

**City of Lincoln Park  
1355 Southfield  
Lincoln Park, MI 48146**

**INVITATION TO BID FOR CITY SANITARY SEWER REHABILITATION AND  
MAINTENANCE SERVICES**

To whom it may concern:

The City of Lincoln Park is accepting sealed bids for City Sewer Maintenance Services. The City reserves the right to accept or reject any portion of bids. **The contract shall commence July 1, 2011 and continue for a term of three years.**

The purpose of this bid is to secure one or more companies to provide City sanitary sewer rehabilitation and maintenance services. The City reserves the right to reject any/or all bids and to accept/reject partial bids. The City reserves the right to split any/all bids. The bid award may not be based solely upon the lowest pricing, other factors such as references, equipment, qualifications, and the needs of the City may be considered.

**Insurance Requirements**

All successful bidders must provide the City of Lincoln Park with a certificate of insurance that meets all City of Lincoln Park requirements. Bidder must also provide all licenses as required by law.

**Subcontracting**

The Contractor shall not subcontract any or all portions of the work unless prior written approval is granted by the City. Any subcontractor, so approved, shall be bound by all the terms and conditions. If you plan to use a subcontractor, you must include that company's rates along with yours.

**Bidder Qualifications**

The following must be included in your bid:

1. Please include 3 references with current contact information on past and/or current accounts.
2. Include a list of equipment that will be used to complete assigned work.
3. Number of years in the business

To demonstrate qualifications to perform the Work, unless otherwise specified each Bidder must be prepared to submit within five days of Owner's or City's request written evidence of any information deemed necessary by the City for Bid evaluation, such as but not limited to financial data, previous experience, evidence of authority to conduct business in the jurisdiction where the Project is located, evidence of Bidder's qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the contract. Failure to submit any such data within the five days gives the Owner or the City the right to finally reject the Contractor's Bid.

# TABLE OF CONTENTS

## **SUBJECT**

### **PART I - BIDDING REQUIREMENTS**

### **PAGE NO.**

Invitation to Bid	AB-1
Instructions to Bidders	IB-1-5
Special Instructions to Bidders	SIB-1
Exhibit A: Proposal & Itemized Bid Sheets	A-1- 4

### **PART II - CONTRACT FORMS**

Agreement	AG-1-4
Exhibit B: Performance Bond	B-1-2
Exhibit C: Payment Bond	C-1-2
Exhibit D: Maintenance and Guarantee Bond	D-1-2
Contractor's Affidavit for Current Estimate	CA-1
Contractor's Affidavit for Final Estimate	CA-2

### **PART III - CONDITIONS OF THE CONTRACT**

Article 1	Definitions	GC-1-2
Article 2	Preliminary Matters	GC-3
Article 3	Contract Documents: Intent and Reuse	GC-4
Article 4	Availability of Lands; Physical Conditions; Reference Points	GC-5
Article 5	Bonds and Insurance	GC-6-10
Article 6	Contractor's Responsibility	GC-11-16
Article 7	Work by Others	GC-17
Article 8	Owner's Responsibility	GC-18
Article 9	Engineer's Status During Construction	GC-19-20
Article 10	Changes in Work	GC-21
Article 11	Change of Contract Price	GC-22-25
Article 12	Change of Contract Time	GC-26
Article 13	Warranty and Guarantee: Tests and Inspections; Correction, Removal or Acceptance of Work	GC-27-28
Article 14	Payments to Contractor and Completion	GC-29-32
Article 15	Suspension of Work and Termination	GC-33-34
Article 16	Blank	GC-35
Article 17	Miscellaneous	GC-36
Article 18	Blank	

**PART IV – PROPOSAL SPECIFICATIONS****PAGE NO.**

Summary of Requirements	PS-1-2
Required Contractor Information	PS-3-7
Evaluation Criteria	PS-8

**PART V – TECHNICAL SPECIFICATIONS****PAGE NO.**

Video Inspection	TS-2 - 4
Chemical Grout Testing and Sealing	TS-5 - 7
Chemical Sealing (Grouting Material)	TS-8 - 9
Sewer Pipe Joint Sealing, Main Sewers (Packer Method)	TS-10 - 11
Cured-In-Place Sectional Lining	TS-12 - 13
Manhole to Manhole Cured in Place Pipe (CIPP)	TS-14 - 18
Clean Out Installation	TS -19
Cured-In-Place Junction Line	TS-20 - 21

**PART I**  
**BIDDING REQUIREMENTS**

**INVITATION TO BID  
CITY OF LINCOLN PARK  
WAYNE COUNTY, MICHIGAN  
SANITARY SEWER REHABILITATION AND MAINTENANCE CONTRACT**

**The City of Lincoln Park is accepting proposals for the  
SANITARY SEWER REHABILITATION AND MAINTENANCE CONTRACT  
in the City of Lincoln Park, Wayne County, Michigan.**

The City of Lincoln Park is accepting proposals for contractors to provide Sanitary Sewer Rehabilitation and Maintenance Services on an as-needed basis for a period of three (3) years.

Bids will be received by:

Donna Breeding, City Clerk

At the offices of:

City of Lincoln Park

Municipal Office Building

1355 Southfield Road

Lincoln Park, Michigan 48146

**Until 3:00 p.m. (local time), Friday, May 13, 2011**

Bids shall be publicly opened and read at:

**7:30 p.m. (local time), Monday, May 16, 2011**

City of Lincoln Park

Municipal Office Building

1355 Southfield Road

Lincoln Park, Michigan 48146

**\*All bids should be sealed and clearly marked "City sanitary sewer rehabilitation and maintenance services". Also include the company name on the outside of any submittals.**

The Owner reserves the right to waive any informalities or to reject any and/or all bids.

No bidder may withdraw his bid within 90 days after the date of bid opening.

# **INSTRUCTIONS TO BIDDERS**

## **1. DEFINED TERMS**

Disputes of definitions of terms should be resolved as interpreted by the Engineer. The term "Successful Bidder" means the qualified Bidder but not necessarily the lowest Bidder to whom Owner (on the basis of Owner's evaluation) makes an award.

## **2. COPIES OF BIDDING DOCUMENTS**

2.1. Sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Advertisement or Invitation may be obtained from Engineer (unless another issuing office is designated in the Advertisement or Invitation to Bid).

2.2. Complete sets of Bidding Documents shall be used in preparing Bids. Every Bidder should check that every set the Bidder obtains from the Owner or Engineer is complete; neither Owner nor Engineer assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.3. Owner and Engineer in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

## **3. QUALIFICATIONS OF BIDDERS**

To demonstrate qualifications to perform the Work, each Bidder must be prepared to submit within five days of Owner's or Engineer's request written evidence of any information deemed necessary by the Engineer for Bid evaluation, such as but not limited to financial data, previous experience, evidence of authority to conduct business in the jurisdiction where the Project is located, evidence of Bidder's qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the contract. Failure to submit any such data within the five days gives the Owner or the Engineer the right to finally reject the Contractor's Bid.

## **4. EXAMINATION OF CONTRACT DOCUMENTS AND SITE**

4.1. Before submitting a Bid, each Bidder must (a) examine the Contract Documents thoroughly; (b) visit the site to familiarize himself with local conditions that in any manner affect cost, progress or performance of the Work; (c) familiarize himself with federal, state and local laws, ordinances, rules and regulations that may in any manner affect cost, progress or performance of the Work; and (d) study and carefully correlate Bidder's observations with the Contract Documents.

4.2. Reference may be made for the identification of those reports of investigations and tests of subsurface and latent physical conditions on the site or otherwise affecting cost, progress, or performance of the Work which have been relied upon by Engineer in preparing the Drawings and Specifications. Owner may make copies of such reports available to any Bidder requesting them. These reports are not guaranteed as to accuracy or completeness nor are they part of the Contract Documents. Before submitting his Bid each Bidder will, at his own expense, make sure additional investigations and tests as the Bidder may deem necessary to determine his Bid for performance of the Work in accordance with the time, place, and other terms and conditions of the Contract Documents.

4.3. On request, Owner will provide each Bidder access to the site to conduct investigations and tests as each Bidder deems necessary for submission of his Bid.

4.4. It is the responsibility of the Contractor to arrange for all lands other than the ones upon which the project will ultimately be constructed. Lands which the Contractor will be responsible to arrange include, but are not limited to, land necessary to get access to the project, land for storage of material and equipment, etc.

4.5. The submission of a Bid will constitute an incontrovertible representation by the Bidder that he has compiled with every requirement of this Article 4 and all other Contract Documents and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

## 5. INTERPRETATIONS

All questions about the meaning or intent to the Contract Documents shall be submitted to Engineer in writing. Replies, if any, may be issued if Engineer decides it to be in the interest of the project, by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Engineer reserves the right not to answer questions received less than ten days prior to the date for opening of Bids. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

## 6. BID SECURITY

6.1. Bid Security shall be made payable to Owner in an amount of five percent of the Bidder's maximum Bid price and in the form of a certified or bank check or a Bid Bond (on for attached if a form is prescribed) issued by a Surety meeting the requirements of paragraph 5.1 of the General Conditions.

6.2 The Bid Security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required Contract Security, whereupon it will be returned; if the Successful Bidder fails to execute and deliver the Agreement and furnish the required Contract Security with 10 days of the notice of Award, Owner may annul the Notice of Award and the Bid Security of that Bidder will be forfeited. The Bid Security of any Bidder whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of the fourteenth day after the "effective date of the Agreement" (which term is defined in the General Conditions) by Owner to Contractor and the required Contract Security is furnished or the ninety-first day after the Bid opening. Bid Security of other Bidders will be returned within fourteen days of the Bid opening.

## 7. CONTACT TIME

The number of days within which, or the date by which, the Work is to be completed (the Contract Time) is set forth in the Bid Form and will be included in the Agreement.

## 8. LIQUIDATED DAMAGES

Provisions for liquidated damages, if any, are set forth in the Agreement.

## 9. SUBSTITUTE MATERIAL AND EQUIPMENT

The Contract, if awarded, will be on the basis of material and equipment described in the Drawings of specified in the Specifications without consideration of possible substitute or "or-equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or-equal" item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the "effective date of the Agreement." The procedure for submittal of any such application by Contractor and consideration by Engineer is set forth in paragraph 6.7, 6.7.1 and 6.7.2 of the General Conditions, which may be supplemented in the General Requirements.

## 10. SUBCONTRACTORS, ETC.

10.1 If the Engineer requires the identity of certain Subcontractors and other person and organizations to be submitted to Owner in advance of the Notice of Award, the apparent Successful Bidder, and any other Bidder so requested, will within five days after the day of the Bid opening submit to Owner a list of

all Subcontractors and other persons and organizations (including those who are to furnish the principal items of material and equipment) proposed for those portions of the Work as to which such identification is so required.

Such list shall be accompanied by an experience statement with pertinent information as to similar projects and other evidence of qualifications for each such Subcontractor, person, and organization if requested by Owner. If Owner or Engineer has any objection to any proposed Subcontractor, other person or organization, either may, before giving the Notice of Award, request the apparent Successful Bidder to submit an acceptable substitute without an increase in Bid price. If the apparent Successful Bidder declines to make any such substitution, the contract shall not be awarded to such Bidder, but his declining to make any such substitution will not constitute grounds for sacrificing his Bid Security. After giving the Notice of Award, if the Owner or Engineer, after due investigation, has reasonable objection to any Subcontractor, other person or organization, either may request the Successful Bidder to provide an acceptable substitute without an increase in the contract price. In such a case, neither the Owner nor the Engineer would be liable for any damages or remedies of either the Contractor or the Subcontractor or any other said person or organization. It is the responsibility of the Contractor to inform the Subcontractor, or other person or organization, to the provision of the contract prior to the parties being contractually bound.

## 11. BID FORM

11.1. The Bid Form is attached hereto

11.2. Bid Forms must be completed in ink or by typewriter. The bid price of each item on the form must be stated in words and numerals; in case of a conflict, words will take precedence. However, if in the opinion of the Engineer, the conflict is a substantial one, then the Engineer has the full right to consider Contractor's Bid non-uniform and void and award the contract to another Bidder without the Engineer or Owner incurring any liability to the rejected Bidder.

11.3. Bids by corporations must be executed in the corporate name by the president or a vice president (or other corporate officer accompanied by evidence of authority to sign) and the corporate office must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

11.4 Bids by partnerships must be executed in the partnership name and signed by a partner whose title must appear under the signature, and the official address of the partnership must be shown below the signature.

11.5. All names must be typed or printed below the signature.

11.6. The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which shall be filled in on the Bid Form.

11.7. The address to which communications regarding the Bid are to be directed must be shown.

## 12. SUBMISSION OF BIDS

Bids shall be submitted at the time and place indicated in the Invitation to Bid and shall be included in an opaque sealed envelope marked with the Project title and name and address of the Bidder and accompanied by the Bid Security and other required documents. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face thereof.

## 13. MODIFICATION AND WITHDRAWAL OF BIDS

13.1. Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that



a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

13.2. If, within twenty-four hours after Bids are opened, any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of his Bid, that Bidder may withdraw his Bid and the Bid Security will be returned. Thereafter, that Bidder will be disqualified from further Bidding on the Work.

#### 14. OPENING OF BIDS

14.1. Bids will be opened Publicly, they will be read aloud and an abstract of the amounts of the base Bids and major alternates (if any) will be made available after the opening of Bids.

#### 15. BIDS TO REMAIN OPEN

All Bids shall remain open for ninety days after the day of the Bid opening, but the Owner may, in his sole discretion, release any Bid and return the Bid Security prior to that date.

#### 16. AWARD OF CONTRACT

16.1. Owner reserves the absolute right to reject any and all Bids, to waive any and all informalities and to negotiate contract terms with the Successful Bidder, and the right to disregard all nonconforming, non-responsive or conditional Bids. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. However, if in the opinion of the Engineer, the conflict is a substantial one, then the Owner has the full right to consider the Contractor's Bid non-uniform and void and award the contract to another Bidder without the Engineer or Owner incurring any liability to the rejected Bidder.

16.2. In evaluating Bids, Owner and Engineer shall consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements and alternates and unit prices if requested in the Bid Forms and any other consideration the Owner or Engineer deems pertinent. Owner may accept alternates in any order or combination.

16.3. Owner and/or Engineer may consider the qualifications and experience of Subcontractors and other person and organizations (including those who are to furnish the principal items of material or equipment) proposed for those portions of the Work as to which the identity of Subcontractors and other persons and organizations must be submitted as provided in Section 10 of Instructions to Bidders. Operating costs, maintenance considerations, performance data and guarantee of materials and equipment may also be considered by Owner and/or Engineer.

16.4. Owner and/or Engineer may conduct such investigations as they deem necessary to assist in the evaluations of any Bid and to establish the responsibility, qualifications, and financial ability of the Bidders, proposed Subcontractors and other persons and organizations to do the Work in accordance with the Contract Documents to Owner's satisfaction with the prescribed time.

16.5. Owner reserves the right to reject the Bid of any Bidder who does not pass any such evaluation to Owner's or Engineer's satisfaction.

16.6. If the contract is to be awarded, it will be awarded to the Bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the Project.

16.7. If the contract is to be awarded, Owner will give the Successful Bidder a Notice of Award within ninety days after the day of the Bid opening.

17. PERFORMANCE AND OTHER BONDS

Paragraph 5.1 of the General Conditions sets forth Owner's requirements as to Performance and other Bonds. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by the required Contract Security.

18. SIGNING OF AGREEMENT

When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by at least three unsigned counterparts of the Agreement and all other Contract Documents. Within ten days thereafter, Contractor shall sign and deliver at least three counterparts of the Agreement to the Owner with all other Contract Documents attached. Within fifteen days thereafter, Owner will deliver all fully signed counterparts to Contractor. Engineer will identify those portions of the Contract Documents not fully signed by Owner and Contractor and such identification shall be binding on all parties.

19. These Instructions to Bidders are incorporated in the Contract and made part thereof.

## **SPECIAL INSTRUCTIONS TO BIDDERS**

1. In accordance with Article 11, Section 11.9 of the Contract Documents, no change in contract unit price will be required if the actual quantity of work is, in general, within Twenty-five percent (25%) of the quantity indicated in the Contract Documents.
2. The City of Lincoln Park has a prevailing Wage Ordinance (#207-08) that must be followed for this project. Copies of the ordinance can be picked up at the office of the Director of Personnel and Purchasing at the Lincoln Park City Hall. The Contractor must submit certified payroll sheets to the City for the entire duration of the contract.
3. The City will be the sole judge to choose the method of rehabilitation for any specific section(s). The City may choose to award any portions of the work to any contractor and may at its option, elect to test several methods of rehabilitation.
4. The City reserves the right to evaluate all submissions based solely on the material included in the Bid Documents.
5. Evaluation and awarding of portion(s) of work rest solely with the City judging the best method and most beneficial to the scope of work required.
6. The City will or may award combination of work required to attain the best and most efficient results in cleaning and repairing the sewer system. Contractor with various capabilities, equipment, and established personnel shall be considered for this combined work.

**EXHIBIT A**  
**PROPOSAL**  
FOR  
**SANITARY SEWER REHABILITATION AND  
MAINTENANCE CONTRACT**

LINCOLN PARK, MICHIGAN

Bids will be Due on:

**Friday, May 13, 2011 at 3 p.m. local time**

Bids will be opened on:

**Monday, May 16, 2011 at 7:30 p.m. local time**

TO: City of LINCOLN PARK  
1355 Southfield Road  
LINCOLN PARK, Michigan 48146

Gentlemen: The undersigned has examined the plans, specifications, and locations of the above-described work and is fully informed as to the nature of the work and conditions relating to its performance and understands the quantities shown on the attached Itemized Bid Sheet are approximate only and are subject to either increases or decreases unless specifically mentioned otherwise in this Contract; the undersigned fully understands all the Contract Documents including but not limited to Article 5 (Bonds and Insurance) and Article 18 (Construction Follow Up) of the General Conditions.

The undersigned hereby proposes to furnish all necessary machinery, tools, equipment, and other means of construction to do all the work, furnish all materials, except as herein specified, and to complete the work in strict conformity with the requirements of the Proposal and Specifications, all at unit prices set forth in the Itemized Bid Sheet.

The undersigned further agrees, if awarded the contract, to deliver executed contract and bonds and furnish evidence of insurance within ten (10) days after the date of award.

The undersigned encloses a certified or cashiers check or bid bond in the amount of 5 percent of the bid payable to the order of the City of LINCOLN PARK of the County of Wayne, Michigan, as a guarantee of good faith and, if the contract is awarded to him, the undersigned agrees to forfeit as liquidated damages to the City of LINCOLN PARK, County of Wayne, Michigan, in the event of failure to enter into a contract and furnish satisfactory bonds to the City of LINCOLN PARK within ten (10) days after being notified of contract awarded.

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

Firm Name:\_\_\_\_\_

Telephone:\_\_\_\_\_

\_\_\_\_\_ All erasures or alterations must be initialed by the bidder.

## **REVIEW PROCESS**

If necessary, interviews may be held by the city and will be determined by a combination of the following:

1. Total services that can be provided to the City of Lincoln Park
2. Project experience in municipal work similar to the bid specifications of the City of Lincoln Park
3. Costs associated with services

Bids may be reviewed and evaluated by a “weighted” or scoring system. This system may include, but not limited to, experience, competency, ability, location, etc...

## **AWARD OF CONTRACT**

Owner reserves the absolute right to reject any and all bids, to waive any and all informalities and to negotiate contract terms with the Successful Bidder, and the right to disregard all nonconforming, non-responsive or conditional Bids. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. However, if in the opinion of the Engineer, the conflict is a substantial one, then the Owner has the full right to consider the Contractor's Bid non-uniform and void and award the contract to another Bidder without the Engineer or Owner incurring any liability to the rejected Bidder.

In evaluating Bids, Owner and Engineer shall consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements and alternates and unit prices if requested in the Bid Forms and any other consideration the Owner or Engineer deems pertinent. Owner may accept alternates in any order or combination.

Owner and/or Engineer may consider the qualifications and experience of Subcontractors and other person and organizations (including those who are to furnish the principal items of material or equipment) proposed for those portions of the Work as to which the identity of Subcontractors and other persons and organizations must be submitted as provided in Section 10 of Instructions to Bidders. Operating costs, maintenance considerations, performance data and guarantee of materials and equipment may also be considered by Owner and/or Engineer.

Owner and/or Engineer may conduct such investigations as they deem necessary to assist in the evaluations of any Bid and to establish the responsibility, qualifications, and financial ability of the Bidders, proposed Subcontractors and other persons and organizations to do the Work in accordance with the Contract Documents to Owner's satisfaction with the prescribed time.

Owner reserves the right to reject the Bid of any Bidder who does not pass any such evaluation to Owners or Engineer's satisfaction.

If the contract is to be awarded, it will be awarded to the Bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the Project.

If the contract is to be awarded, Owner will give the Successful Bidder a Notice of Award within ninety days after the day of the Bid opening.

## **SIGNING OF AGREEMENT**

When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by at least three unsigned counterparts of the Agreement and all other Contract Documents. Within ten days thereafter, Contractor shall sign and deliver at least three counterparts of the Agreement to the Owner with all other Contract Documents attached. Within fifteen days thereafter, Owner will deliver all fully signed counterparts to Contractor. Engineer will identify those portions of the Contract Documents not fully signed by Owner and Contractor and such identification shall be binding on all parties.

**SANITARY SEWER REHABILITATION AND MAINTENANCE CONTRACT**  
**LINCOLN PARK, MICHIGAN**  
**ITEMIZED BID SHEET - 1**

Page 1 of 3

ITEM	DESCRIPTION	ESTIMATED AMOUNT	UNIT	UNIT PRICE IN FIGURES	UNIT PRICE IN W
<b>PART I - Cleaning, Video Inspection &amp; Reaming</b>					
<b>A</b>	Flushing of sanitary sewers by high-pressure water jet.	1	FOOT		
<b>B</b>	Sanitary sewer close circuit video inspection (CCTV) including submission of digital data video report and DVD as specified. Sewer sizes 8" to 72"	1	FOOT		
<b>C</b>	Sanitary sewer calcite reaming with approved reamers. (1ft = 1 point)	1	FOOT		
1	Light – equal or less than 5% cross sectional area loss	1	FOOT		
2	Medium – greater than 5% and less than 20% cross sectional area loss	1	FOOT		
3	Heavy – greater than 20% cross sectional area loss	1	FOOT		
<b>D</b>	Sanitary sewer grease reaming/cutting with approved reamers and cutters	1	FOOT		
1	Light – equal or less than 5% cross sectional area loss	1	FOOT		
2	Medium – greater than 5% and less than 20% cross sectional area loss	1	FOOT		
3	Heavy – greater than 20% cross sectional area loss	1	FOOT		
<b>E</b>	Sanitary sewer roots reaming/cutting with approved reamers and cutters	1	FOOT		
1	Light – equal or less than 5% cross sectional area loss	1	FOOT		
2	Medium – greater than 5% and less than 20% cross sectional area loss	1	FOOT		
3	Heavy – greater than 20% cross sectional area loss	1	FOOT		
<b>F</b>	Reaming of protruding lateral (vitrified clay, concrete pipe) utilizing approved remote controlled robotic reamer with CCTV assistance.	1	Lateral		

**SANITARY SEWER REHABILITATION AND MAINTENANCE CONTRACT**  
**LINCOLN PARK, MICHIGAN**  
**ITEMIZED BID SHEET - 2**

Page 2 of 3

ITEM	DESCRIPTION	ESTIMATED AMOUNT	UNIT	UNIT PRICE IN FIGURES	UNIT PRICE IN WORDS
<b>PART II- Structural Spot Repair as determined by Engineer</b>					
<b>A</b>	Pipe point structural spot repair with cured-in-place pipe (inverted tube liner) as specified including: cleaning of sewer, pre and post video inspection DVD and report.				
<b>1.</b>	8" diameter – 3' to 10' length	1	EACH		
<b>2.</b>	8" diameter – 10' to 20' length	1	EACH		
<b>3.</b>	8" diameter – 20' to 30' length	1	EACH		
<b>4.</b>	10" diameter – 3' to 10' length	1	EACH		
<b>5.</b>	10" diameter – 10' to 20' length	1	EACH		
<b>6.</b>	10" diameter – 20' to 30' length	1	EACH		
<b>7.</b>	12" diameter – 3' to 10' length	1	EACH		
<b>8.</b>	12" diameter – 10' to 20' length	1	EACH		
<b>9.</b>	12" diameter – 20' to 30' length	1	EACH		
<b>10.</b>	15" diameter – 3' to 10' length	1	EACH		
<b>11.</b>	15" diameter – 10' to 20' length	1	EACH		
<b>12.</b>	15" diameter – 20' to 30' length	1	EACH		
<b>13.</b>	18" diameter – 3' to 10' length	1	EACH		
<b>14.</b>	18" diameter – 10' to 20' length	1	EACH		
<b>15.</b>	18" diameter – 20' to 30' length	1	EACH		
<b>16.</b>	21" diameter – 3' to 10' length	1	EACH		
<b>17.</b>	21" diameter – 10' to 20' length	1	EACH		
<b>18.</b>	21" diameter – 20' to 30' length	1	EACH		
<b>19.</b>	24" diameter – 3' to 10' length	1	EACH		
<b>20.</b>	24" diameter – 10' to 20' length	1	EACH		
<b>21.</b>	24" diameter – 20' to 30' length	1	EACH		



**SANITARY SEWER REHABILITATION AND MAINTENANCE CONTRACT  
LINCOLN PARK, MICHIGAN  
ITEMIZED BID SHEET - 3**

Page 3 of 3

ITEM	DESCRIPTION	ESTIMATED AMOUNT	UNIT	UNIT PRICE IN FIGURES	UNIT PRICE IN
<b>PART III - Sanitary Sewer Lateral Cleaning &amp; Repairs</b>					
<b>A</b>	Lateral sewer close circuit video inspection (CCTV) including submission of digital data video report through main line sewer and DVD as specified.	1	FOOT		
<b>B</b>	Installation of 6" diameter inverted type CIPP lateral liner (up to 33' in length ) from mainline sewer, including vacuum excavation and installation of a clean-out to surface. Preparatory work of cleaning and removal of debris in lateral and temporary restoration of disturbed surface to be included.	1	FOOT		
<b>PART IV - Sanitary Sewer Joint Testing &amp; Sealing</b>					
<b>A</b>	Sanitary sewer pipe joint sealing with approved sealant including all testing and removal of excess grout.	1	JOINT		
<b>PART V - Structural CIPP Lining (Fully Deteriorated)</b>					
<b>A</b>	Manhole to Manhole CIPP Lining for 8" diameter mains	1	FOOT		
<b>B</b>	Manhole to manhole CIPP Lining for 10" diameter mains	1	FOOT		
<b>C</b>	Manhole to Manhole CIPP Lining for 12" diameter mains	1	FOOT		
<b>D</b>	Manhole to manhole CIPP Lining for 15" diameter mains	1	FOOT		
<b>E</b>	Manhole to Manhole CIPP Lining for 18" diameter mains	1	FOOT		
<b>F</b>	Manhole to manhole CIPP Lining for 21" diameter mains	1	FOOT		



# **PART II**

# **FORMS**

# AGREEMENT

**THIS AGREEMENT** is dated as of the \_\_\_\_\_ day of \_\_\_\_\_

in the year 20\_\_\_\_\_ by and between the **THE CITY OF LINCOLN PARK** \_\_\_\_\_

hereinafter called OWNER, and \_\_\_\_\_

hereinafter called CONTRACTOR. WHEREAS OWNER AND CONTRACTOR, in

consideration of the mutual covenants hereinafter set forth, agree as follows:

## Article 1. WORK

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

### **SANITARY SEWER REHABILITATION AND MAINTENANCE CONTRACT**

## Article 2. ENGINEER

The project has been designed by Hennessey Engineers, Inc., 2674 West Jefferson Avenue, Suite 200. Trenton, Michigan 48183, which is hereinafter called ENGINEER, which will have the right and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

## Article 3. CONTRACT TIME

3.1. The contract shall be for a period of two (2) years from the effective date of the agreements as defined in Article 2 of the General Conditions. Either the OWNER or CONTRACTOR may terminate the contract for any reason upon thirty (30) days written notice.

3.2. The completion time for the specific projects completed by the CONTRACTOR in the time frame of the agreement will be determined by the OWNER and ENGINEER at the time that the work is authorized.

Liquidated Damages for the specific property will also be determined by the OWNER and ENGINEER at the time that the work is authorized.

## Article 4. CONTRACT PRICE

Owner shall pay CONTRACTOR for performance of the Work in accordance with the Contract Documents in current funds as shown in Exhibit A - Proposal.

## Article 5. PAYMENT PROCEDURES

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions. CONTRACTOR is to use AIA Document G-702 for all Applications for Payment.

5.1. Progress Payments. OWNER shall make progress payments on account of the Contract Price on the basis on CONTRACTOR'S Applications for Payment as recommended by ENGINEER about 35 days after submittal of pay request by CONTRACTOR. Progress payments will be on the basis of the progress of the Work, the amount of which will be decided by the ENGINEER. Progress payments will be made in accordance with State Act 524.

5.2. Final Payment. Upon final completion and acceptance of the Work in accordance with paragraph 14.13 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said paragraph 14.13.

## Article 6. CONTRACTOR'S REPRESENTATIONS

In order to induce OWNER to enter into this Agreement, CONTRACTOR makes the following representations:

6.1. Whenever anywhere in these Contract Documents insurance is required, the name of the Owner and the name of Hennessey Engineers, Inc., 2674 W. Jefferson Avenue, Suite 200, Trenton, Michigan 48183, shall be added as additional names insured.

6.2. CONTRACTOR has fully and completely familiarized himself with the nature and extent of the Contract Documents, Work, locality, and with all local conditions and federal, state, and local laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the Work.

6.3. CONTRACTOR has studied carefully all reports of investigation and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which were relied upon by ENGINEER in the preparation of the Drawings and Specifications and which have been identified in the Supplementary Conditions.

6.4. CONTRACTOR has fully and completely made or caused to be made at CONTRACTOR'S expense, examinations, investigations, tests and studies of data, in addition to those referred to in paragraph 6.3 of the Agreement, including, but not limited to, subsurface conditions, soil and underground strength conditions, whether latent or not, and any underground utility structures or obstacles and any other data that may possibly be deemed pertinent to the performance of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, and any additional examinations, investigations, tests, reports or similar data as will be required by CONTRACTOR's agent at CONTRACTOR's expense. Such work should be considered incidental to the Contract Price.

6.5. CONTRACTOR has correlated the results of all such observations, examinations, investigations, tests, reports, and data with the terms and conditions of the Contract Documents.

6.6. CONTRACTOR has given the ENGINEER written notice of all conflicts, errors, discrepancies that he has discovered in the Contract Documents and the written resolution thereof by the ENGINEER is acceptable to the CONTRACTOR.

6.7. The CONTRACTOR accepts all risk directly or indirectly connected with the performance of the Contract.

6.8. The CONTRACTOR warrants that he has not been influenced by an oral statement or promise of the OWNER or the ENGINEER, but only by the Contract Documents.

## Article 7. CONTRACT DOCUMENTS

The Contract Documents which comprise the entire Agreement between OWNER and CONTRACTOR are attached to this Agreement, made a part thereof, and consist of the following:

7.1. This Agreement (pages 1 through 5 inclusive).

7.2. Exhibit A: Proposal and Itemized Bid Sheet.

7.3. All bonds identified as Exhibit B - Performance Bond, Exhibit C - Payment Bond, and Exhibit D - Maintenance and Guarantee Bond. The bonds will be required as work is authorized.

7.4. Notice of Award.

7.5. General Conditions.

7.6. Instructions to Bidders.

7.7. Special Provisions bearing the title:

### **SANITARY SEWER REHABILITATION AND MAINTENANCE CONTRACT**

and consisting of \_\_\_ pages, as listed in the Table of Contents thereof.

7.8. Drawings numbered \_\_\_\_\_ inclusive each bearing the following general title:

### **SANITARY SEWER REHABILITATION AND MAINTENANCE CONTRACT**

and Standard Drawings for: \_\_\_\_\_ numbered: \_\_\_\_\_

7.9. Addenda Numbers \_\_\_\_\_ to \_\_\_\_\_ Inclusive.

7.10. CONTRACTOR's Bid (pages \_\_\_ to \_\_\_ inclusive) marked Exhibit \_\_\_ (attach bid form only in special circumstances).

7.11. Documentation submitted by CONTRACTOR prior to Notice of Award (pages \_\_\_ to \_\_\_ inclusive).

7.12. Any modification, including Change Orders, duly delivered after execution of Agreement.

There are no Contract Documents other than those listed above in Article 7 of this Agreement. The Contract Documents may only be altered, amended or repealed by a Modification (as defined in Section 1 of the General Conditions).

## Article 8. MISCELLANEOUS

8.1. Terms used in this Agreement which are defined in Article 1 of the General Conditions shall have the meanings indicated in the General Conditions.

8.2. No assignment by the CONTRACTOR hereto of any rights under or interest in the Contract Documents will be binding on the OWNER hereto without the written consent of the part sought to be bound; and specifically any not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law); and unless specifically stated to the contrary in any written consent to an agreement, no assignment will release or discharge the CONTRACTOR from any duty or responsibility under the Contract Documents.

8.3. OWNER and CONTRACTOR each binds himself, his partners, successors, assigns, and legal representatives to the other party hereto, his partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

#### Article 9. RESOLVING CONFLICTS

In resolving conflicts, errors, and discrepancies, the documents shall be given precedence in the following order: Agreement, Modification, Addenda, Supplementary Conditions, Instructions to Bidders, General Conditions, Special Provisions, Supplemental Specifications, Project Technical Specifications, Project Plan and Drawings, Standard Plans, Standard Specifications and Standard Notes. Figure dimensions on Drawings shall govern over scale dimensions, and detailed Drawings shall govern over general Drawings.

IN WITNESS WHEREOF, the parties hereto have signed this Agreement in triplicate. One counterpart each has been delivered to OWNER, CONTRACTOR, and ENGINEER. All parties of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or by ENGINEER or their behalf.

This Agreement will be effective on \_\_\_\_\_, 20\_\_\_\_\_.

OWNER **CITY OF LINCOLN PARK**

CONTRACTOR \_\_\_\_\_

By: \_\_\_\_\_  
(CORPORATE SEAL)

By: \_\_\_\_\_  
(CORPORATE SEAL)

Attest \_\_\_\_\_

Attest \_\_\_\_\_

Attest \_\_\_\_\_

Attest \_\_\_\_\_

Address for giving notices:

Address for giving notices:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Telephone: \_\_\_\_\_

Telephone: \_\_\_\_\_

# EXHIBIT B - PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

\_\_\_\_\_  
(Name of Contractor)

\_\_\_\_\_  
(Address and Telephone Number of Contractor)

a \_\_\_\_\_,  
(Corporation, Partnership, or Individual)

Hereinafter called Principal, and \_\_\_\_\_,  
(Name of Surety)

\_\_\_\_\_  
(Address and Telephone Number of Surety)

hereinafter called Surety, are held and firmly bound unto:

\_\_\_\_\_  
(Name of Owner)

\_\_\_\_\_  
(Address and Telephone Number of Owner)

hereinafter called Owner, in the penal sum of \_\_\_\_\_ Dollars,  
(\$\_\_\_\_\_) in lawful money of the United States, for the payment of which sum well and  
truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and  
severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas the Principal entered into a certain  
Contract with the Owner, dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_, a  
copy of which is hereto attached and made a part hereof for the construction of:

## **SANITARY SEWER REHABILITATION AND MAINTENANCE CONTRACT**

NOW THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the  
undertakings, covenants, terms, conditions and agreements of said Contract, including any change  
of Work which may be required by Owner, with or without notice to the Surety, during the original  
term thereof, any extensions thereof which may be granted by the Owner, with or without notice to  
the Surety, including any change of Work which may be required by Owner, with or without notice to  
the Surety, and if he shall satisfy all claims and demands incurred under such Contract, and shall  
fully indemnify and save harmless the Owner from all costs and damages which it may suffer by  
reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which  
the Owner may incur in making good any default, then this obligation shall be void; otherwise to  
remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that  
no change, extension of time, alteration, or addition to the terms of the Contract or to work to be  
performed there under or the specifications accompanying the same shall in any way affect its  
obligation on this bond, and it does hereby waive notice of any such change, extension of time,  
alteration or addition to the terms of the Contract or to the work or to the specifications.



PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in six (6) counterparts, each one of which shall be deemed an original, this the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

ATTEST:

Principal

\_\_\_\_\_  
(Principal) Secretary

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

(SEAL)

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(Witness as to Principal)

\_\_\_\_\_

\_\_\_\_\_  
(Address)

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

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

\_\_\_\_\_  
Surety

ATTEST:

\_\_\_\_\_  
(Surety) Secretary

By: \_\_\_\_\_  
Attorney-In-Fact

(SEAL)

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(Address)

\_\_\_\_\_

\_\_\_\_\_

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

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

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is Partnership, all Partners should execute Bond.

## EXHIBIT C - PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

\_\_\_\_\_  
(Name of Contractor)

\_\_\_\_\_  
(Address and Telephone Number of Contractor)

a \_\_\_\_\_,  
(Corporation, Partnership, or Individual)

Hereinafter called Principal, and \_\_\_\_\_,  
(Name of Surety)

\_\_\_\_\_  
(Address and Telephone Number of Surety)

hereinafter called Surety, are held and firmly bound unto:

\_\_\_\_\_  
(Name of Owner)

\_\_\_\_\_  
(Address and Telephone Number of Owner)

hereinafter called Owner, in the penal sum of \_\_\_\_\_

Dollars, (\$\_\_\_\_\_) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas the Principal entered into a certain Contract with the Owner, dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_, a copy of which is hereto attached and made a part hereof for the construction of:

### **SANITARY SEWER REHABILITATION AND MAINTENANCE CONTRACT**

NOW THEREFORE, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such contract, and any authorized extensions or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such work, and all insurance premiums on said work, and for all labor, performed in such work whether by subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the Contract or to work to be performed there under or the specifications accompanying the same shall in any way affect its

obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in six (6) counterparts, each one of which shall be deemed an original, this the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

ATTEST:

Principal \_\_\_\_\_

\_\_\_\_\_  
(Principal) Secretary

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

(SEAL)

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(Witness as to Principal)

\_\_\_\_\_

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(Surety)

ATTEST:

\_\_\_\_\_  
(Surety) Secretary

\_\_\_\_\_  
By: Attorney-In-Fact

(SEAL)

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(Address)

\_\_\_\_\_

\_\_\_\_\_

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

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

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is Partnership, all Partners should execute Bond.

**EXHIBIT D**

**MAINTENANCE AND GUARANTEE BOND**

KNOW ALL MEN BY THESE PRESENTS: that

\_\_\_\_\_, Contractor, as Principal, and

\_\_\_\_\_, as Surety,

are held and firmly bound into the \_\_\_\_\_

HEREINAFTER CALL THE Owner, in the sum of

\_\_\_\_\_ Dollars

(\$\_\_\_\_\_) good and lawful money of the United States of America, to be paid to said Owner, its legal representatives and assigns, for which payment well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, and each and every one of them jointly and severally firmly by these presents.

WHEREAS, the above named Principal has entered into a certain written Contract with the Owner, dated the \_\_\_\_\_ day of \_\_\_\_\_ A.D., 200\_\_\_\_, for construction of work entitled:

**SANITARY SEWER REHABILITATION AND MAINTENANCE CONTRACT**

(Hereinafter called the Contract). Which Contract and Specifications for said Work shall be deemed a part herein as fully as if set out herein.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION ARE SUCH, that by and under said Contractor, the above named Principal has agreed with the Owner that for a period of (\_\_\_\_\_) years from the date of final payment to keep in good order and repair any defect in all the work done under said Contract either by the Principal or his Subcontractor, or his material suppliers, that may develop during said period due to improper materials, defective equipment, workmanship or arrangements, and any other work affected in making good such imperfections, shall also be made good, all without expense to the Owner and that whenever directed so to do by the Owner by notice served in writing, either personally or by mail on the Principal at:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

OR

legal representatives, or successors, or on the Surety at:

\_\_\_\_\_

WILL PROCEED at once to make such repairs as directed by said OWNER and in case of failure to do so within one week from the date of service of such notice, or within reasonable time not less than one week, as shall be fixed in said notice, then the OWNER shall have the right to purchase such materials and employ such labor and equipment as may be necessary for the purpose, and to undertake, do and make such repairs, and charge the expense thereof to, and receive same from said Principal or Surety. If any repair is necessary to be made at once to protect life and property, then and in that case, the OWNER may take immediate steps to repair or barricade such defects without notice to the Contractor. In above accounting the OWNER shall not be held to obtain the lowest figures for the doing of the work, or any part thereof, but all sums actually paid therefore shall be charged to the Principal or Surety. In this connection, the judgment of the OWNER or ENGINEER is final and conclusive. If the said Principal for a period of (\_\_\_\_\_) years from the date of final payment shall keep said work so constructed under said Contract in good order and repair and shall whenever notice is given as hereinbefore specified, at once proceed to make repair as in said notice directed, or shall reimburse said OWNER for any expense incurred by making such repairs, should the Principal or Surety fail to do as hereinbefore specified, and shall fully indemnify, defend and save harmless the OWNER from all suits and actions for damages of every name and description brought or claimed against it for or on account of any injury or damage to person or property received or sustained by any party or parties by or from any of the acts or omissions or through the negligence of said Principal, servants, agents, or employees, in the prosecution of the work included in said Contract, then the above obligation shall be void, otherwise to remain in full force and effect. The Engineer's opinion as to whether the work performed is in good order and repair should be final.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed by their respective authorized officers this \_\_\_\_\_ day of \_\_\_\_\_ A.D., 20\_\_\_\_\_.

Signed, Sealed and Delivered  
in the Presence of:

\_\_\_\_\_  
Principal (Seal)

\_\_\_\_\_  
Surety (Seal)

# CONTRACTOR'S AFFIDAVIT

## Current Estimate

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

The undersigned, \_\_\_\_\_,  
Hereinafter called the Contractor, hereby represents that on \_\_\_\_\_,  
\_\_\_\_\_ he/it was awarded a Contract by  
\_\_\_\_\_

hereinafter called the Owner, to \_\_\_\_\_,

in accordance with the terms and conditions of Contract No. \_\_\_\_\_; and the undersigned further represent that all progress payments heretofore received from the Owner on account of the Work have been applied by the Contractor to discharge in full all of the Contractor's obligations incurred in connection with the Work by all prior estimates.

This affidavit is freely and voluntarily given with full knowledge of the facts, on this  
\_\_\_\_\_ day of \_\_\_\_\_ A.D., 20\_\_\_\_\_.

\_\_\_\_\_  
Contractor

By \_\_\_\_\_

\_\_\_\_\_  
Title

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_,  
in the year of our Lord, 20\_\_\_\_\_.

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

My Commission expires on: \_\_\_\_\_

# CONTRACTOR'S AFFIDAVIT

## Final Estimate

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

The undersigned, \_\_\_\_\_ hereby represents  
that on \_\_\_\_\_, he/it was awarded a Contract by  
\_\_\_\_\_, hereinafter called the Owner, to  
\_\_\_\_\_

in accordance with the terms and conditions of Contract No. \_\_\_\_\_; and the undersigned further represent that the subject work has now been accomplished, and the said Contract has now been completed.

The undersigned hereby warrants and certifies that all of his (its) indebtedness arising by reason of the said Contract has been fully paid or satisfactorily secured; and that all claims from subcontractors and others for labor and material used in accomplishing said project, as well as all other claims arising from the performance of the said Contract, have been fully paid or satisfactorily settled. The undersigned further agrees that, if any such claim should hereafter arise, he (it) shall assume responsibility for the same immediately upon request to do so by the Owner.

The undersigned, for a valuable consideration, the receipt of which is hereby acknowledged, does further hereby waive, release, and relinquish any and all claims or right of lien which the undersigned has or may hereafter acquire upon the subject premises for labor and material used in accomplishing said project owned by the Owner.

This affidavit is freely and voluntarily given with full knowledge of the facts, on this \_\_\_\_\_ day of \_\_\_\_\_ A.D., 20\_\_\_\_\_.

\_\_\_\_\_  
Contractor

By \_\_\_\_\_

\_\_\_\_\_  
Title

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_,  
in the year of our Lord, 20\_\_\_\_\_.

\_\_\_\_\_  
Notary Public  
My Commission expires on: \_\_\_\_\_

## **PART III**

### **CONDITIONS OF THE CONTRACT**



## GENERAL CONDITIONS

### ARTICLE 1: DEFINITIONS

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

**Addenda:** Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the bidding documents or the Contract Documents.

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

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

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

**Bonds:** Bid, performance and payment bonds and other instruments of security submitted on forms as required by Contract Documents.

**Change Order:** A written order to **CONTRACTOR** signed by **OWNER** authorizing an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time issued after the effective date of the Agreement.

**Contract Documents:** The Agreement, Addenda (which pertain to the Contract Documents), **CONTRACTOR's** Bid (including documentation accompanying the Bid and any post-Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications, the Drawings as the same are more specifically identified in the Agreement, together with all Modifications issued after the execution of the Agreement and the Instructions to Bidders.

**Contract Price:** The moneys payable by **OWNER** to **CONTRACTOR** under the Contract Documents as stated in the Agreement.

**Contract Time:** The number of calendar days (computed as provided in paragraph 17.2) of the date stated in the Agreement for the completion of the Work.

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

**day:** A calendar day of twenty-four hours measured from midnight to the next midnight.

**defective:** An adjective which when modifying the word Work refers to Work that is unsatisfactory, faulty or deficient, or does not conform to the Contract Documents or does not meet the requirements of any inspection, test, or approval referred to in the Contract Documents, or has been damaged prior to **ENGINEER's** recommendation of final payment.

**Drawings:** The drawings which show the character and scope of the Work to be performed and are referred to in the Contract Documents.

**effective date of Agreement:** The date indicated in the Agreement on which it becomes effective; but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

**ENGINEER:** The person, firm, or corporation named as such in the Agreement.

**General Requirements:** Section of Division 1 of the Specifications.

**Modification:** (a) A written amendment of the Contract Documents signed by both parties, (b) a Change Order. A modification may only be issued after the effective date of the Agreement.

**Notice of Award:** The written notice by **OWNER** to the apparent successful Bidder stating that upon compliance by the apparent successful Bidder with the conditions precedent enumerated therein, within the time specified **OWNER** will sign and deliver the Agreement.

**OWNER:** The public body or authority, corporation, association, partnership, or individual with whom **CONTRACTOR** has entered into the Agreement and for whom the Work is to be provided.

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

**Shop Drawings:** All Drawings, diagrams, illustrations, schedules, and other data which are specifically prepared by **CONTRACTOR**, a Subcontractor, manufacturer, fabricator, supplier, or distributor to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams, and other information prepared by a manufacturer, fabricator, supplier, or distributor and submitted by **CONTRACTOR** to illustrate material or equipment for some portion of the Work.

**Specifications:** Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

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

**Substantial Completion:** The Work (or a specified part thereof) has progressed to the point where it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purpose for which it was intended; or if there be no such point established, when final payment is due in accordance with paragraph 14.13. The terms "substantially complete" and "substantially completed" as applied to any Work refer to Substantial Completion thereof.

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

## **GENERAL CONDITIONS**

### **ARTICLE 2: PRELIMINARY MATTERS**

#### **DELIVERY OF BONDS**

2.1. When **CONTRACTOR** delivers the executed Agreements to **OWNER**, **CONTRACTOR** may be required to furnish in accordance with paragraph 5.1.

#### **COPIES OF DOCUMENTS**

2.2. **OWNER** shall furnish to **CONTRACTOR** up to five copies (unless otherwise specified in the General Requirements) of the Contract Documents as are reasonably necessary for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.

#### **COMMENCEMENT OF CONTRACT TIME: NOTICE TO PROCEED**

2.3. The Contract Time will be presumed to commence to run on the first day after the effective date of the Agreement without a need for notice to proceed. Only if that is not possible for reasons within the contract of the **OWNER**, then a notice to proceed shall be given by the **OWNER** stating the date when the Contract Time will commence.

2.4. Blank

#### **STARTING THE PROJECT**

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

#### **BEFORE STARTING CONSTRUCTION**

2.6. Before undertaking each part of the Work, **CONTRACTOR** shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. **CONTRACTOR** shall promptly report in writing to **ENGINEER** any conflict, error or discrepancy which **CONTRACTOR** may discover; however, **CONTRACTOR** shall not be liable to **OWNER** or **ENGINEER** for failure to report any conflict, error or discrepancy in the Drawings and Specifications, unless **CONTRACTOR** had actual knowledge thereof or should reasonable have know thereof.

2.7. Blank

2.8. Before Work at the site is started, **CONTRACTOR** shall deliver to **OWNER** certificates (and other evidence of insurance requested by **OWNER**) which **CONTRACTOR** is required to purchase and maintain in accordance with paragraphs 5.3. and 5.4.

#### **PRECONSTRUCTION CONFERENCE**

2.9. Within twenty days after the effective date of the Agreement, but before **CONTRACTOR** starts the Work at the site, a conference will be held for review and acceptance of the schedules to establish procedures for handling Shop Drawings and other submittals and for processing Applications for Payment and to establish a working understanding among the parties as to the Work.

## GENERAL CONDITIONS

### ARTICLE 3: CONTRACT DOCUMENTS: INTENT AND REUSE

#### INTENT

3.1. The Contract Documents comprise the entire Agreement between **OWNER** and **CONTRACTOR** concerning the Work. They may be altered only by a modification.

3.2. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. If during the performance of the Work, **CONTRACTOR** finds a conflict, error or discrepancy in the Contract Documents, he shall report it to **ENGINEER** in writing at once and before proceeding with the Work affected thereby; however, **CONTRACTOR** shall not be liable to **OWNER** or **ENGINEER** for failure to report any conflict, error or discrepancy in the Specifications or Drawings unless **CONTRACTOR** has actual knowledge thereof or should reasonably have known thereof.

3.3. It is the intent of the Specifications and Drawings to describe a complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work that may reasonably be inferred from the Specifications or Drawings as being required to produce the intended result shall be applied whether or not it is specifically called for. When words which have a well-known technical or trade meaning are used to describe Work, materials or equipment, such words shall be interpreted in accordance with such meaning. Reference to standard Specifications, manuals or codes of any technical society, organization or association, or to the code of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual or code in effect at the time of opening of Bids (or on the effective date of the Agreement if there were no Bids), except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall change the duties and responsibilities of **OWNER**, **CONTRACTOR** or **ENGINEER**, or any of their agents or employees from those set forth in the Contract Documents.

3.4. The Contract Documents will be governed by the law of the place of the Project.

#### REUSE OF DOCUMENTS

3.5. Neither **CONTRACTOR** nor any Subcontractor, manufacturer, fabricator, supplier or distributor shall have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal or logo of **ENGINEER**; and they shall not reuse any of them or part thereof on extensions of the Project or any other project without the written consent of **OWNER** and **ENGINEER** and specific written verification or adaptation by **ENGINEER**.

## GENERAL CONDITIONS

### ARTICLE 4: AVAILABILITY OF LANDS; PHYSICAL CONDITIONS; REFERENCE POINTS

#### AVAILABILITY OF LANDS

4.1. **CONTRACTOR** shall arrange for all lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

#### PHYSICAL CONDITIONS - INVESTIGATIONS AND REPORTS

4.2. Reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which have been relied upon by **ENGINEER** in preparation of the Drawings and Specifications - are not guaranteed as to accuracy or completeness and are not part of the Contract Documents.

#### UNFORESEEN PHYSICAL CONDITIONS

4.3. By signing the contract, the **CONTRACTOR** has represented that he has fully and completely made or caused to be made at **CONTRACTOR**'s expense examinations, investigations, tests, and studies of data in addition to those referred to in paragraph 6.2. of the Agreement, including but not limited to subsurface conditions, soil and underground strength conditions, whether latent or not, and any underground utility, structure or obstacle and any other data that may possibly be deemed pertinent to the performance of the Work at the Contract Price, within the Contract Time, and in accordance with the other terms and conditions of the Contract Documents; and any additional examinations, investigations, tests, reports or similar data as will be required by **CONTRACTOR** for such purposes will be performed by **CONTRACTOR** or **CONTRACTOR**'s agent at **CONTRACTOR**'s expense. Such work should be considered incidental to Contract Price.

#### REFERENCE POINTS

4.4. **OWNER** shall provide engineering surveys for construction to establish reference points which in his judgement are necessary to enable **CONTRACTOR** to proceed with the Work. **CONTRACTOR** shall be responsible for laying out the Work (unless otherwise specified in the General Requirements), shall protect and preserve the established reference points, and shall make no changes or relocations without the prior written approval of **OWNER**. **CONTRACTOR** shall report to **ENGINEER** wherever any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations and shall be charged for replacement or relocation of such reference points by the **ENGINEER**, such changes being deducted from **CONTRACTOR**'s payment estimate.

## GENERAL CONDITIONS

### ARTICLE 5: BONDS AND INSURANCE\*

#### PERFORMANCE AND OTHER BONDS

5.1. **CONTRACTOR** shall furnish performance, payment, and maintenance and guarantee Bonds, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all **CONTRACTOR**'s obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date of final payment. **CONTRACTOR** shall also furnish such Bonds as are required in this Article. All Bonds shall be in the forms prescribed by the bidding documents in the state where the Project is located. All Bonds signed by an agent must be accompanied by a certified copy of the authority to act.

5.1.1. The insurance and Bonds required herein may be increased after award of Project if said increase is found reasonably necessary or required for the proper performance of the Project. Said increase shall be at the **CONTRACTOR**'s expense.

5.1.2. The **CONTRACTOR** is under a continued obligation to submit insurance and Bonds as required herein. If at any time prior to final acceptance the **OWNER** discovers that any insurance or Bonds required herein were either not submitted by **CONTRACTOR** or not submitted in full compliance with the Contract Documents, then the **OWNER** has the option to require the **CONTRACTOR** to submit insurance and Bonds as required in the contract. In case of failure of **CONTRACTOR** to submit such bonds or insurance, the **OWNER** may elect any remedy that may reasonably protect the **OWNER**'s interest. However, the originally submitted Bonds and insurance would continue to have full effect and force.

5.1.3. All Bonds shall be in the forms prescribed by the bidding documents or Supplementary General Conditions and be executed by such Sureties as (i) are licensed to conduct business in the state where the Project is located, and (ii) are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of the authority to act.

5.2. If the Surety on any Bond furnished by **CONTRACTOR** is declared a bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.1., **CONTRACTOR** shall within five days thereafter substitute another Bond and Surety, both of which shall be acceptable to the **OWNER**.

#### CONTRACTOR'S LIABILITY INSURANCE

5.3. The insurance certificates required herein form a part of this Contract and until such required certificates are delivered to **OWNER** and approved by the **OWNER** and **ENGINEER** no valid Contract shall exist between the parties hereto. **IT IS ABSOLUTELY NECESSARY THAT ALL CERTIFICATES BE APPROVED BY THE CORPORATION COUNSEL BEFORE ANY WORK IS STARTED PURSUANT TO THIS CONTRACT.**

**CONTRACTOR** shall purchase and maintain such comprehensive general liability and other insurance as will provide protection from claims set forth below which may arise out of or result from **CONTRACTOR**'s performance of the Work and **CONTRACTOR**'s other obligations under the Contract

Documents, whether such performance is by **CONTRACTOR**, by any Subcontractors, by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable.

**THE CONTRACTOR SHALL FURNISH THREE CERTIFIED COPIES OF ALL CERTIFICATES OF INSURANCE POLICIES REQUESTED HEREIN. The OWNER and ENGINEER shall be names insured on each and every insurance policy required herein. The CONTRACTOR must furnish certificates for the following insurance:**

5.3.1. Claims under workers' or workmen's compensation, disability benefits, and other similar employee benefit acts:

- |                          |           |
|--------------------------|-----------|
| (1) State                | Statutory |
| (2) Employer's Liability | Statutory |

5.3.2. Claims for damages because of bodily injury, occupational sickness or disease, or death of **CONTRACTOR's** employees:

- |                          |           |
|--------------------------|-----------|
| (1) State                | Statutory |
| (2) Employer's Liability | Statutory |

(1) Bodily Injury:

\$1,000,000	Each Occurrence
\$1,000,000	Annual Aggregate, Products and Completed Operations

(2) Property Damage:

\$1,000,000	Each Occurrence
\$1,000,000	Annual Aggregate

(3) Property Damage Liability Insurance will provide Explosion, Collapse and Underground Coverage where Applicable.

(4) Personal Injury, with employment exclusion deleted:

\$1,000,000	Annual Aggregate
-------------	------------------

This insurance required by this paragraph 5.3. shall include the specific coverage and be written for not less than the limits of liability and coverage's provided herein or in the Supplementary Condition, or required by law, whichever is greater. The comprehensive general liability insurance shall include completed operations insurance. All such insurance shall contain a provision that the coverage afforded will not be canceled, materially changed, or renewal refused until at least thirty days' prior written notice has been given to **OWNER and ENGINEER**. All such insurance shall remain in effect until final payment and at all times thereafter when **CONTRACTOR** may be correcting, removing or replacing defective Work in accordance with paragraph 13.12. In addition, **CONTRACTOR** shall maintain such completed operations insurance for at least two years after final payment and furnish **OWNER and ENGINEER** with evidence of continuation of such insurance at final payment and one year thereafter.

5.4. The comprehensive general liability insurance required to paragraph 5.3 will include contractual liability insurance applicable to **CONTRACTOR's** obligations under paragraph 6.30 and 6.31.

#### **OWNER'S AND CONTRACTOR'S PROTECTIVE LIABILITY INSURANCE**

5.5 The **CONTRACTOR** shall maintain during the life of this contract Owner's and Contractor's Protective Liability Coverage in the name of:

(1) The **OWNER**

(2) The **ENGINEER**

(3) Others, if specifically required by special permission in the Contract Documents.

This coverage shall include the entire Work. The **CONTRACTOR** shall furnish a Certificate of Insurance certifying that his Owner's and Contractor's Protective Liability Insurance includes all Subcontractors engaged in the Work. The Owner's and Contractor's Protective Liability Coverage shall contain the following endorsement:

"It is hereby understood and agreed that such insurance as is afforded shall include specific coverage for the so-called Explosion, Collapse and Underground Hazards, which covers damage, or structural injury to buildings or adjacent structures arising from operations under this Contract, including excavation or tunneling and damage sustained by wires, conduits, mains, sewers, and the like, occasioned by the Contractor's sub-surface operations."

The minimum limits of liability for all coverage's in the above shall be as follows, unless specifically required by special provision in the Specifications:

(1) Bodily Injury Liability:

\$1,000,000	Each Person
\$1,000,000	Each Occurrence
\$1,000,000	Aggregate

(2) Property Damage Liability:

\$1,000,000	Each Occurrence
\$1,000,000	Aggregate (except Auto)

In the event that an Umbrella Liability Policy is used to meet the limit requirements of the Specifications, the total limits available under the underlying coverage and the umbrella coverage shall not be less than \$1,000,000.

## PROPERTY INSURANCE

5.6. Unless otherwise provided in these General Conditions, **CONTRACTOR** shall purchase and maintain property insurance upon the Work at the site to the full insurable value thereof (subject to such deductible amounts as required by law). This insurance shall include the interests of **OWNER, ENGINEER, CONTRACTOR**, and Subcontractor in the Work, shall insure against the perils of fire and extended coverage, shall include "all risk" insurance for physical loss and damage, including theft, vandalism, and malicious mischief, collapse and water damage, and such other perils as may be provided in these General Condition, and shall include damages, losses and expenses arising out of or replacement of any insured loss or incurred in the repair or replacement of any property (including fees and charges of engineers, architects, attorneys, and other professionals). If not covered under the "all risk" insurance or otherwise provided in the Supplementary Conditions, **CONTRACTOR** shall purchase and maintain similar property insurance in transit when such portions of the Work are to be included in an Application for Payment. The policies of insurance required to be purchased and maintained by **CONTRACTOR** in accordance with paragraphs 5.6 and 5.7 shall contain a provision that the coverage afforded will no be canceled or materially changed until at least thirty days' prior written notice has been given to the **OWNER** and **ENGINEER**.

5.7. Blank.



5.8. **OWNER** shall not be responsible for purchasing and maintaining any property insurance to protect the interests of **CONTRACTOR** or Subcontractors in the Work to the extent of any deductible amounts that are provided in this contract. If **CONTRACTOR** wishes property insurance coverage within the limits of such amounts, **CONTRACTOR** may purchase and maintain it at his own expense.

5.9. Blank.

#### WAIVER OF RIGHTS

5.10. **OWNER** and **CONTRACTOR** waive all right against each other and the Subcontractor and their agents and employees and against **ENGINEER** and separate contractors (if any) and their Subcontractor's agents and employees for damages caused by fire or other perils to the extent covered by insurance provided under paragraph 5.6 or any other property insurance applicable to the Work, except such rights as they may have to the proceeds of such insurance held by **OWNER** as trustee. **CONTRACTOR** shall require similar written waivers from each Subcontractor (in accordance with paragraph 6.11 as applicable); each such waiver will be in favor of all other parties enumerated in this paragraph 5.10.

#### RECEIPT AND APPLICATION OF PROCEEDS

5.11. Any insured loss under the policies of insurance required by paragraph 5.6 shall be adjusted with **OWNER** and made payable to **OWNER** as trustee for the insured, as their interests may appear, subject to the requirements of any applicable mortgage clause and of paragraph 5.12. **OWNER** shall deposit in a separate account any money so received, and he shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.

5.12. **OWNER** as trustee shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within fifteen days after the occurrence of loss to **OWNER**'s exercise of this power. If such objection is made, **OWNER** as trustee shall make settlement with the insurers in accordance with such agreements as the parties in interest may reach. If required in writing by any party in interest, **OWNER** as trustee shall upon occurrence of an insured loss give bond for the proper performance of his duties.

#### ACCEPTANCE OF INSURANCE

5.13. If **OWNER** has any objection to the coverage afforded by or other provisions of the insurance required to be purchased and maintained by **CONTRACTOR** in accordance with paragraph 5.3 and 5.4 on the basis of its not complying with the Contract Documents, **OWNER** will notify the **CONTRACTOR** in writing thereof within thirty days of the date of delivery of such certificates to **OWNER** in accordance with paragraph 2.7.

#### PARTIAL UTILIZATION - PROPERTY INSURANCE

5.14. If **OWNER** finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all Work, such use or occupancy may be accomplished in accordance with paragraph 14. 10; provided that no such use or occupancy shall commence before the insurers providing the property insurance have acknowledged notice thereof and in writing effected the changes in coverage necessary thereby. The insurers provided the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or lapse on account of any such partial use or occupancy.

## **QUALIFICATIONS OF INSURERS**

5.15. In order to determine financial strength and reputation of insurance carriers, all companies providing the coverage's required shall be licensed or approved by the Insurance Bureau of the State of Michigan and shall have a financial rating not lower than XI and a policyholder's service rating no lower than B+ as listed in A.M. Best's Key Rating Guide, current edition. Companies with ratings lower than B=:XI will be acceptable only upon written consent of the **OWNER**.

## GENERAL CONDITIONS

### ARTICLE 6: CONTRACTOR'S RESPONSIBILITIES

#### SUPERVISION AND SUPERINTENDENCE

6.1. **CONTRACTOR** shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. **CONTRACTOR** shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. **CONTRACTOR** shall be responsible to see that the finished Work complies accurately with the Contract Documents.

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

#### LABOR, MATERIALS, AND EQUIPMENT

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

6.4. **CONTRACTOR** shall furnish all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water and sanitary facilities, and all other facilities and incidentals necessary for the execution, testing, initial operation, and completion of the Work.

6.5. All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by **OWNER**, **CONTRACTOR** shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment.

6.6. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable manufacturer, fabricator, supplier or distributor, except as otherwise provided in the Contract Documents.

#### EQUIVALENT MATERIALS AND EQUIPMENT

6.7. Whenever materials or equipment are specified or described in the Drawings or Specifications by using the name of a proprietary item or the name of a particular manufacturer, fabricator, supplier, or distributor, the naming of the item is intended to establish the type, function, and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other manufacturers, fabricators, suppliers, or distributors may be accepted by **OWNER** if sufficient information is submitted by **CONTRACTOR** to allow **OWNER** to determine that the material or equipment proposed is equivalent to that named. The procedure for review will be as set forth in paragraphs 6.7.1 and 6.7.2 below as supplemented in the General Requirements.

6.7.1. Requests for review of substitute items of material and equipment will not be accepted by **OWNER** and **ENGINEER** from anyone other than **CONTRACTOR**. If **CONTRACTOR** wishes to furnish or use a substitute item of material or equipment,

**CONTRACTOR** shall make written application to **OWNER** through the **ENGINEER** for acceptance thereof, certifying that the proposed substitute will perform adequately the functions called for by the general design, be similar and of equal substance to that specified, and be suited to the same use and capable of performing the same functions that specified. The application will state whether in the Drawing or Specifications to adapt the design to the substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified shall be identified in the application, and available maintenance, repair, and replacement service will be indicated. The application will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of each substitute, including costs of redesign and claims of other contractors affected by the resulting change. **OWNER** may require **CONTRACTOR** to furnish at **CONTRACTOR**'s expense additional data about the proposed substitute. **OWNER** may require **CONTRACTOR** to furnish at **CONTRACTOR**'s expense a special performance guarantee or other surety with respect to any substitute.

6.7.2 **ENGINEER** will record time required by **ENGINEER** and **ENGINEER**'s consultants in evaluating substitutions proposed by **CONTRACTOR** and in making changes in the Drawings or Specifications occasioned thereby. Whether or not **ENGINEER** accepts a proposed substitute, **CONTRACTOR** shall reimburse **OWNER** for the charges of **ENGINEER** and **ENGINEER**'s consultants for evaluating any proposed substitute.

#### CONCERNING SUBCONTRACTORS

6.8. **CONTRACTOR** shall not employ any Subcontractor or other person or organization (including those who are to furnish the principal items of materials or equipment), whether initially or as a substitute, against whom **OWNER** may have any objection. Acceptance of any Subcontractor, other person or organization by **OWNER** shall not constitute a waiver of any rights of **OWNER** to reject defective Work. After the giving of the Notice of Award, if the **OWNER**, after the investigation, has reasonable objection to any Subcontractor, other persons or organization, the **OWNER** may request the Successful Bidder to provide an acceptable substitute without an increase in the Contract Price. In such a case, neither the **OWNER** nor the **ENGINEER** would be liable for any damages or remedies of either the **CONTRACTOR** or Subcontractor or any other said person or organization. It is the responsibility of the **CONTRACTOR** to inform the Subcontractor or other person or organization to the provision of the contract prior to the parties being contractually bound.

6.9. **CONTRACTOR** shall be fully responsible for all acts and omissions of his Subcontractors and of persons and organizations directly or indirectly employed by them and of persons and organizations for whose acts any of them may be liable to the same extent that **CONTRACTOR** is responsible for the acts and omissions of persons directly employed by **CONTRACTOR**. Nothing in the Contract Documents shall create any contractual relationship between **OWNER** and **ENGINEER** and any Subcontractor or other person or organization having a direct contract with **CONTRACTOR** nor shall it create any obligation on the part of the **OWNER** or **ENGINEER** to pay or to see to the payment of any moneys due any Subcontractor or other persons or organizations.

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

6.11. All work performed for **CONTRACTOR** by a Subcontractor will be pursuant to an appropriate agreement between **CONTRACTOR** and the Subcontractor which specifically binds the Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of **OWNER** and **ENGINEER** and contains waiver provisions as required by paragraph 5.10. **CONTRACTOR** shall pay each Subcontractor a

just share of any insurance moneys received by **CONTRACTOR** on account of losses under policies issued pursuant to paragraph 5.6. through 5.8.

## **PATENT FEES AND ROYALTIES**

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

The **CONTRACTOR** shall familiarize himself with any such possible costs prior to bidding. **CONTRACTOR** hereby indemnifies and holds harmless **OWNER** and **ENGINEER** and anyone directly or indirectly employed by either of them from and against all claims, damages, losses and expenses (including attorney's fees) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation of the Work of any invention, design, process, product, or device, and shall defend all such claims in connection with any alleged infringement of such rights.

## **PERMITS**

6.13. Unless otherwise provided herein, **CONTRACTOR** shall obtain and pay for all construction permits and licenses. **CONTRACTOR** shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids. **CONTRACTOR** shall pay all charges of utility service companies for connections to the Work and for capital costs related thereto.

## **LAWS AND REGULATIONS**

6.14. **CONTRACTOR** shall give all notices and comply with all laws, ordinances, rules, and regulations applicable to the Work. If **CONTRACTOR** observes that the Specifications or Drawings are at variance therewith, **CONTRACTOR** shall give **ENGINEER** prompt written notice thereof, any necessary changes shall be adjusted by an appropriate Modification. If **CONTRACTOR** performs any work knowing or having reasons to know that it is contrary to such laws, ordinances, rules and regulations, the **CONTRACTOR** shall bear all costs arising there from. It shall be the **CONTRACTOR's** responsibility to make certain that the Specifications and Drawings are in accordance with such laws, ordinances, rules and regulations.

## **TAXES**

6.15. **CONTRACTOR** shall pay all sales, consumer, use and other similar taxes required to be paid by him in accordance with the law of the place of the Project.

## **USE OF PREMISES**

6.16. **CONTRACTOR** shall confine construction equipment, the storage of materials and equipment, and the operations of workmen to areas permitted by law, ordinances, permits or the requirements of the Contract Documents and shall not reasonably encumber the premises with construction equipment or other materials or equipment.

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

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

## RECORD DOCUMENTS

6.19. **CONTRACTOR** shall keep one record copy of all Specifications, Drawings, Addenda, Modifications, Shop Drawings and samples at the site in good order and annotated to show all changes made during the construction process. These shall be available to **ENGINEER** for examination and shall be delivered to **ENGINEER** for **OWNER** upon completion of the Work.

## SAFETY AND PROTECTION

6.20. **CONTRACTOR** shall be solely responsible for initiating, maintaining and supervision all safety precautions and programs in connection with the Work. **CONTRACTOR** shall take all necessary precautions for the safety of and shall provide the necessary protection to prevent damage, injury or loss to (but not limited to) the following:

6.20.1. all employees on the Work and other persons who may be affected thereby,

6.20.1. all the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and

6.20.3. other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

**CONTRACTOR** shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss and shall erect and maintain all necessary safeguards for such safety and protection. **CONTRACTOR** shall notify owners of adjacent property and utilities when prosecution of the Work may affect them. All damage, injury or loss to any property referred to in paragraph 6.20.2 or 6.20.3 caused, directly or indirectly, in whole or in part, by **CONTRACTOR**, any Subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, shall be remedied by **CONTRACTOR**. **CONTRACTOR**'s duties and responsibilities for the safety and protection of the Work shall continue until such time as the Work is completed and **ENGINEER** has issued a notice to **OWNER** and **CONTRACTOR** in accordance with paragraph 14.13. that the Work is acceptable.

6.21. **CONTRACTOR** shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be **CONTRACTOR**'s superintendent unless otherwise designated in writing by **CONTRACTOR** to **OWNER**.

## EMERGENCIES

6.22. In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, **CONTRACTOR**, without special instruction or authorization from **ENGINEER** or **OWNER**, is obligated to act to prevent threatened damage, injury or loss. **CONTRACTOR** shall give **ENGINEER** prompt written notice of any significant changes in the Work or deviations from the Contract Documents caused thereby.

## SHOP DRAWINGS AND SAMPLES

6.23. After checking and verifying all field measurements, **CONTRACTOR** shall submit to **ENGINEER** for review, in accordance with the accepted schedule of Shop Drawings submission (see paragraph 2.8), five copies (unless otherwise specified in the General Requirements) of all Shop Drawings, which shall have been checked by **CONTRACTOR**. The data shown on the Shop Drawings will be complete with respect to dimensions, design criteria, materials of construction and like information to enable **ENGINEER** to review the information as required. The review by the **ENGINEER** is for the purpose of familiarizing the **ENGINEER** with the Work of the **CONTRACTOR** and does not constitute an approval by the **ENGINEER** of any of the submitted material. The **CONTRACTOR** is solely responsible for the correctness and accuracy of all submitted material.

6.24. **CONTRACTOR** shall also submit to **ENGINEER** for review, with such promptness as to cause no delay in Work, all samples required by the Contract Documents. All samples will have been checked by and stamped with the approval of **CONTRACTOR**, identified clearly as to material, manufacturer, any pertinent catalog numbers and the use for which intended. The review by the **ENGINEER** is for the purpose of familiarizing the **ENGINEER** with the Work of the **CONTRACTOR** and does not constitute an approval by the **ENGINEER** of any of the submitted materials. The **CONTRACTOR** is solely responsible for the correctness and accuracy of all submitted material.

6.25. At the time of each submission, **CONTRACTOR** shall in writing call **ENGINEER**'s attention to any deviations that the Shop Drawings or samples may have from the requirements of the Contract Documents.

6.26. **ENGINEER** will review the Shop Drawings and samples, but **ENGINEER**'s review shall be only for general and approximate conformance with the design concept of the Project and for general and approximate compliance with the information given in the Contract Documents and shall not extend to means, methods, sequences, techniques or procedures of construction or to safety precautions or programs incident thereto. The review of a separate item as such will not indicate a review of the assembly in which the item functions. **CONTRACTOR** shall make any corrections required by **ENGINEER** and shall return the required number of corrected copies of Shop Drawings and resubmit new samples for review (as stated above for general and approximate compliance). **CONTRACTOR** shall direct specific attention in writing to revisions other than the correction called for by **ENGINEER** on previous submittals. **CONTRACTOR**'s stamp of approval on any Shop Drawing or samples shall constitute a representation to **OWNER** and **ENGINEER** that **CONTRACTOR** has determined and verified all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data and assumes full and sole responsibility for doing so, and that **CONTRACTOR** has reviewed or coordinated each Shop Drawing or sample with the Requirements of the Work and the Contract Documents.

6.27. Where a Shop Drawing or sample is required by the Specifications, no related Work shall be commenced until the submittal has been reviewed by **ENGINEER**.

6.28. **ENGINEER**'s review of Shop Drawings or samples shall not relieve **CONTRACTOR** from any responsibility for any deviations from the Contract Documents unless **CONTRACTOR** has in writing called **ENGINEER**'s attention to such deviation at the time of submission and **ENGINEER** has given written concurrence and approval to the specific deviation nor shall any concurrence or approval by **ENGINEER** relieve **CONTRACTOR** from his sole responsibility for errors or omissions in the Shop Drawings.

## CONTINUING THE WORK

6.29 **CONTRACTOR** shall carry on the Work and maintain the progress schedule during all disputes or disagreements with **OWNER**, including but not limited to disputes and disagreements concerning change of conditions, change of quantities, or change of scope of work. No Work shall be delayed or postponed pending resolution of any damages or disagreements, except as **CONTRACTOR** and **OWNER** may otherwise agree in writing.

## INDEMNIFICATION

6.30. To the fullest extent permitted by law, **CONTRACTOR** agrees to indemnify, defend, and save harmless the **OWNER** and Hennessey Engineers, Inc., their officials, employees, and agents, from and against all claims, damages, loss or expense (including but not limited to costs and attorney fees) be reason of nay liability asserted or imposed upon the **OWNER** and Hennessey Engineers, Inc., their officials, agents or employees, for damages because of bodily injury, including death, at any time resulting there from, sustained by any person or persons or on account of damage to property, including loss of use thereof, arising our of or in consequence of the performance of the Work described herein, whether such injuries to persons or damage to property is due, or claimed to be due, directly or indirectly, to the negligence or omission of the **CONTRACTOR**, any Subcontractor, the **OWNER**, Hennessey Engineers, Inc., or their officials, employees, or agents.

6.31. In any and all claims against **OWNER** and **ENGINEER** or any of their agents or employees by any employee of **CONTRACTOR**, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.30 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for **CONTRACTOR** or any Subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

6.32. Blank.



## **GENERAL CONDITIONS**

### **ARTICLE 7: WORK BY OTHERS**

7.1. **OWNER** may perform additional work related to the Project by himself or have additional work performed by utility service companies or let other direct contracts therefore which shall contain General Conditions similar to these. **CONTRACTOR** shall afford the utility service companies and the other contractors who are parties to such direct contracts (or **OWNER**, if **OWNER** is performing the additional work with **OWNER'S** employees) all possible opportunity for the introduction and storage of materials and equipment and the execution of Work and shall properly connect and coordinate his Work with theirs.

7.2. If any part of **CONTRACTOR's** Work depends for proper execution of results upon the work of any such other contractor or utility service company (or **OWNER**), **CONTRACTOR** shall inspect and promptly report to **ENGINEER** in writing defects or deficiencies in such work that render it unsuitable for such proper execution and results. **CONTRACTOR's** failure so to report shall constitute an acceptance of the other work as fit and proper for integration with **CONTRACTOR's** Work except for latent or non-apparent defects and deficiencies in the other work.

7.3. **CONTRACTOR** shall do all cutting, fitting, and patching of his Work that may be required to make its several parts come together properly and integrate with such other work. **CONTRACTOR** shall not endanger any work of others by cutting, excavating or otherwise altering their work.

7.4. If the performance of additional work by other contractors or utility service companies or **OWNER** was not noted in the Contract Documents, written notice thereof shall be given to **CONTRACTOR** prior to starting any such additional work.

## **GENERAL CONDITIONS**

### **ARTICLE 8: OWNER'S RESPONSIBILITY**

- 8.1. **OWNER** shall issue all communications to **CONTRACTOR** through **ENGINEER**.
- 8.2. The **ENGINEER** is designated as the representative of the **OWNER** during the period of the contract. Since **ENGINEER** had relied on this employment by **OWNER**, **ENGINEER** is entitled to all damages and remedies in law and equity in case of termination by **OWNER**.

## GENERAL CONDITIONS

### ARTICLE 9: ENGINEER'S STATUS DURING CONSTRUCTION

#### OWNER'S REPRESENTATIVE

9.1. **ENGINEER** will be **OWNER**'s representative during the construction period, but authority to bind the **OWNER** is limited as set forth in Article 10.2 of these General Conditions.

#### VISITS TO SITE

9.2. **ENGINEER** through the **ENGINEER**'s inspector and construction engineer will make visits to the site at intervals appropriate to the various stages of construction, and possibly on a daily basis, to observe the progress and quality of the executed Work. **ENGINEER**'s inspector will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. **ENGINEER**'s efforts will be directed toward providing for **OWNER** a greater degree to confidence that the completed Work will conform to the Contract Documents. On the basis of such visits and on-site observations, **ENGINEER** will keep **OWNER** informed of the progress of the Work. Limitations on responsibility of **ENGINEER** stated above shall not be deemed altered even if **ENGINEER** has full-time inspector on the site.

#### CLARIFICATIONS AND INTERPRETATIONS

9.3. **ENGINEER** may issue within a reasonable time such written clarifications or interpretations of the Contract Documents (in the form of Drawings or otherwise) as **ENGINEER** may determine necessary. No increase in Contract Price or Contract Time is justified or allowed if the clarification or interpretation of the Contract Documents is inferable from the overall intent of the Contract Documents.

9.4. Blank.

9.5. Blank.

9.6. Blank.

9.7. Blank.

#### PROJECT PRESENTATION

9.8. If **OWNER** and Engineer agree, **ENGINEER** will furnish an inspector to assist **OWNER** in observing the performance of the Work. The duties, responsibilities and limitations of authority of any such inspectors, construction engineers, and assistants will be as provided in Article 9.2. above.

#### DECISIONS ON DISAGREEMENTS

9.9. **ENGINEER** will be the initial interpreter of the requirements of the Contract Documents. Claims, disputes and other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the execution and progress of the Work shall be referred initially to **ENGINEER** in writing with a request for a formal decision in accordance with this paragraph, which **ENGINEER** will render within the time the **ENGINEER** deems required to complete any related investigation of the claim. Written notice of each such claim, dispute and other matter shall

be delivered by the claimant to **ENGINEER** and the other party to the Agreement within fifteen days of the occurrence of the event giving rise thereto, together with any supporting data. In his capacity as interpreter, **ENGINEER** will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.10. The rendering of a decision by **ENGINEER** pursuant to paragraph 9.9 with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.16) will be a condition precedent to any exercise by **OWNER** or **CONTRACTOR** of such rights or remedies as either may otherwise have under the Contract Documents or at law in respect of any such claim, dispute or other matter.

#### LIMITATIONS ON **ENGINEER'S** RESPONSIBILITY

9.11. Neither **ENGINEER's** authority to act under this Article 9 or elsewhere in the Contract Documents nor any decision made by **ENGINEER** either to exercise or not exercise such authority shall give rise to any duty or responsibility of **ENGINEER** to **CONTRACTOR**, or any Subcontractor, any manufacturer, fabricator, supplier or distributor, or any of their agents or employees or any other person performing any of the Work.

9.12. Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed" or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper" or "satisfactory" or adjectives of like effect or import are used to describe requirement, direction, review or judgment of **ENGINEER** as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the Work for compliance with the Contract Documents. The use of any such term or adjective never indicates that **ENGINEER** shall have authority to supervise or direct performance of the Work or authority to undertake responsibility contrary to the provisions of paragraph 9.13. or 9.14.

9.13. **ENGINEER** will not be responsible for any of **CONTRACTOR's** means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, and **ENGINEER** will not be responsible for any of **CONTRACTOR's** failure to perform the Work in accordance with the Contract Documents. The **CONTRACTOR** shall be solely responsible for any of **CONTRACTOR's** means, methods, techniques, sequences, or procedures, or the safety precautions and programs incidents thereto.

9.14. **ENGINEER** will not be responsible for the acts or omissions of **CONTRACTOR** or of any Subcontractors or of the agents or employees of any **CONTRACTOR** or Subcontractor or of any persons at the site or otherwise performing any of the Work. The **CONTRACTOR** will be solely responsible for the acts or omissions of **CONTRACTOR** or of any Subcontractors or of any other persons at the site or otherwise performing any of the Work.

## GENERAL CONDITIONS

### ARTICLE 10: CHANGES IN THE WORK

10.1. Without invalidating the Agreement, owner may, at any time or from time to time, order additions, deletions or revisions in the Work; these will be authorized by Change Orders. Upon receipt of a Change Order, **CONTRACTOR** shall proceed with the Work involved. All such Work shall be executed under the applicable conditions of the Contract Documents. If any Change Order causes a decrease in the Contract Price or a shortening of the Contract Time, an equitable adjustment will be made.

10.2. Engineer may authorize changes in the Work which, in his judgment, are reasonably required for the proper fulfillment of the contract.

10.3. Additional Work performed without authorization will not entitle **CONTRACTOR** to an increase in the Contract Price or an extension of the Contract Time, except in the case of an emergency as provided in paragraph 6.22 and except as provided in paragraphs 10.2 and 13.9.

10.4. **OWNER** shall execute appropriate Change Orders prepared by **ENGINEER** covering changes in the Work which are required by **OWNER** or required because of emergencies or because of uncovering Work found not to be defective or as provided in paragraph 11.9 or 11.10 or because of any other claim of **CONTRACTOR** for a change in the Contract Time or the Contract Price which is recommended by **ENGINEER**.

10.5. If notice of any change affecting the general scope of the Work or change in the Contract Price is required by the provisions of any Bond to be given to the Surety, it will be **CONTRACTOR's** soil responsibility to so notify the Surety, and the amount of each applicable Bond shall be adjusted accordingly. **CONTRACTOR** shall furnish proof of such adjustment to **OWNER** and **ENGINEER** without the need for either **OWNER** or **ENGINEER** requesting such proof.

## GENERAL CONDITIONS

### ARTICLE 11: CHANGE OF CONTRACT PRICE

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

11.2. The Contract Price may only be changed by a Change Order. Any claim for an increase in the Contract Price shall be based on written notice delivered to **OWNER** and **ENGINEER** within fifteen days of the occurrence of the event giving rise to the claim. Notice of the amount of the claim with supporting data shall be delivered within thirty days of such occurrence unless **ENGINEER** allows an additional period of time to ascertain accurate cost data. All claims for adjustment in the Contract Price shall be determined by **ENGINEER** if **OWNER** and **CONTRACTOR** cannot otherwise agree on the amount involved.

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

- 11.3.1 Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved (subject to the provisions of paragraph 11.9).
- 11.3.2 By mutual acceptance of a lump sum.
- 11.3.3 On the basis of the Cost of the Work (determined as provided in paragraphs 11.4 and 11.5) plus a **CONTRACTOR's** Fee for overhead and profit (determined as provided in paragraph 11.6).

### COST OF THE WORK

11.4 The term Cost of the Work means the sum of all costs necessarily incurred and paid by **CONTRACTOR** in the proper performance of the Work. Except as otherwise may be agreed to in writing by **OWNER**, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include and of the costs itemized in paragraph 11.5:

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

11.4.2. Cost of materials and equipment furnished and incorporated in the Work provided those materials and equipment are necessary for efficient and acceptable production as determined by **ENGINEER**.

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

11.4.4. Blank.

11.4.5. Blank.

11.4.5.1. Blank.

11.4.5.2. Blank.

11.4.5.3. Blank.

11.4.5.4. Blank.

11.4.5.5. Blank.

11.4.5.6. Blank.

11.4.5.7. Blank.

11.4.5.8. Blank.

11.4.5.9. Blank.

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

11.5.1. Payroll costs and other compensation of **CONTRACTOR**'s officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, lawyers, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by **CONTRACTOR** whether at the site or in his principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in subparagraph 11.4.1--all of which are to be considered administrative costs covered by the **CONTRACTOR**'s Fee.

11.5.2. Expenses of **CONTRACTOR**'s principal and branch offices other than **CONTRACTOR**'s office at the site.

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

11.5.4. Cost of premiums for all Bonds and for all insurance whether or not **CONTRACTOR** is required by the Contract Documents to purchase and maintain the same including additional Bonds and insurance required because of changes in the Work.

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

11.5.6. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraph 11.4.

11.6. The **CONTRACTOR**'s fee allowed to **CONTRACTOR** for overhead and profit shall not exceed 15 percent of cost of labor and material.

11.6.1. Blank.

11.6.2. Blank.

11.6.2.1. Blank.

11.6.2.2. for costs incurred under paragraph 11.4.3, the Contractor's Fee shall be five percent; and if a subcontract is on the basis of Cost of the Work Plus a Fee, the maximum allowable to the Subcontractor as a fee for overhead and profit shall be ten percent.

11.6.2.3. Blank.

11.7. The amount of credit to be allowed by **CONTRACTOR** to **OWNER** for any such charge which results in a net decrease in cost will be the amount of the actual net decrease. When both additions and credits are involved in any one change, the combined overhead and profit shall be figured on the basis of the net increase, if any.

#### ADJUSTMENT OF UNIT PRICES

11.8. Whenever the cost of any Work is to be determined pursuant to paragraphs 11.4 and 11.5, **CONTRACTOR** will submit in form acceptable to **ENGINEER** an itemized cost breakdown together with supporting data.

11.9. Where the quantity of Work with respect to any item that is covered by a unit price differs materially and significantly from the quantity of such Work indicated in the Contract Documents, an appropriate Change Order may be issued on recommendation of **ENGINEER** to adjust the unit price.

In general, if the actual quantity of Work is within 25 percent of the quantity indicated in the Contract Documents (whether more or less), the difference shall not be considered material or significant. For larger differences, the **ENGINEER**'s decision as to whether the amount of actual quantity of Work is materially and significantly different from the quantity indicated on the Contract Documents is final.



## CASH ALLOWANCES

11.10. It is understood that **CONTRACTOR** has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be done by such Subcontractors, manufacturers, fabricators, suppliers, or distributors and for such sums within the limit of the allowances as may be acceptable to **ENGINEER**. **CONTRACTOR** agrees that the original Contract Price includes such sums as **CONTRACTOR** deems proper for costs and profit on account of cash allowances. No demand for additional cost or profit in connection therewith will be valid.

## GENERAL CONDITIONS

### ARTICLE 12: CHANGE OF CONTRACT TIME

12.1. The Contract Time may only be changed by a Change Order. Any claim for an extension in the Contract Time shall be based on written notice delivered to **OWNER** and **ENGINEER** within fifteen days of the occurrence of the event giving rise to the claim. Notice of the extent of the claim with supporting data shall be delivered within thirty days of such occurrence unless **ENGINEER** allows an additional period of time to ascertain more accurate data. All claims for adjustment in the Contract Time shall be determined by **ENGINEER** if **OWNER** and **CONTRACTOR** cannot otherwise agree. Any change in the Contract Time resulting from any such claim shall be incorporated in a Change Order.

12.2. The Contract Time will be extended in an amount equal time lost due to delays beyond the control of **CONTRACTOR** if a claim is made therefore as provided in paragraph 12.1. Such delays shall include, but not be limited to, acts or neglect by **OWNER** or others performing additional Work as contemplated by Article 7 or to fires, floods, epidemics, or acts of God, but not labor disputes or severe weather conditions.

12.3. All time limits for **CONTRACTOR** stated in the Contract Documents are of the essence to the **OWNER** and are incorporated as such in the contract.

## **GENERAL CONDITIONS**

### **ARTICLE 13: WARRANTY AND GUARANTEE**

#### **TESTS AND INSPECTIONS**

#### **CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK**

#### **WARRANTY AND GUARANTEE**

13.1 **CONTRACTOR** warrants and guarantees to **OWNER** and **ENGINEER** that all Work will be in accordance with the Contract Documents and will not be defective. All defective Work, whether or not in place, may be rejected, corrected, or accepted as provided in this Article 13.

13.2. Blank.

#### **TESTS AND INSPECTIONS**

13.3. **CONTRACTOR** shall give **OWNER**'s representative timely notice of readiness of the Work for all required inspections, tests or approvals.

13.4. If any law, ordinance, rule, regulation, code, or order of any public body having jurisdiction requires any Work (or part thereof) to specifically be inspected, tested or approved, **CONTRACTOR** shall assume full responsibility therefore, pay all costs in connection therewith, and furnish **OWNER** the required certificates of inspection, testing or approval. **CONTRACTOR** shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with **OWNER**'s acceptance of a manufacturer, fabricator, supplier or distributor of materials or equipment submitted for approval prior to **CONTRACTOR**'s purchase thereof for incorporation in the Work.

13.5. Blank.

13.6. If any Work that is to be inspected, tested or approved is covered without concurrence of **OWNER**'s representative, it must, if required by **OWNER**, be uncovered for observation. Such uncovering shall be at **CONTRACTOR**'s expense.

13.7. Neither observations by **ENGINEER** nor inspections, tests, or approvals by **ENGINEER**, **OWNER**, or others shall relieve **CONTRACTOR** from any of his obligations to perform the Work in accordance with the Contract Documents.

13.8. Blank.

13.9. Blank.

#### **OWNER MAY STOP THE WORK**

13.10. If the Work is defective or **CONTRACTOR** fails to supply sufficient skilled workmen or suitable materials or equipment, **OWNER** may order **CONTRACTOR** to stop the Work, or any portion thereof, until the cause for such order has been eliminated. **CONTRACTOR** shall incur all the expenses related directly or indirectly to such Work stoppage.

## CORRECTION OR REMOVAL OF DEFECTIVE WORK

13.11. If required by **OWNER**, **CONTRACTOR** shall promptly, without cost to **OWNER**, either correct any defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by **ENGINEER**, remove it from the site and replace it with non-defective Work without any extra in Contract Price.

## ONE YEAR CORRECTION PERIOD

13.12 If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, **CONTRACTOR** shall promptly, without cost to **OWNER**, and in accordance with **OWNER**'s written instructions, either correct such defective Work or, if it has been rejected by **OWNER**, remove it from the site and replace it with non-defective Work. If **CONTRACTOR** does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, **OWNER** may have the defective Work corrected or the rejected Work removed and replaced, and all direct and indirect costs of such removal and replacement, including compensation for additional professional services, shall be paid by **CONTRACTOR**.

## ACCEPTANCE OF DEFECTIVE WORK

13.13. If, instead of requiring correction or removal and replacement of defective Work, **OWNER** prefers to accept it, **OWNER** may do so. In such case, if acceptance occurs prior to **ENGINEER**'s recommendation of final payment, a Change Order shall be issued incorporating the necessary revisions in the Contract Documents, including appropriate reduction in the Contract Price or, if the acceptance occurs after such recommendation, an appropriate amount shall be paid by **CONTRACTOR** to **OWNER**.

## OWNER MAY CORRECT DEFECTIVE WORK

13.14. If **CONTRACTOR** fails within a reasonable time after written notice to proceed to correct and to correct defective Work or to remove and replace rejected Work in accordance with paragraph 13.11, or if **CONTRACTOR** fails to perform the Work in accordance with the Contract Documents (including any requirements of the progress schedule), **OWNER** may, after seven days' written notice to **CONTRACTOR**, correct and remedy any such deficiency. **OWNER** may exclude **CONTRACTOR** for all or part of the site, take possession of all or part of the Work, and suspend **CONTRACTOR**'s services related thereto, take possession of **CONTRACTOR**'s tools, appliances, construction equipment and machinery at the site and incorporated in the Work all materials and equipment stored at the site or for which **OWNER** has paid **CONTRACTOR** but which are stored elsewhere. **CONTRACTOR** shall allow **OWNER**, **OWNER**'s representatives, agents and employees such access to the site as may be necessary to enable **OWNER** to exercise his rights under this paragraph. All direct and indirect costs of **OWNER** in exercising such rights shall be charged against **CONTRACTOR**, and a Change Order shall be issued incorporating the necessary revisions in the Contract Documents and a reduction in the Contract Price. Such direct and indirect costs shall include, in particular but without limitation, compensation for additional professional services required and all costs of repair and replacement of work of others destroyed or damaged by correction, removal or replacement of **CONTRACTOR**'s defective Work. **CONTRACTOR** shall not be allowed an extension of the Contract Time because of any delay in performance of the Work attributed to the exercise by **OWNER** of **OWNER**'s rights hereunder.

## GENERAL CONDITIONS

### ARTICLE 14: PAYMENTS TO CONTRACTOR AND COMPLETION

#### SCHEDULES

14.1 At least ten days prior to submitting the first Application for a progress payment, **CONTRACTOR** shall (except as otherwise specified in the General Requirements) submit to **OWNER** a progress schedule, a final schedule of Shop Drawing submission and, where applicable, a schedule of values of the Work. These schedules shall be satisfied in form and substance to **OWNER**. The schedule of values shall include quantities and unit prices aggregating the Contract Price and shall subdivide the Work into component parts. These schedules are submitted strictly as information that may help the **OWNER** in scheduling and shall not be construed as binding the **OWNER** to pay the **CONTRACTOR** in accordance with such values if used in the progress payment.

#### APPLICATION FOR PROGRESS PAYMENT

14.1. At least ten days before progress payment falls due (but not more often than once a month), **CONTRACTOR** shall submit to **ENGINEER** for review an Application for Payment filled out and signed by **CONTRACTOR** covering the Work completed as of the date of the Application and accompanied by supporting documentation. Each subsequent Application for Payment shall include an affidavit of **CONTRACTOR** stating that all previous progress payments received on account of the Work have been applied to discharge in full all of **CONTRACTOR**'s obligations reflected in prior Applications for Payment. Retainage with respect to progress payments will be at least 10 percent, unless state law required otherwise.

#### CONTRACTOR'S WARRANTY OF TITLE

14.3. **CONTRACTOR** warrants and guarantees that title to all Work, materials and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to **OWNER** at the time of payment free and clear of all liens, claims, security interests and encumbrances (hereafter in these General Conditions referred to as "Liens").

#### REVIEW OF APPLICATIONS FOR PROGRESS PAYMENT

14.4. **ENGINEER** will, within fifteen days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to **OWNER** or return the Application to **CONTRACTOR** indicating in writing **ENGINEER**'s reasons for refusing to recommend payment. In the latter case, **CONTRACTOR** may make the necessary corrections and resubmit the Application. **OWNER** shall, within twenty-five days of presentation to him of the Application for Payment with **ENGINEER**'s recommendation, pay **CONTRACTOR** the amount recommended.

14.5. By recommending any payments to the **CONTRACTOR**, **ENGINEER** will not thereby be deemed to have represented that exhaustive or continuous on-site inspections have been made to check the quality or the quantity of the Work or that the means, methods, techniques, sequences, and procedures of construction have been reviewed or that any examination has been made to ascertain how or for what purpose **CONTRACTOR** has used the moneys paid or to be paid to **CONTRACTOR** on account of the Contract Price or that title or any Work, materials or equipment has passes to **OWNER** free and clear of any Liens.

14.6. Blank.

14.7. **ENGINEER** may refuse to recommend the whole or any par of any payment if, in his opinion, it would be incorrect to make such recommendation to Owner. He may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify such payment previously recommended to such extent as may be reasonable in **ENGINEER**'s opinion to protect **OWNER** from loss because:

14.7.1. the Work is defective or completed Work has been damaged requiring correction or replacement,

14.7.2. written claims have been made against **OWNER** or Liens have been filed in connection with the Work,

14.7.3. the Contract Price has been reduced because of Modifications,

14.7.4. **OWNER** has been required to correct defective Work or complete the Work in accordance with paragraph 13.14,

14.7.5. of **CONTRACTOR**'s unsatisfactory prosecution of the Work in accordance with the Contract Documents or

14.7.6. of **CONTRACTOR**'s failure to make payment to Subcontractors or for labor, materials or equipment,

14.7.7. of previous overpayments to **CONTRACTOR**.

#### SUBSTANTIAL COMPLETION

14.8. When Contractor considers the entire Work ready for its intended use, **CONTRACTOR** shall, in writing to **OWNER** and **ENGINEER**, certify that the entire Work is substantially complete and request that **ENGINEER** issue a certificate of Substantial Completion. Within a reasonable time thereafter, **CONTRACTOR**, **ENGINEER**, and/or **OWNER** shall make an inspection of the Work to determine the status of completion. If **ENGINEER** does not consider the Work substantially complete, **ENGINEER** will notify **CONTRACTOR** giving his reasons therefore. If **ENGINEER** considers the Work substantially complete, **ENGINEER** may prepare and deliver to **OWNER** a statement of Substantial Completion which may fix the date of Substantial Completion. There may also be attached to the statement a tentative list of items to be completed or corrected before final payment. **OWNER** shall have twenty-one days after receipt to the tentative certificate during which he may make written objection to **ENGINEER** as to any provisions of the certificate or attached list. If, after considering such objections, **ENGINEER** concludes that the Work is not substantially complete, **ENGINEER** will within twenty-one days notify **CONTRACTOR** in writing, stating his reasons therefore.

14.9. **OWNER** shall have the right to exclude **CONTRACTOR** from the Work after the date of Substantial Completion, but **OWNER** shall allow **CONTRACTOR** reasonable access to complete or correct items on the tentative list.

#### PARTIAL UTILIZATION

14.10. Use of **OWNER** of completed portions of the Work may be accomplished prior to Substantial Completion of all the Work subject to the following:

14.10.1. **OWNER** at any time may request **CONTRACTOR** in writing to permit **OWNER** to use any part of the Work which **OWNER** believes to be substantially complete and which may be so used without significant interference with construction of the other parts of the Work.

14.10.2. In lieu of the issuance of a certificate of Substantial Completion as to part of the Work, **OWNER** may take over operation of a facility constituting part of the Work whether or not it is substantially complete if such facility is functionally and separately useable; provided that prior to any such takeover, **OWNER** and **CONTRACTOR** have agreed as to the division of responsibilities between **OWNER** and **CONTRACTOR** for

security, operation, safety, maintenance, correction period, heat, utilities and insurance with respect to such facility.

## FINAL INSPECTION

14.11. Blank.

## FINAL APPLICATION FOR PAYMENT

14.12 After **CONTRACTOR** has completed all the Work and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, marked-up record documents and other documents--all as required by the Contract Documents--and after **ENGINEER** has indicated that the Work appears to be acceptable (subject to the provisions of paragraph 14.16), **CONTRACTOR** may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents and such other data and schedules as **OWNER** may reasonably require, together with complete and legally effective releases or waivers (satisfactory to **OWNER**) of all Liens arising out of or filed in connection with the Work. In lieu thereof and as approved by **OWNER**, **CONTRACTOR** may furnish receipts or releases in full; an affidavit of **CONTRACTOR** that the releases and receipts include all labor, services, material and equipment for which a Lien could be filed; and that all payrolls, material and equipment bills, and other indebtedness connected with the Work for which **OWNER** or his property might in any way be responsible have been paid or otherwise satisfied; and consent of the Surety, if any, to final payment. If any Subcontractor, manufacturer, fabricator, supplier or distributor fails to furnish a release or receipt in full, **CONTRACTOR** may furnish a Bond or other collateral satisfactory to **OWNER** to indemnify **OWNER** against any Lien.

## FINAL PAYMENT AND ACCEPTANCE

14.13. If, on the basis of **ENGINEER**'s review of the final Application for Payment and accompanying documentation--all as required by the Contract Documents--**ENGINEER** is satisfied that the Work has been completed and **CONTRACTOR** has fulfilled his obligations under the Contract Documents, **ENGINEER** may, within twenty days after receipt of the final Application for Payment, indicate in writing his recommendation of payment and present the Application to **OWNER** for payment. Thereupon **ENGINEER** will give written notice to **OWNER** and **CONTRACTOR** that the Work is acceptable subject to the provisions of paragraph 14.16. Otherwise, **ENGINEER** will return the Application to **CONTRACTOR**, indicating in writing the reasons for refusing to recommend final payment, in which case **CONTRACTOR** shall make the necessary corrections and resubmit the Application. If the Application and accompanying documentation are appropriate as to form and substance, **OWNER** shall, within thirty days after receipt thereof, pay **CONTRACTOR** the amount recommended by **ENGINEER**.

14.14. Blank.

## CONTRACTOR'S CONTINUING OBLIGATION

14.15. **CONTRACTOR**'s obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by **ENGINEER** nor the recommendation of any progress or final payment by **ENGINEER** nor the issuance of a certificate of Substantial Completion nor any payment by **OWNER** or **ENGINEER** nor any failure to do so nor the issuance of a notice of acceptability by **ENGINEER** pursuant to paragraph 14.13. nor any correction of defective Work by **OWNER** shall constitute an acceptance of Work not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents.

## **WAIVER OF CLAIMS**

14.16. The making and acceptance of final payment shall:

14.16.1. not constitute any waiver of any claims by **OWNER** against **CONTRACTOR**, including claims arising from unsettled Liens, from defective Work appearing after final inspection or from failure to comply with the Contract Documents or the terms of any special guarantees specified therein; also, it shall not constitute a waiver by **OWNER** of any rights in respect of **CONTRACTOR**'s continuing obligations under the Contract Documents; and

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



## GENERAL CONDITIONS

### ARTICLE 15: SUSPENSION OF WORK AND TERMINATION

#### OWNER MAY SUSPEND WORK

15.1 **OWNER** may at any time and without cause suspend the Work or any portion thereof for a period of not more than one hundred and twenty days by notice in writing to **CONTRACTOR**. **CONTRACTOR** shall resume the Work on two weeks' notice by **OWNER**. **CONTRACTOR** will be allowed an increase in the Contract Price only as attributable to demobilization and remobilization cost and not to any other expense, including rental fee during suspension. The **CONTRACTOR** shall have the sole duty of informing in advance all Subcontractors and any interested parties about the provision. **OWNER** and **ENGINEER** are not liable for any loss of any party arising out of invoking this section.

#### OWNER MAY TERMINATE

15.2. Upon the occurrence of any one or more of the following events:

15.2.1. if **CONTRACTOR** is adjudged a bankrupt or insolvent,

15.2.2. if **CONTRACTOR** makes a general assignment for the benefit of creditors,

15.2.3. if a trustee or receiver is appointed for **CONTRACTOR** or for any of **CONTRACTOR**'s property,

15.2.4. if **CONTRACTOR** files a petition to take advantage of any debtor's act or to reorganize under the bankruptcy or similar laws,

15.2.5. if **CONTRACTOR** repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment,

15.2.6. if **CONTRACTOR** fails to make payments to Subcontractors or for labor, materials or equipment within sixty days of receiving said payment from **OWNER**,

15.2.7. if **CONTRACTOR** disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction,

15.2.8. if **CONTRACTOR** disregards the authority of **ENGINEER** or,

15.2.9. if **CONTRACTOR** otherwise violates in any substantial way any provisions of the Contract Documents. Restoration work shall always be deemed as a substantial provision of the Contract Documents.

**OWNER** may, after giving **CONTRACTOR** and his Surety seven days' written notice, terminate the services of **CONTRACTOR**, exclude **CONTRACTOR** from the site and take possession of the Work and of all **CONTRACTOR**'s tools, appliances, construction equipment and machinery at the site and use the same to the full extent they could be used by **CONTRACTOR** (without liability to **CONTRACTOR** for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which **OWNER** has paid **CONTRACTOR** but which are stored elsewhere, and finish the Work as **OWNER** may deem expedient. In such case **CONTRACTOR** shall pay the difference to **OWNER**. Such costs incurred by **OWNER** shall be verified by **ENGINEER** and incorporated in a Change Order; but in finishing the Work, **OWNER** shall not be required to obtain the lowest figure for the Work performed.

15.3. Where **CONTRACTOR**'s services have been so terminated by **OWNER**, the termination shall not affect any rights of **OWNER** against **CONTRACTOR** then existing or which may thereafter accrue. Any

retention or payment of moneys due **CONTRACTOR** by **OWNER** will not release **CONTRACTOR** from liability.

15.4. Upon seven days' written notice to **CONTRACTOR**, **OWNER** may, without cause and without prejudice to any of the **OWNER's** other rights or remedies, elect to abandon the Work and terminate the Agreement with the **CONTRACTOR**. In such case, **CONTRACTOR** shall be paid for Work executed and demobilization expenses only.

**GENERAL CONDITIONS**

**ARTICLE 16: BLANK**

## GENERAL CONDITIONS

### ARTICLE 17: MISCELLANEOUS

#### GIVING NOTICE

17.1 Whenever any provision of the Contract Documents requires the giving of written notice to the **CONTRACTOR**, it shall be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by mail to the last business address known to the giver of the notice. Notice to the **ENGINEER** is validly given if mailed by certified mail to his business office.

#### COMPUTATION OF TIME

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

#### GENERAL

17.3. Blank.

17.4. The duties and obligations imposed by these General Condition upon the **CONTRACTOR** and, in particular but without limitation, the warranties, guarantees and obligations imposed upon **CONTRACTOR** by paragraphs 6.30, 13.1, 13.11, 13.14, 14.3, and 15.2 and all of the rights and remedies available to either **ENGINEER** or **OWNER** which are otherwise imposed or available by law or contract, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this paragraph shall be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply. All representations, warranties and guarantees made in the Contract Documents by **CONTRACTOR** shall survive final payment and termination or completion of the Agreement.

18. Blank.

## **PART IV**

### **PROPOSAL SPECIFICATIONS**

## SUMMARY OF THE REQUIREMENTS

The City of Lincoln Park, as part of a program to control and reduce infiltration and maintain the collection system, requires a Bid for the rehabilitation of the sanitary sewer system.

The project work areas are in various sections and diameters of the Sanitary Sewer System in various locations in the City of Lincoln Park.

The work to control infiltration and maintain the Sanitary Sewer System life cycle requires sewer line cleaning, CCTV inspection, sewer flow control and repair.

Sewer line cleaning involves the removal of foreign materials from the lines and restoring the sewers to a minimum of 95% of the original carrying capacity or as required for CCTV inspection and internal pipe repair.

CCTV inspections of sewer main lines will be performed one section at a time using a specifically designed and constructed video camera with 360° full rotational capability for closer inspection of defects. Sewer main line sections will be visually inspected by an operator using Water Research Council (WRC) and Township's guidelines with infrastructure data and observations to be recorded during the camera inspection.

Sewer flow control during CCTV inspection and/or sewer repairs will be required. This requirement may involve plugging or blocking of the flow, or by pumping and bypassing the flow for the section of sewer main line where work is being performed. Sewer flow precautions must be taken to protect the sewer lines from damage that might result from sewer surcharging as well as to insure that sewer flow control operations do not cause flooding or damage to public or private property being served by the sewers involved.

Sewer repair will include structural spot repair, mainline sewer repair with cured in place pipe liner (CIPP), sanitary lateral replacements by cured in place pipe (CIPP) from mainline sewer only, inflow and infiltration sealing.

**Only inverted type (CIPP) liners are approved for mainline repairs. Only liners inverted from the main which provide a seal at the main to lateral connection are approved for lateral replacement. For alternative see Section 3.2.**

1. **ELIGIBILITY:** Proposals will not be evaluated if the Proponent's current or past corporate or other interests may, in the City's opinion, give rise to a conflict of interest in connection with this project.

1.1 Proposals from not-for-profit agencies will be evaluated against the same criteria as those received from any other Proponents.

2. **EVALUATION AND SELECTION:** The OWNER and ENGINEER will check proposals against the mandatory criteria. Packages not meeting all mandatory criteria will be rejected without further consideration. Packages that do meet all the mandatory criteria will then be assessed and scored against the desirable criteria. The City's intent is to enter into a Contract with the Proponent who has the highest overall ranking.

3. **EVALUATION CRITERIA SHALL CONSIST OF THE FOLLOWING COMPONENTS & WEIGHTS:**

- Compliance with Specifications (Pass or Fail)
- Proponent's Ability to Perform (weight = 20%)
- References of Proponent (weight = 10%)
- Financial Status (weight = 20%)
- Product Qualifications (weight = 20%)
- Price (weight = 10%)
- Warranty (weight = 10%)
- Ability to Respond / Michigan Based Office (weight = 10%)

- 3.1 The OWNER reserves the right to modify either one or all of the components and weights following

submission and evaluation of the proposals. Proponents waive all rights to make claims against the City regarding its evaluation or selection of the Proponent it enters into agreement with.

- 3.2 The OWNER and its evaluation staff/committee may request additional information from proponents after the closing to assist in the evaluation process. Proponents shall furnish any requested information to the City.

4. **ALTERNATIVE SOLUTIONS:** If alternative solutions are offered, please submit the information in the same format, as a separate proposal. The Contractor shall state in his returned Request for Qualifications the systems he intends to use, and current documentary evidence of proven use in the State of Michigan in the last year. In addition, the Contractor shall supply documentary evidence from the manufacturer that the material used is the same as the material being submitted. Alternative systems without proven use records may be accepted upon evaluation of the ENGINEER and with a guarantee. The guarantee will be in the form of a performance and/or maintenance bond for a period set forth by the OWNER and ENGINEER after completion of work, in the amount of the 100% of the contract price.

The OWNER and ENGINEER shall be the sole judge for what may be accepted as alternative solutions.

5. **SUB-CONTRACTING:** Using a sub-contractor (who should be clearly identified in the proposal) is only acceptable for 10% of the total scope of the project. This includes a joint submission by two Proponents having no formal corporate links. However, in this case, one of these Proponents must be prepared to take overall responsibility for successful performance of the contract and this should be clearly defined in the proposal.

- 5.1. Sub-contracting to any firm or individual whose current or past corporate or other interests may, in the City's opinion, give rise to a conflict of interest in connection with this project will not be permitted. This includes, but is not limited to, any firm or individual involved in the preparation of this Bid.
- 5.2 Where applicable, the names of approved sub-contractors listed in the proposal will be included in the Contract. No additional subcontractors will be added, nor other changes made, to this list in the Contract without the written consent of the City.

## REQUIRED CONTRACTOR INFORMATION

**BASIC REQUIREMENTS:** Contractor's proposals are required to address in detail the following items but shall not limit their recommendation to these items:

1. **PROJECT METHODOLOGY:** Description of the methods, materials & specification, equipment, manpower, and other resources to be used for this contract to address the purpose of this Bid.
2. **WARRANTY PROVISIONS:** All work must be warranted against defective material and workmanship for a period of 5 years after final acceptance of work unless otherwise addressed in another section. The proponent must provide documentation on the type and extent of product and service warranty for the work conducted and current documentary evidence of proven use in the State of Michigan, in the last (1) year. If not satisfactory the maintenance bond will be extended for a period of 10 (ten) years after completion of work.
3. **PROJECT COORDINATION:** Description of coordinating the works required to satisfy the City.
4. **PROJECT SCHEDULE:** This shall include timelines such as start date and completion date. Number of crew(s) including equipment, which will be working on projects shall be indicated.
5. **COMMUNICATION:** Type and method of communication between, the City and project personnel including quick contact with field crew.
6. **COMPANY PROFILE:** Company line of business, size, experience, financial stability, technical support capabilities, quality and reputation in the industry. Outline of the firm's ability to complete the work in scheduled time indicated.
7. **PROJECT PERSONNEL:** Name, responsibility, certification or licence and experience in the same or similar work required.
8. **REFERENCES:** Proponents must list all contracts performed from 1999 to present. List of references, providing a short description of previous similar works. List shall include Municipality or City, contact name/title and phone number, project start and completion dates and scope and size project.
9. Example or copy of a final report of a similar project.
10. **WORK PROCEDURES:** Description should clearly indicate between the City and Contractors responsibility.
11. **DESCRIPTION OF WORK:** Description of work equipment, and personnel are required for the following:
  - Television inspection - initial and final installation inspection.
  - Cleaning - flushing of system by high velocity water jet (hydrocleaning).
  - Flow control - blocking, stoppage, pumping and bypassing of sewer flows.
  - Removal of calcite build-up by reaming.
  - Removal and disposal of solids and semi-solids materials resulting from cleaning and calcite removal.
  - Sewer pipe joint sealing using approved chemical grout.
  - Pressure testing (air) of all pipe joints sealed by chemical grout.
  - Removal of excess grout or excess residue at sealed joints and the periphery of the pipe.
  - Sewer pipe lining by inverted type cured in place liner (CIPP).
  - Lateral lining by inverted CIPP from mainline including a sealed connection at the main to lateral interface.
  - Installation of up to surface cleanout by vacuum excavation method.
  - Removal of intruding laterals (various materials) by remote controlled robotic reaming, CCTV assisted
  - Documentation of all pertinent data including initial and final test results.
  - Customer service procedure in dealing with residents affected by the work required under this contract.



## **1.0 CONTRACTORS RESPONSIBILITY**

- 1.1 Provision of the necessary labour, equipment, vehicles, necessary tools and materials to perform the work required as defined in the Description of Work Item 5.2.11 including public relations & communication to meet the completion date as stated.
- 1.2 Investigation on the character of work and all existing conditions for the contractor to determine the actual conditions of work and provide a cost. Extra cost claims based on non-awareness of any provisions due to existing conditions is not the City's responsibility and will not be entertained.
- 1.3 Provision of a certificate from Workplace Compensation indicating clearance of all liabilities.
- 1.4 Licenses, permits and/or permission from private or other government agencies or utility companies where encroachment on their property is necessary.
- 1.5 Clearance of blockages or obstruction in the pipe to perform the required work under the contract.
- 1.6 Provision of water necessary for the performance of Work under the contract. Use of fire hydrant for the performance of work under this contract shall be provided by the City at a location of its choice.
- 1.7 Transportation and disposal of all materials removed from the sewers during performance of work under this contract.
- 1.8 A storage and parking area for vehicles, equipment and material required during the performance of the contract.
- 1.9 Notice to THIRD PARTIES (such public utilities like telephone, gas, hydro and cable companies) of the Contractor's intent to perform work in all area where such parties may have right to underground property or facilities, and request for information as to the nature and location of plant or property.
- 1.10 Any authorization required to perform work during night time hours, weekends or on holidays.
- 1.11 Traffic control and devices as required for the safety of workers and public in compliance with all current governing bodies regulations.
- 1.12 Use only of approved materials for chemical grouting (sealing), etc. Materials shall be approved by use in the work required by all Federal & State agencies governing the use of such products and materials.
- 1.13 Product label and specimen provision where required and asked for by the City.
- 1.14 Licenses, permits and supervision of qualified technicians for handling, using, applying and installation of materials or products to perform the required work.
- 1.15 Sewer Flow control: maintenance of sewer flow during the process of any work required under this contract.
- 1.16 Materials Removal - solid or semi-solid material resulting from cleaning operation shall be removed at the downstream manhole being cleaned. Flushing of removed materials to downstream section not permitted.
- 1.17 Documentation and submission of all pertinent data including all videotapes of TV inspection in performance of the work required. Initial and final results of all tests to be documented and submitted to the City.
- 1.18 Furnishing of representative sample of grouting material at the request of the City.
- 1.19 All insurance and bond requirement to enter into contract with the City. Liability insurance shall be included for basement flooding or any damage caused by the work conducted. Agreement to hold the City, harmless against damages caused by the contractor or his agents in connection with the contract.

- 1.20 The Liability Insurance Policy and/or endorsement shall be satisfactory to the City of Lincoln Park.
- 1.21 Compliance to all safety and health related matters as per MIOSHA and the City of Lincoln Park.
- 1.22 Scheduling and coordination of work crew in order to satisfy the work schedule.
- 1.23 Removal, disposal of materials and clean up of work site. All final clean up to be to the satisfaction of the Superintendent of Water and Sewer or his designate.
- 1.24 Means of communication with contractors field crew by the City's staff during working hours.
- 1.25 Clear and proper documentation of invoicing for payment of work conducted.

## **2.0 RESTORATION**

- 2.1 The edge of the surface of all excavations, except for those made in sodded areas, shall be cut by the Contractor in straight lines using a saw to leave a clean, straight edge. All such excavations shall have vertical walls only. Excavation wall support systems shall be provided by the Contractor and shall conform to requirements of the MIOSHA and Regulations made there under. Such excavations shall not extend beyond the specified limits of the cut.
- 2.2 The Contractor shall only be temporarily reinstate cuts within the roadway (i.e. between and including curbs) by painting the edge of the existing pavement or curb with SS 1 emulsified asphalt or equivalent, and placing and compacting, to the level of the existing adjacent pavement and curb, at least two (2) inches of HL-3 Surface Course Asphaltic Concrete.
- 2.3 The Contractor shall temporarily reinstate cuts in boulevards paved with asphaltic concrete with two (2) inches of HL-3 Surface Course Asphaltic Concrete over the Granular "A" fill and shall compact such concrete to the level of the adjacent asphaltic concrete. Asphaltic concrete driveway aprons in boulevards less than one and one fifth (1.2) meters wide in which a cut is made shall be entirely resurfaced by the Contractor.
- 2.4 The Contractor shall temporarily reinstate the concrete portion of sidewalks with two (2) inches of HL-3 Surface Course Asphaltic Concrete, over the Granular "A" material and shall compact such asphaltic concrete to the level of the existing adjacent sidewalk.
- 2.5 The Contractor shall remove all lock stones in the area of his excavations by hand, handling with care to avoid chipping, and shall store such lock stones in a secured acceptable location where the lock stones shall be placed neatly by the Contractor as directed by the Waterworks supervisor or his designate. The Contractor shall reinstate the lock stone area with compacted granular material to the level of the existing lock stones. The Contractor shall permanently and completely restore all areas of disturbed lock stone to its original condition or better and to the satisfaction of the Superintendent of Water and Sewer or his Designate.
- 2.6 The Contractor shall permanently reinstate cuts in existing sodded boulevards with four (4) inches of good grade topsoil and sod. The Contractor shall also ensure that the new sod is properly watered 3 times over the course of 10 days or until it is fully rooted and becomes self-sufficient.
- 2.7 The Contractor shall be solely responsible for and shall bear the costs and expenses for the maintenance of such temporary reinstatements until the date of payment. Final restorations to be completed by the City.
- 2.8 Notwithstanding the foregoing, the Contractor shall restore all areas disturbed in the performance of the Work to a condition equal to or better than the state of such areas prior to the commencement of the Work and to the satisfaction of the Superintendent of Water and Sewer or his Designate.
- 2.9 The City's Department of Public Service will provide the necessary area maps to guide the successful contractor in the location of the work. Map(s) will be provided prior to start of work.

- 2.10 The City's Department of Public Service or their designate will provide assistance in special circumstance where contractor encounters an unforeseen problem not identified in the proposal.

**REPAIR REPORT – DATA REQUIRED:** For all repair work performed, data details and repair codes must be provided. The report shall be submitted in Excel format in hard copy and digital disk. Contractor may offer additional repair codes if necessary.

### REPAIRS

Invoice #	Street Name	Start MH	Finish MH	Sewer Length (ft)	Date Repaired	Defect ID	Repair Code	Distance from Start MH	Quantity/ Units	Unit Cost	Total Cost (\$)
e.g.123	Town Center Blvd	565A	566A	300	5-Oct-02		R_S	0.0	1.0	415.00	415.00
e.g.123	Town Center Blvd	565A	566A	300	5-Oct-02	12346	GRI	10.5	1.0	64.50	64.50
e.g.123	Town Center Blvd	565A	566A	300	5-Oct-02	12347	GRI	12.9	1.0	64.50	64.50
										TOTAL	544.00

### REPAIR CODES

Category	Code	Description
Flush	FLP	Post-Repair Flushing
Flush	FLS	Flush
Flush	FLV	Flushing & Video Inspection
Foam	FR	Foam Roots
Inspect	PIC	Video Snapshot
Inspect	VIA	Post-Repair Video Inspection
Inspect	VIB	Pre-Repair Video Inspection
Inspect	VID	Video Inspection of Sewer Line
Inspect	VIL	Video Inspection of Lateral
Liner	LLP	Reinstate Lateral w/CIPP from property line, including cleanout installation
Liner	LLS	Reinstate Lateral w/CIPP from sewer main line, including cleanout installation
Liner	LSL	Line Sewer Main Line w/CIPP
Materials	MAT	Materials (Consumables)
MH	MBR	Benching Repairs / Replacement
MH	MCI	Cretex Installation
MH	MML	Moduloc Repairs / Replacement
MH	MPC	Parge Chimney
MH	MST	Steps Repairs / Replacement
Ream	R_S	Reaming Setup
Ream	REC	Ream Calcite
Ream	RED	Ream Debris
Ream	REG	Ream Grease
Ream	REL	Ream Protruding Lateral
Ream	RER	Ream Roots
Repair	G_S	Grouting Setup
Repair	GRB	Grout Manhole Benching
Repair	GRJ	Grout Pipe Joint
Repair	GRL	Grout Lateral
Repair	GRM	Grout Manhole Joint
Repair	NOT	Could not repair
Repair	TSS	Test & Seal (Epoxy)
Test	JAT	Joint Air Test

## EVALUATION CRITERIA

**MANDATORY CRITERIA:** The following are mandatory requirements. Proposals not clearly demonstrating that they meet them will receive no further consideration during the evaluation process.

Criteria
The proposal must be received at the closing location by the specified closing date and time. A bid surety in the amount of 5% of the total must accompany your offer.
The proposal must be in English and must not be sent by facsimile.
Six (6) copies of the proposal must be submitted.
A person authorized to sign on behalf of the Proponent must sign the proposal.
Minimum five (5) years Incorporation and contracting experience in the State of Michigan performing the proposed work requested.

**DESIRABLE CRITERIA:** Proposals meeting the mandatory requirements will be further assessed against the following desirable criteria.

Criterion
Meeting all requirements as specified.
Experience with projects of similar scope and size
Qualification and staff experience
Cost effectiveness
Type and proof of material being recommended
Ability to respond and proximity to the City
Stability of organization
Warranty provision as requested

**PART V**  
**TECHNICAL SPECIFICATIONS**

## **TECHNICAL SPECIFICATIONS FOR VIDEO INSPECTION**

1. This document outlines the requirements for all CCTV Inspection submissions from Contractors. The Contractor is expected to use City approved software to record infrastructure data and observations during camera inspection. All data recorded must be validated according to the Water Research Council (WRC) guidelines and the guidelines set out in this document.
  - 1.1. The Operator/Contractor crew is to inform the Area Supervisor of activities on a daily basis. The crew is to provide the following information:
  - 1.2. The locations where the crew will be working.
  - 1.3. The location of sewers and manholes that contain a hazardous atmosphere.
  - 1.4. The location of sewers inspected that day that are in immediate danger of total hydraulic or structural failure.
  - 1.5. Any sewers observed that day that can't be inspected and the reasons why not.
  - 1.6. Inspection not being scheduled for the next day(s) due to equipment malfunction.
    - 1.6.1.1.1. In the case of a) provide the
    - 1.6.1.1.2. Sewer type(s) being inspected
    - 1.6.1.1.3. Distribution sheet number
    - 1.6.1.1.4. Street name

In the case of b), c) and d) provide the information requirements for a) and the upstream and downstream manhole number(s) of the pipe segment(s) involved.
2. Sewers are normally to be inspected only when flow levels do not cover or splash up on the camera lens. An inspection showing high effluent levels will only be allowed when
  - 2.1. the camera is travelling through a sump, and/or
  - 2.2. debris levels have elevated effluent levels in parts of the sewer section.
3. When sewers are found that don't meet the specifications outlined in #1 above they shall be left un-inspected. The Area Supervisor must be notified so that the line can be cleaned and/or rescheduled.
4. Inspections will normally be done with the camera travelling with the flow direction. Against-the-flow inspections can only be done under one of the following circumstances:
  - 4.1. Effluent levels are minimal. Effluent does not cover or splash up on the camera lens.
  - 4.2. A reverse inspection is being conducted.
  - 4.3. The inspection can't be done with the flow because the upstream manhole
    - 4.3.1.1. is not found
    - 4.3.1.2. is inaccessible
    - 4.3.1.3. has a high effluent level
    - 4.3.1.4. has a high debris level, or
    - 4.3.1.5. has benching that will not allow camera entry.

5. A reverse inspection is to be done whenever feasible if the initial inspection has an SA code (for Survey Abandoned). The reverse inspection is to be completed immediately after the initial inspection.
6. No inspection can be recorded when fog is on the camera lens.
7. No inspection can be recorded when fog in the sewer significantly affects the quality of the video image. The fan shall be used to attempt to clear the fog when necessary. If possible, sewers containing fog will be left until a time when the fog will no longer be present (i.e. warmer weather).
8. If debris piles onto the camera lens and can't be shaken off, the inspection shall be terminated.
9. The video tape shall have alpha-numeric data recorded on it before the inspection of any sewer section. The data will be recorded for 20 to 30 seconds. When it is recording the camera is to be stationary and have the distance counter set as 0.0.

The information shall be in the format of the example shown below.

RANDALL AVE	= street being inspected
CARTMEL DR TO GALBRAITH CR	= streets bordering the street being inspected
194F TO 202F	= which manhole to manhole section is being inspected
8" SAN	= diameter of sewer (metric only) and sewer type
JUNE 07 2003	= date of inspection
7F2A	= map drawing
0.0	= camera distance counter

10. The video tape will have alpha-numeric data on it while the camera is travelling through the sewer. The information shall be in the format of the example shown below.

RANDALL AVE	= street being inspected
194F TO 202F	= which manhole to manhole section is being inspected
JUNE 07 2003	= date of inspection
+004.9	= camera distance counter

When the camera stops to view a pipe defect and the alphanumeric data is found to obstruct the defect the camera will be moved a maximum of 0.1 feet forward or backward so the defect can properly be seen.

11. All alpha-numeric data will be top right justified except for the distance counter value. The background block feature will be used when necessary to ensure the data is easily readable.
12. The entire length of the sewer from starting to finishing manhole wall will be shown on tape whenever possible. The section of pipe between the start manhole and the location where the distance counter is set shall be recorded on tape with the distance counter set at ?? or 0.0.
13. The distance counter is to measure distances from the centre of the start manhole to the centre of the finish manhole.
14. The distance measured by the camera between two manholes (surveyed distance) is to be confirmed by using a measuring wheel between the same manholes (surface distance).
15. All recorded completed inspections must have a surveyed and surface distance that does not differ by more than 1%. If it is confirmed that the surveyed distance has been recorded with an incorrect value the inspection will be deleted and redone.

16. Inspections are to be recorded using enclosed entitled "SPECIFICATIONS FOR COMPLETING SCREEN FIELDS".
17. If a manhole is found that is not on the map or included in the listing provided by The City, the manhole will be designated as 'A'. Use the second through fourth Notes fields in the database to provide information on the location of the manhole in relation to other manholes on the maps or lists provided.
18. A diskette may only contain files and digital pictures for inspections associated with only one video tape.
19. All tapes and diskettes shall be labelled with the video tape number.
20. An attempt will be made to inspect all sewers of one type in a given inspection area before moving to another. Inspections within an inspection area can be done in whatever order the crew desires.
21. Maps will be marked as follows:
  - sewers that have been attempted to be inspected will be highlighted in yellow.
  - notes will be placed beside sewers that
  - have not been completely inspected
  - have not been inspected at all.
22. At the end of each week's inspection the following will be submitted to the office: all completed video tapes. All diskettes associated with the completed video tapes. They shall be placed inside the video tape box .completed maps.
23. Sewers in different inspection areas will be kept on separate tapes. Storm and sanitary sewers will also be kept on separate tapes.



**TECHNICAL SPECIFICATIONS  
FOR  
CHEMICAL GROUT TESTING AND SEALING**

**SEWER PIPE JOINT TESTING, MAIN SEWERS**

1. Intent: The intent of pipe joint testing is to identify those sewer pipe joints that are defective (allowing groundwater to enter the sewer system) and that can be successfully sealed by the internal pipe joint sealing process. Testing will be performed on all joints in a section except those joints, which are visibly leaking (infiltrating). Testing on these joints would be unnecessary because the intent of testing is obviously attained.
2. Application: Sewer pipe joint testing is used to test the integrity (tightness or leakage) of individual pipe joints. Testing cannot be performed and will not be required on cracked or broken pipe, building sewers, or sections of pipe between joints.

Note: Testing of structurally sound sections of pipe barrel between joints is, however, used as a control test to simulate a good joint. If such a test is not positive, leakage from the testing device may be indicated, and may make joint testing invalid. Leakage is often caused by debris on the pipe invert which prevents the testing device from making a pressure-tight seal on the pipe . . . Better cleaning may be required. In concrete pipe, leakage may also be caused by corrosion (roughness) at the crown or porosity of the pipe itself . . . In some cases, joint testing (and sealing) cannot be performed.

3. Equipment: The basic equipment used shall consist of a pan & tilt television camera, joint testing device (such as a packer), and test monitoring equipment. The equipment shall be constructed in such a way as to provide means for introducing a test medium, under pressure, into the VOID area created by the expanded ends of the joint-testing device and a means for continuously measuring the actual static pressure of the test medium within the VOID area only.

VOID pressure data shall be transmitted from the VOID to the monitoring equipment.

All test monitoring shall be above ground and in a location to allow for simultaneous and continuous observation of the television monitor and test monitoring equipment by the Owner's Representative.

4. Test Pressure: Joint test pressure shall be 3 psi higher than the groundwater pressure, if any, outside the pipe.  
Groundwater pressure may be determined by positioning the testing device on a visibly infiltrating joint and measuring the resulting VOID pressure with the VOID pressure monitoring equipment.

In the absence of groundwater pressure data, the test pressure shall be equal to 1/2 psi per vertical foot of pipe depth or 3 psi, whichever is greater.

Note: There is generally a practical limit of 10 psi for the test pressure. Most testing devices and sealing packers cannot retain much more than 10 psi between the expanded end elements (sleeves) without leakage (blow-by). This is a function of pipe cleanliness, pipe surface roughness, and the inflation pressure used.

5. Test Procedure: Each sewer pipe joint which is not visibly leaking shall be individually tested at the above-specified test pressure (not exceeding a test pressure of 10 psi) in accordance with the following procedures.

#### **AIR TEST PROCEDURE**

- 5.1. The testing device shall be positioned within the line in such a manner as to straddle the pipe joint to be tested. It should be noted that a specific cable or chain length is designed for each packer size. This specific cable length is what allows each size packer to be positioned with the TV camera onto a joint.
- 5.2. The testing device end elements (sleeves) shall be expanded so as to isolate the joint from the remainder of the line and create a VOID area between the testing device and the pipe joint. The ends of the testing device shall be expanded against the pipe with sufficient inflation pressure to contain the air within the VOID without leakage past the expanded ends.
- 5.3. Air shall then be introduced into the VOID area until a pressure equal to or greater than the required test pressure is observed with the VOID pressure monitoring equipment. If the required test pressure cannot be developed (due to joint leakage), the joint will have failed the test and shall be sealed as specified (see SEWER PIPE JOINT SEALING).

5.4. After the VOID pressure is observed to be equal to or greater than the required test pressure, the airflow shall be stopped. If the VOID pressure begins to decay within 15 seconds (due to joint leakage), the joint will have failed the test and shall be sealed as specified (see SEWER PIPE JOINT SEALING).

6. Control Test: Prior to starting the pipe joint testing phase of the work, a two-part control test shall be performed as follows:

6.1 To insure the accuracy, integrity, and performance capabilities of the testing equipment, a demonstration test will be performed in a test cylinder constructed in such a manner that a minimum of two known leak sizes can be simulated (see diagram). This technique will establish the test equipment performance capability in relationship to the test criteria and insure that there is no leakage of the test medium from the system or other equipment defects that could affect the joint testing results. If this test cannot be performed successfully, the Contractor shall be instructed to repair or otherwise modify this equipment and perform the test again until the results are satisfactory to the Owner's Representative. This test may be required at any other time during the joint testing work if the Owner's Representative suspects the testing equipment is not functioning properly.

6.2 After entering each manhole section with the test equipment, but prior to commencement of joint testing, the test equipment shall be positioned on a section of sound sewer pipe between pipe joints, and a test performed as specified. This procedure will demonstrate the equipment is functioning properly; the packer is capable of developing a proper seal against the pipe walls, and the packer is capable of isolating a joint. Should it be found that the barrel of the sewer pipe will not meet the joint test requirements, the requirements will be modified as necessary.

6.3 Upon completing the testing of each individual joint, the packer shall be deflated with the void pressure meter maintaining the established air test pressure. Should the void pressure meter fail to drop to zero (0), the Contractor shall be instructed to clean his equipment of residual grout material or make the necessary equipment repairs to provide for an accurate Void Pressure reading. Joints that fail to meet the specified test criteria shall be retested and/or resealed until the test criteria can be met in order to receive payment.

7. Test Records: During the joint testing work, records shall be kept which include:

7.1 Identification of the manhole section tested

- 7.2 The test pressure used
- 7.3 Location (footage) of each joint tested and location of any joints not tested and reason for not testing
- 7.4 A statement indicating the test results for each joint tested
- 7.5 Test pressure achieved and maintained for each joint passing the test.

**TECHNICAL SPECIFICATIONS  
FOR  
CHEMICAL SEALING (GROUTING MATERIAL)**

1. **INTENT:** The intent of this section is to define the properties that a sealing material must have to perform effectively in the intended application and under expected field conditions. The intended application is remotely sealing sewer pipe joints with a sealing packer (see SEWER PIPE JOINT SEALING).

It should be understood that most of the generically classified chemical sealing materials can achieve desired long-lasting results when used in the proper application and when properly applied by trained operators. **It shall be clearly understood that all joints receiving chemical sealing materials shall have such materials applied until such point as the joint will not accept any more.** This is to assure that any void spaces which may exist outside of the pipe will be filled and stabilizing the surrounding soils.

In every case, mixing and handling of chemical sealing materials shall be in accordance with the manufacturer's recommendations.

2. **GENERAL:** All chemical sealing materials used in the performance of the work specified must have the following characteristics:
  - 2.1. While being injected, the chemical sealant must be able to react/perform in the presence of water (groundwater).
  - 2.2. The cured material must withstand submergence in water without degradation.
  - 2.3. The resultant sealant (grout) formation must prevent the passage of water (infiltration) through the sewer pipe joint.
  - 2.4. The sealant material, after curing, must be flexible as opposed to brittle.
  - 2.5. In place, the sealant formation should be able to withstand freeze/thaw and wet/day cycles without adversely affecting the seal. Note: This primarily applies to storm sewers, which are shallow and sometimes dry.
  - 2.6. The sealant formation must not be biodegradable.
  - 2.7. The cured sealant should be chemically stable and resistant to the mild concentrations of acids, alkalis, and organics found in normal sewage.
  - 2.8. Packaging of component materials must be compatible with field storage and handling requirements. Packaging must provide for worker safety and minimize spillage during handling.
  - 2.9. Mixing of the component materials must be compatible with field operations and not require precise measurements of the ingredients by field personnel.
  - 2.10. Cleanup must be done without inordinate use of flammable or hazardous chemicals.
  - 2.11. Residual sealing materials must be easily removable from the sewer line to prevent reduction of blockage of the sewage flow.
  - 2.12. In September 1980, the APWA published "Assessment of Sewer Sealants" under EPA Grant No. R806567-01 (Office of R & D, U.S. EPA, Cincinnati, OH 45268). This report describes performance

attributes for a sewer sealant, many of which are listed above.

3. **CHEMICAL SEALING MATERIAL:** The Chemical grout to be used for this project is Acrylamide (Avanti AV100 ) gel sealing material which exhibits the following characteristics:
- 3.1. A minimum of 10% acrylamide base material by weight in the total sealant mix. A higher concentration of acrylamide base material may be used to increase strength or offset dilution during injection.
  - 3.2. The ability to tolerate some dilution and react in moving water during injection.
  - 3.3. A viscosity of approximately 2 centipoises which can be increased with additives.
  - 3.4. A constant viscosity during the reaction period.
  - 3.5. A controllable reaction time from 10 seconds to 1 hour.
  - 3.6. A reaction (curing) which produces a homogeneous, chemically stable, non-biodegradable, firm, flexible gel.
  - 3.7. The ability to increase mix viscosity, density and gel strength by the use of additives.

**TECHNICAL SPECIFICATIONS  
FOR  
SEWER PIPE JOINT SEALING, MAIN SEWERS (PACKER METHOD)**

1. **INTENT:** It is the intent of the sewer pipe joint sealing work to seal sewer pipe joints which have *visible leaks or potential leaks* using the internal joint sealing method. It is realized that this method may only be used on sewer pipe sections in sound physical condition. Longitudinally cracked or broken pipe will not be sealed. When bell cracks or chips are evident from pipe section offsets, *sealing may be undertaken where the offset is small enough to allow proper seating of the sealing packer on both sides of the joint to be sealed.*
2. **EQUIPMENT:** The basic equipment shall consist of a pan & tilt closed-circuit television system, necessary chemical sealant container, pumps, regulators, valves, hoses, etc., and joint sealing packers for the various sizes of sewer pipes. The packer shall be cylindrical and have a diameter less than the pipe size and have cables attached at each end to pull it through the line.
3. **JOINT SEALING PROCEDURE:** Joints showing visible leakage or joints that have failed the joint test specified (SEE SEWER PIPE JOINT TESTING), shall be sealed as specified. Joint sealing shall be accomplished by forcing chemical sealing materials into or through faulty joints by a system of pumps, hoses, and sealing packers. Jetting or driving pipes from the surface that could damage or cause undermining of the pipelines shall not be allowed. Uncovering the pipe by excavation of pavement and soil (which would disrupt traffic, undermine adjacent utilities and structures, and cause further damage to the pipelines being repaired) shall not be allowed. The packer shall be positioned over the faulty joint by means of a measuring device and the closed-circuit television camera in the line. It is important that the procedure used by the Contractor for positioning the packer be accurate to avoid overpulling the packer and thus not effectively sealing (grouting) the intended joint. The packer ends (end element, sleeves) shall be expanded using controlled pressure. The expanded ends shall seal against the inside Periphery of the pipe to form a VOID area at the faulty joint, now completely isolated from the remainder of the pipeline. **Into this isolated area, sealant materials shall be pumped through the hose system at controlled pressures, which are in excess of groundwater pressures to the point of refusal. Refusal shall be defined as the point of blow-by on the packer bladders at any point after a minimum of ¼ gal of sealant per inch diameter has been pumped into the defective joint.** The pumping unit, metering equipment, and the packer device shall be designed so that proportions and quantities of materials can be regulated in accordance with the type and size of the leak being sealed.
  - 3.1 Mainline lateral connections will be sealed with the use of a mainline lateral packer capable of extending up the service lateral a minimum of 12". The packer will be inserted into the main and positioned to straddle the lateral, once in place the mainline end elements will be inflated to create a seal. After the end elements have created a sealed the inflatable arm will be extended up the service lateral to create a third seal in order to isolate the main to lateral connection. The packer will then introduce grout to the void area and will pump grout until refusal. Upon refusal (blow by) the packer will be deflated, if visible infiltration still exists the process will be repeated until successful.
4. **JOINT SEALING VERIFICATION:** Upon achieving refusal at each joint, the packer shall be deflated, moved away from the joint to break away the doughnut of gel formed by the packer VOID. The injection port on the packer shall be cleared with a quick burst of pressure test fluid such that the VOID pressure meter reads zero pressure. The packer should then be repositioned on the joint, re-inflated and the joint retested as specified (SEE SEWER PIPE JOINT TESTING). Should the VOID pressure meter not read zero, the Contractor shall clean his equipment of residual grout material or make the necessary equipment repairs/adjustments to produce accurate VOID pressure readings. Joints that fail to meet the specified test criteria shall be resealed and retested until the test criteria can be met in order to receive payment.
5. **RESIDUAL SEALING MATERIAL:** Residual sealing materials that extend into the pipe, reduce the pipe

diameter, or restrict the flow shall be removed from the joint. The sealed joints shall be left reasonably "flush" with the existing pipe surface. If excessive residual sealing materials accumulate in the line (and/or if directed by the Owner's representative) the manhole section shall be cleaned to remove the residual materials.

6. It is intended that no rehabilitation by chemical grouting shall be performed on any sanitary sewer line that has been scheduled for open cut point repair, replacement or other work involving excavation or new connections until the scheduled work has been completed, or as otherwise authorized by the Owner's Representative.
7. No joint shall be considered sealed unless, while under continual pressure, a minimum of 1/4 gallon per inch of pipe diameter has been applied, i.e. 2 gallons for 8" pipe. This is to insure that sufficient chemical has been dispersed into the soil surrounding the joint and that a temporary seal has not been made by applying a minimum amount of chemical to the void and joint area inside the pipe. Sealant shall be pumped "to resist" sealant volume shall not exceed 1/2 gallon per inch diameter without authorization from the owner's representative.
8. Gel times shall not be less than 20 sec. unless approved by the Owner's Representative.
9. No testing or chemical grouting of pipe joints will be allowed in the absence of the Owner's Representative.
10. **RECORDS:** Included in the records for joint sealing shall be the test pressure before and after sealing. The amount of grout material used to seal the joint shall also be noted.
11. **WARRANTY:** All sewer pipe joint sealing work performed shall be guaranteed against faulty workmanship and/or materials for a period of one year after the completion of the work.

11.1 Prior to the expiration of the guaranty period, the Engineer/Owner shall select an initial retest area consisting of specific manhole sections. Manhole sections to be retested shall be randomly selected throughout the project area and shall be representative of the majority of the sealing work originally performed. The initial test area shall consist of at least 5%, but not exceed 10%, of the linear feet contained in the original project.

11.2 Within the initial retest area, the Contractor shall retest all previously sealed joints as specified (see SEWER PIPE JOINT TESTING). Any joints failing the retest shall be resealed. If the failure rate of the retested joints is less than 5% of the joints retested, the work shall be considered satisfactory and no further retesting will be required.

11.3 If, in the initial retest area, the failure rate of the retested joints exceeds 5% of the joints retested, an additional retest area of equivalent size shall be selected and all previously sealed joints shall be retested. This additional testing and sealing, if necessary, will continue until a failure rate of less than 5% is met.

11.4 Any additional testing/sealing required beyond the initial retest area shall be accomplished at no cost to the Owner.

11.5 Should as much as 25% of the original project be retested and fail to meet the 5% requirement, the Contractor will be required to provide the same number of crews as utilized in the original project so that the retesting will proceed at a more rapid rate.

## TECHNICAL SPECIFICATIONS FOR CURED IN-PLACE SECTIONAL LINING

1. **INTENT:** It is the intent of this specification to provide for the reconstruction of a particular section of sewer pipe without excavation.

2. **GENERAL:** The reconstruction will be accomplished using a non-woven fabric tube of particular length, a thermo set resin with physical, and chemical properties appropriate for the application. The tube is vacuum impregnated with the resin then placed inside a protective carrying device and winched into the existing sewer. When the carrying device is properly positioned, the end is opened and the resin-saturated tube is inverted through the damaged section using air or water pressure. Once the tube/resin composite is cured, the carrying device is removed. Wrap around or Pull in style products will not be considered equal. In order to be considered equal a written request with full documentation must be submitted to the engineer for review a minimum of 10 days prior to the bid opening. **Only products, which follow the installation procedures and meet structural specifications of ASTM F1216, shall be considered.**

3. **MATERIAL:** The tube will consist of one or more layers of flexible needled felt or an equivalent non-woven material. The tube will be continuous in length and the wall thickness shall be uniform. No overlapping sections shall be allowed in the circumference or the length of the liner. The tube will be capable of conforming to offset joints, bells, and disfigured pipe sections. The resin will be polyester or vinyl ester with proper catalysts as designed for the specific application. The cured-in-place pipe shall provide a smooth bore interior with a co-efficient factor of N-010%. Each installation shall have a design report documenting the design criteria for a fully deteriorated pipe section, relative to the hydrostatic pressures, depth of soil cover, and type of soil.

3.1 The composite of the materials above will, upon installation inside the host pipe, exceed the minimum test standards specified by the American Society for Testing Methods.

**Test Standards for CIPP**

FLEXURAL STRENGTH (ASTM D-790)	4,000 PSI
FLEXURAL MODULUS (ASTM D-790)	400,000 PSI

4. **INSTALLATION PROCEDURE:** The installation of all liners must be in accordance with (ASTM F 1216, section 7) Standard practice for the Rehabilitation of Pipelines and Conduits using the Inversion of a Resin Impregnated Felt Tube.

When required, the flow shall be by-passed. The pumping system will be sufficiently sized for normal to peak flow conditions. The upstream manhole is monitored at all times and an emergency deflate system will be incorporated so that the plugs may be removed at any time without requiring confined space entry. Installer will clean and inspect the line immediately prior to lining utilizing a pan/tilt camera capable of verifying active or inactive service connections and the overall structural condition of the pipeline. All roots, debris, and protruding service connections will be removed prior to reconstruction via a remotely controlled robotic cutting device. The current condition of the pipe will be compared to the original designed condition to verify that design parameters have not changed. See Item 6, Deviations.

The tube is inspected for tears and frayed sections. The tube, in good condition, will be vacuum impregnated with the thermo set resin as per ASTM F1216 section 7. The resin will be introduced into the tube creating a slug of resin at the beginning of the tube. A set of calibration rollers will assist the resin slug to move throughout the tube. All air in the tube shall be removed by vacuum allowing the resin to thoroughly impregnate the tube. All resin shall be contained to ensure no public property or persons are exposed to the liquid resin. All other impregnation methods are unacceptable, as their reliability is questionable and inconsistent.

4.1 The saturated tube along with the inversion bladder will be inserted into the carrying device. Liners, which are exposed during the positioning phase, will not be acceptable as resin loss and dilution (wash out) will occur. The entire carrying device is pulled into the pipe using a cable winch. The pull is



complete when the end of the launching device is aligned with the beginning of the section being reconstructed. The resin and tube are completely protected during the pull. No resin shall be lost by contact with manhole walls or the pipe during the pull. The resin should not be contaminated or diluted by exposure to dirt, debris, or water during the pull. The resin that provides a structural seal shall not contact the pipe until positioned at the point of repair.

4.2 The installer shall be capable of viewing the beginning of the liner contacting the host pipe verifying the exact placement of the liner. Video documentation of the placement, prior to curing, shall be provided to the owner. No measuring from a CCTV counter or estimating will be allowed.

4.3 The tube will be inverted (as per ASTM F1216, section 7) out of the carrying device by controlled air or water pressure. The installer shall be capable of viewing the entire liner contacting the host pipe from the beginning to the end of the liner verifying the liner has covered the entire damaged section. Video documentation of the entire liner contacting the host pipe, prior to curing shall be provided to the owner. The tube is held tightly in place against the wall of the host pipe by the pressure until the cure is complete. The liner must be designed to carry resin 5 % to 10% (as per ASTM F1216) beyond its 100% saturation point to allow for resin migration into the host pipe. No barriers (plastic covers or wraps) which prevent resin migration will be permitted as this eliminates any bonding between the liner and the host pipe.

4.4 When the curing process is complete, the pressure will be released. The launching device shall be removed from the host pipe. No barriers, coatings, or any material other than the cured tube/resin composite, specifically designed for desirable physical and chemical resistance properties, should ever be left in the host pipe. Any materials used in the installation other than the cured tube/resin composite is to be removed from the pipe by installer.

4.5 Any service lateral connections covered by the sectional repair are to be opened using a remote controlled robotic cutting device specifically designed for cutting cured-in-place pipe made from these materials.

4.6 A second CCTV inspection is performed to verify the proper cure of the material, the proper opening of service laterals, and the integrity of the seamless pipe. The owner will receive a VHS videotape documenting the inspection and a written report documenting the project.

5. The by-pass pumping system is removed and the sewer flows restored to normal flow conditions.

6. **DEVIATIONS:** Should the pre-installation inspection reveal conditions in the sewer to be substantially different than those used in the design of wall thickness, tube construction, tube length, and resin system; the installer is required to request appropriate changes, supporting such requests with videotape recording of existing conditions and design data. An appropriate addition or deduction in the original proposal price for the scope of work, if approved, will reflect the deviation.

7. **CLEAN-UP:** The site will always be left clean and the property undisturbed.

8. **FINAL ACCEPTANCE:** Upon completion, the installer will deliver the videotape and report to the owners. The owners should review the documentation and the site to determine that the scope of work is complete and the work is satisfactory.

## **TECHNICAL SPECIFICATIONS FOR MANHOLE TO MANHOLE CURED-IN-PLACE PIPE (CIPP)**

1. **INTENT:** It is the intent of this specification to provide for the reconstruction of pipelines and conduits by the installation of a resin-impregnated flexible tube, which is formed to the original conduit by use of a hydrostatic head. The resin is cured using hot water under hydrostatic pressure within the tube. The Cured-

In-Place Pipe (CIPP) will be continuous and tight fitting.

2. **REFERENCED DOCUMENTS:** This specification references ASTM F1216 (Rehabilitation of pipelines by the inversion and curing of a resin-impregnated tube) and ASTM D790 (Test methods for flexural properties of non-reinforced plastics) which are made a part hereof by such reference and shall be the latest edition and revision thereof. In case of conflicting requirements between this specification and these referenced documents, this specification will govern.

3. **MATERIALS:** Tube - The sewn Tube shall consist of one or more layers of absorbent non-woven felt fabric and meet the requirements of ASTM F1216, Section 5. The tube shall be constructed to withstand installation pressures, have sufficient strength to bridge missing pipe, and stretch to fit irregular pipe sections.

3.1 The wet out Tube shall have a uniform thickness that when compressed at installation pressures will meet or exceed the Design thickness.

3.2 The Tube shall be sewn to a size that when installed will tightly fit the internal circumference and length of the original pipe. Allowance should be made for circumferential stretching during inversion. Overlapped layers of felt in longitudinal seams that cause lumps in the final product shall not be utilized.

3.3 The outside layer of the Tube (before wet out) shall be coated with an impermeable, flexible membrane that will contain the resin and facilitate monitoring of resin saturation during the resin impregnation (wet out) procedure.

3.4 The Tube shall be homogeneous across the entire wall thickness containing no intermediate or encapsulated elastomeric layers. No material shall be included in the Tube that may cause delamination in the cured CIPP. No dry or unsaturated layers shall be evident.

3.5 The wall color of the interior pipe surface of CIPP after installation shall be a light reflective color so that a clear detailed examination with closed circuit television inspection equipment may be made.

3.6 Seams in the Tube shall be stronger than the non-seamed felt.

3.7 The outside of the Tube shall be marked for distance at regular intervals along its entire length, not to exceed 5 ft. Such markings shall include the Manufacturers name or identifying symbol.

3.8 Resin - The resin system shall be a corrosion resistant polyester and catalyst system that when properly cured within the tube composite meets the requirements of ASTM F1216, the physical properties herein, and those which are to be utilized in the Design of the CIPP for this project. The resin shall produce CIPP which will comply with the structural and chemical resistance requirements of this specification.

4. **STRUCTURAL REQUIREMENTS:** The CIPP shall be designed as per **ASTM F1216**, Appendix X.1. The CIPP design shall assume no bonding to the original pipe wall.

4.1. The Contractor must have performed long-term testing for flexural creep of the CIPP pipe material installed by his Company. Such testing results are to be used to determine the Long-term, time dependent flexural modulus to be utilized in the product design. This is a performance test of the materials (Tube and Resin) and general workmanship of the installation and curing. A percentage of the instantaneous flexural modulus value (as measured by ASTM D-790 testing) will be used in design calculations for external buckling. The percentage, or the long-term creep retention value utilized, will be verified by this testing. Values in excess of 50% will not be applied unless substantiated by qualified third party test data. The materials utilized for the contracted project shall be of a quality equal to or better than the materials used in the long-term test with respect to the initial flexural modulus used in Design.

4.2. The Enhancement Factor 'K' to be used in 'Partially Deteriorated' Design conditions shall be assigned a value of 7. Application of Enhancement (K) Factors in excess of 7 shall be substantiated through independent test data.

4.3. The layers of the cured CIPP shall be uniformly bonded. It shall not be possible to separate any two layers with a probe or point of a knife blade so that the layers separate cleanly or the probe or knife blade moves freely between the layers. If separation of the layers occur during testing of field samples, new samples will be cut from the work. Any reoccurrence may cause rejection of the work.

4.4. The cured pipe material (CIPP) shall conform to the structural properties, as listed below.

#### MINIMUM PHYSICAL PROPERTIES

Property	Test Method	Cured Composite	Cured Composite
		min. per ASTM F1216	(400,000 psi Resin)
Modulus of Elasticity	ASTM D-790 (short term)	250,000 psi	400,000 psi
Flexural Stress	ASTM D-790	4,500 psi	4,500 psi

4.5. The required structural CIPP wall thickness shall be based as a minimum, on the physical properties in Section 5.5 and in accordance with the Design Equations in the appendix of ASTM F 1216, and the following design parameters:

Design Safety Factor	=	2.0
Retention Factor for Long-Term Flexural Modulus to be used in Design (as determined by Long-Term tests described in paragraph 5.2)	=	1% - 60%
<b>Ovality*</b>	=	<b>5%</b>
Enhancement Factor, k	=	See Section 5.3
Groundwater Depth (above invert)*	=	ft.
Soil Depth (above crown)*	=	ft.
Soil Modulus**	=	Psi
Soil Density**	=	120 pcf
Live Load**	=	H20 Highway
Design Condition (partially or fully deteriorated)***	=	***

\* Denotes information which can be provided here or in inspection video tapes or project construction plans. Multiple line segments may require a table of values.

\*\* Denotes information required only for fully deteriorated design conditions.

\*\*\* Based on review of video logs, conditions of pipeline can be fully or partially deteriorated.  
(See ASTM F1216 Appendix) The Owner will be sole judge as to pipe conditions and parameters utilized in Design.

4.5. Refer to the attached Dimensional Ratio table for specific pipe section requirements, based on the pipe condition, depth, ovality, etc. as computed for the conditions shown, using ASTM F 1216 Design Equations.

4.6. Any layers of the tube that are not saturated with resin prior to insertion into the existing pipe shall not be included in the structural CIPP wall thickness computation.

5. **TESTING REQUIREMENTS:** Chemical Resistance - The CIPP shall meet the chemical resistance requirements of ASTM F1216, Appendix X2. CIPP samples for testing shall be of tube and resin system similar to that proposed for actual construction. It is required that CIPP samples with and without plastic coating meet

these chemical testing requirements.

5.1 Hydraulic Capacity - Overall, the hydraulic profile shall be maintained as large as possible. The CIPP shall have a minimum of the full flow capacity of the original pipe before rehabilitation. Calculated capacities may be derived using a commonly accepted roughness coefficient for the existing pipe material taking into consideration its age and condition.

5.2 CIPP Field Samples - When requested by the Owner, the Contractor shall submit test results from field installations in the USA of the same resin system and tube materials as proposed for the actual installation. These test results must verify that the CIPP physical properties specified in Section 5.5 have been achieved in previous field applications. **Samples for this project shall be made and tested as described in Section 10.1.**

6. **INSTALLATION RESPONSIBILITIES FOR ITEMS INCLUDED IN THE CONTRACT PAY ITEMS:** It shall be the responsibility of the Owner to locate and designate all manhole access points open and accessible for the work, and provide rights of access to these points. If a street must be closed to traffic because of the orientation of the sewer, the Owner shall institute the actions necessary to do this for the mutually agreed time period. The owner shall also provide free access to water hydrants for cleaning, inversion and other work items requiring water.

6.1. Cleaning of Sewer Lines - The Contractor, when required, shall remove all internal debris out of the sewer line that will interfere with the installation of CIPP. The Owner shall also provide a dump site for all debris removed from the sewers during the cleaning operation. Unless stated otherwise, it is assumed this site will be at or near the sewage treatment facility to which the debris would have arrived in absence of the cleaning operation. Any hazardous waste material encountered during this project will be considered as a changed condition.

6.2. Bypassing Sewage - The Contractor, when required, shall provide for the flow of sewage around the section or sections of pipe designated for repair. The bypass shall be made by plugging the line at an existing upstream manhole and pumping the flow into a downstream manhole or adjacent system. The pump and bypass lines shall be of adequate capacity and size to handle the flow. The Owner may require a detail of the bypass plan to be submitted.

6.3. Inspection of Pipelines - Inspection of pipelines shall be performed by experienced personnel trained in locating breaks, obstacles and service connections by close circuit television. The interior of the pipeline shall be carefully inspected to determine the location of any conditions which may prevent proper installation of CIPP into the pipelines, and it shall be noted so that these conditions can be corrected. A video tape and suitable log shall be kept for later reference by the Owner.

6.4. Line Obstructions - It shall be the responsibility of the Contractor to clear the line of obstructions such as solids and roots that will prevent the insertion of CIPP. If pre-installation inspection reveals an obstruction such as a protruding service connection, dropped joint, or a collapse that will prevent the inversion process, that was not evident on the pre-bid video and it cannot be removed by conventional sewer cleaning equipment, then the Contractor shall make a point repair excavation to uncover and remove or repair the obstruction. Such excavation shall be approved in writing by the Owner's representative prior to the commencement of the work and shall be considered as a separate pay item.

6.5. Public Notification - The Contractor shall make every effort to maintain service usage throughout the duration of the project. In the event that a service will be out of service, the maximum amount of time of no service shall be 8 hours for any property served by the sewer. A public notification program shall be implemented, and shall as a minimum, require the Contractor to be responsible for contacting each home or business connected to the sanitary sewer and informing them of the work to be conducted, and when the sewer will be off-line. The Contractor shall also provide the

following:

6.5.1 Written notice to be delivered to each home or business the day prior to the beginning of work being conducted on the section, and a local telephone number of the Contractor they can call to discuss the project or any problems which could arise.

6.5.2 Personal contact with any home or business, which cannot be reconnected within the time stated in the written notice.

6.6. The Contractor shall be responsible for confirming the locations of all branch service connections prior to installing and curing the CIPP.

7. **INSTALLATION:** CIPP installation shall be in accordance with ASTM F1216, Section 7, Section 6, with the following modifications:

7.1. Resin Impregnation - The quantity of resin used for tube impregnation shall be sufficient to fill the volume of air voids in the tube with additional allowances for polymerization shrinkage and the loss of resin through cracks and irregularities in the original pipe wall. A vacuum impregnation process shall be used. To insure thorough resin saturation throughout the length of the felt tube, the point of vacuum shall be no further than 25 feet from the point of initial resin introduction.

After vacuum in the tube is established, a vacuum point shall be no further than 75 feet from the leading edge of the resin. The leading edge of the resin slug shall be as near to perpendicular as possible. A roller system shall be used to uniformly distribute the resin throughout the tube. If the Installer uses an alternate method of resin impregnation, the method must produce the same results. Any alternate resin impregnation method must be proven.

7.1.2 Tube Insertion – The wet out tube shall be positioned in the pipeline using either inversion method. The tube should be inverted through an existing manhole or approved access point and fully extend to the next designated manhole or termination point.

7.1.3 Temperature gauges shall be placed inside the tube at the invert level of each end to monitor the temperatures during the cure cycle.

7.1.4 Curing shall be accomplished by utilizing hot water under hydrostatic pressure in accordance with the manufacturer's recommended cure schedule.

8. **REINSTATEMENT OF BRANCH CONNECTIONS:** It is the intent of these specifications that branch connections to buildings be reopened without excavation, utilizing a remote controlled cutting device, monitored by a video TV camera. The Contractor shall certify he has a minimum of 2 complete working cutters plus spare key components on the site before each inversion. Unless otherwise directed by the owner or his authorized representative, all laterals will be reinstated to 100% to inside diameter of the exist pipe. No additional payment will be made for excavations for the purpose of reopening connections and the Contractor will be responsible for all costs and liability associated with such excavation and restoration work.

9. **INSPECTION:** CIPP samples shall be prepared and physical properties tested in accordance with ASTM F1216, Section 8, using either method proposed. The flexural properties must meet or exceed the values listed in Table 1 of the applicable ASTM.

10. **CLEAN-UP:** Upon acceptance of the installation work and testing, the Contractor shall restore the project area affected by the operations to a condition at least equal to that existing prior to the work.

**TECHNICAL SPECIFICATIONS  
FOR  
CLEANOUT INSTALLATION**

1. **INTENT:** It is the intent of this specification to provide for the installation of an exterior cleanout for the purpose of future cured in place rehabilitation of this service lateral and future maintenance.
2. **GENERAL:** The installation of the cleanout shall only be performed utilizing vacuum excavation to protect the existing underground utilities. The laterals will be located with a mainline lateral camera and excavations will be performed at the right-of-way for the purpose of installing an exterior cleanout.

The cleanout shall be a tee made of P.V.C. with the same diameter as the existing lateral pipe (assumed 6").

3. **MATERIALS:** Exterior cleanouts shall be made of P.V.C, SDR 26 Pipe, including all fittings, pipe and caps necessary to bring the cleanout to the surface. The new cleanout shall be connected to the existing pipe with fittings of the proper size for the specific location. Backfill shall be completed with low strength concrete and brought to within 12" of grade to reduce future settling problems.
4. **INSTALLATION:** Each service lateral will be traced and inspected with the use of a mainline lateral camera. The camera will be launched from the main up the service lateral and traced above ground to determine the location of the exterior cleanout.

4.1 A hole will be vacuum excavated to expose the lateral pipe and permit the installation of the cleanout (24" dia.). Proper shoring shall be used if necessary and considered as an extra to the price. All debris excavated shall be brought to a disposal site supplied by the City.

4.2 Upon exposing the lateral, the new cleanout apparatus shall be installed and connected to the existing lateral. The cleanout shall be raised to grade and connected to the existing lateral with a tee.

4.3 The excavation shall be backfilled with low strength concrete to reduce future settling. All surface restoration shall be completed so as to meet or exceed the conditions prior to the project. All asphalt, concrete, interlocking stone, or pavement materials shall match in color and grade to the materials which were removed for this installation and considered as an extra to the price. All grass and landscaping shall match in color and grade to the materials which were removed for the installation and considered as incidental to the price

5. **TIMING:** The installation of each cleanout shall be completed in 12 hours or less not including the surface restoration (concrete or asphalt replacement, etc.)

**TECHNICAL SPECIFICATION  
FOR  
CURED IN-PLACE JUNCTION LINER**

1. It is the intent of this specification to provide for the reconstruction of a particular lateral sewer pipe **without excavation** while providing a **one piece, leak free connection at the junction of the mainline and lateral pipelines**.
2. **GENERAL:** The reconstruction will be accomplished using a CIPP process. Non-woven fabric tube of proper diameter and length impregnated with a thermosetting resin having physical and chemical properties appropriate for the application. The process shall be performed with a one-piece CIPP liner only, the use of two liners and/or chemical grout shall not be acceptable or considered equal.
3. **MATERIAL:** The lateral tube and the mainline liner will consist of flexible needled felt or an equivalent non-woven material. The tube will be continuous in length and the wall thickness shall be uniform. No overlapping sections shall be allowed in the circumference or the length of the lateral liner or the connection. The tube will be capable of conforming to offset joints and disfigured pipe sections. The mainline liner will be flat and sized accordingly to create a circular lining in the mainline pipe. The resin will be polyester with proper catalysts as designed for the specific application. Each installation shall have a design report documenting the design criteria for a fully deteriorated pipe section, relative to the hydrostatic pressures, depth of soil cover, and type of soil.

The composite of the materials above will, upon installation inside the host pipe, exceed the minimum test standards specified by the American Society for Testing Methods.

**Minimum Test Standards for CIPP**

FLEXURAL STRENGTH (ASTM D-790)

4,500 PSI

FLEXURAL MODULUS (ASTM D-790)

400,000 PSI

4. **INSTALLATION PROCEDURE (ASTM F 1216-98)** Standard Practice for Rehabilitation of Pipelines and Conduit by the Inversion of a Resin Impregnated Tube.

4.1 When required, the flows shall be by-passed. The pumping system will be sufficiently sized for normal to peak flow conditions. The up stream manhole is monitored at all times and an emergency deflate system will be incorporated so that the plugs may be removed at any time without requiring confined space entry.

4.2 Installer will clean and inspect both the mainline and the lateral line immediately prior to lining. All roots, debris, and protruding service connections will be removed prior to the reconstruction process. The current condition of the pipe will be compared to the original designed condition to verify that design parameters have not changed. See Item 6, Deviations.

4.3 The tube is inspected for tears and frayed sections. The tube, in good condition, will be vacuum impregnated with the thermosetting resin. The resin will be introduced into the tube creating a slug of resin at the beginning of the tube. A calibration roller will assist the resin slug to move throughout the tube. All air in the tube shall be removed by vacuum allowing the resin to thoroughly impregnate the tube. All resin shall be contained to ensure no public property or persons are exposed to the liquid resin. A resin impregnated sample (wick), shall be retained by the installer to provide verification of the curing process taking place in the host pipe.

4.4 The saturated tube will be inserted into the launching device. The launching device is pulled

into the pipe using a cable winch. The pull is complete when the open port of the launching device is aligned with the interface of the service connection and mainline pipe. The resin saturated lateral tube is completely protected during the pull. No resin shall be lost by contact with manhole walls or the pipe during the pull. The liner should not be contaminated or diluted by exposure to dirt, debris, or water during the pull.

4.5 The installer shall document the placement of the Junction Liner by internal video inspection with the camera being inserted from the lateral pipe down to the mainline pipe. Video documentation of the placement, prior to curing, shall be provided to the owner. No measuring from a CCTV counter or estimating will be allowed.

4.6 The lateral tube is inverted out of the launcher device by controlled air pressure. The installer shall be capable of viewing the lateral liner contacting the lateral pipe from the beginning to the end of the repair. The mainline / lateral tube is held tightly in place against the wall of the host pipe by controlled pressure until the cure is complete.

4.7 When the curing process is complete, the pressure will be released. The inversion bladder and launching device shall be removed from the host pipe. No barriers, coatings, or any material other than the cured tube/resin composite, specifically designed for desirable physical and chemical resistance properties, should ever be left in the host pipe. Any materials used in the installation other than the cured tube/resin composite is to be removed from the pipe by installer.

4.8 A second CCTV inspection is performed to verify the proper cure of the material and the integrity of the pipe. The owner will receive a video tape on VHS format documenting the inspection and a written report documenting the project.

5. The by-pass pumping system is removed and the sewer flows restored to normal flow conditions.

6. **CLEANOUT INSTALLATION:** Cleanouts will be installed according to the technical specification attached. Cleanouts will be installed using a mainline lateral camera, vacuum excavation and PVC pipe. The cleanouts will be positioned at the right-of-way line and all pipe preparation and measurement shall be taken from this point

7. **CLEAN-UP:** The site will always be left clean and the property restored to conditions equal to site conditions prior to the pipeline reconstruction project undisturbed.

8. **FINAL ACCEPTANCE:** Upon completion, the installer will deliver the videotape and report to the owners. The owners should review the documentation and the site to determine that the scope of work is complete and the work is satisfactory.

9. **CONTRACTOR QUALIFICATIONS:** The contractor selected to perform this project must have a minimum of 5 years experience working with ambient cure CIPP products and a minimum of 2000 installations. The successful contractor must also have a minimum of 3 years experience installing junction liners with a minimum of 1000 installations. Documentation of the minimum requirements including Owner, Project Name, location and date will be furnished to the Project Representative.