VILLAGE OF TINLEY PARK
GAYNELLE ROAD WATER MAIN REPLACEMENT – PHASE 2
(Debra Lane to 167th Street)
REL Project 11-228.02
VILLAGE OF TINLEY PARK
COOK & WILL COUNTIES, ILLINOIS
NOTICE TO CONTRACTORS

The Village of Tinley Park will receive sealed proposals for the following improvements at the Clerk’s office, 16250 South Oak Park Avenue, Tinley Park, Illinois 60477, until 10:00 AM Wednesday, July 8, 2015.

GAYNELLE ROAD WATER MAIN REPLACEMENT - PHASE 2

Proposals will be publicly read aloud on Wednesday, July 8 after 10:01 AM. No bid shall be withdrawn after the opening of the proposals without the consent of the President and Board of Trustees for a period of ninety days after the scheduled time of closing bids.

All proposals shall be sealed in an envelope, addressed to the Village of Tinley Park, attention Clerk’s office. The name and address of the bidder and the name of the project shall also appear on the outside of the envelope. Proposals must be submitted on the forms provided by the Engineer.

The Bid Documents, including specifications, are on file at the office of the Engineer, Robinson Engineering, Ltd., 10045 W. Lincoln Highway, Frankfort, Illinois, (phone 815-806-0300), and may be obtained from the Engineer’s office upon payment of Fifty Dollars ($50.00) per paper copy and Ten Dollars ($10.00) per CD format. The bid documents will be issued until 4:30 PM on the last business day preceding bids. No refund will be made for documents received from the Engineer.

A certified check/bank draft drawn on a solvent bank or a bid bond, payable without condition to the Village of Tinley Park in an amount not less than ten percent (10%) of the bid shall be submitted with each proposal, as a guarantee that, if the proposal is accepted, a contract will be entered into and the performance of the contract is properly secured.

A performance bond in a sum equal to one hundred percent (100%) of the amount of the bid, with sureties to be approved by the President and Board of Trustees for the faithful performance of the contract, must be furnished by the successful bidder. All bids or proposals shall contain an offer to furnish bond upon acceptance of such bid or proposal.

The right is reserved to reject any or all proposals, to waive technicalities, to postpone the bid opening, or to advertise for new proposals, if in the judgment of the President and Board of Trustees their best interests will be promoted thereby.

The contractor will be required to pay not less than the prevailing wage rates on this project as established by the United States Department of Labor. He shall also comply with all applicable Federal, State and local regulations.

The Village of Tinley Park Local Vendor Purchasing Policy provides local vendors with preferential treatment when competing for contracts with the Village. A local vendor is defined as a business that has an actual business location within the Village of Tinley Park and is licensed by the Village. As such, when considering contracts, the Village of Tinley Park reserves the right to forego the lowest and responsible bid in favor of a local vendor under the following circumstances:

<table>
<thead>
<tr>
<th>Contract Value</th>
<th>Range (up to a maximum of)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0-$250,000</td>
<td>5%</td>
</tr>
<tr>
<td>$250,000-$500,000</td>
<td>4%</td>
</tr>
<tr>
<td>$500,000-$750,000</td>
<td>3%</td>
</tr>
<tr>
<td>$750,000-$1,000,000</td>
<td>2%</td>
</tr>
<tr>
<td>$1,000,000-$2,000,000</td>
<td>1%</td>
</tr>
</tbody>
</table>
Responsible bidders are determined pursuant to the criteria set forth pursuant to the criteria set forth in the Village’s Responsible Bidder Ordinance No. 2009-O-002.

Bidder qualifications and experience will also be included in the basis for determining the lowest responsible bidder. Prequalifications will be required to be submitted to the engineer by all potential bidders. If in the opinion of the engineer and the President and Board of Trustees, an applicant would not be able to serve the best interest of the Village, a proposal will not be issued to the applicant.

President and Board of Trustees
Village of Tinley Park
Cook & Will Counties, Illinois
PROPOSAL

TO THE OWNER,  **Village of Tivoli Park**

1. Proposal of **Riceco Construction Corp.**
   (name and address of bidder)
   **P.O. Box 672, Paws Park, IL 60464**
   (email address of bidder)

   for the improvement described in the NOTICE TO CONTRACTORS.

2. In submitting this proposal, the undersigned declares that the only persons or parties interested in the proposal as principals are those named herein; and that proposal is made without collusion with any other person, firm or corporation.

3. The undersigned further declares that he has carefully examined the proposal, plans, specifications, form of contract and contract bond, and special provisions (if any), and that he has inspected in detail the site of the proposed work, and that he has familiarized himself with all of the local conditions affecting the contract and the detailed requirements of construction, and understands that in making this proposal he waives all right to plead any misunderstanding regarding the same.

4. The undersigned further understands and agrees that if this proposal is accepted, he is to furnish and provide all necessary machinery, tools, apparatus and other means of construction, and to do all of the work, and to furnish all of the materials specified in the contract, except such materials as are to be furnished by the Owner, in the manner and at the time therein prescribed, and in accordance with the requirements therein set forth, and is fully responsible for the construction means, methods, techniques, sequences and safety procedures and programs incident thereto.

5. The undersigned declares that he understands that the quantities mentioned are approximate only and that they are subject to increase or decrease; that he will take in full payment therefore the amount and the summation of the actual quantities, as finally determined, multiplied by the unit prices shown in the schedule of prices contained herein.

6. The undersigned further agrees that the unit prices submitted herewith are for the purpose of obtaining a gross sum, and for use in computing the value of extras and deductions; if there is a discrepancy between the gross sum bid and that resulting from the summation of the quantities multiplied by their respective unit prices, the latter shall apply.

7. The undersigned further agrees that if the Owner decides to extend or shorten the improvement, or otherwise alter it by extras or deductions, including the elimination of any one or more of the items, as provided in the specifications, he will perform the work as altered, increased or decreased at the contract unit prices.
8. The undersigned further agrees that the Owner may at any time during the progress of work covered by this contract order other work or materials incidental thereto and that all such work and materials as do not appear in the proposal or contract as a specific item accompanied by a unit price, and which are not included under the bid price for other items in this contract, shall be performed as extra work, and that he will accept as full compensation therefore the actual cost plus fifteen per cent (15%), the actual cost to be determined as provided in the specifications.

9. The undersigned further agrees to execute a contract for this work and present the same to the Owner within fifteen (15) days after the date of notice of the award of the contract to him.

10. The undersigned further agrees that he and his surety will execute and present within fifteen (15) days after the date of notice of the award of contract, a contract bond satisfactory to and in the form prescribed by the Owner, in the penal sum of the full amount of the contract, guaranteeing the faithful performance of the work in accordance with the terms of the contract.

11. The undersigned further agrees to begin work not later than ten (10) days after the execution and approval of the contract and contract bond, unless otherwise provided, and to prosecute the work in such manner and with sufficient materials, equipment, labor and safety precautions as will insure its completion within the time limit specified herein, it being understood and agreed that the completion within the time limit is an essential part of the contract. The undersigned agrees to complete the work within [110] calendar days after the date of the execution of the contract by both parties, or by [Nov 20 2015] if this is a completion day contract, unless additional time shall be granted by the Engineer in accordance with the provisions of the specifications. In case of failure to complete the work within the time names herein or within such extra time as may have been allowed by extensions, the undersigned agrees that the Owner shall withhold from such sums as may be due him under the terms of this contract, the costs set forth in the specifications, which cost shall be considered and treated not as a penalty, but as damages due the Owner form the undersigned by reason of inconvenience to the public, added cost of engineering and construction observation, maintenance of detours, and other items which have caused an expenditure of public funds resulting from the failure of the undersigned to complete the work within the time specified in the contract.

12. Accompanying this proposal is a bank draft, bank cashier's check, certified check or bid bond, complying with the requirements of the specifications, made payable to: Village of Tinley Park

The amount of the bond, check or draft is [TEN PERCENT] bid bond ($10%).
Bid Bond

CONTRACTOR:
(Name, legal status and address)
Riccio Construction Corp.
PO Box 672
Palos Park, IL 60464

SURETY:
(Name, legal status and principal place of business)
Liberty Mutual Insurance Company
175 Berkeley Street
Boston, MA 02116

OWNER:
(Name, legal status and address)
Village of Tinley Park
16250 South Oak Park Avenue
Tinley Park, Illinois 60477

BOND AMOUNT: $ Ten Percent of Accompanying Bid - (10% of Bid)

PROJECT:
(Name, location or address, and Project number, if any)
Gaynelle Road Watermain Replacement Phase 2

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so
furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 8th day of July, 2015

(Riccio Construction Corp. (Contractor as Principal)
(Title) (Seal)

Liberty Mutual Insurance Company (Surety) (Seal)

(Title) Kevin J. Scanlon, Attorney-in-fact

(Witness)
STATE OF Illinois ss:
COUNTY OF WILL

On this 8th day of July 2015, before me personally appeared Kevin J. Scanlon, to me known, who, being by me duly sworn, did depose and say: that he reside(s) at New Lenox, Illinois; that he is/are the Attorney-in-fact of Liberty Mutual Insurance Company, the corporation described in and which executed and annexed instrument; that he know(s) the corporate seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation; that he signed the same name(s) thereto by like order; and that the liabilities of said corporation do not exceed its assets as ascertained in the manner provided by law.

"OFFICIAL SEAL"
Sherry Bacskai, Notary Public, State of Illinois
My Commission Expires October 22, 2015

My commission expires 10/22/2015
If the proposal and the undersigned shall fail to execute a contract and contract bond as required herein, it is hereby agreed that the amount of the check or draft substituted in lieu thereof, shall become the property of the Owner, and shall be considered as payment of damages due to delay and other causes suffered by the Owner because of the failure to execute said contract and contract bond; otherwise said check or draft substituted in lieu thereof shall be returned to the undersigned.

ATTACH BANK DRAFT, BID BOND, BANK CASHIER'S CHECK OR CERTIFIED CHECK HERE

In the event that one check, bond, or draft is intended to cover two or more proposals, the amount must be equal to the sum of the proposal guarantees of the individual sections covered.

13. The undersigned submits herewith his schedule of prices covering the work to be performed under this contract; he understands that he must show in the schedule the unit prices for which he proposes to perform each item of work; that the extensions must be made by him; and that if not so done, his proposal may be rejected as irregular.

14. The undersigned firm certifies that it is not barred from bidding on this contract as a result of a conviction for the violation of State laws prohibiting bid-rigging or bid-rotating.
CONTRACTOR'S STATEMENT

1. Do you have sufficient knowledge of Drawings and Specifications of the work covered by this Contract to warrant submitting a Proposal for this work? Yes

2. (a) Have you done work of this nature? Yes
   (b) To what extent? (Dollar value) 1,300,000.00
   (c) For whom? City of Country, Village of Alamo

3. Do you have sufficient equipment to perform this work? Yes
   If so, list major items: See list

   Address: 722 6th St., Joliet, IL 60435

5. List names and addresses of major suppliers:
   - H-D Supply Mokena
   - E-F Food Works - New Lenox
   - Hansen Material Service - Chicago

6. Have you ever had, or do you now have, funds withheld for non-completion of work to the satisfaction of any municipality? No
   (a) If so where?
   (b) For what reason?

7. Have you ever been disqualified by a Governmental Agency for failure to satisfactorily complete a public improvement? No
8. Have you ever been cited for failing to withhold or report payroll deductions for Federal Income Tax?  

9. Have you ever been cited by the Federal Government for any violation of the Copeland Act (Anti-kick-back Law)?  

10. If awarded contract, work will begin in ___ calendar days.
CERTIFICATE OF ELIGIBILITY TO BID

I, Riccio Construction (contractor), pursuant to section 33E-11 of the Illinois Criminal Code of 1961 as amended, hereby certifies that neither (he, she, it) nor any of (his, her, its) partners, officers, or owners of (his, her, its) business has been convicted in the past five (5) years of the offense of bid-rigging under section 33E-3 of the Illinois Criminal Code of 1961 as amended and that neither (he, she, it) nor any of (his, her, its) business has ever been convicted of the offense of bid-rotating under section 33E-4 of the Illinois Criminal Code of 1961 as amended.

Date: 7-8-15

By: [Signature]

(Name of Contractor)

(Pres.

(Title)
VILLAGE OF TINLEY PARK

LOCATION OF IMPROVEMENT WITH DESCRIPTION

GAYNELLE ROAD WATER MAIN REPLACEMENT
PHASE 2
TINLEY PARK, ILLINOIS

The undersigned submits herewith his schedule of prices covering the work to be performed under this contract; he understands that he must show in the schedule the unit prices for which he proposes to perform each item of work; that the extensions must be made by him, and if not so done, his proposal may be rejected as irregular.

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Unit</th>
<th>Quantity</th>
<th>Unit Price</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8&quot; DUCTILE IRON WATER MAIN, CLASS 52, WITH POLYETHYLENE ENCASEMENT, METHOD B</td>
<td>FOOT</td>
<td>2150</td>
<td>80.00</td>
<td>172,000.00</td>
</tr>
<tr>
<td>2</td>
<td>6&quot; DUCTILE IRON WATER MAIN, CLASS 52, WITH POLYETHYLENE ENCASEMENT, METHOD B</td>
<td>FOOT</td>
<td>30</td>
<td>73.00</td>
<td>2,190.00</td>
</tr>
<tr>
<td>3</td>
<td>DUCTILE IRON FITTINGS</td>
<td>POUND</td>
<td>4000</td>
<td>5.00</td>
<td>20,000.00</td>
</tr>
<tr>
<td>4</td>
<td>8&quot; X 8&quot; TAPPING SLEEVE AND VALVE IN 60&quot; DIA. VALVE VAULT, TYPE 1 FRAME, CLOSED LID</td>
<td>EACH</td>
<td>2</td>
<td>6300.00</td>
<td>12,600.00</td>
</tr>
<tr>
<td>5</td>
<td>6&quot; X 6&quot; TAPPING SLEEVE AND VALVE IN 48&quot; DIA. VALVE VAULT, TYPE 1 FRAME, CLOSED LID</td>
<td>EACH</td>
<td>2</td>
<td>5600.00</td>
<td>11,200.00</td>
</tr>
<tr>
<td>6</td>
<td>8&quot; X 8&quot; TAPPING SLEEVE AND VALVE IN VALVE BOX</td>
<td>EACH</td>
<td>1</td>
<td>4350.00</td>
<td>4,350.00</td>
</tr>
<tr>
<td>7</td>
<td>6&quot; GATE VALVE IN 48 INCH DIA. VALVE VAULT, TYPE 1 FRAME, CLOSED LID</td>
<td>EACH</td>
<td>1</td>
<td>4200.00</td>
<td>4,200.00</td>
</tr>
<tr>
<td>8</td>
<td>RUBBER ADJUSTING RINGS</td>
<td>EACH</td>
<td>20</td>
<td>100.00</td>
<td>2,000.00</td>
</tr>
<tr>
<td>9</td>
<td>16&quot; DIAMETER STEEL SLEEVE, 0.375&quot; WALL THICKNESS, OPEN CUT</td>
<td>FOOT</td>
<td>45</td>
<td>100.00</td>
<td>4,500.00</td>
</tr>
<tr>
<td>10</td>
<td>FIRE HYDRANT WITH AUXILIARY VALVE, VALVE BOX AND TEE</td>
<td>EACH</td>
<td>7</td>
<td>5750.00</td>
<td>40,250.00</td>
</tr>
<tr>
<td>11</td>
<td>FIRE HYDRANTS TO BE REMOVED</td>
<td>EACH</td>
<td>5</td>
<td>300.00</td>
<td>1,500.00</td>
</tr>
<tr>
<td>12</td>
<td>ABANDON VALVE BOX</td>
<td>EACH</td>
<td>5</td>
<td>200.00</td>
<td>1,000.00</td>
</tr>
<tr>
<td>13</td>
<td>EIGHT INCH (8&quot;) CUT AND CAP</td>
<td>EACH</td>
<td>8</td>
<td>2600.00</td>
<td>20,800.00</td>
</tr>
<tr>
<td>14</td>
<td>SIX INCH (6&quot;) CUT AND CAP</td>
<td>EACH</td>
<td>2</td>
<td>2550.00</td>
<td>5,100.00</td>
</tr>
<tr>
<td>15</td>
<td>EIGHT INCH (8&quot;) CAP</td>
<td>EACH</td>
<td>1</td>
<td>250.00</td>
<td>250.00</td>
</tr>
<tr>
<td>16</td>
<td>WATER SERVICE INSTALLATION, 1&quot; - LONG (AUGURED)</td>
<td>EACH</td>
<td>24</td>
<td>1940.00</td>
<td>46,560.00</td>
</tr>
</tbody>
</table>

CARRIED FORWARD 348,500.00
## Awarded Schedule of Prices

(For complete information covering these items, see plans and specifications)

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Items</th>
<th>Unit</th>
<th>Quantity</th>
<th>Unit Price</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CARRIED FORWARD $348,500.00</td>
</tr>
<tr>
<td>17</td>
<td>WATER SERVICE INSTALLATION, 1&quot; - SHORT</td>
<td>EACH</td>
<td>21</td>
<td>1225.00</td>
<td>25,725.00</td>
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<tr>
<td>18</td>
<td>TRENCH BACKFILL</td>
<td>FOOT</td>
<td>2300</td>
<td>34.00</td>
<td>78,200.00</td>
</tr>
<tr>
<td>19</td>
<td>HMA PAVEMENT REMOVAL AND REPLACEMENT</td>
<td>SQ YD</td>
<td>2565</td>
<td>45.00</td>
<td>115,425.00</td>
</tr>
<tr>
<td>20</td>
<td>COMBINATION CONCRETE CURB AND GUTTER REMOVAL AND REPLACEMENT</td>
<td>FOOT</td>
<td>270</td>
<td>38.00</td>
<td>10,260.00</td>
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<tr>
<td>21</td>
<td>HMA DRIVEWAY REMOVAL AND REPLACEMENT</td>
<td>SQ YD</td>
<td>40</td>
<td>56.00</td>
<td>2,240.00</td>
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<tr>
<td>22</td>
<td>CONCRETE DRIVEWAY REMOVAL AND REPLACEMENT</td>
<td>SQ YD</td>
<td>40</td>
<td>80.00</td>
<td>3,200.00</td>
</tr>
<tr>
<td>23</td>
<td>PCC SIDEWALK REMOVAL AND REPLACEMENT</td>
<td>SQ FT</td>
<td>2285</td>
<td>9.00</td>
<td>20,565.00</td>
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<tr>
<td>24</td>
<td>TACTILE/DETECTABLE WARNING SURFACE</td>
<td>SQ FT</td>
<td>50</td>
<td>35.00</td>
<td>1,750.00</td>
</tr>
<tr>
<td>25</td>
<td>EXPLORATORY EXCAVATION</td>
<td>EACH</td>
<td>16</td>
<td>150.00</td>
<td>2,400.00</td>
</tr>
<tr>
<td>26</td>
<td>WATER MAIN SERVICE ADJUSTMENT</td>
<td>EACH</td>
<td>24</td>
<td>160.00</td>
<td>3,840.00</td>
</tr>
<tr>
<td>27</td>
<td>SANITARY SEWER SERVICE ADJUSTMENT</td>
<td>EACH</td>
<td>22</td>
<td>500.00</td>
<td>11,000.00</td>
</tr>
<tr>
<td>28</td>
<td>STORM SEWER REMOVAL 12&quot;</td>
<td>FOOT</td>
<td>145</td>
<td>13.00</td>
<td>1,885.00</td>
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<tr>
<td>29</td>
<td>STORM SEWERS, TYPE 1, WATER MAIN QUALITY PIPE, 12&quot;</td>
<td>FOOT</td>
<td>140</td>
<td>57.00</td>
<td>7,980.00</td>
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<tr>
<td>30</td>
<td>PERIMETER EROSION BARRIER</td>
<td>FOOT</td>
<td>2250</td>
<td>4.00</td>
<td>9,000.00</td>
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<tr>
<td>31</td>
<td>TREE PRUNING (1 TO 10 INCH DIAMETER)</td>
<td>EACH</td>
<td>17</td>
<td>120.00</td>
<td>2,040.00</td>
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<tr>
<td>32</td>
<td>TREE PRUNING (OVER 10 INCH DIAMETER)</td>
<td>EACH</td>
<td>15</td>
<td>137.00</td>
<td>2,055.00</td>
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<tr>
<td>33</td>
<td>TREE REPLACEMENT, SPECIAL</td>
<td>EACH</td>
<td>1</td>
<td>800.00</td>
<td>800.00</td>
</tr>
<tr>
<td>34</td>
<td>TOPSOIL PLACEMENT (6&quot;) AND SODDING</td>
<td>SQ YD</td>
<td>800</td>
<td>15.00</td>
<td>12,000.00</td>
</tr>
</tbody>
</table>

Bidder's Proposal for making Entire Improvements: $658,865.00
SIGNATURES

(If an individual)

Signature of Bidder .................................................
Business Address .....................................................

(If a co-partnership)

Firm Name ............................................................. (SEAL)
Signed by ............................................................... (SEAL)
Business Address .........................................................
Insert Names and Addresses of All Members of the Firm

(If a corporation)

Corporate Name ......................................................
Signed By ................................................................ President
Business Address .........................................................
(Corporate Seal)

Insert Names of Officers
President .................................................................
Secretary .................................................................
Treasurer .................................................................

Attest: ................................................................ Secretary
Phone Number 708-774-4493
BIDDER'S CERTIFICATE

The undersigned, having executed the attached bid for the construction of:

Garnette Road Watermain Replacement Phase 2

Name of Project

for the Village/City/Town of Tinley Park, County of Cook.

State of Illinois hereby certifies that he has read all of the Contract Documents, including the Notice to Bidders, Instructions to Bidders, Proposal Forms, General conditions of the contract, Detail Specifications, Forms of contract, Form of Performance Bond and Form of Maintenance Bond, and that he has examined the plans and that his proposal for the work is based on the conditions and requirements therein;

and should the contract be awarded to him, he agrees to execute the work in strict accordance therewith, including compliance with the Insurance Requirements of the General Conditions.

Name of Bidder

By: Riccio Construction

Company Name

Date: 7-7-15
POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS: That American Fire & Casualty Company and The Ohio Casualty Insurance Company are corporations duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"); pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Gary A. Eaton; Kevin J. Scanlon; R. L. McWeeny; Rob W. Keeglay Jr.

all of the city of New Lenox, state of IL, each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this, 10th day of November, 2014.

STATE OF PENNSYLVANIA
COUNTY OF MONTGOMERY

On this 10th day of November, 2014, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of American Fire and Casualty Company, Liberty Mutual Insurance Company, The Ohio Casualty Insurance Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV - OFFICERS - Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signatures and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII - Execution of Contracts - SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed, such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, whenever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Gregory W. Davenport, the undersigned, Assistant Secretary of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 8th day of July, 2015.

By: Gregory W. Davenport, Assistant Secretary
CONTRACT

1. THIS AGREEMENT, made and concluded this 21st day of
   July, 2015, between Village of Tinley Park,
   (city/village/town of)
   acting by and through________________________ known as
   (President-Board of Trustees/Mayor-City Council)
   the party of the first part, and ________________, his/their executors,
   (Contractor)
   administrators, successors or assigns, known as the party of the second part.

2. WITNESSETH: That for and in consideration of the payment and agreements mentioned in the
   Proposal hereto attached, to be made and performed by the party of the first part, and according to the terms
   expressed in the Bond referring to these presents, the party of the second part agrees with said party of the first
   part at his/their own proper cost and expense to do all the work, furnish all materials and all labor necessary to
   complete the work in accordance with the plans and specifications hereinafter described, and in full compliance
   with all of the plans of this agreement and the requirements of the Engineer under it.

3. And it is also understood and agreed that the Notice to Contractors, proposals, contract bond, General
   Requirements and Covenants (Division I), Technical Specifications (Division II), Special Provisions (Division
   III) and Standard drawings (Division IV), in addition to any specific plans and specifications upon which the
   contractor's proposal is based, are all incorporated by reference into this contract and are therefore made a part
   hereof.

4. IN WITNESS WHEREOF, the said parties have executed these presents on the date above
   mentioned.

FOR THE VILLAGE OF TINLEY PARK
(Party of the First Part)

By:
Title: Village President
Attest:
Title: Clerk

FOR THE CONTRACTOR
(Party of the Second Part)

By:
Title: President
Attest:
Title: Secretary

(Municipality and Corporation)
CONTRACT BOND

BOND NO. 268006778

KNOWN ALL MEN BY THESE PRESENTS, that we, Riccio Construction Corp., a corporation organized under the laws of the State of Illinois, and licensed to do business in the State of Illinois, as principal, and Liberty Mutual Insurance Company, a corporation organized and existing under the laws of the State of New Hampshire, with authority to do business in the State of Illinois, as Surety, are held and firmly bound unto the Village of Tinley Park, State of Illinois, in the penal sum of Six Hundred Fifty Eight Thousand Eight Hundred Sixty Five and 00/100 Dollars ($ 658,865.00), lawful money of the United States, well and truly to be paid unto said Village of Tinley Park, for the payment of which we bind ourselves, our successors and assigns, jointly, severally, and firmly by these presents.

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH that whereas, the said Principal has entered into a written contract with an Owner which is the Village of Tinley Park and acts through its President and Board of Trustees or the construction of the work designated Gaynelle Road Water Main Replacement Phase 2, which contract hereby is referred to and made a part hereof, as if written herein in length, and whereby the said Principal has promised and agreed to perform said work in accordance with the terms of said Contract, and has promised to pay all sums of money due for any labor, materials, apparatus, fixtures or machinery furnished to such Principal for the purpose of performing such work and has further agreed to pay all direct and indirect damages to any person, firm, company, or corporation suffered or sustained on account of the performance of such work, for any reason whatsoever, during the time thereof and until such work is completed and accepted; and has further agreed that this bond shall inure to the benefit of any person, firm, company or corporation, to whom any money may be due from the Principal, subcontractor or otherwise, for any such labor, materials, apparatus, fixtures or machinery so furnished, and that suit may be maintained on such bond by any such person, firm, company or corporation, for the recovery of any such money.

NOW, THEREFORE, if the said Principal shall well and truly perform said work in accordance with the terms of said contract, and shall pay all sums of money due or to become due for any labor, materials, apparatus, fixtures or machinery furnished to him for the purpose of constructing such work, and shall commence and complete the work within the time prescribed in said contract, and shall pay and discharge all damages, direct and indirect, that may be suffered or sustained on account of

CB-1

(Municipality and Corporation)
such work, for any reason whatsoever, during the time of the performance thereof and until the said work shall have been accepted, and shall hold the aforesaid Owner and its or his agents harmless on account of any such damages, and shall in all respects fully and faithfully comply with all the provisions, conditions and requirements of said contract, then this obligation to be void, otherwise to remain in full force and effect.

IN WITNESS WHEREOF, we have duly executed the foregoing obligation this 27th day of July A.D. 2015

Contractor's corporate name: Riccio Construction Corp.

By: [signature]

President

Attest: [signature]

Secretary

Surety's corporate name: Liberty Mutual Insurance Company

By: [signature]

Attorney-in-fact, Kevin J. Scanlon

By: [signature]

Attorney-in-fact

APPROVED THIS 21 DAY OF JULY A.D. 2015

VILLAGE OF TINLEY PARK, IL

By: [signature]

Title: David G. Seaman, Village President

ATTEST FOR VILLAGE OF TINLEY PARK, IL

By: [signature]

Title: Patrick E. Rea, Village Clerk

(Municipality and Corporation)
STATE OF Illinois )
COUNTY OF )

I, _______ DelRicco , a Notary Public in and for said County in the State aforesaid,
do hereby certify that _______ DelRicco and
Daniel P. DelRicco, to me personally known to be president and secretary,
respectively, of Riccio Construction Corp., a corporation, and also known
to me to be the persons whose names are subscribed to the foregoing instrument, appeared before me this day in
person and acknowledged that as such president and secretary respectively they signed, sealed and delivered the
said instrument as the free and voluntary act of said Corporation, for the uses and purposes therein set forth, and
that they were duly authorized to execute the same by the Board of Directors of said Corporation.

GIVEN UNDER MY HAND AND NOTARIAL SEAL THIS 28th DAY OF July
A.D. 2015

STATE OF Illinois )
COUNTY OF WILL )

I, _______ Graciela Casaus , a Notary Public in and for said County in the State aforesaid,
do hereby certify that _______ Scanlon who is personally known to me to be the
same person who signed the above and foregoing instrument as the Attorney in Fact for
Liberty Mutual Insurance Company appeared before me this day in person and acknowledged that he
signed the name of Liberty Mutual Insurance Company thereto, as his Principal, and his own name
as Attorney in Fact, as the free and voluntary act of his said Principal for the uses and purposes therein set forth,
and that he executed the said instrument under authority given him by said Principal.

GIVEN UNDER MY HAND AND NOTARIAL SEAL THIS 28th DAY OF
July A.D. 2015

STATE OF Illinois )
COUNTY OF WILL )

I, _______ Graciela Casaus , a Notary Public in and for said County in the State aforesaid,
do hereby certify that _______ Scanlon who is personally known to me to be the
same person who signed the above and foregoing instrument as the Attorney in Fact for
Liberty Mutual Insurance Company appeared before me this day in person and acknowledged that he
signed the name of Liberty Mutual Insurance Company thereto, as his Principal, and his own name
as Attorney in Fact, as the free and voluntary act of his said Principal for the uses and purposes therein set forth,
and that he executed the said instrument under authority given him by said Principal.

GIVEN UNDER MY HAND AND NOTARIAL SEAL THIS 28th DAY OF
July A.D. 2015

STATE OF Illinois )
COUNTY OF WILL )

I, _______ Graciela Casaus , a Notary Public in and for said County in the State aforesaid,
do hereby certify that _______ Scanlon who is personally known to me to be the
same person who signed the above and foregoing instrument as the Attorney in Fact for
Liberty Mutual Insurance Company appeared before me this day in person and acknowledged that he
signed the name of Liberty Mutual Insurance Company thereto, as his Principal, and his own name
as Attorney in Fact, as the free and voluntary act of his said Principal for the uses and purposes therein set forth,
and that he executed the said instrument under authority given him by said Principal.
POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That American Fire & Casualty Company and The Ohio Casualty Insurance Company are corporations duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth; these hereby name, constitute and appoint, Gary A. Eaton; Kevin J. Scanlon; R. L. McWethy; Rob W. Kepley, Jr.

all of the city of New London state of IL each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if there have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or officials of the Companies and the corporate seals of the Companies have been affixed thereto this 10th day of November 2014.

STATE OF PENNSYLVANIA
COUNTY OF MONTGOMERY

On this 10th day of November 2014, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of American Fire and Casualty Company, Liberty Mutual Insurance Company, The Ohio Casualty Insurance Company, and West American Insurance Company and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year last above written.

COMMONWEALTH OF PENNSYLVANIA

Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and By-laws and Amendments of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV - OFFICERS - Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII - Execution of Contracts - SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the Chairman or the President, and subject to such limitations as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed such instruments shall be as binding as if signed by the President and attested by the Secretary.

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Authorization - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Gregory W. Davenport, the undersigned, Assistant Secretary, of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 28th day of July 2015.

Gregory W. Davenport, Assistant Secretary
DIVISION I

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**SECTION 7. LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC**

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SECTION 1. DEFINITION OF TERMS

1-1 DESCRIPTION
When a standard specification number is used in the Specifications it shall be taken to mean the latest revision of that Standard Specification at the time of the Bid.

Whenever in the specifications and Contract the following terms, or pronouns in place of them, are used, the intent and meaning shall be interpreted as follows:

1-2 ABBREVIATIONS
The following organizations are referred to in this specification by abbreviations of the titles. Additional information noted but not detailed can be obtained from these organizations by writing to them.

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Name</th>
<th>Address</th>
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<tr>
<td>ASSHTO</td>
<td>The American Association of State Highway and Transportation Officials</td>
<td>917 National Press Building, Washington, D.C. 20004</td>
</tr>
<tr>
<td>AWWA</td>
<td>American Water Works Association</td>
<td>6666 West Quincy Avenue, Denver, Colorado 80235</td>
</tr>
<tr>
<td>NSF</td>
<td>National Sanitation Test Laboratory Foundation</td>
<td>Box 1478, Ann Arbor, Michigan</td>
</tr>
<tr>
<td>ANSI</td>
<td>American National Standards Institute</td>
<td>1430 Broadway, New York, New York 10018</td>
</tr>
<tr>
<td>IDOT</td>
<td>Illinois Department of Transportation</td>
<td>2300 South Dirksen Parkway, Springfield, Illinois 62764</td>
</tr>
<tr>
<td>FHWA</td>
<td>Federal Highway Administration</td>
<td>DOT Building, 400 Seventh St., S.W., Washington, D.C. 20590</td>
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<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Act</td>
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<tr>
<td>MWRDGC</td>
<td>The Metropolitan Water Reclamation District of Greater Chicago</td>
<td>100 East Erie Street, Chicago, Illinois 60611</td>
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1-3 ADDENDA
Written or graphic instruments issued prior to the execution of the Agreement, which modify or interpret the Contract Documents, Drawings, and Specifications by additions, deletions, clarifications or corrections.

1-4 AWARD
The decision of the Owner to accept the proposal of the lowest responsive, responsible bidder for the work, subject to the execution of and approval of a satisfactory Contract therefore, and bond to secure the performance thereof, and to such other conditions as may be specified or otherwise required by law.

1-5 BASE COURSE
The layer or layers of specified or selected material of designed thickness placed on a sub-base or a subgrade to support the surface course.

1-6 BITUMINOUS PAVEMENT
A pavement structure which maintains intimate contact and distributes loads to the subgrade and depends upon aggregate interlock particle friction and cohesion for stability, and a pavement structure which includes a bituminous concrete surface course over a bituminous concrete base course or a portland cement concrete base course.

1-7 BIDDER
Any individual, firm, partnership or corporation submitting a proposal for the Work contemplated, acting directly or through a duly authorized representative.

1-8 CONTRACT
The written agreement between the Owner and the Contractor setting forth the obligations of the parties thereunder, including, but not limited to, the performance of the Work (the furnishing of labor and materials, and the basis of payment).
The Contract includes such of the following document parts as may be utilized. These document parts so utilized will be as fully part of the Contract as if therein set out verbatim, or, if not attached, as if attached thereto. The controlling order of priority for these documents on the project is as follows (e.g., A is controlling over B-N, etc.):

A. Supplemental Agreements (Change Order)
B. Addenda
C. Special Conditions of Contract
D. General Conditions of Contract
E. Special Provisions to the Specifications
F. Detailed Specifications
G. Complete Project Plans or Drawings
H. General Specifications
I. Contract
J. Contractor's Contract Bond
K. Contractor's Proposal
L. Notice to Proceed
M. Notice of Award
N. Notice to Bidders

1-9 CONTRACTOR

The Bidder awarded the Contract for the Work.

1-10 CONTRACT BOND

The approved form of security furnished by the Contractor and his surety as a guaranty that he will execute the Work in accordance with the terms of the Contract.

1-11 CORPORATION

With respect to the execution and performance of the Contract, a corporate body authorized or licensed to do business in the State of Illinois for projects in Illinois and in the State of Indiana for projects in Indiana.

1-12 CULVERT

A drainage structure extending across and beneath a traveled way and having a tubular or box-type cross-section open on both ends.
1-13 ENGINEER
ROBINSON ENGINEERING, LTD. or an engineer of a municipality, including such assistants as are authorized to represent them, who represents the Owner during the construction phase activities of the Work.

1-14 FORCE MAIN
A pipe constructed or used to carry sewage under pressure.

1-15 ENGINEERING OBSERVER
The authorized representative of the Owner or of the Engineer assigned to observe the progress of the Work to determine only if the Work is proceeding in accordance with the technical plans and specifications.

1-16 LABORATORY
An established testing laboratory approved by the Engineer.

1-17 MANHOLE
A vertical enclosed structure providing access to a pipe line or other structure.

1-18 NOTICE TO BIDDERS
The official notice, included in the proposal form, inviting bids for the proposed improvement, including a brief description of the Work.

1-19 OWNER
The Village, City, Town, Sanitary District, or other governmental body, corporation, partnership or individual initiating the project, acting through its legally constituted officials, officers or employees. The Department as referenced in the State Specifications.

1-20 PAVEMENT STRUCTURE
The combination of sub-base, base course and surface course placed on a sub-grade to support the traffic load and distribute it to the roadbed.
1-21 PLANS
All official drawings or reproductions of drawings pertaining to the Work provided for in the contract.

1-22 PLUMBING
Plumbing shall be as defined in the latest adopted Illinois State Plumbing Code, copies of which are available from the Illinois Department of Public Health, Division of Engineering and Sanitation, 535 West Jefferson Street, Springfield, Illinois 62706.

1-23 PROPOSAL (BID)
The written offer of the Bidder to perform the proposed Work.

1-24 PROPOSAL GUARANTY
The security designated in the proposal to be furnished by the Bidder as a guaranty that said Bidder will enter into a Contract with the Owner for the acceptable performance of the Work and will furnish the required Contract Bond, if the Work is awarded to him.

1-25 RAILROAD
The Railroad or Railway Company whose property is involved in the Work.

1-26 RIGHT-OF-WAY AND EASEMENTS
The areas owned, or acquired by permanent easement; also, the areas acquired by temporary easement during the time the easement is in effect.

1-27 SEWER, COMBINED
Any sewer constructed or used for the purpose of carrying both storm water and waterborne wastes to a treatment facility.

1-28 SEWER, SANITARY
Any sewer constructed or used for the purpose of carrying waterborne wastes to a treatment facility.
1-29  **SEWER, SERVICE**
A branch sanitary sewer line constructed from the main sanitary sewer line to a point described in the Special Provisions or Plans or to a point established by the Engineer.

1-30  **SEWER, STORM**
A sewer constructed or used for carrying storm water or sub-surface water to a storm water outlet.

1-31  **SPECIAL PROVISIONS**
Specific directions, provisions, requirements and revisions of the Specifications peculiar to the Work under consideration which are not satisfactorily provided for in the Specifications. The Special Provisions set forth the final contractual intent as to the matter involved. The Special Provisions included in the Contract shall not operate to annul those portions of the Specifications with which they are not in conflict.

1-32  **SPECIFICATIONS**
The body of directions, provisions and requirements contained herein, or in any supplement to this document referred to in the Special Provisions, together with written agreements and all documents of any description made or to be made pertaining to the method or manner of performing the Work, the quantities or the quality of materials to be furnished under the contract.

1-33  **STATE SPECIFICATIONS**
IDOT, Standard Specifications for Road and Bridge Construction, latest edition at the time of Bid. This book outlines the general requirements and covenants to all improvements, as well as provisions relating to materials, equipment and construction requirements for individual items of work.

1-34  **SUBCONTRACTOR**
The individual, firm, partnership or corporation to whom the Contractor, with the written consent of the Engineer, sublets, assigns, or otherwise disposes of any part of the Work covered by the contract.

1-35  **SUB-BASE**
The layer or layers of specified or selected material of designed thickness placed on a sub-grade to support a base course.
1-36 **SUB-GRADE**
The top of surface of a roadbed upon which the pavement structure and shoulders are constructed.

1-37 **SUPPLEMENTAL AGREEMENT**
The written agreement executed by the Owner and the Contractor, with the assent of the Contractor's surety, covering modifications or alterations of the terms of the original Contract.

1-38 **SUPPLIER**
Any person or organization who supplies materials or equipment for the Work including that fabricated to a special design.

1-39 **SURETY**
The corporate body, individual or individuals which engage to be responsible for the Bidder's acts in the execution of the Contract in the event of its being awarded to him; or, which are bound with and for the Contractor to insure his acceptable performance of the Contract, his payment of all obligations pertaining to the Work, and his fulfillment of such other conditions as may be specified or otherwise required by law.

1-40 **SURFACE COURSE**
One or more layers of a pavement structure designed to accommodate the traffic load, the top layer of which resists skidding, traffic abrasion, and the disintegrating effects of climate. The top layer is sometimes called "wearing course".

1-41 **WATER MAIN**
A pipe constructed or used to carry potable water under pressure.

1-42 **WATER SERVICE LINE**
That line connected to the water main, which delivers potable water to the user's facilities.

1-43 **THE WORK**
The improvement advertised for bids, described in the Proposal form, indicated on the Plans and covered in the Specifications, Special Provisions, Contract, authorized alterations, extensions and deductions, and supplementary agreements, or any part or parts thereof.
SECTION 2. PROPOSAL REQUIREMENTS AND CONDITIONS

2-1 CONTENTS OF THE PROPOSAL FORM
Bidders will be furnished with forms stating the location and description of the Work contemplated, the approximate quantities of Work to be performed, the amount of the Proposal Guarantee, requirements pertaining to labor, and the date, time and place of filing and opening Proposals. All documents bound with or attached to the proposal shall be considered a part thereof, and shall not be detached or altered.

2-2 INTERPRETATION OF ESTIMATE OF QUANTITIES
An estimate of quantities of Work to be done and materials to be furnished under the Specifications is given in the Proposal. It is given as a basis for comparison of Proposals and the award of the Contract. The Owner and Engineer do not expressly or by implication agree that the actual quantities involved will correspond therewith; nor shall the Bidder plead misunderstanding or deception because of such estimate of quantities pertaining to the Work.

Payment will be based on the actual quantities of Work performed in accordance with Contract, at the Contract unit prices specified. No allowance will be made for any change in anticipated profits due to an increase or decrease in the original estimate of quantities. The Owner reserves the right to omit any item entirely, or to increase or decrease any or all items as provided in Section 4-3.

2-3 EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS, AND SITE OF WORK
The bidder shall, before submitting his bid, carefully examine the Proposal, Plans, Specifications, Special Provisions, and form of Contract and bond. He shall inspect in detail the site of the proposed Work and familiarize himself with all the local conditions affecting the Contract and the detailed requirements of construction. If his Bid is accepted, he will be responsible for all errors in his Proposal resulting from his failure or neglect to comply with these instructions. The Owner or Engineer will, in no case, be responsible for any change in anticipated profits resulting from such failure or neglect.

When the Plans or Special Provisions include information pertaining to sub-surface exploration, borings, test pits, and other preliminary investigations, such information is included only for the convenience of the Bidder. The Owner or Engineer assumes no responsibility whatever in respect to the sufficiency of the information, and there is no guaranty, either expressed or implied, that the conditions indicated are representative of those existing throughout the Work, or that unanticipated developments may not occur.

When the Plans or Special Provisions include information pertaining to the location of underground utility facilities, such information is only included for the convenience of the Bidder. The Owner or Engineer assumes no responsibility whatever in respect to the sufficiency or accuracy of the information, or lack of information, shown on the Plans relative to the location of underground utility
facilities. It shall be the Contractor's responsibility to obtain from the respective utility companies detailed information relative to the location of their facilities and the work schedules of the utility companies for removing or adjusting them.

2-4 ENGINEER'S ESTIMATE
The Engineer's "Estimate of Cost" as prepared for the Owner for the work to be completed under this contract may or may not be available to the Bidders at the discretion of the Owner or the Engineer. If the "Estimate of Cost" is available, it shall be given to all prospective bidders upon request.

2-5 PREPARATION OF THE PROPOSAL
The Bidder shall submit his Proposal on the form furnished by the Owner. The Proposal shall be executed properly, and Bids shall be made for all items indicated in the proposal form, except that when alternate bids are asked, a Bid on more than one alternate for each item is not required, unless the Special Provisions provide otherwise. The Bidder shall indicate, in figures, a unit price or lump sum for each of the separate items called for in the Proposal; he shall show the products of respective quantities and unit prices in the column provided for that purpose, and the gross sum shown in the place indicated in the Proposal shall be the summation of said products. All writing shall be with ink or typewriter, except the signature of the bidder, which shall be written with ink.

If the Proposal is made by an individual, his name and post office address shall be shown. If made by a firm, joint venture, or partnership, the name and post office address of each member of the firm, joint venture, or partnership shall be shown. If made by a corporation, the Proposal shall show the names, titles, and business addresses of the president, secretary, and treasurer, certified to by the secretary.

2-6 MULTIPLE BIDS
If multiple Bids are to be received, bidding shall be in accordance with the instructions in the Special Provisions.

2-7 REJECTION OF PROPOSALS
Proposals that contain omissions, erasures, alterations, additions not called for, conditional or alternate bids unless called for, irregularities of any kind, or proposals otherwise regular which are not accompanied by the proper proposal guaranty shall be rejected as informal or insufficient. However, the Owners reserve the right to reject any or all Proposals and to waive such technical error as may be deemed best for the interest of the Owner.
2-8 PROPOSAL GUARANTY
Each proposal shall be accompanied by a bid bond, bank draft, bank cashier's check, or properly certified check for not less than ten per cent (10%) of the amount Bid unless otherwise specified in the Special Provisions.

If a multiple Bid is submitted, the bid bond, bank draft, bank cashier's check, or certified checks, which accompany the individual Proposals making up the combination, will be considered as also covering the multiple Bid.

See Paragraph 3-3 regarding return of Proposal Guaranty.

The bid bond, bank draft, cashier's checks, or certified checks accompanying Proposals shall be made payable to the Owner.

2-9 DELIVERY OF PROPOSALS
Proposals shall be delivered prior to the time and at the place indicated in the notice to bidders. Each Proposal shall be placed in an envelope sealed and plainly marked to indicate its contents. Only sealed Proposals will be accepted.

Proposals will not be opened unless received at the place of letting and prior to the time stated in the Notice to Bidders.

2-10 WITHDRAWAL OF PROPOSALS
Permission will be given a Bidder to withdraw a Proposal if he makes his request in writing before the time for opening Proposals. If a Proposal is withdrawn, the Bidder will not be permitted to submit another Proposal for the same Work at the same letting.

2-11 WITHDRAWAL OF PROPOSAL GUARANTY
See Paragraphs 3-2 and 3-3 on award of Contract and return of Proposal Guaranty.

2-12 PUBLIC OPENING OF PROPOSALS
Unless otherwise specified, Proposals will be opened and read publicly at the time and placed specified in the Notice to Bidders. Bidders, their authorized agents, and other interested parties are invited to be present.
2-13  **DISQUALIFICATION OF BIDDERS**
Any one or more of the following causes may be considered as sufficient for the disqualification of a Bidder and rejection of his Proposal.

A. More than one Proposal for the same Work from an individual, firm, partnership, or corporation under the same or different names.

B. Evidence of collusion among bidders.

C. Unbalanced Proposals in which the prices for some items are substantially out of proportion to the prices for other items.

D. Failure to submit a unit price for each item of Work listed in the Proposal.

E. If the Proposal form is other than that furnished by the Engineer or if the form is altered or any part thereof is detached.

F. If there are omissions, erasures, alterations, unauthorized additions, conditional or alternate bids, or irregularities of any kind which may tend to make the Proposal incomplete, indefinite or ambiguous as to its meaning.

G. If the bidder adds any provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award.

H. If the Proposal is not accompanied by the proper proposal guaranty.

I. If the Proposal is prepared with other than ink or typewriter.

J. Lack of competency as revealed by financial statement or experience questionnaire.

K. Unsatisfactory performance record as shown by past work judged from the standpoint of workmanship and progress.

L. Uncompleted work, which, in the judgment of the Owner, might hinder or prevent the prompt completion of additional work.

M. False information provided on a Bidder's "Contractor's Statement."

N. Failure to comply with any prequalification regulations of the Owner.

O. Default under previous contracts.

2-14  **COMPETENCY OF BIDDERS**
The Bidder, if a corporation, shall show the name of the State in which the corporation is chartered. Each Bidder shall furnish the Owner within two (2) weeks after request, with satisfactory evidence of his competency to perform the Work contemplated. When requested, he shall submit to the Owner a
financial statement prepared by a Certified Public Accountant showing his financial condition at the end of his past fiscal year. The accountant who prepares the statement shall certify that he holds a valid and unrevoked certificate as a Certified Public Accountant, issued in accordance with the laws of the State in which he is licensed. The Bidder, if requested, shall also answer and submit questionnaires relating to his experience and available equipment for performing construction work similar to that for which he is offering a proposal, and shall do so within the same two weeks from the time of request.

Before an award is made, the Bidder may, at the option of the Owner be required to furnish a statement showing the value of all uncompleted work for which he has entered into contracts.

2-15 MATERIAL SUBSTITUTIONS
If restrictions of any governmental authority prohibit the use of certain items that are required by the Plans and Specifications, substitution for such items will be determined by the Owner.

Each Bidder shall base his bid on the furnishing of all items exactly as shown on the Plans and as described in the Specifications. The successful Bidder will not be authorized to make any substitutions on his own volition, but in each and every case must obtain a properly authorized change order from the Owner on his Contract before installing any work in variance with the Contract requirements.

2-16 CONTRACTOR'S UNDERSTANDING
It is understood and agreed that the Contractor has, by careful examination, satisfied himself as to the nature and location of the work, the conformation of the ground, the character, quality and quantity of the materials to be encountered, the character of equipment and facilities needed preliminary to and during the prosecution of the Work, the general and local conditions, and all other matters which can in any way affect the Work under this Contract. No verbal agreement or conversation with any officer, agent, or employee of the Owner and Engineer, either before or after the execution of this Contract, shall affect or modify any of the terms or obligations herein contained.

2-17 STATUS OF RIGHT-OF-WAY, EASEMENT AND CONSTRUCTION EASEMENT ACQUISITION
Each bidder is instructed to fully acquaint himself with the status of the right-of-way, easement and construction easement acquisition at the time of submission of his proposal and the possibility of the acquisition of the parcels remaining to be acquired, if any, in time so as not to interfere with the progress of his work under this contract, and the owner shall not be liable to any damage that may occur to him for any and all delay through delay of the owner in securing the necessary right-of-way, easement and construction easement.

The owner agrees that it will make every effort to acquire any right-of-way, easement and construction easement with all speed and diligence possible.
SECTION 3. AWARD AND EXECUTION OF CONTRACT

3-1 CONSIDERATION OF PROPOSALS
The proposals received will be compared on the basis of the summation of the products of the items of Work listed and the unit prices offered. In case of discrepancy between the gross sum shown in the Proposal prices, the unit prices shall govern, and any errors found in said products shall be corrected. In awarding Contracts, the Owner will, in addition to considering the amounts stated in the Proposals, take into consideration the responsibility of the various Bidders as determined from a study of the data required under the previous article and from other investigations, which the Owner may elect to make.

3-2 AWARD OF CONTRACT
Except in cases where the Owner exercises the right reserved to reject any or all Proposals, the Contract will be awarded by the Owner, as soon as practicable after the opening of Proposals.

Unless otherwise specified, if a Contract is not awarded within forty-five (45) days after the opening of Proposals, a Bidder may file a written request with the Owner for the withdrawal of his bid or award date may be extended by mutual consent of the Owner and Bidder. The Owner will have a maximum of ten (10) days after the receipt of such request to award the Contract or release the Bidder from further obligation by return of the Bidder’s Proposal Guaranty.

3-3 RETURN OF PROPOSAL GUARANTY
The Proposal Guaranties of all except the two lowest Bidders will be returned promptly after the Proposals have been checked. Proposal Guaranties of the two lowest Bidders will be returned as soon as the Contract and Bond of the successful bidder have been properly executed and approved.

If Contracts cannot be awarded promptly, the Owner shall permit the two (2) lowest Bidders to substitute for the bank cashier’s checks, or certified checks which they may have submitted with their Proposals as Proposal Guaranties, a bid bond executed by a corporate surety company satisfactory to the Owner, but such substitutions shall not be made until a period of three (3) days has elapsed after the date of opening Proposals.

3-4 REQUIREMENT OF CONTRACT BOND
The successful Bidder, at the time of the execution of the Contract, shall deposit with the Owner a surety bond for the full amount of the Contract. The form of bond shall be that furnished by the Owner, and the surety shall be acceptable to the Owner.
3-5 **EXECUTION OF THE CONTRACT**

The contract shall be executed by the successful Bidder. The bond, when required, shall be executed by the principal and the sureties, and executed Contract and Contract Bond shall be presented to the Owner within fifteen (15) days after the date of notice of the award of the Contract.

Each Contract must be executed in three (3) original counterparts, and there shall be executed original counterparts of the Contract Bond in equal number to the executed original counterparts of the Contract. One (1) copy each of such executed documents will be retained by the Owner and the Engineer, the third will be delivered to the Contractor.

3-6 **FAILURE TO EXECUTE CONTRACT**

Failure on the part of the successful Bidder to execute a Contract and an acceptable Contract Bond and acceptable insurance certificates as provided herein, within fifteen (15) days from the date of receipt of Contract documents from the Owner will be considered as just cause for the annulment of the award and the forfeiture of the proposal guaranty to the Owner, not as a penalty but in payment of liquidated damages sustained as a result of such failure.
SECTION 4. SCOPE OF WORK

4-1 INTENT OF THE PLANS AND SPECIFICATIONS
The intent of the contract is to prescribe a complete outline of work which the Contractor undertakes to do in full compliance with the contract, plans and specifications. The Contractor shall furnish all required materials, equipment, tools, labor, and incidentals, unless otherwise provided in the contract, and shall include the cost of these items in the unit prices bid for the several units of work. Contractor shall be solely responsible for all safety procedures and safety violations. The quantities appearing in the bid schedule of prices are estimates prepared for the establishment of pay item prices and the comparison of bids. Payment to the Contractor will be made for the actual measured quantities performed and accepted or material furnished and accepted according to the contract, and the scheduled quantities may be increased, decreased, or omitted as herein provided.

Under no circumstances shall the Contractor exceed any established pay item quantity without notification to the Engineer and receipt of written authorization as provided herein.

The latest edition of the State Specifications and Standard Specifications for Water and Sewer Construction in Illinois shall be the basis and govern this contract unless otherwise provided by special provision or exception.

4-2 SPECIAL WORK
Should any construction or requirement not covered by the Specifications be anticipated on any proposed Work, Special Provisions for the same will be prepared and included in the Proposal form, which Special Provisions shall be considered as a part of the Specifications the same as though contained fully herein.

4-3 CHANGES
The Owner reserves the right to make, in writing, at any time during work, changes in quantities, alterations in work, and the performance of extra work to satisfactorily complete the project. Such changes in quantities, alterations, and extra work shall not invalidate the contract nor release the surety, and the Contractor agrees to perform the work as altered.

If the alterations or changes in quantities significantly change the character of the work under the contract, whether or not changed by any such different quantities or alterations, an adjustment, excluding loss of anticipated profits, will be made to the contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, then an adjustment will be made either for or against the Contractor in such amount as the Owner may determine to be fair and equitable.
If alterations or changes in quantities do not significantly change the character of the work to be performed under contract, the altered work will be paid for as provided elsewhere in the contract.

The term "significant change" shall be construed to apply only when the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction or when a major item, defined as an item whose total original contract costs exceeds ten percent of the total original contract amount, is increased in excess of 125 percent or decreased below 75 percent of the original contract quantity.

All alterations, cancellations, extensions, and deductions shall be authorized in writing by the Owner before work is started. Such authorizations shall set up the items of work involved and the method of payment for each item.

The Contractor shall accept payment for alterations which result in an increase or decrease in the quantities of work to be performed according to the following:

A. All increases in work of the type which appear in the contract as pay items accompanied by unit prices will, except as provided under paragraph (C) herein, be paid for at the contract unit prices. Decreases in quantities included in the contract will be deducted from the contract at the unit bid prices. No allowance will be made for delays or anticipated profits.

B. Major items of work for which the quantities are increased by not more than 125 percent or reduced to not less than 75 percent of the original contract quantities will be paid for as specified in paragraph (a) above. Any adjustments for increased quantities for major items of work increased more than 125 percent shall only apply to that portion in excess of 125 percent of original contract quantities. Any adjustments made for major items of work which are decreased to less than 75 percent of the original contract quantities shall apply to the actual amount of work performed.

C. Extra work which is not included in the contract as pay items at unit prices and is not included in other items of the contract will be paid for according to Section 9-4.

4-4 PERIODIC AND FINAL CLEANUP

From time to time or as may be ordered by the Owner and immediately after completion of the Work, the Contractor shall at his own expense clean up and remove all refuse and unused materials of any kind resulting from the Work. Upon failure to do so within five (5) working days after receipt of written request from the Owner, the Work may be done by the Owner and the cost thereof be charged to the Contractor and be deducted from his Contract price. Upon completion of the Work, the Contractor shall remove all his equipment and put the area of the Work in a neat and clean condition and do all other cleaning required to complete the Work in a workmanlike manner, ready for use and satisfactory to the Owner.
All Cleanup shall be performed as specified in the various sections of these Specifications or in the Special Provisions.

4-5  **LUMP SUM CONTRACTS**
On lump sum Contract, when specified in Special Provisions, or Contracts containing lump sum items, the lump sum contract price shall include the furnishing and installation of all Work described in the Specifications and/or shown on the Plans.

4-6  **LOCAL ORDINANCES AND REGULATIONS**
The Contractor shall keep himself fully informed of all existing laws, ordinances, and regulations of the municipality affecting the work and/or material of this Contract. If any inconsistency is discovered between the Plans, Specifications and those covered by local municipal laws, ordinances, or regulations, it shall be reported to the Owner and Engineer.

4-7  **PREFERENCE TO VETERANS**
Attention is called to assure compliance with Illinois Revised State Chapter 126 Section 23. Preference to veterans upon public works: “In the employment and appointment to fill positions in the construction, addition to, or alteration of all public works undertaken or contracted for by the state, or by any political subdivision thereof, preference shall be given to persons who were engaged in the military or naval service of the United States in time of war”.

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SECTION 5. CONTROL OF THE WORK

5-1 PLANS AND WORKING DRAWINGS
The Contractor shall submit to the Engineer such shop, working, or layout drawings pertaining to the construction of the Work, as may be required. These drawings shall be reviewed by Engineer for general conformance with the design concept only. This review by the Engineer does not relieve the Contractor and/or fabricator/vendor of responsibility for conformance with the Contract documents (see 1-8) and applicable codes, all of which have priority over these shop, working and layout drawings. Corrections or comments made on the shop drawings by the Engineer during this review process do not relieve the Contractor from compliance with the requirements of the Contract documents (1-8) and applicable codes.

When the Contract includes Work adjacent to a railroad and false work, cofferdams, or sheeting is required, the Contractor shall submit to the Engineer for his approval and the Railroad Engineer’s approval, plans for the false work, cofferdams, or sheeting by a Registered Structural Engineer. It shall be the responsibility of the Contractor to contact the railroad to determine how to meet their requirements. The cost of meeting those requirements shall be borne by the Contractor. The plans shall be submitted sufficiently in advance of the time the Contractor intends to start work to permit checking. No such work shall be started prior to receipt by the Contractor of approval of the Plans for the false work, cofferdams, or sheeting.

The cost of furnishing such Drawings shall be incidental to the contract and no additional compensation will be allowed the Contractor for any delays resulting therefrom.

5-2 CONFORMITY WITH PLANS AND SPECIFICATIONS
It is the intent of the Specifications that all Work performed and all materials furnished shall be in conformity with the lines, grades, cross section, dimensions and material requirements shown on the Plans or indicated in the Specifications.

In the event the Engineer finds the materials or the finished product in which the materials are used or the Work performed are not in conformity with the Engineering Plans and technical Specifications including tolerances and have resulted in an inferior or unsatisfactory product, the Work or material shall be removed and replaced or otherwise corrected by and at the expense of the Contractor.

5-3 COORDINATION OF COMPONENT PARTS OF THE CONTRACT
The Specifications, the accompanying Plans, the Proposal, the Special Provisions, and all other contract documents are intended to describe a complete Work and are essential parts of the Contract. A requirement occurring in any of them is binding. In case of discrepancy, figured dimensions shall govern over scaled dimensions, Plans shall govern over Specifications, Special Provisions shall govern over both Specifications and Plans, and quantities shown on the plans shall govern over those shown in the
Proposal. Neither the Owner, Engineer, nor the Contractor shall take advantage of any apparent error or omission in the Plans or Specifications, and the Owner shall be permitted to make such minor changes or alterations as may be deemed necessary for the fulfillment of the intent of the Plans and Specifications. Any corrections or alterations so made shall be subject to the provisions of Section 4-3.

5-4 **COOPERATION BY CONTRACTOR**
The Contractor will be furnished necessary copies of the Plans and Special Provisions, and he shall have one copy of each available on the work at all times during its prosecution. He shall give the work his constant attention to facilitate the progress thereof, and shall cooperate with the Owner and Engineer in every way possible. He shall have on the Work site at all times a competent, English-speaking representative authorized to receive orders and act for him and shall not replace him without prior written notification to the Owner.

5-5 **UTILITIES**
Not all of the gas, power, telephone or cable television lines, whether above or below ground, have been shown on the drawings. The location of existing underground utilities, such as water mains, sewers gas mains, etc., as shown on the drawings, have been determined from the best available information and are given for the convenience of the Contractor. The Contractor must assume responsibility for location and protection of all utilities, whether shown or not, and must realize that the actual locations of the utilities shown on the drawings may be different from the location indicated.

It is the responsibility of the Contractor to phone the Joint Utility Locating Information for Excavators (J.U.L.I.E.) at least 48 hours before excavation starts (except Saturday, Sunday and Holidays) phone toll free 1-800-892-0123. The Contractor shall also be responsible for having the "Dig Number" assigned as a result of the phone request available at the construction site and at his office.

It is understood and agreed that the Contractor has considered in his Proposal all of the permanent and temporary utility appurtenances shown or otherwise indicated on the Plans in their present positions and that no additional compensation will be allowed for any delays, inconvenience, or damage sustained by him due to any interference from the said utility appurtenances of the operation of moving them either by the utilities company or by the Contractor; or on account of any special construction methods required in prosecuting his work due to the existence of said appurtenances.

5-6 **COOPERATION BETWEEN CONTRACTORS**
If separate contracts are let for Work comprising an entire improvement, each Contractor shall conduct his Work so as not to interfere with or hinder the progress or completion of the Work being performed by other Contractors.
The Contractor shall as far as possible arrange his Work, and place and dispose of the materials being used so as not to interfere with the operations of the other contractors within the limits of the same improvement. He shall join his work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others. In case of dispute, the latest approved progress schedule shall govern.

5-7 CONSTRUCTION STAKES
Construction stakes and/or paint will be furnished and set by the Engineer to mark the general location, alignment, elevation and grade of the Work. The Contractor shall exercise proper care in the preservation of stakes set for his use or the use of the Engineer. The Contractor shall pay for the cost of replacing stakes damaged by his operation or those stolen by others.

5-8 AUTHORITY AND DUTIES OF OBSERVERS
Observers employed by the Owner or by the Engineer shall be authorized to observe the progress of the Work to determine if the Work is proceeding in accordance with the technical Plans and Specifications, and to perform such other duties as may be designated by the Engineer. However, the Engineer shall not be responsible for the construction means, methods, techniques, sequences or safety procedures and precautions in connection with the work by the contractors.

5-9 ENGINEER’S FIELD OFFICE AND/OR LABORATORY
When required by the Special Provisions, the Contractor shall furnish a field office and laboratory. The field office and/or laboratory shall be a weatherproof building for the exclusive use of the Engineer. It shall be independent of any building used by the Contractor. All keys to the building shall be turned over to the Engineer. The Engineer shall designate the location of the building and it shall remain on the site until released by the Engineer.

The building shall conform to the following requirements:

- Floor space, not less than .............................................................. 120 square feet
- Height of ceiling, not less than ....................................................... 8 feet
- Windows, not less than ............................................................... 3
- Door, with lock approved by the Engineer ................................. 1
- Instrument locker, 2 feet x 3 feet x 4 feet, with adjustable shelves
- Hinged wall table ........................................................................ 3 feet x 6 feet
The Contractor shall provide lights, heat, and when electric power is available, summer air conditioning for the building. The conditions shall be acceptable to the Engineer.

When shown on the plans or specified in the Special Provisions, the Contractor shall furnish two (2) buildings conforming to the above requirements, one to be used as a field laboratory, and each to be located where designated by the Engineer.

With the approval of the Engineer, a mobile building or buildings of approximately the same dimensions and having similar facilities may be substituted for the above described building or buildings.

The cost of furnishing the building or buildings, light, heat, and air conditioning shall be paid for at the contract lump sum price for "FIELD OFFICE AND/OR LABORATORY". The office and/or laboratory shall remain the property of the Contractor when the Work is completed.

5-10 CONSTRUCTION OBSERVATION

All materials and each part or detail of the Work may be subject at all times to observation by the Engineer and the Owner, or their authorized representatives, and the Contractor will be held strictly to the true intent of the Contract documents in regard to quality of materials, workmanship and the diligent execution of the Contract. Observations may be made at the site or at the source of material supply whether mill, plant or shop. The Engineer, or his representatives, shall be allowed access to all parts of the Work and shall be furnished with such information and assistance by the Contractor as is required to make his observations and construction review. The duty of the Engineer to conduct observations and construction review of the Contractor's performance shall not include review of the adequacy of the Contractor's safety measures in, on, or near the construction site.

Engineer shall not at any time supervise, direct, or have control over any contractors' work, nor shall Engineer have authority over or responsibility for the means, methods, techniques, sequences, or procedures of construction selected or used by any contractor, nor for safety precautions and programs in connection with the contractors' work, nor for any failure of any Contractor to comply with laws and regulations applicable to contractors' work. Engineer neither guarantees the performance of any contractor nor assumes responsibility for any contractor's failure to furnish and perform its work. Engineer shall have no authority to stop the work of any contractor on the Project. The Engineer's efforts will be directed toward providing assurance for the Owner that the completed project will conform to the Plans and Specifications as prepared by the Engineer, to safeguard the Owner against variances and deviations from the Plans and Specifications, and to assist in a correct interpretation of the Plans and Specifications.

The Engineer shall not have control of the construction and does not have a right, duty or responsibility to stop work for any reason including any contractor's failure to follow proper safety precautions or any acts or omissions. The Engineer shall not be responsible for the acts, errors or omissions of any contractor or any of their agents or employees or any other person performing any of the Work under the Contract.
The Contractor shall, upon written notice from the Owner, remove or uncover such portions of the finished Work as he may direct, before the final acceptance of the same. After examination, the Contractor shall restore said portion of the Work to the standard required by the Contract documents. If the Work thus exposed or examined proves acceptable, the expenses of uncovering or removing and the replacing of the parts removed shall be paid for as Extra work, unless otherwise provided in the Contract documents, but if the Work so exposed or examined is unacceptable, the expense of uncovering or removing and the replacing of the same in accordance with the Contract documents shall be borne by the Contractor.

The Contractor shall supervise and direct the Work. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction.

Any reference to "supervision" by the Engineer in the Illinois Department of Transportation, Standard Specifications for Road and Bridge Construction or any other referenced documents shall be changed to "observation."

When the State and/or Federal Government is to pay a portion of the cost of the Work covered by the Contract, the Work shall be subject to the observation of the representatives of those Governments, but such observation shall in no sense make those Governments a part of the Contract.

5-11 REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK

Work done without lines and grades being given, or beyond the lines shown on the Plans or as given, except as herein provided, or any extra work done without authority will be considered as unauthorized and at the expense of the Contractor, and will not be measured or paid for. Work so done may be ordered by the Owner to be removed or replaced at the Contractor's expense.

All work, which has been rejected, shall be remedied or removed and replaced so as to comply with the Plans and Specifications by the Contractor at his own expense. Upon failure on the part of the Contractor to comply promptly with any order of the Owner made under the provisions of this article, the Owner shall, after giving written notice to the Contractor, have the authority to cause defective work to be remedied, or removed and replaced, or to cause unauthorized work to be removed, and to deduct the cost thereof from the contract price due or become due to the Contractor.

5-12 FINAL ACCEPTANCE

The Engineer shall make final acceptance of all Work included in the Contract, as soon as practicable after notification by the Contractor that the Work is completed. If the Work is not acceptable to the Engineer, he shall inform the Contractor in writing as to the particular defects to be remedied before final acceptance can be made.
The Contractor shall be relieved of normal maintenance responsibilities for any sections of the work, which are completed and accepted by the Owner prior to project completion. For the remainder of the Work, the guarantee period shall be as stated in Section 7-16.

When the Contract includes work for which the County, State and/or Federal Government is to pay a portion of the cost thereof, such work shall also be subject to the inspection and approval of the representatives of those governments.

5-13  PUBLIC CONSTRUCTION BID ACT, 30 ILCS 557/1
It is agreed that the Public Construction Bid Act, 30 ILCS 557/1, shall not be applicable to this contract pursuant to the home rule powers of the community.
SECTION 6. CONTROL OF MATERIAL

6-1 QUALITY OF MATERIALS
It is the intent of the Specifications that first-class materials shall be used throughout the Work, and that they shall be incorporated as to produce completed construction, which is workmanlike and acceptable in every detail. The cost or collecting and furnishing of samples of all test material shall be borne by the Contractor. The cost of all testing shall be borne by the Owner. Only materials, which conform to the requirements of these Specifications, shall be incorporated in the Work.

6-2 DEFECTIVE MATERIALS
All materials not conforming to the requirements of the Specifications shall be considered as defective and shall be removed from the Work; if in place, they shall be removed by the Contractor at his expense and replaced with acceptable materials. No defective materials, the defects of which have been subsequently corrected, shall be used until approval has been given. Upon failure of the Contractor to comply forthwith with any written order of the Owner pursuant to the provisions of this article, the Owner shall have authority to remove and replace defective materials and to deduct the cost of removal and replacement from any monies due to become due the Contractor.

6-3 TESTING MATERIALS
All materials should be tested and approved by the Engineer before incorporation in the Work. The Contractor shall give sufficient advance notice of placing orders to permit tests to be completed before the materials are incorporated in the Work and the Contractor shall afford such facilities as the Engineer may require for collecting and forwarding samples and making observations.

6-4 SAND, GRAVEL AND CRUSHED STONE
The source of sand, gravel and crushed stone construction shall be approved by the Engineer prior to usage. The approval shall be based upon testing of samples furnished by the Contractor and tested by the Engineer for conformance with Specifications. Approval shall be contingent upon the Contractor using materials on the job, which conform with the samples satisfactorily tested.

6-5 CONCRETE
Samples of concrete used in construction shall be taken by the Contractor and made into test cylinders in conformance with ASTM C31. The Owner shall provide the services of an independent testing laboratory to collect and test the cylinders in conformance with ASTM C39, and furnish a copy of test results to the Engineer. Any concrete, which tests indicate failed to conform to the Specifications, shall be removed and replaced at Contractor's expense. At the option of the Owner, the concrete may be accepted and agreed upon adjustment in payment.
6-6 **MISCELLANEOUS MATERIALS**

Fittings, valves, castings, hydrants, house service pipes, masonry blocks, bricks, manhole sections or other miscellaneous manufactured materials used in water and sewer construction shall be furnished with the implied guarantee that such materials conform with the requirements of the Specifications. The Engineer reserves the right to require a certified statement from the manufacturer of such materials that the specific materials have been inspected and tested and conform with the Specifications.

6-7 **JOB SITE OBSERVATION**

Regardless of any tests of materials made at the source, the Contractor shall carefully inspect all materials before installation and reject any materials, which have been damaged or have visible flaws. The Engineer also reserves the right to make such observation, but failure to detect irregularities does not relieve the Contractor of responsibility to remove and replace materials, which are found to be defective after installation.

6-8 **STORED MATERIALS**

If it is necessary to store materials, they shall be protected in such a manner as to insure the preservation of their quality and fitness for the Work. All stored materials shall be inspected at the time of use in the Work, even though they may have been inspected and approved before being placed in storage. The Contractor may use the right-of-way for storage of materials. If stockpiling is done outside the right-of-way, the additional space required shall be provided by the Contractor at his expense.

6-9 **"OR EQUAL" CLAUSE**

Whenever, in any of the Contract Documents, an article, material or equipment is defined by describing a proprietary product, or by using the name of a manufacturer, or vendor, the term "or equal", if not inserted shall be implied except where the Proposal provides for alternate bids. The specific article, materials, or equipment mentioned shall be understood as indication of the type function, minimum standard or design, efficiency and quality desired and shall not be construed in such a manner as to exclude manufacturer's products of comparable quality, design and efficiency. The Contractor shall comply with the requirements of the Contract Documents relative to an Owner's approval of materials and equipment before they are incorporated in the project.
SECTION 7. LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

7-1 LAWS TO BE OBSERVED
The Contractor shall at all times observe and comply with all Federal laws, State laws, County laws, local laws, ordinances, and regulations which in any manner affect the conduct of the Work, and all such orders or decrees as exist at the time Bids are advertised, of legislative bodies or tribunals having legal jurisdiction or authority over the work and no plea of misunderstanding or ignorance thereof will be considered. The Engineer shall not be responsible for determining whether the Contractor is in compliance with these laws, ordinances and regulations.

The Contractor shall indemnify and save harmless the Owner, the Engineer, and all of their officers, agents, employees and servants against any claim or liability, including legal fees, arising from or based on the violation of such law, ordinance, regulation, order or decree, whether by themselves or their employees.

7-1.01 INDEMNIFICATION
To the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless Owner and REL and their respective officers, agents and employees, from and against all claims, damages, losses, costs, expenses, judgments and liabilities, including but not limited to attorney’s fees, costs and expenses, arising out of or in connection with Contractor’s performance or failure to perform this Agreement, provided that any such claim, damage, loss, costs, expenses, judgments or liabilities are attributable to bodily injury, sickness, disease or death, or to injury or destruction of tangible personal property, including the loss of use resulting therefrom, that is caused in whole or in part by any act or omission of the Contractor, any subcontractor, anyone directly or indirectly employed by them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by any party indemnified hereunder.

Contractor shall defend, indemnify and hold harmless Owner, REL, and their respective officers, agents and employees from and against all claims, damages, losses, costs and expenses arising out of, relating to, or incurred in connection with the use by Contractor, its officers, agents, subcontractors and employees of any equipment, materials, tools, construction equipment, machinery, and/or motor vehicles owned or leased by Owner. The indemnification provided by this Section shall apply regardless of whether Owner consents to the use of equipment by Contractor.

In the event such indemnity as described above is prohibited by law, then said indemnity shall only be to the extent caused by the negligent acts or omissions of the Contractor, subcontractors, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, or to the extent allowed by applicable law.
The indemnification obligation under this paragraph shall not be limited in any way by any limitations on the amount or type of damages, compensation or benefits payable by or for the benefit of Contractor or any indemnities under any Worker’s Compensation Act, Occupational Disease Act, Disability Benefits Act, or any other employee benefits act. The Contractor further agrees to waive any and all liability limitations based upon the Worker’s Compensation Act court interpretations or otherwise.

Contractor agrees that a similar waiver of liability limitation will be incorporated in its agreements with subcontractors or anyone directly or indirectly employed by them. Contractor agrees that in the event it fails to incorporate such a waiver of liability limitation in its agreements with said subcontractors and others, then it will be responsible for any additional liability arising out of said failure. The defense and indemnification obligations set forth in this provision shall survive the termination or expiration of this Agreement.

Contractor further agrees that all future contracts in furtherance of this contract between Contractor and any of its subcontractors will designate Owner and REL as intended third party beneficiaries of that contract. Contractor hereby agrees to specifically label Owner and REL as an “intended third party beneficiaries” in all contracts entered in furtherance of this contract.

7-2 INSURANCE REQUIREMENTS

7-2.01 GENERAL
The Contractor and any Subcontractors shall obtain and thereafter keep in force for the term of the contract the insurance coverage specified in 7-2.02 MINIMUM INSURANCE REQUIREMENTS.

The Contractor shall not commence work under the Contract until all the insurance required by this section or any Special Provisions has been obtained. The insurance companies must be authorized to do business in the State of Illinois for Work in Illinois and the State of Indiana for Work in Indiana.

The insurance companies providing coverage shall be rated in the Best’s Key Rating Guide with a rating not lower than A- and shall have a financial size category of not less than VII.

The Contractor shall be solely responsible for enforcing compliance with these insurance requirements by all Subcontractors of any tier.

A. PRIMARY INSURANCE
All insurance required of the Contractor shall be specifically endorsed so that it is Primary Insurance as to all additional insureds with respect to all claims arising out of operations by or on their behalf. If additional insureds have other applicable insurance coverage, those coverages shall be deemed to be on an excess or contingent basis.
B. **NO WAIVER OF INSURANCE REQUIREMENT BY OWNER**

Under no circumstances shall the Owner be deemed to have waived any of the insurance requirements of this Contract by any act or omission, including, but not limited to:

1. Allowing work by Contractor or any Subcontractor of any tier to start before receipt of certificates of insurance, endorsements, and other required insurance documents; or

2. Failure to examine, or to demand correction of any deficiency of, any certificate of insurance received.

The Contractor agrees that the obligation to provide insurance is solely the Contractor’s responsibility and cannot be waived by any act or omission of the Owner.

C. **INSURANCE DOES NOT LIMIT LIABILITY**

The purchase of insurance by the Contractor under this Contract shall not be deemed to limit the liability of the Contractor in any way for damages suffered by Owner (e.g., in excess of policy limits, because of deductibles, or not covered by the policies purchased).

D. **NOTIFICATION OF PERSONAL INJURY/PROPERTY DAMAGE**

The Contractor shall notify the Owner, in writing, of any possible or potential claim for personal injury or property damage arising out of the work of this Contract promptly whenever the occurrence giving rise to such a potential claim becomes known to the Contractor.

7-2.02 **MINIMUM INSURANCE REQUIREMENTS**

The insurance coverage required of the Contractor and any Subcontractors shall be written for not less than the following, or greater if required by law:

A. **Workers’ Compensation and Occupational Disease Insurance** in accordance with applicable state and federal laws, and Employer’s Liability Insurance with a bodily injury per accident limit of liability of at least $500,000, bodily injury by disease limit each employee of $500,000 and bodily injury by disease policy limit of $500,000 or such greater sum as may be reasonably required by Owner.
B. Commercial General Liability Insurance provided by ISO form CG 0001 with a combined Bodily Injury and Property Damage limit of at least $1,000,000 per occurrence, $2,000,000 products and completed operations aggregate and $2,000,000 general aggregate, or such greater sum as may be reasonably required by Owner.

1. Completed Operations and Products liability insurance shall be maintained for a period of 2-years after completion and acceptance of the Project by Owner, or such longer period as may be reasonably required by the Owner.

2. The above policy shall include an endorsement identifying Owner, Robinson Engineering, Ltd, and any other parties as may be reasonably required by Owner or REL as Additional Insured. ISO endorsements CG 2010 and CG 2037 any edition, or equivalent forms, must be used to provide this coverage.Copies of the endorsements must be included with the certificate of insurance as required in paragraph L.

3. Claims-Made coverage triggers are not acceptable to Owner.

4. ISO form CG2503, Designated Construction Project(s) General Aggregate Limit or an equivalent form must be endorsed to the policy and identified on the certificate of insurance. An Owners and Contractors Protective Liability policy can be utilized in lieu of aggregate limits per project, (see 7-2.020 for OCP requirements)

5. The policy shall not contain a sunset provision, commutation clause or any other provision which would prohibit the reporting of a claim and the subsequent defense and indemnity that would normally be provided by the policy.

6. The policy shall not contain any provision, definition or endorsement which would serve to eliminate third party action over claims.

7. Residential Work exclusions or limitations, in any form, are not acceptable to Contractor.

C. Comprehensive Automobile Liability Insurance covering use of all owned, non-owned and hired vehicles with Bodily Injury and Property Damage limit of at least $1,000,000 Combined Single Limit, or such greater sum as may be reasonably required by the Owner. This policy shall include coverage for Owner, REL, and any other parties as may be reasonably required by Owner, for liability arising out of the actions of Contractor, whether by endorsement or otherwise.
D. **Excess or Umbrella Liability Insurance** limits of no less than $5,000,000 per occurrence for Employer’s Liability, Commercial General Liability and Comprehensive Automobile Liability, in excess of the minimum policy limits stated below:

- **Employer’s Liability** $500,000 / $500,000 / $500,000
- **Commercial General Liability** $1,000,000 per occurrence
- **Commercial General Liability** $2,000,000 general aggregate
- **Commercial General Liability** $2,000,000 completed operations aggregate
- **Comprehensive Auto Liability** $1,000,000 combined single limit

Excess/Umbrella coverage shall be provided as no less than Follow Form and shall name Owner, REL, and any other parties as may be reasonably required by Owner, as Additional Insured on a Primary and Non-Contributory basis.

E. **Pollution Liability** in the amount of $1,000,000 per occurrence and in the aggregate or such sum as may be reasonably required by the Owner. This requirement covers the Contractor’s use of, transportation, removal and/or disposal of hazardous materials and/or pollutants. Additionally, this requirement must apply to any disposal site receiving hazardous materials and/or pollutants. Pollution means the actual or alleged discharge, dispersal, release, seepage, migration, growth, or escape of smoke, soot, fumes, acids, alkalis, toxic chemicals, mold, mildew, spores, fungi, microbes, bacterial matter, legionella pneumophila, asbestos, lead, silica, liquids or gases, waste materials, contaminants, or other irritants, into or upon land, the atmosphere, any structure on land, the atmosphere contained within that structure, or any watercourse or body of water, including groundwater. Radioactive matter shall also be considered a pollutant, except as otherwise covered or protected by insurance or protections provided pursuant to 42 U.S.C. § 2014(w), as amended, or Section 170 of the Atomic Energy Act of 1954, as amended.

F. **Professional Liability** in the amount of $2,000,000 per occurrence and in the aggregate or such sum as may be reasonably required by the Owner. This requirement covers the Contractor’s duties that involve professional architectural, engineering, design or consultation work. Any applicable deductibles and/or retention’s must be noted on the Certificate of Insurance. Policy exclusions are not allowed for pollution, including mold, fungi or bacteria including the vapor produced or arising therefrom. Please see the project Special Provisions for the project specific needs of this policy.
G. **Property and Equipment** Contractor shall purchase and maintain at its own discretion and expense, Builder’s Risk/Installation Floater Insurance in an amount equal to the insurable value of the Contractor’s property, whether off site or in transit, to cover any equipment, tools or tangible personal property. Contractor assumes all liability and risks, and agrees to waive all claims against Owner and REL for damage to or loss of equipment, machinery, tools, supplies and other tangible personal property owned or supplied by Contractor and utilized or intended to be utilized during the course of Contractor’s Work. Any insurance carried by Contractor covering such damage or loss shall be endorsed with a waiver of subrogation in favor of Owner and REL. Any and all subcontractors agree to assume the same liabilities and risks as Contractor.

H. **Each of Contractor’s** General Liability, Auto Liability, Pollution Liability, Professional Liability and Excess/Umbrella Liability policies must be endorsed as Primary and Non-Contributory as to any insurance maintained by the Additional Insured(s) and shown on the certificate of insurance.

I. **An endorsement** in favor of the Additional Insured(s) waiving the Contractor’s and its insurer’s rights of subrogation shall be issued with respect to the Commercial General Liability, Comprehensive Auto Liability, Pollution Liability, Professional Liability and Workers’ Compensation and Employers Liability policies. Evidence of this endorsement must be noted on the certificate of insurance.

J. **Self-funded** or other non-risk transfer insurance mechanisms or deductibles/self-insured retentions greater than $25,000 per occurrence are not acceptable to Owner on any insurance coverage required in this agreement. If the Contractor has such a program, full disclosure must be made to Owner and REL prior to any consideration being given.

K. **Any subcontractor** employed by Contractor shall have equivalent coverage.

L. **A Certificate of Insurance**, including copies of the Additional Insured endorsements, shall be sent to REL prior to the commencement of any Work (please see the sample attached at the end of Section 7). All Certificates of Insurance and Endorsements verifying the existence of the above required insurance shall be in form and content satisfactory and acceptable to Owner and REL and shall be submitted to REL in a timely manner so as to confirm Contractor’s full compliance with these insurance requirements stated herein, throughout the entire term of this Agreement.

Certificates must be sent to: RELcertificates@thehortongroup.com
M. Contractor shall provide written notice via email to RELcertificates@thehortongroup.com of any cancellation notice received by Contractor from any insurer providing insurance as required in this Agreement within two (2) business days of Contractor’s receipt of such notice.

N. Permitting Contractor to commence Work prior to RELs receipt of the required certificate shall not be a waiver of the Contractor’s obligation to provide all of the above insurance. Acceptance by Owner or REL of insurance submitted by Contractor shall not relieve or decrease in any manner the liability of the Contractor for its performance under this Agreement.

In the event Contractor fails to obtain or maintain any of the foregoing required coverage, the Owner may purchase such coverage and charge the expense thereof to the Contractor, or may terminate this Agreement.

These Insurance provisions are intended to be a separate and distinct obligation on the part of Contractor. Therefore, these provisions shall be enforceable and Contractor shall be bound thereby regardless of whether or not the Indemnity provisions of this Agreement are determined at any time to be enforceable in the jurisdiction in which the Work covered by this Agreement is performed. The obligation of the Contractor to provide the insurance herein specified shall not limit in any way the liability or obligations assumed by the Contractor elsewhere in this Agreement.

In the event Contractor or its insurance carrier(s) defaults on any obligations under this Insurance provision, Contractor agrees that it will be liable for all reasonable expenses and attorneys’ fees incurred by Owner in the enforcement of the terms of this provision.

O. Owner’s And Contractor’s Protective Liability Insurance

If the Contractor is unable or unwilling to provide the required General Liability Additional Insured forms, an Owner’s and Contractor’s Protective Policy can be purchased as an acceptable alternate; Required limits of insurance;

1. Bodily Injury and Property Damage Combined

   $5,000,000 Each Occurrence

   $10,000,000 Annual Aggregate

2. The Contractor will furnish and maintain during the entire period of construction an Owner’s and Contractor’s Protective Liability policy written in the name of the Owner and REL with not less than the limits indicated. The named insureds shall be:
a. Owner
b. Robinson Engineering, Ltd.

3. Proof of insurance for the coverages required to be purchased by the Contractor, including the Owner’s and Contractor’s Protective Policy shall be submitted to REL for transmittal to the Owner for his approval prior to the start of construction. Proof of the Owner’s Protective Policy shall consist of providing an entire copy of that policy to REL. With respect to all other coverages required to be purchased by the Contractor, proof of insurance shall consist of a Certificate of Insurance issued by the Contractor’s insurance agency.

4. It is further understood that any insurance maintained or carried by Owner and Robinson Engineering, Ltd. shall be in excess of any coverage provided by any Contractor or Subcontractor.

P. **Railroad Protective Insurance** will be required by Special Provisions if needed.

Q. **Builder’s Risk Insurance** is not provided by the Owner. The Contractor is responsible for any loss that would be insured by such coverage. On Contracts for construction of buildings, bridges, or other structures, all Builder’s Risk coverage may be required by Special Provisions. Such coverage shall name the Owner, Contractor, subcontractors, and suppliers, as their interests may appear as named insureds.

7-3 **PERMITS AND LICENSES**
The Contractor, prior to commencing work, shall at his own expense procure all permits, licenses, and bonds necessary for the prosecution of the work, required by Municipal, County, State and Federal regulations, unless specifically provided otherwise in the Special Conditions of the Contract.

The Contractor shall also give all notice, pay all fees, and comply with all Federal, State, County and Municipal laws, ordinances, rules and regulations and building and construction codes bearing on the conduct of the Work.

7-4 **PATENTS AND ROYALTIES**
If any design, device, material or process covered by letters patent or copyright is used by the Contractor, he shall provide for such use by legal agreement with the owner of the patent or a duly authorized licensee of such owner, and shall save harmless the Owner and the Engineer from any and all loss or expense on account thereof, including its use by the Owner.
7-5 STATE AND FEDERAL PARTICIPATION
When the County, State, and/or the Federal Government pays all or any portion of the cost of the Work, the Work shall be subject to the inspection of the appropriate agency.

7-6 SANITARY PROVISIONS
The Contractor shall comply with all rules and regulations of the Federal, State, County, and local health departments, and shall take precautions to avoid creating unsanitary conditions. The Engineer shall not be responsible for determining whether the Contractor is in compliance with these rules and regulations.

7-7 PUBLIC CONVENIENCE AND SAFETY
The Contractor shall notify the Owner at least five (5) days in advance of the starting of Work, which might in any way inconvenience or endanger traffic, so that arrangements may be made, if necessary, for closing the road and providing suitable detours. The Contractor shall at all times conduct the Work as to insure the least obstruction to vehicular and pedestrian traffic. The convenience of the general public and of residents along the roadway shall be provided for in an adequate and satisfactory manner. (See also 7-9, 7-14 and 8-6.)

If a temporary road is required for the convenience of the general public and/or residents along the roadway, temporary road requirements will not be paid for separately, but will be incidental to the Contract and no extra compensation will be allowed.

7-8 BARRICADES AND WARNING SIGNS
When any section of road is closed to traffic, the Contractor shall provide, erect, and maintain barricades, red flags, signs and lights at each end of the closed section and at all intersecting roads in accordance with the Illinois Manual of Uniform Traffic Control Devices.

If during the progress of the work, it is necessary to provide access to private property along the road, the Contractor shall provide, erect, and maintain within the closed portion of the road, such barricades, signs, flags and lights as may be necessary to protect the Work and to safeguard local traffic.

When traffic is to be permitted to use the road during construction, the Contractor shall protect the work and provide for safe and convenient public travel by providing, erecting, and maintaining such barricades, red flags, and lights as are necessary.

The Contractor's responsibility for the work, as provided in Section 7-15, shall apply, even though barricades, signs, red flags, and lights are installed as required above.
The cost of furnishing and maintaining barricades, warning signs, red flags, and lights as required herein shall be incidental to the Contract and no extra compensation will be allowed. The Engineer shall not be responsible for determining whether the Contractor is in compliance with these rules and regulations.

7-9 DEBRIS ON TRAVELED SURFACE OR STRUCTURES
Where the Contractor's equipment is operated on any portion of the traveled surface or structures used by traffic on or adjacent to the section under construction, the Contractor shall clean the traveled surface of all dirt and debris at the end of each day's operation.

The cost of this work shall be included in the unit prices bid and no additional compensation will be allowed. The Engineer shall not be responsible for determining whether the Contractor is in compliance with these rules and regulations.

7-10 EQUIPMENT ON TRAVELED SURFACE AND STRUCTURES
The traveled surface and structures on or adjacent to the work shall be protected, from damage by lugs or cleats on treads or wheels of equipment.

All equipment used in the prosecution of the work shall comply with the legal loading limits established by the statutes of the State of Illinois or local regulations when moved over or operated on any traveled surface or structure unless permission in writing has been issued by the Owner. Before using any equipment, which may exceed the legal loading, the Contractor shall secure a permit, allowing ample time for making an analysis of stresses to determine whether or not the proposed loading would be within safe limits. The Owner will not be responsible for any delay in construction operations or for any costs incurred by the Contractor as a result of compliance with the above requirements. The Engineer shall not be responsible for determining whether the Contractor is in compliance with these rules and regulations.

7-11 USE OF EXPLOSIVES
When the use of explosives is necessary for the prosecution of the Work, the Contractor shall be governed by the rules and regulations of the Department of Mines and Minerals of the State of Illinois and any local regulations, which govern the use of explosives. The Engineer shall not be responsible for determining whether the Contractor is in compliance with these rules and regulations.

7-12 USE OF FIRE HYDRANTS
If the Contractor desires to use water from hydrants, he shall make application to the proper authorities, and shall conform to the municipal ordinances, rules or regulations concerning their use. Water from
hydrants or other sources shall be at the Contractor’s expense unless otherwise provided in the Special Provisions.

Fire hydrants shall be accessible at all times to the Fire Department. No material or other obstructions shall be placed closer to a fire hydrant than permitted by municipal ordinances, rules or regulations, or within ten feet (10') of a fire hydrant, in the absence of such ordinances, rules or regulations.

7-13 PROTECTION AND RESTORATION OF PROPERTY

If corporate or private property interferes with the Work, the Contractor shall notify, in writing, the owners of such property, advising them of the nature or disposition of such property. The Contractor shall furnish the Owner with copies of such notifications and with copies of any agreements between him and the property owners concerning such protection or disposition.

The Contractor shall take all necessary precautions for the protection of corporate or private property, such as walls and foundations of buildings, vaults, underground structures of public utilities, underground drainage facilities, overhead structures of public utilities, trees, shrubbery, crops and fences contiguous to the Work, of which the Contract does not provide for removal. The Contractor shall protect and carefully preserve all official survey monuments, property marks, section markers, and Geological Survey monuments, or other similar monuments, until the Owner or an authorized surveyor or agent has witnessed or otherwise referenced their location or relocation. The Contractor shall take reasonable precautions to avoid disturbing any archeological and other historic remains encountered during construction. The Contractor shall notify the Owner of the presence of an such survey or property monuments or archeological and other historic remains as soon as they are discovered.

The Contractor shall be responsible for the damage or destruction of property of any character resulting from error, neglect, misconduct or omission in his manner or method of execution or non-execution of the Work, or caused by defective Work or the use of unsatisfactory materials, and such responsibility shall not be released until the Work shall have been completed and accepted and the requirements of the Specifications complied with.

Whenever public or private property is so damaged or destroyed, the Contractor shall at his own expense, restore such property to a condition equal to that existing before such damage or injury was done by repairing, rebuilding, or replacing it as may be directed, or he shall otherwise make good such damage or destruction in an acceptable manner. If he fails to do so, the Owner may, after the expiration of a period of forty-eight (48) hours after giving him notice in writing, proceed to repair, rebuild, or otherwise restore such property as may be deemed necessary, and the cost thereof shall be deducted from any compensation due, or which may become due the Contractor under his contract.

The Contractor shall remove all mailboxes within the limits of construction, which interfere with construction operations and shall erect them at temporary locations. As soon as construction
operations permit, he shall set the mailboxes at their permanent locations. The Contractor shall replace at his own expense any mailbox or post which has been damaged by his operations.

The cost of all materials required and all labor necessary to comply with the above provisions will not be paid for separately, but shall be considered as incidental to the Contract, unless otherwise specified in the Special Provisions.

7-14 PROTECTION AND RESTORATION OF TRAFFIC SIGNS

Any traffic sign within the limits of construction, which interferes with construction operations, may be removed by the Contractor when authorized by the traffic sign owner. Any traffic sign, which has been removed, shall be re-erected immediately by the Contractor at the temporary location designated by the traffic sign owner, and as soon as construction operations permit, the sign shall be set at its permanent location. The cost of all materials required and all labor necessary to comply with this provision will not be paid for separately, but shall be considered as incidental to the contract.

The Contractor shall replace at his own expense any traffic sign or post which has been damaged due to his operations.

Any traffic sign designated as critical by the traffic sign owner shall not be disturbed and no additional compensation will be allowed the Contractor for any delays, inconvenience, or damage sustained by him due to any special construction methods required in prosecuting his work due to the existence of such traffic signs.

7-15 CONTRACTOR'S RESPONSIBILITY FOR WORK

The Work shall be under the control and care of the Contractor until final acceptance or use or occupancy by the Owner. The Contractor shall assume all responsibility for injury or damage to the Work by action of the elements or from any other cause whatsoever, and shall rebuild, repair, restore, and make good, at his expense, all injuries or damages to the Work, except that when the Work is opened to usage by written order of the Owner, the provisions of this article shall not apply to damage caused by such use and not due to the Contractor's fault or negligence.

When materials are furnished to the Contractor by the Owner for inclusion in the work, the Contractor's responsibility for handling and installation of all such materials shall be the same as for materials furnished by him.

In case of suspension of Work by the Contractor, the Contractor shall be responsible for the Work and shall take such precautions as may be necessary to prevent damage to the Work, provide for normal drainage and shall erect any necessary temporary structures, signs, or other facilities at his expense.
7-16   GUARANTEE PERIOD
The Contractor shall warrant all Work performed for a period of one (1) year from the date of final acceptance in writing by the Engineer. In case of acceptance of a part of the work for use or occupancy prior to final acceptance of the entire Work, the guarantee for the part so accepted shall be for a period of one year from the date of such partial acceptance, in writing, by the Engineer.

In placing orders for equipment, the Contractor shall purchase same only under a written guarantee from the respective manufacturers that the equipment supplied will function satisfactorily as an integral part of the completed Work in accordance with the Plans and Specifications, and that the manufacturer will repair or otherwise make good any defects in workmanship or materials which may develop within a period of one (1) year from the date of final acceptance. Furthermore, the Contractor shall require that the manufacturer agree in writing at the time the order for equipment is placed that he will be responsible for the proper functioning of the equipment in cooperation with the Contractor, and that whenever necessary during the installation period or tuning up period following construction period, the manufacturer will supply without additional cost to the Owner, such superintendence and mechanical labor and any adjustments and additional parts and labor needed to make the equipment function satisfactorily, even if same was not shown on the approved shop drawings.

7-17   PERSONAL LIABILITY OF OWNER’S AGENTS
In carrying out the provisions of this contract, or in exercising any power or authority granted to the Owner, there shall be no personal liability upon any officer or authorized agent of the Owner provided the Owner is a governmental body, it being understood that all such persons act as agents and representatives of the Owner.

7-18   NO WAIVER OF LEGAL RIGHTS
The Owner and the Engineer shall not be precluded by any measurement, estimate, or certificate made either before or after the completion and acceptance of the Work and payment therefor, from showing the true amount and character of the Work performed and materials furnished by the Contractor, or from showing that any such measurement, estimate, or certificate is untrue or incorrectly made, or that the Work or materials do not conform in fact to the Contract. The Owner shall not be precluded, notwithstanding any such measurement, estimate, or certificate and payment in accordance therewith, from recovering from the Contractor and his sureties such damages as it may sustain by reason of his failure to comply with the terms of the Contract. Neither the acceptance by the Owner, nor any representative of the Owner, nor any payment for or acceptance of the whole or any part of the work, nor any extension of time, nor any possession taken by the Owner, shall operate as a waiver of any portion of the Contract, or of any power herein reserved, or any right to damages herein provided. A waiver of any breach of the Contract shall not be held to be a waiver of any other or subsequent breach.
7-19 **SAFETY**
Contractor shall comply with State and Federal Safety regulations as outlined in latest revision of Federal Construction Safety Standards (Series 1926) and with applicable provisions and regulation of Occupation Safety and Health Administration (OSHA) Standards of the Williams-Steiger Occupational Health and Safety Act of 1970 (rev.). The Engineer shall not be responsible for determining the Contractor's compliance with these regulations.

The Contractor is solely responsible for the safety procedures, programs and methods of its employees, subcontractors of every tier, and agents. Contractor shall hold the Owner and the Engineer harmless for any and all damages resulting from violations thereof.

7-20 **USE OF PRIVATE LAND**
The Contractor shall not use any vacant lot or private land as a plant site, depository for materials, or as a spoil site without the written authorization of the owner of the land (or his agent), a copy of which authorization shall be filed with the Owner.

7-21 **USE OF WATER**
Contractors desiring to use water furnished by the Owner will be required to make application for extension to the proper authorities and conform to the rules and regulations provided in such cases by the municipal ordinances and pay the usual water rates.

7-22 **COST OF SERVICES**
The Contractor will be required to pay the established water rates for water obtained from the Owner. Large quantities of water for flushing trenches, filling mains, testing or other operations shall be drawn only at night or at times specifically authorized by the Owner.

The cost of all power, lighting and heating required during construction shall be paid by the Contractor and its costs merged in the contract price.

7-23 **WORK IN BAD WEATHER**
No construction work shall be done during stormy, freezing or inclement weather, except such as can be done satisfactorily, and to secure first-class construction throughout, and then only subject to permission of the Owner.

7-24 **SUNDAY WORK**
No work shall be performed under these specifications at night or on Sunday and legal holidays without the approval of the Owner. If it is found necessary to continue the work at night or on Sunday or on a legal holiday, the Contractor will be charged for the Engineering and observation at such times at the rate of Seven Hundred Fifty Dollars ($750.00) per day of eight (8) working hours for each person doing such work on the job, and the amount will be deducted from money due to the Contractor at the time of settlement.

7-25 **WATCHMEN**

Watchmen are to be provided by the Contractor at the site of the project to prevent loss, damage to property, or accidents.

7-26 **CONSTRUCTION DEBRIS**

The Contractor shall not conduct any generation, transportation, or recycling of construction or demolition debris, clean or general or uncontaminated soil generated during construction, remodeling, repair, and demolition of utilities, structures, and roads that is not commingled with any waste, without the maintenance of documentation identifying the hauler, generator, place of origin of the debris or soil, the weight or volume of the debris or soil, and the location, owner, and operator of the facility where the debris or soil was transferred, disposed, recycled or treated. This documentation must be maintained by the Contractor for 3 years.
**SAMPLE INSURANCE CERTIFICATE**

**CERTIFICATE OF LIABILITY INSURANCE**

Email all certificates to relcertificates@thehortongroup.com

**Acord**

**Certificate of Liability Insurance**

This certificate is issued as a matter of information only and confers no rights upon the certificate holder. This certificate does not affirmatively or negatively amend, extend or alter the coverage afforded by the policies below. This certificate of insurance does not constitute a contract between the issuing insurer(s), authorized representative or producer, and the certificate holder.

Important: If the certificate holder is an additional insured, the policy(ies) must be endorsed. If subrogation is waived, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsements.

**Producer**

Your insurance agent

**Insured**

Your name and address

**Coverages Certificate Number:**

This is to certify that the policies of insurance listed below have been issued to the insured named above for the policy periods indicated. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this certificate may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions, and conditions of such policies. Limits shown may have been reduced by past claims.

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<tr>
<th>Type of Insurance</th>
<th>Description</th>
<th>Additional Insured</th>
<th>Liability Limits</th>
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**Description of Operations/locations/vehicles (Attach ACORD 101, Additional Insures Schedule, where space is required)**

Rel. Job Number and Project Name and Address:

Additional Insured with respect to General Liability, Auto Liability, Umbrella/Excess Liability on a primary and noncontributory basis when required by written contract (Owner and Robinson Engineering Ltd). Owner is Certificate Holder. Waiver of Subrogation in favor of listed additional insureds with respect to General Liability, Auto Liability, Umbrella/Excess Liability and Workers Compensation policies. Additional Insured with respect to General Liability coverage per ISO forms CG2010 and CG2037 or equivalent forms. Umbrella/Excess is on a follow form basis and is primary and noncontributory.

**Certificate Holder**

Owner

Should any of the above described policies be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

Authorized Representative

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SECTION 8. PROSECUTION AND PROGRESS

8-1 SUBLETTING OR ASSIGNMENT OF CONTRACT
The Contractor shall not sublet, sell, transfer, assign, or otherwise dispose of the Contract or Contracts or any portion thereof, or of his right, title, or interest therein, without written consent of the Owner. In case such consent is given, the Contractor will be permitted to sublet a portion thereof, but shall perform with his own organization, Work amounting to not less than 50 per cent of the total Contract, except that any items designated in the Contract as "specialty items" may be performed by subcontract and may be deducted from the total Contract price before computing the amount of work required to be performed by the Contractor with his own organization. No subcontracts, or transfer of Contract, shall in any case release the Contractor of his liability under the Contract. All transactions of the Owner shall be with the Contractor; subcontractors shall be recognized only in the capacity of employees or workmen and shall be subject to the same requirements as to character and competence.

8-2 PROGRESS SCHEDULE
Promptly after the award of the contract, if requested, the Contractor shall submit to the Owner a satisfactory progress schedule, which shall show the proposed sequence of work, and how the Contractor proposes to complete the various items of work within the number of days set up on the contract. The progress schedule shall be reviewed and revised periodically as working conditions warrant. The Contractor shall confer with the Owner in regard to the prosecution of the Work in accordance with this schedule. This schedule shall be used as a basis for establishing major construction operations, and for checking progress of the Work.

8-3 PRE-CONSTRUCTION CONFERENCE
Unless the need for a preconstruction conference is waived by the Engineer, the Contractor shall make himself and his representatives available to meet with the Engineer and other representatives of the Owner, prior to the start of construction to discuss scheduling, handling of materials, payments, etc.

8-4 PROSECUTION OF THE WORK
The Contractor shall begin the Work to be performed under the contract not later than ten (10) days after the execution and acceptance of the Contract, unless otherwise provided, but not prior to the execution of the Contract.

8-5 COMPLETION DATE
The Contractor shall complete all Work on or before the stipulated completion date, or on or before a later date determined as specified herein; otherwise, the Owner may proceed to collect liquidated damages described hereinafter.
When a delay occurs due to unforeseen causes beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of the public enemy, governmental acts, fires, floods, epidemics, strikes, extraordinary delays in delivery of materials caused by strikes, lockouts, wrecks, freight embargoes, governmental acts, or acts of God, the time of completion shall be extended in whatever amount is determined by the Owner.

An "Act of God" means an earthquake, flood, cloudburst, cyclone, or other cataclysmic phenomena of nature beyond the power of the Contractor to foresee or make preparation in defense against. A rain, windstorm or other natural phenomenon of normal intensity, based on U.S. Weather Bureau reports, for the particular locality and for the particular season of the year in which the work is being prosecuted, shall not be construed as an "Act of God", and no extension of time will be granted for the delays resulting therefrom.

8-6 LIMITATIONS OF OPERATIONS
The Contractor shall conduct his work so as to create a minimum amount of inconvenience to vehicular and pedestrian traffic. At any time when, in the judgment of the Owner, the Contractor has obstructed or closed the road or is carrying on operations on a greater portion of a street than is necessary for the proper prosecution of the Work, the Owner may require the Contractor to finish the section on which Work is in progress before the Work is started on any additional section. (See also Section 7-7).

8-7 SUSPENSION OF WORK
The Owner shall have authority to suspend the Work wholly or in part, for such period of time as he may deem necessary, due to conditions unfavorable for the satisfactory prosecution of the Work, or to conditions which in his opinion warrant such action; or for such time as is necessary by reason of failure on the part of the Contractor to carry out orders given, or to perform any or all provisions of the Contract. No additional compensation will be paid the Contractor because of any costs caused by such suspension, except when the suspension is ordered for reasons not resulting from any act or omission on the part of the Contractor. If it becomes necessary to stop Work for an indefinite period of time, the Contractor shall store all material in such manner that they will not obstruct or impede the traveling public unnecessarily or become damaged in any way, take every precaution to prevent damage or deterioration of the Work performed, provided suitable drainage of the roadway, and erect temporary structures where necessary. The Contractor shall not suspend Work without written authority from the Owner. (See also Section 7-15).

8-8 DETERMINATION AND EXTENSION OF CONTRACT TIME FOR COMPLETION
When the time for completion of the Work contemplated is specified in the Contract, it is understood that the completion of the Work within the time specified is an essential part of the Contract. If the Contractor finds it impossible to complete the Work within the time specified in the Contract, he may, at
any time prior to the last thirty (30) days of the Contract time specified, make written request to the Owner for an extension of Contract time. He shall set forth in full in his request the reasons, which he believes justify the granting of his request. If the Owner finds that the Work is delayed because of conditions beyond the control of the Contractor, or that the quantities of work done, or to be done, are in excess, he shall promptly grant an extension of time for completion, which appears reasonable and proper. The extended time for completion shall then be considered as in effect the same as if it were the original Contract time for completion.

8-9 FAILURE TO COMPLETE THE WORK ON TIME
Should the Contractor fail to complete the Work within the Contract time the Contractor shall be liable to the Owner in the amount shown in the following schedule of deductions, as liquidated damages, and not as a penalty, for each day of overrun in the Contract time or such extended time as may have been allowed.

SCHEDULE OF DEDUCTIONS FOR EACH DAY OF OVERRUN IN CONTRACT TIME

<table>
<thead>
<tr>
<th>Original Contract Amount From more than</th>
<th>Daily Charge</th>
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<td>$ 0</td>
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<tr>
<td>100,000</td>
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<td>1,000,000</td>
<td>1,275</td>
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<td>3,000,000</td>
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<tr>
<td>6,000,000</td>
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<td>12,000,000</td>
<td>5,800</td>
</tr>
<tr>
<td>And over</td>
<td>8,125</td>
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</table>

8-10 DEFAULT ON CONTRACT
If the Contractor fails to begin the Work under Contract within the time specified, or fails to perform the Work with sufficient workmen and equipment or with sufficient materials to insure the completion of said Work within the Contract time, or shall perform the Work unsuitable, or shall neglect or refuse to remove materials or perform anew such Work as shall be rejected as defective and unsuitable, or shall discontinue the prosecution of the Work, or if the Contractor shall become insolvent or be declared bankrupt, or shall commit any act of bankruptcy or insolvency, or shall make an assignment for the benefit of creditors, the Owner shall give notice in writing to the Contractor and his surety of such delinquency, said notice to specify the corrective measures required.

If the Contractor, within a period of ten (10) days after said notice, shall not proceed in accordance therewith, the Owner shall have full power and authority to forfeit the rights of the Contractor and at its
option to call upon the surety to complete the Work in accordance with the terms of the contract, or it may take over the Work, including any or all materials and equipment on the ground as may be suitable and acceptable, and may complete the Work with his own forces, or may enter into a new agreement for the completion of said Contract according to the terms and provisions thereof, or use such other methods as, in its opinion, shall be required for the completion of said Contract in an acceptable manner.

All costs and charges incurred by the Owner, together with the cost of completing the work under Contract, shall be deducted from the Contract amount. In case the expense so incurred by the Owner shall be less than the sum which would have been payable under the Contract if it had been completed by the Contractor, the Contractor shall be entitled to receive the difference subject to any claims for liens thereon in case such expense shall exceed the sum which would have been payable under the Contract, the Contractor and the surety shall be liable and shall pay to the Owner the amount of such excess.

8-11 TERMINATION OF THE CONTRACTOR'S RESPONSIBILITY

Whenever the Work called for by the Contract shall have been completely performed on the part of the Contractor and all parts of the Work have been approved and deemed to be in compliance with the Technical Plans and Specifications by the Engineer, according to the Contract, and the final estimate paid, the Contractor's obligations shall be considered fulfilled, except as set forth in his Bond, in Section 7-18 and his one-year guarantee, in Section 7-16.
SECTION 9. MEASUREMENT AND PAYMENT

9-1 MEASUREMENT OF QUANTITIES
All Work completed under the Contract will be measured by the Engineer according to United States Standard Measures. The method of measurement shall be described in the Specifications or the Special Provisions.

9-2 SCOPE OF PAYMENT
The Contractor shall receive and accept the compensation as herein provided, in full payment for furnishing all materials, labor, tools and equipment, for performing all Work contemplated and embraced under the Contract; for all loss or damage arising out of the nature of the Work or from action of the elements; for any unforeseen difficulties or obstructions which may arise or be encountered during the prosecution of the Work until its final acceptance by the Owner; for all risks of every description connected with the prosecution of the Work; also, for all such expenses incurred by or in consequence of suspension or discontinuance of such prosecution of the work as herein specified, or for any infringement of patents, trademarks, or copyrights, and for completing the Work in an acceptable manner according to the Contract Documents.

Contractor will be paid in cash and/or negotiable warrants at intervals, and in accord with the terms of the Contract. Except for subdivision contracts, the Owner will retain ten percent (10%) of each periodic payment until final completion and acceptance by the Owner of all Work included in the Contract.

The payment of any current estimate prior to final acceptance of the Work by the Owner shall in no way constitute an acknowledgment of the acceptance of the Work, nor in any way prejudice or affect the obligation of the Contractor, at his expense, to repair, correct, renew, or replace any defects or imperfections in the construction or in the strength or quality of the materials used in or about the construction of the Work under Contract and its appurtenances, nor any damage due or attributable to such defects, which defects, imperfections, or damage shall have been discovered on or before the final inspection and acceptance of the Work. Defects, imperfections, or damage, shall be determined by the Engineer observing the work for compliance with the Plans and Specifications, and the Contractor shall be liable to the Owner for failure to correct the same as provided herein.

9-3 INCREASED OR DECREASED QUANTITIES
Whenever the quantity of any item of Work as given in the Proposal shall be increased or decreased, payment shall be made on the basis of the actual quantity completed at the unit price for such item named in the Proposal, except as otherwise provided in Sections 4-3 or in the detailed specifications for each class of Work.
Extra Work which results from any of the changes as specified in Section 4-3 shall not be started, except in case of an emergency, until receipt of a written authorization or Work order from the Owner, which authorization shall state the items of work to be performed and the method of payment for each item. Work performed without such order will not be paid for.

Extra work will be paid for:

A. Either at a lump sum price or at unit prices agreed upon by the Contractor and the Owner. (In case a Supplemental Agreement is signed between the Contractor and the Owner, the agreed prices pertaining thereto shall prevail).

B. If acceptable to the Engineer, on the following force account basis:

1. Labor. The Contractor will be paid the actual amount of wages for all labor and foreman in direct charge of the specific Work for each hour that said labor and foreman are actually engaged in such Work, to which cost shall be added twenty percent (20%) of the sum thereof.

2. Bond, Insurance, Tax, Welfare Fund and other Payments. The Contractor will receive the actual cost of Contractor's bond, public liability and property damage insurance, workmen's compensation insurance, social security tax, welfare fund and other payments, if any, in accordance with agreements applicable to the Contract, required for force account work, to which no percentage shall be added. The Contractor shall furnish satisfactory evidence of the rate or rates paid for such bond, insurance tax, welfare fund and other payments.

3. Materials. The Contractor will receive the actual cost for all materials which are an integral part of the finished Work, including freight charges as shown by the original receipted bills, to which shall be added fifteen percent (15%) of the sum thereof.

The Contractor will be reimbursed for any materials used in the construction of the Work, such as sheeting, false work, form lumber, curing materials, etc., which are not an integral part of the finished Work. The amount of reimbursement shall be agreed upon in writing before such Work is begun, and no percent shall be added. The salvage value of such materials shall be taken into consideration in the reimbursement agreed upon.
4. Equipment. Machinery and equipment, which the Contractor has on the job for use on contract items, shall be used on extra Work as deemed necessary or desirable. The Contractor will be paid for all machinery and equipment used on extra work in accordance with the latest revision of "SCHEDULE OF AVERAGE ANNUAL EQUIPMENT OWNERSHIP EXPENSE WITH OPERATING COST" as issued by the Department of Transportation, State of Illinois, for the period that said machinery and equipment are in use on such Work, to which no percent shall be added. In the event that equipment is used which is not included in aforesaid publication, the latest edition of the "Compilation of Nationally Averaged Rental Rates for Construction Equipment" compiled by Equipment Distributors, 615 West 22nd Street, Oak Brook, Illinois 60521, shall be used to determine equipment rental rates and no percent shall be added to the rates indicated in such publication.

9-5 PAYMENT FOR SUBCONTRACTING, EXTRA WORK
Where an authorized subcontractor performs some or all of the Work qualifying as an Extra Work item and compensation is to be based on the terms of paragraph 9-4 (2), the cost of labor, bonds, material and equipment shall be the cost to the subcontractor on these items and an additional allowance to the prime Contractor of five percent (5%) of all costs as determined in paragraph 9-4 (2) shall be made in such instances.

9-6 PARTIAL PAYMENTS
Once each month, the Contractor will make an approximate estimate, in writing, of the materials in place complete, the amount of Work performed, and the value thereof, at the contract unit prices. From the amount so determined of completed work there shall be deducted ten percent (10%) to be retained until after the completion of the entire Work to the satisfaction of the Owner, and the balance certified to the Owner for payment.

In addition, an estimate may, at the discretion of the Owner and upon presentation of receipted bills and freight bills, be made for payment of the value of acceptable non-perishable materials delivered at the Work site or in acceptable storage places and not used at the time of such estimate. The care and storage of such material shall be the Contractor’s responsibility. In the absence of receipted bills, an estimate may, at the request of the Contractor and at the discretion of the Owner, be made for payment of the value of materials in acceptable storage places and not used at the time of the estimate, but in such an event payment shall be made of such amounts by a check requiring the endorsement of both the Contractor and materials supplier. Endorsement of such a check by the material supplier shall be construed a waiver of lien for the cost of materials covered by the check. Such materials, when so paid for by the Owner, shall become the property of the Owner, and in the event of default on the part of the Contractor, the Owner may use or cause to be used such materials in the construction of the Work.
provided for in the Contract. The amount thus paid by the Owner shall be deducted from estimates due the Contractor as the material is used in the Work.

9-7 ACCEPTANCE AND FINAL PAYMENT
Whenever the Work provided for by the Contract shall have been completely performed on the part of the Contractor, and all parts of the Work have been deemed to be in substantial compliance with the Plans and Specifications by the Engineer and accepted by the Owner, a final estimate showing the value of the Work will be prepared by the Engineer as soon as the necessary measurements and computations can be made, all prior estimates upon which payments have been made being approximate only and subject to correction in the final payment. The amount of this estimate, less any sums that have been deducted or retained under the provisions of the Contract, will be paid to the Contractor as soon as practicable after the final acceptance, provided the Contractor has furnished to the Owner satisfactory evidence that all sums of money due for any labor, materials, apparatus, fixtures, or machinery furnished for the purpose of such Work have been paid or that the person or persons to whom the same may be due have consented to such final payment.

Neither the final payment on this contract by the Owner nor any provisions in the contract documents shall relieve the Contractor of the responsibility for negligence in the furnishing and installation of faulty materials or for faulty workmanship which shows up within the extent and period provided by law or within the guarantee period of one (1) year from final acceptance of the work performed under this Contract, whichever is greater, nor of the responsibility of remedying such faulty workmanship and materials.

The acceptance by the Contractor of the final payment shall constitute a release and waiver of all claims by the Contractor except those previously made and still unsettled.

9-8 OWNER'S RIGHT TO WITHHOLD CERTAIN AMOUNTS
The Owner may withhold, in addition to retained percentages, from payment to the Contractor, such an amount or amounts as may be necessary to cover:

A. Payments that may be earned or due for just claims for labor and materials furnished in and about the Work.
B. For defective Work not remedied.
C. For failure of the Contractor to make proper payments to his subcontractors.
D. For reasonable doubt that the contract can be completed for the balance then unpaid.

The Owner will disburse and shall have the right to act as agent for the Contractor in disbursing such funds as have been withheld pursuant to this paragraph to the party or parties who are entitled to payment therefrom. The Owner will render to the Contractor a proper accounting of all such funds disbursed in behalf of the Contractor.
The Owner also reserves the right, even after full completion and acceptance of the Work, to refuse payment of the final ten percent (10%) due the Contractor, until it is satisfied that all subcontractors, material suppliers, and employees of the Contractor have been paid in full.

9-9  RELEASE OF CLAIMS AND LIENS

Neither the final payment nor any part of the retained percentage shall become due until the Contractor shall deliver to the Owner a complete release of all claims or liens arising out of this contract, or receipts in full in lieu thereof and, if required in either case, an affidavit that so far as he has knowledge or information the release and receipts include all the labor and materials for which a lien or claim could be filed; but the Contractor may, if a subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the Owner to indemnify the Owner against any claim or lien (in cases where such payment is not already guaranteed by surety bond). If any claim or lien remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all monies that the latter may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fee.
DIVISION II
Technical Specifications

EXCAVATION AND CLEANUP
SECTION 1. EXCAVATION AND BACKFILL FOR UNDERGROUND CONDUITS

1-1 DESCRIPTION

For the purpose of this section, underground conduits shall be considered sewer pipe, water main or any other pipe conduit indicated on the Plans. Wherever the term "pipe" or "pipe line" is used, it shall mean underground conduit.

Excavation and backfill shall include all excavation, backfilling, compacting, disposal of surplus material, restoration of all disturbed surface, and all other work incidental to the construction of trenches, including any additional excavation which may be required for manholes or other structures forming a part of the pipe line.

1-2 CONSTRUCTION DETAILS

1-2.01 SURFACE REMOVAL AND TOPSOIL PRESERVATION

Along the proposed pipe lines as indicated on the Plans, the Contractor shall remove the surface materials only to such widths as will permit a trench to be excavated which will afford sufficient room for proper efficiency and proper construction. Where sidewalks, driveways, pavements and curb and gutter are encountered, care shall be taken to protect such against fracture or disturbance beyond reasonable working limits. In areas specified on the Plans, topsoil suitable for final grading and landscaping shall be piled separately in locations approved by the Owner and preserved so that it may be restored after the remainder of the backfill is replaced.

1-2.02 WIDTH OF EXCAVATION

A. The bottom width of the trench at and below the top of the pipe and inside the sheeting and bracing, if used, shall be in accordance with Section 550.04 of the Standard Specifications, unless otherwise noted.

Note: The strength or class of pipe shall be as indicated on the Plans.

B. Trench sheeting and bracing or a trench shield shall be used as required by the rules and regulations of O.S.H.A. The Engineer shall not be responsible for determining whether the contractor is in compliance with this provision. The bottom of the trench excavation shall conform to the details shown on the Plan.

C. If these trench widths are exceeded without the written permission of the Engineer, the pipe shall be installed with a concrete cradle or with concrete encasement or a stronger pipe than originally specified shall be used as approved by the Engineer.
1-2.03 **EXCAVATION BELOW GRADE**

In cases where the excavation is carried beyond or below the lines and grades given by the Engineer, the Contractor shall, at his own expense, refill all such excavated space with suitable granular material.

1-2.04 **ROCK EXCAVATION**

**A. GENERAL**

Wherever "rock" is used as the name of an excavated material, it shall mean boulders or pieces of rock, concrete, or masonry measuring one-half (1/2) cubic yard or more, hard shale or solid ledge rock and masonry which requires for its removal the continuous use of pneumatic tools or drilling and blasting.

Before payment is allowed for "Rock Excavation", the Contractor shall be required to demonstrate the material cannot be removed "by hand pick" or by power operated excavator or shovel. No payment will be made for Rock Excavation unless air tools or explosives were used by the Contractor. No payment will be made for "Rock Excavation" unless the Engineer approves such payment in writing in advance upon being satisfied that the material meets the above criteria.

**B. MEASUREMENT FOR PAYMENT**

Where "Rock Excavation" is to be measured for payment, quantities will be determined by the Engineer. Rock required to be removed shall be computed by the cubic yard. Width for pay purposes shall be the measured width of rock removed, but shall not exceed the width specified in Section 550.04 of the Standard Specifications, plus any sheeting and bracing if required. Depth for pay purposes shall be the difference in elevation between the top and bottom of the rock as determined by the Engineer. Where rock is encountered in the bottom of the trench, the maximum depth for payment purposes will be six inches (6") below the bottom of the pipe. Where the proposal does not contain a pay item for "Rock Excavation", the additional cost of rock removal as defined by the specifications shall be paid on extra work basis. (Division I, Section 9-4).

**C. PAYMENT**

Payment shall be made at the Contract unit price per cubic yard of "Rock Excavation". These prices shall be full compensation for furnishing all materials; for all preparation, excavation and disposal of rock; and for all labor, equipment, tools and incidentals necessary to complete the item.
1-2.05 SUBSURFACE EXPLORATION

All information available to the Owner, if any, on subsurface exploration will be made available for examination by prospective Bidders. However, it is understood and agreed that the Owner shall in no way be held responsible for interpretation of this information, its accuracy or its thoroughness. Prospective Bidders shall make such subsurface explorations as they believe necessary to verify and supplement information received from the Owner.

1-2.06 EXPLORATORY EXCAVATION

A. GENERAL
Whenever, in the opinion of the Engineer, it is necessary to explore an excavate in advance of the Work to determine the best line and grade for the construction of the proposed pipe line, the Contractor shall make explorations and excavations for such purposes.

B. PAYMENT
The cost of such excavation will be paid at the contract unit price per foot for "Exploration Trench", or if no Bid Item is included, on an extra work basis.

1-2.07 BRACED AND SHEETED TRENCHES

A. GENERAL
Open-cut trenches shall be sheeted and braced or otherwise protected as required by any governing Federal or State laws and municipal ordinances, and as may be necessary to protect life, property, or the Work. In any event, the minimum protection shall conform to the recommendations in the Occupational Safety and Health Act Standards for Construction (OSHA). A sand box or trench shield may be used in lieu of sheeting as permitted by OSHA. When close-sheeting is used, it shall be so driven as to prevent adjacent soil from entering the trench either below or through such sheeting. Tight sheeting shall be used in that portion of the excavation in or along state and county highways below the intersection of a 1 to 1 slope line from the nearest face of the excavation to the edge of the pavement.

Where sheeting and bracing are used, the trench width shall be increased accordingly. The sheeting will be driven to the full depth of work, or to a depth where the soil has the stability necessary to meet the OSHA standards, whichever is lower. The shallower depth of required sheeting may be established by soil boring and analysis, to be performed at the Contractor's sole cost. The owner shall have the right of consent in the selection of the soils engineer for the sampling and analysis. This provision shall not relieve the contractor, in any degree, from his responsibilities under the contract.
Sheeting and bracing, which are required to be left in place shall be cut off at the specified elevation. Trench bracing, except that specified to be left in place, may be removed when the backfilling reaches the said bracing's level. All sheeting except that required to be left in place may be removed as the excavation is refilled, in such a manner as to avoid bank cave-in(s) or disturbance to the adjacent area(s) or structure(s). The voids left by the withdrawal of the sheeting shall be carefully filled by jetting, vibrating, ramming or other satisfactory means.

**B. PAYMENT**

Payment for sheeting and bracing, and all other Work incidental to sheeting and bracing, shall not be made separately but shall be included in the Contract price for the pipe size, except when ordered left in place.

Payment for timber sheeting left in place when shown on the plans or directed by the Engineer shall be made at the Contract unit price per 1,000 board feet of "Timber Sheet Left in Place."

Payment for steel sheet piling when specified shall be made at the Contract unit price per square foot for "Steel Sheet Piling."

Payment for steel sheet piling left in place when shown on the plans or directed by the Engineer shall be made at the Contract unit price per square foot for "Steel Sheet Piling Left in Place."

1-2.08 TRENCHES WITH SLOPING SIDES, LIMITED

The Contractor may, at his option, where working conditions and right-of-way permit, excavate pipe line trenches with sloping sides, but with the following limitations:

**A.** In general, only braced and vertical trenches will be permitted in traveled streets, alleys or narrow easements.

**B.** Where trenches with sloping sides are permitted, the slopes shall not extend below the top of the pipe, and trench excavations below this point shall be made with vertical sides with widths not exceeding those specified hereinbefore for the various sizes of pipe.
1-2.09 SHORT TUNNELS

In some instances, trees, fire hydrants, sidewalks and other obstructions may be encountered, the proximity of which may be a hindrance to open-cut excavation. In such cases, the Contractor shall excavate by means of short tunnels in order to protect such obstructions against damage. Where such obstructions are shown on the Plans, short tunnel work shall be considered incidental to the construction of the pipe line and shall not be grounds for extra payment or payment for tunnel work. Where such obstructions are not shown on the Plans, payment will be at the Contract unit price or as extra work in accordance with Division I, Section 9-4.

1-2.10 PILING EXCAVATION MATERIAL

All excavated material shall be stockpiled to avoid obstructing streets, sidewalks and driveways. Excavated material suitable for backfilling shall be stockpiled separately on the site. No material shall be placed closer than 2'0" to the edge of an excavation. Fire hydrants under pressure, valve pit covers, valve boxes, curb top boxes, or other utility controls shall be left unobstructed and accessible until the Work is completed. Gutters shall be kept clear or other satisfactory provisions made for street drainage. Natural watercourses shall not be obstructed or polluted. Surplus material and excavated material unsuitable for backfilling shall be transported and disposed of off the site in disposal areas obtained by the Contractor.

1-2.11 REMOVAL OF WATER

The Contractor shall at all times during construction provide and maintain ample means and devices with which to promptly remove and properly dispose of all water entering the excavations or other parts of the Work until all Work to be performed therein has been completed. No sanitary sewer shall be used for disposal of trench water, unless specifically approved by the Engineer and then only if the trench water does not ultimately arrive at existing pumping or sewage treatment facilities. No water containing settle able solids shall be discharged into storm sewers.

1-2.12 BLASTING

Blasting for excavation will be permitted only after securing the approval of the Owner and only when proper precautions are taken for the protections of persons and property. The hours of blasting will be reviewed by the Owner. Any damage caused by blasting shall be repaired by the Contractor at his expense. The Contractor's methods of procedure in blasting shall conform to Federal and State laws and municipal ordinances and O.S.H.A. rules and regulations. The Engineer shall not be responsible for determining whether the contractor is in compliance with these rules and regulations.
A. BARRICADES, GUARDS AND SAFETY PROVISIONS
To protect persons from injury and to avoid property damage, adequate barricades, construction signs, lights and guards as required shall be placed and maintained by the Contractor at his expense during the progress of the construction Work and until it is safe for traffic to use the roads and streets. All material piles, equipment and pipe which may serve as obstructions to traffic shall be enclosed by fences or barricades and shall be protected by proper lights when the visibility is poor. The rules and regulations of O.S.H.A. and appropriate authorities respecting safety provisions shall be observed. The Engineer shall not be responsible for determining whether the contractor is in compliance with these rules and regulations.

B. STRUCTURE PROTECTION
Temporary support, adequate protection and maintenance of all underground and surface structures, drains, sewers and other obstructions encountered in the progress of the Work shall be furnished to the Contractor at his expense. Any structures which may have been disturbed shall be restored upon completion of the Work.

C. PROTECTION OF PROPERTY AND SURFACE STRUCTURES
Trees, shrubbery, fences, poles and all other property and surface structures shall be protected during construction operations unless their removal for purposes of construction is authorized by the Engineer. Any fences, poles, or other man-made surface improvements which are moved or disturbed by the Contractor shall be restored to the original conditions, after construction is completed, at the Contractor's expense. Any trees, shrubbery or other vegetation which are approved for removal or ordered for removal by the Engineer in order to facilitate construction operations shall be removed completely, including stumps and roots, by the Contractor. Responsibility for any damage or claims for damage caused by construction operations to shrubbery or other landscape improvements which were not authorized for removal by the Engineer shall be assumed by the Contractor.

1-2.14 DEVIATIONS OCCASIONED BY STRUCTURES OR UTILITIES
Wherever obstructions are encountered during the progress of the Work and interfere to such an extent that an alteration in the plan is required, the Engineer shall have the authority to change the Plans and order a deviation from the line and grade or arrange with the owners of the structures for the removal, relocation or reconstruction of the obstructions. Where gas, water, telephone, electrical, hot water, steam, or other existing utilities are an impediment to the vertical or horizontal alignment of the proposed pipe line, the Engineer shall order a change in grade or alignment or shall direct the Contractor to arrange with the owners of the utilities for their removal.
1-2.15 INTERUPTION TO UTILITIES
The Contractor shall proceed with caution in the excavation and preparation of the trench so that the exact location of underground structures may be determined. Prior to proceeding with trench excavation, the Contractor shall contact all utility companies in the area to aid in locating their underground services.

The Contractor shall take all reasonable precautions against damage to existing utilities. However, in the event of a break in an existing water main, gas main, sewer or underground cable, he shall immediately notify the responsible official of the organization operating the utility interrupted. The Contractor shall lend all possible assistance in restoring services and shall assume all cost, charges, or claims connected with the interruption and repair of such services if the location of said utility was marked by the owner thereof prior to excavation.

1-2.16 MAINTENANCE OF TRAFFIC AND CLOSING OF STREETS
The Contractor shall carry on the Work in a manner which will cause a minimum of interruption to traffic, and may close to through travel not more than two consecutive blocks, including the cross street intersected. Where traffic must cross open trenches, the Contractor shall provide suitable bridges at street intersections and driveways. The Contractor shall post suitable signs indicating that a street is closed and necessary detour signs for the proper maintenance of traffic. Prior to closing of any streets, the Contractor shall notify responsible municipal authorities at least five (5) days in advance of the starting of the Work, unless otherwise approved by the municipality.

1-2.17 CONSTRUCTION IN EASEMENTS
In easements across private property, the Contractor shall confine all operations in the easement area and shall be responsible and liable for all damage outside of the easement area. Trees, fences, shrubbery or other type of surface improvements located in the easements will require protection during construction. The provisions of Section 1-2.14C above shall apply to all easement areas as well as to public right-of-way. Precautions shall be taken by adequate sheeting or other approved method to prevent any cave-in or subsidence beyond the easement limits or damage to improvements within the easement. In general, the easement area is intended to provide reasonable access and working area for efficient operation by the Contractor. Where easement space for efficient operation is not provided, the Contractor shall be responsible for organizing his operations to perform within the restrictions shown on the Plans. The Owner shall make available to the Contractor a copy of the construction easements.
1-2.18 UNDERGROUND CONDUIT CONSTRUCTED IN TUNNEL

A. GENERAL
Where shown on the plans or where specifically authorized by the Engineer, pipe lines shall be constructed in tunnel. This work will be made in accordance with requirements of any permits obtained by the Owner from railroads or state or county highway departments for tunnel work or in accordance with the following paragraph.

B. MATERIALS
Pipe materials shall be as shown on the Plans or as described in the Special Provisions.

C. EXCAVATION AND LAYING
Requirements for excavation and laying and for joints shall be those applicable for the type of pipe line involved, unless otherwise specified.

Before starting excavations for tunnel shafts or jacking or augering pits, the Contractor shall submit drawings of proposed sheeting and bracing arrangements which have been prepared, signed and sealed by a structural Engineer registered in the State of Illinois for Work in Illinois and by a structural Engineer registered in the State of Indiana for Work in Indiana.

An adequate ventilation system shall be provided to properly ventilate all parts of the tunnel.

D. METHODS OF CONSTRUCTION
1. The tunnel shall be only of sufficient width and height to provide free working space. The sides and roof of the tunnel shall be braced sufficiently to support the external loads and to prevent caving, bulging, and settlement of the earth.

2. The Contractor shall backfill all tunnels with well compacted sand, fine gravel or stone screenings as rapidly as the conditions permit.

3. The backfill material shall be deposited in the tunnel in such a manner as not to injure or disturb the pipe. The filling of the tunnel shall be carried on simultaneously on both sides of the pipe in such a manner that injurious side pressures do not occur. Special care shall be taken to compact the backfill under the haunches of the pipe. The remainder of the tunnel, or such portion of the remainder as may be possible, shall then be backfilled by one of the following methods, at the option of the Contractor.

   a. The material shall be deposited in uniform layers not to exceed twelve inches (12") thick (loose measure) and such layer either inundated or deposited in water.
b. The tunnel shall be backfilled with loose material or only partly backfilled at a time, if necessary, and settlement secured in either case by introducing water through holes jetted into the material to a point approximately two feet (2') above the top of the pipe.

4. If neither of the above methods is practicable or can be used for only a portion of the backfill, the remainder of the tunnel shall be completely backfilled with material carefully deposited in uniform layers and each layer compacted by ramming or tamping with appropriate tools.

5. When sheeting and bracing have been used, sufficient bracing shall be left across the trench as the backfilling progresses to hold the sides and top firmly in place without caving or settlement before the backfilling has been placed. This bracing may be removed as soon as practicable.

6. Any depressions which may develop within the area involved in the construction operations due to settlement of the backfilling material shall be filled.

E. USE OF CASING PIPE
The Contractor may use metal casing pipe as a tunnel liner in place of timber shoring for tunnel sections. The design data for such pipe, including, but not necessarily limited to, the diameter, gauge, type of pipe, method of placing and installation will be submitted for the owner's review. The void space between tunnel liners or casing pipe and the carrier pipe shall be filled with compacted sand or other approved material.

F. JACKING OR BORING OF PIPE
The Contractor may, subject to the approval of the Owner, use special cast iron or specially designed reinforced concrete jacking pipe jacked and/or bored into position with or without tunnel liners, for tunneled sections pipe.

G. MEASUREMENT AND PAYMENT
Underground conduit constructed in tunnel will be paid for at the unit prices Bid for "Underground Conduit Constructed in Tunnel" for the various type and sizes for the actual length of tunnel Work. Payment shall include all labor, materials and equipment necessary to construct the conduit and tunnel, complete in place, including excavation and backfill, shoring and bracing, furnishing and laying casing pipe where required and carrier pipe, and all other Work necessary for a complete installation.
1-2-19 SANITARY SEwers

A. GENERAL
The methods of excavating and backfilling sanitary sewer pipe shall be in compliance with the latest edition of the Illinois Department of Transportation, "Standard Specifications for Road and Bridge Construction", and the Metropolitan Water Reclamation District of Greater Chicago, "Manual of Procedure", latest revision. Where there is a conflict of these specifications, the MWRDGC, "Manual of Procedure" shall be used.

B. MATERIAL
Pipe material shall be as shown on the Plans or as described in the Special Provisions. No substitution of material shall be made without written approval from the Owner.

C. EXCAVATION AND BEDDING
The trench shall be excavated to an elevation to allow for the following bedding.

Bedding, other than concrete embedment, shall consist of gravel, crushed gravel, crushed stone or crushed slag, 1/4" to 1" in size. As a minimum, the material shall conform to the requirements of Article 1004.01 of the State Specifications or ASTM Designation C-33. The gradation shall conform to Section 1004, gradation CA 11 or CA 13 or to ASTM Gradation No. 67. The pipe shall be laid so that it will be uniformly supported and the entire length of the pipe barrel will have full bearing. No blocking of any kind shall be used to adjust the pipe to grade except when used with embedment concrete. Bedding shall be required for all sewer construction, except ductile iron pipe, and shall be of a thickness equal to 1/4 of the outside diameter of the sewer pipe with a maximum thickness of eight inches (8") but shall not be less than four inches (4").

Where unsuitable material is encountered at the grade established, all such unsuitable soil shall be removed under the pipe and for the width of the trench, and shall be replaced with well compacted bedding material, to the satisfaction of the Engineer.

Where rock is encountered, it shall be removed below grade and replaced with a cushion of well compacted bedding material having a thickness under the pipe of not less than eight inches (8").

The cost of furnishing, placing and compacting bedding material will be considered as incidental work and no additional compensation will be allowed.

D. BACKFILLING
The backfilling of the sanitary sewer pipe trench shall be the same as for storm sewer pipe described in Section 550.07 of the Standard Specifications.
E. **METHOD OF MEASUREMENT**
The method of measurement shall be the same as for storm sewer pipe described in Section 550.09 of the Standard Specifications except measurements will be made to the center of manholes.

F. **BASIS OF PAYMENT**
This work will be paid for at the Contract unit price per foot for "Sanitary Sewer" of the type and diameter specified and measured as specified.

"Trench Backfill", when specified, will be measured and paid for at the Contract unit price per foot unless otherwise stated in the Special Provisions or contract documents.

1-2.20 **WATER MAINS**

A. **GENERAL**
The method of excavating and backfilling water mains shall be in compliance with the latest edition of the Illinois Department of Transportation, "Standard Specifications for Road and Bridge Construction," and those below.

B. **MATERIAL**
Pipe material shall be as shown on the Plans or as described in the Special Provisions.
No substitution of material shall be made without written approval of the Owner.

C. **EXCAVATION AND BEDDING**
The trench shall be excavated to an elevation to allow the minimum cover over the pipe as called for on the plans. Provision must be made by the Contractor to allow for any future cuts to be made to the ground over the pipe to assure that the minimum cover is maintained.

Bedding as described in Section 1-2.21C for sanitary sewers shall be required for all water mains, except ductile iron pipe that requires no bedding. The method of bedding for unsuitable material and where rock is encountered shall also comply with the conditions of that Section.

The cost of furnishing, placing and compacting bedding material will be considered as incidental work and no additional compensation will be allowed.

D. **BACKFILLING**
The backfilling of the water main pipe shall be the same as for storm sewer pipe as described in Section 550.07 of the Standard Specifications except that the moist fine aggregate backfill to the elevation of the center of the pipe will not be required for ductile iron pipe. For PVC or any other type of pipe, the moist fine aggregate shall be...
brought to a level 12" above the top of the pipe and it shall be compacted as described in that Section.

E. **METHOD OF MEASUREMENT**
"Water main" pipe of the different types and diameters will be measured by the lineal foot in place.

Unless they are listed as separate Bid items, the water main item shall include all fittings required and all other material, except trench backfill within the specified trench.

F. **BASIS OF PAYMENT**
This work will be paid for at the Contract unit price per lineal foot for "Water main" of the type and diameter specified and measured as specified.

"Trench Backfill", when specified, will be measured and paid for at the Contract unit price per foot, unless otherwise specified in the special provisions or contract documents.
SECTION 2. RESTORATION OF SURFACES

2-1 GENERAL

Restoration of surfaces shall include the removal of the existing surface, the disposal of surplus material, and the construction of new surfaces as indicated on the plans or Special Provisions. The type of surface restoration required shall be shown on the Plans or described in the Special Provisions.

2-2 CONSTRUCTION DETAILS

2-2.01 TEMPORARY SURFACE OVER TRENCH

Wherever conduits are constructed under traveled roadways, driveways, sidewalks, or other traveled surfaces, a temporary surface shall be placed over the top of the trench as soon as possible after compaction, as specified above, has been satisfactorily completed. The temporary surface shall consist of a minimum of six inches (6") of coarse aggregate conforming to the current specifications of the State Specifications for Grade No. CA-9 or CA-10. The top of the temporary surface shall be smooth and meet the grade of the adjacent undisturbed surface. The temporary surface shall be maintained at the Contractor's expense until final restoration of the street surface is completed, unless specific items for temporary aggregate is specified. No permanent restoration of street surface shall be initiated until authorized by the Engineer.

2-2.02 REMOVAL OF PAVEMENT, SIDEWALK, DRIVEWAY AND CURB

Wherever the pipe is located along or across an improved surface, the width of the trench shall be held as nearly as possible to the maximum width specified in Section 1-2.02. Where brick or concrete pavement, sidewalk, driveway or curbing is cut, the width of the cut shall exceed the actual width of the top of the trench by twelve inches (12") on each side or a total of two feet (2'). Exposed surfaces of portland cement or asphaltic concrete shall be cut with a pavement saw before breaking. Care shall be taken in cutting to insure that a straight joint is sawed.

2-2.03 REPLACEMENT OF PERMANENT TYPE PAVEMENT, SIDEWALKS, DRIVEWAYS, CURBS, GUTTERS AND STRUCTURES:

The Contractor shall restore (unless otherwise specified or ordered by the Engineer) all permanent type pavements, sidewalks, driveways, curbs, gutters, shrubbery, fences, poles and other property and surface structures removed or disturbed during or as a result of construction operations to a condition which is equal in appearance and quality to the condition that existed before the Work began. The surface of all improvements shall be constructed of the same material and match in appearance the surface of the improvement which was removed. Where trench backfill is used, the restoration shall be made as soon as possible after jetting of the backfill has been completed.
2-2.04 REPLACING EXISTING TEMPORARY STREET AND ALLEY SURFACES

A. GENERAL

For the purpose of this specification, all existing street and alley surfaces shall be considered temporary except:

(1) concrete or brick pavements; (2) an asphaltic concrete or a bituminous treated surface over a soil cement, concrete, crushed stone or selected gravel base. Specifically included as temporary street surfaces, shall be compacted earth, cinders, shale, mixtures of gravel and earth or crushed stone and earth, whether or not these respective materials are further stabilized by road oil or bituminous surface treatment. This work should not be confused with Temporary Surface Over Trench as specified in Section 2-2.01.

Where conduits are constructed under temporary street or alley surfaces, or where such surfaces are used for the placement of backfill material or are disturbed by construction operations, the Contractor shall reconstruct, by grading and shaping, the entire width of roadway, and any drainage facilities which may have existed, to the original condition at the Contractor's expense, including that portion within the specified trench width where removal and restoration is paid for under a separate payment item.

Where, in the opinion of the Engineer, the conduit is located in the traveled portion of the temporary street or alley traveled surface, a new temporary surface shall be constructed over the trench, as specified in Section 2-2.01 of this Division. After this surface has been placed, it shall be maintained by the Contractor until final restoration is authorized. Just prior to final restoration, the entire width of the street to be restored shall be scarified. For final surface restoration, the Contractor shall apply a bituminous treatment to the entire width of the traveled surface, as ordered by the Engineer. The bituminous treatment shall consist of the application of a bituminous prime coat and a bituminous surface treatment corresponding to the materials and construction methods described in the State Specifications for bituminous surface treatment, Class A-1, A-2, or A-3 as specified, or shown in the bid items.

The Engineer reserves the right to order the omission of Bituminous Surface Treatment in any locations where such omission may be, in his opinion, in the public interest.

B. MEASUREMENT

Measurement for purposes of payment shall be computed by using the actual length and width of surface to which treatment is applied, in accordance with these Specifications.
C. PAYMENT
The cost of final restoration of the surface shall be paid for at the contract unit price per foot, unless so stated in the Special Provisions or for all State of Illinois projects, for "Bituminous Surface Treatment", of the type specified. Such price shall include the cost of all labor and materials necessary to provide the bituminous treatment as specified.

2-2.05 DISPOSAL OF SURPLUS EXCAVATED MATERIAL
Surplus excavated material not needed for backfill shall be promptly removed from the site to locations provided by the Contractor. The cost of removal and disposal of surplus excavated materials will be included in the respective unit prices for pipeline or conduit construction and no additional payment will be allowed therefor.

2-2.06 CLEANING UP
All surplus materials and all tools and temporary structures shall be removed from the site by the Contractor. All dirt, rubbish and excess earth from the excavation shall be hauled to a dump provided by the Contractor and the construction site left clean and acceptable to the Owner at the earliest possible date.
SECTION 3. FINISHING AND CLEAN UP FOR UNDERGROUND CONDUITS

3-1 CLEAN UP

Before acceptance of underground conduits construction, all pipes, manholes, catch basins, fire hydrants and other appurtenances shall be cleaned of all debris and foreign material.

After all backfill has been completed, the ground surface shall be shaped to conform to the contour of adjacent surfaces. General clean up of the entire construction area shall otherwise conform to applicable requirements specified.
SECTION 7. PRESSURE CONNECTION

7-1 GENERAL
7-2 DEFINITION OF TERMS
7-3 MATERIALS
7-4 VALVES
7-5 TAPPING FITTINGS
7-6 INSTALLATION PROCEDURE
7-7 EXCAVATION AND BACKFILL
SECTION 1. PIPE FOR WATER MAINS AND SERVICE CONNECTIONS

1-1 GENERAL
These Specifications cover the pipe fittings and accessory items normally used for water distribution systems. Special considerations will be covered in the Plans and Special Provisions.

Specification references made herein for manufactured materials such as pipe, hydrants, valve and fittings refer to designations for American Water Works Association (AWWA) or to American National Standards Institute (ANSI), as they are effective on the date of call for bids.

Copies of these publications may be obtained at nominal cost from the American Water Works Association, 6666 West Quincy Avenue, Denver, Colorado 80235 and from the American National Standards Institute, 1430 Broadway, New York, New York 10018.

1-2 PIPE MATERIALS
The type of pipe and fittings to be used in water mains will be stated in the Special Provisions, Plans or Bid items.

Where new water main is proposed to be constructed in the vicinity of an existing non potable force main, the water main shall be identified as a potable water line in a manner approved by the Engineer.

The Contractor shall be responsible for all material furnished by him and shall replace at his own expense all such material found defective in manufacture or damaged in handling after delivery by the manufacturer. This shall include the furnishing of all material and labor required for the replacement of installed material discovered defective prior to the final acceptance of the Work.

The Contractor shall be responsible for the safe storage of material furnished by or to him, and accepted by him, and intended for the Work, until it has been incorporated in the completed project. The interior of all pipe fittings and other accessories shall be kept free from dirt and foreign matter at all times. Valves and hydrants shall be drained and stored in a manner that will protect them from damage by freezing.

Any material furnished by the Owner that becomes damaged after acceptance by the Contractor shall be replaced by the Contractor at his own expense.

1-2.01 CONCRETE CYLINDER PIPE
Reinforced concrete water pipe, steel cylinder type prestressed, shall conform to the latest AWWA Standard C 301. Size, class marking, specials, lengths, etc., shall be as specified on the Plans or in the Special Provisions.
1-2.02 DUCTILE IRON PIPE
Ductile Iron Pipe shall conform to ANSI A 21.51 (AWWA C151), class to thickness designed per ANSI A 21.50 (AWWA C150), tar (seal) coated and/or cement lined per ANSI A 21.4 (AWWA C104), with mechanical or rubber ring (slip seal or push on) joints. Plans or Special Provisions shall indicate standard designation, thickness, class, coating and/or lining, and joint type.

1.2.03 CAST IRON OR DUCTILE IRON PIPE FITTINGS
All cast iron or ductile iron fittings, 3 inch through 48 inch shall conform to the latest ANSI/AWWA C110. Cast or ductile iron, coatings or linings or other items shall be specified in the Special Provisions.

1-2.04 SERVICE PIPE, STOPS, FITTINGS, AND BOXES
A. SERVICE PIPE
All service pipe shall be copper water tube, Type K, soft temper, for underground service, conforming to ASTM B-88 and B251. The pipe shall be marked with the manufacturer's name or trade mark indicative of the type of pipe. The outside diameter of the pipe shall conform to ASTM B251 Table 2.

B. STOPS AND FITTINGS
All corporation stops and curb stops shall be fabricated of brass and shall be provided with outlets suitable for copper connections. Curb stops shall be of the round-way type. Fittings for service pipe shall be copper and of the compression type.

1-2.05 SPECIALTY VALVES
Specialty valves and fittings such as cutting-in valves, tapping sleeves and valves, inserting valves, and air release valves shall conform to the requirements of the Special Provisions and shall be installed at locations indicated on the Plans.

1-2.06 SERVICE METERS AND APPURtenANCES
Service meters and appurtenances shall be located, furnished and installed in accordance with the requirements of the Special Provisions and the Plans. Appurtenances where required may include meter box, meter box cover, meter yoke, corporation cock, curb stop and incidental fittings.
SECTION 2. PIPE INSTALLATION FOR WATER MAINS

2-1 GENERAL
Pipe shall be installed in accordance with the manufacturer's specifications and instructions for the type of pipe used and applicable AWWA standards, such as C600 and C603, unless modified or changed in the Special Provisions.

2-2 CONSTRUCTION

2-2.01 PROTECTION OF WATER MAINS

A. GENERAL
Water mains and water service lines shall be protected from sanitary sewers, storm sewers, combined sewers, house sewer service connections and drains as follows:

B. HORIZONTAL SEPARATION-WATER MAINS AND SEWERS
1. Water mains shall be located at least ten feet horizontally from any existing or proposed drain, storm sewer, sanitary sewer, combined sewer or sewer service connection.

2. Water mains may be located closer than ten feet to a sewer line when
   a. local conditions prevent a lateral separation of ten feet; and
   b. the water main invert is at least 18 inches above the crown of the sewer; and
   c. the water main invert is either in a separate trench or in the same trench on an undisturbed earth shelf located to one side of the sewer.

3. When it is impossible to meet (1) or (2) above, both the water main and drain or sewer shall be constructed of slip-on or mechanical joint cast or ductile iron pipe or prestressed concrete pipe, equivalent to water main standards of construction. The drain or sewer shall be pressure tested to the maximum expected surcharge head before backfilling.

C. VERTICAL SEPARATION-WATER MAINS AND SEWERS
1. A water main shall be separated from a sewer so that its invert is a minimum of 18 inches above the crown of the drain or sewer whenever water mains cross storm sewers, sanitary sewers or sewer service connections. The vertical separation shall be maintained for that portion of the water main located within ten feet horizontally of any sewer or drain crossed. A length of water main pipe...
shall be centered over the sewer to be crossed with joints equidistant from the sewer or drain.

2. Both the water main and sewer shall be constructed of slip-on or mechanical joint cast or ductile iron pipe, prestressed concrete pipe, equivalent to water main standards of construction when:
   a. it is impossible to obtain the proper vertical separation as described in (1) above; or
   b. the water main passes under a sewer or drain.

3. A vertical separation of 18 inches between the invert of the sewer or drain and the crown of the water main shall be maintained where a water main crosses under a sewer. Support the sewer or drain lines to prevent settling and breaking the water main, as shown on the Plans or as approved by the Engineer.

4. Construction shall extend on each side of the crossing until the perpendicular distance from the water main to the sewer or drain line is as least ten feet.

**D. WATER SERVICE LINES**

1. The horizontal and vertical separation between water service lines and all storm sewers, sanitary sewers, combined sewers or any drain or sewer service connection shall be the same as water main separation described in Sections 2-2.02B and 2-2.01C above.

2. Water pipe described in Sections 2-2.01B, 2-2.01C and 2-2.01D shall be met unless special considerations are covered in the Plans and Special Provisions.

**E. SPECIAL CONDITIONS**

Conditions in Sections 2-2.01B, 2-2.01C and 2-2.01D shall be met unless special considerations are covered in the Plans and Special Provisions.

**F. SEWER MANHOLES**

No water pipe shall pass through or come into contact with any part of a sewer or sewer manhole.

**2-2.02 EXCAVATION AND BACKFILL**

Excavation and backfill for water mains shall conform to the provisions of Division II, Sections 1, 2 and 3 of the Excavation and Cleanup Specifications and the requirements below.

**A. DEPTH OF PIPE COVER**

Unless otherwise shown on the plans or indicated in the Special Provisions, all pipe shall be laid to a minimum depth of five (5') feet measured from the existing ground surface.
or established grade to the top of the barrel of the pipe. In areas subject to subsequent excavation or fill, the mains shall be laid to assure a minimum depth of five (5') feet or to grades shown on the Plans.

B. TRENCH WIDTH

The trench width may vary and depend upon the size of pipe, depth of trench and the nature of the excavated material encountered. In any case, the trench width shall be ample to permit the pipe to be laid and jointed properly and the backfill to be placed and compacted.

C. PIPE FOUNDATIONS

The trench, unless otherwise specified, shall have flat bottom conforming to the grade to which the pipe is to be laid. The pipe shall be laid on sound soil cut true and even so that the barrel of the pipe will have a bearing for its full length. Bell holes shall be excavated for joints. Any part of the trench excavated below grade shall be corrected with an approved material and thoroughly compacted.

D. DEWATERING OF TRENCH

Where water is encountered in the trench, it shall be removed during pipe-laying and jointing operation. Provisions shall be made to prevent floating of the pipe. Trench water shall not be allowed to enter the pipe at any time.

2-2.03 HANDLING OF THE PIPE

All types of pipe shall be handled in such manner as will prevent damage to the pipe or coating. Accidental damage to pipe or coating shall be repaired to the satisfaction of the Engineer or be removed from the job and methods of handling shall be corrected to prevent further damage when called to the attention to the Contractor.

Threaded pipe ends shall be protected by couplings or other means until laid.

The pipe and fittings shall be inspected by the Contractor for defects while suspended above grade.

Dirt or other foreign material shall be prevented from entering the pipe or pipe joint during handling or laying operations and any pipe or fitting that has been installed with dirt or foreign material in it shall be removed, cleaned and re-laid. At times when pipe laying is not in progress, the open ends of the pipe shall be closed by a watertight plug or by other means approved by the Engineer to ensure absolute cleanliness inside of the pipe.
2-2.04 LAYING OF PIPE ON CURVES

Long radius curves, either horizontal or vertical, may be laid with standard pipe by deflections at the joints. If the pipe is shown curved on the Plans and no special fittings are shown, the Contractor can assume that the curves can be made by deflection of the joints with standard lengths of pipe.

Where field conditions require deflections of curves not anticipated by the Plans, the Engineer will determine the methods to be used. No additional payment will be made for laying pipe on curves as shown on the Plans, nor for field changes involving standard lengths of pipe deflected at the joints.

Maximum deflections at pipe joints and laying radius for the various pipe lengths are as found in the following standards:

<table>
<thead>
<tr>
<th>Ductile Iron Pipe</th>
<th>ANSI/AWWA C600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bell and Spigot Joints only Required</td>
<td>ANSI/AWWA C600</td>
</tr>
<tr>
<td>for Special Conditions</td>
<td></td>
</tr>
<tr>
<td>Ductile Iron Pipe Mechanical Joints</td>
<td>ANSI/AWWA C600</td>
</tr>
<tr>
<td>Ductile Iron Pipe Push on Joints</td>
<td>NSI/AWWA C-600</td>
</tr>
<tr>
<td>Concrete Cylinder Pipe</td>
<td>See Manufacturer's Recommendations</td>
</tr>
</tbody>
</table>

When rubber gasketed pipe is laid on a curve, the pipe shall be jointed in a straight alignment and then deflected to the curve alignment. Trenches shall be made wider on curves for this purpose.

2-2.05 DUCTILE IRON PIPE

A. JOINTS FOR DUCTILE IRON PIPE

Joints for ductile iron pipe shall be in accordance with the following applicable specifications unless otherwise noted:

1. Mechanical Joints - AWWA C111 and C600
2. Push-On Joints - AWWA C111 and C600

B. JOINTING MECHANICAL JOINT PIPE

The outside of the spigot and inside of the bell of mechanical joint pipe shall be thoroughly cleaned to remove all foreign matter from the joint. The cast iron gland shall then be slipped on to the spigot end of the pipe with the lip extension of the gland toward the socked or bell end. The rubber gasket shall be placed on the spigot end with

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the thick edge toward the gland. The pipe shall be pushed forward to completely seat the spigot end in the bell. The gasket shall then be pressed into place within the bell, being careful to have the gasket evenly located around the entire joint. The cast iron gland shall then be moved along the pipe into position and bolted.

Nuts spaced 180 degrees shall be tightened alternately to AWWA C600 Standards in order to produce an equal pressure on all parts of the gland.

C. JOINTING RUBBER GASKET JOINT PIPE (AWWA C111)

The inside of the bell shall be thoroughly cleaned to remove all foreign material from the joints. The circular rubber gasket shall be inserted in the gasket seat provided.

A thin film of gasket lubricant shall be applied to the inside surface of the gasket. Gasket lubricant shall be a solution of vegetable soap or other solution supplied by the pipe manufacturer and approved by the Engineer.

The spigot end of the pipe shall be cleaned and entered into the rubber gasket in the bell, using care to keep the joint from contacting the ground. The joint shall then be completed by forcing the plain end into the seat of the bell. Pipe which is not furnished with depth mark shall be marked before assembly to assure that the spigot end is inserted to the full depth of the joint.

Field-cut pipe lengths shall be bevelled to avoid damage to the gasket and facilitate making the joint.

To insure electrical conductivity on ductile iron pipe water mains, brass wedges shall be installed as follows:

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Wedges Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>2&quot; thru 12&quot;</td>
<td>2 each (180° apart)</td>
</tr>
<tr>
<td>Above 12&quot;</td>
<td>2 pair of 2 each (180° apart)</td>
</tr>
</tbody>
</table>

Caldweld bonding, as approved or specified by Engineer, may also be utilized.

2-2.06 CONCRETE PRESSURE PIPE

A. LAYING CONCRETE PRESSURE PIPE

Pipe shall be laid and jointed in accordance with manufacturer's recommendations and these Specifications. In the absence of manufacturer's recommendations, the AWWA installation manual M-9 shall be used.
B. **JOINTING CONCRETE PRESSURE PIPE**

All joint surfaces of the bell and spigot (tongue and groove) shall be thoroughly cleaned to remove all dirt and foreign material. The spigot or tongue end of the pipe with the gasket in place and with all surfaces lubricated as recommended by the pipe manufacturer shall be inserted in the ball or groove. The pipe shall then be shoved or pulled home.

The outside annular space at the joint shall be filled with cement mortar or with a preformed joint filler when approved by the Engineer.

The grouting of the outside joints shall be made by wrapping the joint with two bands of strong waterproof Sisalkraft paper or other approved material. The band of paper shall then be tightly strapped to the pipe using tools recommended by the manufacturer. The joints shall then be filled with mortar from one side only, until the mortar appears on the other side of the pipe. Mortar shall be mixed with the least amount of water that will permit placing by the method described. Flexible wires shall be worked around the joint to assist grouting and ensure proper filing of the joint. The top of the pipe shall then be grouted and the paper band laid over the entire joint to protect it while curing.

The inside annular space in pipe 42 inches and larger in diameter shall also be filled with cement mortar and troweled flush. Mortar shall consist of one (1) part portland cement and two (2) parts of plaster sand. Mortar for inside joints shall be mixed with only enough water for "dry packing".

No grouting of joints will be allowed within two joints of laying operations. A representative of the Engineer will be present when joints are being poured.

**2-2.07 THRUST BLOCKING**

Blocking to prevent movement of lines under pressure shall be placed at all bends, tees, caps, valve and hydrants with Portland Cement Concrete, a minimum of 12" thick, placed between solid ground and the fittings, and shall be anchored in such a manner that pipe and fitting joints will be accessible for repairs.

All bends of 11-1/4 degrees or greater, and all tees and plugs shall be thrust protected to prevent movement of the lines under pressure as shown on the Plans.

Where conditions prevent the user of concrete thrust blocks, tied joints or restrained joints of a type approved by the Engineer shall be used.
2-2.08 CONNECTIONS TO EXISTING MAINS

All connections to water mains in use shall be made by the Contractor unless otherwise provided in the Special Provisions. All crosses or other specials required to be inserted in an existing main shall be furnished and set by the Contractor.

Where the connection of new work to old requires interruption of service and notification of customers affected, the superintendent of the Municipality, and the Contractor shall mutually agree upon a date and time for connections which will allow ample time to assemble labor and materials, and to notify all customers affected.

2-2.09 WATER SERVICE PIPING

A. GENERAL

Water service pipe shall be installed in accordance with provisions in Section 2.

B. EXCAVATION AND BACKFILL

The Contractor shall open side trenches and construct services from the main to such depth and lengths as directed by the Engineer. Unless otherwise directed, depths shall not be less than specified for water mains. Excavation and backfill of side trenches shall be as specified in Division II, Excavation and Cleanup Specifications.

C. LAYING WATER SERVICE PIPE

1. Underground water service pipe shall be laid not less than ten (10') feet horizontally from the building drain, and shall be separated there from by undisturbed or compacted earth.

2. Where conditions in paragraph (1) cannot be met, the water service pipe shall be installed in accordance with the following provisions:

   a. The bottom of the water service pipe, at all points, shall be at least eighteen (18") inches above the top of the building drain line at its highest point.

   b. The water service pipe shall be placed on a solid shelf excavated to one side of the common trench.

3. Where both the water service pipe and building drain line are installed with less separation than in paragraph (2) or in the same trench, the building drain line shall be constructed of cast iron soil pipe with push-on joints, type K hard-tempered copper pipe with sweated joints, or rigid plastic pipe as specified in the Illinois State Plumbing Code. The trench shall not be backfilled until the installation is approved by the Engineer.
2-2.10 WATER SERVICE CONNECTION

The Contractor shall make all taps for service connections and install the service pipe, unless otherwise provided on the Plans and in the Special Provisions.

Each water service pipe shall be connected to the water main through a brass corporation stop. The main shall be tapped at an angle of forty-five degrees (45°), with the vertical, and the stop must be turned so that the T-handle will be on top.

The service pipe shall be laid in the trench sufficiently weaving to allow not less than one (1') foot extra length in its entire length.

A curb stop shall be furnished and installed for each service at a location shown on the Plans, specified or as directed by the Engineer. A cast iron service box shall be furnished and installed over the curb stop and held in a truly vertical position, until sufficient backfill has been placed to insure permanent vertical alignment of the box. The top of the box shall be adjusted and set flush with the established ground surface grade.

2-2.11 PRESSURE TESTING OF WATER MAINS

A. PRESSURE TEST

After the pipe has been laid and partly backfilled as specified herein, all newly laid pipe or any valved sections of it shall, unless otherwise expressly specified, be subjected to a hydrostatic pressure equal to 50 per cent more than the operating pressure at the lowest elevation of the pipe section, but not to exceed the pressure rating of the type of pipe specified. The duration of each pressure test shall be for a period of not less than one hour and not more than six hours. The basis provisions of AWWA C603 and C600 shall be applicable, if specified.

B. PROCEDURE FOR TEST

Each section of pipe to be tested, as determined by the Engineer, shall be slowly filled with water and the specified test pressure shall be applied by means of a pump connected to the pipe in a satisfactory manner. The pump pipe shall be furnished by the Contractor. Before applying the specified test pressure, all air shall be expelled from the pipe. To accomplish this, taps shall be made, if necessary, at points of highest elevation and afterwards tightly plugged. Any cracked or defective pipes, fittings, valves, or hydrants discovered in consequence of this pressure test shall be removed and replaced by the Contractor with sound material and the test shall be repeated until satisfactory to the Engineer. Provisions of AWWA C600 and C603, where applicable, shall apply.
C. **LEAKAGE TEST**

1. After completion of the pressure test, a leakage test shall be conducted to determine the quantity of water lost by leakage under the specified test pressure. Test pressure is defined as the maximum operating pressure of the section under test and is based on the elevation of the lowest point in the line or section under test corrected to the elevation of the test gauge. Applicable provisions of AWWA C-600 and C603 shall apply. Duration of each leakage test shall be a minimum of one (1) hour in addition to the pressure test period.

2. Allowable leakage in gallons per hour for pipeline shall not be greater than that determined by the formula:

   \[ L = \frac{NDP}{2/7400} \]

   **Note:**
   - \( L \) = Allowable leakage in gallons per hour
   - \( N \) = Number of joints in length of pipeline tested.
   - \( D \) = Nominal diameter of the pipe in inches.
   - \( P \) = Average test pressure during leakage test in pounds per square inch gauge.

3. Leakage is defined as the quantity of water to be supplied in the newly laid pipe or any valved section under test, which is necessary to maintain the specified leakage test pressure after the pipe has been filled with water and the air expelled.

4. Flanged pipe shall be "bottle tight".

---

2-2.12 **DISINFECTION OF WATER MAINS**

A. **FLUSHING**

Sections of pipe to be disinfected shall first be flushed to remove any solids or contaminated material that may have become lodged in the pipe. If no hydrant is installed at the end of the main, then a tap should be provided large enough to develop a velocity of at least two and five-tenths feet (2.5') per second in the main. One and one-half inch (2-1/2") hydrant openings will, under normal pressures, provide this velocity in pipe sizes up to and including twelve-inch (12").

All taps 2" size and smaller required for chlorination or flushing purposes, or for temporary or permanent release of air shall be provided for by the Contractor as a part of the construction of water mains. Taps larger than 2" shall be paid for as a bid item or as an extra.
B. **REQUIREMENT OF CHLORINE**

Before being placed into service, all new mains and repaired portions of, or extensions to existing mains shall be chlorinated so that the initial chlorine residual is not less than 50 mg/1 and that a chlorine residual of not less than twenty-five (25 mg/1) remains in the water after standing twenty-four (24) hours in the pipe.

See Division I, Section 7-12 "Use of Fire Hydrants" regarding use of water for flushing and disinfection.

C. **FORM OF APPLIED CHLORINE**

Chlorine shall be applied by one of the methods which follow subject to approval by the Engineer.

1. **LIQUID CHLORINE**

   A chlorine gas-water mixture shall be applied by means of a solution-feed chlorinating device, or the dry gas may be fed directly through proper devices for regulating the rate of flow and providing effective diffusion of the gas into the water within the pipe being treated. Chlorinating devices for feeding solutions of the chlorine gas, or the gas itself, must provide means for preventing the backflow of water into the chlorine.

2. **CHLORINE-BEARING COMPOUNDS IN WATER**

   A mixture of water and high-test calcium hypochlorite (65-70% Cl) may be substituted for the chlorine gas water mixture. The dry powder shall first be mixed as a paste and then thinned to a one per cent (1%) chlorine solution by adding water to give a total quantity of seven and five-tenths (7.5) gallons of water per pounds of dry powder. This solution shall be injected in one end of the section of main to be disinfected while filling the main with water in the amounts as shown in the table which follows:

<table>
<thead>
<tr>
<th>Pipe Size (Inches)</th>
<th>Chlorine Requirements to Produce 50 mg/1 Concentration in 100 Foot of Pipe - By Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>100% Chlorine, Lb.</td>
</tr>
<tr>
<td>6</td>
<td>0.027</td>
</tr>
<tr>
<td>8</td>
<td>0.061</td>
</tr>
<tr>
<td>10</td>
<td>0.108</td>
</tr>
<tr>
<td>12</td>
<td>0.170</td>
</tr>
<tr>
<td></td>
<td>0.240</td>
</tr>
</tbody>
</table>
3. **TABLET DISINFECTION**

Tablet disinfection is best suited to short extensions (up to 2500 ft.) and smaller diameter mains (up to 12-inches). Since preliminary flushing must be eliminated in using this method, it should be utilized only when scrupulous cleanliness has been used in construction. It shall not be used if trench water or foreign material has entered the main or if the water is below 41°F.

Tablets should be placed in each section of pipe, hydrants, hydrant branches and other appurtenances. Tablets must be at the top of the main and shall be attached by an adhesive, such as Permatex No. 1 or any alternative approved by the Engineer. Tablets in joints between pipe sections, hydrants, hydrant branches or appurtenances are to be crushed and placed inside the annular space, rubbed like chalk in butt ends of sections to coat them if the type of assembly does not permit crushing.

In filling a section of piping with water when using the tablet method, water velocity shall be less than one foot (1') per second.

### Number of 5-Grain Hypochlorite Tablets Required
**For a Dosage of 50 mg/l per Length of Pipe Section**

<table>
<thead>
<tr>
<th>Pipe Size, Inches</th>
<th>Length of Pipe Section Foot</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Up to 13</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>5</td>
</tr>
</tbody>
</table>

**D. POINT OF APPLICATION**

The preferred point of application of the chlorinating agent is at the beginning of the pipe line extensions or any valved section of it, and through a corporation stop inserted in the pipe. The water injector for delivering the chlorine-bearing water into the pipe should be supplied from a tap made on the pressure side of the gate valve controlling the flow into the pipe line extension. Alternate points of application may be used when approved by the Engineer.

**E. PREVENTING REVERSE FLOW**

Valve shall be manipulated so that the strong chlorine solution in the line being treated will not flow back into the line supplying the water. Check valves may be used if desired.
F. **RETENTION PERIOD**
Treated water shall be retained in the pipe at least twenty-four (24) hours. After this period, the chlorine residual at pipe extremities and at other representative points shall be at least twenty-five (25) mg/1.

G. **CHLORINATING VALVES AND HYDRANTS**
In the process of chlorinating newly laid pipe, all valves or other appurtenances shall be operated while the pipe line is filled with the chlorinating agent and under normal operating pressure.

H. **FINAL FLUSHING AND TESTING**
Following chlorination, all treated water shall be thoroughly flushed from the newly laid pipe at its extremity until the replacement water throughout its length shows upon test, a chlorine residual of less than 1 mg/1. In the event chlorine is normally used in the source of supply, then the test shall show a residual of not in excess of that carried in the system.

After flushing, water samples collected on two (2) successive days from the treated piping system, as directed by the Engineer, shall show satisfactory bacteriological results. Bacteriological analyses must be performed by a laboratory approved by the Illinois Department of Public Health.

I. **REPETITION OF FLUSHING AND TESTING**
Should the initial treatment result in an unsatisfactory bacterial test, the original chlorination procedure shall be repeated by the Contractor until satisfactory results are obtained.

2-2.13 **MEASUREMENT**
In addition to the items listed for separate measurement and payment in Division II, Excavation and Backfill for Underground Conduits, and Restoration of Surfaces, the following items shall be measured for payment when required for water main construction:

**WATER MAIN:**
Water main shall be listed in the bid items by size and type, and shall be measured in lineal feet, slope measurement, along the center line without deduction for valves and fittings. However, when the water main terminates in a hydrant valve or other main connection, measurement shall be from the center of the hydrant valve or other main connection.

**GATE VALVES AND VALVE BOXES OR VAULTS**
Gate valves and valve boxes of the size required shall be measured for payment as an installed unit.
BUTTERFLY VALVES
Butterfly valves of the type and size required shall be measured for payment as an installed unit.

CAST OR DUCTILE IRON FITTINGS
Cast or Ductile iron fittings shall be measured for payment by the pound, or by units as shown on the Proposal Form. The weight of accessories shall be included as part of the weight of the fittings. Shipper's invoice weight shall be taken as the weight for payment purposes, subject to confirmation by actual weighing near the site if there is reason to doubt the accuracy of invoice weights.

SERVICE PIPE
Service pipe of the size and type required shall be measured by the lineal foot for installed length, or by units (Long Tap or Short Tap) as shown as a Bid item.

FIRE HYDRANTS
Fire hydrants by size and type required shall be measured for payment as an installed unit complete with accessories and thrust blocking. Where a gate valve is required on the connection between the water main and the fire hydrant, the gate valve shall be included with the payment for fire hydrant.

SPECIALTY VALVES
Specialty valves shall be measured as an installed unit by size and type required.

WATER MAIN IN TUNNEL
Water Main in Tunnel, Water Main Jacked or Water Main in Casing of the size and type indicated shall be measured in lineal feet installed in accordance with requirements of the Plans.

CONNECTIONS TO EXISTING MAINS
Where shown as a separate pay item, this work will be measured for separate payment. If not shown as a separate bid item, this work will be included as an incidental expense in the unit price for water main. In no event will payment be made when separate payment is provided for a tapping sleeve and a tapping valve.

THRUST BLOCKING AND RESTRAINED JOINTS
Unless otherwise provided in the Special Provisions, thrust blocking, restrained joints or ties as specified shall be included as an incidental expense in the payment for water mains and shall not be measured for separate payment.
SECTION 3. GATE VALVES FOR WATER MAINS

3-1 DESCRIPTION
The valves shall be suitable for ordinary waterworks service, intended to be installed in a normal position on buried pipe lines for water distribution systems. The minimum requirements for all gate valves shall, in design, material and workmanship, conform to the standards of the latest AWWA C500. All materials used in the manufacture of waterworks gate valves shall conform to the AWWA standards designed for each material listed.

3-2 MATERIALS

3-2.01 MANUFACTURE AND MARKING
The gate valves shall be standard pattern and shall have the name or mark of the manufacturer, size and working pressure plainly cast in raised letters on the valve body.

3-2.02 TYPE AND MOUNTING
The valve bodies shall be cast iron, mounted with approved non-corrosive metals. All wearing surfaces shall be bronze or other approved non-corrosive material and there shall be no moving bearing or contact surfaces of iron in contact with iron. Contact surfaces shall be machined and finished in the best workmanlike manner, and all wearing surfaces shall be easily renewable.

All gate valves shall be two-faced, non-rising stem, double disc, with parallel sets of bronze or other approved wedging devices placed between them. The stem shall be of high tensile strength bronze or other approved non-corrosive metal. All nonferrous bushings shall be of substantial thickness tightly fitted and pressed into machined seats. All valves shall open by turning to the left counter-clockwise, unless otherwise specified. Consideration shall be given to types of bronze used where high galvanic waters (high pH or specific conductance) are present. See AWWA C500. Paragraph 2.2.3.4.

3-2.03 END CONNECTIONS
End connections of gate valves shall consist of one of the following types unless otherwise provided in the Special Provisions or shown on the Plans:

A. Mechanical Joints
B. Push-On (Rubber-gasket) Joints
C. Bell End Joints, lead (only where required for special conditions)
D. Flange Joints
E. Screwed or Threaded Joints.
3-2.04 GATE VALVES 16-INCH AND LARGER

Gate valves sixteen (16") inch and larger to be installed in a horizontal position in a horizontal pipeline shall be of the double-disc type and shall be equipped with solid-bronze (Grade I or IV) or 300 series stainless steel tracks securely fastened in body and bonnet. The weight of the gates shall be carried on rollers throughout their entire length of travel. For double-disc valves of the rolling-disc type, the discs shall serve as rollers. For double disc valves or other than the roller disc type, the discs shall be carried on solid-bronze) Grade I, II, III, or IV) rollers securely attached to them. All valves shall be equipped with bronze scrapers to traverse the tracks ahead of the rollers.

Valves sixteen (16") inch and larger installed in a vertical or inclined lines shall be equipped with tracks manufactured of an acceptable grade of bronze or 300 series stainless steel secured to the valve body and bonnet to support the lower disc during operation, and equipped with slides to assist the travel of the gate assembly.

They shall be non-rising stem type and shall be equipped with approved rugged gate position indicators. The valves shall be provided with handwheels of ample proportion.

All gears on gate valves shall be cut tooth steel gears housed in heavy cast iron grease cases or approved design.

When manually operated gate valve sixteen (16") inches and larger are required, they shall be equipped with a by-pass and by-pass valve. By-pass valve shall be of the same type as the main valve, shall be equipped with handwheel and shall have the stem in a vertical position unless otherwise indicated. Sizes shall be as follows:

<table>
<thead>
<tr>
<th>Valve Diameter (Inches)</th>
<th>By-Pass Diameter (Inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 to 20</td>
<td>3</td>
</tr>
<tr>
<td>24 and 30</td>
<td>4</td>
</tr>
<tr>
<td>36 and 42</td>
<td>6</td>
</tr>
<tr>
<td>48 and larger</td>
<td>8</td>
</tr>
</tbody>
</table>

All gate valves sixteen (16") and larger shall be geared with gearing designed for handwheel operation. Gear ratios shall not be less than as follows:

<table>
<thead>
<tr>
<th>Valve Diameter (Inches)</th>
<th>Gear Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>2:1</td>
</tr>
<tr>
<td>20</td>
<td>2:1</td>
</tr>
<tr>
<td>24</td>
<td>2:1</td>
</tr>
<tr>
<td>30</td>
<td>3:1</td>
</tr>
<tr>
<td>36</td>
<td>3:1</td>
</tr>
<tr>
<td>42</td>
<td>4:1</td>
</tr>
<tr>
<td>48</td>
<td>4:1</td>
</tr>
</tbody>
</table>
3-2.05 GATE VALVE STEM SEALS
All gate valves of size twelve (12") inches shall be furnished with two (2) pressure actuated O-ring stem seals, with one (1) O-ring below the stem thrust collar and bearing surfaces and one (1) O-ring above. The area between the O-rings shall be filled with a lubricant to give continuous lubrication to the stem collar and bearing surfaces so as to provide long-term ease of operation. An upper and lower stem collar bushing of an acceptable grade of bronze shall be acceptable in lieu of the above if the stem collar and bearing surfaces are exposed to internal water pressure.

Valves larger than twelve (12") inches shall be as described above unless they are required to be furnished with extended stems with gear cases, in which case they shall be furnished with adjustable stuffing boxes so that they may be repacked without the need to disassemble and remove the gear case.

3-2.06 WRENCH NUTS
Wrench nuts shall be made of cast iron and shall be one and fifteen-sixteenths (1-15/16") inches square at the top, two (2") inches square at the base, one and three-fourths (1-3/4") inches high, unless otherwise designated in the Special Provisions. Nuts shall have a flanged base upon which shall be cast an arrow at least two (2") inches long showing the direction of opening. The word "Open" in one-half (1/2") inch or larger letters shall be cast on the nut to clearly indicate the direction of opening the valve.

3-2.07 TAPPING VALVES
Tapping valves shall be furnished with flanged inlet end connections having a machined projection on the flanges to mate with a machined recess on the outlet flanges of the tapping sleeves and crosses. The outlet ends shall conform in dimensions to the AWWA Standards for hub or mechanical joint conditions, except that the outside of the hub shall have a large flange of attaching a drilling machine. The seat opening of the valves shall be larger than normal size to permit full diameter cuts. Tapping sleeve or cross shall be of the same manufacturer as the tapping valve.

3-2.08 HYDROSTATIC TEST PRESSURE AT FACTORY
Each gate valve shall be tested at the factory for performance and operation prior to painting and shall be subjected to the following hydrostatic pressure tests: each three (3") inch to twelve (12") inch valve, inclusive, shall be subject to hydrostatic pressure test under pressures of both three hundred (300) psi and one hundred seventy-five (175) psi, and each sixteen (16") inch to forty-eight (48") inch valve, inclusive, shall be subject to test pressures of three hundred (300) psi and one hundred fifty (150) psi. These tests shall be conducted in accordance with provisions of AWWA C500. Tests for special valves shall be made as provided in the Special Provisions.

3-2.09 PAINTING AT THE FACTORY
After the factory test and inspection and before leaving the factory, all ferrous parts of the valves except finished or bearing surfaces shall be painted inside and out with a rust preventative compound.
3-3 **INSTALLATION OF GATE VALVES**

All gate valves shall be inspected upon delivery in the field to insure proper working order before installation. They shall be set and jointed to the pipe in the manner as set forth in the AWWA Standards for the type of connection ends furnished.

Valves twelve (12") inch and under shall be installed in a vertical position and be provided with a standard valve vault or case iron valve box so arranged that no shock will be transmitted to the valve. The box shall be centered over the operating nut, and the cast iron box cover shall be set flush with the road bed or finished surface.

After installation, all valves shall be subjected to the field test for piping as outlined in Section 2. of these specifications. Should any defects in materials or workmanship appear during these tests, the Contractor shall correct such defects with the least possible delay and to the satisfaction of the Engineer. Should the Contract fail to do this within a reasonable period of time in the judgment of the Owner, he may cause such defects to be corrected and deduct the cost thereof from any money or payments due or to become due the Contractor.
SECTION 4. BUTTERFLY VALVES FOR WATER MAINS

4-1 DESCRIPTION
Butterfly valves to be installed in water main distribution systems shall conform to AWWA C504-70 specifications. As specified, a valve may be one of the following type or classes as designated by Plans or Special Provisions.

A. Wafer Valves - Class 150B, in sizes through 20 inches
B. Short-Body Valves - All classes, in 3 to 72 inch sizes
C. Long Body Valves - Class 75A, 75B, 150A and 150B in 3 to 72 inch sizes.
D. Mechanical Joint End Valves - Class 150B in size 3 through 20 inch diameter and all classes in 30 inch through 48 inch diameter sizes.

End connections shall consist of one of the following types as provided in the Special Provisions or as shown on the Plans:

A. Mechanical Joints
B. Push-On (Rubber-gasket) Joints
C. Flange Joints
D. Screw or Threaded Joints

4-2 DATA TO BE FURNISHED BY CONTRACTOR
If required, the Contractor shall submit for approval by the Engineer drawings showing the principal dimensions, general construction and materials used for all parts of the valves and operator. All work shall be done and all valves shall be furnished in accordance with these drawings after they have been approved by the Engineer.

4-3 WORKMANSHIP
Valve parts shall be designated, and manufacturing tolerances set, to provide interchangeability of parts between units of the same size and produced by any one manufacturer. When assembled, valves manufactured in accordance with this standard shall be well-fitted and smooth running, and body and shaft seal shall be watertight. All equipment shall be guaranteed against defects in workmanship or materials for one (1) year after installation or two (2) years after shipment, whichever time elapses first.

4-4 MARKINGS
Markings for other than wafer valves shall be cast on the body or shall be on cast plates with raised letters, attached to the valve body. The markings shall show the valve size, manufacturer, class and year of manufacture. The minimum size of letters shall be 1/4 inch for valves 3 to 12 inches in diameter, and
1/2 inch for valves larger than 12 inches in diameter. Corrosion-resistant plates attached to the body and with 1/8 inch etched or engraved letters may be used for markings on wafer valves.

4-5 **PAINTING**

Unless otherwise specified, all internal steel or cast iron surfaces of each valve, except finished or bearing surfaces, shall be shop painted with two (2) coats of asphalt varnish conforming to Federal Specification TT-V-51f, and exterior steel or cast iron surfaces of each valve, except finished or bearing surfaces, shall be shop painted with two (2) coats of zinc chromate conforming to Federal Specification TT-P-645A; or, in the case of valves for buried service, with two (2) coats of asphalt varnish conforming to Federal Specification TT-V-51f.

4-6 **TESTS**

Each butterfly valve shall be tested for leakage in the manufacturer’s shop and such leakage shall conform to AWWA C504.
SECTION 5. VALVE VAULTS AND BOXES FOR WATER MAINS AND WATER SERVICES

5-1 GENERAL
This section shall apply to the construction of standard valve vaults or chambers, special valve vaults or changers, cast iron valve boxes, curb boxes and meter boxes, all in accordance with the Standard Drawings.

Deep valves shall be provided with cast iron valves boxes set over the operating stem, except where otherwise specified or shown on the Plan.

5-2 MATERIALS

5-2.01 RING AND COVER AND VALVE BOX CASTINGS
Castings for cast iron ring and cover and for cast iron parts of valve boxes shall conform to the requirements of Standard Specifications for Gray Iron Castings, ASTM. Designation A-48.

5-3 CONSTRUCTION DETAILS

5-3.01 VALVE VAULT (OR BASINS)
Valve vaults (or basins) may be either pre-cast or cast-in-place only, according to the details shown on the drawings. Applicable provisions of Division II, Sanitary Sewers and Storm Sewers, Section 4 shall govern construction of valve vaults and chambers.

5-3.02 CAST IRON VALVE BOXES
Cast iron valve boxes as shown on the drawing are placed for enclosing gate valves of small size in lieu of gate valve chambers.

Adjustable cast iron valve boxes shall be set to position during backfilling operations so they will be in a vertical alignment to the gate valve operating stem. The lower casting of the unit shall be installed first in such a manner as to be cushioned and to not rest directly upon the body of the gate valve or upon the water main. The upper casting of the unit shall then be placed in proper alignment into such an elevation that its top will be a final grade. Backfilling around both units shall be placed and compacted to the satisfaction of the Engineer.

5-3.03 CURB BOXES
Curb boxes shall be screwed type, with the base threaded to attach to the curb stop or shall be Buffalo or "arch" type, and of such construction that it shall be capable of extension to finished grade. The type of curb box shall be shown on the Plans, or indicated in the Special Provisions.
SECTION 6. FIRE HYDRANTS

6-1 DESCRIPTION
These specifications are to be used in conjunction with the AWWA Standard C502 for dry barrel fire hydrants for ordinary water works service.

6-2 MATERIALS

6-2.01 MATERIALS FOR HYDRANTS AND APPURtenANCES
Hydrants shall be of a manufacture and pattern approved by the Owner. The name or mark of the manufacturer, size of valve opening, and year of manufacturer shall be clearly cast in raised letters on the upper barrel section above finished grade.

Hydrants shall be designed for a working pressure of 150 psi, and equipped with not less than two (2) O-ring stem seals. Hydrant body castings shall be manufactured of cast iron or ductile iron. The lower barrel section, elbow (shoe) casting, and flanges below grade shall be either cast iron or ductile iron.

Hydrants shall be internally mounted with approved non-corrodible metals and in such a way that parts working together shall not both be iron or steel. Consideration shall be given to type of bronze used where high galvanic waters (high pH or specific conductance) is present. See AWWA C502, paragraph 2.8.

All wearing and working internal parts shall be accurately machined, easily renewable, and shall be removable through the top of the hydrant.

Lugs, if required for harnessing the hydrant to the connecting pipe from the main in the street, shall be provided on the bell of the elbow or on the hydrant bottom casting. A drawing of the lug construction shall be submitted for approval on request of the Engineer.

The hydrant barrel shall be provided with a clearly marked circumferential rib to denote the intended ground line. There shall be a flange above this point at a sufficient height to permit access to the flange. Unless indicated otherwise on the Plans, hydrants shall be of the "traffic" or "break-away" design with easily replaceable breaking devices for the gradeline flange and operating stem that prevent damage to barrel sections upon impact.

6-2.02 HYDRANT DETAILS
Unless required otherwise to conform to the Owner's existing equipment and specifications, the following hydrant details shall be provided:

Bury (trench) depth shall be as shown on the Plans.
When tested in accordance with AWWA C502, friction losses through the hydrant shall not exceed the maximum permissible losses listed in Table 3, AWWA C502.

Hydrants with six (6") inch inlet connections shall be furnished with two (2) 2-1/2 inch hose nozzles and one (1) 4-1/2 inch pumper nozzle. Hydrants with 4 inch inlet connections shall be furnished with two (2) 2-1/2 inch hose nozzles.

All nozzles shall be manufactured of an acceptable grade of bronze, properly secured to the barrel section to prevent blowing out, and accurately threaded in accordance with National Standard Hose Coupling Thread Specifications, or to match Owner's existing or as indicated in the Special Provisions.

All nozzles shall be furnished with inside threaded cast iron caps fitted with suitable gaskets for positive water tightness under test pressure. Operating nut and nozzle cap wrench nuts shall be 1-1/2 inch pentagon, measured from point to opposite flat at the base, tapering uniformly to 1-7/16 inch at the top, and the height of the nut shall be not less than 1 inch. Nozzle caps shall be securely chained to the upper barrel section.

The hydrant shall open by turning to the left (counter-clockwise) and the direction of opening shall be permanently and clearly marked on the bonnet assembly near the operating nut.

6-2.03 FACTORY HYDROSTATIC TEST
Before the hydrant is painted at the factory, it shall be subjected to an internal hydrostatic test of 300 pound per square inch with the hydrant valve in a closed position and again with the hydrant valve in an open position.

6-2.04 PAINTING
All iron parts of the hydrant both inside and outside shall be thoroughly cleaned and painted. All inside surfaces and the outside surfaces below the ground line shall be coated with asphalt varnish. They shall be covered with two coats, the first having dried thoroughly before the second is applied.

The outside of the hydrant above the finished ground line shall be thoroughly cleaned and thereafter painted with one coat of paint of a durable composition, and one additional coat of a color specified by the Owner.

6-3 CONSTRUCTION DETAILS
Hydrants shall be installed at the locations as shown on the Plans. They shall be plumb and shall be set so that the lowest hose connection is at least twenty-four (24") inches above the surrounding finished grade. All hydrants shall be inspected in the field upon delivery to the job to insure proper operation before installation. A minimum of 1/4 cubic yard of coarse stone, broken concrete, or like material shall be placed at and around the base of the hydrant to insure proper drainage of the hydrant after use. The
blocking of the hydrant shall consist of a wedge of P.C. Concrete of not less than 1/4 cubic yard extending from the hydrant to undisturbed soil and shall be so placed to form a solid barrier adjacent to the hydrant base to counteract the pressure of water exerted thereon. Care shall be taken to insure that weep holes are not covered by concrete. The hydrant shall be set on a concrete clock to insure a firm bearing for the hydrant base. The hydrant, valve and tee shall be interconnected by steel rods if required by Special Provision. The resetting of existing hydrants and moving and reconnecting of existing hydrants shall be handled in a manner similar to a new installation.
SECTION 7. PRESSURE CONNECTION

7-1 GENERAL
These Specifications cover the installation of fittings and valves on water mains while the mains are under operating pressure. Special Considerations will be covered in the Plans and Special Provisions.

Specification references made herein for manufactured material such as valves, saddles, tees, and fittings refer to designations for American Water Works Association (AWWA), or to American National Standards Institute (ANSI), as they are effective on the date of call for bids.

Copies of these publications may be obtained at nominal cost from The American Water Works Association, 6666 West Quincy Avenue, Denver, Colorado 80235, and from the American National Standards Institute, 1430 Broadway, New York, New York 10018.

7-2 DEFINITION OF TERMS
The following definitions shall apply to the terms used in this section.

PRESSURE TAPPING
A procedure by which a hole is cut into a water main under pressure, without taking the main out of service. A Tapping Fitting is attached, pressure tight, around the main. A Tapping Valve is then attached to the outlet of the Tapping Fitting, and a Tapping Machine is attached to the Tapping Valve, allowing the pressure tapping operation to begin.

TAPPING MACHINE
Any one of several machines designed and constructed for pressure tapping ductile iron, cast iron, steel, plastic, asbestos cement, or concrete water main. The Tapping Machine has a means of rotating and advancing a Shell Cutter through the side wall of the main being tapped. The Machine is pressure tight when bolted to the tapping valve. This allows the cut to be made without taking the main out of service, or losing pressure.

PILOT DRILL
The forward part of the Tapping Machine Boring Bar, which first penetrates the main. The Pilot Drill provides alignment for the Shell Cutter. The Pilot Drill must have latches, clips, or other approved means of retaining the Coupon as it is severed from the body of the main.

SHELL CUTTER
A hollow, cylindrical cutter, with teeth on its periphery; resembling a hole saw. The Shell Cutter is concentric with the Pilot Drill. The Shell Cutter removes the portion of the main called the Coupon, completing access to the main.

COUPON
That portion of the existing main removed by the Shell Cutter and held by the Pilot Drill, to be subsequently removed as the Pilot Drill-Shell Cutter assembly is withdrawn into the Tapping Machine adaptor.
TAPPING VALVE
Any full ported gate valve, which will allow the Shell Cutter to pass through it and effect the pressure tap.

TAPPING FITTING
Also called Sleeve, Saddle, or Tapping Tee; a two or three-piece bolted fitting, split to allow placement over the main to be pressure tapped.

7-3 MATERIALS
The type of valves and fittings to be used in the Pressure Connection will be specified in the Plans and Special Provisions.

7-4 VALVES
Valves shall conform to AWWA C500. All valves over 16" diameter should generally be provided with by-passes. Horizontal Valves shall have tracks, rollers, scrapers, and enclosed steel cut bevel gears.

7-5 TAPPING FITTINGS
Cast Iron Material shall conform to AWWA C110. Steel fittings shall have a factory-applied epoxy coating. All bolts and other fastening devices shall be stainless steel or other corrosion resistant material.

7-6 INSTALLATION PROCEDURE
The existing water main shall be uncovered and exposed to allow calipering of the pipe in advance of the pressure connection. If the main is reinforced concrete, or reinforced concrete cylinder pipe, the manufacturer shall be consulted for specifications, procedures, and design data.

Sufficient length of main shall be exposed to allow for operation of the tapping machinery. The main shall be supported on concrete pedestals, as detailed on the Project Plans, at sufficient intervals to properly carry its own weight, plus the weight of the tapping machinery and fitting. Any damage to the main due to improper or insufficient supports shall be repaired at the Contractor's expense.

After the tapping saddle or tee has been mounted on the main the tapping valve shall be bolted to the outlet flange, making a pressure tight connection.

The tapping machine, by means of a special adaptor shall then be bolted to the outlet flange of the tapping valve, also making a pressure tight connection. After the tapping machine is in place the installation shall be pressure tested at operating pressure plus 50%, to insure the integrity of the installation. Water under pressure can be introduced through a port in the tapping machine. The
tapping machine and the fitting shall be externally supported, so that no additional weight is placed upon the main.

The tapping valve shall then be opened; allowing the shell cutter-pilot drill assembly to advance through the valve body unit contact is made with the wall of the main. With the tapping machine's feed set, power shall be supplied, starting rotation of the cutter-pilot drill assembly.

The minimum diameter cut permitted shall be specified by the Design Engineer. For pressure taps through 12" diameter the minimum diameter shall be 1/2" less than the nominal diameter of the pipe to be attached. For 14" through 20" installations the minimum diameter shall be 1-1/2" less; for larger taps the allowable minimum diameter shall be 2" - 3" less than the nominal diameter of the pipe being attached.

When the pilot drill penetrates the wall of the main, the nozzle, valve body, and tapping machine will be filled with water. The bleeder valve on the tapping machine will indicate the presence of water. The cut shall be continued for a sufficient period of time after this indication to allow the coupon to be completely severed from the wall of the main.

The coupon shall be retained on the pilot drill by means of latches, spring detents, wire clips, or threads on the pilot drill; depending upon the make of the tapping machine. As the boring bar is retracted the coupon, pilot drill, and shell cutter return back into the tapping machine adaptor.

At this time the tapping valve shall be closed, sealing the main. The tapping machine shall be removed, and the valve shall be opened to flush any foreign material.

The same procedure shall be followed for the insertion of other fittings.

7-7 **EXCAVATION AND BACKFILL**

Excavation and Backfill for pressure connections shall conform to the provisions of Division II, Section 1, 2 and 3.

Poured concrete thrust blocks shall be provided to prevent movement of the installation when main pressure is applied.
SPECIAL PROVISIONS
VILLAGE OF TINLEY PARK

GAYNELLE ROAD WATER MAIN REPLACEMENT - PHASE 2
(Debra Lane to 167th Street)

SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2012; the latest editions of the "Supplemental Specifications and Interim Special Provisions" and the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways"; the "Manual of Test Procedures for Materials" in effect on the date of the invitation for bids; the "Standard Specifications for Water and Sewer Main Construction in Illinois", latest edition; and the Division II Technical Specifications which apply to and govern the proposed improvement in Cook County, and in case of conflict with any part, or parts, of said specifications, the said special provisions shall take precedence and shall govern.

However, in all cases, the Division I. General Requirements and Covenants of the specifications shall take precedence over the Division 100 General Requirements and Covenants of the Standard Specifications for Road and Bridge Construction and shall govern.

SCOPE OF WORK

This project shall consist of the construction of 8-inch water main on Gaynelle Road between Debra Lane and 167th Street as indicated on the plans. After the new main is constructed, pressure tested and satisfactorily disinfected, the Contractor shall connect water services to the new main, and abandon the existing main in place.

The portion of main over the existing culvert must be replaced in the exact location of the existing main. This will require the Contractor to stage the construction such that this section of main is removed with only minor service interruptions so that construction of the new main can proceed efficiently.

LOCAL REQUIREMENTS

It will be the Contractor's responsibility to verify with the Village of Tinley Park if a licensed plumber will be required for any portion of the work in addition to the Special Provision sections where it is already specified as required (i.e chlorination).

PREQUALIFICATION

The Contractor shall have sufficient experience, as determined by the Owner and his representatives, in the field of municipal underground utility construction to warrant release of the bid documents. The contractor shall provide such documentation as is deemed necessary upon request. The Contractor shall have installed a minimum of 5 watermain projects for an Illinois municipality in the last 5 years of which the watermain portion of the contract totaled at least $250,000. If this information is not satisfactorily completed, the bid documents shall be withheld.

PREFERENCE TO VETERANS

Attention is called to assure compliance with Illinois Compiled Statutes Veteran's Preference Act 330 ILCS 55/1. "In the employment and appointment to fill positions in the construction, addition to, or alteration of all public works undertaken or contracted for by the state, or by any political subdivision thereof, preference shall be given to persons who have been members of the armed forces or allies of armed forces of allies of the United States in time of hostilities with a foreign country..."
WAGE RATES
This contract calls for the construction of a "public work," within the meaning of the Illinois Prevailing Wage Act, 820 ILCS 130/01 et seq. ("the Act"). The Act requires contractors and subcontractors to pay laborers, workers and mechanics performing services on public works projects no less than the "prevailing rate of wages" (hourly cash wages plus fringe benefits) in the county where the work is performed. For information regarding current prevailing wage rates, please refer to the Illinois Department of Labor’s website at: http://www.illinois.gov/idoi/Laws-Rules/CONMED/Pages/prevailing-wage-rates.aspx. All contractors and subcontractors rendering services under this contract must comply with all requirements of the Act, including but not limited to, all wage, notice and record keeping duties.

INSURANCE COVERAGE
The Insurance Requirements can be found in Section 7 of the General Requirements “Legal Relations and Responsibility to the Public”. The Contractor and any Subcontractors shall obtain and thereafter keep in force for the term of the contract the insurance coverage specified in this section. The Contractor shall not commence work under the Contract until all the insurance required by this section or any Special Provision has been obtained.

Section 7-2.02F Professional Liability WILL NOT be required as part of this project.

PUBLIC CONSTRUCTION ACT, 30 ILCS 557/1
Pursuant to the home rule powers of the Village, Public Construction Act 30 ILCS 557/1 shall not be applicable to this contract.

COMPLETION SCHEDULE
Because time is of the essence on this project, the project schedule shall conform as close as possible to the following outline:

<table>
<thead>
<tr>
<th>Completion of Construction</th>
<th>Completion of Contract (all restoration)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>October 30, 2015</td>
</tr>
<tr>
<td></td>
<td>November 20, 2015</td>
</tr>
</tbody>
</table>

Liquidated damages in the amount of $1,000.00 per day shall be assessed for each day after October 30, 2015 that the water system is not in operation and after November 20, 2015 that the contract is not completed.

PUBLIC UTILITIES
The Engineer has attempted to indicate the presence of various public utility lines along the construction route. These locations are from information supplied by the utility companies, and the Engineer, in no way, warrants their accuracy or completeness. It remains the contractor’s responsibility to contact the utility companies in order to obtain the definite locations prior to construction.

PERMITS
The Contractor is hereby notified that no work shall begin until permits have been secured from the Illinois Environmental Protection Agency. The Contractor shall be responsible for completing all work in accordance with the requirement set forth in those permits, as well as the provisions of this contract. Any costs associated with insurance and bonding requirements for these agencies will not be paid separately but will be considered incidental to the contract.

WORK HOURS
The following work hours shall be kept unless written permission is received from the Village of Tinley Park. The Contractor may prosecute work between the hours of 7:00 a.m. and dusk each workday. However, no work will be permitted between dusk and 7:00 a.m., on Sundays, or on holidays, without prior written permission of the Village.
Any hours of operation specifically applied by any of the permitting agencies will supersede these hours when doing work at the location covered by the aforementioned permit.

PUBLIC AND RESIDENT NOTIFICATION
If the Contractor is required to shutoff existing utility service (i.e., water, sanitary, power, communications, and gas) for any reason during the course of this project, the Contractor shall provide 24 hour advance written notice to: 1) the Village of Tinley Park of the scheduled work, 2) those residents with connections to the water sections affected by the work, and 3) any other residents that may potentially be adversely affected by the water main construction operations. The notification shall be of a form and method as approved by the Village of Tinley Park.

MATERIAL INSPECTION REPORTS
The Contractor shall be responsible for material inspection required for various items incorporated in this project. Also, all documentation is to be submitted to the Engineer, immediately following completion of this project. Five percent (5%) of the final contract amount due the Contractor will be withheld pending receipt of said documentation.

GUARANTEE
All materials and equipment shall be guaranteed for a period of one (1) year from the date of acceptance by the Owner. Upon receipt of notice from the Owner of failure of any part of the system during the guarantee period, new replacement parts shall be furnished and installed by the Contractor at no additional cost to the Village of Tinley Park.

VIDEO OF CONSTRUCTION ROUTE
Prior to the start of any construction or excavation, the contractor shall video record the existing conditions in the area of the construction route. The video shall be done on standard color DVD. The contractor shall supply the engineer with two copies of the video prior to starting construction. The video shall include the following:

1. Full right-of-way 2. Parkway condition 3. Pavement condition

The video recordings shall also supply a continuous audio record of the location (preferably with address), all anticipated problem areas, items, and features for the complete area to be affected by the construction. The video recording shall be made on a DVD or other approved equal, and shall conform to Japan Electronics and Information Technology Industries Association (JEITA) standards. The format of recording and type of media used shall remain the same throughout the project. When the recorded video information is replayed and reviewed, it shall be free of electrical interference.

The audio portion of the composite signal shall be sufficiently free of electrical interference, background noise, and heavy foreign or regional accents to provide an oral report that is clear and complete and easily discernible. The audio portion of the video report shall be recorded by the operating technician on the video as they are being produced and shall include references to the street address and type of construction to be performed at the site as specified in the plans. Audio comments pertaining to special circumstances, which may arise during the excavation, shall also be included. Dubbing the audio information onto the video tract after the video is completed will not be permitted.

Video recordings shall be enclosed in vinyl plastic containers, which shall clearly indicate the date the video was taken, the designated section(s) of construction contained on the tape, and the label "VILLAGE OF TINLEY PARK GAYNELLE ROAD WATER MAIN REPLACEMENT PHASE 2 (DEBRA LANE to 167th Street) - Project #11-228.02." The actual street location shall also be listed on the DVD. One (1) copy of the finished video shall be delivered to the Owner prior to commencing excavation.

Special Provisions Page 3 of 18
The surface condition of excavated areas after final restoration shall be the same or better than the pre-construction site conditions as shown in the video. The cost of video and log preparation shall not be compensated for separately, but shall be considered incidental to the contract.

The surface condition of excavated areas after final restoration shall be the same or better than the pre-construction site conditions as shown in the videotape. The cost of video recording and log preparation shall not be compensated for separately, but shall be considered incidental to the contract.

**TRAFFIC CONTROL**

Traffic Control shall be in accordance with the applicable sections of the Standard Specifications for Road and Bridge Construction, the applicable guidelines contained in the Illinois Manual on Uniform Traffic Control Devices for Streets and Highways, these Special Provisions and any special details and Highway Standards contained herein and in the plans and the Standard Specifications for Traffic Control Items.

Special attention is called to Sections 107.09 and 107.14 and Section 701 of the Standard Specifications for Road and Bridge Construction and the following Highway Standards relating to traffic control:

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701001  701006  701011  701501  701601
701606  701701  701801  701901
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The Contractor shall obtain, erect, maintain and remove all signs, barricades, flagmen and other traffic control devices as may be necessary for the purpose of regulating, warning or guiding traffic. Placement and maintenance of all traffic control devices shall be in accordance with the applicable parts of Section 107.14 of the Standard Specifications and the Illinois Manual on Uniform Traffic Control Devices for Streets and Highways. The Contractor shall be solely responsible for ensuring that all traffic control devices are installed and maintained in accordance with applicable state standards. Traffic Control and Protection will not be paid for separately, but instead shall be considered incidental to the contract.

**STOCKPILING OF MATERIALS AND END OF DAY CLEAN UP**

Stockpiles shall not impede traffic, parking or access at any time. Any areas disturbed by stockpiles shall be restored to existing conditions and shall be considered incidental to the contract.

At the end of each working day, the contractor shall provide a steel plate, barricades, warning tape and any other safety measures deemed necessary by the Village/Engineer over the excavated area so that traffic, parking or access is not impeded during non working hours. Access to the property shall be maintained at all times. Placement of temporary aggregate in the roadway and in driveway areas disturbed by the construction shall be used until final conditions are met. Street clean up and sweeping is also required at the end of each working day. The cost for materials and traffic control items necessary to meet these requirements shall be considered incidental to the contract.

**CLEAN CONSTRUCTION / DEMOLITION DEBRIS (CCDD) REQUIREMENTS PER PA 94-1416**

If the Contractor is planning on disposing of uncontaminated soils at an Illinois Environmental Protection Agency (IEPA) permitted CCDD facility, the work shall be conducted in accordance with the criteria set forth in 35 Illinois Administrative Code (IAC) 1100 as amended on August 27, 2012. The following protocol must be followed:

1. The Contractor must identify in writing the name and location of the Contractor's intended CCDD facility to the Owner (or Engineer) prior to the commencement of any construction activities.

2. The Owner (or Engineer) will contact the Contractor's CCDD facility to identify the laboratory testing or certifications required for disposal acceptance.
3. The Contractor will assist the Owner (or Engineer) in obtaining the sample(s) through the use of the Contractor's equipment. The Contractor shall expose soils at two or more distinct locations as directed by the Owner (or Engineer). The Owner (or Engineer) will determine the number, location and depth of the samples that will need to be collected for characterization of the excess soil that will be generated during the construction project. The Contractor will be responsible for any and all fees should additional samples be needed due to inadequate exposure of the subgrade during the initial samples.

4. The Owner (or Engineer) will be responsible for the sampling / testing of the soil and preparation of the required certification form.

5. The samples will be run with standard 5 to 7 working day turnaround time unless a rush is required by the Contractor. If so, the Contractor will be responsible for additional fees associates with fast-tracking the samples.

6. Once the appropriate certifications have been prepared, the Contractor will be responsible for all hauling/disposal of material at the CCDD facility.

The work contained within this special provision shall be considered incidental the contract.

If any contaminated soil is encountered that requires landfill disposal as a non-special waste, special waste or hazardous waste, it will be paid for per Article 109.04 of the Standard Specifications.

**DUCTILE IRON WATER MAIN, CLASS 52, WITH POLYETHYLENE ENCASEMENT, METHOD B**

This work shall consist of the construction of ductile iron water main at locations indicated on the plans or as directed by the Engineer. The water main shall be "Ductile Iron," ANSI thickness Class 52, Clow "Super Bell-Tite", "Push-On" Joint, or approved equal, and must meet all applicable requirements of ANSI A21.51 (AWWA C151)[pipe]; ANSI A21.10 (AWWA C110) or AWWA C153; [fittings], ANSI A21.11 (AWWA C111)[joints], and ANSI A21.4 (AWWA C104)[pipe lining] specifications. Alloyed steel bolts shall be used to prevent corrosion. All water mains shall be wrapped in 8-mil thick polyethylene encasement (ANSI/AWWA C105/A21.5) Method B, with pipe and joints wrapped separately.

Measurement shall be made along the centerline of water main installed. The cost for furnishing all labor, materials and equipment necessary for excavation, construction of the new water main, backfilling, all materials and labor required for wrapping the water main shall be paid for at the contract unit price per FOOT for [SPECIFIED SIZE] DUCTILE IRON WATER MAIN, CLASS 52, WITH POLYETHYLENE ENCASEMENT, METHOD B.

**MECHANICAL JOINT RESTRAINTS**

All mechanical joint restraints shall be incorporated in the design of a follower gland. The gland shall be manufactured of ductile iron conforming to ASTM A 536. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell and tee-head bolts conforming to AWWA C111 and C153.

The restraint mechanism shall consist of numerous individually activated gripping surfaces to maximize restraint capability. The gripping surfaces shall be wedges designed to spread the bearing surfaces on the pipe. Twist-off nuts, sized same as tee-head bolts, shall be used to insure proper actuating of restraining devices. When the nut is sheared off, a standard hex nut shall remain. The mechanical joint restraint device for ductile iron pipe shall have a working pressure of at least 250 psi with a minimum safety factor of 2. Gasket material identical to that described above shall be utilized at all joints and fittings.

The mechanical joint restraint devices shall be EBAA Iron, Inc. MegaLug 1100 series, Uni-Flange Series 1400, or engineer-approved equal.
All design associated with mechanical joint restraints shall be completed by the contractor and his supplier. Design calculations shall be submitted to the Engineer for review and approval prior to the ordering of materials. The cost for designing, materials, and labor for furnishing, installing, adjusting, and testing of mechanical joint restraints will not be compensated for separately but shall be considered incidental to the contract. No additional compensation will be given for the weights of the mechanical joint restraint. The contractor shall not include the weights of the mechanical joint restraints in the fitting weights when submitting invoices.

**DUCTILE IRON FITTINGS**
All fittings shall be manufactured by Clow, or approved equal, and made from gray-iron or ductile iron and furnished with mechanical joint ends. All fittings shall have a pressure rating of 250 psi and shall be wrapped with an 8-mil thick polyethylene material per AWWA Standard C105. At locations indicated on the plans or as directed by the Engineer, the water main shall be constructed around existing utility structures or other obstacles by use of tees, bends or other appropriate fittings. Gasket material identical to that described above shall be utilized at all joints and fittings.

The cost for all fittings, excluding that incidental to the hydrant and tapping sleeve installations, shall be paid at the contract unit price per POUND for DUCTILE IRON FITTINGS.

**VALVES**
All 12 inch and smaller valves shall be East Jordan, Mueller, or approved equal resilient wedge type abiding to AWWA C509 and AWWA C550.

All proposed valves larger than 12 inches shall be Pratt butterfly type with extension stem and ground level position indicator, or approved equal iron body, rubber seat butterfly valve, Class 150B, counter clockwise to open, conforming to AWWA C504 and approved by the Village of Tinley Park Water Department. The cost for each valve shall be included in the appropriate valve vault or valve box unit price.

**VALVE VAULTS**
Valve vaults shall be installed at the locations indicated on the plans or as directed by the Village/Engineer. Valves shall be centered directly under the vault lid opening unless otherwise approved by the Village/Engineer. Valve vaults shall conform to ASTM C478. For valves up to and including 12 inches in diameter, valve vaults shall have a forty-eight (48) inch inside diameter; for pressure connections and valves larger than 12 inches in diameter, valve vaults shall have a sixty (60) inch inside diameter.

No more than two (2) adjusting rings with six (6) inch maximum height adjustment shall be allowed. Rubber adjusting rings instead of concrete adjusting rings are required for all valve vaults and precast concrete rings are not allowed. All joints between vault sections shall be sealed with mastic. McWrap or approved equal shall be used around the outside wall of the vault at the joints.

All vaults shall be provided with a heavy duty Type 1 frame and closed lid. The manhole frame and cover shall be an East Jordan 1022Z3 embossed “WATER” and “VILLAGE OF TINLEY PARK”. Valve vault construction shall be as specified in the Standard Specifications and per the detail drawings shown on the plans. Measurement for payment shall be per EACH for valve vaults installed, and shall include the appropriate VALVE or TAPPING SLEEVE AND VALVE as called out on the plans and bid sheet.

**VALVE BOXES**
Valve boxes shall be installed at the locations indicated on the plans or as directed by the Village/Engineer. Valves shall be centered directly under the box opening unless otherwise approved by the Village/Engineer. Screw type adjustments for depth will be allowed and valve box stabilizing devices are required. Valve boxes shall be East Jordan Iron Works or approved equal and shall be constructed as specified in the detail drawings shown on the
plans. All work shall be in accordance with Standard Specification. Measurement for payment shall be per EACH for VALVE BOX installed, and shall include the appropriate VALVE or TAPPING SLEEVE AND VALVE as called out on the plans and proposal sheet.
**RUBBER ADJUSTING RINGS**

This work shall consist of the adjustment and/or reconstruction of drainage and utility structures at those locations as directed by the engineer in the field using rubber fibrepolyurethane prepolymer composite adjusting rings as approved by the Engineer. Tapered adjusting rings shall be used where necessary to match the profile of the pavement. In order to minimize the number of rings used, thicker rings shall be used where practical (i.e. one 3 inch ring rather than 3- one inch rings). The Contractor shall examine all adjustments in the field prior to ordering materials.

This work will be paid for at the contract unit price EACH for RUBBER ADJUSTING RINGS.

**STEEL SLEEVE- OPEN CUT**

This work shall consist of furnishing spiral welded, steel casing of the thickness and outer diameter specified on the plans or as directed by the Engineer. The sleeve shall meet ASTM A139 and ANSI/AWWA C200, Grade B, minimum yield strength of 35,000 psi. Sleeves shall extend at least ten feet (10') beyond the outer edge of the existing pavement or sewer pipe, as indicated in the detail drawings, unless otherwise approved by the Engineer.

After installation of the steel sleeve is completed, the proposed water main shall be constructed in place within the sleeve. The water main shall be inserted and centered by use of model CCS stainless steel casing spacers as manufactured by Cascade Waterworks Mfg. Co. of Yorkville, IL or approved equal at a maximum spacing of 10 feet.

Casing spacers shall be bolt on style with a two-piece shell made from T-304 stainless steel of a minimum 14-gauge thickness. Each shell section shall have bolt flanges formed with ribs for added strength. Each connecting flange shall have a minimum of three 5/16” T-304 bolts. The shell shall be lined with a ribbed PVC extrusion with a retaining section that overlaps the edge of the shell and prevents slippage. Bearing surfaces (runners) made from UHMW polymer with a static coefficient of friction of 0.11-0.13 shall be attached to support structures (risers) at appropriate positions to properly support the carrier within the casing and to ease installation. The runners shall be attached mechanically by T-304 threaded fasteners inserted through the punched riser section and TIG welded for strength. Risers shall be made of T-304 14 gauge stainless steel. All risers over two inches (2”) in height shall be reinforced. Risers shall be MIG welded to the shell. All metal surfaces shall be fully passivated. The ends of the sleeve shall be sealed using a method approved by the Engineer.

The cost for casing spacers, filling of the annular space (if required), and furnishing and installing the steel sleeve shall be incidental to the contract unit price for the steel sleeve. Unless otherwise shown on the plans, steel sleeves [casings] shall be a minimum of 16 inches in diameter and 0.375 inches thick.

The cost of furnishing and installation of the steel sleeve, and all incidental work necessary for its installation, including casing spacers, shall be paid for at the contract unit price per FOOT for [SPECIFIED SIZE] DIAMETER STEEL SLEEVE, [SPECIFIED SIZE] WALL THICKNESS, OPEN CUT. The cost for water main constructed within the sleeves shall be paid for at its unit price.

**FIRE HYDRANT WITH AUXILIARY VALVE, VALVE BOX AND TEE**

This work shall consist of the installation of new hydrants, auxiliary valves, valve boxes, tees and associated pipe and fittings at the locations indicated in the plans or as directed by the Engineer. Hydrants shall be as manufactured by East Jordan Iron Works (model 5BR-250), or equal as approved by the Tinley Park Water Department and Tinley Park Fire Chief. The cost for connecting 6" water main pipe and/or fittings needed for offsetting the hydrant from the water main shall be incidental to the hydrant construction.

All hydrants shall be painted as directed by the Village of Tinley Park Water Department. All work shall be in accordance with the Division II Technical Specifications of this contract. The cost for this work will be paid for at the contract unit price bid per EACH for FIRE HYDRANT WITH AUXILIARY VALVE, VALVE BOX AND TEE.
FIRE HYDRANTS TO BE REMOVED
This item of work where indicated on the plans shall be in accordance with Section 564 of the Standard Specifications.

Once the new main is in service, including satisfactorily pressure tested, chlorinated, and all service lines installed, existing hydrants and auxiliary valves shall be carefully disconnected from the existing water main, delivered to the public works garage, and remain the property of the Village of Tinley Park. This work will be paid for at the contract unit price per EACH for FIRE HYDRANTS TO BE REMOVED.

ABANDON VALVE BOX
Valves in valve boxes specified on the plans to be abandoned shall be closed and then cut a minimum of twelve inches (12") below the existing ground surface and then filled with concrete, sand or other appropriate material. This work will be paid for at the contract unit price per EACH for ABANDON VALVE BOX.

CUT AND CAP
The Contractor shall install the water main as shown on the plans and completely flush and chlorinate said main. The Contractor shall then be required to disconnect the house services from the old main and connect new services to the new main at locations as shown on the plan and as directed by the Engineer. This connection of services shall not be accomplished until a satisfactory chlorination report is received on the new main in that area.

After all water services have been reinstated, the contractor shall abandon the existing water main in place by installing caps at the locations indicated in the plans or as directed by the Engineer, assisted by the Water Department, performing appropriate valve closings as necessary. The cost for any caps or plugs installed shall be paid for at the contract unit price bid per EACH for [SPECIFIED SIZE] CUT AND CAP.

CAP
This work shall cover the installation of the blind flange caps at the end of the water main as shown on the plans or directed by the Engineer. These caps will be installed to facilitate future extensions of the new water main. The cost for any caps or plugs installed, including all labor and material, shall be paid for at the contract unit price bid per EACH for [SPECIFIED SIZE] CAP.

WATER SERVICE INSTALLATION – LONG (AUGURED)
This item shall include the installation of new water services, augured beneath the roadway, and all necessary appurtenances from the new water main to the property line. The water service installation shall start from the property line with a 1" curb stop. The contractor shall install new connection fittings, 1" k-copper pipe, 1" roundway, curb box (Minneapolis Pattern 1½" screw on), connection fittings to 1" fittings, excavation, bedding, and trench backfill with CA-7 as required within the installation limits. The removal and abandonment of the existing curb box shall also be included in this item of work.

Corporation stops will be a Mueller H-15000, McDonald 4701 or equal. Curb stops shall be the screw on Minneapolis Pattern type. They shall be installed in the parkway and in no case shall be positioned in a sidewalk or driveway or buried underground. A cement or brick block shall be placed under each curb stop to ensure stability.

All material shall be as approved by the Village's Public Works Department prior to installation. This work will be paid for at the contract price per EACH of WATER SERVICE INSTALLATION, 1"- LONG (AUGURED). Trench backfill for these services shall be incidental to this item.
**WATER SERVICE INSTALLATION – SHORT**

This item shall include the installation of new water services and all necessary appurtenances from the new water main to the property line or at a location as directed by the Engineer. The water service installation shall start from the property line with a 1" curb stop. The contractor shall install new connection fittings, 1" k-copper pipe, 1" roundway, curb box (Minneapolis Pattern 1½" screw on), connection fittings to 1" fittings, excavation, bedding, and trench backfill with CA-7 as required within the installation limits. The removal and abandonment of the existing curb box shall also be included in this item of work.

Corporation stops will be a Mueller H-15000, McDonald 4701 or equal. Curb stops shall be the screw on Minneapolis Pattern type. They shall be installed in the parkway and in no case shall be positioned in a sidewalk or driveway or buried underground. A cement or brick block shall be placed under each curb stop to ensure stability.

All material shall be as approved by the Village’s Water Department prior to installation. This work will be paid for at the contract price per EACH of WATER SERVICE INSTALLATION, 1"- SHORT. Trench backfill for these services shall be incidental to this item.

**TRENCH BACKFILL**

All materials used for trench backfill under and within three feet (3') of paved areas, including streets, curbs, sidewalks and driveways shall be per the detail drawings. CA-7 backfill is required for the trench backfill up to 1 foot from subgrade. The last foot of trench backfill shall be CA-6. The trench backfill shall be mechanically compacted in 12 inch lifts to a minimum of 95% Standard Proctor density. All trench backfill must meet the requirements of Section 1004 of the Standard Specifications.

All trench widths shall be kept to a minimum during construction operations. The Contractor shall take great care during backfilling operations to ensure proper compaction of materials, including areas under unpaved surfaces. All trenches shall be backfilled to the proper subgrade elevation in accordance with Section 208 of the Standard Specifications.

If trench settlement occurs, the Contractor shall, at his own expense, perform all additional work, including further mechanical compaction and/or placement of additional aggregate, necessary to ensure both proper compaction of the trench and proper safety for motorists and pedestrians. Should trench settlement occur after surface restoration, the Contractor shall, at his own expense, remove the newly constructed pavement, driveway, curb and/or sidewalk (by straight saw cut joint) and perform all work required to properly compact the trench and prevent further settling. Restoration of the parkway and additional sodding/hydroseeding shall also be performed.

Paved areas to be disturbed during the construction of storm sewers, water mains, structures, and other incidental construction are clearly indicated in the plans. See “Aggregate for Street Maintenance and Property Access” specification for cases where the trench is located in roadways/driveways.

The cost for furnishing, transporting, placing and compacting the trench backfill materials required as a part of this project shall be paid for at the contract unit price per FOOT of TRENCH BACKFILL. No additional consideration shall be given to over-excavation resulting from the use of trench boxes.

**HMA PAVEMENT REMOVAL AND REPLACEMENT**

This work shall be performed at the locations shown on the plans or as directed by the Engineer. The contractor shall take great care not to damage the existing pavement beyond the minimal amount necessary to facilitate the proposed improvements. Removal shall be accomplished by means of a full-depth saw cut. Any pavement damaged due to contractor negligence or carelessness shall be replaced to the satisfaction of the Engineer at the contractor’s expense.
The pavement removal width shown on the plans is the maximum allowed. The Contractor shall minimize the amount of disruption of the pavement as practical during construction. If the width of pavement restoration is narrower than shown on the plans, no additional compensation will be considered for this pay item because of a change in method of construction.

Where pavement is removed at driveway locations, access to the property shall be maintained at all times by placement of Temporary Aggregate, Type B in driveway areas disturbed by the construction per the "Aggregate for Street Maintenance and Property Access" specification. The contractor shall periodically monitor the condition of aggregate to ensure that a safe access to the property exists, adding additional aggregate material when necessary. The cost for furnishing, placing, removing and disposing of excess aggregate will not be compensated for separately but shall be considered incidental to the contract.

Following removal of the temporary aggregate and proper compaction the trench backfill, the following shall be placed and compacted in accordance to the appropriate sections of the Standard Specifications:

- Four inches (4") of Aggregate Base Course Type B in accordance with Section 351 of the Standard Specifications,
- Four inches (4") of Hot-Mix Asphalt Binder Course in accordance with Section 406 of the Standard Specifications, and
- Two inches (2") of Hot-Mix Asphalt Surface Course, MIX "D", N50 in accordance with Section 406 of the Standard Specifications

The cost for removal of existing pavement, furnishing, transporting, placing and compacting the aggregate base course and hot-mix asphalt binder and surface courses shall be paid at the contract unit price bid per SQUARE YARD for HMA PAVEMENT REMOVAL AND REPLACEMENT.

COMBINATION CONCRETE CURB AND GUTTER REMOVAL AND REPLACEMENT
This item shall consist of the removal and replacement of combination concrete curb and gutter, in accordance with Sections 440 and 606 of the Standard Specifications, by means of a sawed joint (straight) at locations as designated by the Engineer. The replaced curb and gutter shall be of the same type and size as the removed section. New curb and gutter shall be tied to existing curb and gutter with two ¾ inch diameter x 18 inch long dowel bars.

All grassed areas disturbed by the removal and replacement of this item shall be restored in accordance with the TOPSOIL PLACEMENT (6") AND SODDING Special Provision contained herein, and shall be paid at the contract unit price per SQUARE YARD for TOPSOIL PLACEMENT (6") AND SODDING.

The restoration of the surface behind the curb and gutter at driveways and locations where the parkway is not grass, shall be removed to a sawed joint (straight) and replaced in kind. The maximum pay width of restoration behind the curb shall be to the existing ROW line, unless directed otherwise by the Engineer. This work shall be paid for at the contract unit price bid for the various removal and replacement items.

All driveways, carriage walks and sidewalks behind the curb shall be restored to their original condition with like material. The surfaces shall be removed by sawed joints and one-half inch (1/2") preformed joint filler shall be used between new concrete and existing concrete; where concrete driveways, walks, etc. meet curbs; and between the curb and all steel castings. Where curb and gutter is removed at driveway locations, access to the property shall be maintained with temporary aggregate.

This work shall be paid for at the contract unit price bid per FOOT of COMBINATION CONCRETE CURB AND GUTTER REMOVAL AND REPLACEMENT which price will include all materials, equipment and labor required to complete the work as specified above.
HMA DRIVEWAY REMOVAL AND REPLACEMENT

Hot-Mix Asphalt driveways disturbed by the construction shall be removed by means of a straight saw cut joint at locations indicated on the plans or as directed by the Engineer. All pavement removal work shall be in accordance with Section 440 of the Standard Specifications.

Where existing hot-mix asphalt driveways are to be removed, as directed by the Engineer, a straight sawed joint shall be used and the removed driveway restored with a six inch (6") Aggregate Base Course, Type B, two inch (2") Hot-Mix Asphalt Binder Course, and a two inch (2") Hot-Mix Asphalt Surface Course, Mix "D", N50. All work shall be done in conformance with Sections 351 and 406 of the State Specifications.

Access to the property shall be maintained at all times by placement of Temporary Aggregate, Type B in driveway areas disturbed by the construction per the “Aggregate for Street Maintenance and Property Access” specification. The contractor shall periodically monitor the condition of aggregate to ensure that a safe access to the property exists, adding additional aggregate material when necessary. The cost for furnishing, placing, removing and disposing of excess aggregate will not be compensated for separately but shall be considered incidental to the contract.

Removal and replacement of all headwalls, culverts underneath driveways, landscape timbers, decorative brick and/or stone, lights, and all other specialty landscape accents shall not be paid for separately but shall be considered incidental to the unit price for hot-mix asphalt driveway removal and replacement.

Measurement for payment for driveway removal and replacement shall be made in square yards. The cost for saw cutting, removal and disposal of existing pavement and construction of the new driveway including the 6" Aggregate Base Course, Type B, HMA Binder Course, and the HMA Surface Course Mix "D", N50 shall be paid for at the contract unit price bid per SQUARE YARD for HMA DRIVEWAY REMOVAL AND REPLACEMENT.

The cost for furnishing and placing trench backfill material for the water main trench shall be paid for under separate pay item.

PROJECT HOT-MIX ASPHALT MIXTURE REQUIREMENT CHART

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Mix Type</th>
<th>Gyration</th>
<th>AC TYPE</th>
<th>Voids</th>
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<tr>
<td>ROADWAY</td>
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<tr>
<td>Hot-Mix Asphalt Surface Course, Mix &quot;D&quot;, N50 (2&quot;)</td>
<td>IL 9.5 mm</td>
<td>50</td>
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<td>4%</td>
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<tr>
<td>Hot-Mix Asphalt Binder Course (4&quot;)</td>
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<td>50</td>
<td>PG 64-22</td>
<td>4%</td>
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<td>4%</td>
</tr>
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*The unit weight used to calculate all HMA Surface Mixtures is 112 lbs/sq yd/lin.*

CONCRETE DRIVEWAY REMOVAL AND REPLACEMENT

This item of work will require that a true parallel full depth pavement saw cut be made on either side of the pavement to be removed, in locations as directed by the Engineer. The saw cutting will be considered incidental to the driveway removal. The concrete drive shall be removed to the nearest control joint with a maximum width to the right-of-way line as directed by the engineer. After removal and disposal of excavated material in the trench
opening, trench backfill material shall be placed and properly compacted to the satisfaction of the Engineer to within eleven inches (11") of the pavement surface. The removed driveway shall be restored with a minimum four inches (4") of cushion of CA-6 stone and seven inches (7") of P. C. Concrete. This work shall be done in conformance with Sections 423 and 440 of the Standard Specifications.

Access to the property shall be maintained at all times by placement of Temporary Aggregate, Type B in driveway areas disturbed by the construction per the "Aggregate for Street Maintenance and Property Access" specification. The contractor shall periodically monitor the condition of aggregate to ensure that a safe access to the property exists, adding additional aggregate material when necessary. The cost for furnishing, placing, removing and disposing of excess aggregate will not be compensated for separately but shall be considered incidental to the contract.

Removal and replacement of all headwalls, culverts underneath driveways, landscape timbers, decorative brick and/or stone, lights, and all other specialty landscape accents shall not be paid for separately but shall be considered incidental to the unit price for concrete driveway removal and replacement.

Measurement for payment for driveway removal and replacement shall be made in square yards. The cost for full pavement depth saw cutting, removal and disposal of excavated pavement, and construction of the new driveway shall be paid for at the contract unit price per SQUARE YARD for CONCRETE DRIVEWAY REMOVAL AND REPLACEMENT.

The cost for furnishing and placing trench backfill material shall be paid for under a separate pay item.

SAW CUT JOINTS
The removal and/or replacement of any driveways, pavement, curb, sidewalk, etc. shall be accomplished by means of a saw cut joint, at the direction of the Engineer. This work shall not be paid for separately, but will be included in the unit price bid for the various items.

AGGREGATE FOR DRIVEWAY AND STREET CROSSING MAINTENANCE
This item of work shall include the placement and compaction of Temporary Aggregate, Type B in locations where pavement removal and the trench is in the roadway and/or driveway and affects regular movement of vehicular and pedestrian traffic during construction. The Contractor shall at all times conduct the work in such a manner as to ensure the least amount of obstruction to vehicular and pedestrian traffic. All work shall be in accordance with Section 107.09 and 351 of the Standard Specifications. The cost for furnishing, placing, removing and disposing of excess aggregate will not be compensated for separately but shall be considered incidental to the contract.

PORTLAND CEMENT CONCRETE SIDEWALK REMOVAL AND REPLACEMENT
This item includes the complete removal and replacement of portland cement concrete (PCC) sidewalks at locations designated by the Engineer. Sidewalks shall be constructed in conformance with the State Specifications for PCC sidewalk and shall be five inches (5") thick with a minimum of four inches (4") of cushion of CA-6 stone, and seven inches (7") thick with a minimum of four inches (4") of cushion of CA-6 stone thru driveway sections. This work shall be in accordance with Sections 440, 424 and 1004 of the Standard Specifications.

The Contractor shall remove existing sidewalk by means of a saw cut to prevent damage to that portion which is to remain in place. Any tree roots within the aggregate base shall be removed prior to installation of the sidewalk and shall be considered incidental to the pay item. Any additional excavation required to construct this sidewalk will be considered incidental to the pay item. Any voids that lie under the existing sidewalk shall be filled with aggregate and compacted prior to pouring the replaced walk.
This work shall be paid for at the contract unit price per SQUARE FOOT of PCC SIDEWALK REMOVAL AND REPLACEMENT, which price will include all materials, equipment and labor required to complete the work as specified above including the four inches of CA-6 stone.

**TACTILE/DETECTABLE WARNING SURFACE**

This item shall consist of the placement of detectable warning plates in accordance with the IDOT Standard for Perpendicular Curb Ramps for Sidewalks. The detectable warning plate(s) shall be polymer composite material red in color and meet the Village of Tinley Park Standards. The contractor shall furnish and install detectable warning plates manufactured by Armor Tile or approved equal. The Contractor is responsible for the installation of the device according to the manufacturer's specifications and the handicap ramp as described in the contract plans and specifications. This work shall be paid for at the contract unit price per SQUARE FOOT for TACTILE/DETECTABLE WARNING SURFACE and will include all materials, equipment and labor required to complete the work as specified above.

**EXPLORATORY EXCAVATION**

At the request of the Village/Engineer, the Contractor shall conduct exploratory excavations. This work shall comply with the requirements set forth in Section 1.206 of Division II – Technical Specifications: Excavation and Clean-Up. The Contractor shall be paid at the contract unit price per EACH for EXPLORATORY EXCAVATION.

**FACILITY ADJUSTMENTS**

This item shall include the adjustments of any sanitary sewer and water main services, as well as any water main and sewer lines, encountered by the construction of the sewer and water main. The Contractor shall make every attempt possible to avoid these facilities, and if in the opinion of the Engineer, the facilities are damaged due to carelessness by the Contractor, no compensation will be made for the replacement of same.

If adjustment of certain services is necessary, the work shall be done in a workmanlike fashion, minimizing the downtime of the residents' services, and shall include all necessary labor and materials to properly complete the adjustment. Work on these items shall be paid for at the contract unit price per EACH for WATER MAIN SERVICE ADJUSTMENT and for SANITARY SEWER SERVICE ADJUSTMENT with the costs of each item as stated in the bidding schedule which price shall include the cost of all pipe, joint materials, trench backfill, labor and equipment needed to complete the work as stated.

All sanitary services shall be replaced with ductile iron pipe for 10 feet on either side of the water main. Non shear mission couplings shall be used.

**STORM SEWER REMOVAL AND REPLACEMENT**

At locations where the proposed water main crosses existing storm sewers, removal and replacement of sewer sections may be required to maintain proper vertical separation between the two utilities. At locations where the proposed water main is parallel to existing storm sewers, removal and replacement of sewer sections may be required because the proper horizontal separation between the utilities cannot be maintained. The storm sewer replacement must be with water main quality pipe. Storm sewer removal and replacement shall be completed in accordance with Section 551 of the Standard Specifications, only when determined necessary in the field by the Engineer. Crossings shall be constructed in accordance with the detail drawings or as directed by the Engineer.

This item of work is required in order to meet the IEPA requirement for proposed water main crossings under existing storm sewers where indicated on the plans or the requirements when the horizontal separation between the two utilizes cannot be met. Care shall be exercised by the Contractor in the removal of the storm sewer so that the remaining storm sewer on either side of the crossing is not damaged. The method and materials to be used for the reconnection to the storm sewer shall be approved by the Engineer.
When the replacement material is concrete pipe, the gasket material shall be Tylox Type “C” gaskets conforming to
ASTM Standards C443 and C361.

Storm sewer removal and replacement shall be measured in place along the centerline of sewer installed and the
cost for excavating, removal and replacement with Storm Sewer, Type 1, Water Main Quality Pipe, including all work
and materials, shall be paid for at the contract unit price per FOOT of STORM SEWER REMOVAL [SPECIFIED
SIZE] for the removal of existing storm sewer, and per FOOT of STORM SEWER, TYPE 1, WATER MAIN QUALITY
PIPE, [SPECIFIED SIZE] for the replacement storm sewer.

PERIMETER EROSION BARRIER
This work shall consist of constructing silt filter fence at locations shown in the contract drawings and/or as directed
by the Engineer for the purposes of preventing erosion of construction site materials into drainage ways. All work
shall be performed in accordance with the applicable articles of Section 280 of the Standard Specifications, and in
accordance with the detail drawings and notes on the erosion control plans.

Silt Fence shall be installed in accordance with the detail drawings along the entire length of the construction as
required.

The Contractor shall be responsible for monitoring the condition of all silt fences as the construction proceeds, and
shall maintain them in proper working order for the duration of the project. All silt fences shall be removed and
properly disposed of, and excavated areas restored to their original condition, after the sewer construction and
backfill operations are completed.

Measurement for payment for silt fence shall be along the centerline of fence installed. The cost for all work
required, including excavation of post holes, fence posts, geotextile fabric, fabric anchorage materials, and fence
maintenance and removal shall be included in the contract unit price bid per FOOT for PERIMETER EROSION
BARRIER.

DUST CONTROL
The contractor shall be responsible for controlling the dust and air-borne dirt generated by his/her construction
activities.

The implementation of dust control procedures shall be required if wind and dry soil conditions reduce visibility on
adjacent roads and property. Concerns for health and safety to the public using adjacent facilities will be grounds for
the implementation of a dust control plan. When circumstances warrant, a specific dust control plan shall be
developed. The contractor and the engineer shall review the nature and extent of dust generating activities and
cooperatively develop specific types of control techniques appropriated to that specific situation. Sample techniques
that may warrant consideration include such measures as:

1. Minimize track out of soil onto nearby publicly traveled roads.
2. Reduce vehicle speed on unpaved surfaces.
3. Cover haul vehicles.
4. Apply chemical dust suppressants or water to exposed surfaces, particularly to surfaces on
   which construction vehicles travel.

Dust control measures as indicated in the Dust Control Plan, or as directed by the engineer shall be readily available
for use on the project site. The cost of this work shall be included in the unit prices bid and no additional
compensation will be allowed.
TREE REPLACEMENT, SPECIAL
This work includes the planting, fertilizing, and plant care of replacement trees for each tree removed or damaged during the water main construction. This work shall be done in accordance with the applicable articles of Sections 201 and 253 of the Standard Specifications. New trees shall be of a species as approved by the Village of Tinley Park Street Superintendent and shall have a minimum diameter of two and one-half inches (2.5") as measured twenty-four inches (24") above the ground. The new tree shall be planted at the same location as that of the original tree, unless a different location is directed by the Engineer.

The cost for prepared backfill, mulch, fertilizer, and necessary bracing, wrapping, watering and care of all newly planted trees shall be paid for at the contract unit price per EACH for TREE REPLACEMENT, SPECIAL. Any tree removal required as part of this contract shall not be paid for separately but will be considered incidental to the contract.

TOPSOIL PLACEMENT (6") AND SODDING
This work shall consist of the furnishing and placing of six inches (6") of pulverized topsoil and fertilizer nutrients and sodding and watering of the areas disturbed by the water main construction. All work shall be done in accordance with Sections 211 and 252 of the Standard Specifications.

If, in the opinion of the Engineer, more surface area than necessary has been damaged, it shall be replaced by the Contractor as specified herein without additional compensation. The maximum width for restoration will be from the back of curb and gutter to the existing right-of-way line.

Subsequent to the backfilling, grading and topsoiling of the disturbed areas, and where directed by the Engineer, areas are to be fertilized and sodded where indicated.

Prior to the sodding, the Contractor shall first spread and blend in fertilizer at the rate of 180 pounds per acre at a 1:1:1 ratio.

The sodding operation shall conform basically to Section 252 and Section 1081.03 of the Standard Specifications.

The Contractor will be responsible for watering the area sufficiently for conditions. The water can be obtained from a hydrant near the work undertaken, but prior Village Water Department notification is required. The cost of the water will be borne by the Contractor.

This work, including the topsoil, fertilizer, sod, water, etc. shall be paid for at the contract unit price per SQUARE YARD for TOPSOIL PLACEMENT (6") AND SODDING.

PRESSURE TEST OF WATER MAIN
The water main shall be pressure tested at 150 psi with zero loss for a period not less than 2 hours. This work will not be paid for separately but shall be considered incidental to the contract.

VILLAGE OF TINLEY PARK MINIMUM CHLORINATION STANDARDS
Chlorination must be in accordance with all appropriate local, state, federal and AWWA regulations as well as the requirements set forth by the Tinley Park Public Works Water Superintendent.

VILLAGE OF TINLEY PARK LOCAL VENDOR PURCHASING POLICY
The Village of Tinley Park believes it is important to provide local vendors with opportunities to provide goods and services to the Village of Tinley Park. This belief is based upon the fact that the active uses of commercial properties in Tinley Park benefits the community through stabilization of property tax, the creation of local sales tax and the provision of employment opportunities for citizens of the community and surrounding region. In an effort to
promote the aforementioned benefits, the Village of Tinley Park wishes to provide local vendors with preferential treatment when competing for contracts with the Village. A local vendor is defined as a business that has an actual business location within the Village of Tinley Park and is licensed by the Village. The Village will not award a contract to a local vendor when the difference between the local vendor's bid and the otherwise lowest responsive and responsible bid exceeds the applicable percentage indicated as follows. As such, when considering contracts, the Village of Tinley Park reserves the right to forego the lowest responsive and responsible bid exceeds the applicable percentage indicated as follows. As such, when considering contracts, the Village of Tinley Park reserves the right to forego the lowest responsive and responsible bid in favor of a local vendor under the following circumstances:

<table>
<thead>
<tr>
<th>Contract Value</th>
<th>Range (up to a maximum of)</th>
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</thead>
<tbody>
<tr>
<td>$0 to $250,000</td>
<td>5%</td>
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<tr>
<td>$250,000 to $500,000</td>
<td>4%</td>
</tr>
<tr>
<td>$500,000 to $750,000</td>
<td>3%</td>
</tr>
<tr>
<td>$750,000 to $1,000,000</td>
<td>2%</td>
</tr>
<tr>
<td>$1,000,000 to $2,000,000</td>
<td>1%</td>
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</tbody>
</table>

Under no circumstances will any contract be awarded to a local vendor when the local vendor's bid exceeds the lowest responsive and responsible bid by $25,000 or more.

This policy shall ONLY apply if formal notice of the aforementioned criteria is provided as part of the bid specifications. In addition, it should be noted that the Village of Tinley Park shall not be obligated to forego the low bidder in favor of the local vendor under any circumstances. However, this policy simply provides the Village with the option of doing so when applicable. Furthermore, this policy shall not apply in any situation where any portion of the contract amount is being paid with funds other than Village monies. Specifically, this policy shall not apply in any situation where the Village has received a grant or otherwise received a source of funds other than its own funds.

**RESPONSIBLE BIDDER**

For any construction project undertaken by the Village to which the Illinois Prevailing Wage Act, 820 ILCS 130/0.01 et seq. is applicable, in order to be considered a "responsible bidder" on Village Public Works Projects, a bidder must comply with the following criteria, and submit acceptable evidence of such compliance, in addition to any other requirements as determined from time to time by the Village for the specific type of work to be performed:

(a) Compliance with all applicable laws and Village Codes and Ordinances prerequisite to doing business in Illinois and in the Village;

(b) Compliance with:
   a. Submittal of Federal Employer Tax Identification Number or Social Security Number (for individual), and
   b. Provisions of Section 2000e of Chapter 21, Title 42 of the United States Code and Federal Executive Order No. 11246 as amended by Federal Executive Order No. 11375 (known as the Equal Employment Opportunity Provisions);

(c) Furnishing certificates of insurance indicating at least the following coverages at minimum limits established by the Village: general liability, workers' compensation, completed operations, automobile, hazardous occupation, product liability, and professional liability;
(d) Compliance with all provisions of the Illinois Prevailing Wage Act, including wages, medical and hospitalization insurance and retirement for those trades covered by the Act;

(e) Participation in apprenticeship and training programs approved by and registered with the United States Department of Labor’s Bureau of Apprenticeship and Training;

(f) Compliance with the applicable provisions of the Illinois Human Rights Act and the rules of the Illinois Human Rights Commission, including the adoption of a written sexual harassment policy;

(g) Furnishing of required performance and payment bonds;

(h) Furnishing certification of no delinquency in the payment of any tax administered by the Illinois Department of Revenue;

(i) Furnishing certification that the bidder is not barred from bidding or contracting as a result of a violation of either Section 33E or 33E-4 of Chapter 720, Article 5 of the Illinois Compiled Statutes; and

(j) Furnishing evidence that the bidder has not only the financial responsibility but also the ability to respond to the needs of the Village by the discharge of the contractor's obligations in accordance with what is expected or demanded under the terms of the contract.
CORE AND BOOT CONNECTION

NOTES:

1. USE FOR ALL CONNECTIONS TO STORM SEWERS GREATER THAN 24" DIAMETER AND FOR CONNECTIONS TO ALL DRAINAGE STRUCTURES UNLESS OTHERWISE NOTED ON PLANS.

2. CONTRACTOR SHALL REMOVE SECTION OF MANHOLE PER MANUFACTURER'S RECOMMENDATION USING CONCRETE CORING METHOD AND SHALL BE APPROVED BY RESIDENT ENGINEER.

3. CONTRACTOR SHALL USE PRECAST REINFORCED CONCRETE TEE AND WYE CONNECTION FOR STORM SEWER TO STORM SEWER CONNECTIONS 24" DIAMETER AND LESS.
### Recommended Location of Ramps

**Type A Ramps**
- Ramp slope 1:12 max.
- Rise of ramp 30 (760 mm) max.

**Type B Ramps**
- Ramp profile

### Details of Ramps

**Type A**
- Rise of depressed curb 15 (380 mm) max.
- See Details A & B

**Type B**
- Gutter slope 1:20 max.

### Section A-A

**Detail A**
- Ramp - Hemmings
- Expansion joint

**Detail B**
- Street
- Depressed curb

### General Notes

- Detectable warnings shall be installed at curb ramps, pedestrian refuge islands, at-grade railroad crossings, transit platform edges, etc. They are required at curb ramps located at pedestrian crossings and in the vicinity of streets and commercial entrances where permanent traffic control devices are present.

The maximum slope of the side flare for Type B ramps shall be 1:10 however, if the width of the landing area between the top of the ramp and an obstruction is less than 4'-0" (1.22 m) then the maximum slope shall be 1:12.

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

All dimensions are in inches (millimeters) unless otherwise shown.

### Curb Ramps for Sidewalks

**Legend**
- Sidewalk
- Ramp
- Detectable Warning
- Not walking area

**Date**
- 1-1-08

**Revisions**
- Switched units to English inches.
- 8-1-05: Revised placement of detectable warning.

**Standard**
424001-05

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**Department of Transportation**

**Date**
- 1-1-08

**Engineer of Policy and Procedures**
- January 1, 2008

**Engineer of Design and Environment**
- January 1, 2008
ROAD CONSTRUCTION AHEAD
W20-10310-46 for
construction
projects.

ROAD WORK AHEAD
W20-10310-46
for
maintenance
and
utility
projects.

ROAD WORK AHEAD
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ROAD WORK AHEAD
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ROAD CONSTRUCTION AHEAD
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ROAD WORK AHEAD
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for
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W20-10310-46 for
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ROAD CONSTRUCTION AHEAD
W20-10310-46 for
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URBAN LANE CLOSURE, MULTILANE, 1W OR 2W WITH NONTRAVERSABLE MEDIAN
STANDARD 701601-07
GENERAL NOTES

This Standard is used where any lane, day or night, on which vehicles, equipment, workers, or their activities extend on the pavement resulting in the closure of one or more traffic lanes. In an open street, calculate L as follows:

SPEED LIMIT FORMULAS

English Metric
40 mph (64 kph) L = 40
45 mph (72 kph) L = 50
50 mph (80 kph) L = 60
55 mph (88 kph) L = 70
60 mph (96 kph) L = 80

W = width of offset in feet meters
L = turnbuckle placed speed

L = length of offset

70 dimensions are in inches, millimeters unless otherwise shown.

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**LEFT TURN LANE OR CENTER MEDIAN OPERATIONS**

1. Refer to SPACING TABLE for distances.
2. Required for speeds > 40 mph.
3. Cones at 20' or more centers for 250' (150 ft) of operations. Additional cones may be placed at 30', 150, 450 centers. When drums or Type I or Type II barricades used, the line of travel between devices may be discontinued.
4. Use flagger sign only when flagger is present.
5. Drums or flags when median is less than 12' (3 m) or for bi-directional turn lanes.
6. Cones, drums or barricades at 20' or more centers in taper.
7. Advanced arrow board required for speeds > 40 mph.

**SYMBOLS**

- Work zone
- Cones, drum or barricade
- Sign on portable or permanent support
- Arrow board
- Barricade or drum with flashing light
- Flagger with traffic control sign

**GENERAL NOTES**

This standard is used where at any time, day or night, any vehicle, equipment, workers, or their activities encroach on the roadway during shoulder operations or where construction requires one or more lanes be closed in an urban area.

Calculation as follows:

**SPEED LIMIT**

English

- 40 mph (60 km/h) or less
- 45 mph (70 km/h) or greater

Metric

- 60 km/h (38 mph) or less
- 90 km/h (55 mph) or greater

**L = Width of offset**

In feet (meters)

**W = Normal posted speed**

In feet (meters)

**S = Marked posted speed**

In feet (meters)

**All dimensions are in inches (millimeters) unless otherwise shown.**

**URBAN LANE CLOSURE, MULTILANE INTERSECTION**

**DATE**

- 1-1-01: Added advanced arrow board and note
- 1-4-09: Switched units to English control
- Corrected sign notes

**STANDARD 701701-07**
GENERAL NOTES

Where, at any time, pedestrians traffic must be rerouted due to work being performed.

The SIDEWALK CLOSED sign shall be placed at the nearest crosswalk or intersection to the end of the closure. Where the closure occurs at a corner, the sign shall be erected on the corner across the street from the closure. The SIDEWALK CLOSED sign shall be used at the start of the actual closure.

Type II barricades and RO-2-1430 signs shall be positioned as shown in RO-2400 CLOSED TO ALL TRAFFIC on Standard 701801-04.

All dimensions are ½ inches (millimeters) unless otherwise shown.

LANE CLOSURE MULTILANE
1W OR 2W CROSSWALK OR SIDEWALK CLOSURE

STANDARD 701801-04
CONES

O R N A T E D CONE

FLEXIBLE DELINEATOR

VERTICAL PANEL

POST MOUNTED

DRUM

TYPE I BARRICADE

TYPE II BARRICADE

TYPE III BARRICADE

DIRECTION INDICATOR

BARRICADE

GENERAL NOTES

All heights shown shall be measured above the pavement surface. All dimensions are in inches (mm) unless otherwise shown.

TRAFFIC CONTROL DEVICES

DATE

REVISIONS

1/1/03

Switched units to English (metric)

1/1/09

Light on vertical panel

1/1/08

Renumbered Standard

STANDARD 701901-01

Sheet 1 of 3
POST MOUNTED SIGNS
** When curb or paved shoulder are present this dimension shall be 24 ± 1/2 in to the face of curb or 6 ± 1/2 in to the outside edge of the paved shoulder.

SIGNS ON TEMPORARY SUPPORTS
** When work operations exceed four days, this dimension shall be 5 ± 1/2 in min. If located behind other devices, the height shall be sufficient to be seen by motorists.

HIGH LEVEL WARNING DEVICE

WORK LIMIT SIGNING

STOP
SLOW

FLAGGER TRAFFIC CONTROL SIGN

TRAFFIC CONTROL DEVICES
Sheet 2 of 3

STANDARD 70101-01
TYPICAL APPLICATIONS OF TYPE III BARRICADES CLOSING A ROAD

Reflectorized striping may be omitted on the back side of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the signs may be mounted on an NCHRP 350 temporary sign support directly in front of the barricade.

ROAD CLOSED TO ALL TRAFFIC

Reflectorized striping may appear on both sides of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the signs may be mounted on NCHRP 350 temporary sign supports directly in front of the barricades.

TRAFFIC CONTROL DEVICES

STANDARD 701901-01