor under Sections 4115.03 to 4115.16 of the Ohio Revised Code and the duties required to be performed by the subcontractor as described in these specifications. The CONTRACTOR shall indemnify and save the CITY harmless from any and all claims, judgments, awards rendered through arbitration, requirements to make payment to employees of CONTRACTOR or any of its subcontractors imposed by the director of the Ohio Department of Industrial Relations, or any other liability for any back wages, fines, damages, court costs, and attorney fees associated with the enforcement of Chapter 4115 of the Ohio Revised Code.

103.446 Sections 4115.03 to 4115.16 of the Revised Code, governing prevailing wages in Ohio, do not apply to public improvements in any case where the federal government or any of its agencies furnishes by loan or grant all or any part of the funds used in constructing such improvements, provided the federal government or any of its agencies prescribes predetermined minimum wages to be paid to mechanics and laborers employed in the construction of such improvements.

ITEM 104 SUPPLEMENTAL CONDITIONS FOR FEDERALLY FUNDED PROJECTS

104.01 General. This project is funded by a Federal Grant Program (identified by name in the detailed technical specifications) and all rules and regulations related to such grant funding apply. Questions regarding the applicability of any of the items under this Section should be directed to the buyer assigned to this purchase, who will in turn direct your question to the appropriate department. Any additional Federal conditions relating to this project not listed below will be noted in the detailed technical specifications.

104.02 Equal Employment Opportunity. The Proposer agrees to abide by the requirements under Executive Order No. 11246 of September 24, 1965, entitled "Equal Employment Opportunity," as amended by Executive Order 11375 of October 13, 1967, and as supplemented in Department of Labor regulations (41 CFR Part 60), including specifically the provisions of the equal opportunity clause set forth in the Supplemental General Conditions, as applicable. (Applicable to all construction contracts awarded in excess of \$10,000 by the City and its contractors of sub-grantees).

104.03 Review By The City And Department Of Housing And Urban Development. The City and its authorized representative shall, at all times, have access to and be permitted to observe and inspect all work, materials, and equipment pertaining to the contract provided all instructions with respect to the work will be given to the contractor by the authorized representative of the City.

The authorized representatives and agent of the Department of Housing and Urban Development shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials and other relevant data and records.

104.04 Health and Safety Instructions for Construction. The U.S. Department of Labor "Safety and Health Regulations for Construction" identified as Chapter XVII of Title 29, Code of Federal Regulations (CFR) Part 1926 (formerly Part 1518) and subsequent amendments are hereby made a part of these specifications.

104.05 Records. Contractors shall be required to maintain all required records for three years after receipt of final payment and all other pending matters are closed.

104.06 Federal Regulations. Wherever in this specification Federal regulations and guidelines exceed or are more definitive than those herein, such rules, regulations, and guidelines shall apply.

104.07 Employment Opportunities for Lower Income Persons. The Contractor, in connection with work covered by the contract, to the greatest extent feasible, shall provide opportunities for training and employment to lower income persons residing in the project area.

104.08 Minority Business Enterprises. It is the policy of the Government that the maximum practicable opportunity to participate in the performance of Government contracts be provided to Minority Business Enterprises as rendering services as prime contractors or subcontractors under Government procurement contracts. Contractors shall take affirmative steps to assure that small and minority businesses are utilized when possible as sources of supplies, equipment, construction and services.

104.09 Interest of Certain Federal and Other Officials. No Member of or Delegate to the Congress of the United States and no Resident Commissioner shall be admitted to any share or part of this contract or to any benefit to arise from the same; Provided, that the foregoing provisions of this Section shall not be construed to extend to this Contract if made with a corporation for its general benefit.

104.10 State Energy Conservation Plans. Contractors shall recognize mandatory standards and policies relating to energy efficiency which are contained in the State energy conservation plan issued in compliance with the Energy Policy and Conservation Act (P. L. 94-163).

104.11 Contract restrictions with Subcontractors. Any proposed work agreement between the firm which receives the bid award and a firm which they wish to subcontract with, shall be reviewed and approved in writing by the City of Springfield prior to its execution, and a written original executed copy of the agreement shall be retained in the contractor's files.

104.12 Copeland Anti-Kickback Act. Contractors and subcontractors shall comply with the Copeland "Anti-Kickback" Act (18 U.S.C. 874) as supplemented in Department of Labor regulations (29 CFR Part 3). (Applies to all contracts and sub-grants by the City for construction or repair).

104.13 Davis Bacon Act. Contractors and subcontractors shall comply with the Davis-Bacon Act (40 U.S.C.276a to a-7) as supplemented by Department of Labor regulations (29 CFR Part 5). (Applies to all construction contracts in excess of \$2,000 awarded by the City when required by Federal grant program legislation).

104.14 Contract Work Hours and Safety Standards Act. Contractors and subcontractors shall comply with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 324-330) as supplemented by Department of Labor regulations (29 CFR Part 5). (Applies to construction contracts awarded by the City in excess of \$2,000, and in excess of \$2,500 for other contracts, which involve the employment of mechanics or laborers).

104.15 Clean Air Act. Contractors and subcontractors shall comply with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h)), section 508 of Clean Air Act (33 U.S.C. 1368), Executive Order

11738, and Environmental Protection Agency regulations (40 CFR Part 15). (Applies to contracts and subcontracts of amount in excess of \$100,000).

104.16 Civil Rights Act. The contractor shall comply with Title VI of the Civil Rights Act of 1964 (P. L. 88-352) and HUD regulations with respect thereto including the regulations under 24 CFR Part I.

104.17 Anti-Lobbying Form. The Anti-lobbying form must be completed and submitted with any bid where the procurement is federally funded (form attached to this document).

104.18 Compliance With Provision Of Training, Employment And Business Opportunities. In all Community Development funded projects, the Contractor shall comply with the following regulations of Title 24, Part 135.20.

Every applicant, recipient, contracting party, contractor, and subcontractor shall incorporate, or cause to be incorporated, in all contracts for work in connection with a Section 3 covered project, the following clause (referred to as a Section 3 clause):

(a) The work to be performed under this contract is on a project assisted under a program providing direct Federal financial assistance from the Department of Housing and Urban Development and is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u. Section 3 requires that to the greatest extent feasible opportunities for training and employment be given to lower income residents of the project area and contracts for work in connection with the project be awarded to business concerns that are located in, or owned in substantial part by persons residing in, the area of the project.

(b) The parties to this contract will comply with the provisions of said Section 3 and the regulations issued pursuant thereto by the Secretary of Housing and Urban Development set forth in 24 CFR Part 135, and all applicable rules and orders of the Department issued thereunder prior to the execution of this contract. The parties to this contract certify and agree that they are under no contractual or other disability, which would prevent them from complying with these requirements.

(c) The contractor will send to each labor organization or representative of workers with which he has a collective bargaining agreement or other contract or understanding, if any, a notice advertising the said labor organization or workers' representative of his commitments under this Section 3 clause and shall post copies of the notice in conspicuous places available to employees and applicants for employment or training.

(d) The Contractor will include this Section 3 clause in every subcontract for work in connection with the project and will, at the direction of the applicant for or recipient of Federal financial assistance, take appropriate action pursuant to the subcontract upon a finding that the subcontractor is in violation of regulations issued by the Secretary of Housing and Urban Development, 24 CFR Part 135. The contractor will not subcontract with any subcontractor where it has notice or knowledge that the latter has been found in violation of regulations under 24 CFR Part 135 and will not let any subcontract unless the subcontractor has first provided it with a preliminary statement of ability to comply with the requirements of these regulations.

(e) Compliance with the provisions of Section 3, the regulations set forth in 24 CFR Part 135 and all applicable rules and orders of the Department issued thereunder prior to the execution of the contract, shall be a condition of the Federal financial assistance provided to the project, binding upon the applicant or recipient for such assistance, its successors, and assigns. Failure to fulfill these requirements shall subject the applicant or recipient, its contractors and subcontractors, its successors, and assigns to those sanctions specified by the grant or loan agreement or contract through which Federal assistance is provided, and to such sanctions as are specified by 24 CFR Part 135.

200 EARTHWORK

ITEM 202 REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Item 202 of the current State of Ohio Department of Transportation Construction and Materials Specifications shall govern the requirements for this item, with the following exceptions:

202.04 Pipe Removed. The work under this section shall include excavating all material necessary to permit removing the pipe; disposing of excavated material, including broken pipe; sealing openings left in manholes, catch basins or existing pipes that are to remain in place. All work shall be done as directed by the Engineer.

202.05 Pavement, Drives, Walks, Curbs etc. Removed. Concrete Pavements, Drives, Walks, Curbs, etc. shall be removed at existing joints only, unless otherwise shown on the plans or directed by the Engineer. Where the removal limit is not at an existing joint, a saw cut shall be made to produce a neat joint. After removal, the existing joint and adjacent concrete shall be left in a straight, clean and undamaged condition. Adjacent concrete damaged by the Contractor shall be replaced at his expense.

202.10 Manhole, Catch Basin, and Inlet Removed. Existing drainage structures of these types designated for removal shall be removed under this item.

ITEM 261 PAVEMENT RESTORATION

261.01 Description. This work shall consist of the restoration of street pavement, by constructing new pavement using the specified materials in reasonably close conformity with the lines, grades, and dimensions shown on the plans or established by the Engineer.

261.02 Materials. Materials shall be:

Concrete.....	ODOT Class QC 1
Asphalt concrete.....	441
Aggregate base.....	304
Tack coat.....	407
Prime coat.....	408

261.03 Composition. The composition of each type of pavement restoration as shown on the plans or directed by the Engineer shall be as follows (*Item 408, Prime Coat shall be used on restoration widths of over 8 feet only):

Type	Pavement Composition
A	2” Item 441, Asphalt Concrete Surface Course, Type 1 (448) on 8” Item 304, Aggregate Base with Item 408, Prime Coat applied at 0.4 gal. per sq. yd.*
B	1” Item 441, Asphalt Concrete Surface Course, Type 1 (448) on 2” Item 441, Asphalt Concrete Intermediate Course, Type 1 (448) on 9” Item 304, Aggregate Base with Item 408, Prime Coat applied at 0.4 gal. per sq. yd.*
C	2” Item 441, Asphalt Concrete Surface Course, Type 1 (448) on 4” Item 301, Bituminous Aggregate Base
C-Mod	Item 441, Asphalt Concrete Surface Course, Type 1 (448) – match existing Item 301, Asphalt Concrete Base equivalent to existing base with Item 407, Tack Coat applied at 0.06 gal. per sq. yd.
D	2” Item 441, Asphalt Concrete Surface Course, Type 1 (448) on 4” Item 441, Asphalt Concrete Intermediate Course, Type 1 (448) on 7” Item 305, Portland Cement Concrete Base with Item 407, Tack Coat applied at 0.08 gal per sq. yd.
D-Mod	Item 441, Asphalt Concrete Surface Course, Type 1 (match existing) 7” Item 305, Portland Cement Concrete Base with Item 407, Tack Coat applied at 0.08 gal. per sq. yd.
E	Pavement composition shall be as shown on the plans or as directed by the Engineer.

261.04 Construction. The existing edge of pavement along the trench shall be trimmed to neat lines prior to placing new asphalt. Provide a 6 inch shoulder of undisturbed earth on both sides of the trench, unless otherwise directed by the Engineer. All joints between new and old asphalt pavement shall be painted on the edges with RS-2 asphalt emulsion or approved equal prior to placement of asphalt restoration. All joints shall be sealed with RS-2 asphalt emulsion or approved equal a minimum of 3 inches wide. Loose sand cover shall be applied in areas directed by the Engineer.

All asphalt courses shall be applied in layers not to exceed 2 inches in depth.

Asphalt course depth for restoration types D and D-Modified shall be estimated by the Engineer for bidding purposes, but in shall no case be less than the existing asphalt cover.

Concrete base shall cure a minimum of 48 hours before the placement of any asphalt courses. Suitable barricades shall be furnished and placed to protect the areas until the concrete has cured or until the asphalt course has cooled.

Pavements shall be restored no later than one week after the work for which the pavement was removed has been completed and accepted. Required testing of any utility work under the pavement must be performed and the line accepted before the restoration of the pavement is done.

261.05 Method of Measurement. When the square yard is specified as the unit of measure for this Item, the quantity shall be the number of square yards of pavement restored to the limits designated by the Engineer and to the depth required for each type of restoration. The restoration shall be for the allowable trench width or the actual restored width, whichever is less. No deductions for manholes, valves, etc. will be made.

When the linear foot is specified as the unit of measure for this Item, the quantity shall be the number of linear feet of pavement restored to the limits designated by the Engineer and to the depth required for each type of restoration. Measurements shall be from center to center of manholes, valves, intersecting pipe, ends of pipe, etc.

261.06 Basis of Payment. Payment will be made at the contract price for:

Item	Unit	Description
261	Square yard	Pavement restoration, Type ____
261	Linear feet	Pavement restoration, Type ____

ITEM 262 BITUMINOUS BASE PULVERIZING AND SHAPING WITH CALCIMENT

262.01 Description. This work shall consist of scarifying, pulverizing and crushing the existing bituminous pavement to a depth of ten inches, removing surplus or unsuitable material, adding new material if required, and shaping, rolling and compacting the crushed base to the proper elevation and slope.

262.02 Equipment. The scarifying, pulverizing, and crushing shall be accomplished with a single piece of equipment. A pneumatic-tired or sheepsfoot roller shall be required for the initial rolling and a vibratory roller, minimum 10 ton, for the finished rolling.

262.03 Scarifying And Pulverizing. The material shall be scarified and uniformly pulverized to a maximum of two inches, except that five percent of the material may be oversized, provided that the oversize material is not so large as to adversely affect the stability and structural integrity of the base, nor hamper the shaping operations. Any excess or unsuitable material such as lumps, excess clay or other foreign substances shall be disposed of by the Contractor at the contractor's expense as directed by the Engineer. The material shall be scarified and uniformly pulverized, in one or more passes.

The outside lanes of the street shall be pulverized first. The inside lanes shall then be pulverized and the material stored on top of the previously pulverized material in the outside lanes. Unsuitable material, as determined by the Engineer, shall not be stored for re-use. After pulverization and storage, material from the inside lanes shall be excavated and disposed of. A sufficient amount of material shall be removed in order to obtain a finished surface cross slope of 3/16 inch per foot. The cost for excavation and disposal of material shall be included in the unit priced bid for Item 262.

After sufficient material has been removed from the inside lanes, the stored material shall be placed and spread evenly throughout the excavated area.

262.04 High-crowned Streets. On abnormally high-crowned streets, additional excavation from the inside lanes will be required in order to obtain the desired finished cross slope. The Engineer will determine and identify streets that require additional excavation. Estimated quantities for additional excavation on high-crowned streets will be determined by the Engineer and paid for separately under Item 203.

262.05 Addition of Calciment (or an approved equal). Calciment or an approved equal shall be applied to the pulverized material at a minimum rate of 6 lb/in of depth/sy using a vane type spreader. The calciment will be blended with the pulverized material to the desired depth and brought to the optimum moisture content for the soil classification for shaping, compacting and curing. The calciment shall not be added until all excess material which is not to be incorporated into the work has been removed.

Any proposed changes to the job mix formula must be submitted in writing and are to pre-approved by the City Engineer before the work commences. Samples and/or testing may be required by the City Engineer. Contractor will identify the source of materials.

262.06 Grading, Shaping, Rolling, And Compacting. The scarified and pulverized material shall be spread to the existing street width. The intent of this grading operation is to balance the pulverized material in such a manner so that the slope and profile will be approximately parallel to the existing street profile.

The laboratory density shall be determined in accordance with ASTM D1557, Method D. The pulverized material shall be compacted to not less than 98 percent of the unit weight obtained by the ASTM D1556, D2167 or D2922 test method.

If the amount of pulverized material is not sufficient to provide adequate grade, No. 304 aggregate shall be added to the material as directed by the Engineer.

262.07 Finishing And Compacting. After spreading, the pulverized material shall be thoroughly compacted by rolling. The rolling shall progress gradually from the sides to the center of the lanes under construction, or from one side toward previously placed material by lapping uniformly each preceding rear-wheel track by one-half the width of such track. Rolling shall continue until the entire area of the course has been rolled by the rear wheels. The rolling shall continue until the stone is thoroughly set, the voids of the material reduced to a minimum, and until creeping of the stone ahead of the roller is no longer visible. Rolling shall continue until the base material has been compacted to not less than 98% density, as obtained by the ASTM D1556, D2167, or D2922 test method. Blading and rolling shall be done alternately, as required or directed, to obtain a smooth, even, and uniformly compacted base.

The pulverized material shall not be rolled when the underlying course is soft or yielding or when the rolling causes undulation in the base course. In areas inaccessible to rollers, the pulverized material shall be tamped thoroughly with mechanical tampers. Any water added, if necessary, to the material during rolling shall be in the amount and by equipment approved by the Engineer.

The cross-slope of pulverized material surface shall conform to the specified cross-slope as determined in the field plus or minus 3/4 inch in 10 feet.

Work on the pulverized material shall not be accomplished during freezing temperatures nor when the subgrade is wet. When the aggregates contain frozen materials or when the underlying course is frozen, the construction shall be stopped.

If, in the opinion of the Engineer, the base has not been compacted to the desired density, and it's structural integrity is not suitable for placement of the asphalt courses, the Contractor shall repair, to the satisfaction of the Engineer, any defective areas at no additional cost to the City.

262.08 Method Of Measurement. The work involved in this item, including all labor, equipment, materials, and supplies for the base pulverizing and shaping will be measured by the number of square yards complete and accepted. Base pulverizing will be calculated for bid purposes using a nominal depth of ten inches. No. 304 aggregate will be measured by the cubic yard and paid for under the pertinent 304 item.

262.09 Basis of Payment. The work included in this item shall be paid for at the contract price, complete in place. The cost of pulverizing to depths in excess of ten inches will be paid for by supplemental agreement.

Item	Unit	Description
262	Square yard	Bituminous base pulverizing and shaping with calciment.

500 STRUCTURES

ITEM 503 ROCK EXCAVATION

503.01 Description. This work shall consist of the excavation of rock where encountered to the line, grade and cross section as shown on the plans, or in the case of trench excavation, as described herein.

503.02 Construction. Trenches shall be excavated to a width sufficient to allow for proper jointing of the conduit and thorough compaction of the granular bedding as well as proper backfill around the conduit. The width of trench for sewer pipe shall be restricted in accordance with Item 803. Trench widths for water mains shall be in accordance with Item 838. Backfill and bedding for those areas of rock excavation shall be placed in accordance with and paid for under Item 803 and Item 838 for sewer pipe and water main respectively.

The Contractor shall provide and operate any equipment necessary for the removal of all water entering the excavation. The Contractor shall also be responsible for any damage incurred by such water.

Blasting shall be subject to approval by the Engineer and acquisition of a blasting permit from the Fire Chief.

Adequate precautions shall be taken and insurance carried to cover damage arising from blasting, or use of mechanical equipment for excavating or drilling. Special conditions shall be as indicated on the construction drawings.

Disposal sites for rock excavation shall be subject to approval by the Engineer.

503.03 Method of Measurement. The quantities of rock excavation to be paid for shall be the actual number of cubic yards of material in the original position, acceptably excavated. Rock excavation outside plan lines or in the case of trench excavation beyond maximum allowable trench widths and depths, shall not be included in measurement for payment.

503.04 Basis of Payment. The accepted quantities, including the furnishing of all labor, equipment, and material necessary to excavate the rock shall be paid for at the contract price for:

Item	Unit	Description
503	Cubic yards	Rock Excavation

600 INCIDENTALS

ITEM 608 DRIVES, WALKS, CURB RAMPS AND STEPS

608.01 Description. This work shall consist of constructing drives, walks, curb ramps and steps of specified materials in reasonably close conformity with lines, grades, and dimensions shown on the plans or established by the Engineer.

608.02 Materials. Materials shall be:

Concrete (Class QC 1).....	ODOT CMS Item 499
Subgrade Material.	ODOT Item 304
	Crushed Stone or
	Approved Equal
Expansion Joint Material	AASHTO M 153
	or AASHTO M 213
	Or Foam Joint Filler – “Foamtech” or approved equal
Curing Material.....	ASTM C 309

608.03 Concrete Walks and Drives.

(a) Excavation shall be made to the required depth and to a width that will permit the installation and bracing of forms. The removal of existing walks or drives shall be as per 202. Any fill necessary to bring the subgrade to the proper grade shall be made using Item 304, crushed stone or other material approved by the Engineer. The cost of any fill required to bring the subgrade to grade shall not be paid for separately, but shall be included in the price bid for this item. The subgrade shall be shaped and uniformly compacted to a surface conforming to the plans or as ordered using mechanical vibratory compacting equipment. All tree roots shall be trimmed to a point at least 2 inches clear of any concrete placed.

(b) Forming. Forms shall be metal or sound 2 inch, nominal size, wood plank and extend for the full depth of the concrete, and be of sufficient strength to resist the pressure of the concrete without springing. Forms for circular sections may be metal or plywood. Forms shall be straight, true, clean and coated with a suitable oil immediately before the concrete is placed. Forms must be approved by the Engineer prior to placing concrete.

Before placing concrete, any water or gas valve boxes shall be adjusted to final grade.

(c) Placing and Finishing. The subgrade shall be moistened thoroughly immediately prior to placing concrete. The concrete shall be deposited in a single layer and carefully place so as not to disturb the alignment of the forms, and thoroughly spaded or puddled to eliminate honeycomb. Honeycomb remaining after the forms have been removed shall be filled with a mortar of sand and cement. After placing concrete, the use of additional water on the surface to aid in finishing is not permitted. It shall be struck off with a template and smoothed with a float to obtain a sandy texture. The final surface shall be broom finished. No plastering will be permitted. All outside edges and joints shall be edged with a ¼ inch radius tool. The surface of walks shall be divided into equally spaced blocks at 5 foot intervals to form rectangular blocks. Transverse joints shall be formed to a depth of ½ inch if tooled, and 1/3 the depth of the slab if sawed, and shall be approximately 1/8 inch wide. Expansion joint filler (1/2 inch) extending the full depth of the concrete shall be installed between the new concrete and any fixed structure, including curbs, poles, valve boxes, and

at every 50 linear feet of new walk and on each side of a drive. No concrete shall be placed before 7:30 a.m. or after 4:00 p.m. except with the permission of the Engineer.

(d) Curing. Immediately after the final finishing and after the free water has disappeared, all exposed surfaces shall be sealed by spraying thereon, a uniform application of white curing membrane in such a manner as to provide a continuous uniform film without marring the surface of the concrete. Clear curing material may be used in place of white before May 15 and after September 15. The material shall be applied with an approved mechanical sprayer. Wind protection to the fog spray shall be provided by an adequate shield. A minimum of 1 gallon of material shall be used for each 200 square feet of surface treated. Curing material shall be thoroughly agitated immediately prior to use.

Adequate precautions shall be taken to protect the membrane from damage. If the film is broken or damaged at any time during the specified curing period, the area or areas affected shall be given a complete duplicate treatment of the curing material applied at the same rate as the first treatment. Any concrete showing injury or damage due to inadequate curing shall be repaired or replaced by the Contractor at no additional cost.

(e) Weather Limitations. When the temperature is below 36°F, or predicted to go below 36° F. in the next 72 hours, no concrete shall be placed without permission of the Engineer. Permission so granted shall be for the day and location in question only and must again be requested for subsequent days when the temperatures are as above. When such permission is granted, the following conditions must be met: adequate covering materials such as plastic and straw or paper and straw is on the site, and a sufficient number of workmen are present to place, finish and cover the concrete as soon as practicable; all forms must be cleaned of frost; concrete shall not be placed on frozen or frost-covered ground. A maximum of 2% calcium chloride admixture or other accelerator, approved by the Engineer, may be used.

(f) Protection. Adequate methods and devices, including barricades, guards and lighting shall be provided to protect the work, and pedestrian and vehicular traffic. Walks shall be protected from pedestrian traffic for not less than 24 hours. Drives shall be protected from vehicular traffic for not less than 72 hours.

608.04 Concrete Steps.

(a) The construction of concrete steps shall conform to the above specifications and to ODOT's Standard Drawing.

(b) Hand railing, when specified, shall be in accordance with pertinent provisions of 517.

608.05 Curb Ramps. The construction of curb ramps shall conform to the above specifications. The final surface texture shall be rougher than adjacent walk and shall be obtained by coarse brooming or other method approved by the Engineer to obtain striations transverse to the ramp slopes and adhere to ODOT's STD BP-7.1, current edition

608.06 Method of Measurement. Walks and drives will be measured by the square foot of finished surface complete in place. Steps will be measured by the linear foot, along the front edge of each tread.

Curb ramps in new concrete walk will be measured as the number of each complete and shall include the cost of any additional materials, grading, forming and finishing not included in the new walk, which is measured through the curb ramp area.

608.07 Basis of Payment. The accepted quantities of specific items will be paid for at the contract prices designated for each of the pay items listed. Excavation, backfill, subgrade material, expansion joint material, hand railing and other miscellaneous items will not be paid for separately, but the cost thereof shall be included in the cost of the walks, drives, curb ramps and steps of which they are a part.

Payment will be made under:

Item	Unit	Description
608	Square foot	Concrete walk
608	Square foot	Concrete drive
608	Each	Curb ramps
608	Linear foot	Concrete Steps

ITEM 609 CURBING

Item 609 of the current State of Ohio Department of Transportation Construction and Materials Specifications shall govern the requirements for this item, with the following exceptions and additions:

609.02 Materials. Reinforcing steel is not permitted.

609.04 Cast in Place. Curb forms shall be either metal or sound two inch wood plank, and they shall be straight, true and clean. Forms for circular sections may be metal or plywood. All forms shall be the full depth of the back of curb and full depth for face of curb and gutter. Any fill necessary to bring the subgrade to the proper grade shall be made using Item 304, crushed stone or other material approved by the Engineer. The cost of any fill required to bring the subgrade to grade shall not be paid for separately, but shall be included in the price bid for this item. The subgrade shall be shaped and uniformly compacted to a surface conforming to the plans or as ordered using mechanical vibratory compacting equipment. All tree roots shall be trimmed to a point at least 2 inches clear of any concrete placed. The subgrade shall be moistened thoroughly immediately prior to placing concrete.

All curb and combination curb and gutter not constructed integral with the base or pavement shall have $\frac{1}{4}$ inch wide contraction joints constructed at 5 foot intervals. The contraction joints shall be $\frac{1}{2}$ inch deep if tooled, and $\frac{1}{3}$ the depth of the concrete if sawed.

Expansion joints shall be placed where new curbing abuts existing curbing, at driveways, at the ends of all circular sections, every 50 lineal feet and on either side of driveways and at 18 inches on each side of catch basins. Expansion joints shall be the full depth of concrete.

After removal of the forms, the void at the back of the curb shall be backfilled with earth tamped to solid compaction. The void remaining between the outside gutter edge and the street pavement shall be backfilled with Item 304 compacted to street grade, the cost of which shall be included in the unit price bid for the pertinent 609 item.

The completed curbing may be used for traffic when 3 days has elapsed.

609.08 Basis of Payment. Curbing having a radius of 50 feet or less shall be paid for separately.

Payment will be made under:

Item	Unit	Description
609	linear foot	Curb, Type ____
609	linear foot	Combination Curb and Gutter, Type ____

614 MAINTENANCE OF TRAFFIC

Item 614 of the current State of Ohio Department of Transportation Construction and Materials Specifications shall govern the requirements for this item, with the following additions or exceptions:

General. On projects where the road is open to through or local traffic, the Contractor shall provide access for basic services such as mail and parcel delivery and refuse removal.

The City will provide, install, and maintain signs prohibiting turns, regulating speed, prohibiting parking, and establishing detours unless specified otherwise in the plan notes. For City installed signing the contractor must notify the Engineer two full working days in advance of such need.

When specified, on projects where the road is open to local traffic, the Contractor shall supply, erect and maintain signs at the terminus points of the project, providing notification that the roadway is open to the business(es) within the construction zone.

On projects where the road is open to through traffic, the Contractor shall maintain a minimum 10 feet of lane width (this does not include the space needed for channelizing and other traffic control devices) for each movement of traffic maintained.

Driveway Access. The contractor shall maintain access to all commercial and residential driveways within the work area.

All residents or occupants served by the driveway shall be notified prior to any driveway work. When access to any driveway must be disrupted for more than 4 hours, the contractor shall notify the occupant of said property a minimum of 12 hours in advance of the closing. For closings of less than four hours, same day notification is permitted.

Commercial properties with multiple driveways shall be served by a minimum of one (1) open driveway at all times. Driveways within excavated areas of the roadway shall have access maintained using granular crushed material to provide a drivable surface. Temporary driveway ramps shall be bid under Item 410, Traffic Compacted Surface.

Residential and commercial driveways having enough width for access on half, shall be constructed one half at a time to permit uninterrupted access. Those driveways which are too narrow for this process shall be completely removed and replaced within 3 working days.

Any interruption of access over a weekend or other non-working period shall be approved in advance by the Engineer.

Removal of Existing Traffic Control Signs. Contractor shall contact the City Service Department at (937) 525-5800 to arrange for removal or relocation of any regulatory signs in conflict within the project limits

To maintain the safety of vehicular traffic during construction, existing signs shall not be blocked or removed by the contractor until a suitable substitute has been installed by City Traffic Control Personnel.

Other types of traffic control signing (i.e. guide, warning, or parking regulations) may be removed by the contractor during the project. The contractor shall call the City Service Department for pickup of any removed signs and care shall be taken to preserve the signs

and supports in a reusable condition. All signs removed under this paragraph shall be reinstalled by City Forces prior to reopening the roadway to vehicular traffic.

The contractor shall install a penetrable sleeve (e.g., metallic can, fiberboard cylinder, etc.) when a sign will need to be replaced in a new concrete surface.

Material and Equipment Storage. The contractor shall protect all materials, equipment, and excavated areas through the placement of barricading devices and construction fence as specified in the OMUTCD and additionally, when specified by the Engineer.

ITEM 630 TRAFFIC SIGNS AND SIGN SUPPORTS

Item 630 of the State of Ohio Department of Transportation Construction and Material Specifications shall govern the requirements of this item, with the following exceptions or additions:

630.04 Sign Fabrication. Street Name Signs supplied under this item shall be 9 inch single faced flat sheet signs with 6 inch white letters on a green background with no border, (see Standard Drawing SN-1). The material for street name signs shall be 3M Company, Scotchlite, Diamond Grade Translucent VIP, or approved equal, hereinafter referred to as Type J sheeting.

Signs shall be identified through the application of a decal to the back of the blank. The decal shall contain the name of the owner, "City of Springfield", month and year of fabrication and month and year of installation. The data shall be silk screened on the decal.

630.06 Sign Attachments. Mast arm Sign Hanger Assemblies furnished under this item shall be of the open gusseted tube type comparable to PELCO Products Inc., Astro-Sign-Brac, No. 144, or an equal item approved by the Engineer. The bracket shall be sized for the specific sign to be mounted.

The street name sign supports supplied under this item shall be painted black with all necessary components and hardware to provide a ready-to-use unit.

ITEM 632 TRAFFIC SIGNAL EQUIPMENT

Item 632 of the State of Ohio Department of Transportation Construction and Material Specifications shall govern the requirements of this item, with the following exceptions or additions:

632.08 Pedestrian Signal Heads. Pedestrian Signal Heads furnished under this item shall be constructed of polycarbonate, including doors, lens holders, and visors. Signals shall be equipped with lenses which shall be fabricated with ultra-violet and impact resistant plastic and meet all provisions of the latest revision of ITE specifications. All pedestrian signals shall be LED in lieu of incandescent bulbs and shall display the hand and man outline symbol on a single 12" lens with a Z-Crate visor.

Pipe spacers and fittings shall be aluminum and painted black. Pedestrian signal bracket arms shall be bolted not banded to the poles.

632.09 Pedestrian Pushbutton. All Pedestrian Pushbuttons furnished shall have a round housing with the 2" Bull Dog type to meet ADA requirements as manufactured by Polara, or approved equal. The button shall have a stainless steel button cap with latching style LED indicator.

632.10 Loop Detector Unit. Loop detector units furnished shall be self tuning and operational within one (1) second after application of power. The unit shall have unlimited Environment tracking throughout the tuning range and operate between 95-35 VAC 60 Hz. at 4.0 watts. The unit shall be capable of accepting a loop inductance from 30 to 1,000 microhenries with a Q Factor of 5 or greater.

The Loop input shall be transformer isolated.

The unit shall have accessible from the front panel three (3) selectable frequency ranges, three (3) selectable sensitivity settings, and three (3) selectable mode settings as follows:

1. Long Presence Mode - shall provide continuous loop tracking with 8-15 minutes maximum hold time.

2. Medium Presence Mode - shall provide continuous loop tracking with 4 -10 minutes maximum hold time.

3. Pulse Mode - Shall be capable of tuning out a vehicle after a two (2) second period, so as to detect any other vehicle occupying the remainder of the loop. The Loop Zone shall be at full sensitivity within 100 milliseconds.

The unit shall be able to tolerate, without damage, 1,000 volts discharged directly across the loop input terminals from a ten (10) microfarad capacitor. The Output Circuit shall be a relay output operation.

If the loop lead-in network exceeds inductance tolerance range limits, or if a total loop failure occurs, a continuous output in all modes shall be generated which cannot be removed unless power is removed. All digital logic with exception of the clock generated circuit shall be contained in a single integrated circuit.

The indicator on the front panel shall be a high intensity light emitting diode (LED).

The Loop Detector Unit shall be provided with one (1) set of wiring diagrams and operational manuals and a parts list, which details all proprietary components and other components, identifying generic equivalents if available. This shall be a rack mounted multiple channel unit.

632.15 Signal Support. Signal Supports shall be painted black, (Federal Spec. No. 595-14090) in lieu of galvanizing. Combination signal supports shall be fabricated without pole plates and shall be drilled for clamp-on luminaire brackets as shown on the individual plan. All signal supports shall be furnished with anchor bolts, bolt covers, and reinforcing cage for foundation.

632.19 Pedestal. Pedestals shall have a black powder coat finish in lieu of galvanizing. Pedestals shall be furnished with a transformer base and an access opening with door and bolt supplied.

632.24 Power Service. Electrical Service shall be obtained from the Ohio Edison Company. Power lines shall be run from Ohio Edison lines to a commercial meter socket equipped with a bypass, which shall be mounted on the signal support or strain pole adjacent to the controller cabinet. The power service shall include a four (4) terminal type meter base for a connected 120-volt, single-phase service. (Please note: the meter base is not furnished by the power company and must be furnished as part of this bid item and must be tagged 120V-2W. Contact Ohio Edison for tag.) A separate disconnect switch or disconnect enclosure is required.

Inspection and approval of the power service shall be obtained from the City Electrical Inspector. Once approved, power connections may be arranged by contacting Ohio Edison, Springfield Division.

ITEM 633 TRAFFIC SIGNAL CONTROLLERS

Item 633 of the current State of Ohio Department of Transportation Construction and Material Specifications shall govern the requirements of this item with the following exceptions or additions:

633.07 Controllers. Equipment furnished shall be in conformance with NEMA Standards TS-2-2. Controller Units shall be manufactured so that all integrated circuits shall be mounted in sockets to allow for replacement without soldering or de-soldering. The controller shall be equipped with an internal time base coordinator and preemption circuitry, loop detector units, furnished with any additional panels, circuit boards, modules and/ or connectors to allow the controller to operate these components. Each controller shall be furnished with a parts list which shows both the manufacturer's part number and the generic equivalent part or reference number and description to allow for purchase at a local electronic supply house.

633.071 Conflict Monitor (Malfunction management Unit). Equipment shall be in conformance with NEMA Standards TS-2-1. Units shall be capable of extended monitoring

functions. The unit shall perform all functions as specified in NEMA publication TS-1-1983, Part 6. The unit shall detect faulty sequencing of signals on a per channel basis, monitor AC+ line voltage for brown-out and power interruption, and permit +24 V monitoring and CVM fault latching via a front panel switch. The unit shall detect absence of a logic input transition from the controller, and provide for a “Walk Disable” Option for Red Monitoring via a front panel switch. The unit shall detect the absence of a program card and constant reset input.

The unit shall be equipped with Internal Diagnostics and all programming functions shall be from front panel mounted switches. The unit shall display Red, Yellow, Green and Walk Input for each channel monitored and fault conditions including: Conflict, Red, Fail, Clearance, Dual Indication, CVM/WE, +24 V – 1 and +24 V – 2.

The unit shall be furnished with a “Real Time” Clock to flag and register date and time that the monitor is triggered by a fault condition.

The unit shall contain non-volatile memory for review by font panel display of a log of previously recorded faults.

The unit shall be supplied with two (2) sets of wiring diagrams and operational manuals.

Each unit shall be furnished with a parts list, which shows both the manufacturer’s part number and the generic equivalent part or reference number and description to allow for purchase at a local electronic supply house.

633.072 Preemption, Emergency Vehicle. Preemption shall provide City of Springfield emergency response vehicles with the capability to control a traffic signal by advancing the controller to a pre-selected phase. This item shall include detectors, cable, control units and all incidental items to provide a “ready for use” system. Preemption shall be measured and paid for on an each basis for a complete system furnished and installed for each intersection.

The emergency vehicle preemption system furnished shall be the Opticom Priority Control System, Series 700, Manufactured by the 3M Company, Safety and Security Division.

633.08 Cabinets. The cabinet shall be a Type P, 77”H x 44” W x 27 ½” D, base mounted unit, with anchor bolts and associated hardware for mounting on a concrete foundation with work pad or if specified a Type M pole mounted unit with appropriate clamping devices for mounting on a signal support or strain pole. The cabinet shall be painted yellow outside and white inside.

Detector test switches shall be provided for each vehicular and pedestrian phase. The switches shall be capable of placing manual calls into the controller during activated operation. The switches shall be in parallel with the vehicular detector relay closure and pedestrian push button circuits. All loop detector circuits shall have a wiring harness and connector installed to accept and operate a loop detector unit.

All load switches shall be supplied with input and output LED indicators mounted on the front panel.

Lightning Protection and Surge Protection shall be provided as follows:

- a. All pedestrian circuits shall be optically isolated from the street side.

- b. The main power line shall be protected by an EDCO ACP 340 with indicator lights.
- c. Each Loop Detector Circuit shall be protected with an EDCO SRA-6LCA Type protector.
- d. Each power supply circuit for each piece of electronic equipment within the cabinet shall be protected by a TII-317(A) Type 3 Electrode Gas Tube Arrestor.
- e. The pedestrian circuit isolation circuitry and the preemption circuitry shall be rack mounted on the top shelf of the controller cabinet.

The contractor shall provide a cabinet plan showing component placement for approval prior to installation.

633.12 Flasher Controller. Equipment shall be in conformance with NEMA Standards TS-2-1. The flasher controller shall consist of the following components:

1. 365 day programmable time clock, solid state digital, with capacitor backup.
2. Heavy Duty Plug-in flasher, NEMA solid state, two (2) 10 amp circuits.
3. 20 amp circuit breaker.
4. Surge Arrestor, TII 317.
5. EDCO ACP 340 with indicator lights.
6. Isolation Relay between the time clock and flasher
7. On-Off Power Switch

The cabinet shall be a pole mounted type, furnished with mounting hardware for attachment to a steel pole. The cabinet shall be manufactured of weather proofed sheet or cast aluminum, the exterior shall be painted yellow and the interior painted white per ODOT 514.03. The cabinet shall be fitted with screened vents and a gasketed door with a standard traffic lock.

Each flasher controller shall be supplied with two (2) sets of wiring diagrams and operational manuals for the controller and time clock. Additionally, flasher controllers shall be supplied with parts list of all proprietary component and other component identification numbers and listing generic equivalents for those components if available.

650 ROADSIDES

ITEM 659 SEEDING AND MULCHING

659.01 Description. This item shall consist of furnishing and placing all seed, commercial fertilizer and mulching material.

The areas to be seeded and paid for under this item shall include all areas designated or described on the plans by the Engineer. All areas outside of specified limits where the vegetative growth has been disturbed or destroyed by the Contractor shall be restored and seeded in accordance with these specifications by the Contractor at no additional cost to the City.

A second application of commercial fertilizer shall be applied to selected grass areas when and as ordered by the Engineer.

659.02 Materials. Materials shall be as follows:

Commercial Fertilizer. Commercial Fertilizer may be dry or liquid in analysis specified or in the same ratio as specified.

Seeds. All seeds specified shall meet the current specification on file with the Ohio Department of Transportation as to percentage purity, weed seed and germination. All seeds proposed to be used under this item shall be on an approved list, and shall meet the requirements of these specifications.

Mulching Material. Materials used for mulching shall be straw, hay or wood fiber. The material shall reasonably free of weed seed and such foreign materials as may detract from their effectiveness as a mulch or injurious to desired plant growth.

659.03 General. The standard application of fertilizer (10-20-20) shall be at the rate of 10 pounds per 1,000 square feet. Either dry or liquid fertilizer may be used and shall be distributed in an even pattern over the specified area, then thoroughly disked, harrowed, or raked into the soil to a depth of not less than one (1) inch.

If the seed bed becomes compacted prior to seeding, it shall be re-disked or loosened to a friable condition before seeding. If the fertilizer has been washed or otherwise lost from the seed bed, the areas so depleted shall be retreated as directed by the Engineer at no cost to the project.

All areas to be seeded shall be free of rock and other foreign material three (3) inches or greater in any dimension and shall be satisfactorily shaped and finished as provided in Item R-203. Areas in front of residences, between curb and sidewalks, and other areas indicated on the plans, shall be free of all stones one (1) inch or greater in any dimension and shall have a smooth surface. In such areas, hand raking will be required if inaccessible to machines, and may be required if machines do not provide results equivalent to hand raking. Payment for the work necessary for proper preparation of the seed bed shall be included in the unit price for Item 203.

The seed shall be thoroughly mixed and then evenly sown over the prepared areas at the rate of three (3) pounds per thousand (1,000) square feet. Seed shall be sown dry or hydraulically.

All areas shall be seeded with the following mixture: (Percentages are by weight)
 60 percent Kentucky Blue Grass (*Poa Pratensis*)
 20 percent Penlawn Red Fescue (*Festuca Rubra Pennlawn*)
 20 percent Annual Rye Grass (*Lolium Multiflorum*)

Immediately after sowing, the area shall be raked, dragged or otherwise treated so as to cover the seed to a depth of approximately ¼ inch.

The operation of seed sowing shall not be performed when the ground is frozen or muddy, or when soil or weather conditions would prevent the proper soil preparation and subsequent operations as specified.

Within forty-eight (48) hours after any given area is seeded, vegetative mulching material shall be evenly placed over all seeded areas at the rate of approximately two 2 tons per acre for straw, or 3 tons per acre for hay, when seeding is performed between the dates of March 15th and October 15th, and at the approximate rate of 3 tons per acre for straw, or 4 ½ tons per acre for hay, when seeding is performed between the dates of October 15th and March 15th of the succeeding year. Mulching materials shall be kept in place with asphalt emulsion applied at a minimum rate of sixty (60) gallons per ton of mulch or by methods as are approved or may be otherwise required to prevent displacement of material. Emulsion shall be nontoxic to plants and shall be so prepared that it will not change in transportation or storage. Mulching which is displaced shall be replaced at once but only after the seeding or other work which preceded the mulching and which work was damaged as a result of displacement of mulching material has been acceptably repaired.

The Contractor shall maintain all seeded and mulched areas until final inspection by the City, or until a three (3) inch minimum growth of grass has been attained, which ever is later. Maintenance shall also include providing protection for traffic by approved warning signs or barricades, and repairing any areas damaged following the seeding and mulching operation due to wind, water fire or other causes. Such damaged areas shall be repaired to re-establish the condition and grade of the area prior to seeding and shall then be refertilized, reseeded and remulched as directed by the Engineer.

When damage or erosion of these areas occurs as a result of the fault or negligence of the Contractor, the areas shall be repaired and re-fertilized, re-seeded, and mulched at no additional cost to the City.

659.04 Method of Measurement. Commercial fertilizer to be paid for shall be the number of tons furnished, spread and incorporated. Seeding and mulching to be paid for shall be the number of square yards of the area seeded and mulched in accordance with these specifications.

659.05 Basis of Payment. Payment for accepted quantities will be paid for at the contract price for:

Item	Unit	Description
659	Square yard	Seeding and mulching
659	Ton	Commercial fertilizer

800 UTILITIES

ITEM 803 SANITARY AND STORM SEWERS

803.01 Description. This work consists of the construction of sanitary and storm sewers and pipe culverts. Combined sewers shall be constructed in the same manner as, and hereinafter referred to as sanitary sewers. The work shall be in accordance with these specifications and in close conformity with the lines and grades shown on the plans or established by the Engineer. This work shall include: excavating for pipe and foundations for same, including clearing and grubbing and the removal of all materials necessary for placing the pipe except removals listed and paid for separately; furnishing and placing granular or concrete bedding and granular backfill as required; constructing and subsequently removing all necessary cofferdams, cribs and sheeting unless otherwise specified; pumping and de-watering; sealing or banding all pipe joints; furnishing and installing all necessary pipe bends and branches of a type at least equal to the conduit of which they become a part; joining to existing and proposed appurtenances as required; performing deflection and leakage tests as required; and restoration of disturbed facilities and surfaces except as provided for in the plans or these specifications.

803.02 Materials. Pipe shall be the size and kind specified in the proposal and shown on the plans. When the kind of pipe is not specifically itemized, any of the kinds listed herein under the specified sewer type may be used. Higher strength pipe of the same material may be furnished where lower strength pipe is specified. In no case will a lower strength pipe than specified be substituted. Pipe material must be the same between manholes.

Materials shall be as follows:

Concrete for bedding, collars and encasement (Class QC 1C).....	ODOT CMS Item 499
Reinforcing Steel (bedding, collars, encasement).....	ODOT CMS 509.02
Granular material for bedding.....	AASHTO M 43
Backfill.....	611
Sanitary sewer T and Y branches.....	Type PSM Polyvinyl Chloride Sewer Pipe, ASTM D 3034 SDR 26
Sanitary sewer connections.....	Inserta Tee ASTM C 923 or approved equal
Pipe and Joint Materials.....	See Tables

The kinds of pipe and joint material permitted, and testing required for each type of sewer (sanitary, combined and storm) are as shown in the conduit tables:

Type A conduits shall be used for sanitary and combined sewers.

Type B conduits shall be used for storm sewers.

TYPE A CONDUITS - FOR USE ON SANITARY AND COMBINED SEWERS

Permissible Pipe and Joint Materials	Test(s) Required
Type PSM Polyvinyl Chloride Sewer Pipe, ASTM D 3034 SDR 26 with flexible elastometric seal joints conforming to ASTM D 3212	Deflection & Leakage
Thermoplastic Closed Profile Double Wall Sewer Pipe with joints per ASTM D 3212 (18" through 60" size)	Deflection & Leakage
Force Main Only: ASTM D 1784 and AWWA C-900 and C-905 with joints conforming to ASTM D 3139 & gaskets per ASTM F 477	Deflection & Leakage

TYPE B CONDUITS - FOR USE ON STORM SEWERS

Permissible Pipe and Joint Materials	Test(s) Required
Type PSM Polyvinyl Chloride Sewer Pipe, ASTM D 3034 SDR 26 with Flexible Elastometric Seal Joints conforming to ASTM D 3212	Deflection
Reinforced Concrete Pipe, ODOT CMS 706.02, ASTM C655 C-76, Wall B, Class III with joints conforming to ODOT CMS 706.10	None
Reinforced Concrete Elliptical Pipe, ODOT CMS 704.04, ASTM C507 with joints conforming to ODOT CMS 706.10	None
Corrugated Polyethylene Smooth Lined Pipe ODOT CMS 707.33 with Flexible Gasket Joints conforming to ASTM F 477	Deflection

ODOTCMS = Ohio Department of Transportation Construction and Materials Specifications

The bell portions of Corrugated Polyethylene Smooth Lined Pipe shall be integrally formed with the pipe. Hand welding of the bells to the pipe will not be permitted.

Lift holes in Type A conduit will not be permitted. Lift holes in Type B conduit are permitted provided they are permanently sealed after installation.

803.03 Storage and Handling. All pipe shall have smooth interior and exterior surfaces, be free from cracks, blisters and other imperfections and be true to theoretical shapes and forms throughout each length. PVC pipe in excess of one year from date of manufacture or that appears to have UV damage shall not be used. Proof of date of manufacture shall be marked on the pipe or submitted from the manufacturer.

Care shall be taken during the transporting of the pipe to insure that the binding and tie down methods do not damage or deflect the pipe in any manner. Pipe which is bent, deflected, discolored or otherwise damaged during shipping will be rejected.

Pipe shall be stored in a way that does not damage the joints. Pipe shall be either palletized or placed on wood strips of sufficient thickness to raise the spigot end of the pipe off of the ground. Wood blocks shall be used to prevent pipe from rolling. Pipe shall not

be stored on end. Palletized units of PVC pipe shall not be stacked more than 60 inches high. Stored PVC pipe shall be covered with canvas or other opaque material to protect it from the sun's rays. Air circulation shall be provided under the covering. PVC pipe shall not be removed from the pallet and/or laid out along the ditch until the bedding material is in place and ready to receive the pipe.

803.04 Excavation. Trenches shall be excavated to a width sufficient to allow for proper joining of the conduit and thorough compaction of the granular bedding around the conduit and proper backfill material. The minimum trench width shall be one and twenty-five one-hundredths (1.25) times the outside diameter plus twelve inches (12"). The width of the trench at the top of the conduit shall not exceed 12 inches on each side of the conduit for pipe diameters or spans of 24 inches or less, and 18 inches for pipe diameters or spans of over 24 inches.

The foundation for the conduit bed shall be firm for its full length. Where unstable material is encountered below the foundation it shall be removed to the depth directed by the Engineer under the conduit and replaced with granular material. Rock or boulders encountered at the conduit bed shall be removed at least six (6) inches below the bottom of the conduit and replaced with granular material.

If it becomes necessary to remove unsuitable material at the direction of the Engineer in an amount not to exceed one (1) foot below the bottom of the proposed trench, the same shall be done at the contract bid price. When it becomes necessary to remove more than 1 foot of unsuitable material below the bottom of the trench, compensation will be provided therefor in a supplemental agreement or as provided for under Item 203, Excavation.

Where a conduit is to be placed within an embankment or the top of the conduit is above the existing ground, the embankment shall be constructed at least to the spring line of the conduit before trenching for the conduit. The trench shall then be excavated to the minimum width necessary for the proper placing and backfilling of the conduit as described in this specification. Jacking or tunneling may be permitted provided written permission of the Engineer is obtained. The contractor shall provide and operate any equipment necessary for the removal of all water entering the excavation. He shall also be responsible for any damage incurred by such water and shall replace the damaged work at his cost.

803.05 Bedding. Type B pipe bedding, as shown on Standard Drawing PB-1, shall be utilized for all conduits unless otherwise specified by the manufacturer. The bedding shall have a thickness of at least 4 inches below the bottom of the pipe and extend up and over the pipe to a point not less than 12 inches above the top of the pipe. The layer of bedding material shall be shaped to fit the conduit for at least 10 percent of the outside diameter of the conduit and shall have recesses shaped to receive the bell of bell-and-spigot pipe.

803.06 Laying Pipe. All pipe shall be laid in strict conformity to the line and grade as given by the Engineer. Laying shall begin at the low end and the pipe shall be laid with the bell end up. The first length of pipe must be anchored sufficiently to prevent movement. The use of blocks or shims of any kind to bring the pipe to grade is prohibited.

The contractor shall conduct his operations so as to maintain sewer flows through existing facilities until new facilities are completed and placed in use, or as per plan or at the direction of the Engineer

803.07 Joining Conduit. The joining of the conduit will be performed in accordance with the instructions of the manufacturer. All pipe shall be free of all dirt and debris before joining. When joining new pipe to existing pipe a sewer flex coupling meeting ASTM C 1173 shall be used.

Conduit shall be inspected before any backfill is placed. Any pipe found to be out of alignment, unduly settled, or damaged shall be taken up and re-laid or replaced at the Contractor's expense

803.08 Sanitary Sewer Service Connections. This work consists of connecting sanitary services to main line sewers. Service connections shall be installed at the locations shown on the plans, or as directed by the Engineer by one of the following methods:

1. For newly constructed sewers, T or Y fittings shall be installed on the main line with the branch inclined to a point where the top of the branch is level with the top of the main line pipe.

2. For existing sewers, taps shall be made by use of special fittings such as "Inserta-T" by Inserta Fittings Co. or approved equal.

After the connection is made at the main sewer, the stub shall be connected to the existing service line with approved materials. If the connection to a service line is not required, the stub shall be extended to the right of way line or easement line with a cleanout and shall be plugged with a manufactured fitting. The cost to extend the sanitary service shall be included in the unit price bid for the pertinent 803 conduit item.

803.09 Backfilling. The Contractor shall begin the backfilling and compaction operations only after authorization from the Engineer. The backfill material and compaction shall meet the requirements of Item 611.

When the top of a conduit is above the top of the trench, proper embankment (transitioning to existing grade at a maximum 4:1 slope) material shall be placed and compacted for a width on each side of the conduit equal to at least twice the diameter of the conduit or 12 feet, whichever is less, and for a minimum depth of two feet over the top of the conduit. One diameter or four feet on each side of the conduit, whichever is less, shall be granular material and shall be compacted in layers not to exceed 6 inches in thickness with mechanical tampers. The remainder of the embankment material shall meet the requirements of Item 203.

803.10 Leakage Testing. Sanitary sewers shall be subject to thorough inspection and testing, as described below, the right being reserved by the Engineer to waive such tests as considered necessary. The Contractor shall furnish all labor and materials necessary for the tests. The cost of testing shall be included in the price bid for the pipe.

For PVC pipe, the Contractor shall follow the procedures as outlined in ASTM F 1417, "Installation Acceptance of Plastic Gravity Sewer Lines Using Low Pressure Air."

For concrete pipe, the Contractor shall perform an infiltration/exfiltration test following the procedures as outlined in ASTM C 969.

803.11 Deflection Testing. Prior to final acceptance of completed plastic sewer lines, the Contractor shall, at his expense, perform a pipe deflection test. The test will occur no earlier than sixty (60) days after the completion of backfill operations, providing, in the judgment of the Engineer, sufficient settlement has occurred. The maximum limit of vertical deflection shall not exceed 5% of the base inside diameter of the pipe. In any area where deflections exceed 5%, the trench shall be re-excavated, and the pipe, backfill and bedding shall be removed and replaced in accordance with the original plans and specifications. If, in the opinion of the Engineer, the pipe has been damaged, it shall be replaced with new pipe at the Contractor's expense and installed per the plans and specifications.

The test shall be conducted by manually pulling a nine (9) arm mandrel having a diameter equal to 95% of the base inside diameter of the pipe. The Contractor shall be responsible for supplying all material and labor, including mandrel, necessary to complete the test. The mandrel used shall be approved by the Engineer prior to any testing.

Any pipe reinstalled because of excessive deflection shall be retested after the sixty (60) day period described above.

803.12 Method of Measurement. The length of conduit to be paid for will be the actual number of linear feet measured from center to center of appurtenant small structures or between open ends inclusive of lengths of pipe bends, branches, catch basins or manholes. Sanitary service connections will be measured by the unit for each size of connection made.

803.13 Basis of Payment. The accepted quantities of conduit of the sizes and types specified will be paid for at the contract unit prices per linear foot, complete in place. Service connections will be paid for per unit for each size. Work, includes the furnishing of all labor, material and equipment for pavement removal, excavation, cofferdamming, removal of water, laying pipe, testing, maintenance of existing sewer flows, backfilling, cost of repair of any damaged utility services and cleanup of the work site.

Payment will be made under:

Item	Unit	Description
803	Linear foot	___" Conduit, Type ___
803	Each	___" x ___" Sanitary service connection

ITEM 804 MANHOLES AND CATCH BASINS

804.01 Description. This work shall consist of the construction or reconstruction of manholes and catch basins of the type and size specified; or the adjustment of existing castings to grade, as specified. The work shall include: excavation, including clearing and grubbing, and the removal of all materials necessary for placing the structure, except removals listed and paid for separately; furnishing and placing granular bedding and backfill as required; constructing and subsequently removing all necessary cofferdams, cribs and sheeting; pumping and dewatering; performing leakage test as specified; and restoration of disturbed facilities and surfaces unless paid for separately.

804.02 Materials. Materials shall be:

Concrete.....	ODOT CMS Item 499, Class QC 1
Masonry units.....	ASTM C 139
Granular Material	AASHTO M 43
Precast reinforced concrete manhole and catch basin sections.....	ASTM C-478
Flexible gasket joints.....	ASTM C-443
Rubber boots.....	ASTM C-923
Manhole sealer.....	Kop-Coat, Bitumastic No. 300-M Glidden, Glid-Guard Coal Tar Epoxy Finish No. 5270 / 5271 M.A.B. Ply-Tile Epoxy Tar Coating or approved equal
Chimney seals.....	Cretex Specialty Products or approved equal
Cast frames, grates and covers.....	as specified in manhole table

804.03 Construction Methods, General. The construction for the item specified shall conform to the standard construction drawings and be placed at the locations and elevations shown on the plans or ordered by the Engineer.

Connections for sewers will be considered a part of all manholes, catch basins and inlets. Connections of sewers into all structures shall be cored using a rubber boot conforming to ASTM C 923. Saw cutting or chiseling will not be permitted. All structures shall be free of visible leakage.

Iron frames, tops and covers of the type specified shall be set in a mortar bed and adjusted to final grade using solid concrete precast risers. Concrete risers only pertains to manholes. Concrete bricks can be used as risers for catch basins.

For manholes the total height of risers shall be a minimum of 8 inches and maximum of 18 inches installed.

Earth or debris entering into the structure or connecting pipes resulting from construction operations shall be removed by the Contractor.

When reconstruction is specified, the work shall consist of the careful removal and cleaning of existing castings; the removal of existing walls as necessary; and reconstruction of the units to the new grades, conforming as nearly as practicable to the existing dimensions and type of construction, using the salvaged castings. Reconstruction of manholes and catch basins shall be designated when the total difference in elevation

between the top of the existing and proposed structure exceeds plus 12 inches or minus 6 inches.

When adjustment to grade is specified the work shall be accomplished by carefully removing and cleaning the existing casting, adjusting the height of supporting walls as necessary; and resetting the existing casting in a bed of mortar or concrete. Metal or plastic adjusting rings will not be permitted for adjustments of castings to grade.

On construction such as asphalt overlays, the pavement shall be neatly removed to expose the structure. The structure shall then be adjusted to the finished grade by the above methods. After adjustment, concrete shall be placed around the structure to three (3) inches below finished grade. The concrete shall be allowed to cure for a minimum of 72 hours (24 hours with 5,000 psi concrete). Item 448 shall then be placed and thoroughly compacted to the finished grade of the leveling course prior to the placement of the surface course.

On full depth pavement construction the casting shall be removed and stored, and the opening of the structure covered before any paving operations begin. After the asphalt base courses and leveling course have been constructed, adjustment shall be as described above.

When specified on the plans or directed by the Engineer, the Contractor shall furnish new, replacement castings for reconstructed or adjusted structures.

804.04 Excavation and Backfill. The excavation shall be of such dimensions in all cases as will give ample room for construction, but with a minimal amount of pavement removal. This shall include clearing and grubbing and the removal of all materials necessary for placing the item, except removals listed separately.

If the material found at grade is not suitable for foundation, a further depth shall be excavated and filled with suitable material as per 803.

Backfilling shall follow the completion of the work as closely as possible, and shall conform to the requirements of Item 611. Special care must be taken not to disturb the work. In paved areas, the pavement shall be replaced as shown on the plans or as directed by the Engineer.

All surplus from excavation shall be disposed of by the Contractor at his expense.

804.05 Precast Modular Concrete Construction. All manholes and catch basins shall be constructed by this method. Precast bases shall be placed on a sand or gravel bed having a minimum thickness of six inches. This bedding shall be compacted and provide uniform support for the entire area of the base.

Flexible gaskets shall be used for sealing joints between manhole modules.

Solid wall catch basins shall be used in new construction (subdivisions, etc.) or when there are no potential obstructions (utility lines, etc.) for the catch basin leads. Cored holes in solid wall construction shall not be moved or enlarged without the approval of the Engineer. Knock-out panels for other situations may only be used with the approval of the Engineer.

804.06 Exterior Coating. All sanitary and combined manholes shall have an exterior coating conforming to these specifications.

Factory coat exterior of manhole from concrete bench to top of section with two (2) coats of coal tar epoxy paint with a total minimum dry film thickness of 16 mills. All surfaces shall cure a minimum of 30 days prior to coating, unless certification from the

manufacturer is provided stating that coating may be done after 7 days cure time. Prior to coating, the surfaces of manholes shall be prepared by removing all efflorescence, chalk, dust, dirt, grease, oils, soaps and other foreign matter. All measurable protrusions and spills of excess concrete from mortar shall be ground smooth. Application of coating material shall be in accordance with the material manufacturer's recommendations. A primer and finish coat shall be applied. Each coat shall be applied at a rate of 8 to 10 dry mills, 11 to 14 wet mills.

The Contractor shall provide the Engineer a statement from the manhole manufacturer certifying that the coating material conforms to these specifications and that the coating material has been applied in accordance with the requirements of the coating material manufacturer.

The Contractor shall field apply touch-up coats after installation as directed by the Engineer.

804.07 Chimney Seal. A manhole frame chimney seal shall be installed on all sanitary and combined manholes. A rubber seal extension, to cover any additional height of chimney not covered by the seal itself, shall be used. The sleeve and extensions shall have a minimum thickness of 3/16 inches and shall be extruded or molded from a high grade rubber compound conforming to the applicable requirements of ASTM C923, with a minimum 1,500 psi tensile strength, maximum 18% compression set and a hardness (durometer) of 48±5. The bands used for compressing the sleeve and extension against the manhole shall be fabricated from 16 gauge stainless steel conforming to ASTM A240 Type 304. Any screws, nuts or bolts used on this band shall be stainless steel conforming to ASTM F593 and ASTM F594 Type 304. The internal seal shall have a double or triple pleat with a minimum unexpanded height of 8 inches for the double pleat and 10 inches for the triple pleat and be capable of vertical movement of not less than 2 inches when installed.

804.08 Testing. Sanitary and combined manholes (Types A-1 and A-2) shall be vacuum tested from the top of the cone down in accordance with ASTM C1244, "Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (vacuum) Test." All leaks shall be repaired in a manner approved by the Engineer. Testing and any repair of leaks shall be at the Contractors expense.

Manholes and catch basins shall be constructed in accordance with the standard drawings corresponding to the structure number.

The requirements for manholes, by type, shall be according to the manhole table below.

Sanitary and combined sewers shall be constructed using Type A manholes.

Storm sewers shall be constructed using Type B manholes.

MANHOLE TABLE

R = component or test required for each manhole type

MANHOLE TYPE.....	Sanitary and combined sewers		Storm Sewers	
	A-1	A-2	B-1	B-2
Standard frame and cover *			R	
Standard frame with gasket cover **	R			
Frame with watertight cover ***		R		R
Exterior Coating	R	R		
Vacuum Test	R	R		

* Neenah R-1657-1 with Type A (solid) lid, or East Jordan 1600Z1 with solid cover.

** Neenah R-1657-1 with self-sealing cover, or East Jordan 1600Z1 with gasket seal cover.

*** East Jordan 1600Z1PT with “watertite” assembly, or Neenah R-1916-D - only to be used if specified or directed by the Engineer.

Low profile casting East Jordan 1118 shall be used when specified in the plans or directed by the Engineer.

804.09 Method of Measurement. The complete and accepted manholes, and catch basins, whether new, or adjusted to grade, will be measured by the unit for each type of structure and class of work itemized. Reconstructed manholes or catch basins will be measured by the vertical foot of difference in elevation. Manhole depth in excess of 10 feet will be measured by the vertical foot. The total depth of the manhole will be measured from the invert of the manhole to the top of the cover. Replacement castings shall be the number of each type furnished.

804.10 Basis of Payment. The work included in this item, including excavation and backfill, shall be paid for at the contract price, complete in place.

Item	Unit	Description
804	Each	Manhole, No. ____, Type ____
804	Vert. ft.	Manhole depth in excess of 10 feet
804	Each	Catch basin, No. ____
804	Vert. ft.	Manhole, catch basin reconstructed to grade
804	Each	Manhole, catch basin adjusted to grade
804	Each	Manhole, catch basin casting furnished

ITEM 838 WATER MAINS

838.01 Description. This item consists of specifications for installation and testing of ductile iron water main. This item includes the excavating of the trench, furnishing, laying, joining the ductile iron pipe, T's, elbows, bends, fittings, and other necessary appurtenances at locations shown on the plans; testing, backfilling of the trench and disinfecting as noted in the specifications or as directed by the Engineer.

838.02 Materials. Pipe shall be the size shown on the plans. All joints shall be push-on type.

Material shall be as follows:

Pipe.....	ANS A21.51 (AWWA C151) Wall thickness Class 50 unless otherwise noted on plans or in specifications
Fittings.....	Ductile Iron, ANS A21.10 except shorter laying lengths will be acceptable
18 inch and under.....	350 PSI pressure rating
20 inch and over.....	250 PSI pressure rating
Mechanical Joints.....	ANS A21.11
Push-on Joints.....	ANS A21.11, except gaskets, shall be neoprene or other synthetic rubber. Natural rubber will not be acceptable.
Mechanical Joint Reducer.....	AWWA C110
Mechanical Joint Tees.....	AWWA C110 Mechanical Joint Cross AWWA C110
Shop Coating and Lining	
Cement Lining.....	ANS 21.4
Bituminous Coating.....	Manufacturer's standard
Rust Preventative Compound.....	Dearborn Chemical "No-OX-ID 2W", Houghton "Rust Veto 344", or Rustoleum "R-9" Non lead based.
Field Coating.....	Heavy coal tar paint, MIL-C-18480, Koppers "50 Bitumastic", USS "Tarmastic 101" or approved equal
Polyethylene Encasement.....	ANSI/AWWA C105/A21.5-82

All material shall be current year production unless specifically approved by Engineer.

838.03 Shop Coating and Lining. The interior surfaces of all pipe regardless of length or type of joint, and the interior surfaces of all fourteen (14) inch or larger fittings shall be cement lined. Flange faces shall be shop coated with a rust preventive compound. All other surfaces of pipe and fittings shall be shop coated with a bituminous coating.

838.04 Handling. Pipe, fittings, and accessories shall be handled in a manner that will insure installation in sound, undamaged condition. Equipment, tools, and methods used in unloading, reloading, hauling and laying pipe and fittings shall be such that the pipe and fittings are not damaged. Hooks inserted in ends of pipe shall have broad, well padded contact surfaces.

Pipe and fittings in which the cement lining has been broken or loosened shall be replaced by and at the expense of the Contractor. Where the damaged areas are small and readily accessible, the Contractor may be permitted to repair the lining if approved by the Engineer. Pipe coating which has been damaged shall be repaired by the Contractor prior to installing the pipe.

838.05 Cutting Pipe. Cutting shall be done in a neat manner, without damage to the pipe or to the cement lining. Cuts shall be smooth, straight, and at right angles to the pipe axis. All pipe cutting shall be done with mechanical pipe cutters except where the use of mechanical cutters would be difficult or impractical.

838.06 Cleaning. The interior of all pipe and fittings shall be thoroughly cleaned of all foreign matter before being installed and shall be kept clean until the work has been accepted. Before joining, all joint contact surfaces shall be wire brushed, if necessary, wiped clean, and kept clean until joining is completed.

Whenever pipe laying is stopped, the open end of the pipe shall be sealed with a watertight plug to prevent trench water from entering the pipe.

838.07 Inspection. Pipe and fittings shall be carefully examined by the Engineer for cracks and other defects immediately before installation. Spigot ends shall be examined with particular care since they are vulnerable to damage from handling. All defective pipe and fittings shall be removed from the site of the work.

838.08 Alignment of Bell and Spigot Pipe. Pipelines or runs intended to be straight shall be laid straight. Deflections from a straight line or grade shall not exceed the quantities stipulated in these specifications. If alignment of pipe requires deflections greater than those specified, shorter pipe sections, beveled joints or special bends shall be installed.

For permissible pipe joint deflections see table on next page.

Maximum Deflection
Full Length Pipe - Push-On Joint

Pipe Diameter (inches)	Deflection Angle (Degree)	Maximum Deflection (inches)		Approximate Radius of Curve Produced by Succession of Joints (feet)	
		18' Length	20' Length	18' Length	20' Length
-	-	19	21	205	230
3	5	19	21	205	230
4	5	19	21	205	230
6	5	19	21	205	230
8	5	19	21	205	230
10	5	19	21	205	230
12	5	19	21	205	230
14	3	11	12	340	380
16	3	11	12	340	380
18	3	11	12	340	380
20	3	11	12	340	380
24	3	11	12	340	380
30	3	11	12	340	380
36	3	11	12	340	380
42	2	7 ½	8	510	570
48	2	7 ½	8	510	570
54	1 ½	5 ½	6	680	760

838.09 Laying Pipe. Pipe shall be protected from lateral displacement by means of pipe embedment material installed as specified in Standard Drawing PB-1. Under no circumstances shall pipe be laid in water and no pipe shall be laid under unsuitable weather or trench conditions.

Pipe shall be laid with the bell ends facing the direction of laying except when reverse laying is specifically authorized by the Engineer.

838.10 Mechanical Joints. Mechanical joints shall be carefully assembled in accordance with the manufacturer's recommendations. If effective sealing is not obtained, the joint shall be disassembled, thoroughly cleaned, and reassembled. Over-tightening of bolts to compensate for poor installation practice will not be permitted.

838.11 Push-On Joints. All instructions and recommendations of the pipe manufacturer, relative to gasket installation and other joining operations, shall be followed by the Contractor. All joint surfaces shall be lubricated with heavy vegetable soap solution immediately before the joint is completed. Lubricant shall be suitable for use in potable water (NSF 61 approved), shall be stored in closed containers, and shall be kept clean. Each spigot end shall be suitably beveled to facilitate assembly.

838.12 Connections With Existing Pipelines. Where connections are made between new work and existing piping, such connections shall be made using the fittings indicated on the plans or approved by the Engineer. The Contractor shall be responsible for

furnishing and installing the correct size fitting. Each connection with an existing pipe shall be made at a time and under conditions which will least interfere with service to customers, as authorized by the Engineer and coordinated with the City Service Department. Facilities shall be provided for proper dewatering and disposal of all water removed from the dewatered lines and excavations without damage to adjacent property.

Special care shall be taken to prevent contamination when dewatering, cutting into, and making connections with existing pipe. The interior of all pipe, fittings, and valves installed in such connections shall be thoroughly cleaned and then swabbed with or dipped in a chlorine solution having a chlorine content of 200 milligrams per liter.

838.13 Reaction Anchorage and Blocking. All tees, plugs, bends and similar fittings as indicated by the drawings or as determined by field inspections shall be provided with cast-in-place concrete reaction blocking or restrained joint pipe and fittings to prevent movement of the pipe caused by internal pressure, or both, as approved by the Engineer. Lengths of restrained joint pipe shall be determined using tables published by the Ductile Iron Pipe Research Association.

Cast-in-place concrete reaction blocking shall extend from the fitting to solid undisturbed earth and shall be installed so that all joints are accessible for repair. All pipe, joints and hardware within the reaction blocking area shall be wrapped with two layers of visqueen prior to placing the concrete. The bearing area of blocking shall be as shown in the standard drawing WB-1 or as determined by the Engineer. If adequate support against undisturbed ground cannot be obtained, restrained joint pipe shall be installed to provide support, or adequate anchorage facilities shall be installed to provide the necessary support, as approved by the Engineer.

All steel clamps, rods, bolts and other metal accessories used in reaction anchorage or joint harness subject to submergence or contact with earth or other fill material shall be protected from corrosion by two coats of coal tar paint applied to clean, dry metal surfaces. The first coat shall be dry and hard before the second coat is applied. Metal surfaces exposed above grade or within structures shall be primed and then coated with two coats (in addition to a prime coat) of a paint acceptable to the Engineer.

838.14 Excavating and Trenching. Excavation work shall be performed in a safe and proper manner with suitable precautions being taken against all hazards. Excavation shall provide adequate working space and clearance for the work to be performed therein. In no case shall excavation faces be undercut. The contractor shall comply with all applicable OSHA safety requirements.

No backfill, fill or embankment materials shall be installed on frozen surfaces, nor shall backfill contain any frozen materials, snow or ice.

Excavation and trenching work shall include the removal and disposal of all materials excavated or removed in performance of the contract work, regardless of the type, character, composition or condition of the materials. No blasting or the use of explosives for excavation will be permitted without the written permission of the Fire Chief and Engineer.

Except where otherwise authorized, shown, or specified, all material excavated below the bottom of the walls, footings, slabs on grade, and foundations shall be replaced, by and

at the expense of the Contractor, with 3,000 psi concrete or a material determined by the Engineer to be suitable.

The Contractor shall provide and maintain adequate dewatering equipment to remove and dispose of all surface and ground water entering excavations, trenches or other part of the work. Each excavation shall be kept dry during subgrade preparation and continually thereafter until the structure to be built or structure to be installed, therein is completed to the extent that no damage from hydrostatic pressure, flotation, or other cause will result.

Where trench sheeting is left in place, such sheeting shall not be braced against the pipe, but shall be supported in a manner which will preclude concentrated loads or horizontal thrusts on the pipe. Cross braces installed above the pipe to support sheeting may be removed after pipe embedment has been completed. Subgrades for structures and trench bottoms shall be firm, dense, and thoroughly compacted and consolidated; shall be free from mud and muck; and shall be sufficiently stable to remain firm and intact under the feet of the workmen.

The alignment and grade or elevation of each pipeline shall be fixed and determined from offset stakes. Vertical and horizontal alignment of pipes, and the maximum joint deflection used in connection therewith, shall be in conformity with requirements of the section covering installation of pipe.

Where pipe grades or elevations are not definitely fixed by the contract drawings, trenches shall be excavated to a depth sufficient to provide a minimum depth of backfill cover over the top of the pipe of forty-eight (48) inches. Greater pipe cover depths may be necessary on vertical curves or to provide necessary clearance beneath existing pipes, conduits, drains, drainage structures, or other obstructions encountered at normal pipe grades. Measurement of pipe cover depth shall be made vertically from the outside top of pipe to original ground or pavement surface elevation. Where greater pipe depths are necessary, depths up to one foot (1') deeper shall be included in the cost of installed pipe, depths greater than one foot (1') shall be paid in a supplemental agreement or as provided for under Item 203, Excavation.

Trenches shall be excavated to a width which will provide adequate working space and pipe clearances for proper pipe installation, jointing, and embedment. However, the limiting trench widths below an elevation six (6) inches above the top of the installed pipe, and minimum permissible clearances between the installed pipe and each trench wall, expressed in inches, shall be as shown in the table below.

Pipe Size (inches)	Minimum Trench Width (inches)	Minimum Clearance (inches)	Maximum Trench Width (inches)
6	17	5	30
8	24	6	34
12	30	6	40
16	36	6	44
24	48	8	48
30	54	10	60

Where necessary to reduce earth load on trench banks to prevent sliding and caving, banks may be cut back to slopes which shall not extend lower than one (1) foot above the top of the pipe.

Any concrete surface or curb damaged in the performance of this work shall be replaced from the nearest construction joint to the damaged area to the nearest construction joint past the damaged surface or curb.

Except where otherwise required, pipe trenches shall be excavated below the underside of the pipe, as shown in the standard drawings, to provide for the installation of granular fill pipe foundation material. Bell holes shall provide adequate clearance for tools and methods used in installing pipe. No part of any bell or coupling shall be in contact with trench bottom, trench walls, or granular fill when the pipe is joined.

If it becomes necessary to remove unsuitable material below the bottom of the trench at the direction of the Engineer in an amount not to exceed one (1) foot, the same shall be done at the contract bid price. When it becomes necessary to remove more than one (1) foot of unsuitable material below the bottom of the trench, compensation will be provided therefore in a supplemental agreement or as provided for under Item 203 Excavation.

Jacking or tunneling may be permitted provided written permission of the Engineer is obtained.

All granular fill material beneath the pipe shall be spread and the surface graded to provide a uniform and continuous support beneath the pipe at all points between bell holes or pipe joints. It will be permissible to slightly disturb the finished subgrade surface by the withdrawal of pipe slings or other lifting tackle.

Embedment materials both below and above the bottom of the pipe, classes of embedment to be used, and placement and compaction of embedment materials shall conform to the requirements shown on the standard drawings and to the following supplementary requirements:

Class A Arch Encasement Class A arch encasement is not required unless improper trenching or unexpected trench conditions require its use as determined by the Engineer.

Class B Bedding Class B bedding shall be used for all pre-stressed concrete and ductile iron pipe water lines, unless otherwise shown on the plans or directed by the Engineer.

Backfill shall be in conformance with Item 611.

All excess excavated materials together with all debris, junk, stones, logs, stumps, roots, and other materials shall be removed from the site and disposed of by, and at the expense of, the Contractor. It shall be the responsibility of the Contractor to secure the permission of the owner of the site to dispose of excavated materials. It shall also be the responsibility of the Contractor to verify that the dump site is in compliance with all local, state and federal regulations as they pertain to dump sites. Any damages or claims caused by the disposal of these excavated materials shall be resolved by the Contractor at no cost to the City. All fire, OSHA and other safety regulations shall be observed.

838.15 Testing. All joints in piping shall be watertight and free from visible leaks during the prescribed tests. Any leak which may be discovered at any time prior to the expiration of the guarantee period, as set forth in the General Provisions shall be located and repaired by and at the expense of the Contractor.

The pipelines shall be tested in sections between shutoff valves or, at option of the Contractor, between a shutoff valve and a test plug, or between test plugs. All valves shall be tested in a closed position with minimum pressure differential of the difference between the test pressure and static City line pressure. If intermediate test plugs are so used, they shall be furnished and installed by the Contractor at his own expense, together with all anchors, braces, and other devices as may be required to withstand the hydrostatic pressure on such plug or plugs without imposing any hydraulic thrust on the pipeline or any part thereof; the Contractor shall be solely responsible for any and all damage to the pipeline, and to public and private property, which may result from the failure of test plugs furnished by him or supports therefor, in any case.

Testing Equipment and Facilities: The Contractor shall provide, at his own expense, all necessary piping connections between the pipeline to be tested and the source of potable water supply, together with test pumping equipment, water meter, pressure gauge, and other equipment, materials and facilities required for the tests.

Test pressures shall be applied by means of a force pump of such design and capacity that the required pressure can be applied and maintained without interruption for the duration of each test.

The water meter and the pressure gauge shall be a maximum of 300 PSI, accurately calibrated and acceptable to the Engineer.

Pressure Test: All pipelines constructed hereunder shall be tested for defective materials and workmanship by being subjected to a hydrostatic test pressure. For new domestic and combination lines (water service lines that provide service for both domestic and fire demand) the test pressure, as measured at the low point on the line, shall be 150 psi. No pressure drop shall be permitted.

The specified test pressure shall be applied and maintained for a period of not less than 30 minutes for pipes up to and including 8" diameter and not less than 60 minutes for pipes larger than 8" diameter and for whatever longer period as may be necessary for the Engineer to complete the inspection of the line under test and to locate any and all defective joints and pipeline materials. If repairs are needed, such repairs shall be made, the line refilled, and the test pressure applied as before; this operation shall be repeated until the line and all parts thereof withstand the test pressure in a satisfactory manner.

All dedicated fire service lines shall be tested at a pressure, as measured at the low point on the line, of 200 psi. The test pressure shall be applied and maintained for a period of not less than two (2) hours. No pressure drop shall be permitted during the test. If repairs are needed, the line shall be retested as described above.

Leaks in mechanical joints shall be repaired by dismantling, cleaning, realigning gland and gasket and rebolting. Under no circumstances shall gland bolts be tightened beyond the specified and allowable torque limits in an attempt to reduce or stop leakage from a defective joint or for any other purpose. Bell joint clamps may be used to repair joint leaks with the approval of the Engineer.

838.16 Disinfection and Verification. All water lines and connecting piping installed under the contract shall be disinfected by means of chlorine solutions by and as a subsidiary obligation of the contractor. The entire cost thereof shall be included in the unit prices named in the contractor's bid (and in the contract unit prices) for each type of water pipe installation.

All disinfection work and disposal of chlorinated water performed hereunder, including procedure and methods used therein, shall be performed in accordance with ANSI/AWWA C651-14 (or the current revision), Disinfecting Water Mains.

Verification of disinfection shall be performed with bacteriological tests completed in accordance with Section 5.1.1.1 Option A of said AWWA Standard Samples shall be taken from a tap located and installed in such a manner that outside contamination is prevented. Laboratory testing will done by the City with forty-eight hours prior notice. First test samples shall only be taken on Monday, Tuesday or Wednesday of the week.

838.17 Flushing of Pipe. All water mains shall be flushed thoroughly in order to remove foreign materials that might have entered the main during the course of the installation. The minimum rate of flow shall not be less than the water demand rate of the system and the flushing operations shall be continued for a sufficient time to ensure thorough cleaning. A bag test shall be conducted to ensure that the line has been thoroughly flushed. The test shall be conducted by attaching a hose to the two and one half inch (2 ½") outlet of all fire hydrants and allowing the flow from the end of the hose to go through a burlap bag, or other bag approved by the Engineer. After fifteen (15) minutes of full flow, the bag shall be checked for debris. If debris is present, the test shall be repeated in fifteen (15) minute intervals until the bag is clear. On dual use lines into buildings, the line shall be bag tested through use of a plug and a minimum two inch valve at the terminus of the line.

The bag test shall be performed before any purity tests on the new line.

838.18 Method of Measurement. The completed and accepted water main shall be paid for as the actual number of linear feet measured from the connection with the existing main to the end of the new main, inclusive of pipe bends, tees or other appurtenances.

838.19 Basis of Payment. The accepted quantities of conduit of the sizes and type specified will be paid for at the contract unit prices per linear foot, complete in place. Work includes the furnishing of excavation (including all labor, material and equipment for pavement removal), cofferdamming, dewatering / removal of all surface and ground water, laying pipe, bedding, backfilling, disinfecting, testing and repair of any damaged utility services and cleanup of the work site.

Payment will be made under:

Item	Unit	Description
838	Horizontal Foot	___" Water main

ITEM 839 VALVES

839.01 Description. This item consists of furnishing and installing water valves and valve boxes of the specified size and type, or the adjustment of existing valve boxes at the locations shown on the plans or directed by the Engineer.

839.02 General. All ferrous surfaces of valves and accessories, both interior and exterior, shall be shop painted for corrosion protection. The valve manufacturer's standard paint will be acceptable, provided it is compatible with the field painting. Valves shall be set in such a manner as to provide a firm bearing on the trench bottom or compacted fill if required, and shall be set plumb.

Excavation, backfill and dewatering shall be in accordance with 838.14.

839.03 Resilient Seat Wedge Valves. Valves of this type shall be Kennedy Ken-Seal, Clow R/W, or equal resilient seat wedge valve conforming to AWWA C515, clockwise open with an operating nut, and non-rising stems with O-ring stem seals. Valves must have a fully encapsulated disc, with bubble tight two hundred (200) psi differential sealing ability. When open, they shall have a smooth unobstructed waterway. Each valve body or operator shall have cast thereon the word OPEN and an arrow indicating the direction to open. NOTE: Post indicator valves shall operate in a counter-clockwise direction.

839.04 Butterfly Valve. Valves of this type shall be Henry Pratt, Clow, Allis-Chalmer, Kennedy, Dresser or equal conforming to AWWA C504, rubber seated tight closing type with Class 150B valve shaft diameter and underground-service-operator torque rating throughout entire travel. Butterfly valves shall also meet the following requirements:

1. The Body shall be High Strength Cast Iron conforming to ASTM A126, Class B or ASTM A48, Class 40, or Ductile Iron conforming to ASTM A536, Grade 65-45-12.
2. The Disc shall be the off-set design providing a 360 degree seating surface uninterrupted by shaft holes, and shall be High Strength Cast Iron conforming to ASTM A126, Class B or ASTM A48, Class 40, or Ductile Iron conforming to ASTM A536, Grade 65-45-12.
3. The Seat shall be natural or synthetic rubber with a stainless steel, type 304 mating seat surface; must be mechanically restrained either incorporated into the valve body or on the disc edge; and must be capable of replacement in the field without chipping, grinding or burning.
4. The Seal shall be O-ring contained in a corrosion resistant cartridge, capable of replacement without removal of the valve shaft.
5. The Operator shall have a 2 inch AWWA operating nut, traveling nut type, sealed, gasketed and lubricated for underground service.

Where the shaft projects through the body for the operator connection, a shaft seal shall be provided. Valve body ends shall be flanged with facing and drilling in accordance with ANSI B16.1 Class 125 lb., mechanical joint in accordance with AWWA specification C-111 or wafer style suitable for mounting between ANSI B16.1, Class 125 lb. flanges. Any adapter fittings required to connect the butterfly valve to the standard pipe lengths shall be included in the unit price bid for Item 838, Water Main.

839.05 Tapping Sleeve and Valve. The tapping sleeve shall be JCM432, Ford Fast, Power Seal 3490 or 3490 MJ, or equal, all stainless steel with the ability to fit ductile iron, cast iron or sand cast pipe. The tapping sleeve furnished shall have full circumferential sealing gaskets around the pipe to be tapped.

The valve shall conform to 839.03 and must accept a full size tapping cutter. Tapping valves shall be supported with solid concrete blocks.

The tapping sleeve and valve assembly shall be furnished and installed complete with gaskets as required and with all bolts for the sleeve and flanged connection between the sleeve and valve, according to the manufacturer of the tapping sleeve and valve.

Tapping sleeves shall be installed a minimum of two feet from bells and spigots.

The Contractor making taps into City water mains must receive prior approval from the City Service Department.

Taps for water mains 12 inches and smaller can be made by the City Service Department personnel for a fee, provided two full working days notice is given. The Contractor must provide an excavated area of sufficient size to accommodate the workers making the tap. The excavation must be within OSHA safety standards.

Taps larger than twelve inches must be made by the Contractor.

Test tapping sleeve and valve at 150 psi or two times the working pressure of the main line, whichever is greater for 15 minutes.

839.06 Valve Boxes. Valve boxes shall be provided for all buried valves and shall be suitable for the depth of cover required. Valve boxes shall be Tyler 6860 Series with No. 6 Base, or approved equal. Covers shall have the word WATER cast on it. All parts of valve boxes, bases and covers shall be coated by dipping in bituminous varnish.

Valve boxes shall be set plumb and placed directly over the valve it serves. Set the top of the box flush with the final subgrade elevation. After placement and compaction of the base courses and intermediate asphalt course for the street, excavate around the valve box to permit the box to be raised to the finished pavement elevation by use of an approved extension section. ODOT CMS Item 499, Class QC 1 concrete shall then be placed around the box and brought to three (3) inches below the finished pavement grade. After the concrete has cured, place and compact an intermediate layer of asphalt flush with the adjoining intermediate course.

Setting valve boxes which are part of a newly installed valve to final grade will not be paid for separately, but shall be included in the unit price bid for the valve and box.

839.07 Valve Boxes Adjusted to Grade. This work shall consist of raising or lowering existing valve boxes to the grades shown on the plans or directed by the Engineer. When specified on the plans or directed by the Engineer, the Contractor shall furnish and install new replacement valve boxes.

The Contractor shall remove the minimum amount of material necessary to provide adequate space to adjust the valve box. The existing valve box and cover shall be removed and thoroughly cleaned. The valve box shall be adjusted by the use of an approved adjusting ring or other method approved by the Engineer.

When existing valve boxes are adjusted in full depth pavement construction areas, the method outlined in 839.06 shall be used to set the top to final grade.

839.08 Method of Measurement. Valves of the type specified and valve boxes shall be counted as one item and measured on an each basis.

Valve boxes adjusted to grade will be measured on an each basis, and shall include any extension sections of valve boxes required.

New valve boxes, when specified, shall be paid for separately and shall be measured on an each basis.

839.09 Basis of Payment. Payment for accepted quantities of each item specified will be made at the contract unit price. Payment will be full compensation for labor, material, tools, equipment and incidentals necessary for each item; furnished, installed in place, joined, hydrostatically tested, disinfected and accepted.

Item	Unit	Description
839	Each	___” Resilient seat wedge valve and valve box
839	Each	___” Butterfly valve and valve box
839	Each	___” x ___” Tapping sleeve, valve & valve box
839	Each	Valve box adjusted to grade
839	Each	New valve box furnished

ITEM 840 FIRE HYDRANT

840.01 Description This item shall consist of furnishing all material, labor and equipment necessary for the installation of fire hydrants. This item includes the excavation necessary, furnishing and installing the fire hydrant at the locations shown on the plans; testing, disinfecting and backfilling around the hydrant as noted in the specifications or as directed by the Engineer.

840.02 Material Fire hydrants shall conform to AWWA C502, as modified herein. Manufacturer shall be Kennedy K-81-A, Darling B-84B, Mueller Centurion or Clow Medallion. The information required by Section 2 is as follows:

Affidavit of Compliance.....	Not required
Catalog and maintenance date.....	Review before manufacture
Type of shutoff.....	Compression with 5 1/4" min. main valve opening
Size of hydrant.....	six (6) inches
Inlet Connection.....	six (6) inch, mechanical joint
Harnessing lugs.....	Required
Bury length.....	As required to provide not less than forty-eight (48) inches of cover over the top of the connection pipe
Barrel requirements.....	six (6) inch ID minimum, designed so that nozzles may be placed in any given direction
Outlet nozzles.....	two (2) - two and one half (2 ½) inch hoses and one (1) - four (4) inch pumper threaded and pinned
Outlet nozzle diameters.....	two and one half (2 ½) inch nozzles: ID two and one half (2 ½) inch, OD three and twenty-five one hundreds (3.25) inch. Four (4) inch nozzle: ID four (4) inch, OD four and eight hundred seventy five thousandths (4.875) inch.
Outlet nozzle treads.....	Springfield, Ohio, standard threads: six (6) threads per inch, Higbee cut, sharp vee, pitch eleven - sixty fourths (11/64) inch.
Direction to open.....	counterclockwise
Stem seals.....	"O" ring
Color of finish paint above ground line.....	yellow
Outlet nozzle cap chain.....	not permitted

Drain outlet and valve.....required
 Operating and outlet nozzle cap nuts.....pentagonal, fifteen sixteenths
 N(15/16) inch to thirty-one thirty-
 secondths (31/32) inch, point to
 flat one and one-half (1½) inches
 Type..... traffic model break away type

Repair parts and component parts shall be readily available and regularly carried in stock by the hydrant manufacturer.

840.03 Construction The hydrant shall be set so that at least the minimum pipe cover is provided for and branch supply line and the nozzles are at least eighteen (18) inches but not more than twenty-four (24) inches above finished grade. The hydrant shall be set on a concrete block foundation, 2 inch x 8 inch x 16 inch and blocked with concrete as per Standard Drawing WB-1, or suitably anchored by use of restrained joint pipe.

Hydrant drainage shall be provided by installing around the hydrant, and below the top of the hydrant supply pipe, at least seven (7) cubic feet of gravel or crushed stone.

The hydrant shall stand plumb, with hose nozzles parallel with, and the pumper nozzle perpendicular to, the curb line. The face of nozzle shall be 2 feet behind the face of curb.

The Contractor shall furnish and install a six (6) inch resilient seat wedge valve and valve box between the water main and the fire hydrant, when specified on the plans or as directed by the Engineer. The valve shall be restrained to the main line by use of a swivel tee.

Hydrant branches, valves and valve boxes shall each be paid for separately.

840.05 Fire Hydrant Relocated. Where existing hydrants are indicated for relocation, the hydrant shall be adequately supported before being disconnected and reset in the new location. The existing branch line shall be capped and adequate reaction blocking to brace the cap shall be installed. The reset hydrant shall be installed at the new location in accordance with 840.03. Hydrant branches, valves and valve boxes for the reset hydrant shall each be paid for separately.

840.06 Fire Hydrant Removed. This work shall consist of removing of fire hydrants designated for removal. The existing branch line shall be capped and adequate reaction blocking to brace the cap shall be installed. The removed hydrant shall be salvaged for pick-up by the City Service Department.

840.04 Method of Measurement The installed and accepted fire hydrant, whether new or relocated, shall be measured by the unit specified. Fire hydrants removed shall be measured on an each basis.

840.05 Basis of Payment Work includes all labor, equipment and materials necessary for the installation of the new hydrant, including excavating and backfill as specified above.

The cost for any ductile iron pipe or gate valves (if required) shall be paid for separately, and included in the price bid for those pertinent items.

Item	Unit	Description
840	Each	Fire hydrant
840	Each	Fire hydrant relocated
840	Each	Fire hydrant removed

ITEM 841 PROPERTY SERVICE

841.01 Description. This item shall consist of tapping water mains, installing corporation stop (valve), boring the property service under the pavement (when specified), laying property service, installing curb stop and curb box, reconnection to existing service lines, and installing meter box (unless otherwise specified). The service shall be laid with a minimum cover of forty-eight (48) inches. This item includes the furnishing of all materials for the above work.

841.02 Materials. The service line shall be type “K” copper tubing and shall be connected to the water main by use of an approved type corporation stop with AWWA C.C. taper thread inlet and flared copper outlet. The service line shall be one piece with no fittings between the flare nuts for corporation stop and curb stop. Refer to standard drawing WM-1 for materials. A Ford F202 tapping saddle, or equal, shall only be used with the approval of the Engineer. On all water mains 16” and larger a Ford F202 tapping saddle, or equal, must be used. All materials shall be made in the U.S.A.

In addition to copper tubing, the City will accept plastic water service tubing. The plastic water service tubing shall be manufactured from high density CTS Polyethylene (PE3408 C-3 SDR-9) in accordance with ASTM D-2739 or the latest revisions thereof (REV. Jan. 1998). Tubing shall be marked with the manufacturer’s brand name, pipe size, working pressure, material designation, National Sanitation Foundation approval, ASTM specification, and production code. Pipe shall be manufactured to Type K copper OD., and the dimensions and tolerances shall correspond with the values listed in U.S. Department of Commerce CS-255-63 for flexible plastic pipe. Pipe shall have a working pressure of 200 psi at 73°F and the pipe shall be capable of maintaining pressures of 300 psi at 73°F for 1,000 hours. All joints using plastic tubing shall be made by flaring the plastic tubing or the Mueller “Instar-tite” connection. A 14 AWG standard copper tracing wire is to be placed adjacent to the tubing.

841.03 Construction. Procedures outlined in ANSI/AWWA C810-17 (or current edition) shall be followed for the replacement and flushing of lead service lines.

No tunneling or pushing of service lines under curbs, sidewalks, or other obstructions shall be permitted unless directed by the Engineer.

Curb stops shall be installed at the end of the service line at the location designated by the Engineer. All curb stops shall be ball type with built-in stop for 90° turn only, without drain. Curb stops shall be flared copper inlet and flared copper outlet connection.

The connection to the existing corporation stop and/or existing house service line will be made with approved type fittings only. When replacement services are specified, the existing corporation stop shall be extracted and the new stop inserted in its place.

A solid concrete block shall be placed under each curb stop and curb box.

Curb boxes shall be made in the U.S.A., cast iron “Buffalo” type screw adjustment with 2 ½” shaft and shall have a cover with “WATER” clearly imprinted on the surface of the cover in raised letter.

The meter box shall be the dimensions shown on standard drawing WM-1.

Backfill shall be as per Item 304, crushed stone or other material approved by the Engineer.

The Contractor, with approval of the City Service Department, will tap the water line or pay the City Service Department to tap said waterline and install the corporation stop. All taps shall be a minimum of 10 inches apart and a minimum of two feet from a bell or spigot. When replacing an existing service, the Contractor shall remove and dispose of the existing curb box.

When boring a service under the pavement, the Contractor shall be responsible for repairing any damage, at the Contractor's expense, caused to the street pavement, street base, or underground utilities encountered during the boring operation.

It will be the responsibility of the Contractor to assure that the service line is bored at a minimum depth of forty-eight (48) inches. If, for any reason, any portion of the completed bore has a cover of less the forty-eight (48) inches, the Contractor shall abandon the bore and make a new bore at the specified depth.

All taps made by the City Service Department will be billed to the Contractor.

841.04 Curb Stop and Meter Box Relocated. This work shall consist of relocating existing curb stops and meter boxes to the locations shown on the plans or directed by the Engineer. The Contractor shall remove the existing meter, meter box, curb stop and reconnect the existing meter, meter box curb stop to the existing service line.

If the existing curb box is not salvageable, replacements may be obtained, at no cost to the Contractor, from City Service Department upon approval of the Engineer. All service line extensions shall use ¾" type "K" copper tubing (unless 1" service) and shall be furnished by the Contractor.

Meter boxes shall conform to 841.03. Meter boxes shall not be reused unless approved by the Engineer.

841.05 Method of Measurement. Property services will be measured as the actual number of services for each type and class of work, and shall include excavation, backfill, pipe or tubing and fittings, tapping saddles if necessary, corporation stops, curb stops and curb boxes, hydrostatic testing, disinfecting, backfilling, restoration of surfaces (unless paid for separately) and disposal of surplus material.

Curb stops and meter boxes relocated will be measured as a unit on an each basis.

841.06 Basis of Payment. Payment for accepted quantities of property services, and curb stops and meter boxes relocated, will be made at the contract unit price. Payment will be full compensation for labor, materials, tools, equipment, and incidentals necessary for each item; furnished, installed in place, jointing made, hydrostatically tested, disinfected and accepted.

Item	Unit	Description
841	Each	___" Property service
841	Each	___" Property service with meter box
841	Each	___" Property service, Bored
841	Each	___" Property service with meter box, Bored
841	Each	Curb stop and meter box relocated

1000 MISCELLANEOUS

ITEM 1001 PREMIUM FOR OWNER'S PROTECTIVE INSURANCE

1001.01 Description. This item shall include payment for the premium for the required amount of Owner's Protective Insurance to be obtained in accordance with 103.42.

1001.02 Basis of Payment. The Contractor shall submit certification as to the actual amount of the premium for the Owner's Protective Insurance with the first estimate. Payment will be made under:

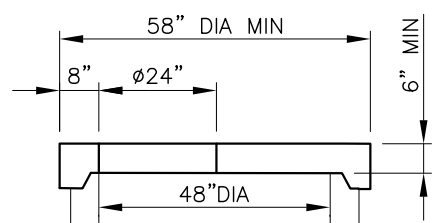
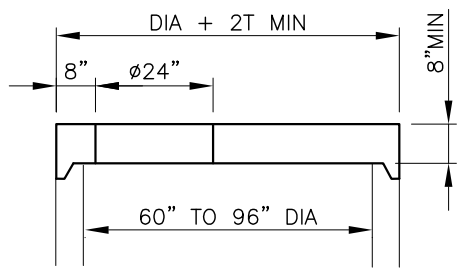
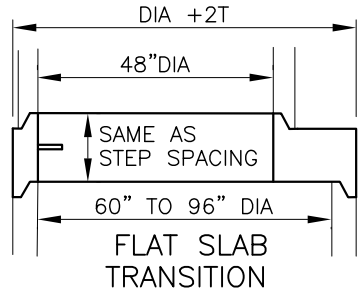
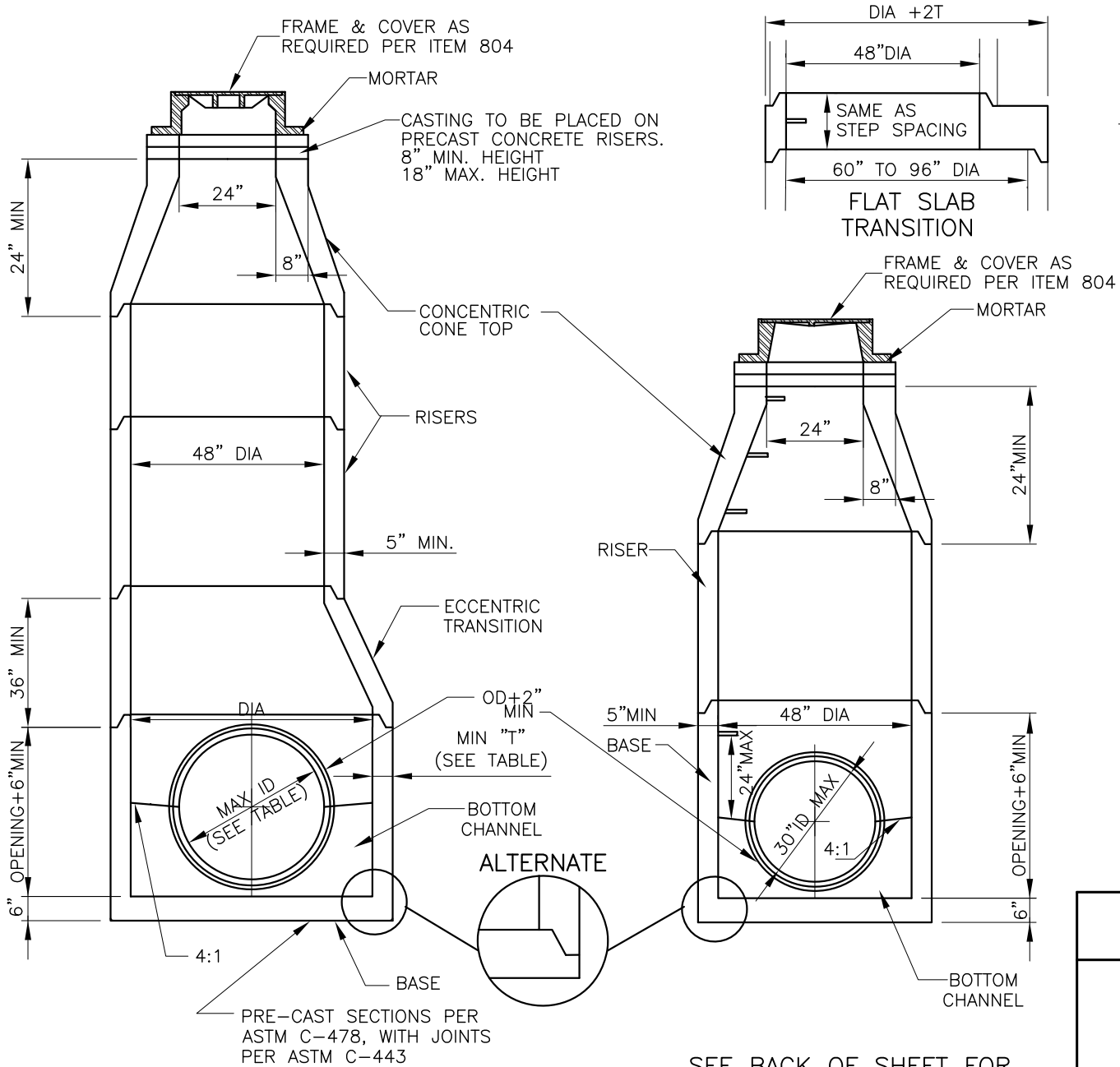
Item	Unit	Description
1001	Lump sum	Premium for owner's protective insurance

ITEM 1002 PREMIUM FOR CONTRACT PERFORMANCE AND PAYMENT BOND

1002.01 Description. This item shall include payment for the premium for the required amount of Performance and Payment Bonds to be obtained in accordance with Section 101.04 of the Information and Instructions to Bidders of this Contract

1002.02 Basis of Payment. The Contractor shall submit certification as to the actual amount of the premium for the performance and payment bond with the first estimate. Payment will be made under:

Item	Unit	Description
1002	Lump sum	Contract performance and payment bond



BASE ID	MIN "T"	MAX PIPE SIZE
60"	5"	36"
72"	6"	48"
84"	7"	54"
90"	7.5"	60"
96"	8"	60"

SEE BACK OF SHEET FOR MANHOLE GENERAL NOTES.

CITY OF SPRINGFIELD, OHIO
SERVICE DEPARTMENT

**NO. 1
MANHOLE**

DATE
JUL 98
DEC 03
JUN 21

STANDARD DRAWING MH-1

APPROVED _____ CITY ENGINEER

GENERAL NOTES FOR MH-1

GENERAL:

WITH NORMAL SOIL AND SITE CONDITIONS THIS STANDARD PRECAST MANHOLE MAY BE USED FOR ANY REQUIRED MANHOLE DEPTH.

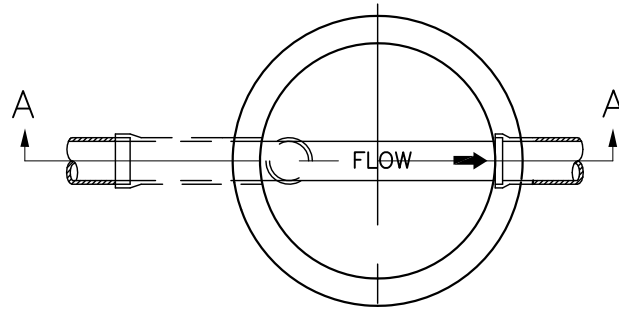
SECTIONS OF THE PRECAST MANHOLE SHALL BE CAST AND ASSEMBLED WITH ALL TONGUE OR ALL GROVE ENDS UP. LIFT HOLES MAY BE PROVIDED IN EACH SECTION FOR HANDLING.

BASES FOR NUMBER 1 MANHOLES ARE SHOWN WITH MONOLITHIC FLOOR AND RISER WHICH MAY BE CAST IN ONE OR TWO OPERATIONS. A PERMISSIBLE ALTERNATE IS TO CAST AND SHIP THE FLOOR AND BARREL SEPARATELY. OPENING FOR INLET AND OUTLET PIPES SHALL BE PROVIDED, EITHER WHEN THE UNIT IS CAST OR LATER, TO MEET PROJECT REQUIREMENTS. BOTTOM CHANNELS MAY BE FORMED OF CONCRETE PRECAST IN THE BASE OR BY FIELD CONSTRUCTION AS SHOWN ON MH-1.

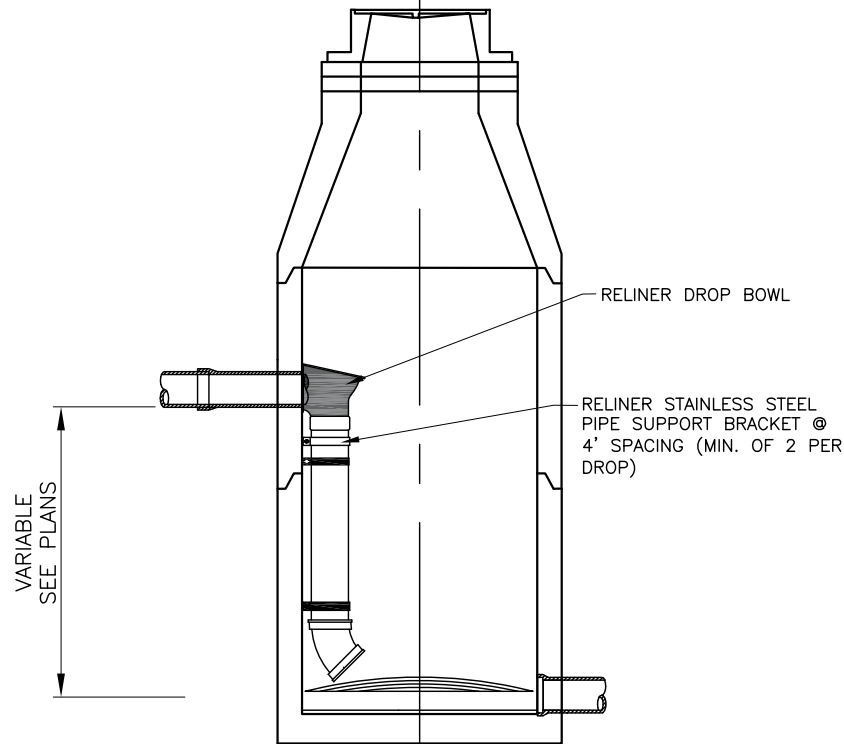
CONNECTIONS BETWEEN PRECAST MANHOLE SECTIONS AND PIPES ON SANITARY SEWERS SHALL BE SEALED WITH RESILIENT CONNECTORS CONFORMING TO ASTM C-923.

JOINT SEAL BETWEEN PRECAST MANHOLE SECTIONS ON SANITARY SEWERS SHALL BE RESILIENT AND FLEXIBLE GASKET JOINTS PER ASTM C-443

STANDARD MANHOLE



SECTIONAL PLAN

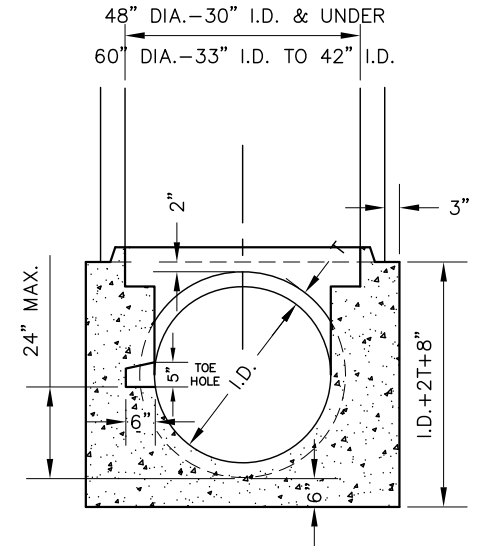
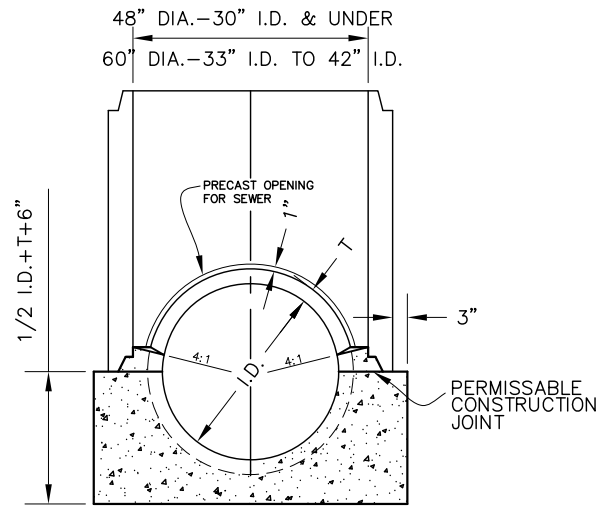
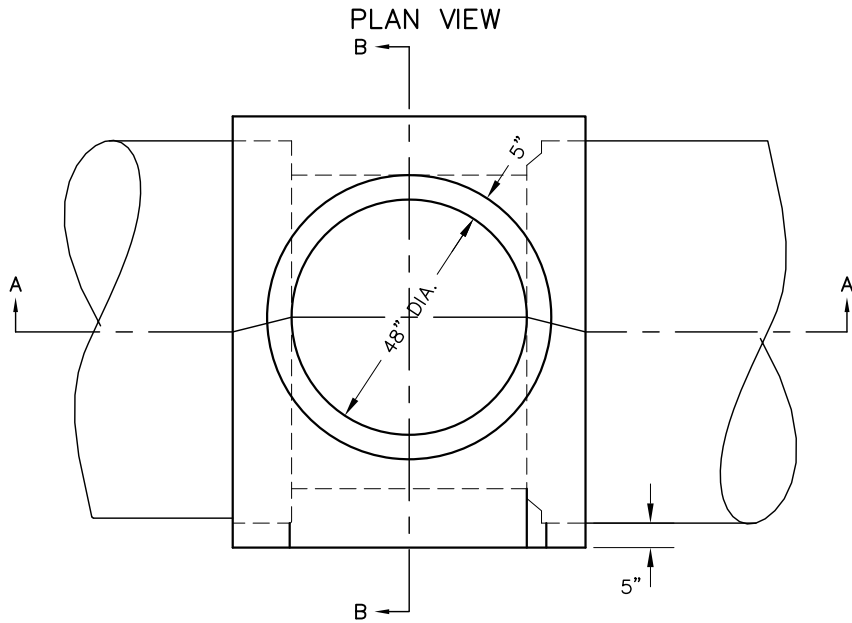


SECTION A-A

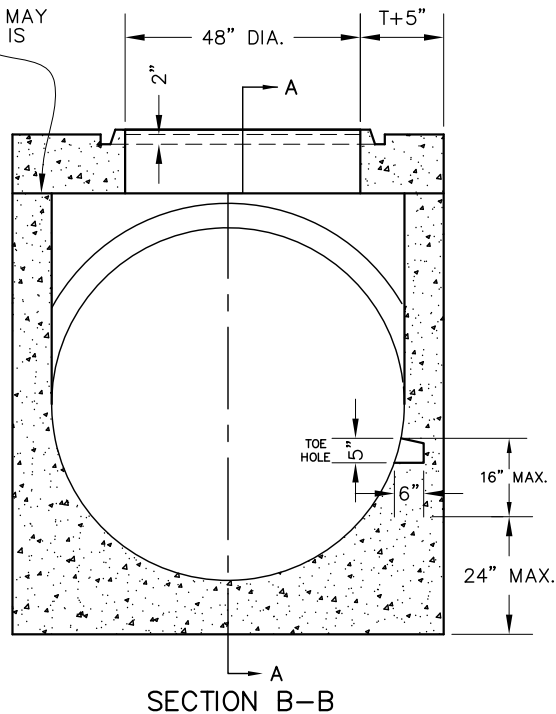
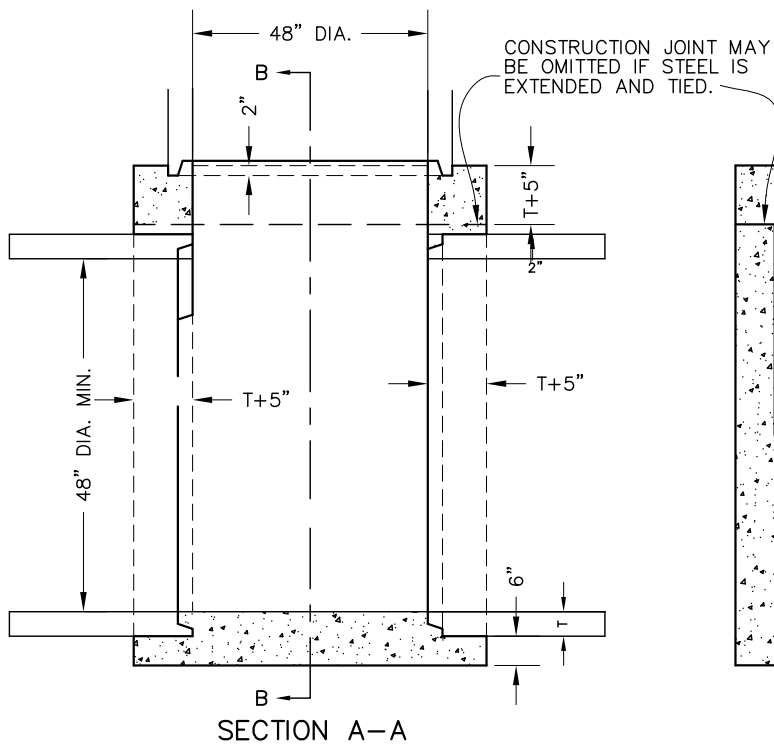
THIS MANHOLE SHALL BE CONSTRUCTED THE SAME AS SCD MH-1, WITH THE ADDITION OF AN INSIDE DROP SYSTEM USING THE RELINER/DURAN INC. DROP BOWL.

DROP BOWL SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.

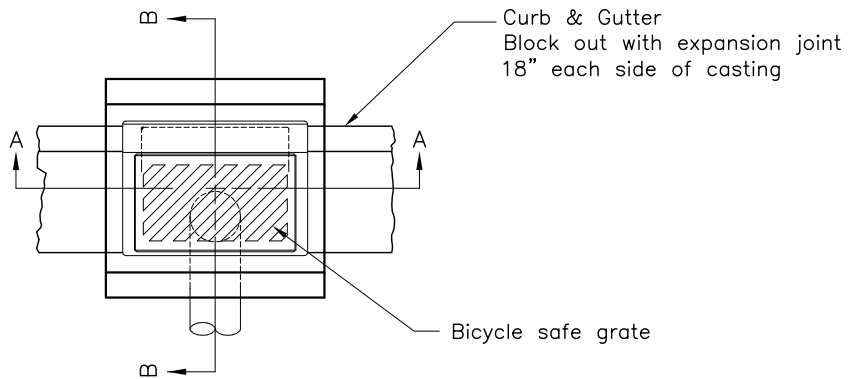
CITY OF SPRINGFIELD, OHIO SERVICE DEPARTMENT	
NO. 2 MANHOLE	DATE JUL 98 JUN 21
STANDARD DRAWING MH-2	
APPROVED _____ CITY ENGINEER	



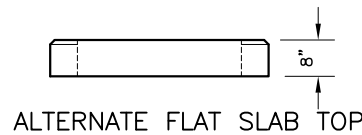
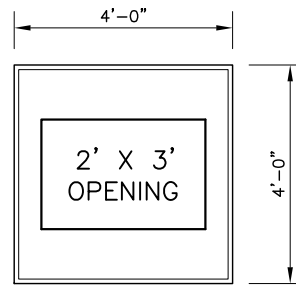
MANHOLE BASES ON SEWERS 42" AND UNDER



CITY OF SPRINGFIELD, OHIO SERVICE DEPARTMENT	
NO. 5 MANHOLE	
STANDARD DRAWING MH-5	
APPROVED _____	DATE JUL 00 JUN 21 CITY ENGINEER



PLAN

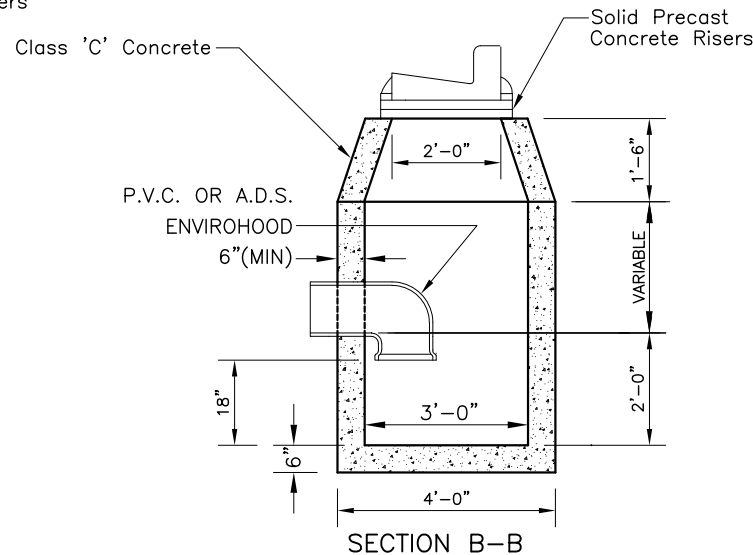
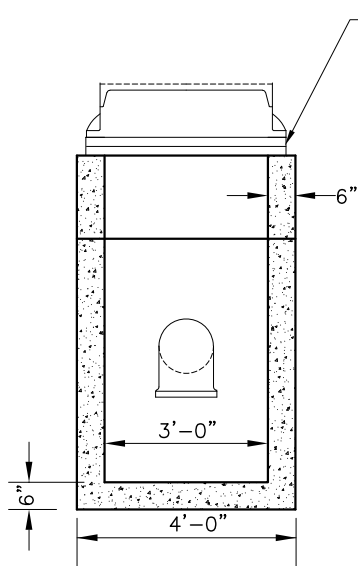


NOTE - USE NEENAH R-3246, (WITH TYPE R GRATE) OR EAST JORDAN #7030 (WITH TYPE M2 GRATE) CURB INLET FRAME AND CURB BOX OR EQUAL. IF A FLAT CASTING IS SPECIFIED, USE NEENAN R-3406 OR EAST JORDAN #5395.

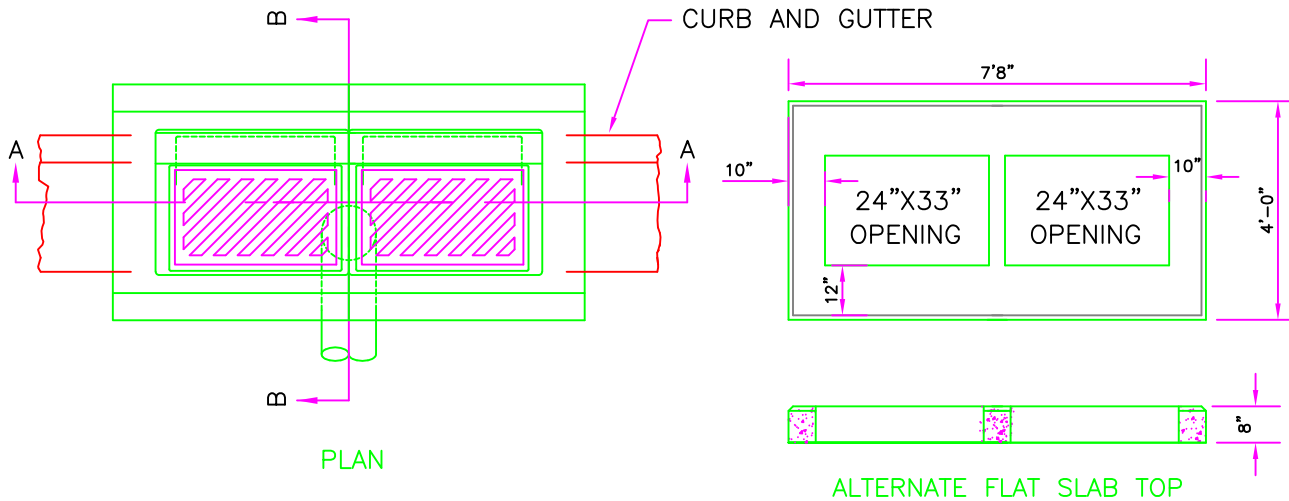
ALL PRECAST BASINS SHALL INCLUDE TWO ROWS OF SOLID CONCRETE BRICK PLACED BETWEEN THE TOP OF THE PRECAST BOX AND THE BOTTOM OF THE CASTING.

BASINS MAY BE OF PRECAST CONSTRUCTION, CONSTRUCTED OF 8" SOLID CONCRETE BLOCK OR POURED FROM 4000 PSI CONCRETE. ALL INTERIOR WALLS OF CONCRETE BLOCK BASINS SHALL BE PLASTERED WITH A MORTAR MIX.

BRICKS UNDER TRAPS FOR SUPPORT WILL NOT BE PERMITTED.



CITY OF SPRINGFIELD, OHIO SERVICE DEPARTMENT	
STANDARD NO. 1 CATCH BASIN	DATE JUL 98 NOV 03 JUN 21
STANDARD DRAWING CB-1	
APPROVED _____	CITY ENGINEER

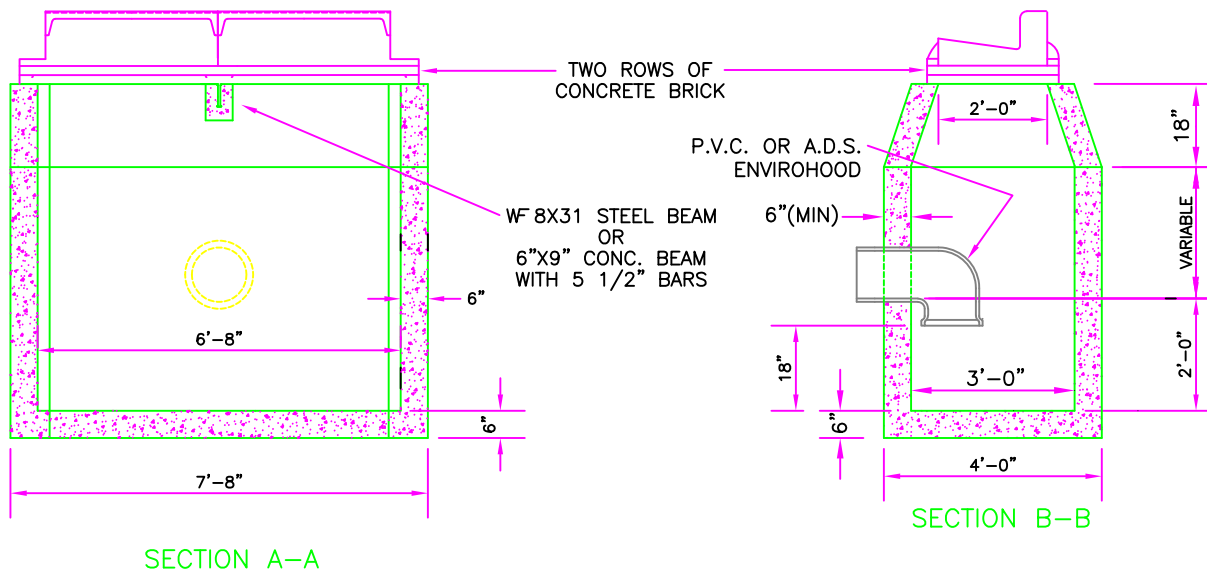


NOTE - USE NEENAH R-3295 W/(3) FLANGE, LEFT OR RIGHT REMOVED, WITH TYPE R-3067 GRATE AND R-3290 DR/DL CURB BOX OR EQUAL

ALL PRECAST BASINS SHALL INCLUDE TWO (2) ROWS OF SOLID CONCRETE BRICK PLACED BETWEEN THE TOP OF THE PRECAST BOX AND THE BOTTOM OF THE CASTING.

BASINS MAY BE OF PRECAST CONSTRUCTION, CONSTRUCTED OF SOLID 8" CONCRETE BLOCK OR POURED FROM 4000 PSI CONCRETE. ALL INTERIOR WALLS OF CONCRETE BLOCK BASINS SHALL BE PLASTERED WITH A MORTAR MIX.

BRICKS UNDER TRAPS FOR SUPPORT WILL NOT BE PERMITTED.



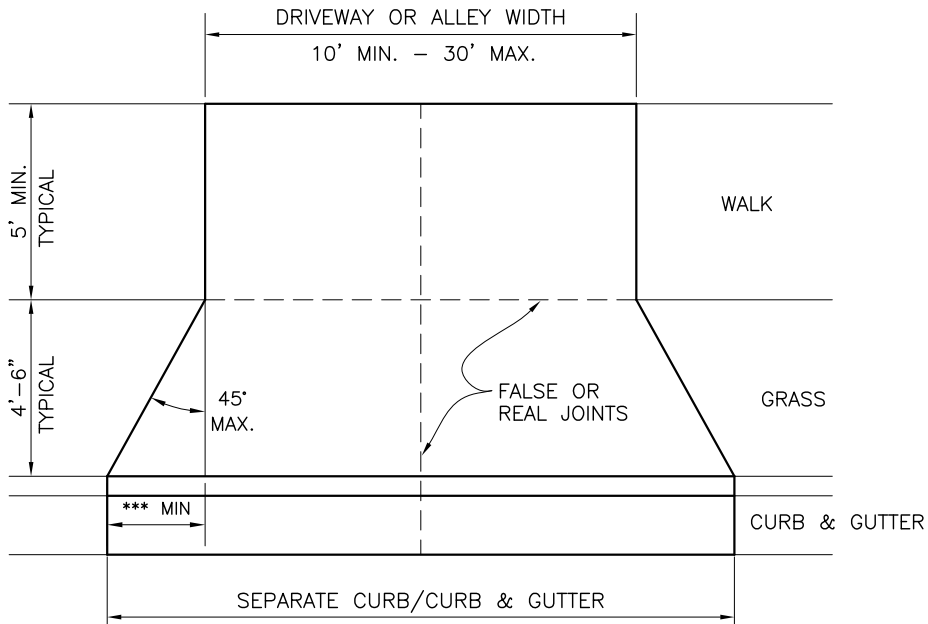
CITY OF SPRINGFIELD, OHIO
SERVICE DEPARTMENT

STANDARD NO. 2
CATCH BASIN

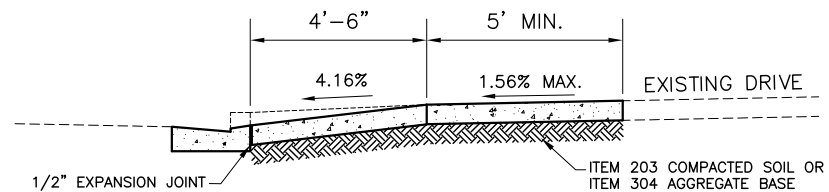
STANDARD DRAWING CB-2

DATE
JUL 98
NOV 03
JUN 21

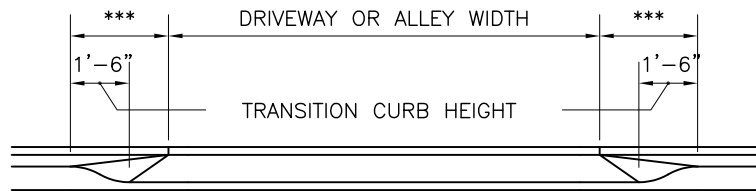
APPROVED _____ CITY ENGINEER



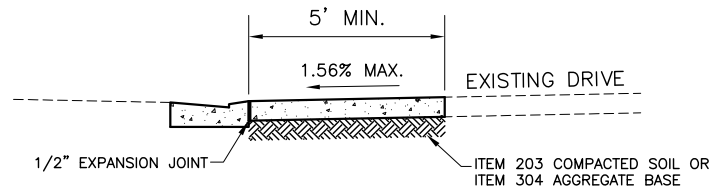
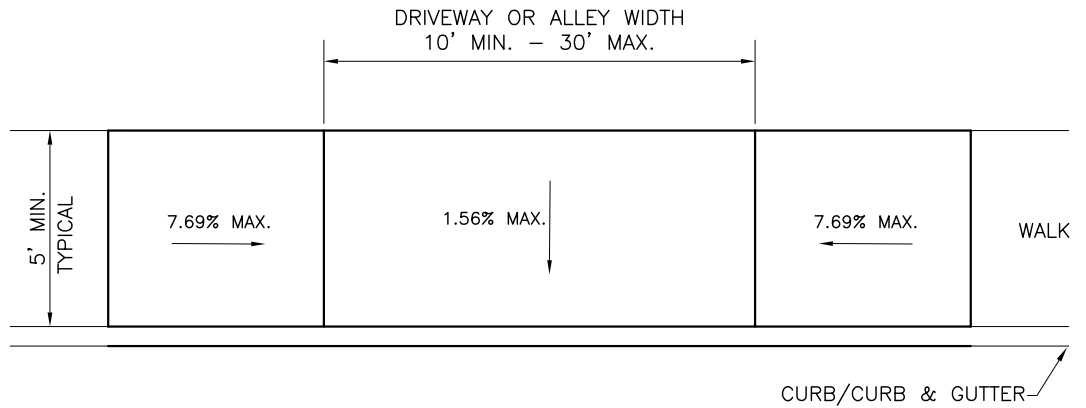
PLAN



SECTION



ELEVATION



SECTION

NOTES:

CONDITIONS WHICH MAY WARRANT VARIATIONS FROM THESE SPECIFICATIONS MUST BE REVIEWED BY THE ENGINEER, AND CHANGES APPROVED BY THE ENGINEER.

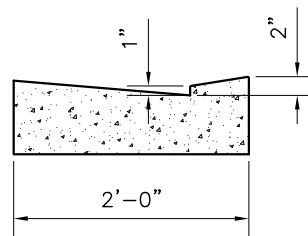
CONCRETE THICKNESS SHALL BE 6" FOR RESIDENTIAL DRIVES AND 8" FOR COMMERCIAL DRIVES AND ALLEYS.

SPACING OF FALSE OR REAL JOINTS NOT TO EXCEED 5 FEET.

EXPANSION JOINTS SHALL BE PLACED AS PER ITEM 608.03

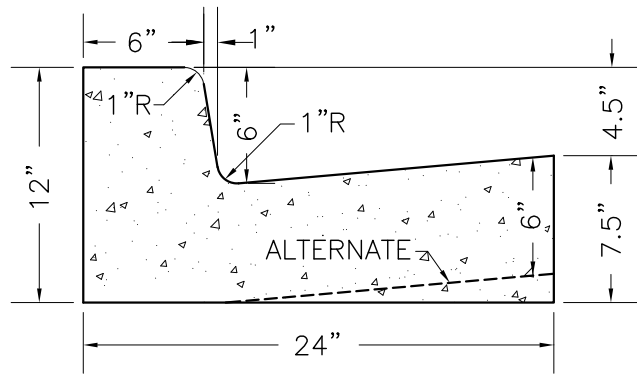
CURB AND GUTTER MUST BE CONSTRUCTED SEPARATELY FROM THE WALK OR APRON AREA.

*** 5' ON ROADWAYS 35MPH SPEED LIMIT AND ABOVE, 2' FOR SPEED LIMITS LESS THAN 35MPH.

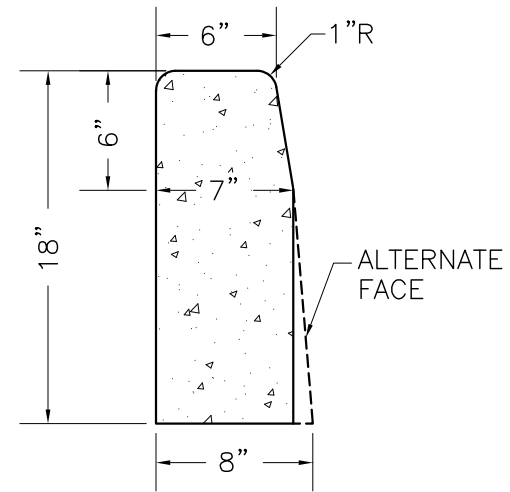


DROP CURB DETAIL

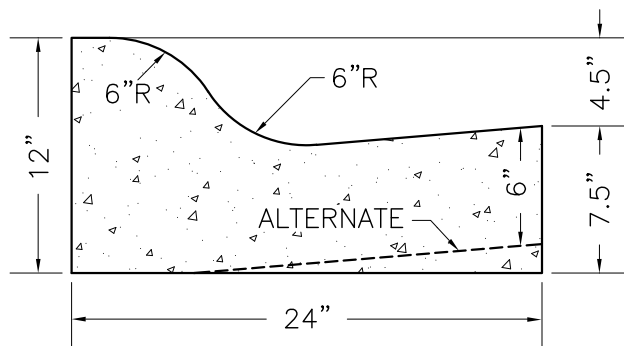
CITY OF SPRINGFIELD, OHIO SERVICE DEPARTMENT	
DRIVE AND ALLEY DETAIL	DATE JUL 98 JUN 21
STANDARD DRAWING DW-1	
APPROVED _____	CITY ENGINEER



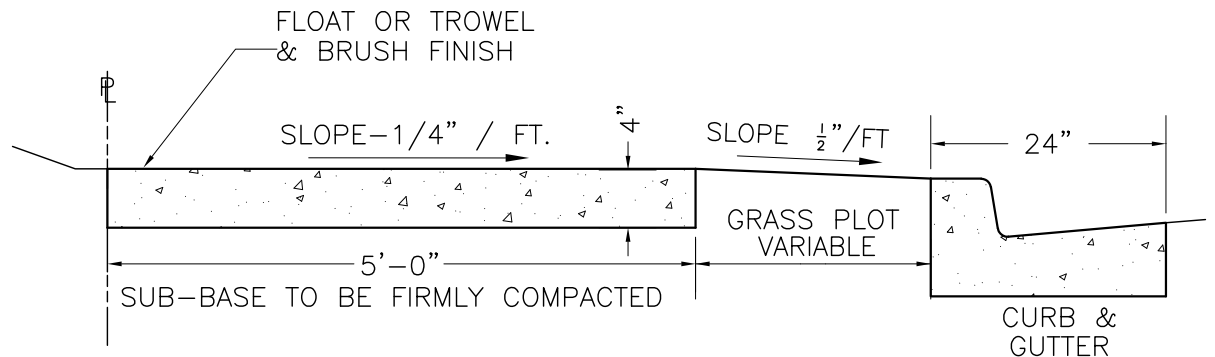
COMBINATION CURB & GUTTER
TYPE 'B'



CURB-TYPE 'A'

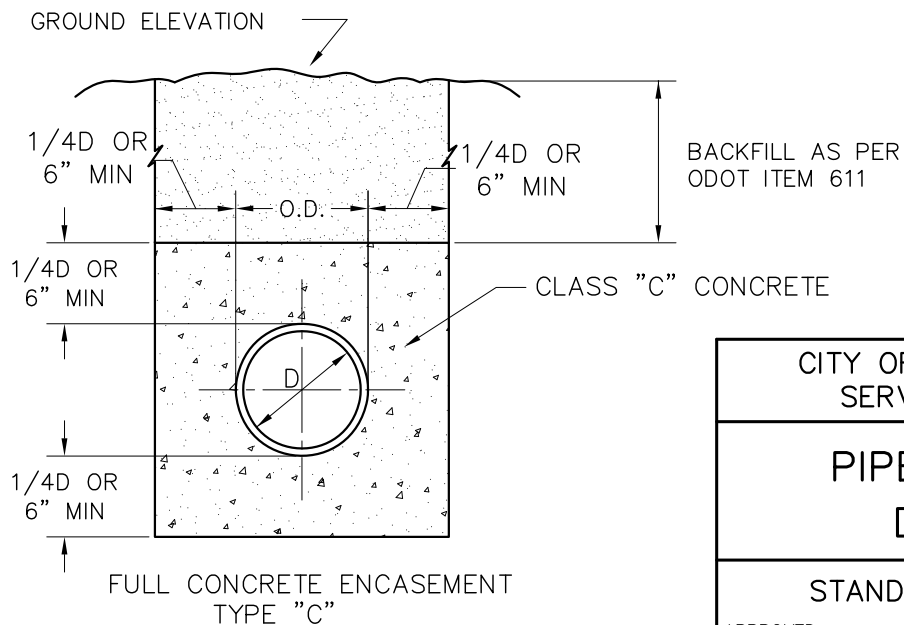
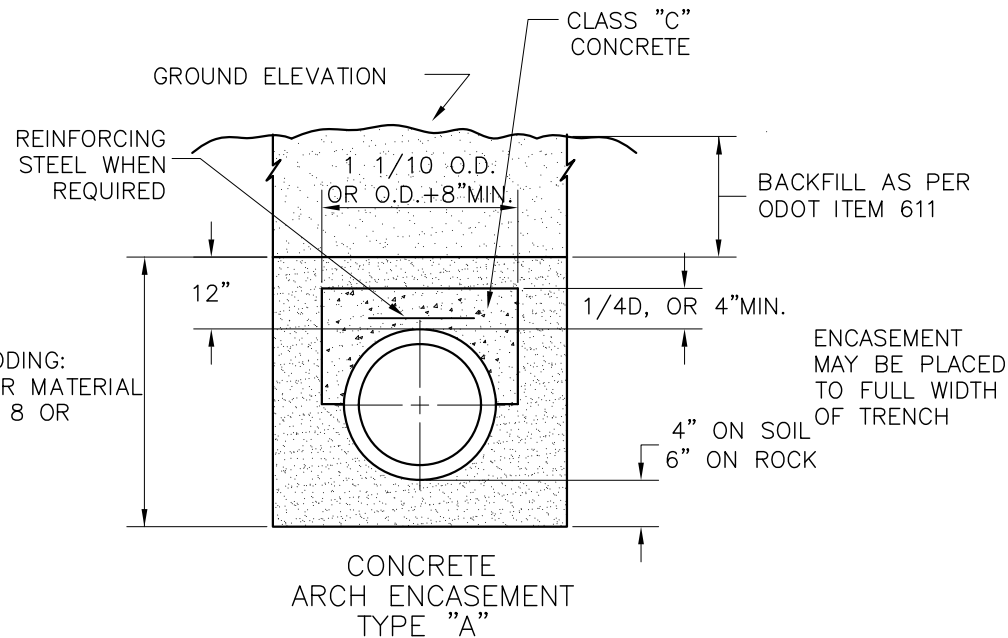
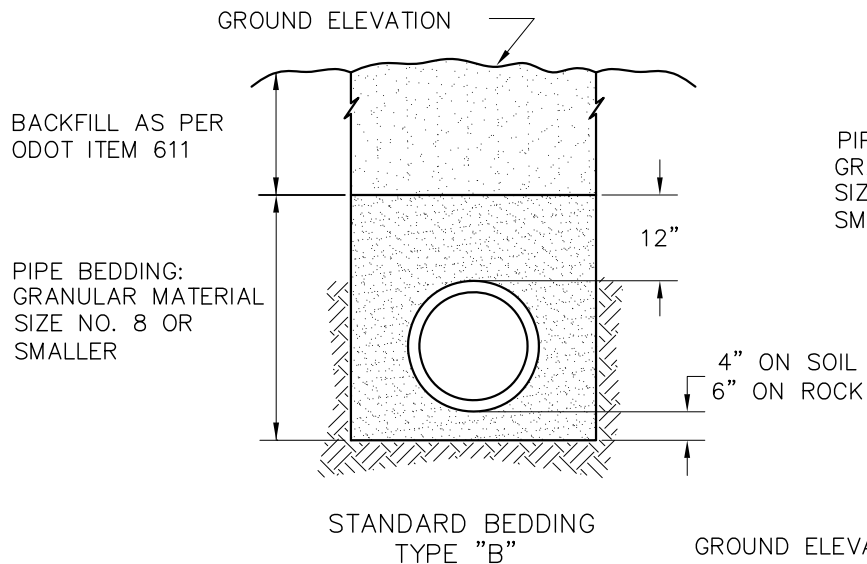


COMBINATION CURB & GUTTER
TYPE 'C'



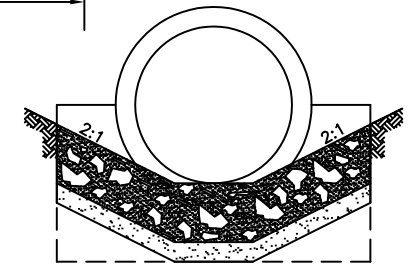
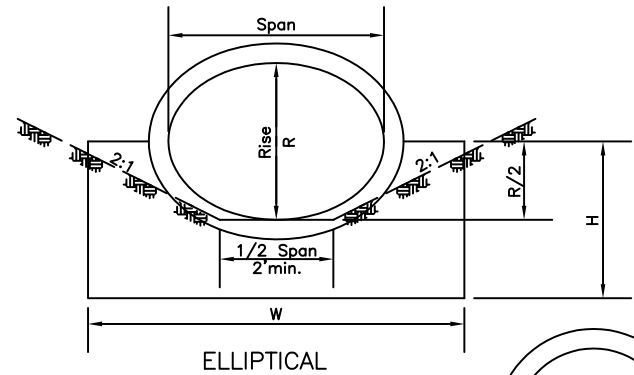
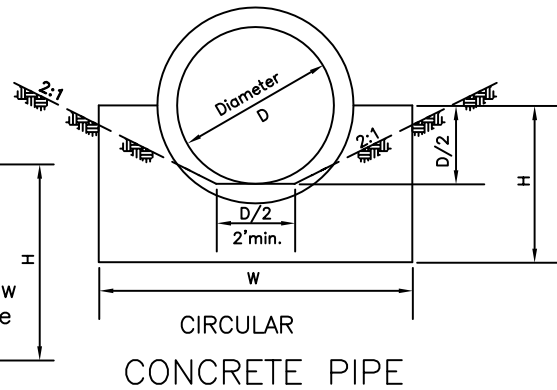
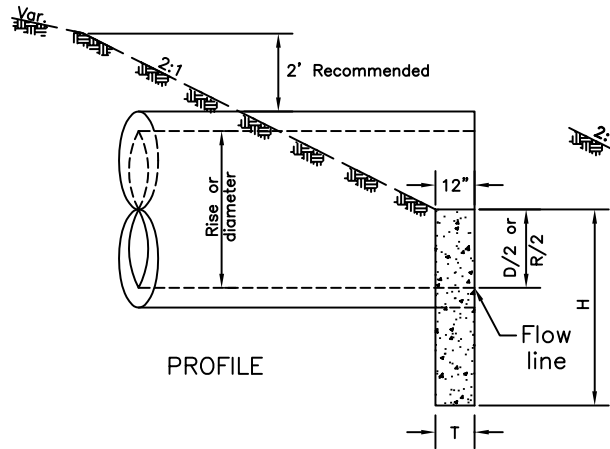
TYPICAL SECTION-SIDEWALK, CURB AND GUTTER

CITY OF SPRINGFIELD, OHIO SERVICE DEPARTMENT	
CURBING & WALK DETAILS	
STANDARD DRAWING CU-1	
APPROVED _____	DATE JUL 98 JUN 21 CITY ENGINEER



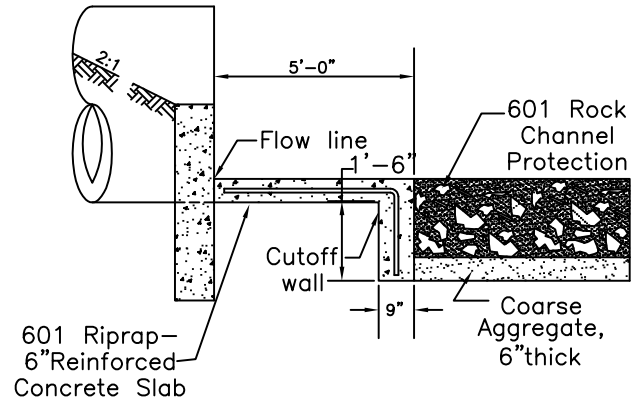
NOTE:
TYPE "B" BEDDING SHALL BE USED UNLESS OTHERWISE NOTED ON THE PLANS OR DIRECTED BY THE ENGINEER.

CITY OF SPRINGFIELD, OHIO SERVICE DEPARTMENT	
PIPE BEDDING DETAILS	DATE JUL 98 JUN 21
STANDARD DRAWING PB-1	
APPROVED _____	CITY ENGINEER



Width of protection shall equal width of headwall. Minimum width 4'-0".

HEADWALL FOR CONCRETE PIPE										
CIRCULAR					ELLIPTICAL					
D	W	H	T	CONCRETE CU.YDS.	Span	Rise	W	H	T	CONCRETE CU.YDS.
12"	2'-0"	3'-0"	12"	.20						
15"	2'-6"	3'-2"	12"	.25						
18"	3'-0"	3'-3"	12"	.31	23"	14"	3'-5"	3'-2"	12"	.33
21"	3'-6"	3'-4"	12"	.37						
24"	4'-0"	3'-6"	12"	.43	30"	19"	4'-2"	3'-4"	12"	.42
27"	4'-6"	3'-8"	12"	.49	34"	22"	4'-7"	3'-5"	12"	.46
30"	5'-0"	3'-9"	12"	.56	38"	24"	5'-0"	3'-6"	12"	.50
33"	5'-6"	3'-10"	12"	.62	42"	27"	5'-5"	3'-7"	12"	.55
36"	6'-0"	4'-0"	12"	.69	45"	29"	5'-10"	3'-8"	12"	.59
39"	6'-6"	4'-2"	12"	.77	49"	32"	6'-6"	3'-10"	12"	.67
42"	7'-0"	4'-3"	12"	.84	53"	34"	7'-2"	4'-0"	14"	.82
48"	8'-0"	4'-6"	14"	1.09	60"	38"	8'-5"	4'-2"	14"	1.01
54"	9'-3"	4'-9"	14"	1.32	68"	43"	9'-8"	4'-4"	16"	1.32
60"	10'-6"	5'-6"	16"	1.93	76"	48"	11'-0"	5'-0"	16"	1.79
66"	11'-9"	5'-9"	18"	2.42	83"	53"	12'-4"	5'-2"	18"	2.23
72"	13'-0"	6'-0"	18"	2.77	91"	58"	13'-7"	5'-5"	18"	2.53
78"	14'-3"	6'-3"	20"	3.37	98"	63"	14'-10"	5'-7"	20"	3.07
84"	15'-6"	6'-6"	22"	4.05	106"	68"	16'-2"	5'-10"	20"	3.42
90"	16'-9"	6'-9"	22"	4.51	113"	72"	17'-6"	6'-0"	22"	4.05
96"	18'-0"	7'-0"	24"	5.31						
102"	19'-3"	7'-3"	26"	6.20						
108"	20'-6"	7'-6"	26"	6.78						
114"	21'-9"	7'-9"	28"	7.81						
120"	23'-0"	8'-0"	30"	8.93						

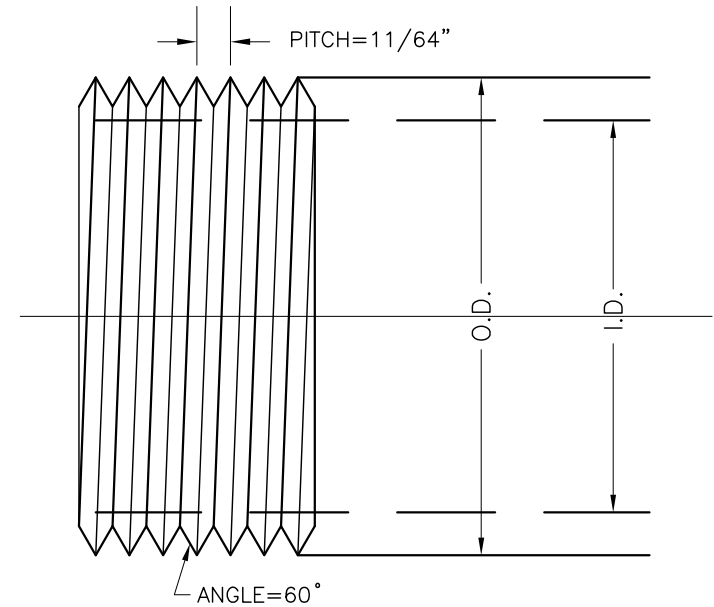
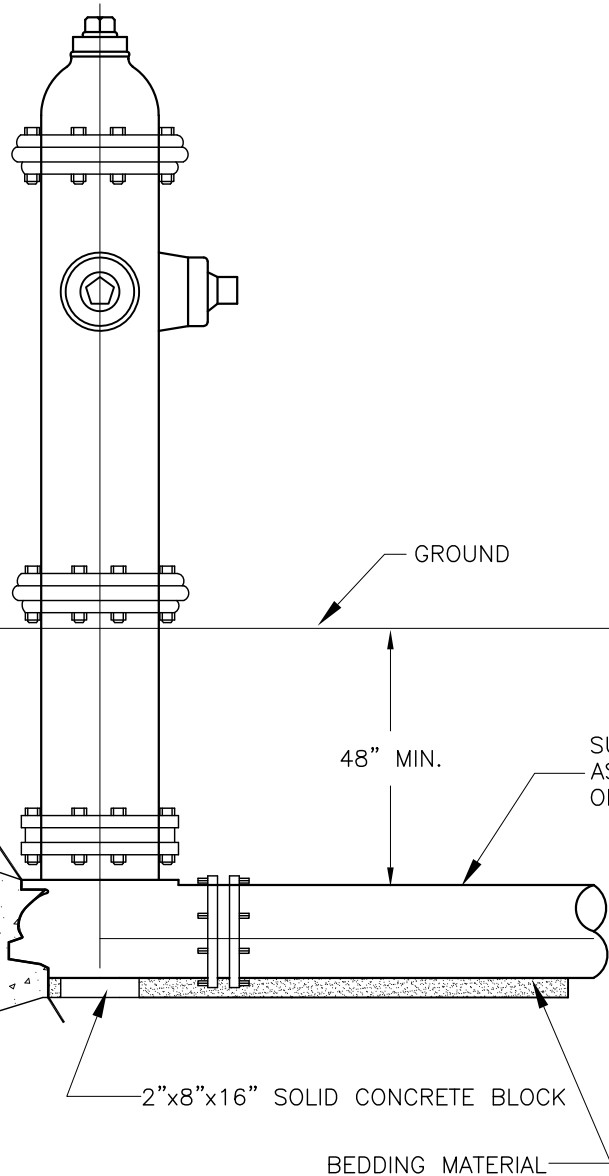


NOTES
CONCRETE for headwalls shall be Class C.

CITY OF SPRINGFIELD, OHIO DEPARTMENT OF ENGINEERING	
HEADWALL DETAIL	
DATE JUL 98	
STANDARD DRAWING HW-1	
APPROVED _____	CITY ENGINEER _____

FIRE HYDRANTS MANUFACTURERS SHALL BE
KENNEDY K-81-A, DARLING B-84B,
CLOW MEDALLION OR MUELLER CENTURION

DO NOT BLOCK WEEP HOLES



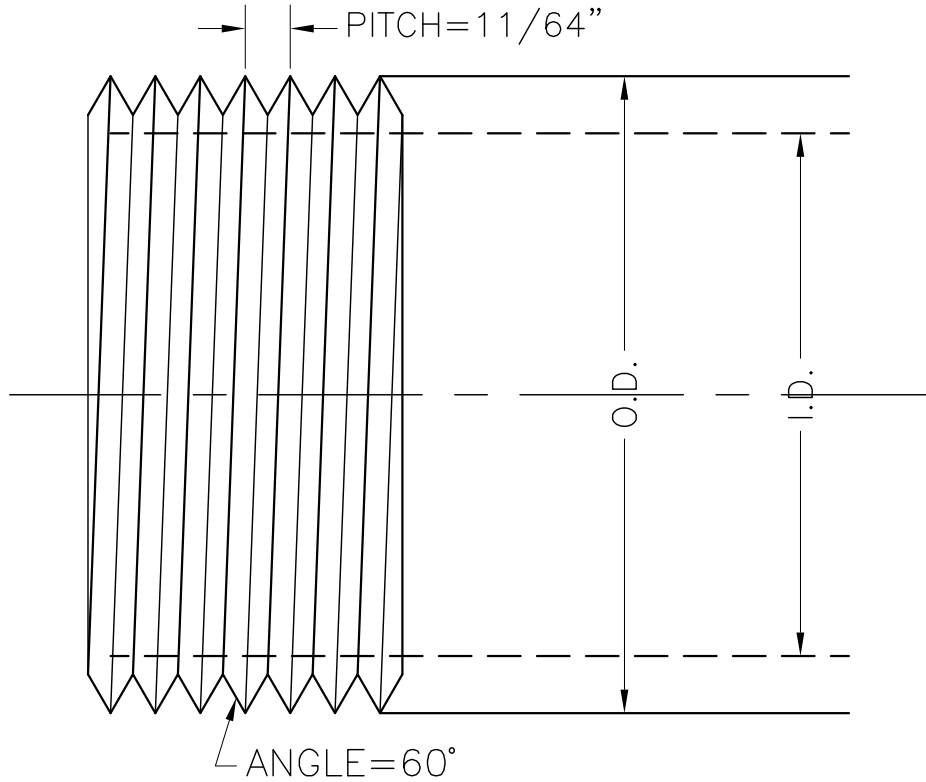
HYDRANT NOZZLE
DETAIL

NOMINAL NOZZLE SIZE	O.D.	I.D.
4" NOZZLE	4.875"	4.0"
2 1/2" NOZZLE	3.250"	2.5"

NOTE:
HIGBEE CUT, SHARP V,
6 THREADS PER INCH

RESTRAIN VALVE
FROM HYDRANT TO
MAIN LINE

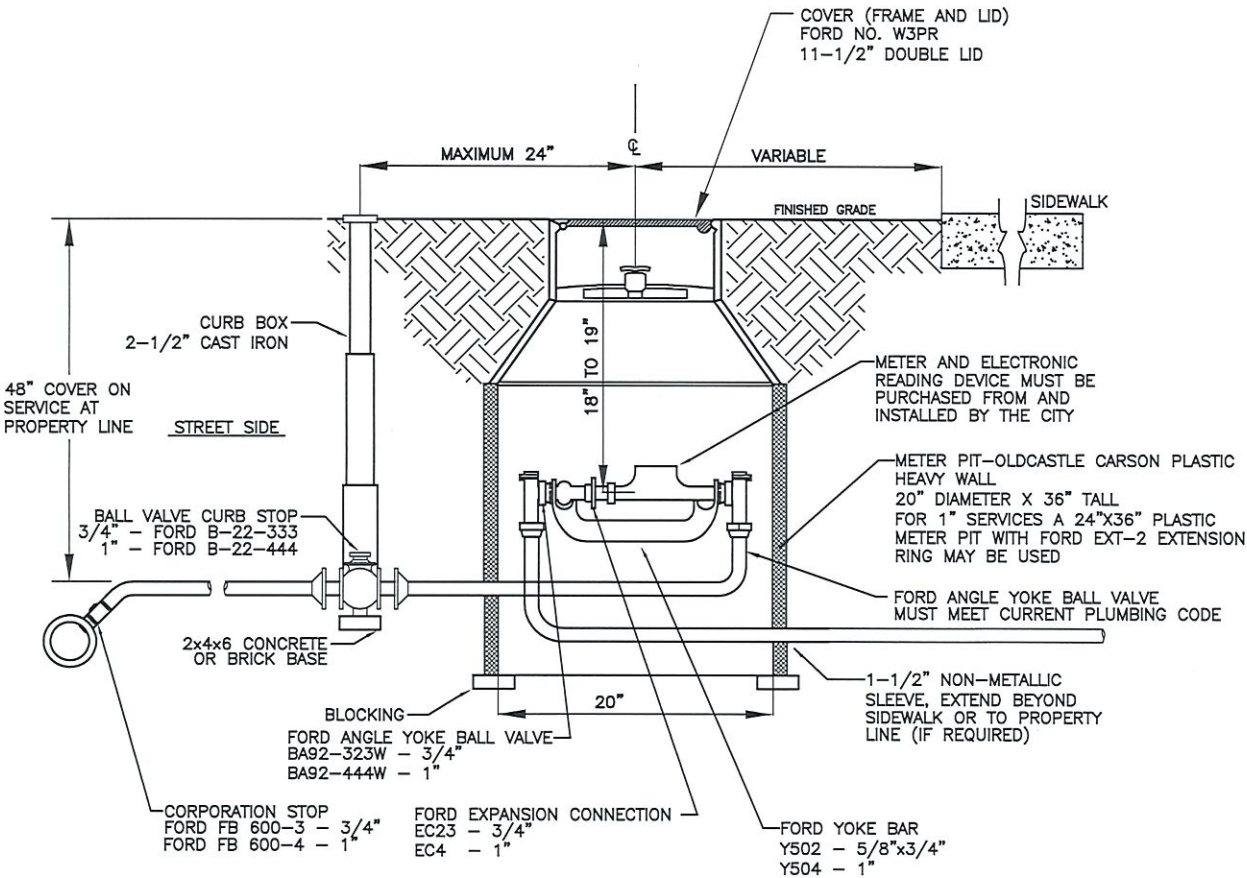
CITY OF SPRINGFIELD, OHIO SERVICE DEPARTMENT	
FIRE HYDRANT DETAIL	DATE JUL 98 JUN 21
STANDARD DRAWING FH-1	
APPROVED _____ CITY ENGINEER	



NOMINAL NOZZLE SIZE	O.D.	I.D.
4" NOZZLE	4.875"	4.0"
2 1/2" NOZZLE	3.250"	2.5"

NOTE:
HIGBEE CUT, SHARP V,
6 THREADS PER INCH

CITY OF SPRINGFIELD, OHIO SERVICE DEPARTMENT	
HYDRANT NOZZLE THREADS	DATE JUL 98 JUN 21
STANDARD DRAWING HN-1	
APPROVED _____	CITY ENGINEER

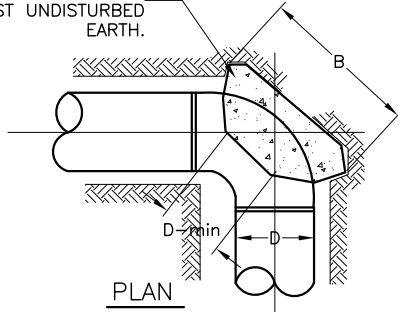


NOTES:

1. CURB STOP, CURB BOX AND METER PIT SHALL BE LOCATED BETWEEN THE CURB AND SIDEWALK. THEY SHALL NOT BE LOCATED IN A DRIVEWAY.
2. WATER METER SERVICE FEE MUST BE PAID BEFORE METER WILL BE INSTALLED.
3. WATER METER SETTING MUST BE PROPERLY INSTALLED AND FINAL PLUMBING INSPECTION COMPLETED BEFORE METER WILL BE INSTALLED AND SERVICE TURNED ON.
4. PLANS FOR LARGER THAN 1" SERVICES MUST BE SUBMITTED FOR APPROVAL.
5. ANY MCDONALD PARTS EQUAL TO FORD MAY BE SUBSTITUTED.
6. IF PLASTIC WATER SERVICE IS INSTALLED THE FOLLOWING APPLIES:
 - A) PACK JOINT ANGLE VALVE SHALL BE USED AND MUST BE FORD BA94-323W-NL OR APPROVED EQUAL
 - B) CURB STOPS SHALL BE FORD B33-333-TW-Q-NL OR APPROVED EQUAL
 - C) CORPORATION STOPS SHALL BE FORD FB100-3-TW-Q-NL OR APPROVED EQUAL
 - D) #12 TRACER WIRE SHALL BE LAID ALONG PLASTIC LINE FROM CORPORATION STOP TO CURB STOP
 - E) FRONT AND BACK RISERS WILL BE ABLE TO BE CROSSED.

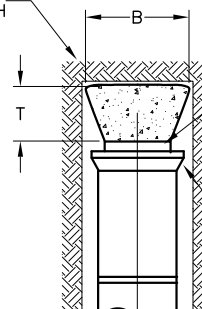
CITY OF SPRINGFIELD, OHIO SERVICE DEPARTMENT	
PROPERTY SERVICE WITH METER	DATE JAN 2003 DEC 2003 APR 2019 JUN 2021 NOV 2022
STANDARD DRAWING WM-1	
APPROVED _____	CITY ENGINEER

CLASS C CONCRETE
REACTION BLOCKING
AGAINST UNDISTURBED
EARTH.



PLAN

UNDISTURBED
EARTH

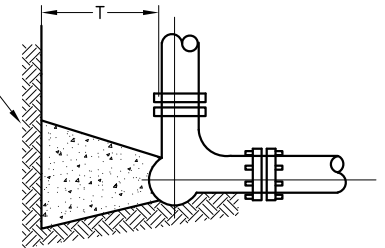


PLAN

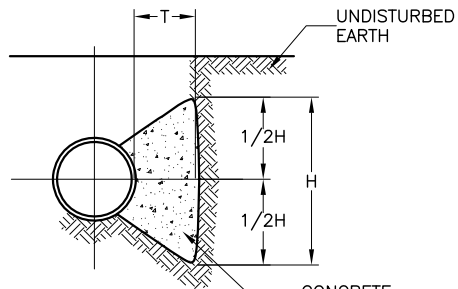
PLUG

WRAP END WITH
TAR PAPER OR
POLYETHELENE

UNDISTURBED
EARTH



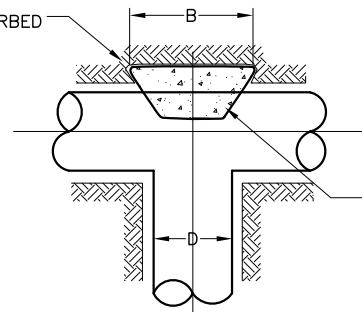
FIRE HYDRANT FOOT



SECTION

CONCRETE
BLOCKING

UNDISTURBED
EARTH



PLAN

CONCRETE
BLOCKING

THE DIMENSIONS SHOWN ARE MINIMUM REQUIREMENTS. CONDITIONS MAY REQUIRE THAT CONCRETE BLOCKING BE EXTENDED TO MAKE PROPER CONTACT WITH UNDISTURBED EARTH.

ALL JOINTS SHALL REMAIN ACCESSIBLE FOR REPAIRS.

RESTRAINED JOINT PIPE MAY BE USED AS AN ALTERNATE TO CONCRETE BLOCKING.

TWO LAYERS OF VISQUEEN SHALL BE PLACED AROUND ALL JOINTS AND HARDWARE PRIOR TO PLACING THE CONCRETE BLOCKING.

REACTION BLOCKING TABLE

SIZE (D)	BEND OR FITTING	B X H	T
6"	OUTLET, TEE, ALL BENDS, PLUG	2.5' X 2.5'	1.00'
8"	OUTLET, TEE, ALL BENDS, PLUG	3.5' X 3.5'	1.00'
12"	OUTLET, TEE, ALL BENDS, PLUG	4.5' X 4.5'	1.00'
16"	OUTLET, TEE, ALL BENDS, PLUG	5.5' X 5.5'	1.00'
24"	OUTLET, TEE, ALL BENDS, PLUG	7.25' X 7.25'	1.25'
30"	OUTLET, TEE, ALL BENDS, PLUG	8.5' X 8.5'	2.00'

CITY OF SPRINGFIELD, OHIO
SERVICE DEPARTMENT

WATER LINE BLOCKING
DETAILS

DATE
JUL 98
JUN 21

STANDARD DRAWING WB-1

APPROVED

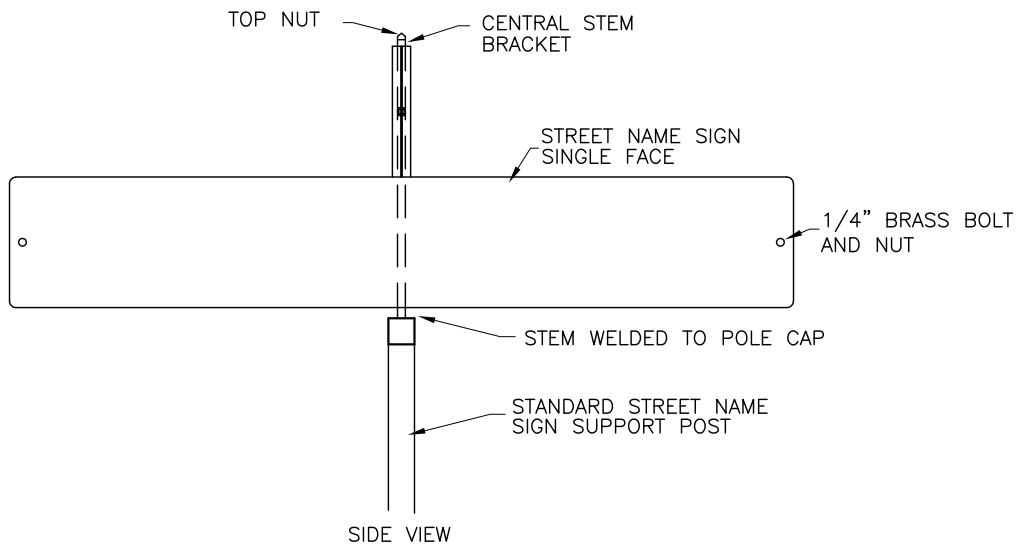
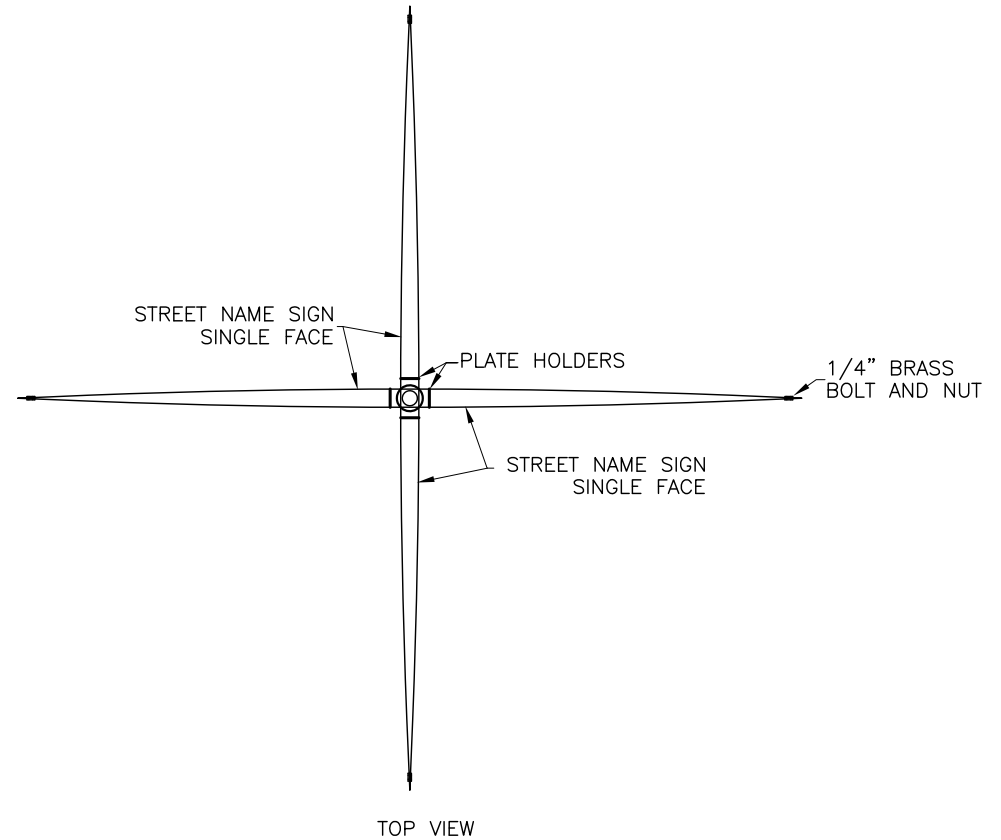
CITY ENGINEER

ITEM 630 SIGNING MISC.: STREET NAME SIGN, SINGLE FACE

1. STREET NAME SIGNS SHALL BE FLAT SHEET PANELS 9" HIGH BY A VARIABLE WIDTH DETERMINED BY THE LEGEND ON THAT SIGN. CONSTRUCTION SHALL BE PER ITEM 630 SIGNS, FLAT SHEET WITH TYPE "J" SHEETING.
2. THE SIGN SHALL BE MOUNTED ON THE CENTRAL STEM SIGN BRACKET AND ATTACHED AT EACH END TO THE MATCHING SIGN MOUNTED ON THE OPPOSITE SIDE OF THE STEM WITH A 0.25" BRASS BOLT AS PER 730.17.
3. STREET NAME SIGNS SHALL BE FABRICATED WITH 6" LETTERS AND NO BORDER.

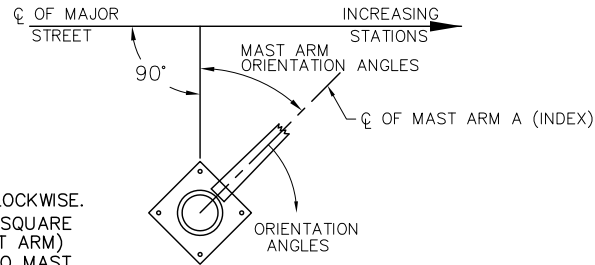
ITEM 630 STREET NAME SIGN SUPPORT

1. THE SUPPORT SHALL INCLUDE A CENTRAL STEM TYPE STREET NAME SIGN BRACKET (FOR 4-WAY INSTALLATION) WITH THE APPROPRIATE TOP NUT AND PLATE HOLDERS TO MOUNT FOUR (4) SINGLE SIDED STREET NAME SIGNS AND SHALL BE LYLE SIGNS INC. E-450 SERIES BRACKET. THE BRACKET SHALL BE BLACK.
2. LOCATIONS REQUIRING 6 SIGNS AND THEREFORE A LONGER CENTRAL STEM ARE SHOWN ON THE PLAN.



CITY OF SPRINGFIELD, OHIO SERVICE DEPARTMENT	
STREET NAME SIGN DETAIL	DATE JUL 98 JAN 03 JUN 21
STANDARD DRAWING SN-1	
APPROVED _____ CITY ENGINEER	

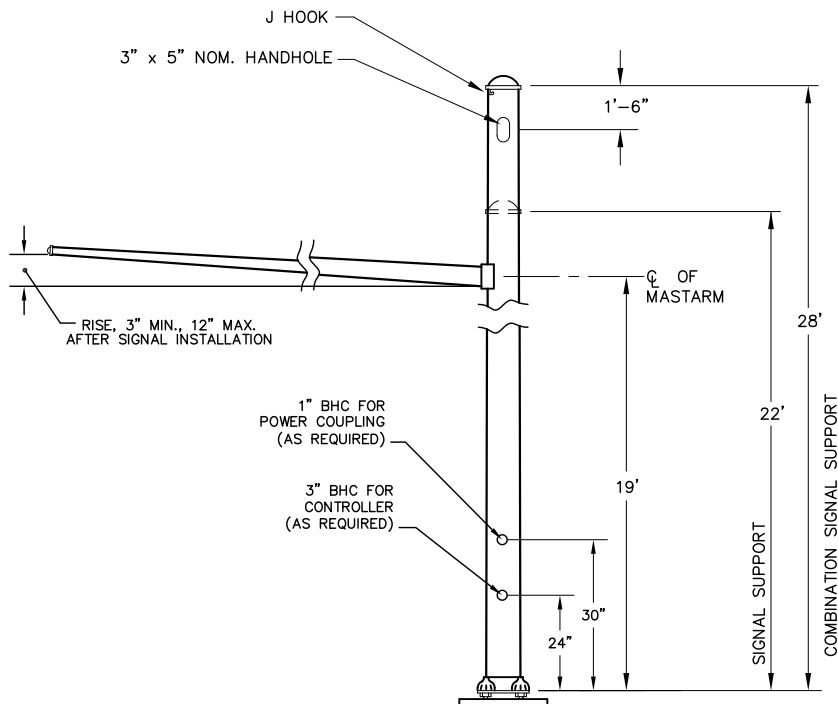
**MAST ARM ORIENTATION
REFERENCE DIAGRAM**



NOTES:

1. ALL ANGLES MEASURED CLOCKWISE.
2. BASE PLATE IS ORIENTED SQUARE TO MAST ARM A (LARGEST ARM) EVEN IF SUPPORT HAS TWO MAST ARMS.

SIGNAL SUPPORT DETAIL



SPECIAL NOTES

I. COMBINATION SUPPORTS

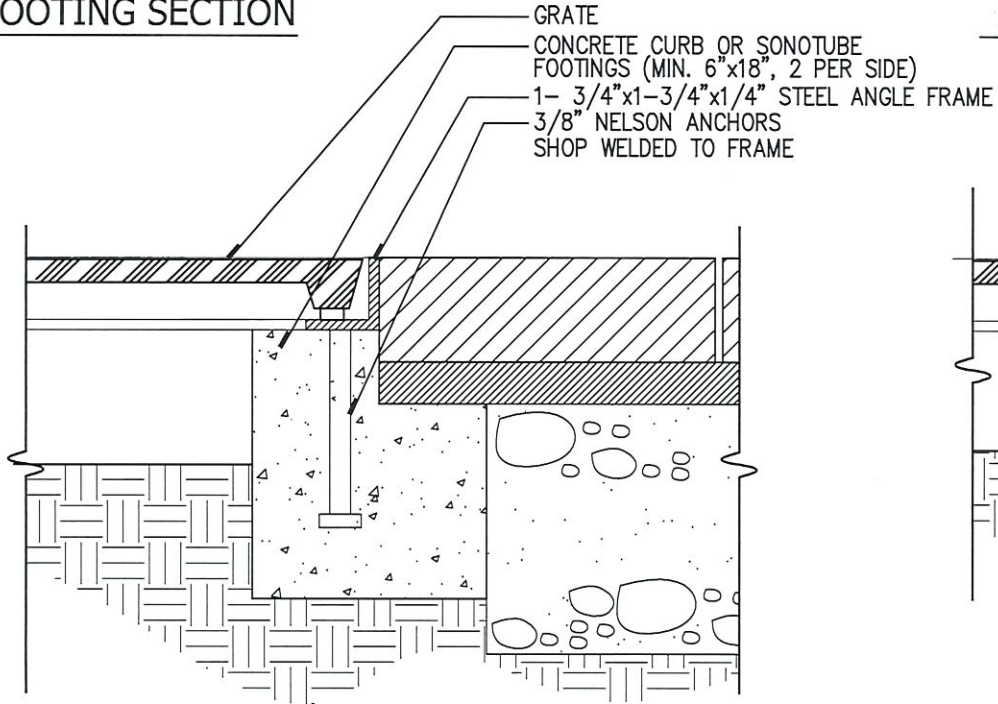
- A. CENTER OF 3"x5" HANDHOLE IS LOCATED 18" FROM TOP OF POLE

II. ALL SUPPORTS

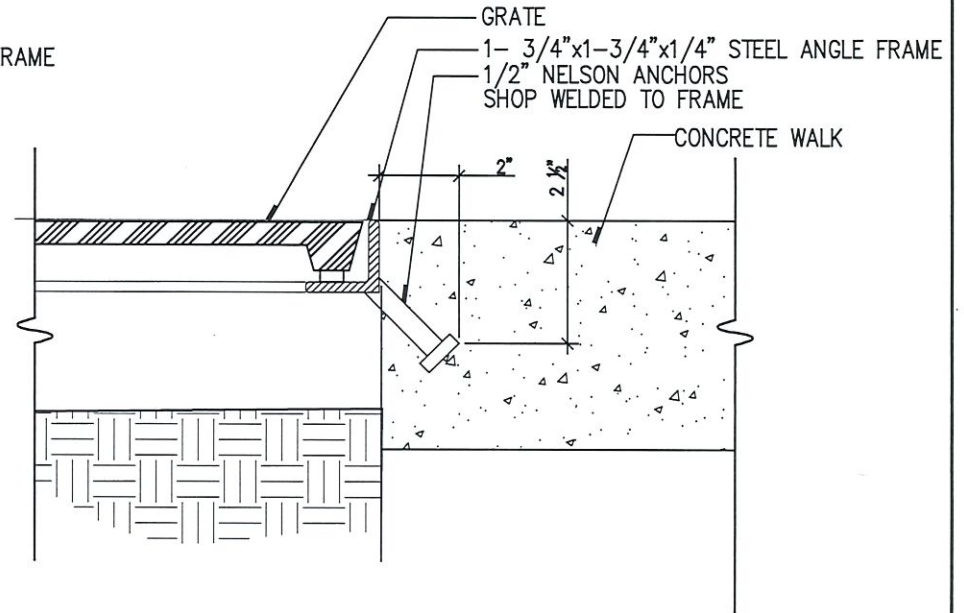
- A. BOTTOM OF SIGNAL HEADS SHALL BE 17' TO 19' ABOVE ROADWAY SURFACE AND RIGID MOUNTED WITH PELCO APPROVED BRACKET.
- B. TOP ELEVATIONS OF POLE FOUNDATION SHALL BE AT A HEIGHT SUFFICIENT TO ALLOW FOR DESIGN CLEARANCES AS NOTED FOR SIGNAL HEADS MOUNT ON MAST ARMS.
 - 1) THIS REQUIREMENT SHALL NOT SUPERCEDE PARAGRAPH 1 OF THIS REQUIREMENT AS IT PERTAINS TO SIGNAL HEIGHT STANDARDS.
- C. PEDESTRIAN SIGNAL BLIND HALF COUPLINGS SHALL BE DRILLED 20 INCHES CENTER TO CENTER IN A VERTICAL STRAIGHT LINE, WITH THE LOWER COUPLING 9 FEET FROM THE BOTTOM OF THE POLE BASE.
- D. ALL SIGNAL SUPPORTS AND MAST ARMS SHALL HAVE A BLACK POWDER COAT FINISH AS PER PROVISIONS OF ITEM 916, IN LIEU OF GALVANIZING.
- E. CONTACT OHIO EDISON ENGINEERING 937-327-1235 FOR POWER HOOK CONNECTION.

CITY OF SPRINGFIELD, OHIO SERVICE DEPARTMENT	
SIGNAL SUPPORT DETAIL	DATE JUL 98 APR 03 JUN 21
STANDARD DRAWING SS-1	
APPROVED _____	CITY ENGINEER

**BRICK SURFACE
FOOTING SECTION**



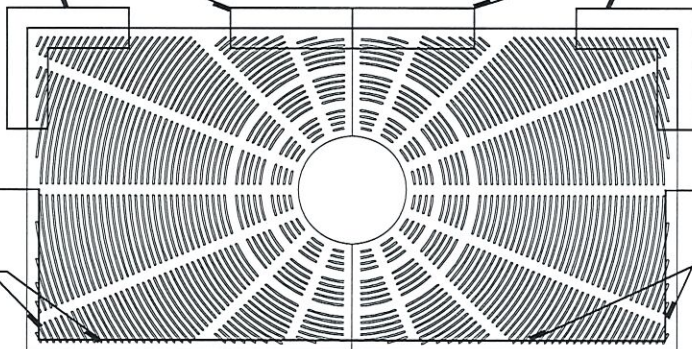
**CONCRETE SURFACE
FOOTING SECTION**



CONCRETE CURB OR
SONOTUBE FOOTING

CONCRETE CURB OR SONOTUBE
FOOTING

STEEL ANGLE FRAME



BRICK SURFACE

CONCRETE SURFACE

STEEL ANGLE FRAME

PLAN

CITY OF SPRINGFIELD, OHIO
SERVICE DEPARTMENT

**TREE GRATE
DETAIL**

DATE
SEPT 04
JUN 21

STANDARD DRAWING TG-1

APPROVED

CITY ENGINEER

CONCRETE CURB TYPE A OR
GRANITE CURB, 6"x15 1/4"

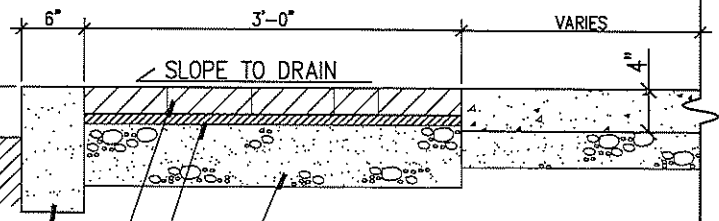
BRICK PAVERS
RUNNING BOND PATTERN

ADJACENT CONCRETE

6" 3'-0"
DESIGN A

PLAN

6" (UNLESS SPECIFIED OTHERWISE)



CONCRETE CURB TYPE A OR
GRANITE CURB, 6"x15 1/4"

BRICK PAVERS

1 1/2" #9 GRIT
VIBRATED INTO 6" OF 304 OR
9" OF 304 IN DRIVEWAYS

SUBGRADE

SECTION

CITY OF SPRINGFIELD, OHIO
SERVICE DEPARTMENT

CORE DISTRICT
SIDEWALK DETAIL

DATE
SEPT 04
DEC 08
JUN 21

STANDARD DRAWING SW-2

APPROVED _____ CITY ENGINEER

LIGHT FIXTURE AND POLE SCHEDULE		
DESCRIPTION	LAMPS	MOUNTING
ACORN STYLE STREET LIGHTING STANDARD MANUFACTURED BY STERNBERG. FIXTURE SHALL BE A850SR, WITH MODEL 5P FITTER AND 120/277V MULTI-TAP BALLAST. POLE SHALL BE MODEL FP, 5" DIAMETER STRAIGHT FLUTED, STRUCTURAL ALUMINUM WITH 0.188" MINIMUM WALL THICKNESS, WITH THE RICHMOND 3900 MODEL BASE. OPTIONAL ACCESSORIES SHALL INCLUDE DUAL 7/8" DIAMETER BANNER ARMS, BLACK FINISH OR DECORATIVE PLANTER ARM PA478, BLACK FINISH	XRLED 12L45T5-MDL21	POLE BASE

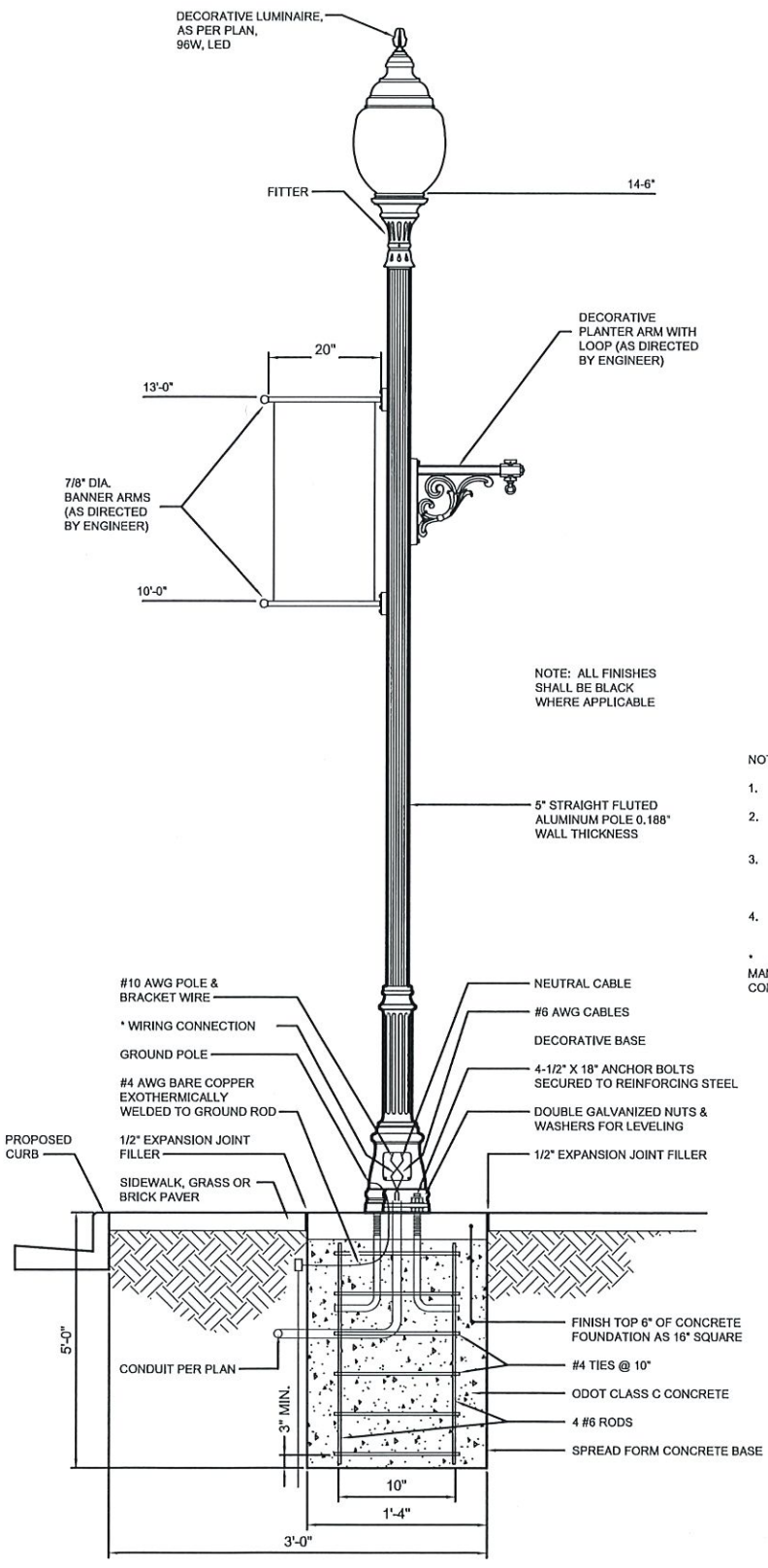
CITY OF SPRINGFIELD, OHIO
SERVICE DEPARTMENT

DATE
JUL 11
JAN 14
JUN 14
JUN 21

DECORATIVE STREET
LIGHT DETAIL

STANDARD DRAWING SL-1

APPROVED _____ CITY ENGINEER



NOTE: ALL FINISHES SHALL BE BLACK WHERE APPLICABLE

NOTES:

- 1 1/2" COVER REQUIRED OVER ALL REINFORCEMENT STEEL
 - SLOPE TOP OF BASE AS NEEDED TO MATCH SLOPE OF SIDEWALK WHERE APPLICABLE
 - THE CONTRACTOR SHALL USE EXTREME CARE WHEN EXCAVATING FOR THE LIGHT POLE FOUNDATIONS DUE TO THE PRESENCE OF UTILITIES IN THE AREA.
 - CONTRACTOR SHALL COORDINATED WITH THE CITY ENGINEER FOR FINAL LIGHT POLE LOCATIONS.
- * CONNECTORS SHALL BE A SLK DISCONNECT FUSE KIT MANUFACTURED BY IDEAL INDUSTRIES, INC. OR APPROVED EQUAL. CONNECTORS SHALL BE:
 IN-LINE FUSED (HOT)- #30-S1212
 IN-LINE NONFUSED (NEUTRAL)- #30-S1212N
 Y-TAP FUSED (HOT)- #30-S2212
 Y-TAP NONFUSED (NEUTRAL)- #S2212N