
THE VILLAGE OF TINLEY PARK

Cook County, Illinois

Will County, Illinois

RESOLUTION

NO. 2018-R-053

**A RESOLUTION APPROVING A CONTRACT BETWEEN THE VILLAGE OF TINLEY PARK
AND AUSTIN TYLER CONSTRUCTION, INC. FOR THE SOUTH STREET
RECONSTRUCTION**

**JACOB C. VANDENBERG, PRESIDENT
KRISTIN A. THIRION, VILLAGE CLERK**

**MICHAEL J. PANNITTO
BRIAN H. YOUNKER
CYNTHIA A. BERG
WILLIAM P. BRADY
MICHAEL W. GLOTZ
JOHN A. CURRAN
Board of Trustees**

Published in pamphlet form by authority of the President and Board of Trustees of the Village of Tinley Park

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**A RESOLUTION APPROVING A CONTRACT BETWEEN THE VILLAGE OF TINLEY PARK
AND AUSTIN TYLER CONSTRUCTION, INC. FOR THE SOUTH STREET
RECONSTRUCTION**

WHEREAS, the Village of Tinley Park, Cook and Will Counties, Illinois, is a Home Rule Unit pursuant to the Illinois Constitution of 1970; and

WHEREAS, the Corporate Authorities of the Village of Tinley Park, Cook and Will Counties, Illinois, have considered entering into an Agreement with Austin Tyler Construction, Inc., a true and correct copy of such Agreement being attached hereto and made a part hereof as **EXHIBIT 1**; and

WHEREAS, the Corporate Authorities of the Village of Tinley Park, Cook and Will Counties, Illinois, have determined that it is in the best interests of said Village of Tinley Park that said Agreement be entered into by the Village of Tinley Park;

NOW, THEREFORE, Be It Resolved by the President and Board of Trustees of the Village of Tinley Park, Cook and Will Counties, Illinois, as follows:

Section 1: The Preambles hereto are hereby made a part of, and operative provisions of, this Resolution as fully as if completely repeated at length herein.

Section 2: That this President and Board of Trustees of the Village of Tinley Park hereby find that it is in the best interests of the Village of Tinley Park and its residents that the aforesaid "Agreement" be entered into and executed by said Village of Tinley Park, with said Agreement to be substantially in the form attached hereto and made a part hereof as **EXHIBIT 1**.

Section 3: That the President and Clerk of the Village of Tinley Park, Cook and Will Counties, Illinois are hereby authorized to execute for and on behalf of said Village of Tinley Park the aforesaid Agreement.

Section 4: That this Resolution shall take effect from and after its adoption and approval.

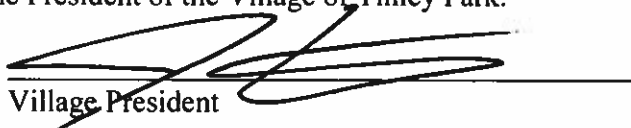
ADOPTED this 17th day of July, 2018, by the Corporate Authorities of the Village of Tinley Park on a roll call vote as follows:

AYES: Younker, Pannitto, Berg, Brady, Glotz, Curran

NAYS: None

ABSENT: None

APPROVED this 17th day of July, 2018, by the President of the Village of Tinley Park.


Village President

ATTEST:


Deputy Village Clerk

EXHIBIT 1

**AUSTIN TYLER CONSTRUCTION, INC.
AGREEMENT**

STATE OF ILLINOIS)
COUNTY OF COOK) SS
COUNTY OF WILL)

CERTIFICATE

I, KRISTIN A. THIRION, Village Clerk of the Village of Tinley Park, Counties of Cook and Will and State of Illinois, DO HEREBY CERTIFY that the foregoing is a true and correct copy of Resolution No. 2018-R-053, "A RESOLUTION APPROVING A CONTRACT BETWEEN THE VILLAGE OF TINLEY PARK AND AUSTIN TYLER CONSTRUCTION, INC. FOR THE SOUTH STREET RECONSTRUCTION," which was adopted by the President and Board of Trustees of the Village of Tinley Park on July 17, 2018.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the corporate seal of the Village of Tinley Park this _____ day of _____ 2018.

KRISTIN A. THIRION, VILLAGE CLERK



**VILLAGE OF TINLEY PARK
SOUTH STREET RECONSTRUCTION
OAK PARK AVE TO 67TH COURT
12-544**



Jennifer S. Prinz, PE CFM
Direct Line (708)-210-5687

July 6, 2018
Project 12-544

VILLAGE OF TINLEY PARK
SOUTH STREET RECONSTRUCTION - OAK PARK AVENUE TO 67TH COURT
ADDENDUM ONE

Addendum One shall consist of the following:

- Soil boring log and pavement cores- 10 pages

The total number of pages for **Addendum One** is 11 pages. Please acknowledge the additions, clarifications, and changes to the specifications and schedule of prices by signing and faxing/e-mailing back the signature page as indicated.

Respectfully yours,
ROBINSON ENGINEERING, LTD.

Jennifer S. Prinz, PE
Director of Engineering
R:\2010-2014\2012\12-544.TP\Bid and Contract Documents\12-544 Addendum 1.doc

Please, print your company name, your name, and sign as noted below and fax back to us at (815) 806-0301 as proof that you have received and reviewed all pages of the addendum and acknowledge them as part of the bid documents.

You can also e-mail the executed copy of the addendum back to cruiz-martinez@reltd.com

Signature

THOMAS PELTI

Print Your Name

Austin Tyler Construction, Inc

Company Name

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 9:45 AM on Tuesday July 10, 2018.

SOUTH STREET INTERSECTION RECONSTRUCTION
OAK PARK AVENUE TO 67TH COURT

Proposals will be publicly read aloud on Tuesday July 10, 2018 after 9:50 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., 17000 South Park Avenue South Holland, Illinois 60473, (phone 708-331-6700), and may be obtained from the Engineer's office upon payment of Fifty Dollars (\$50.00) for each paper copy and/or Ten Dollars (\$10.00) per CD format. The bid documents will be issued until 4:30 PM on the last business day preceding the bid. 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:

<u>Contract Value</u>	<u>Range (up to a maximum of)</u>
\$0-\$250,000	5%
\$250,000-\$500,000	4%
\$500,000-\$750,000	3%
\$750,000-\$1,000,000	2%
\$1,000,000-\$2,000,000	1%

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
and
CONTRACT

PROPOSAL

TO THE OWNER, Manager of Tinley Park

1. Proposal of Austin Tyler Construction, Inc.
(name and address of bidder)

23343 S Ridge Road
Elwood, IL 60421
GSC@tinley.austin-tyler.com
(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 _____ calendar days after the date of the execution of the contract by both parties, or by 11/5/18 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 from 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 Town Park

The amount of the bond, check or draft is 10% Bid Bond
_____. (\$_____).

BID BOND

Hudson Insurance Company
100 William Street, New York, NY 10038

CONTRACTOR:

(Name, legal status and address)
Austin Tyler Construction Inc
23343 S. Ridge Rd
Elwood, IL 60421

SURETY:

(Name, legal status and principal place of business)
Hudson Insurance Company
100 William Street
New York, NY 10038

OWNER:

(Name, legal status and address)
Village of Tinley Park
16250 South Oak Park Ave
Tinley Park, IL 60477

BOND AMOUNT: 10% of Bid Amount

PROJECT:

(Name, location or address, and Project number, if any)
South Street Intersection Reconstruction

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.

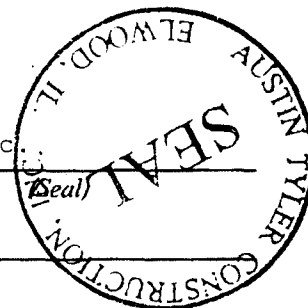
If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

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 3rd day of July, 2018.

Austin Tyler Construction, Inc.

(Principal)



Nancy Lach

(Witness)

Gary S. Schumal

(Title) Gary S. Schumal, President

Hudson Insurance Company

Janet L. Smith

(Witness)

(Surety)

(Seal)

Lynn M. Blaylock

(Title) Lynn M. Blaylock, Attorney In Fact



HUDSON

BID BOND POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That HUDSON INSURANCE COMPANY, a corporation of the State of Delaware, with offices at 100 William Street, New York, New York, 10038, has made, constituted and appointed, and by these presents, does make, constitute and appoint

Lewis Mark Spangler, Lynn M. Blaylock,
Dawn-Denise Szpisjak and Maureen Rott

its true and lawful Attorney(s)-in-Fact, at New York City in the State of New York, each of them alone to have full power to act without the other or others, to make, execute and deliver on its behalf, as Surety, bid bonds for any and all purposes.

Such bid bonds, when duly executed by said Attorney(s)-in-Fact, shall be binding upon said Company as fully and to the same extent as if signed by the President of said Company under its corporate seal attested by its Secretary.

In Witness Whereof, HUDSON INSURANCE COMPANY has caused these presents to be of its Senior Vice President thereunto duly authorized, on this 7th day of November, 20 17 at New York, New York.
(Corporate seal)

Attest: Dina Daskalakis
Dina Daskalakis, Corporate Secretary

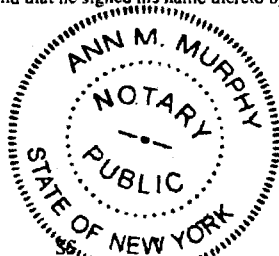
HUDSON INSURANCE COMPANY

By: Michael P. Cifone
Michael P. Cifone, Senior Vice President

STATE OF NEW YORK
COUNTY OF NEW YORK SS.

On the 7th day of November, 20 17 before me personally came Michael P. Cifone to me known, who being by me duly sworn did depose and say that he is a Senior Vice President of HUDSON INSURANCE COMPANY, the Company described herein and which executed the above instrument, that he knows the seal of said Company, that the seal affixed to said instrument is the corporate seal of said Company, that it was so affixed by order of the Board of Directors of said Company, and that he signed his name thereto by like order.

(Notarial Seal)



Ann M. Murphy
ANN M. MURPHY
Notary Public, State of New York
No. 01MU6067553
Qualified in Nassau County
Commission Expires December 10, 2021

CERTIFICATION

STATE OF NEW YORK
COUNTY OF NEW YORK SS.

The undersigned Dina Daskalakis hereby certifies:

THAT the original resolution, of which the following is a true and correct copy, was duly adopted by unanimous written consent of the Board of Directors of Hudson Insurance Company dated July 27th, 2007, and has not since been revoked, amended or modified:

"RESOLVED, that the President, the Executive Vice Presidents, the Senior Vice Presidents and the Vice Presidents shall have the authority and discretion, to appoint such agent or agents, or attorney or attorneys-in-fact, for the purpose of carrying on this Company's surety business, and to empower such agent or agents, or attorney or attorneys-in-fact, to execute and deliver, under this Company's seal or otherwise, bonds obligations, and recognizances, whether made by this Company as surety thereon or otherwise, indemnity contracts, contracts and certificates, and any and all other contracts and undertakings made in the course of this Company's surety business, and renewals, extensions, agreements, waivers, consents or stipulations regarding undertakings so made; and

FURTHER RESOLVED, that the signature of any such Officer of the Company and the Company's seal may be affixed by facsimile to any power of attorney or certification given for the execution of any bond, undertaking, recognizance, contract of indemnity or other written obligation in the nature thereof or related thereto, such signature and seal when so used whether heretofore or hereafter, being hereby adopted by the Company as the original signature of such officer and the original seal of the Company, to be valid and binding upon the Company with the same force and effect as though manually affixed."

THAT the above and foregoing is a full, true and correct copy of Power of Attorney issued by said Company, and of the whole of the original and that the said Power of Attorney is still in full force and effect and has not been revoked, and furthermore that the Resolution of the Board of Directors, set forth in the said Power of Attorney is now in force.

Witness the hand of the undersigned and the seal of said Company this 3rd day of July, 2018.
(Corporate seal)

By: Dina Daskalakis
Dina Daskalakis, Corporate Secretary

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) Millions
(c) For whom? IDOT, LOCKPORT, TULLEY PARK, FRANKFORD, JOLIET, NEW LENOX, MOKENA
3. Do you have sufficient equipment to perform this work? YES
If so, list major items: Graders, Pavers, Rollers, SKIDSTEERS, LOADERS, SEMI TRUCK, EXCAVATOR
4. Give Bank reference: First Bank & Trust
Address: 820 Church St. EVANSTON, IL 60201
5. List names and addresses of major suppliers:
M.D. American - 1500 E. MORTIMER AURORA 60505
WELSH READY MIX - 806 GARLAND JOLIET 60433
VULCAN MATERIAL - P.O. Box 75219 CHARLOTTE NC 28275
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? N/A
(b) For what reason? N/A
7. Have you ever been disqualified by a Governmental Agency for failure to satisfactorily complete a public improvement? NO

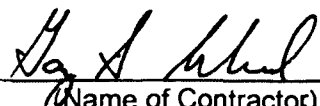
CONTRACTOR'S STATEMENT (cont.)

8. Have you ever been cited for failing to withhold or report payroll deductions for Federal Income Tax? NO
9. Have you ever been cited by the Federal Government for any violation of the Copeland Act (Anti-kick-back Law)? NO
10. If awarded contract, work will begin in 15 calendar days.

CERTIFICATE OF ELIGIBILITY TO BID

I, Gary S. Schumal (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: July 10, 2018

By: 
(Name of Contractor)
President
(Title)



Municipal Expertise. Community Commitment.

REL # 12-544

SCHEDULE OF PRICES

Local Agency Village of Tinley Park

Location Village of Tinley Park

Description Reconstruction of South Street from Oak Park Avenue through the intersections of 67th Court, including the removal of the island and relocation of the water and sanitary sewers.

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.

Schedule for Single Bid

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

Bidder's Proposal for making Entire Improvements					680,385.75
Item No.	Items	Unit	Quantity	Unit Price	Total
1	TEMPORARY INFORMATION SIGNING	L SUM	1	27,000.00	27,000.00
2	TOPSOIL FURNISH AND PLACE, 6"	SQ YD	400	12.00	4,800.00
3	SODDING, SPECIAL	SQ YD	400	12.00	4,800.00
4	SEEDING, CLASS 2A	ACRE	0.1	19,360.00	1,936.00
5	EROSION CONTROL BLANKET	SQ YD	200	2.50	500.00
6	PERIMETER EROSION BARRIER	FOOT	300	3.50	1,050.00
7	INLET FILTERS	EACH	5	100.00	500.00
8	SUPPLEMENTAL WATERING	UNIT	5	1.00	5.00
9	EXPLORATION TRENCH 48" DEPTH	FOOT	40	40.00	1,600.00
10	AGGREGATE SUBGRADE IMPROVEMENT 6"	SQ YD	1,600	9.00	14,400.00
11	HOT-MIX ASPHALT BASE COURSE, 8"	SQ YD	1,600	33.00	52,800.00
12	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	732	.01	7.32
13	HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT	SQ YD	142	20.00	2,840.00
14	HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N70	TON	260	100.00	26,000.00
15	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT	2,825	8.00	22,600.00
16	PORTLAND CEMENT CONCRETE SIDEWALK 8 INCH	SQ FT	310	11.00	3,410.00
17	DETECTABLE WARNINGS	SQ FT	50	20.00	1,000.00
18	PAVEMENT REMOVAL	SQ YD	1,870	12.00	22,400.00
19	HOT-MIX ASPHALT SURFACE REMOVAL, 2"	SQ YD	560	7.35	4,116.00
20	DRIVEWAY PAVEMENT REMOVAL	SQ YD	278	11.00	3,058.00
21	COMBINATION CURB AND GUTTER REMOVAL	FOOT	810	8.00	6,480.00
22	SIDEWALK REMOVAL	SQ FT	2,600	2.75	7,150.00
23	CLASS D PATCHES, TYPE III, 8 INCH	SQ YD	100	.01	1.00

Item No.	Items	Unit	Quantity	Unit Price	Total
24	STORM SEWERS, CLASS A, TYPE 1 12"	FOOT	222	38.00	8,436.00
25	TRENCH BACKFILL, STORM	FOOT	222	16.00	3,552.00
26	STORM SEWER REMOVAL 12"	FOOT	205	20.00	4,100.00
27	CATCH BASINS, TYPE A, 4'-DIAMETER, TYPE 1 FRAME, OPEN LID	EACH	3	2,000.00	6,000.00
28	MANHOLES, TYPE A, 4'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	1	1,700.00	1,700.00
29	INLETS, TYPE A, TYPE 1 FRAME, OPEN LID	EACH	2	948.00	1,896.00
30	REMOVING CATCH BASINS	EACH	1	375.00	375.00
31	REMOVING INLETS	EACH	2	710.00	1,420.00
32	CONCRETE CURB, TYPE B	FOOT	50	31.00	1,550.00
33	COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.12	FOOT	740	24.50	18,130.00
34	COMBINATION CONCRETE CURB AND GUTTER, TYPE M-2.12	FOOT	120	27.80	3,336.00
35	STRUCTURES TO BE ADJUSTED	EACH	4	735.00	2,940.00
36	PORTLAND CEMENT CONCRETE DRIVEWAY REMOVAL AND REPLACEMENT	SQ YD	100	86.00	8,600.00
37	HOT-MIX ASPHALT DRIVEWAY PAVEMENT, 6"	SQ YD	220	47.00	10,340.00
38	GROOVING FOR RECESSED PAVEMENT MARKING, LETTERS AND SYMBOLS	SQ FT	15	8.75	131.25
39	GROOVING FOR RECESSED PAVEMENT MARKING 5"	FOOT	760	1.50	1,140.00
40	GROOVING FOR RECESSED PAVEMENT MARKING 13"	FOOT	30	2.10	63.00
41	GROOVING FOR RECESSED PAVEMENT MARKING 25"	FOOT	36	8.75	315.00
42	MODIFIED URETHANE PAVEMENT MARKING - LETTERS AND SYMBOLS	SQ FT	15	21.00	315.00
43	MODIFIED URETHANE PAVEMENT MARKING - LINE 4"	FOOT	760	3.25	2,470.00
44	MODIFIED URETHANE PAVEMENT MARKING - LINE 6"	FOOT	30	5.25	157.50
45	MODIFIED URETHANE PAVEMENT MARKING - LINE 24"	FOOT	36	21.00	756.00
101	FIRE HYDRANT WITH AUXILIARY VALVE, VALVE BOX AND TEE	EACH	2	4,200.00	8,400.00
102	8" X 8" TAPPING SLEEVE AND VALVE IN VALVE VAULT, TYPE A, 5' DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	1	5,400.00	5,400.00
103	10" X 10" TAPPING SLEEVE AND VALVE IN VALVE VAULT, TYPE A, 5' DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	1	7,400.00	7,400.00
104	12" X 12" TAPPING SLEEVE AND VALVE IN VALVE VAULT, TYPE A, 5' DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	1	9,400.00	9,400.00
105	12" VALVE AND VALVE VAULT, TYPE A, 5' DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	3	4,600.00	13,800.00
106	DUCTILE IRON FITTINGS	POUND	1,968	.01	19.68
107	DUCTILE IRON WATER MAIN, CLASS 52 WITH POLYETHYLENE ENCASEMENT, 12"	FOOT	460	75.00	34,500.00
108	6" CUT AND CAP	EACH	1	1,950.00	1,950.00
109	10" CUT AND CAP	EACH	1	2,250.00	2,250.00
110	12" CUT AND CAP	EACH	1	2,600.00	2,600.00
111	TRENCH BACKFILL, WATERMAIN	FOOT	460	35.00	16,100.00

Item No.	Items	Unit	Quantity	Unit Price	Total
112	ABANDON VALVE VAULT	EACH	2	800.00	1,600.00
113	FIRE HYDRANTS TO BE REMOVED	EACH	1	800.00	800.00
201	PVC SANITARY SEWER, 27"	FOOT	185	370.00	68,450.00
202	CONNECTION TO EXISTING SANITARY SEWER MANHOLE	EACH	2	8,000.00	16,000.00
203	ABANDON AND FILL EXISTING 27" SANITARY SEWER WITH CLSM	L SUM	1	7,500.00	7,500.00
204	SANITARY MANHOLE, DROP, 72" DIAMETER, TYPE 1 FRAME, LOCKING LID	EACH	1	32,000.00	32,000.00
205	TRENCH BACKFILL (SANITARY SEWER), 27 INCH 25-30 FEET DEEP	FOOT	185	600.00	111,000.00
206	MANHOLES TO BE INTERNALLY SEALED - EPOXY COATING	FOOT	60	500.00	30,000.00
207	SEWER FLOW CONTROL AND BYPASS PUMPING	L SUM	1	25,000.00	25,000.00

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 Inc.

Signed By
President

Business Address 23343 S. Ridge Road
Elwood, IL 60421

(Corporate Seal)



Insert President Gary S. Schumal

Names of Officers Secretary Ronald A. Plunk

Treasurer

Attest: Ronald A. Plunk
Secretary

Phone Number (815) 726-1090

BIDDER'S CERTIFICATE

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

Reconstruction of South St. Oak Park to 67th
Name of Project

for the Village/City/Town of Tinian 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: [Signature]
Company Name
Austin Teller Construction, Inc.

Date: July 10, 2018

CONTRACT

1. THIS AGREEMENT, made and concluded this 17th day of July, 2018, between the
Village of Tinley Park, acting by and through its Mayor & Board of Trustees
(city/village/town of) (President-Board of Trustees/Mayor-City Council)
known as the party of the first part, and Austin Tyler Construction, Inc., his/their
(Contractor)
executors, 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: [Signature]
Title: Jacob C. Vandenberg, Mayor
Attest: [Signature]
Title: LAURA GODETTE, DEPUTY CLERK

MUNICIPAL SEAL

Executed by Municipality

FOR THE CONTRACTOR
(Party of the Second Part)

Austin Tyler Construction, Inc.
By: [Signature]
Title: President
Attest: [Signature]
Title: Secretary



Executed by Contractor

CONTRACT BOND

KNOWN ALL MEN BY THESE PRESENTS, that we, Austin Tyler Construction, Inc. 23343 S. Ridge Rd,
Elwood IL 60421, a corporation organized under the laws of the State of
Illinois, and licensed to do business in the State of Illinois, as principal, and
Hudson Insurance Co., 100 William New York NY, a corporation organized and existing under the laws of the State
of New York, 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 eighty thousand three hundred eighty five dollars and seventy five cents Dollars
(\$ 680,385.75 ~~~~~), 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.

Executed by Contractor

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
Mayor & Board of Trustees for the construction of the work designated
REL#: 12-544 - South Street Reconstruction - Oak Park Ave to 67th Ct, 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

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 19th day of July A.D. 20 18

Contractor's corporate name: Austin Tyler Construction, Inc.

By: *Gary S Schumal*
President, Gary S Schumal

Attest: *Rosella Plunk*

Attestor's Title: Secretary



Executed by Contractor

Surety's corporate name: Hudson Insurance Company

By: *Lynn M Blaylock*
Attorney-in-fact Lynn M Blaylock

By: _____
Attorney-in-fact

CORPORATE SEAL

Executed by Surety for Contractor

APPROVED THIS 17th DAY OF July A.D. 20 18

VILLAGE OF TINLEY PARK, IL

By: *Jacob C. Vandenberg*

Title: Jacob C. Vandenberg, Mayor

ATTEST FOR VILLAGE OF TINLEY PARK, IL

By: *Laura Godette*

Title: LAURA GODETTE, DEPUTY CLERK

MUNICIPAL SEAL

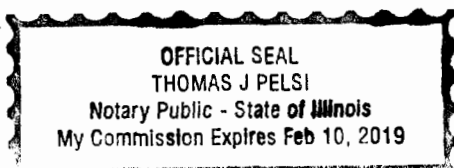
Executed by Municipality

STATE OF Illinois)
) SS
COUNTY OF Will)

I, Thomas J. Pelsi, a Notary Public in and for said County in the State aforesaid,
(Notary)
do hereby certify that GARY S. Schumm and RONALD A. PLUNK, to me
(President) (Attestor)
personally known to be president and secretary, respectively, of AUSTIN TYLER CONSTRUCTION, INC
(Contractor)
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 29th DAY OF June A.D.
20 18

SEAL



[Signature]
Notary Public

Executed by Contractor

STATE OF Illinois)
) SS
COUNTY OF Cook)

I, Dawn Denise Szpisjak, a Notary Public in and for said County in the State aforesaid, do hereby
(Notary)
certify that Lynn M Blaylock who is personally known to me to be the same person who signed
(Attorney-in-Fact)
the above and foregoing instrument as the Attorney in Fact for Hudson Insurance Company appeared
(Surety)
before me this day in person and acknowledged that he signed the name of Lynn M. Blaylock
(Principal)
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 19th DAY OF July A.D.
20 18

SEAL



[Signature]
Notary Public

Executed by Surety



POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That HUDSON INSURANCE COMPANY, a corporation of the State of Delaware, with offices at 100 William Street, New York, New York, **Lewis Mark Spangler, Lynn M. Blaylock** by these presents, does make, constitute and appoint **Dawn-Denise Szpisjak and Maureen Rott** of the State of Illinois

its true and lawful Attorney(s)-in-Fact, at New York, New York, each of them alone to have full power to act without the other or others, to make, execute and deliver on its behalf, as Surety, bonds and undertakings given for any and all purposes, also to execute and deliver on its behalf as aforesaid renewals, extensions, agreements, waivers, consents or stipulations relating to such bonds or undertakings provided, however, that no single bond or undertaking shall obligate said Company for any portion of the penal sum thereof in excess of the sum of **Ten Million Dollars (\$10,000,000.00)**.

Such bonds and undertakings when duly executed by said Attorney(s)-in-Fact, shall be binding upon said Company as fully and to the same extent as if signed by the President of said Company under its corporate seal attested by its Secretary.

In Witness Whereof, HUDSON INSURANCE COMPANY has caused these presents to be of its Senior Vice President thereunto duly attested, on this 7th day of November, 20 17 at New York, New York.



Attest: Dina Daskalakis
Dina Daskalakis
Corporate Secretary

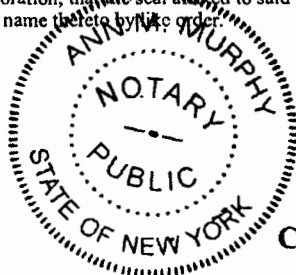
HUDSON INSURANCE COMPANY

By: Michael P. Cifone
Michael P. Cifone
Senior Vice President

STATE OF NEW YORK
COUNTY OF NEW YORK. SS.

On the 7th day of November, 20 17, before me personally came Michael P. Cifone to me known, who being by me duly sworn did depose and say that he is a Senior Vice President of HUDSON INSURANCE COMPANY, the corporation described herein and which executed the above instrument, that he knows the 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, and that he signed his name thereto by his order.

(Notarial Seal)



Ann M. Murphy
ANN M. MURPHY
Notary Public, State of New York
No. 01MU6067553
Qualified in Nassau County
Commission Expires December 10, 2021

STATE OF NEW YORK
COUNTY OF NEW YORK. SS.

CERTIFICATION

The undersigned **Dina Daskalakis** hereby certifies:

That the original resolution, of which the following is a true and correct copy, was duly adopted by unanimous written consent of the Board of Directors of Hudson Insurance Company dated July 27th, 2007, and has not since been revoked, amended or modified:

"RESOLVED, that the President, the Executive Vice Presidents, the Senior Vice Presidents and the Vice Presidents shall have the authority and discretion, to appoint such agent or agents, or attorney or attorneys-in-fact, for the purpose of carrying on this Company's surety business, and to empower such agent or agents, or attorney or attorneys-in-fact, to execute and deliver, under this Company's seal or otherwise, bonds obligations, and recognizances, whether made by this Company as surety thereon or otherwise, indemnity contracts, contracts and certificates, and any and all other contracts and undertakings made in the course of this Company's surety business, and renewals, extensions, agreements, waivers, consents or stipulations regarding undertakings so made; and

FURTHER RESOLVED, that the signature of any such Officer of the Company and the Company's seal may be affixed by facsimile to any power of attorney or certification given for the execution of any bond, undertaking, recognizance, contract of indemnity or other written obligation in the nature thereof or related thereto, such signature and seal when so used whether heretofore or hereafter, being hereby adopted by the Company as the original signature of such officer and the original seal of the Company, to be valid and binding upon the Company with the same force and effect as though manually affixed."

THAT the above and foregoing is a full, true and correct copy of Power of Attorney issued by said Company, and of the whole of the original and that the said Power of Attorney is still in full force and effect and has not been revoked, and furthermore that the Resolution of the Board of Directors, set forth in the said Power of Attorney is now in force.

In witness the hand of the undersigned and the seal of said Corporation this 19th day of July, 20 18.

By: Dina Daskalakis
Dina Daskalakis, Corporate Secretary





CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

7/19/2018

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 have **ADDITIONAL INSURED** provisions or 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 endorsement(s).

PRODUCER Cottingham & Butler 1770 Park Street, Suite 210 Naperville IL 60563	CONTACT NAME: L. Mark Spangler PHONE (A/C, No, Ext): 630.420.3400 FAX (A/C, No): 630.420.8520 E-MAIL: ADDRESS:	
	INSURER(S) AFFORDING COVERAGE	
INSURED Austin Tyler Construction, Inc Joliet Asphalt, LLC 23343 S. Ridge Road Elwood IL 60421	INSURER A: The Travelers Indemnity Company of America NAIC # 25666	
	INSURER B: Travelers Casualty and Surety Company NAIC # 19038	
	INSURER C: Great American Insurance Co. NAIC # 16691	
	INSURER D:	
	INSURER E:	
INSURER F:		

COVERAGES**CERTIFICATE NUMBER:** 182160241**REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD 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 PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR ☒ Contractual Liab GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☒ PRO-JECT ☐ LOC OTHER:	Y	Y	DTCO1C130860COF17	8/25/2017	8/25/2018	EACH OCCURRENCE \$ 2,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 300,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 2,000,000 GENERAL AGGREGATE \$ 4,000,000 PRODUCTS - COMP/OP AGG \$ 4,000,000 \$
A	AUTOMOBILE LIABILITY ☒ ANY AUTO ☐ OWNED AUTOS ONLY ☒ HIRED AUTOS ONLY ☐ SCHEDULED AUTOS ☒ NON-OWNED AUTOS ONLY	Y	Y	8101C130860COF17	8/25/2017	8/25/2018	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
C	☒ UMBRELLA LIAB ☒ OCCUR ☐ EXCESS LIAB ☐ CLAIMS-MADE DED ☒ RETENTION \$ \$10,000			TUU032404004	8/25/2017	8/25/2018	EACH OCCURRENCE \$ 20,000,000 AGGREGATE \$ 20,000,000 \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N	N/A	DTHUB1C13086017	8/25/2017	8/25/2018	☒ PER STATUTE ☐ OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
A B	Inland Marine Pollution Liability Installation Floater			QT6601C964842COF17 ZCC81M6896A17SK	8/25/2017 8/25/2017	8/25/2018 8/25/2018	Leased/Rented Site & Premises Installation Floater \$500,000 3,000,000 \$750,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

REL E: 12-544 South Street Reconstruction-Oak Park Ave to 67th Ct., Tinley Park, IL Village of Tinley Park and Robinson Engineering Ltd are additional insured on primary and noncontributory basis with respects general liability and auto liability subject to terms and conditions of endorsements attached to policies. Waiver of subrogation applies in favor of aforementioned additional insureds with respects general liability, auto liability and workers compensation subject to terms and conditions of endorsements attached to policies.
Umbrella follows form

CERTIFICATE HOLDER

Village of Tinley Park
16250 South Oak Park Avenue
Tinley Park IL 60477

CANCELLATION

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

© 1988-2015 ACORD CORPORATION. All rights reserved.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

**BLANKET ADDITIONAL INSURED – PRIMARY AND
NON-CONTRIBUTORY WITH OTHER INSURANCE**

This endorsement modifies insurance provided under the following:

BUSINESS AUTO COVERAGE FORM

PROVISIONS

- 1. The following is added to Paragraph A.1.c., Who Is An Insured, of SECTION II – COVERED AUTOS LIABILITY COVERAGE:**

Any person or organization who is required under a written contract or agreement between you and that person or organization, that is signed and executed by you before the "bodily injury" or "property damage" occurs and that is in effect during the policy period, to be named as an additional insured is an "insured" for Covered Autos Liability Coverage, but only for damages to which this insurance applies and only to the extent that person or organization qualifies as an "insured" under the Who Is An Insured provision contained in SECTION II.

- 2. The following is added to Paragraph B.5., Other Insurance of SECTION IV – BUSINESS AUTO CONDITIONS:**

Regardless of the provisions of paragraph a. and paragraph d. of this part 5. **Other Insurance**, this insurance is primary to and non-contributory with applicable other insurance under which an additional insured person or organization is the first named insured when the written contract or agreement between you and that person or organization, that is signed and executed by you before the "bodily injury" or "property damage" occurs and that is in effect during the policy period, requires this insurance to be primary and non-contributory.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

BUSINESS AUTO EXTENSION ENDORSEMENT

This endorsement modifies insurance provided under the following:

BUSINESS AUTO COVERAGE FORM

GENERAL DESCRIPTION OF COVERAGE – This endorsement broadens coverage. However, coverage for any injury, damage or medical expenses described in any of the provisions of this endorsement may be excluded or limited by another endorsement to the Coverage Part, and these coverage broadening provisions do not apply to the extent that coverage is excluded or limited by such an endorsement. The following listing is a general coverage description only. Limitations and exclusions may apply to these coverages. Read all the provisions of this endorsement and the rest of your policy carefully to determine rights, duties, and what is and is not covered.

- | | |
|---|---|
| A. BROAD FORM NAMED INSURED | H. HIRED AUTO PHYSICAL DAMAGE – LOSS OF USE – INCREASED LIMIT |
| B. BLANKET ADDITIONAL INSURED | I. PHYSICAL DAMAGE – TRANSPORTATION EXPENSES – INCREASED LIMIT |
| C. EMPLOYEE HIRED AUTO | J. PERSONAL PROPERTY |
| D. EMPLOYEES AS INSURED | K. AIRBAGS |
| E. SUPPLEMENTARY PAYMENTS – INCREASED LIMITS | L. NOTICE AND KNOWLEDGE OF ACCIDENT OR LOSS |
| F. HIRED AUTO – LIMITED WORLDWIDE COVERAGE – INDEMNITY BASIS | M. BLANKET WAIVER OF SUBROGATION |
| G. WAIVER OF DEDUCTIBLE – GLASS | N. UNINTENTIONAL ERRORS OR OMISSIONS |

PROVISIONS

A. BROAD FORM NAMED INSURED

The following is added to Paragraph A.1., **Who Is An Insured**, of **SECTION II – COVERED AUTOS LIABILITY COVERAGE**:

Any organization you newly acquire or form during the policy period over which you maintain 50% or more ownership interest and that is not separately insured for Business Auto Coverage. Coverage under this provision is afforded only until the 180th day after you acquire or form the organization or the end of the policy period, whichever is earlier.

B. BLANKET ADDITIONAL INSURED

The following is added to Paragraph c. in A.1., **Who Is An Insured**, of **SECTION II – COVERED AUTOS LIABILITY COVERAGE**:

Any person or organization who is required under a written contract or agreement between you and that person or organization, that is signed and executed by you before the "bodily injury" or "property damage" occurs and that is in effect during the policy period, to be named as an additional insured is an "insured" for Covered Autos Liability Coverage, but only for damages to which

this insurance applies and only to the extent that person or organization qualifies as an "insured" under the **Who Is An Insured** provision contained in Section II.

C. EMPLOYEE HIRED AUTO

1. The following is added to Paragraph A.1., **Who Is An Insured**, of **SECTION II – COVERED AUTOS LIABILITY COVERAGE**:

An "employee" of yours is an "insured" while operating an "auto" hired or rented under a contract or agreement in an "employee's" name, with your permission, while performing duties related to the conduct of your business.

2. The following replaces Paragraph b. in B.5., **Other Insurance**, of **SECTION IV – BUSINESS AUTO CONDITIONS**:

- b. For **Hired Auto Physical Damage Coverage**, the following are deemed to be covered "autos" you own:

- (1) Any covered "auto" you lease, hire, rent or borrow; and
- (2) Any covered "auto" hired or rented by your "employee" under a contract in an "employee's" name, with your

COMMERCIAL AUTO

permission, while performing duties related to the conduct of your business.

However, any "auto" that is leased, hired, rented or borrowed with a driver is not a covered "auto".

D. EMPLOYEES AS INSURED

The following is added to Paragraph A.1., **Who Is An Insured**, of SECTION II – COVERED AUTOS LIABILITY COVERAGE:

Any "employee" of yours is an "insured" while using a covered "auto" you don't own, hire or borrow in your business or your personal affairs.

E. SUPPLEMENTARY PAYMENTS – INCREASED LIMITS

1. The following replaces Paragraph A.2.a.(2), of SECTION II – COVERED AUTOS LIABILITY COVERAGE:

(2) Up to \$3,000 for cost of bail bonds (including bonds for related traffic law violations) required because of an "accident" we cover. We do not have to furnish these bonds.

2. The following replaces Paragraph A.2.a.(4), of SECTION II – COVERED AUTOS LIABILITY COVERAGE:

(4) All reasonable expenses incurred by the "insured" at our request, including actual loss of earnings up to \$500 a day because of time off from work.

F. HIRED AUTO – LIMITED WORLDWIDE COVERAGE – INDEMNITY BASIS

The following replaces Subparagraph (5) in Paragraph B.7., **Policy Period, Coverage Territory**, of SECTION IV – BUSINESS AUTO CONDITIONS:

(5) Anywhere in the world, except any country or jurisdiction while any trade sanction, embargo, or similar regulation imposed by the United States of America applies to and prohibits the transaction of business with or within such country or jurisdiction, for Covered Autos Liability Coverage for any covered "auto" that you lease, hire, rent or borrow without a driver for a period of 30 days or less and that is not an "auto" you lease, hire, rent or borrow from any of your "employees", partners (if you are a partnership), members (if you are a limited liability company) or members of their households.

(a) With respect to any claim made or "suit" brought outside the United States of America, the territories and possessions of the United States of America, Puerto Rico and Canada:

(i) You must arrange to defend the "insured" against, and investigate or settle any such claim or "suit" and keep us advised of all proceedings and actions.

(ii) Neither you nor any other involved "insured" will make any settlement without our consent.

(iii) We may, at our discretion, participate in defending the "insured" against, or in the settlement of, any claim or "suit".

(iv) We will reimburse the "insured" for sums that the "insured" legally must pay as damages because of "bodily injury" or "property damage" to which this insurance applies, that the "insured" pays with our consent, but only up to the limit described in Paragraph C., **Limits Of Insurance**, of SECTION II – COVERED AUTOS LIABILITY COVERAGE.

(v) We will reimburse the "insured" for the reasonable expenses incurred with our consent for your investigation of such claims and your defense of the "insured" against any such "suit", but only up to and included within the limit described in Paragraph C., **Limits Of Insurance**, of SECTION II – COVERED AUTOS LIABILITY COVERAGE, and not in addition to such limit. Our duty to make such payments ends when we have used up the applicable limit of insurance in payments for damages, settlements or defense expenses.

(b) This insurance is excess over any valid and collectible other insurance available to the "insured" whether primary, excess, contingent or on any other basis.

(c) This insurance is not a substitute for required or compulsory insurance in any country outside the United States, its territories and possessions, Puerto Rico and Canada.

You agree to maintain all required or compulsory insurance in any such country up to the minimum limits required by local law. Your failure to comply with compulsory insurance requirements will not invalidate the coverage afforded by this policy, but we will only be liable to the same extent we would have been liable had you complied with the compulsory insurance requirements.

- (d) It is understood that we are not an admitted or authorized insurer outside the United States of America, its territories and possessions, Puerto Rico and Canada. We assume no responsibility for the furnishing of certificates of insurance, or for compliance in any way with the laws of other countries relating to insurance.

G. WAIVER OF DEDUCTIBLE – GLASS

The following is added to Paragraph D., **Deductible**, of **SECTION III – PHYSICAL DAMAGE COVERAGE**:

No deductible for a covered "auto" will apply to glass damage if the glass is repaired rather than replaced.

H. HIRED AUTO PHYSICAL DAMAGE – LOSS OF USE – INCREASED LIMIT

The following replaces the last sentence of Paragraph A.4.b., **Loss Of Use Expenses**, of **SECTION III – PHYSICAL DAMAGE COVERAGE**:

However, the most we will pay for any expenses for loss of use is \$65 per day, to a maximum of \$750 for any one "accident".

I. PHYSICAL DAMAGE – TRANSPORTATION EXPENSES – INCREASED LIMIT

The following replaces the first sentence in Paragraph A.4.a., **Transportation Expenses**, of **SECTION III – PHYSICAL DAMAGE COVERAGE**:

We will pay up to \$50 per day to a maximum of \$1,500 for temporary transportation expense incurred by you because of the total theft of a covered "auto" of the private passenger type.

J. PERSONAL PROPERTY

The following is added to Paragraph A.4., **Coverage Extensions**, of **SECTION III – PHYSICAL DAMAGE COVERAGE**:

Personal Property

We will pay up to \$400 for "loss" to wearing apparel and other personal property which is:

- (1) Owned by an "insured"; and

- (2) In or on your covered "auto".

This coverage applies only in the event of a total theft of your covered "auto".

No deductibles apply to this Personal Property coverage.

K. AIRBAGS

The following is added to Paragraph B.3., **Exclusions**, of **SECTION III – PHYSICAL DAMAGE COVERAGE**:

Exclusion 3.a. does not apply to "loss" to one or more airbags in a covered "auto" you own that inflate due to a cause other than a cause of "loss" set forth in Paragraphs A.1.b. and A.1.c., but only:

- If that "auto" is a covered "auto" for Comprehensive Coverage under this policy;
- The airbags are not covered under any warranty; and
- The airbags were not intentionally inflated.

We will pay up to a maximum of \$1,000 for any one "loss".

L. NOTICE AND KNOWLEDGE OF ACCIDENT OR LOSS

The following is added to Paragraph A.2.a., of **SECTION IV – BUSINESS AUTO CONDITIONS**:

Your duty to give us or our authorized representative prompt notice of the "accident" or "loss" applies only when the "accident" or "loss" is known to:

- You (if you are an individual);
- A partner (if you are a partnership);
- A member (if you are a limited liability company);
- An executive officer, director or insurance manager (if you are a corporation or other organization); or
- Any "employee" authorized by you to give notice of the "accident" or "loss".

M. BLANKET WAIVER OF SUBROGATION

The following replaces Paragraph A.5., **Transfer Of Rights Of Recovery Against Others To Us**, of **SECTION IV – BUSINESS AUTO CONDITIONS**:

5. Transfer Of Rights Of Recovery Against Others To Us

We waive any right of recovery we may have against any person or organization to the extent required of you by a written contract signed and executed prior to any "accident" or "loss", provided that the "accident" or "loss" arises out of operations contemplated by

COMMERCIAL AUTO

such contract. The waiver applies only to the person or organization designated in such contract.

N. UNINTENTIONAL ERRORS OR OMISSIONS

The following is added to Paragraph B.2., Concealment, Misrepresentation, Or Fraud, of SECTION IV – BUSINESS AUTO CONDITIONS:

The unintentional omission of, or unintentional error in, any information given by you shall not prejudice your rights under this insurance. However this provision does not affect our right to collect additional premium or exercise our right of cancellation or non-renewal.



THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

BUSINESS AUTO EXTENSION ENDORSEMENT

This endorsement modifies insurance provided under the following:

BUSINESS AUTO COVERAGE FORM

GENERAL DESCRIPTION OF COVERAGE – This endorsement broadens coverage. However, coverage for any injury, damage or medical expenses described in any of the provisions of this endorsement may be excluded or limited by another endorsement to the Coverage Part, and these coverage broadening provisions do not apply to the extent that coverage is excluded or limited by such an endorsement. The following listing is a general coverage description only. Limitations and exclusions may apply to these coverages. Read all the provisions of this endorsement and the rest of your policy carefully to determine rights, duties, and what is and is not covered.

- | | |
|---|---|
| A. BROAD FORM NAMED INSURED | H. HIRED AUTO PHYSICAL DAMAGE – LOSS OF USE – INCREASED LIMIT |
| B. BLANKET ADDITIONAL INSURED | I. PHYSICAL DAMAGE – TRANSPORTATION EXPENSES – INCREASED LIMIT |
| C. EMPLOYEE HIRED AUTO | J. PERSONAL PROPERTY |
| D. EMPLOYEES AS INSURED | K. AIRBAGS |
| E. SUPPLEMENTARY PAYMENTS – INCREASED LIMITS | L. NOTICE AND KNOWLEDGE OF ACCIDENT OR LOSS |
| F. HIRED AUTO – LIMITED WORLDWIDE COVERAGE – INDEMNITY BASIS | M. BLANKET WAIVER OF SUBROGATION |
| G. WAIVER OF DEDUCTIBLE – GLASS | N. UNINTENTIONAL ERRORS OR OMISSIONS |

PROVISIONS

A. BROAD FORM NAMED INSURED

The following is added to Paragraph A.1., **Who Is An Insured, of SECTION II – COVERED AUTOS LIABILITY COVERAGE**:

Any organization you newly acquire or form during the policy period over which you maintain 50% or more ownership interest and that is not separately insured for Business Auto Coverage. Coverage under this provision is afforded only until the 180th day after you acquire or form the organization or the end of the policy period, whichever is earlier.

B. BLANKET ADDITIONAL INSURED

The following is added to Paragraph c. in A.1., **Who Is An Insured, of SECTION II – COVERED AUTOS LIABILITY COVERAGE**:

Any person or organization who is required under a written contract or agreement between you and that person or organization, that is signed and executed by you before the "bodily injury" or "property damage" occurs and that is in effect during the policy period, to be named as an additional insured is an "insured" for Covered Autos Liability Coverage, but only for damages to which

this insurance applies and only to the extent that person or organization qualifies as an "insured" under the Who Is An Insured provision contained in Section II.

C. EMPLOYEE HIRED AUTO

- 1. The following is added to Paragraph A.1., Who Is An Insured, of SECTION II – COVERED AUTOS LIABILITY COVERAGE:**

An "employee" of yours is an "insured" while operating an "auto" hired or rented under a contract or agreement in an "employee's" name, with your permission, while performing duties related to the conduct of your business.

- 2. The following replaces Paragraph b. in B.5., Other Insurance, of SECTION IV – BUSINESS AUTO CONDITIONS:**

b. For Hired Auto Physical Damage Coverage, the following are deemed to be covered "autos" you own:

- (1) Any covered "auto" you lease, hire, rent or borrow; and**
- (2) Any covered "auto" hired or rented by your "employee" under a contract in an "employee's" name, with your**

COMMERCIAL AUTO

permission, while performing duties related to the conduct of your business.

However, any "auto" that is leased, hired, rented or borrowed with a driver is not a covered "auto".

D. EMPLOYEES AS INSURED

The following is added to Paragraph A.1., **Who Is An Insured**, of SECTION II – COVERED AUTOS LIABILITY COVERAGE:

Any "employee" of yours is an "insured" while using a covered "auto" you don't own, hire or borrow in your business or your personal affairs.

E. SUPPLEMENTARY PAYMENTS – INCREASED LIMITS

1. The following replaces Paragraph A.2.a.(2), of SECTION II – COVERED AUTOS LIABILITY COVERAGE:

(2) Up to \$3,000 for cost of bail bonds (including bonds for related traffic law violations) required because of an "accident" we cover. We do not have to furnish these bonds.

2. The following replaces Paragraph A.2.a.(4), of SECTION II – COVERED AUTOS LIABILITY COVERAGE:

(4) All reasonable expenses incurred by the "insured" at our request, including actual loss of earnings up to \$500 a day because of time off from work.

F. HIRED AUTO – LIMITED WORLDWIDE COVERAGE – INDEMNITY BASIS

The following replaces Subparagraph (5) in Paragraph B.7., **Policy Period, Coverage Territory**, of SECTION IV – BUSINESS AUTO CONDITIONS:

(5) Anywhere in the world, except any country or jurisdiction while any trade sanction, embargo, or similar regulation imposed by the United States of America applies to and prohibits the transaction of business with or within such country or jurisdiction, for Covered Autos Liability Coverage for any covered "auto" that you lease, hire, rent or borrow without a driver for a period of 30 days or less and that is not an "auto" you lease, hire, rent or borrow from any of your "employees", partners (if you are a partnership), members (if you are a limited liability company) or members of their households.

(a) With respect to any claim made or "suit" brought outside the United States of America, the territories and possessions of the United States of America, Puerto Rico and Canada:

(i) You must arrange to defend the "insured" against, and investigate or settle any such claim or "suit" and keep us advised of all proceedings and actions.

(ii) Neither you nor any other involved "insured" will make any settlement without our consent.

(iii) We may, at our discretion, participate in defending the "insured" against, or in the settlement of, any claim or "suit".

(iv) We will reimburse the "insured" for sums that the "insured" legally must pay as damages because of "bodily injury" or "property damage" to which this insurance applies, that the "insured" pays with our consent, but only up to the limit described in Paragraph C., **Limits Of Insurance**, of SECTION II – COVERED AUTOS LIABILITY COVERAGE.

(v) We will reimburse the "insured" for the reasonable expenses incurred with our consent for your investigation of such claims and your defense of the "insured" against any such "suit", but only up to and included within the limit described in Paragraph C., **Limits Of Insurance**, of SECTION II – COVERED AUTOS LIABILITY COVERAGE, and not in addition to such limit. Our duty to make such payments ends when we have used up the applicable limit of insurance in payments for damages, settlements or defense expenses.

(b) This insurance is excess over any valid and collectible other insurance available to the "insured" whether primary, excess, contingent or on any other basis.

(c) This insurance is not a substitute for required or compulsory insurance in any country outside the United States, its territories and possessions, Puerto Rico and Canada.

You agree to maintain all required or compulsory insurance in any such country up to the minimum limits required by local law. Your failure to comply with compulsory insurance requirements will not invalidate the coverage afforded by this policy, but we will only be liable to the same extent we would have been liable had you complied with the compulsory insurance requirements.

- (d) It is understood that we are not an admitted or authorized insurer outside the United States of America, its territories and possessions, Puerto Rico and Canada. We assume no responsibility for the furnishing of certificates of insurance, or for compliance in any way with the laws of other countries relating to insurance.

G. WAIVER OF DEDUCTIBLE – GLASS

The following is added to Paragraph D., **Deductible**, of **SECTION III – PHYSICAL DAMAGE COVERAGE**:

No deductible for a covered "auto" will apply to glass damage if the glass is repaired rather than replaced.

H. HIRED AUTO PHYSICAL DAMAGE – LOSS OF USE – INCREASED LIMIT

The following replaces the last sentence of Paragraph A.4.b., **Loss Of Use Expenses**, of **SECTION III – PHYSICAL DAMAGE COVERAGE**:

However, the most we will pay for any expenses for loss of use is \$65 per day, to a maximum of \$750 for any one "accident".

I. PHYSICAL DAMAGE – TRANSPORTATION EXPENSES – INCREASED LIMIT

The following replaces the first sentence in Paragraph A.4.a., **Transportation Expenses**, of **SECTION III – PHYSICAL DAMAGE COVERAGE**:

We will pay up to \$50 per day to a maximum of \$1,500 for temporary transportation expense incurred by you because of the total theft of a covered "auto" of the private passenger type.

J. PERSONAL PROPERTY

The following is added to Paragraph A.4., **Coverage Extensions**, of **SECTION III – PHYSICAL DAMAGE COVERAGE**:

Personal Property

We will pay up to \$400 for "loss" to wearing apparel and other personal property which is:

- (1) Owned by an "insured"; and

- (2) In or on your covered "auto".

This coverage applies only in the event of a total theft of your covered "auto".

No deductibles apply to this Personal Property coverage.

K. AIRBAGS

The following is added to Paragraph B.3., **Exclusions**, of **SECTION III – PHYSICAL DAMAGE COVERAGE**:

Exclusion 3.a. does not apply to "loss" to one or more airbags in a covered "auto" you own that inflate due to a cause other than a cause of "loss" set forth in Paragraphs A.1.b. and A.1.c., but only:

- a. If that "auto" is a covered "auto" for Comprehensive Coverage under this policy;
- b. The airbags are not covered under any warranty; and
- c. The airbags were not intentionally inflated.

We will pay up to a maximum of \$1,000 for any one "loss".

L. NOTICE AND KNOWLEDGE OF ACCIDENT OR LOSS

The following is added to Paragraph A.2.a., of **SECTION IV – BUSINESS AUTO CONDITIONS**:

Your duty to give us or our authorized representative prompt notice of the "accident" or "loss" applies only when the "accident" or "loss" is known to:

- (a) You (if you are an individual);
- (b) A partner (if you are a partnership);
- (c) A member (if you are a limited liability company);
- (d) An executive officer, director or insurance manager (if you are a corporation or other organization); or
- (e) Any "employee" authorized by you to give notice of the "accident" or "loss".

M. BLANKET WAIVER OF SUBROGATION

The following replaces Paragraph A.5., **Transfer Of Rights Of Recovery Against Others To Us**, of **SECTION IV – BUSINESS AUTO CONDITIONS**:

5. Transfer Of Rights Of Recovery Against Others To Us

We waive any right of recovery we may have against any person or organization to the extent required of you by a written contract signed and executed prior to any "accident" or "loss", provided that the "accident" or "loss" arises out of operations contemplated by

COMMERCIAL AUTO

such contract. The waiver applies only to the person or organization designated in such contract.

N. UNINTENTIONAL ERRORS OR OMISSIONS

The following is added to Paragraph B.2., Concealment, Misrepresentation, Or Fraud, of SECTION IV – BUSINESS AUTO CONDITIONS:

The unintentional omission of, or unintentional error in, any information given by you shall not prejudice your rights under this insurance. However this provision does not affect our right to collect additional premium or exercise our right of cancellation or non-renewal.



THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

BLANKET ADDITIONAL INSURED – AUTOMATIC STATUS IF REQUIRED BY WRITTEN CONTRACT (CONTRACTORS)

This endorsement modifies insurance provided under the following:
COMMERCIAL GENERAL LIABILITY COVERAGE PART

1. The following is added to SECTION II – WHO IS AN INSURED:

Any person or organization that:

- a. You agree in a "written contract requiring insurance" to include as an additional insured on this Coverage Part; and
- b. Has not been added as an additional insured for the same project by attachment of an endorsement under this Coverage Part which includes such person or organization in the endorsement's schedule;

is an insured, but:

- a. Only with respect to liability for "bodily injury", "property damage" or "personal injury"; and
- b. Only as described in Paragraph (1), (2) or (3) below, whichever applies:

(1) If the "written contract requiring insurance" specifically requires you to provide additional insured coverage to that person or organization by the use of:

- (a) The Additional Insured – Owners, Lessees or Contractors – (Form B) endorsement CG 20 10 11 85; or
- (b) Either or both of the following: the Additional Insured – Owners, Lessees or Contractors – Scheduled Person Or Organization endorsement CG 20 10 10 01, or the Additional Insured – Owners, Lessees or Contractors – Completed Operations endorsement CG 20 37 10 01;

the person or organization is an additional insured only if the injury or damage arises out of "your work" to which the "written contract requiring insurance" applies;

- (2) If the "written contract requiring insurance" specifically requires you to provide additional insured coverage to that person or organization by the use of:

(a) The Additional Insured – Owners, Lessees or Contractors – Scheduled Person or Organization endorsement CG 20 10 07 04 or CG 20 10 04 13, the Additional Insured – Owners, Lessees or Contractors – Completed Operations endorsement CG 20 37 07 04 or CG 20 37 04 13, or both of such endorsements with either of those edition dates; or

(b) Either or both of the following: the Additional Insured – Owners, Lessees or Contractors – Scheduled Person Or Organization endorsement CG 20 10, or the Additional Insured – Owners, Lessees or Contractors – Completed Operations endorsement CG 20 37, without an edition date of such endorsement specified;

the person or organization is an additional insured only if the injury or damage is caused, in whole or in part, by acts or omissions of you or your subcontractor in the performance of "your work" to which the "written contract requiring insurance" applies; or

- (3) If neither Paragraph (1) nor (2) above applies:

(a) The person or organization is an additional insured only if, and to the extent that, the injury or damage is caused by acts or omissions of you or your subcontractor in the performance of "your work" to which the "written contract requiring insurance" applies; and

(b) The person or organization does not qualify as an additional insured with respect to the independent acts or omissions of such person or organization.

COMMERCIAL GENERAL LIABILITY

2. The insurance provided to the additional insured by this endorsement is limited as follows:

a. If the Limits of Insurance of this Coverage Part shown in the Declarations exceed the minimum limits of liability required by the "written contract requiring insurance", the insurance provided to the additional insured will be limited to such minimum required limits of liability. For the purposes of determining whether this limitation applies, the minimum limits of liability required by the "written contract requiring insurance" will be considered to include the minimum limits of liability of any Umbrella or Excess liability coverage required for the additional insured by that "written contract requiring insurance". This endorsement will not increase the limits of insurance described in Section III – Limits Of Insurance.

b. The insurance provided to the additional insured does not apply to "bodily injury", "property damage" or "personal injury" arising out of the rendering of, or failure to render, any professional architectural, engineering or surveying services, including:

(1) The preparing, approving, or failing to prepare or approve, maps, shop drawings, opinions, reports, surveys, field orders or change orders, or the preparing, approving, or failing to prepare or approve, drawings and specifications; and

(2) Supervisory, inspection, architectural or engineering activities.

c. The insurance provided to the additional insured does not apply to "bodily injury" or "property damage" caused by "your work" and included in the "products-completed operations hazard" unless the "written contract requiring insurance" specifically requires you to provide such coverage for that additional insured during the policy period.

3. The insurance provided to the additional insured by this endorsement is excess over any valid and collectible other insurance, whether primary, excess, contingent or on any other basis, that is available to the additional insured. However, if the "written contract requiring insurance" specifically requires that this insurance apply on a primary basis or a primary and non-contributory basis, this insurance is primary to other insurance available to the additional insured under which that person or organization qualifies as a named insured, and we will not share with that other insurance. But the insurance provided to the additional insured by this endorsement still is excess over any valid

and collectible other insurance, whether primary, excess, contingent or on any other basis, that is available to the additional insured when that person or organization is an additional insured, or is any other insured that does not qualify as a named insured, under such other insurance.

4. As a condition of coverage provided to the additional insured by this endorsement:

a. The additional insured must give us written notice as soon as practicable of an "occurrence" or an offense which may result in a claim. To the extent possible, such notice should include:

(1) How, when and where the "occurrence" or offense took place;

(2) The names and addresses of any injured persons and witnesses; and

(3) The nature and location of any injury or damage arising out of the "occurrence" or offense.

b. If a claim is made or "suit" is brought against the additional insured, the additional insured must:

(1) Immediately record the specifics of the claim or "suit" and the date received; and

(2) Notify us as soon as practicable.

The additional insured must see to it that we receive written notice of the claim or "suit" as soon as practicable.

c. The additional insured must immediately send us copies of all legal papers received in connection with the claim or "suit", cooperate with us in the investigation or settlement of the claim or defense against the "suit", and otherwise comply with all policy conditions.

d. The additional insured must tender the defense and indemnity of any claim or "suit" to any provider of other insurance which would cover the additional insured for a loss we cover under this endorsement. However, this condition does not affect whether the insurance provided to the additional insured by this endorsement is primary to other insurance available to the additional insured which covers that person or organization as a named insured as described in Paragraph 3. above.

5. The following is added to the **DEFINITIONS** Section:

"Written contract requiring insurance" means that part of any written contract or agreement under which you are required to include a person or or-

COMMERCIAL GENERAL LIABILITY

ganization as an additional insured on this Coverage Part, provided that the "bodily injury" and "property damage" occurs, and the "personal injury" is caused by an offense committed, during the policy period and:

- a. After the signing and execution of the contract or agreement by you; and
- b. While that part of the contract or agreement is in effect.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

CONTRACTORS XTEND ENDORSEMENT

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

GENERAL DESCRIPTION OF COVERAGE – This endorsement broadens coverage. However, coverage for any injury, damage or medical expenses described in any of the provisions of this endorsement may be excluded or limited by another endorsement to this Coverage Part, and these coverage broadening provisions do not apply to the extent that coverage is excluded or limited by such an endorsement. The following listing is a general coverage description only. Limitations and exclusions may apply to these coverages. Read all the provisions of this endorsement and the rest of your policy carefully to determine rights, duties, and what is and is not covered.

- | | |
|--|---|
| A. Aircraft Chartered With Pilot | H. Blanket Additional Insured – Lessors Of Leased Equipment |
| B. Damage To Premises Rented To You | I. Blanket Additional Insured – States Or Political Subdivisions – Permits |
| C. Increased Supplementary Payments | J. Knowledge And Notice Of Occurrence Or Offense |
| D. Incidental Medical Malpractice | K. Unintentional Omission |
| E. Who Is An Insured – Newly Acquired Or Formed Organizations | L. Blanket Waiver Of Subrogation |
| F. Who Is An Insured – Broadened Named Insured – Unnamed Subsidiaries | M. Amended Bodily Injury Definition |
| G. Blanket Additional Insured – Owners, Managers Or Lessors Of Premises | N. Contractual Liability – Railroads |

PROVISIONS

A. AIRCRAFT CHARTERED WITH PILOT

The following is added to Exclusion g., **Aircraft, Auto Or Watercraft**, in Paragraph 2. of **SECTION I – COVERAGES – COVERAGE A BODILY INJURY AND PROPERTY DAMAGE LIABILITY**:

This exclusion does not apply to an aircraft that is:

- (a) Chartered with a pilot to any insured;
- (b) Not owned by any insured; and
- (c) Not being used to carry any person or property for a charge.

B. DAMAGE TO PREMISES RENTED TO YOU

1. The first paragraph of the exceptions in Exclusion j., **Damage To Property**, in Paragraph 2. of **SECTION I – COVERAGES – COVERAGE A BODILY INJURY AND PROPERTY DAMAGE LIABILITY** is deleted.
2. The following replaces the last paragraph of Paragraph 2., **Exclusions**, of **SECTION I – COVERAGES – COVERAGE A. BODILY**

INJURY AND PROPERTY DAMAGE LIABILITY:

Exclusions c. and g. through n. do not apply to "premises damage". Exclusion f.(1)(a) does not apply to "premises damage" caused by:

- a. Fire;
- b. Explosion;
- c. Lightning;
- d. Smoke resulting from such fire, explosion, or lightning; or
- e. Water;

unless Exclusion f. of Section I – Coverage A – Bodily Injury And Property Damage Liability is replaced by another endorsement to this Coverage Part that has Exclusion – All Pollution Injury Or Damage or Total Pollution Exclusion in its title.

A separate limit of insurance applies to "premises damage" as described in Paragraph 6. of **SECTION III – LIMITS OF INSURANCE**.

COMMERCIAL GENERAL LIABILITY

3. The following replaces Paragraph 6. of **SECTION III – LIMITS OF INSURANCE**:

Subject to 5. above, the Damage To Premises Rented To You Limit is the most we will pay under Coverage A for damages because of "premises damage" to any one premises. The Damage To Premises Rented To You Limit will apply to all "property damage" proximately caused by the same "occurrence", whether such damage results from: fire; explosion; lightning; smoke resulting from such fire, explosion, or lightning; or water; or any combination of any of these causes.

The Damage To Premises Rented To You Limit will be:

- a. The amount shown for the Damage To Premises Rented To You Limit on the Declarations of this Coverage Part; or
- b. \$300,000 if no amount is shown for the Damage To Premises Rented To You Limit on the Declarations of this Coverage Part.

4. The following replaces Paragraph a. of the definition of "insured contract" in the **DEFINITIONS** Section:

- a. A contract for a lease of premises. However, that portion of the contract for a lease of premises that indemnifies any person or organization for "premises damage" is not an "insured contract";

5. The following is added to the **DEFINITIONS** Section:

"Premises damage" means "property damage" to:

- a. Any premises while rented to you or temporarily occupied by you with permission of the owner; or
- b. The contents of any premises while such premises is rented to you, if you rent such premises for a period of seven or fewer consecutive days.

6. The following replaces Paragraph 4.b.(1)(b) of **SECTION IV – COMMERCIAL GENERAL LIABILITY CONDITIONS**:

(b) That is insurance for "premises damage"; or

7. Paragraph 4.b.(1)(c) of **SECTION IV – COMMERCIAL GENERAL LIABILITY CONDITIONS** is deleted.

C. INCREASED SUPPLEMENTARY PAYMENTS

1. The following replaces Paragraph 1.b. of **SUPPLEMENTARY PAYMENTS – COVERAGES A AND B** of **SECTION I – COVERAGE**:

- b. Up to \$2,500 for the cost of bail bonds required because of accidents or traffic law violations arising out of the use of any vehicle to which the Bodily Injury Liability Coverage applies. We do not have to furnish these bonds.

2. The following replaces Paragraph 1.d. of **SUPPLEMENTARY PAYMENTS – COVERAGES A AND B** of **SECTION I – COVERAGES**:

- d. All reasonable expenses incurred by the insured at our request to assist us in the investigation or defense of the claim or "suit", including actual loss of earnings up to \$500 a day because of time off from work.

D. INCIDENTAL MEDICAL MALPRACTICE

1. The following is added to the definition of "occurrence" in the **DEFINITIONS** Section:

"Occurrence" also means an act or omission committed in providing or failing to provide "incidental medical services", first aid or "Good Samaritan services" to a person.

2. The following is added to Paragraph 2.a.(1) of **SECTION II – WHO IS AN INSURED**:

Paragraph (1)(d) above does not apply to "bodily injury" arising out of providing or failing to provide:

- (i) "Incidental medical services" by any of your "employees" who is a nurse practitioner, registered nurse, licensed practical nurse, nurse assistant, emergency medical technician or paramedic; or
- (ii) First aid or "Good Samaritan services" by any of your "employees" or "volunteer workers", other than an employed or volunteer doctor. Any such "employees" or "volunteer workers" providing or failing to provide first aid or "Good Samaritan services" during their work hours for you will be deemed to be acting within the scope of their employment by you or performing duties related to the conduct of your business.

3. The following is added to Paragraph 5. of **SECTION III – LIMITS OF INSURANCE:**

For the purposes of determining the applicable Each Occurrence Limit, all related acts or omissions committed in providing or failing to provide "incidental medical services", first aid or "Good Samaritan services" to any one person will be deemed to be one "occurrence".

4. The following exclusion is added to Paragraph 2., **Exclusions**, of **SECTION I – COVERAGES – COVERAGE A BODILY INJURY AND PROPERTY DAMAGE LIABILITY:**

Sale Of Pharmaceuticals

"Bodily injury" or "property damage" arising out of the willful violation of a penal statute or ordinance relating to the sale of pharmaceuticals committed by, or with the knowledge or consent of, the insured.

5. The following is added to the **DEFINITIONS** Section:

"Incidental medical services" means:

- a. Medical, surgical, dental, laboratory, x-ray or nursing service or treatment, advice or instruction, or the related furnishing of food or beverages; or
- b. The furnishing or dispensing of drugs or medical, dental, or surgical supplies or appliances.

"Good Samaritan services" means any emergency medical services for which no compensation is demanded or received.

6. The following is added to Paragraph 4.b., **Excess Insurance**, of **SECTION IV – COMMERCIAL GENERAL LIABILITY CONDITIONS:**

The insurance is excess over any valid and collectible other insurance available to the insured, whether primary, excess, contingent or on any other basis, that is available to any of your "employees" or "volunteer workers" for "bodily injury" that arises out of providing or failing to provide "incidental medical services", first aid or "Good Samaritan services" to any person to the extent not subject to Paragraph 2.a.(1) of Section II – Who Is An Insured.

E. WHO IS AN INSURED – NEWLY ACQUIRED OR FORMED ORGANIZATIONS

The following replaces Paragraph 4. of **SECTION II – WHO IS AN INSURED:**

4. Any organization you newly acquire or form, other than a partnership, joint venture or limited liability company, of which you are the sole owner or in which you maintain the majority ownership interest, will qualify as a Named Insured if there is no other insurance which provides similar coverage to that organization. However:

- a. Coverage under this provision is afforded only:

(1) Until the 180th day after you acquire or form the organization or the end of the policy period, whichever is earlier, if you do not report such organization in writing to us within 180 days after you acquire or form it; or

(2) Until the end of the policy period, when that date is later than 180 days after you acquire or form such organization, if you report such organization in writing to us within 180 days after you acquire or form it, and we agree in writing that it will continue to be a Named Insured until the end of the policy period;

- b. Coverage A does not apply to "bodily injury" or "property damage" that occurred before you acquired or formed the organization; and
- c. Coverage B does not apply to "personal injury" or "advertising injury" arising out of an offense committed before you acquired or formed the organization.

F. WHO IS AN INSURED – BROADENED NAMED INSURED – UNNAMED SUBSIDIARIES

The following is added to **SECTION II – WHO IS AN INSURED:**

Any of your subsidiaries, other than a partnership, joint venture or limited liability company, that is not shown as a Named Insured in the Declarations is a Named Insured if you maintain an ownership interest of more than 50% in such subsidiary on the first day of the policy period.

No such subsidiary is an insured for "bodily injury" or "property damage" that occurred, or "personal injury" or "advertising injury" caused by an offense committed after the date, if any, during the policy period, that you no longer maintain an ownership interest of more than 50% in such subsidiary.

COMMERCIAL GENERAL LIABILITY

G. BLANKET ADDITIONAL INSURED – OWNERS, MANAGERS OR LESSORS OF PREMISES

The following is added to **SECTION II – WHO IS AN INSURED**:

Any person or organization that is a premises owner, manager or lessor and that you have agreed in a written contract or agreement to include as an additional insured on this Coverage Part is an insured, but only with respect to liability for "bodily injury", "property damage", "personal injury" or "advertising injury" that:

- a. Is "bodily injury" or "property damage" that occurs, or is "personal injury" or "advertising injury" caused by an offense that is committed, subsequent to the execution of that contract or agreement; and
- b. Arises out of the ownership, maintenance or use of that part of any premises leased to you.

The insurance provided to such premises owner, manager or lessor is subject to the following provisions:

- a. The limits of insurance provided to such premises owner, manager or lessor will be the minimum limits which you agreed to provide in the written contract or agreement, or the limits shown on the Declarations, whichever are less.
- b. The insurance provided to such premises owner, manager or lessor does not apply to:
 - (1) Any "bodily injury" or "property damage" that occurs, or "personal injury" or "advertising injury" caused by an offense that is committed, after you cease to be a tenant in that premises; or
 - (2) Structural alterations, new construction or demolition operations performed by or on behalf of such premises owner, lessor or manager.
- c. The insurance provided to such premises owner, manager or lessor is excess over any valid and collectible other insurance available to such premises owner, manager or lessor, whether primary, excess, contingent or on any other basis, unless you have agreed in the written contract or agreement that this insurance must be primary to, or non-contributory with, such other insurance, in which case this insurance will be primary to, and non-contributory with, such other insurance.

H. BLANKET ADDITIONAL INSURED – LESSORS OF LEASED EQUIPMENT

The following is added to **SECTION II – WHO IS AN INSURED**:

Any person or organization that is an equipment lessor and that you have agreed in a written contract or agreement to include as an insured on this Coverage Part is an insured, but only with respect to liability for "bodily injury", "property damage", "personal injury" or "advertising injury" that:

- a. Is "bodily injury" or "property damage" that occurs, or is "personal injury" or "advertising injury" caused by an offense that is committed, subsequent to the execution of that contract or agreement; and
- b. Is caused, in whole or in part, by your acts or omissions in the maintenance, operation or use of equipment leased to you by such equipment lessor.

The insurance provided to such equipment lessor is subject to the following provisions:

- a. The limits of insurance provided to such equipment lessor will be the minimum limits which you agreed to provide in the written contract or agreement, or the limits shown on the Declarations, whichever are less.
- b. The insurance provided to such equipment lessor does not apply to any "bodily injury" or "property damage" that occurs, or "personal injury" or "advertising injury" caused by an offense that is committed, after the equipment lease expires.
- c. The insurance provided to such equipment lessor is excess over any valid and collectible other insurance available to such equipment lessor, whether primary, excess, contingent or on any other basis, unless you have agreed in the written contract or agreement that this insurance must be primary to, or non-contributory with, such other insurance, in which case this insurance will be primary to, and non-contributory with, such other insurance.

I. BLANKET ADDITIONAL INSURED – STATES OR POLITICAL SUBDIVISIONS – PERMITS

The following is added to **SECTION II – WHO IS AN INSURED**:

Any state or political subdivision that has issued a permit in connection with operations performed by you or on your behalf and that you are required

by any ordinance, law or building code to include as an additional insured on this Coverage Part is an insured, but only with respect to liability for "bodily injury", "property damage", "personal injury" or "advertising injury" arising out of such operations.

The insurance provided to such state or political subdivision does not apply to:

- a. Any "bodily injury," "property damage," "personal injury" or "advertising injury" arising out of operations performed for that state or political subdivision; or
- b. Any "bodily injury" or "property damage" included in the "products-completed operations hazard".

J. KNOWLEDGE AND NOTICE OF OCCURRENCE OR OFFENSE

The following is added to Paragraph 2., **Duties In The Event of Occurrence, Offense, Claim or Suit**, of **SECTION IV – COMMERCIAL GENERAL LIABILITY CONDITIONS**:

- e. The following provisions apply to Paragraph a. above, but only for the purposes of the insurance provided under this Coverage Part to you or any insured listed in Paragraph 1. or 2. of Section II – Who Is An Insured:

- (1) Notice to us of such "occurrence" or offense must be given as soon as practicable only after the "occurrence" or offense is known by you (if you are an individual), any of your partners or members who is an individual (if you are a partnership or joint venture), any of your managers who is an individual (if you are a limited liability company), any of your "executive officers" or directors (if you are an organization other than a partnership, joint venture or limited liability company) or any "employee" authorized by you to give notice of an "occurrence" or offense.
- (2) If you are a partnership, joint venture or limited liability company, and none of your partners, joint venture members or managers are individuals, notice to us of such "occurrence" or offense must be given as soon as practicable only after the "occurrence" or offense is known by:
 - (a) Any individual who is:
 - (i) A partner or member of any partnership or joint venture;

- (ii) A manager of any limited liability company; or
 - (iii) An executive officer or director of any other organization;
- that is your partner, joint venture member or manager; or
- (b) Any "employee" authorized by such partnership, joint venture, limited liability company or other organization to give notice of an "occurrence" or offense.

- (3) Notice to us of such "occurrence" or of an offense will be deemed to be given as soon as practicable if it is given in good faith as soon as practicable to your workers' compensation insurer. This applies only if you subsequently give notice to us of the "occurrence" or offense as soon as practicable after any of the persons described in Paragraphs e. (1) or (2) above discovers that the "occurrence" or offense may result in sums to which the insurance provided under this Coverage Part may apply.

However, if this Coverage Part includes an endorsement that provides limited coverage for "bodily injury" or "property damage" or pollution costs arising out of a discharge, release or escape of "pollutants" which contains a requirement that the discharge, release or escape of "pollutants" must be reported to us within a specific number of days after its abrupt commencement, this Paragraph e. does not affect that requirement.

K. UNINTENTIONAL OMISSION

The following is added to Paragraph 6., **Representations**, of **SECTION IV – COMMERCIAL GENERAL LIABILITY CONDITIONS**:

The unintentional omission of, or unintentional error in, any information provided by you which we relied upon in issuing this policy will not prejudice your rights under this insurance. However, this provision does not affect our right to collect additional premium or to exercise our rights of cancellation or nonrenewal in accordance with applicable insurance laws or regulations.

L. BLANKET WAIVER OF SUBROGATION

The following is added to Paragraph 8., **Transfer Of Rights Of Recovery Against Others To Us**, of **SECTION IV – COMMERCIAL GENERAL LIABILITY CONDITIONS**:

COMMERCIAL GENERAL LIABILITY

If the insured has agreed in a contract or agreement to waive that insured's right of recovery against any person or organization, we waive our right of recovery against such person or organization, but only for payments we make because of:

- a. "Bodily injury" or "property damage" that occurs; or
- b. "Personal injury" or "advertising injury" caused by an offense that is committed;

subsequent to the execution of that contract or agreement.

M. AMENDED BODILY INJURY DEFINITION

The following replaces the definition of "bodily injury" in the **DEFINITIONS** Section:

3. "Bodily injury" means bodily injury, mental anguish, mental injury, shock, fright, disability, humiliation, sickness or disease sustained by a person, including death resulting from any of these at any time.

N. CONTRACTUAL LIABILITY – RAILROADS

1. The following replaces Paragraph c. of the definition of "insured contract" in the **DEFINITIONS** Section:
 - c. Any easement or license agreement;
2. Paragraph f.(1) of the definition of "insured contract" in the **DEFINITIONS** Section is deleted.

Austin Tyler Construction, Inc.



**WORKERS COMPENSATION
AND
EMPLOYERS LIABILITY POLICY**

ENDORSEMENT WC 00 03 13 (00)-01

POLICY NUMBER: DTHUB1C13086017

WAIVER OF OUR RIGHT TO RECOVER FROM OTHERS ENDORSEMENT

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule. (This agreement applies only to the extent that you perform work under a written contract that requires you to obtain this agreement from us.)

This agreement shall not operate directly or indirectly to benefit any one not named in the Schedule.

SCHEDULE

DESIGNATED PERSON:

DESIGNATED ORGANIZATION:

ANY PERSON OR ORGANIZATION FOR WHICH THE INSURED HAS AGREED
BY WRITTEN CONTRACT EXECUTED PRIOR TO LOSS TO FURNISH THIS
WAIVER.

ST ASSIGN:

DIVISION I

GENERAL REQUIREMENTS AND COVENANTS

SECTION 1. DEFINITION OF TERMS

		1
1-1	DESCRIPTION	1
1-2	ABBREVIATIONS	1
1-3	ADDENDA	2
1-4	AWARD	2
1-5	BASE COURSE	2
1-6	BITUMINOUS PAVEMENT	2
1-7	BIDDER	2
1-8	CONTRACT	2
1-9	CONTRACTOR	3
1-10	CONTRACT BOND	3
1-11	CORPORATION	3
1-12	CULVERT	3
1-13	ENGINEER	4
1-14	FORCE MAIN	4
1-15	ENGINEERING OBSERVER	4
1-16	LABORATORY	4
1-17	MANHOLE	4
1-18	NOTICE TO BIDDERS	4
1-19	OWNER	4
1-20	PAVEMENT STRUCTURE	4
1-21	PLANS	5
1-22	PLUMBING	5
1-23	PROPOSAL (BID)	5
1-24	PROPOSAL GUARANTY	5
1-25	RAILROAD	5
1-26	RIGHT-OF-WAY AND EASEMENTS	5
1-27	SEWER, COMBINED	5
1-28	SEWER, SANITARY	5
1-29	SEWER, SERVICE	6
1-30	SEWER, STORM	6
1-31	SPECIAL PROVISIONS	6

1-32	SPECIFICATIONS	6
1-33	STATE SPECIFICATIONS	6
1-34	SUBCONTRACTOR	6
1-35	SUB-BASE	6
1-36	SUB-GRADE	7
1-37	SUPPLEMENTAL AGREEMENT	7
1-38	SUPPLIER	7
1-39	SURETY	7
1-40	SURFACE COURSE	7
1-41	WATER MAIN	7
1-42	WATER SERVICE LINE	7
1-43	THE WORK	7

<u>SECTION 2. PROPOSAL REQUIREMENTS AND CONDITIONS</u>		8
2-1	CONTENTS OF THE PROPOSAL FORM	8
2-2	INTERPRETATION OF ESTIMATE OF QUANTITIES	8
2-3	EXAMINATION OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS, AND SITE OF WORK	8
2-4	ENGINEER'S ESTIMATE	9
2-5	PREPARATION OF THE PROPOSAL	9
2-6	MULTIPLE BIDS	9
2-7	REJECTION OF PROPOSALS	9
2-8	PROPOSAL GUARANTY	10
2-9	DELIVERY OF PROPOSALS	10
2-10	WITHDRAWAL OF PROPOSALS	10
2-11	WITHDRAWAL OF PROPOSAL GUARANTY	10
2-12	PUBLIC OPENING OF PROPOSALS	10
2-13	DISQUALIFICATION OF BIDDERS	11
2-14	COMPETENCY OF BIDDERS	11
2-15	MATERIAL SUBSTITUTIONS	12
2-16	CONTRACTOR'S UNDERSTANDING	12
2-17	STATUS OF RIGHT-OF-WAY, EASEMENT AND CONSTRUCTION EASEMENT ACQUISITION	12

<u>SECTION 3. AWARD AND EXECUTION OF CONTRACT</u>	13
3-1 CONSIDERATION OF PROPOSALS	13
3-2 AWARD OF CONTRACT	13
3-3 RETURN OF PROPOSAL GUARANTY	13
3-4 REQUIREMENT OF CONTRACT BOND	13
3-5 EXECUTION OF THE CONTRACT	14
3-6 FAILURE TO EXECUTE CONTRACT	14
<u>SECTION 4. SCOPE OF WORK</u>	15
4-1 INTENT OF THE PLANS AND SPECIFICATIONS	15
4-2 SPECIAL WORK	15
4-3 CHANGES	15
4-4 PERIODIC AND FINAL CLEANUP	16
4-5 LUMP SUM CONTRACTS	17
4-6 LOCAL ORDINANCES AND REGULATIONS	17
4-7 PREFERENCE TO VETERANS	17
<u>SECTION 5. CONTROL OF THE WORK</u>	18
5-1 PLANS AND WORKING DRAWINGS	18
5-2 CONFORMITY WITH PLANS AND SPECIFICATIONS	18
5-3 COORDINATION OF COMPONENT PARTS OF THE CONTRACT	18
5-4 COOPERATION BY CONTRACTOR	19
5-5 UTILITIES	19
5-6 COOPERATION BETWEEN CONTRACTORS	19
5-7 CONSTRUCTION STAKES	20
5-8 AUTHORITY AND DUTIES OF OBSERVERS	20
5-9 ENGINEER'S FIELD OFFICE AND/OR LABORATORY	20
5-10 CONSTRUCTION OBSERVATION	21
5-11 REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK	22
5-12 FINAL ACCEPTANCE	22
5-13 PUBLIC CONSTRUCTION BID ACT, 30 ILCS 557/1	23

<u>SECTION 6. CONTROL OF MATERIAL</u>	24
6-1 QUALITY OF MATERIALS	24
6-2 DEFECTIVE MATERIALS	24
6-3 TESTING MATERIALS	24
6-4 SAND, GRAVEL AND CRUSHED STONE	24
6-5 CONCRETE	24
6-6 MISCELLANEOUS MATERIALS	25
6-7 JOB SITE OBSERVATION	25
6-8 STORED MATERIALS	25
6-9 "OR EQUAL" CLAUSE	25
<u>SECTION 7. LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC</u>	26
7-1 LAWS TO BE OBSERVED	26
7-2 INSURANCE REQUIREMENTS	27
7-3 PERMITS AND LICENSES	33
7-4 PATENTS AND ROYALTIES	33
7-5 STATE AND FEDERAL PARTICIPATION	34
7-6 SANITARY PROVISIONS	34
7-7 PUBLIC CONVENIENCE AND SAFETY	34
7-8 BARRICADES AND WARNING SIGNS	34
7-9 DEBRIS ON TRAVELED SURFACE OR STRUCTURES	35
7-10 EQUIPMENT ON TRAVELED SURFACE AND STRUCTURES	35
7-11 USE OF EXPLOSIVES	35
7-12 USE OF FIRE HYDRANTS	35
7-13 PROTECTION AND RESTORATION OF PROPERTY	36
7-14 PROTECTION AND RESTORATION OF TRAFFIC SIGNS	37
7-15 CONTRACTOR'S RESPONSIBILITY FOR WORK	37
7-16 GUARANTEE PERIOD	38
7-17 PERSONAL LIABILITY OF OWNER'S AGENTS	38
7-18 NO WAIVER OF LEGAL RIGHTS	38
7-19 SAFETY	39
7-20 USE OF PRIVATE LAND	39

7-21	USE OF WATER	39
7-22	COST OF SERVICES	39
7-23	WORK IN BAD WEATHER	39
7-24	SUNDAY WORK	39
7-25	WATCHMEN	40
7-26	CONSTRUCTION DEBRIS	40
7-27	SAMPLE INSURANCE CERTIFICATE	41
<u>SECTION 8. PROSECUTION AND PROGRESS</u>		42
8-1	SUBLETTING OR ASSIGNMENT OF CONTRACT	42
8-2	PROGRESS SCHEDULE	42
8-3	PRE-CONSTRUCTION CONFERENCE	42
8-4	PROSECUTION OF THE WORK	42
8-5	COMPLETION DATE	42
8-6	LIMITATIONS OF OPERATIONS	43
8-7	SUSPENSION OF WORK	43
8-8	DETERMINATION AND EXTENSION OF CONTRACT TIME FOR COMPLETION	43
8-9	FAILURE TO COMPLETE THE WORK ON TIME	44
8-10	DEFAULT ON CONTRACT	44
8-11	TERMINATION OF THE CONTRACTOR'S RESPONSIBILITY	45
<u>SECTION 9. MEASUREMENT AND PAYMENT</u>		46
9-1	MEASUREMENT OF QUANTITIES	46
9-2	SCOPE OF PAYMENT	46
9-3	INCREASED OR DECREASED QUANTITIES	46
9-4	PAYMENT FOR EXTRA WORK	47
9-5	PAYMENT FOR SUBCONTRACTING, EXTRA WORK	48
9-6	PARTIAL PAYMENTS	48
9-7	ACCEPTANCE AND FINAL PAYMENT	49
9-8	OWNER'S RIGHT TO WITHHOLD CERTAIN AMOUNTS	49
9-9	RELEASE OF CLAIMS AND LIENS	50

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.

ASTM	American Society for Testing and Materials 1916 Race Street Philadelphia, Pennsylvania 19103
ASSHTO	The American Association of State Highway and Transportation Officials 917 National Press Building Washington, D.C. 20004
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, Colorado 80235
NSF	National Sanitation Test Laboratory Foundation Box 1478 Ann Arbor, Michigan
ANSI	American National Standards Institute 1430 Broadway New York, New York 10018
IDOT	Illinois Department of Transportation 2300 South Dirksen Parkway Springfield, Illinois 62764
FHWA	Federal Highway Administration DOT Building, 400 Seventh St., S.W. Washington, D.C. 20590
OSHA	Occupational Safety and Health Act
MWRDGC	The Metropolitan Water Reclamation District of Greater Chicago 100 East Erie Street Chicago, Illinois 60611

REL Robinson Engineering, Ltd

ISO Insurance Services Office

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.

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 place 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".

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 of 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 of 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 if 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.

EMAIL ALL CERTIFICATES TO RELCERTIFICATES@THEHORTONGROUP.COM



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

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 endorsement(s).

PRODUCER YOUR INSURANCE AGENT		CONTACT NAME: _____ PHONE (A/C, H, Ext): _____ FAX (A/C, H): _____ E-MAIL: _____ ADDRESS: _____	
INSURED YOUR NAME AND ADDRESS		INSURERS AFFORDING COVERAGE	
		INSURER A: CARRIERS MUST BE RATED	
		INSURER B: A-VII OR BETTER	
		INSURER C:	
		INSURER D:	
INSURER E:		INSURER F:	

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD 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 PAID CLAIMS.

TYPE OF INSURANCE	ADDITIONAL INSURED	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
☒ GENERAL LIABILITY ☐ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER POLICY ☒ PRO ☐ LOC	Y Y	POLICY NUMBER	EFF DATE	EXP DATE	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (EA OCCURRENCE) \$ ANY LIMIT MED EXP (Any one person) \$ ANY LIMIT PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
☒ AUTOMOBILE LIABILITY ☒ ANY AUTO ☐ ALL OWNED AUTOS ☒ HIRE AUTOS ☒ SCHEDULED AUTOS ☐ NON-OWNED AUTOS	Y Y	POLICY NUMBER	EFF DATE	EXP DATE	COMBINED SINGLE LIMIT (EA OCCURRENCE) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
☒ UMBRELLA LIAB ☒ EXCESS LIAB ☐ OCCUR ☐ CLAIMS-MADE RETENTION \$	Y Y	POLICY NUMBER	EFF DATE	EFF DATE	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000
WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y N N/A Y	POLICY NUMBER	EFF DATE	EFF DATE	☒ WC STATU ☐ OTHER E.L. EACH ACCIDENT \$ 500,000 E.L. DISEASE - EA EMPLOYER \$ 500,000 E.L. DISEASE - POLICY LIMIT \$ 500,000
POLLUTION PROFESSIONAL		POLICY NUMBER	EFF DATE	EFF DATE	\$1,000,000/\$1,000,000 AGG \$1,000,000/\$2,000,000 AGG

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

REL JOB NUMBER AND PROJECT NAME AND ADDRESS:

Additional insured with respect to General Liability, Auto Liability and Umbrella/Excess Liability on a primary and noncontributory basis when required by written contract (Owner and Robinson Engineering Inc) 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 non-contributory.

CERTIFICATE HOLDER

CANCELLATION

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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ACORD 25 (2010/05)

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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

Original Contract Amount		Daily Charge	
From more than	To and including	<u>Calendar Day</u>	<u>Work Day</u>
\$ 0	100,000	\$ 475	\$ 675
100,000	500,000	750	1,050
500,000	1,000,000	1,025	1,425
1,000,000	3,000,000	1,275	1,725
3,000,000	6,000,000	1,425	2,000
6,000,000	12,000,000	2,300	3,450
12,000,000	And over	5,800	8,125

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.

9-4 PAYMENT FOR EXTRA 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

<u>SECTION 1.</u>	<u>EXCAVATION AND BACKFILL FOR UNDERGROUND CONDUITS</u>	1
1-1	DESCRIPTION	1
1-2	CONSTRUCTION DETAILS	1
<u>SECTION 2.</u>	<u>RESTORATION OF SURFACES</u>	13
2-1	GENERAL	13
2-2	CONSTRUCTION DETAILS	13
<u>SECTION 3.</u>	<u>FINISHING AND CLEAN UP FOR UNDERGROUND CONDUITS</u>	16
3-1	CLEAN UP	16

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 Sheeting 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.

1-2.13 SAFETY

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 INTERRUPTION 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.

DIVISION II

Technical Specifications

SANITARY SEWER AND FORCE MAIN

<u>SECTION 1. PIPE MATERIAL FOR SEWERS</u>	1
1-1 DESCRIPTION	1
1-2 GENERAL	1
1-3 MATERIALS	1
 <u>SECTION 2. PIPE LAYING, JOINTING AND TESTING OF SEWERS</u>	 3
2-1 CONSTRUCTION DETAILS	3
AIR TEST TABLE	10
2-2 MEASUREMENT	11
2-3 PAYMENT	11
2-4 MEASUREMENT AND PAYMENT	11
 <u>SECTION 3. MANHOLES FOR SANITARY SEWERS</u>	 12
3-1 DESCRIPTION	12
3-2 MATERIALS	12
3-3 CONSTRUCTION DETAILS	13
3-4 PAYMENT	16
3-5 MEASUREMENT AND PAYMENT	16
 <u>SECTION 4. SERVICE SEWERS</u>	 17
4-1 DESCRIPTION	17
4-2 MATERIALS	17
4-3 CONSTRUCTION DETAILS	17
4-4 MEASUREMENT	18
4-5 PAYMENT	18
4-6 MEASUREMENT AND PAYMENT	19
 <u>SECTION 5. PIPE COVERING AND EMBANKMENT FOR SEWER CONSTRUCTION</u>	 20
5-1 DESCRIPTION	20
5-2 CONSTRUCTION DETAILS	20
5-3 MEASUREMENT	20

5-4	PAYMENT	20
------------	----------------	-----------

<u>SECTION 6. FORCE MAIN MATERIAL AND INSTALLATION</u>	21
---	-----------

6-1	DESCRIPTION	21
6-2	GENERAL	21
6-3	CERTIFICATION	21
6-4	MATERIALS	21
6-5	CONNECTION TO EXISTING SANITARY SEWER MANHOLE	23
6-6	STEEL SLEEVES-AUGERED	24
	<i>Standard Sizes of Steel Sleeves Used As Casings*</i>	25
6-7	STEEL SLEEVES-OPEN CUT INSTALLATION	25
6-8	SEWER FLOW CONTROL AND BYPASS PUMPING	26
6-9	WATER USE	28

<u>SECTION 7. FORCE MAIN VALVES</u>	29
--	-----------

7-1	GENERAL	29
7-2	MANUFACTURERS	29
7-3	MATERIALS	29
7-4	VALVE JOINTS	30
7-4	OPERATING FORCE	30
7-5	FLOOR AND BENCH STANDS	30
7-6	VALVE VAULTS	30
7-7	TYPE-SPECIFIC VALVE SPECIFICATIONS	31
7-8	PAYMENT	34

SECTION 1. PIPE MATERIAL FOR SEWERS

1-1 DESCRIPTION

Pipe used in sanitary sewer construction, unless otherwise specified, shall be Polyvinyl Chloride Pipe (PVC) or Ductile Iron Pipe (DIP). All sanitary sewer pipe shall have flexible gasketed joints unless otherwise specified.

The Contractor shall only use the sewer pipe material specified on the Plans unless he receives written permission from the Engineer to substitute one of the other materials mentioned herein. No verbal approval, regardless of the source, will be recognized for changing the pipe material, class or type of joint.

1-2 GENERAL

Where reference is made to an ASTM or ANSI designation, it shall be the latest revision at the time of call for Bids, except as noted on the Plans or in the Special Provisions.

CERTIFICATION shall be the responsibility of the pipe manufacturer to certify that pipe and joint material furnished is capable of withstanding the infiltration or exfiltration basis as specified or required, if properly installed.

1-3 MATERIALS

1-3.01 PIPE MATERIALS

The type, class and strength of pipe to be used shall be as shown on the Plans or described in the Special Provisions.

A. DUCTILE IRON PIPE AND FITTINGS

Ductile Iron Pipe shall conform to ANSI A 21.51 (AWWA C-151), Class 52 designed per ANSI A 21.50 (AWWA C-150), tar (seal) coated and/or cement lined per ANSI A 21.4 (AWWA C-104), with mechanical or rubber ring (slip seal or push on) joints. Ductile Iron fittings shall conform to ANSI/AWWA C110 for mechanical, push-on or flanged joints. Cement-mortar and/or tar (seal) coat per ANSI A 21.4 (AWWA 104) and as specified.

B. POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

Polyvinyl Chloride pipe (PVC) and fittings shall conform to ASTM F 679 or ASTM D 3034, except that it shall be made of PVC plastic having a minimum cell classification of 12454B.

1-3.02 JOINT MATERIALS

The type of joint materials to be used shall be as shown on the Plans or described in the Special Provisions.

JOINTS FOR SANITARY SEWERS

- A. Polyvinyl Chloride (PVC) pipe joints shall conform to ASTM D 2855 for solvent joints or ASTM D 3212 for gasket joints.
- B. Ductile iron pipe (DIP) joints shall conform to American National Standard C111/A21.50-90 for Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.

1-3.03 FITTINGS

Unless otherwise specified, tee fittings shall be provided in the sanitary sewer main for service sewer connections; a log of all tee fitting locations shall be kept by the Contractor during installation and one legible copy of each such log shall be turned over to the Owner prior to completion. Tees shall be six inches (6") inside diameter, unless otherwise specified or noted. All fittings shall be of the same material as the pipe. Material joining the fitting to the pipe shall be free from cracks and shall adhere tightly to each joining surface.

1-3.04 CAP FOR FITTINGS

All fittings shall be capped with a plug of the same material as the pipe, and gasketed with the same gasket material as the pipe joint, or be of material approved by the Engineer. The plug shall be secured to withstand test pressures specified herein.

SECTION 2. PIPE LAYING, JOINTING AND TESTING OF SEWERS

2-1 CONSTRUCTION DETAILS

2-1.01 SEWER PIPE LAYING

Laying of sewer pipe shall be accomplished to line and grade in the trench only after it has been dewatered and the foundation and/or bedding has been prepared in accordance with Division II, Excavation and Cleanup. Mud, silt, gravel and other foreign material shall be kept out of the pipe and off the jointing surfaces.

Variance from established line and grade shall not be greater than one thirty-second of an inch ($1/32''$) per inch of pipe diameter and not to exceed one-half inch ($1/2''$), provided that any such variation does not result in a level or reverse sloping invert; provided also that variation in the invert elevation between adjoining ends of pipe, due to non-concentricity of joining surface and pipe interior surfaces, does not exceed one sixty-fourth of an inch ($1/64''$) per inch of pipe diameter, or one-half inch ($1/2''$) maximum.

The sewer pipe, unless otherwise approved by the Engineer, shall be laid upgrade from point of connection on the existing sewer or from a designated starting point. The sewer pipe shall be installed with the bell end forward or upgrade, unless approved otherwise. When pipe laying is not in progress, the forward end of the pipe shall be kept tightly closed with an approved temporary plug.

A. SEWER PIPE AND WATER MAIN SEPARATION

Sanitary sewers, house sewers or storm drains that are laid in the vicinity of pipe lines designated to carry potable water shall meet the following conditions as set forth in Division II, Water Distribution, Section 2-2.01.

B. SEWER MANHOLES

Sewer manholes shall be constructed so that no water pipe is in contact with or enclosed by any part of a sewer or sewer manhole. See also Division II, Water Distribution, Section 2-2.01.

2-1.02 DEWATERING

Dewatering sufficient to maintain the water level twelve inches (12") below the surface of the trench bottom or base of the bedding course, shall be accomplished prior to pipe laying and jointing, if not prior to excavation and placing of the bedding as called for in other sections of the Specifications or Special Provisions. The dewatering operation, however accomplished, shall be carried out so that it does not destroy or weaken the strength of the soil under or alongside the trench. The normal water table shall be restored to its natural level in such a manner as to not disturb the pipe and its foundation

2-1.03 BEDDING

The pipe bedding shall be placed so that the entire length of the pipe will have full bearing. No blocking of any kind shall be used to adjust the pipe to grade except when used with concrete encasement.

2-1.04 PLUGS AND CONNECTIONS

Plugs for pipe branches, stubs or other open ends which are not to be immediately connected shall be made of an approved material and shall be secured in place with a joint comparable to the main line joint. Stoppers may be of an integrally cast breakout design.

2-1.05 PIPE MARKINGS

All pipe shall have a homing mark on the spigot provided by the manufacturer.

2-1.06 PIPE JOINTING

Type of joint to be used will conform to the requirements of Section 1-3.02.

All pipe and jointing for sanitary sewers shall be subject to the tests specified in Section 2-1.09.

A. GASKET TYPE JOINTS

All extensions, additions and revisions of a sanitary sewer system, unless otherwise indicated in the Special Provisions, shall be made with sewer pipe jointed by means of a flexible gasket which shall be fabricated and installed in accordance with the specifications that follow. When gaskets are placed on the pipe in the field, the surfaces on which the gasket seats must be thoroughly cleaned. The gasket, lubricated according to the manufacturer's instructions, is placed on the pipe.

Pipe handling after the gasket has been affixed shall be carefully controlled to avoid disturbing the gasket and knocking it out of position or loading it with dirt or other foreign material. Any gaskets so disturbed shall be removed and replaced, cleaned and relubricated if required, before the jointing is attempted.

Care shall be taken to properly align the pipe before joints are entirely forced home. During insertion of the tongue or spigot, the pipe shall be partially supported by hand, sling or crane to minimize unequal lateral pressure on the gasket and to maintain concentricity until the gasket is properly positioned.

Sufficient pressure shall be applied in making the joint to assure that it is home, as described in the installation instructions provided by the pipe manufacturer. Sufficient restraint as specified in Section 2-1.02 shall be applied to the line to assure that joints once home are held so, until fill material under and alongside the pipe has been sufficiently compacted. At the end of the work day, the last pipe laid shall be blocked in an effective way to prevent creep. The pipe shall be closed with a suitable "night cap".

Pipe required to be laid on curved alignment shall be joined in straight alignment and then be deflected, joint by joint. Special care shall be taken in blocking the pipe just previously laid, by tamped fill or otherwise to resist the misaligning forces generated during compression of the joints being made.

B. JOINTING OF DISSIMILAR PIPES

Suitable adaption couplings shall be specified in the Special Provisions for the jointing of dissimilar pipes. Where suitable adaptor couplings are not available for dissimilar pipes the jointing shall be accomplished with a special fabricated coupling to concrete encasement as specified, or as submitted by the Contractor and approved by the Engineer.

2-1.07 SEWER LINE CONNECTIONS

Sewer line connections to trunks, mains, laterals, or side sewers shall be left uncovered until after an acceptance observation has been made. After approval of the connection, the trench shall be backfilled as specified in Division II, Excavation and Cleanup, Section 1-2.20 after first covering the bare pipe with select material compacted to a depth of six inches (6") above the crown of the pipe.

No existing sewer shall be connected to a sanitary sewer unless specifically authorized in each instance by the Engineer. Storm drains and drain tiles shall not be connected to a sanitary sewer.

2-1.08 SERVICE RISERS

Where the depth of the sewer invert is greater than twelve feet (12') below the surface of the ground, a service riser shall be constructed to an elevation of ten feet (10') below the ground elevation or as directed by the Engineer.

The service riser shall be constructed with the six-inch (6") tee as shown on the Plans placed to receive the six-inch (6") riser pipe. The tee shall be bedded as shown on Plans.

The riser pipe shall extend to the proper elevations and shall terminate with a manufactured plug.

Extreme care shall be taken in backfilling around risers. Where the excavated material is not suitable for this purpose in the opinion of the Engineer, granular material shall be placed around the riser.

2-1.09 TESTING AND INSPECTION FOR ACCEPTANCE OF SANITARY SEWER

Testing and inspection of sanitary sewers for acceptability shall be conducted by:

- A. Exfiltration of water
- B. Infiltration of water
- C. Exfiltration of air under pressure
- D. Lamping
- E. Televising (Optional procedure to supplement items A. through E.)

At a minimum, all sanitary sewers shall be tested for acceptability by either A., B., or C. above or a combination thereof. All lines shall be cleaned of debris and flushed clean as necessary. Debris shall not be flushed into sanitary sewer.

A. SELECTION OF TEST SECTIONS

Unless otherwise specified or directed by the Engineer, the first section of sanitary sewer constructed of approximately 1,200 feet in length or the entire length of sewer if it is less than 1,200 feet shall be tested by the exfiltration, infiltration, or air testing method before additional excavation is permitted.

The Contractor may at his option divide the first section of sewer into subsections of more convenient length for testing. If the section or subsection tested does not pass the tests, it shall be repaired and the test repeated until a satisfactory test is obtained. Excavation shall not proceed beyond the first 1,200 foot section until test results for the entire 1200 feet are satisfactory.

In the event the first 1,200 foot section of sewer or portion thereof did not pass the test on the first trial, the next section of sanitary sewer of approximately 1,200 feet in length shall also be tested, repaired if necessary, and retested until a satisfactory test is obtained before additional excavation is started.

When favorable test results are obtained on the first trial on a full 1,200 foot section of pipe, the Engineer may designate additional sections for testing as conditions in his opinion warrant. The Engineer reserves the right to select the location and lengths of additional test sections when construction operations or materials change or where construction difficulties indicate leakage or deflection may be present or in sections selected at random.

The Engineer shall notify the Contractor of the location where a test is to be required no later than 15 days after the sewer installation has been completed in the section to be tested. Unless otherwise authorized, the Contractor shall arrange to commence the test within 15 days after the sewer has been installed or 15 days after notification by the Engineer, whichever date is later.

B. TESTING TECHNIQUE

All Testing Methods: All wyes, tees and stubs shall be plugged with flexible jointed caps, or acceptable alternate, securely fastened to withstand the internal test pressure. Such plugs or caps shall be readily removable.

1. Exfiltration Method Procedures: The section of sewer to be tested shall be sealed by inserting inflatable rubber bags in the pipes or by other means approved by the Engineer, and then water shall be introduced into a manhole until the section is completely filled. The Contractor shall fill the pipe to the test level prior to the time of exfiltration testing to permit normal absorption into the pipe walls.

Throughout the test period of at least one (1) hours, the water level in the upper manhole shall be maintained at least twenty-four inches (24") above the

crown of the upper end of the pipe or at least twenty-four inches (24") above the ground water table, whichever is higher. The length of pipe tested shall be limited so that the pressure on the center line of the lower end of the section tested shall not exceed six feet (6') of water column.

2. Infiltration Method Procedures: The section of sewer to be tested shall have been trench backfilled and the tests conducted by inducing infiltration conditions by jetting the sewer trench for a sufficient length of time to insure that the water level in the trench is a minimum of twenty-four inches (24") over the crown of the sewer pipe at the upper end of the pipe. The test must be performed before existing sewers are connected and before sewage flow is allowed in the sewers.
3. Air Testing Method Procedures: The section of sewer to be tested shall have been trench backfilled and cleared. Pneumatic plugs (having a sealing length equal to or greater than the diameter of the pipe to be tested) placed in both ends of the pipe to be tested shall be inflated to 25 psig. The sealed sewer pipe shall then be pressurized to 4 psig above the average back pressure of ground water over the sewer pipe and the air pressure allowed to stabilize for at least two minutes.

After the stabilization period the line shall be pressurized to 3.5 psig and the time in minutes measured for pressure to drop to 2.5 psig. If groundwater is present, the air pressure within shall be increased to 3.5 psig above the level of the ground water and the drop of one pound of air pressure measured in minutes.

Air testing techniques shall be in accordance with the latest ASTM standard practice for testing sewer lines by low-pressure air test method for the appropriate pipe material, except that the time shall not be less than that shown in the Air Test Table contained in Section 2-1.11C.

4. Testing Procedures for PVC pipe shall include the following;

All sanitary sewers and manholes shall be tested by low pressure air testing and deflection testing. Deflection test shall not occur within less than thirty (30) days of completion of the section of sewer being tested including backfilling to finished grade.

A five percent (5%) Mandrel Deflection Test shall be performed on all PVC gravity sanitary sewer pipe. These pipes shall be mandrelled with a rigid device sized to pass five percent (5%) or less deflection (or deformation) of the base inside diameter of the sewer pipe.

Laser Profiling of the installed pipe to measure pipe deflection is acceptable in lieu of mandrell testing. The laser profiler shall be a "Scanner 3-D" type, which permits the measuring of actual deformities with a precision of at least 0.25%. The measurement of the actual pipe deformity must be calculated with the actual interior diameter on all points of the pipe (not the nominal diameter). The laser profiler must be able to give a series of at least a 1000 diametrical measurements at any given measuring point in a pipe. The laser profiling and observation measuring equipment must be certified on an annual basis by a qualified and accredited third party laboratory.

After the placement base material or compacted soils, a video recording of the interior of the installed pipe will be properly documented utilizing equipment indicated in this specification. Provide a video and report.

The contractor will dewater, clean, and bypass (if necessary) the installed pipe and provide the Engineer with a video and report using low barrel distortion video equipment with laser profile technology, non-contact laser aim video micrometer, and associated software.

For video recorded, laser profiled pipe that indicates deflection that is in excess of that allowed in the specification, the engineer may require the removal, replacement, repair, and/ or retesting of the pipe that has failed to meet the specific deflection requirements for the type of pipe installed, at no cost to the Owner.

For video recorded, observation and/or defect measured pipe that indicates that it exceeds that allowed in the specification, the engineer may require the removal, replacement, repair, and/ or retesting of the pipe that has failed to meet the specific observation and/or defect specification for that type of pipe installed, at no cost to the Owner.

Provide high quality video recording of the CCTV inspection in a high definition format video with a standard resolution of 720x 480. Utilize a camera with lighting suitable to allow a clear picture of the entire periphery of the pipe. Center the camera in the pipe both vertically and horizontally and be able to pan and tilt to a 90 degree angle with the axis of the pipe and rotating 360 degrees. Use equipment suitable to be able to move the camera through the pipe that will not obstruct the camera's view or interfere with proper documentation of the pipe's condition.

The video image shall be clear, focused, and relatively free from roll, static, or other image distortion qualities that would prevent the reviewer from evaluating the condition of the pipe. The video will include identification, at a minimum, before each line section of pipe to be filmed, the project number, the

structure number corresponding to the structure number on the set of plans for the project, size of pipe, the date and time, and indicate which pipe is being filmed if multiple pipes are connected to the structure. Written or typed television inspection logs shall be taken during the video recording process. Provide the engineer with copies of these "logs" along with the video.

Move the camera and Laser profiler through the pipe at a speed no greater than 30 feet per minute. Mark the video with the distance down the pipe. The distance meter shall have an accuracy of one foot per hundred feet (300mm in 328 meters). Stop the camera and pan when necessary to properly document observations and defects. Film the entire circumference at each joint. The operator must measure each joint, defect and crack discovered during the videotaping process surpassing the permitted values of the present specification.

A report of field conditions utilizing the laser profiler must, at a minimum, contain the following:

- a. graphic indicating the actual deformity registered in real-time for each section of the pipe (every 10mm);
 - b. The description and a picture of the pipe and of the laser ring for each deformity surpassing the permitted values by the present standard;
 - c. A copy of the calibration certificate from an accredited third party laboratory specifying the technology used, the device used and the certificate's validity date for this device;
 - d. A recorded (video and written) measurement of crack lengths and width surpassing the permitted values of the present specification;
 - e. A recorded (video and written) measurement of all pipe joints surpassing the permitted values of the present specification;
 - f. Documentation of all pipe deformities, actual pipe measurements, leaks, debris and any other damage or defects;
 - g. Deviation in pipe line and grade, joint gaps, and joint misalignment;
 - h. Indexed and interactive display software for graphics (profile and isometric views), as well as two separate windows showing the video inspection and the laser profiler video inspection simultaneously.
5. Lamping shall be performed on all sewer pipeline by the Engineer.

C. ALLOWABLE TESTING LIMITS FOR SANITARY SEWERS

1. Exfiltration leakage shall not exceed 200 gallons per inch of pipe diameter per mile per day of sewer pipe, including manholes in the test section.
2. Infiltration flow shall be measured by a 90-degree V-notch weir with free fall discharge or other means acceptable to the Engineer. Infiltration leakage shall not exceed 200 gallons per inch of pipe diameter per mile per day of sewer pipe, including manholes in the test section.
3. Air leakage test results shall not be less than the time per inch of pipe diameter per length of sewer pipe as specified in the table entitled "Air Test Table".
4. Three-fourths (3/4) of the pipe circle shall be observed both vertically and horizontally for lamping.

AIR TEST TABLE

SPECIFICATION TIME (min:sec) REQUIRED FOR PRESSURE DROP FROM 3-1/2 TO 2-1/2 PSIG WHEN
TESTING ONE PIPE DIAMETER ONLY

PIPE DIAMETER, INCHES

Length of Sewer Pipe In Feet	4	6	8	10	12	15	18	21	24
25	0:04	0:10	0:18	0:28	0:40	1:02	1:29	2:01	2:38
50	0:09	0:20	0:35	0:55	1:19	2:04	2:58	4:03	5:17
75	0:13	0:30	0:53	1:23	1:59	3:06	4:27	6:04	7:55
100	0:18	0:40	1:10	1:50	2:38	4:08	5:56	8:05	10:34
125	0:22	0:50	1:28	2:18	3:18	5:09	7:26	9:55	11:20
150	0:26	0:59	1:46	2:45	3:58	6:11	8:30		
175	0:31	1:09	2:03	3:13	4:37	7:05			
200	0:35	1:19	2:21	3:40	5:17				12:06
225	0:40	1:29	2:38	4:08	5:40			10:25	13:36
250	0:44	1:39	2:56	4:35			8:31	11:35	15:07
275	0:48	1:49	3:14	4:43			9:21	12:44	16:38
300	0:53	1:59	3:31				10:12	13:53	18:09
350	1:02	2:19	3:47			8:16	11:54	16:12	21:10
400	1:10	2:38			6:03	9:27	13:36	18:31	24:12
450	1:19	2:50			6:48	10:38	15:19	20:50	27:13
500	1:28			5:14	7:34	11:49	17:01	23:09	30:14

D. PAYMENT FOR TESTS

Payment for tests will not be paid for separately, but shall be included in the unit price of pipe, per foot. If any section fails to meet the test, it shall be repaired at the Contractor's expense and retested until it meets the leakage limitation.

2-2 MEASUREMENT

For payment purposes, the length of sewers installed shall be measured along the centerline. No deductions in length will be made for tees or fittings.

2-3 PAYMENT

Payment for pipe sewers shall be made at the contract unit price of the size and type indicated on the bid item at the contract unit price per foot for the size and type indicated. The cost of all items of construction not specifically listed for separate payment shall be included as an incidental expense in the contract price. No more than ninety percent (90%) of the value of work included in the unit price shall be eligible for inclusion in a partial payment estimate until leakage tests have been performed as specified and the pipes and joints are found to be satisfactory.

2-4 MEASUREMENT AND PAYMENT

The cost of all items described under "Pipe Laying, Jointing and Testing" not shown as bid items on the Proposal shall not be measured or paid for by item, but shall be included as part of the respective unit bid prices per foot for conduit construction of the size and type specified.

SECTION 3. MANHOLES FOR SANITARY SEWERS

3-1 DESCRIPTION

Manholes shall be leak-tight and shall be constructed of pre-cast concrete units, or cast-in-place concrete only, all in compliance with Plans and these Specifications.

3-2 MATERIALS

3-2.01 REINFORCED CONCRETE

Reinforced concrete shall consist of Portland Cement, mineral aggregates and water, in which steel has been embedded in such manner that the steel and concrete set together.

A. CEMENT

Cement shall conform to the requirements of the Specifications for Portland Cement ASTM C 150, and may be either standard Portland Cement or air-entrained Portland Cement of any type unless otherwise specified in the Special Provisions.

B. WIRE FABRIC REINFORCEMENT

Reinforcement shall consist of wire conforming to ASTM A185 or A497. Also, smooth wire conforming to ASTM A82 and deformed wire conforming to ASTM A496.

C. BAR REINFORCEMENT

Bar reinforcement shall conform to ASTM A615, grade 40.

D. AGGREGATES

Aggregates shall conform to ASTM C33, except that the requirements for gradation shall not apply to precast items.

E. MIXTURES

The aggregates shall be so sized and graded, and proportioned and thoroughly mixed in proportions of cement and water as will produce a homogeneous concrete mixture of such quality that the manhole components will conform to the strength and watertightness requirements of these specifications.

F. CURING

Cast-in-place manhole components shall be moist-cured for a period not less than seven (7) days except that when high-early-strength cement is used, the curing shall be not less than three (3) days. Pigmented membrane curing compound or other approved method may be applied in lieu of moist curing.

G. STRENGTH

All concrete placed under these specifications shall have a minimum compressive strength of thirty-five hundred (3,500) psi at twenty-eight (28) days. Strength

determination shall be in accordance with ASTM C-39, unless otherwise approved by the Engineer.

3-2.02 STEPS

Manhole steps shall be cast iron ASTM A48 furnished and installed as shown on the Plans with load and pullout ratings meeting OSHA standards.

3-2.03 CAST IRON FRAMES AND COVERS

Castings shall conform to the requirements of gray iron castings ASTM A48 and conform to the details shown on the Plans. They shall be adjusted to final grade with precast concrete rings and mortar.

3-2.04 PRECAST MANHOLE COMPONENTS

Precast manholes shall conform with ASTM C-478 and with design dimensions. Cones and sections shall be substantially free from fractures, large or deep cracks and surface roughness. Slabs shall be sound and free from gravel pockets.

3-2.05 ADJUSTING RINGS

Final adjustment of frames and grates to grade shall be accomplished through the use of precast concrete adjusting rings. The rings shall be designed to provide a structural capacity equal to the cones and sections. They shall have a device for positively positioning and securely fastening the ring to the frame so as to match the surface grade and slope and prevent movement when under traffic loadings.

3-2.06 MONOLITHIC CONCRETE MANHOLES

Monolithic concrete manholes shall conform to detailed shop drawings submitted to the Engineer for approval prior to beginning Work and shall conform to the dimensional requirements specified. Walls and base shall be six inches (6") minimum thickness and space of steps shall be sixteen inches (16").

3-3 CONSTRUCTION DETAILS

3-3.01 FOUNDATION PREPARATION

A. DEWATERING

Dewatering of the site shall conform to the requirements for sewer trench de-watering in Section 2-1.02.

B. SUB-BASE PREPARATION

Adequate foundation for all manhole structures shall be obtained by removal and replacement of unsuitable material with well graded granular material; or by tightening with coarse ballast rock, or by such other means as provided for foundation preparation of the connected sewers, or as shown on the Plans.

3-3.02 BEDDING

Precast base sections shall be placed on a well graded granular bedding course conforming to the requirements for sewer bedding in Section 2, but not less than six inches (6") in thickness and extending

to the limits of the excavation. The bedding course shall be firmly tamped and made smooth and level to assure uniform contact and support of the precast element.

3-3.03 CAST-IN-PLACE BASES

Unless otherwise specified, cast-in-place bases shall be at least eight inches (8") in thickness and shall extend at least six inches (6") radially outside of the outside diameter of the manhole section.

3-3.04 PRECAST MANHOLES

Precast manholes may be constructed with a precast base section or a monolithic base structure as specified or shown on the Plans.

A precast base section shall be carefully placed on the prepared bedding so as to be fully and uniformly supported in true alignment and making sure that all entering pipes can be inserted on proper grade.

All lift holes on precast elements for sanitary sewer manholes shall be completely filled with a concrete plug and sealed with an approved bitumastic material. All joints between precast elements on sanitary sewer manholes shall be made with an approved bitumastic material or an approved rubber gasket.

The first precast section shall be placed on the monolithic base structure before the base has taken initial set, and shall be carefully adjusted to true grade and alignment with all inlet pipes properly installed so as to form an integral watertight unit; or the section shall be mortared into a suitable groove provided in the top of the monolithic base. The first section shall be uniformly supported by the base concrete, and shall not bear directly on any of the pipes.

Precast sections shall be placed and aligned to provide vertical sides and vertical alignment of the ladder rungs. The completed manhole shall be rigid, true to dimensions, and be watertight.

3-3.05 MONOLITHIC CONCRETE MANHOLES

Monolithic concrete manholes shall be constructed in accordance with the provisions of this Section and the details shown on the Plans.

3-3.06 EXCAVATION AND BACKFILLING

In order to permit the joints to be mortared properly and also to permit proper compaction of the backfill material, the excavation shall be made to a diameter of at least six inches (6") greater than the diameter of the structure.

The space between the sides of the excavation and the outer surfaces of the manhole, shall be backfilled with selected granular backfill if the manhole is in a pavement or if the nearest point of the excavation for the manhole falls within 2 feet of the pavement edge. If the structure falls beyond these limits, other backfilling material may be used, provided it meets with the approval of the Engineer.

3-3.07 INLET AND OUTLET PIPES

Pipe or tile placed in the masonry for inlet or outlet connections shall extend through the wall and beyond the outside surface of the wall a sufficient distance to allow for connections, and the masonry shall be carefully constructed around them so as to prevent leakage along the outer surfaces.

3-3.08 PLACING CASTINGS

Casting placed on concrete or masonry surface shall be set in full bituminous mastic beds. Castings shall be set accurately to the finished elevation so that no subsequent adjustment will be necessary.

A. STREETS AT GRADE

Where Work is in paved streets or areas which have been brought to grade, not more than sixteen inches (16") shall be provided between the top of the cone or slab and the underside of the manhole casting ring for adjustment of the casting ring to street grade.

B. STREETS OR ALLEYS WITH NO ESTABLISHED GRADE

Where Work is in the streets or other areas which have not been brought to grade, not less than four inches (4") nor more than sixteen inches (16") shall be provided between the top of the cone or slab and the underside of the manhole casting ring for adjustment of the casting ring to street grade.

The top of the manhole casting shall be flush with the street surface unless otherwise directed by the Engineer.

C. MANHOLES NOT WITHIN STREET OR ALLEY AREAS

Where Work is in cultivated areas, the top of the casting, unless otherwise directed by the Engineer, shall be eighteen inches (18") below the established ground surface.

Unless otherwise directed, in non-cultivated areas, the top of manhole castings shall be at grade of existing surface.

D. SEALING MANHOLES

Sanitary sewer manholes which are covered with earth or are located in low areas than can collect rainwater, and any other manholes indicated on the Plans, to be sealed, shall be equipped with an approved self-sealing lid.

3-3.09 CHANNELS

Channels shall be made to conform accurately to the sewer grade and shall be brought together smoothly with well rounded junctions, satisfactory to the Engineer, and in conformance with details shown on the Plans.

3-3.10 PIPE CONNECTIONS

Special care shall be taken to see that the openings through which pipes enter the structure shall be provided with flexible watertight connections conforming with ASTM C 923, "Standard Specifications For Resilient Connectors Between Reinforced Concrete Manhole Structures And Pipes." Other methods may be used to ensure watertightness when specified in the Special Provisions.

3-3.11 DROP MANHOLE CONNECTIONS

Drop manhole connections, whenever shown on the Plans, shall conform in all respects to details shown on the Plans.

3-3.12 CLEANING

All newly constructed manholes shall be cleaned of any accumulation of silt, debris, or foreign matter of any kind, and shall be free from such accumulations at the time of final inspection.

3-4 PAYMENT

Payment for each Manhole shall consist of a basic price for each.

3-5 MEASUREMENT AND PAYMENT

The following items under "Manholes for Sanitary Sewers" are specifically listed for separate measurement and payment:

"Manholes" of the type and size indicated.

"Drop Manholes" of the type and size indicated.

SECTION 4. SERVICE SEWERS

4-1 DESCRIPTION

A service sewer is a branch sanitary sewer line constructed from the main sanitary sewer line to a point described on the Plans or to a point established by the Engineer.

The general requirements for construction of sewers in other sections of these Specifications shall apply for service sewers unless they are inconsistent with any of the provisions of this particular section, and the Specifications shall apply alike to all service sewers on public rights of way and private property.

Unless otherwise specified, service sewers and fittings shall be six inches (6") in diameter.

4-2 MATERIALS

4-2.01 PIPE AND FITTINGS

Approved pipe and fitting materials shall be ductile iron, PVC, or vitrified clay. All other materials shall conform to the material requirements for sanitary sewer construction in other sections of the Specifications.

4-2.02 JOINTS

Approved jointing material shall be flexible gasketing. Flexible gasketing shall be construed to include rubber, synthetic rubberlike and plastic materials specially manufactured for the joint, pipe size, and use intended and shall be furnished by the manufacturer of the pipe to be used. Physical properties of the flexible gasketing shall conform to that defined in Section 1.

4-3 CONSTRUCTION DETAILS

4-3.01 GENERAL

Service sewer construction shall conform to all applicable ordinances or regulations unless otherwise stated in the Special Provisions. The Owner will obtain any necessary permits for service sewer construction.

4-3.02 EXCAVATION AND BACKFILL

Excavation and backfilling for service sewers shall conform to the requirements of other sewers, excepting that no backfill in excess of that required to hold the pipe in true alignment shall be placed prior to inspection.

4-3.03 PIPE LAYING AND JOINTING

Pipe laying and jointing, except as hereinafter provided, shall in general conform to the requirements of Section 2. During the pipe laying and jointing, the service sewer shall be kept free of any water, dirt or objectionable matter.

A watertight, factory-made plug shall be installed at the end of each sewer service.

A. LINE AND GRADE

Pipe shall be laid with a minimum grade of one-eighth inch (1/8") per lineal foot unless otherwise ordered. The Contractor shall establish such alignment and grade control as is necessary to properly install the service sewer.

B. PIPE LAYING

Pipe shall be laid in a straight line at a uniform grade between fittings, or on a uniform horizontal or vertical curvature achieved by deflecting pipe joints within the limits recommended by the manufacturer of the pipe used.

4-3.04 FITTINGS

All fittings shall be factory-produced and shall be designed for installation on the pipe to be used. Fittings shall be of the same quality and material as the pipe used.

The maximum deflection permissible at any one (1) fitting shall not exceed 45 degrees (one-eighth (1/8) bend). The maximum deflection of any combination of two adjacent fittings shall not exceed 45 degrees (one-eighth (1/8) bend) unless straight pipe of not less than two and one-half feet (2-1/2') in length be installed between such adjacent fittings, or unless one of such fittings be a wye branch with a cleanout provided on the straight leg.

Service sewers shall be connected to the tee, wye, or riser provided in the public sewer where such is available, utilizing approved fittings or adaptors. Where no tee, wye, or other riser is provided or available, connection shall be made by machine made tap and suitable saddle, or other methods as specified in the Special Provisions.

4-3.05 CLEANOUTS

Cleanouts shall be provided at locations and in accordance with details shown on the Plans.

4-3.06 RESTORATION, FINISHING AND CLEANUP

The Contractor shall restore all paved surfaces, curbing, sidewalks, or other surfaces to their original condition in such manner as to meet the requirements of applicable sections. All surplus material and temporary structures, as well as all excess excavation, shall be removed and the entire site of Contractor operations shall be left in a neat and clean condition.

4-4 MEASUREMENT

Measurement shall be along the pipe from the outside surface of the main sewer to the extreme end of the last pipe or fitting placed. Measurement shall be to the nearest one foot (1').

4-5 PAYMENT

Payment for service sewers shall be at the unit contract price per foot or each for "Service Sewers" of the size indicated. Tees, wyes, bends, adaptors, and plugs shall be considered as incidental to the construction.

All other costs shall be considered as incidentals to the construction of the service sewer and shall be included in the unit Contract prices for "Service Sewers".

4-6 MEASUREMENT AND PAYMENT

The cost of all items described under "Service Sewers" shall not be measured or paid for by item, but shall be included as part of the respective unit bid prices for conduit construction of the size specified.

SECTION 5. PIPE COVERING AND EMBANKMENT FOR SEWER CONSTRUCTION

5-1 DESCRIPTION

This section of the Specification applies to the construction of pipe covering and embankment. Pipe covering shall be constructed where the invert of the pipe is so shallow that placing of earth over the pipe becomes necessary to provide a minimum depth of cover. Pipe cover and embankment shall be constructed where the invert of the pipe is above the existing ground and it becomes necessary to construct an embankment upon which the pipe and pipe covering is to be placed. The embankment and cover shall be constructed to lines shown on the Plans.

5-2 CONSTRUCTION DETAILS

5-2.01 PIPE BED

The area upon which the embankment for the pipe bed is to be placed shall be stripped to the extent the Engineer directs to provide a firm bedding.

The embankment upon which the pipe is to be installed shall be constructed up to the spring line in six inch (6") lifts, each lift being compacted to a density equal to ninety-five percent (95%) of ASSHTO T 99 density. The material used in constructing the embankment shall be such that it will readily compact to required density. The Contractor may use any type of compacting equipment he wishes provided the required end result is obtained, and provided no damage occurs to surface or subsurface improvements.

5-2.02 PIPE COVER

The pipe cover material above the compacted embankment shall be placed without compacting, and shall be shaped to the required section.

5-2.03 SOURCE OF MATERIAL

The source of material shall be that which is specified in the Special Provisions.

5-3 MEASUREMENT

Measurement will be by the cubic yard of embankment as calculated from cross sections based on elevations of the ground surface after stripping and the neat line of the section conforming to the drawing. No deduction will be made for pipe volume displacement.

5-4 PAYMENT

Payment will be made at the unit Contract price per cubic yard for Pipe Covering and Embankment, which price shall be full compensation for furnishing all labor, equipment, and materials necessary to strip, construct and compact the embankment and cover as specified to the satisfaction of the Engineer.

SECTION 6. FORCE MAIN MATERIAL AND INSTALLATION

6-1 DESCRIPTION

Pipe used in force main construction, unless otherwise specified, shall be Polyvinyl Chloride Pipe (PVC) or Ductile Iron Pipe (DIP). All force main shall have flexible gasketed joints unless otherwise specified.

The Contractor shall only use the force main pipe material specified on the Plans unless he receives written permission from the Engineer to substitute one of the other materials mentioned herein. No verbal approval, regardless of the source, will be recognized for changing the pipe material, class or type of joint.

6-2 GENERAL

Where reference is made to an ASTM or ANSI designation, it shall be the latest revision at the time of call for Bids, except as noted on the Plans or in the Special Provisions.

6-3 CERTIFICATION

It shall be the responsibility of the pipe manufacturer to certify that pipe and joint material furnished is capable of withstanding the pressure rating as specified or required, if properly installed.

6-4 MATERIALS

A. DUCTILE IRON FORCE MAIN AND FITTINGS

Ductile Iron Pipe (DIP) force main shall conform to ANSI A21.51 (AWWA C151), designed per ANSI A21.50 (AWWA C150), and shall comply with the American National Standard C104/A21.4-95 for Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water. Flanged fittings shall be Class 53 that meet the requirements of AWWA C110/A21.10. Flanged joints shall meet the requirements of AWWA C115/A21.15 with full-face gaskets for joints on 12-inch diameter and smaller pipe and ring type gaskets for larger pipe. Mechanical joint fittings shall meet the requirements of AWWA C153/A21.53. Mechanical joints shall comply with American National Standard C111/A21.50-90 for Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings. All underground DIP force main shall be Class 52 wrapped in 8-mil thick polyethylene encasement in accordance with ANSI/AWWA C105/A21.5, Method B, with pipe and joints wrapped separately. For ductile iron pipe and fittings with mechanical joints that require harnessing, provide ductile iron mechanical joint retainer glands that are designed to resist pullout of the joints at the test pressures specified. Provide stainless steel bolts and nuts meeting the requirements of ASTM A 307, Grade B. Where required provide wall castings and connecting pieces meeting the requirements of AWWA C110/A21.10.

Installation of DIP shall be governed by AWWA Standard C600-93, AWWA Standard for Installation of Ductile-Iron Water Mains and Their Appurtenances. Bedding shall be in

accordance with ASTM C 12. All piping shall be installed and tested in accordance with AWWA standard C600-93, AWWA Standard for Installation of Ductile-Iron Water Mains and Their Appurtenances.

DIP force main shall utilize mechanical joint fittings for force restraint. The mechanical joint restraint devices shall be:

1. EBAA Iron, Inc., MegaLug 1100 series
2. Uni-Flange Series 1400, One-Lok Series SLD
3. Engineer-approved equal

Measurement shall be made along the centerline of force main installed. The contract unit price bid for DIP force main construction shall include the cost for piping, joint-restraint devices, polyethylene encasement, excavation, trench dewatering and maintenance, trench bottom reshaping, bedding, haunching, compaction, testing, and all other work necessary for a complete job. This work will be paid for at the contract unit price bid of LINEAL FOOT for DUCTILE IRON FORCE MAIN at the diameter specified. Fittings in the force main will be paid for at the contract unit price bid per POUND for DUCTILE IRON FITTINGS at the diameter specified.

B. POLYVINYL CHLORIDE (PVC) FORCE MAIN AND FITTINGS

Polyvinyl Chloride (PVC) force main and fittings shall be Pressure Class 200, DR 14 conforming to AWWA C900 (AWWA Standard for Polyvinyl Chloride [PVC] Pressure Pipe and Fabricated Fittings, 4 in. Through 12 in. [100 mm Through 300 mm], for Water Distribution) with fittings and elastomeric gasketed joints meeting the requirements of AWWA C907 (Injection-Molded Polyvinyl Chloride [PVC] Pressure Fittings, 4 in. Through 12 in. [100 mm Through 300 mm], for Water Distribution), unless otherwise directed by the Engineer.

All PVC piping shall be installed and tested in accordance with AWWA C605 (Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water).

PVC force main shall utilize mechanical joint fittings for force restraint. The mechanical joint restraint devices shall be:

1. EBAA Iron, Inc., MegaLug 1100 series
2. Uni-Flange Series 1400, One-Lok Series SLD
3. Engineer-approved equal

Each PVC pipe length and fitting shall be clearly marked with the following:

1. Manufacturer's Name
2. Nominal Pipe Size
3. Cell Classification
4. Minimum Pipe Stiffness

The Contractor shall take great care not to scratch, indent, puncture or otherwise damage the PVC pipe during installation. All pipe materials used shall be inspected and approved by the Engineer before and during installation. If a pipe section has been damaged in any way before or during installation, it shall be removed and replaced with a pipe section acceptable to the Engineer. Pipe installation shall strictly conform to the manufacturer's recommendations.

A detectable metallic tracing and warning tape of a type approved by the Engineer shall also be installed. This work shall consist of burying of metallic tape in the trench running along the centerline of the force main. The tape shall be laid in the trench 2 feet above the buried force main. The tape shall be 2" wide and read "CAUTION - BURIED FORCE MAIN BELOW."

Measurement shall be made along the centerline of force main installed. The contract unit price bid for PVC force main construction shall include the cost for piping, joint-restraint devices, magnetic pipe location tape, excavation, trench dewatering and maintenance, trench bottom reshaping, bedding, haunching, compaction, testing, and all other work necessary for a complete job. This work will be paid for at the contract unit price bid of LINEAL FOOT for PVC FORCE MAIN at the diameter specified. Fittings in the force main will be paid for at the contract unit price bid per POUND for PVC FITTINGS at the diameter specified.

6-5 CONNECTION TO EXISTING SANITARY SEWER MANHOLE

This work involves connection of the force main to an existing sanitary manhole at the location shown on the plans, or as directed by the Engineer. The contractor will have to provide sheeting, scaffolding or bracing to insure that no movement of the exposed manhole will take place while core drilling the exposed wall to allow the pipe installation. Should the structure be found to deflect, displace or fall out of plumb, the contractor shall be responsible for correcting the movement.

In the process of core drilling the wall, extreme care shall be taken so that minimal structural damage is done to the manhole. All debris falling into the manhole must be entirely removed. Connections to existing manholes shall be made using an A-Lok gasket, rubber boot, or other approved flexible seal.

The cost for all equipment, labor and materials, including core drilling the manhole wall opening, excavation, furnishing, erecting, and removing shoring, scaffolding and/or bracing, water stop, and backfilling will be paid for at the contract unit price per EACH for CONNECTION TO EXISTING SANITARY SEWER MANHOLE.

6-6 STEEL SLEEVES-AUGERED

The Contractor is advised to review the site and familiarize himself with the soil conditions prior to finalizing his bid for this portion of the work. No additional compensation shall be allowed for changes in the construction method due to ground conditions that may exist at the time of construction. All work shall be performed in accordance with Section 552 of the Standard Specification except as described in the following specifications and the Steel Sleeve Specification contained herein.

This work shall consist of auguring a steel sleeve at the location and at the line and grades provided on the plans or as where directed by the Engineer. The Contractor shall field verify the elevations and locations of any and all utilities that may cross beneath or over the proposed auger prior to ordering structures, or beginning the auger operation so as to not damage the existing utilities during auger operations. No additional compensation shall be given for any modifications required to be made to the proposed force main design (including but not limited to re-ordering/restocking structures), or for any delay time incurred due to a difference in assumed and actual elevations of the existing utilities.

The Contractor shall take all necessary precautions to prevent the undermining of roadways, structures, embankments, or property including the utilization of trench boxes, sheeting, etc., to properly maintain the auger and receiving pit excavations such that underlying soils between the pavement edge etc. and auger limits are prevented from entering the excavation. In the event that settlement or any other damage occurs to adjacent roadways, property or structures between the time the auguring is completed and the end of the contract bond guaranty period, the Contractor shall be fully responsible for any repairs deemed necessary by the Engineer.

This work shall consist of the construction of steel sleeves (casing pipe) augured at the locations indicated in the contract drawings or as directed by the Engineer. The minimum thickness of the steel sleeves shall be as listed below. All casing pipe shall be smooth, Grade B welded steel pipe meeting the requirements of ASTM A139 and ANSI/ AWWA C200 (AWWA Standard for Steel Water Pipe—6 in. (150 mm) and Larger), minimum yield strength of 35,000 psi. Sleeves shall be installed as indicated in the detail drawings, unless otherwise approved by the Engineer.

After installation of the steel sleeve is completed, the proposed force 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 Engineer-approved equal.

Caser spacing 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 (3) five-sixteenths inch (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 cost for excavating, shoring, trench backfill, and backfilling of the jacking pit and receiving pit, including dewatering (if necessary), stabilization, and installing the steel sleeve shall be considered incidental to the contract unit price for the steel sleeve auger.

Standard Sizes of Steel Sleeves Used As Casings*

<u>Carrier Pipe ID in Inches</u>	<u>Casing Wall Thickness in Inches</u>	<u>Casing Outside Diameter in Inches</u>
6	0.344	20
8	0.344	20
12	0.375	24
16	0.469	30
20	0.563	36
24	0.625	42
30	0.719	48
36	0.781	54
42	0.875, 0.938	60, 66
48	1.000	72

*Adapted from City of Chicago, IL Water Department Standard Specifications

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

6-7 STEEL SLEEVES-OPEN CUT INSTALLATION

The work for open cut installation of steel sleeves shall be identical to the work described in Section 6.6, except that no augering, jacking, or receiving pits are required.

The cost for excavating, shoring, trench backfill, and backfilling of the open cut area, including dewatering (if necessary), stabilization, and installing the steel sleeve shall be considered incidental to the contract unit price for the steel sleeve auger.

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

6-8 SEWER FLOW CONTROL AND BYPASS PUMPING

It is the intent of this specification to provide the minimum requirements for sewer flow control bypass pumping.

The Contractor shall provide all labor, equipment, supervision, and materials necessary to control flows via bypass pumping through a section or sections of pipe designated for replacement. The Contractor shall be responsible for controlling and maintaining all sanitary and storm flows within the sewer system during the Work. The Contractor may drain flows by pipes, chases, fluming, bypass pumping, or other appropriate methods approved by the Owner.

Precautions shall be taken to ensure that flow control and dewatering operations shall not cause flooding or damage to public or private properties. In the event flooding or damage occurs, the Contractor shall make provisions to correct such damage at no additional cost to the Owner. The Contractor shall be responsible for any damages to public or private property, overflows from the sewer system and violations resulting in fines as a result of the dewatering/bypass operation.

When required for this project, the Contractor shall provide all labor, equipment, and materials necessary for the transfer of flow around the sections of pipe and/or the existing lift station. If the Contractor utilizes a subcontractor for bypass pumping operations, the subcontractor shall have at least five years of experience in the bypass pumping industry.

The bypass shall be made by diversion of the flow from an existing upstream location, around the section(s) to be taken from service for inspection or rehabilitation, to an existing downstream location. The bypass system shall be of adequate capacity to handle all flows, including wet weather related flows. If bypass pumping is utilized by the Contractor to control flows, the Contractor shall be responsible for monitoring the bypass pumping operation at all times until Work is complete. The location of pump(s), force main, discharge point, pumping rates, etc., shall be approved by the Owner.

The Contractor shall prepare a detailed Flow Control Plan that describes the measures to be used to control flows. The Contractor shall submit the Plan to the Engineer for review prior to beginning any flow control work. The Contractor's Plan shall include, but not necessarily be limited to, the following:

- A. Stand-by/back-up pump set for the bypass application.
- B. Detail plan for 24-hour monitoring.
- C. Fueling of pump sets on demand.
- D. Location of flow diversion structures, collapsible sewer plugs, dams, pumps, and related materials and equipment. Sewer plug method and type of plugs or gates to be used.
- E. Key operational control factors, (i.e. maximum flow elevations upstream of dams).
- F. Pump sizes and flow rates.
- G. Destination of bypassed flows, including routing of force mains and provisions for vehicular and pedestrian traffic as necessary.
- H. Wet weather event procedures.

- I. Staging areas for the pumps.
- J. Number, size, material, locations, and method of installation of suction piping.
- K. Bypass pump sizes, capacity, number of each size to be on site, and power requirements.
- L. Calculations of static lift, friction loss, and flow velocity.
- M. Stand-by power.
- N. Downstream discharge plan.
- O. Method of noise control for each pump.
- P. Temporary pipe supports and anchoring required.
- Q. Heavy equipment needed for installation of pumps and piping.

The number and size of pumps utilized in bypass pumping shall be such that if the largest pump is out of service, bypass flows will be maintained during the bypass operation. Bypass pumping equipment shall include pumps, conduits, engines, and related equipment necessary to divert the flow or sewage around the section in which work is to be performed. In addition, the Contactor shall maintain at the same location and in operable condition, duplicate equipment to be used in case there is equipment failure. In this event, the Contractor shall promptly repair or replace the failed equipment to the satisfaction of the Owner.

The bypass system shall be of sufficient capacity to handle the peak flow of the pipe. The Contractor shall provide the necessary labor and supervision to set up and operate the pumping and bypassing system. The Contractor shall comply with any local sound ordinance. The equipment shall be manned continuously. During bypass pumping operations, the Contractor shall provide the necessary labor to continually monitor the operation and ensure uninterrupted and sufficient pumping at all times. The bypass pumping system shall be fueled every 24 hours or when the fuel tank reaches one quarter full, whichever comes first.

The Contractor shall provide all materials and labor as necessary to maintain flows in the existing sewer interceptor and all collector and lateral lines at all times and under all weather conditions. Interruption of flows will not be permitted. Overflows from bypass operations will not be permitted to enter into any streams or bodies of water. The Contractor will be solely responsible for any legal actions taken by the federal or state regulatory agencies if such overflows occur during construction.

New sewer pipes may be used by the Contractor to carry the sanitary flows after the new pipes have passed inspection and testing. Any "temporary" connections to the new sewer pipes shall be approved by the Owner.

New sewer pipes may be used by the Contractor to carry the sanitary flows after the new pipes have passed inspection and testing. Any "temporary" connections to the new sewer pipes shall be approved by the Owner.

Engine driven equipment for bypass pumping equipment shall have "critical grade mufflers." The enclosure shall be portable in order to allow the enclosure to be moved when bypass pumping equipment is moved. These conditions are subject to any other additional stipulations that may be required by local sound ordinances.

Bypass pumping, including all elements detailed above, will be paid for at the contract lump sum price of SEWER FLOW CONTROL AND BYPASS PUMPING.

6-9 WATER USE

The Contractor desiring to use water from municipal hydrants will be required to make an application to the Owner, and if the request is granted, shall conform with the ordinances of the municipality, as well as with the rules and regulations of the Water Department, and will be held responsible for all damages to hydrants and water pipe used for the purposes of securing water. Pipe wrenches approved by the Water Department shall be utilized for opening and closing hydrants and other appurtenances.

When additional water from fire hydrants is necessary to avoid delay in normal work procedures, the water shall be conserved and not used unnecessarily. No fire hydrant shall be obstructed in case of a fire in the area served by the hydrant.

The Owner wishes to keep accurate records of the amount of water used for the construction purposes. The Contractor shall use an approved water meter to record usage, and shall report the total water used to the Water Superintendent at the end of each working day. The Contractor will be responsible for the cost of the water billed at the normal residential rate.

SECTION 7. FORCE MAIN VALVES

7-1 GENERAL

Provide valve operators complete, including a suitable enclosure, with all appurtenances necessary for the operator to perform its intended function. Such appurtenances include, but are not limited to, anchor bolts and other mounting hardware, extension stems, operating nuts, direct burial valve boxes, and other such items.

7-2 MANUFACTURERS

Acceptable manufacturers are listed below. Other manufacturers of equivalent products may be submitted.

- A. Automatic Air Valves:
 - 1. Val-Matic Valve & Mfg. Corporation
 - 2. GA Industries
 - 3. APCO
 - 4. Engineer-approved equal
- B. Eccentric Plug Valves:
 - 1. DeZURIK
 - 2. GA Industries
 - 3. Engineer-approved equal
- C. Single Disc Swing Check Valves:
 - 1. American Flow Control
 - 2. Clow Valve Company
 - 3. M&H Valve Company
 - 4. Mueller Company
 - 5. GA Industries
 - 6. Engineer-approved equal

7-3 MATERIALS

Fabricate valves and operators of materials resistant to corrosion for the required service. For valve components the following standards shall apply:

- A. Operator housings and pedestal handwheels:
 - 1. Cast iron ASTM A 126, Class B
 ASTM A 48, Class 30 or 35
 - 2. Ductile iron ASTM A 395
 ASTM A 536, Grade 65-45-12
 - 3. Cast steel ASTM A 27/A27M

B.	Operator worms, steel	ASTM A 29/A29M Grade Designation 8620
1.	Operator gears, steel	ASTM A 572/A572M (spur & helical)
2.	Worm gears, bronze	ASTM B 148, Alloy C95400 or C95500 ASTM B 584, Alloy C86300

7-4 VALVE JOINTS

Fabricate all valves with flanged ends, unless otherwise specified. For metallic flanged joints, provide flanges that are faced accurately at right angles to the axis of the casting. Face and drill flanges and shop coat with a rust-preventive compound before shipment. For flanged joints, provide flanges whose dimensions and drillings meet the requirements of ASME B16.1, 125 pounds as a minimum. For valves installed in force mains with test pressure requirements higher than 125 psi, provide flanges whose pressure ratings equal or exceed the specified test pressure of the force main. Furnish special drillings where required. For valves having flanges that do not conform to the thickness requirements of ASME B16.1, test each valve in accordance with the hydrostatic shell test pressure requirements of ASME B16.1.

7-4 OPERATING FORCE

Fabricate valves to limit the maximum force required to operate all manual valves, including but not limited to valves with wrench operated nuts, levers, handwheels and chainwheels, to 40 pounds. Limit the overall length of each wrench or single-arm lever to 18 inches. Limit the overall length of each dual-arm lever to 36 inches.

7-5 FLOOR AND BENCH STANDS

Accurately center floor and bench stands over the valve. Solidly bolt stands to the floor or support structure, with through-bolts wherever possible. Place approximately 3/4 inch of non-shrink cement grout beneath stands mounted on concrete or similar construction to assure uniform support. For stands installed within the area of a removable type floor, platform, or grating, securely mount them on their own support structure independent of the removable element, unless otherwise shown or specified.

7-6 VALVE VAULTS

Where a valve is shown or specified to be located within a vault, the vault shall be furnished and installed as shown on the drawings.

7-7 TYPE-SPECIFIC VALVE SPECIFICATIONS

Provide valves of the type(s) specified conforming to the specifications detailed in the sections below.

7-7.01 AIR RELEASE VALVES

A. SCOPE AND INTENT

This specification is intended to cover the design, manufacture, and testing of 1 in. (25 mm) through 8 in. (200 mm) Wastewater Combination Air Valves suitable for pressures up to 150 psig (1000 kPa).

Wastewater Combination Air Valves shall be fully automatic float operated valves designed to exhaust large quantities of air during the filling of a piping system and close upon liquid entry. The valve shall open during draining or if a negative pressure occurs. The valve shall also release accumulated air from a piping system while the system is in operation and under pressure. The valve shall perform the functions of both Wastewater Air Release and Wastewater Air/Vacuum Valves and furnished as a single body and dual body type as indicated on the plans.

B. STANDARDS, APPROVALS, AND VERIFICATION

Valves shall be manufactured and tested in accordance with American Water Works Association (AWWA) Standard C512. The manufacturer shall have a quality management system that is certified to ISO 9001:2000 by an accredited, certifying body.

C. CONNECTIONS

Single body valves sizes 4 in. (100 mm) and smaller shall have full size NPT inlets and outlets equal to the nominal valve size with a 2 in. (50 mm) inlet on 1 in. (25 mm) valves. The body inlet connections shall be hexagonal for a wrench connection. The body shall have 2" NPT cleanout and 1" NPT drain connection on the side of the casting. The valve shall have three additional NPT connections for the addition of backwash accessories.

D. DESIGN

Valves shall provide an extended body with a through flow area equal to the nominal size. Floats shall be unconditionally guaranteed against failure including pressure surges. Valves 4 in. (100 mm) and larger employing a bottom float guide shall be provided with a resilient bumper to cushion the float during sudden opening conditions. The seat shall provide drop tight shut off to the full valve pressure rating.

Single body valves shall have a full port orifice, a double guided plug, and an adjustable threaded orifice button. The 1 in. (25 mm) body shall be globe style to increase float clearance and reduce clogging. The plug shall be protected against direct water impact by an internal baffle and extended float stem. The float shall include a sensitivity skirt to minimize spillage.

E. MATERIALS AND CONSTRUCTION

Body material shall be ASTM A536 Grade 65-45-12 ductile iron. The float, plug, guide shafts, and bushings shall be constructed of Type 316 stainless steel. Non-metallic guides and bushings are not acceptable. Resilient seats shall be Buna-N. Interior of valve to be coated with fusion bonded epoxy. The exterior of the valve shall be coated with a universal alkyl primer.

Backwash accessories shall be furnished and shall consist of an inlet shut-off valve, a blow-off valve, a clean water inlet valve, rubber supply hose, and quick disconnect couplings. Accessory valves shall be quarter-turn, full ported bronze ball valves.

F. MANUFACTURER QUALIFICATIONS

The manufacturer shall demonstrate a minimum of five (5) years' experience in the manufacture of air valves. The valves shall be manufactured and tested in accordance with American Water Works Association Standard (AWWA) C512. When requested, the manufacturer shall provide test certificates, dimensional drawings, parts list drawings, and operation and maintenance manuals.

Wastewater Combination Air Valve shall be manufactured by Val-Matic Manufacturing Corporation, Elmhurst, IL, USA; GA Industries, Cranberry Township, PA, USA or Engineer-approved equal.

7-7.02 ECCENTRIC PLUG VALVES

A. SCOPE AND INTENT

This specification is intended to cover the design, manufacture, and testing of quarter turn plug valves meeting the requirements of AWWA C517 having an eccentric action that causes the plug to rise off the seat contact during the opening movement rather than sliding from its seat.

B. MATERIALS AND CONSTRUCTION

Provide plug valves with Buna-N or Chloroprene faced plugs.

Construct plug valves of cast iron or semi-steel at least equal to ASTM A 126, Class B, or ductile iron at least equal to ASTM A536 Grade 65-45-12. Construct the body seats with a welded-in overlay, of not less than 90 percent pure nickel, on all surfaces contacting the plug face. Make the overlay a minimum of 1/16-inch thick. Provide zinc plated bonnet bolts, studs and nuts on exposed valves and stainless steel buried valves.

Make the water-tightness of the valve seating adjustable. Provide a seating adjustment device that is external to the valve and that can be used without the need to remove the valve from the piping and with the valve under pressure.

Furnish plug valves with oil impregnated, permanently lubricated, Type 316 stainless steel bearings in the upper and lower journals.

Provide a stem seal consisting of multiple, self-adjusting and replaceable chevron type packing rings and a packing gland. Make the stem seal adjustable and replaceable without removing the valve from the piping and without the need to disassemble the valve and operator. For buried or submerged service, provide a sealed enclosure to keep the stem seal clean.

Unless otherwise specified, construct the valve with a minimum port area of 80 percent of the full area of the pipe in which the valve is installed.

Equip plug valves, except for buried or submerged service, with external visible indication of the plug position.

Unless otherwise shown or specified, equip valves with quarter-turn gear operators. Furnish one wrench for each size valve in each individual room or space in which valves are located. All geared operators to have bronze bearing located above and below the worm gear, as well as grease seals.

Unless otherwise shown or specified, for eccentric plug valves installed in horizontal piping, orient the valve such that when the shaft is in the horizontal position the seat is in the downstream position, and when the valve is in the open position, the plug is up. Unless otherwise shown or specified, for eccentric plug valves installed in vertical piping, orient the valve with the plug up when the valve is in the closed position.

C. SOURCE QUALITY CONTROL

Perform a bi-directional seat leakage shop test on each eccentric plug valve in accordance with Section 5 of AWWA C517. Demonstrate that there is no leakage past the plug.

Give each eccentric plug valve hydrostatic shop pressure tests in accordance with Section 5 of AWWA C517. Demonstrate with the hydrostatic tests that the valve is structurally sound and that there are no leaks through the external surfaces of the valve.

7-7.03 SINGLE DISC SWING CHECK VALVES

A. SCOPE AND INTENT

Provide single disc swing check valves designed to allow a full diameter passage and to operate with a minimum loss of pressure.

B. MATERIALS AND CONSTRUCTION

Provide 1/8- through 3-inch check valves that meet the requirements of MSS SP-80. Except as specified herein, provide 4-inch through 24-inch check valves that meet the requirements of AWWA C508.

Equip check valves with cast or ductile iron body; bronze or stainless steel renewable seat rings; bronze, cast or ductile iron disc with replaceable bronze or rubber disc rings; bronze disc hinge bushings; and stainless steel hinge pins. Carefully mount discs and provide discs that swivel in disc hinges. Provide pins, discs and other parts that are non-corrosive, non-sticking, and properly cured to operate satisfactorily within a temperature range of 34 to 100 degrees Fahrenheit and with the fluid specified.

Check valves shall be of the lifting arm type. Screw type check valves will not be allowed. Equip 6-inch and larger check valves with outside levers and weights.

7-8 PAYMENT

This work shall be paid for at the contract unit price per each for the type of valve specified at the diameter specified, complete with the valve vault (if specified), which payment shall include full compensation for furnishing labor, materials, and equipment, complete, in-place, and accepted, and for all materials necessary to complete the work as shown on the plans and specified above.

DIVISION II

Technical Specifications

WATER DISTRIBUTION

<u>SECTION 1. PIPE FOR WATER MAINS AND SERVICE CONNECTIONS</u>	1
1-1 GENERAL	1
1-2 PIPE MATERIALS	1
 <u>SECTION 2. PIPE INSTALLATION FOR WATER MAINS</u>	 3
2-1 GENERAL	3
2-2 CONSTRUCTION	3
 <u>SECTION 3. GATE VALVES FOR WATER MAINS</u>	 16
3-1 DESCRIPTION	16
3-2 MATERIALS	16
3-3 INSTALLATION OF GATE VALVES	19
 <u>SECTION 4. BUTTERFLY VALVES FOR WATER MAINS</u>	 20
4-1 DESCRIPTION	20
4-2 DATA TO BE FURNISHED BY CONTRACTOR	20
4-3 WORKMANSHIP	20
4-4 MARKINGS	20
4-5 PAINTING	21
4-6 TESTS	21
 <u>SECTION 5. VALVE VAULTS AND BOXES FOR WATER MAINS AND WATER SERVICES</u>	 22
5-1 GENERAL	22
5-2 MATERIALS	22
5-3 CONSTRUCTION DETAILS	22
 <u>SECTION 6. FIRE HYDRANTS</u>	 23
6-1 DESCRIPTION	23
6-2 MATERIALS	23
6-3 CONSTRUCTION DETAILS	24

<u>SECTION 7. PRESSURE CONNECTION</u>	26
7-1 GENERAL	26
7-2 DEFINITION OF TERMS	26
7-3 MATERIALS	27
7-4 VALVES	27
7-5 TAPPING FITTINGS	27
7-6 INSTALLATION PROCEDURE	27
7-7 EXCAVATION AND BACKFILL	28

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

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:

<u>Valve Diameter (Inches)</u>	<u>By-Pass Diameter (Inches)</u>
16 to 20	3
24 and 30	4
36 and 42	6
48 and larger	8

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:

<u>Valve Diameter (Inches)</u>	<u>Gear Ratio</u>
16	2:1
20	2:1
24	2:1
30	3:1
36	3:1
42	4:1
48	4:1

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 Contractor 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 block 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

Index

SPECIAL PROVISION	1
SCOPE OF WORK	2
AGGREGATE FOR TEMPORARY ACCESS	2
DUST CONTROL	2
COMPLETION DATE	3
PREQUALIFICATION	3
PREFERENCE TO VETERANS	3
WAGE RATES	3
MATERIAL INSPECTION – REPORTS	4
PUBLIC CONSTRUCTION ACT, 30 ILCS 557/1	4
INSURANCE COVERAGE	4
NOTIFICATION COORDINATION	4
GUARANTEE	4
VIDEO OF CONSTRUCTION ROUTE	5
MAINTENANCE OF ROADWAYS, ALLEYS, AND DRIVEWAYS	5
COORDINATION/SCHEDULING OF WORK	6
PUBLIC UTILITIES	6
TRAFFIC CONTROL PLAN	7
SAW CUT JOINTS	8
RUBBER ADJUSTING RINGS	8
TOPSOIL FURNISH AND PLACE, 6"	8
SODDING, SPECIAL	8
HOT-MIX ASPHALT DRIVEWAY REMOVAL AND REPLACEMENT, 6"	9
PROJECT HOT-MIX ASPHALT MIXTURE REQUIREMENT CHART	10
PORTLAND CEMENT CONCRETE SIDEWALK	10
TACTILE/DETECTABLE WARNING SURFACE	10
DRAINAGE & UTILITY STRUCTURES TO BE ADJUSTED OR RECONSTRUCTED	11
CLEAN CONSTRUCTION OR DEMOLITION DEBRIS (CCDD) REQUIREMENTS PER 35 IAC 1100	11
VILLAGE OF TINLEY PARK LOCAL VENDOR PURCHASING POLICY	12
RESPONSIBLE BIDDER	13
AGGREGATE SUBGRADE IMPROVEMENT (D-1)	14
WATER	16
DUCTILE IRON WATER MAIN, CLASS 52, WITH POLYETHYLENE ENCASEMENT, METHOD B	16
MECHANICAL JOINT RESTRAINTS	16
FITTINGS	16
VALVES	17
VALVE VAULTS	17
CUT AND CAP	17
ABANDON VALVE BOX	18
ABANDON VALVE VAULT	18
FIRE HYDRANT WITH AUXILIARY VALVE, VALVE BOX AND TEE	18
FIRE HYDRANTS TO BE REMOVED	18
SANITARY SEWERS, PVC PIPE	19
DROP SANITARY MANHOLES	19
SEWER FLOW CONTROL AND BYPASS PUMPING	20
TRENCH BACKFILL	22

Project 12-544

MANHOLES TO BE INTERNALLY SEALED - EPOXY COATING	22
ABANDON AND FILL EXISTING 27" SANITARY SEWER	27

VILLAGE OF TINLEY PARK
SOUTH STREET RECONSTRUCTION - OAK PARK AVENUE TO 67TH COURT
SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction", adopted April 1, 2016; 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 Division I General Requirements and Covenants; 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.

SPECIAL PROVISION

This Special Provision amends the provisions of the Standard Specifications for Road and Bridge Construction and shall be construed to be part thereof, superseding any conflicting provisions thereof applicable to the work under the contract.

The Standard Specifications are amended as follows:

Section 101 Definition of Terms

Article 101.09A is added:

101.09A Consultant. The individual, firm, partnership, joint venture, or corporation licensed to perform the particular engineering duties requested by the awarding authority (State, IDOT, County, City, Village or Town).

Article 101.16 is revised to read:

101.16 Engineer. The Chief Engineer/Director of Highways of the Department of Transportation of the State of Illinois; or the Consultant authorized to perform particular duties entrusted to that person by contract when the State is the awarding authority.

The County Superintendent of Highways or the County Engineer, when the county is the awarding authority. The County Superintendent of Highways or the County Engineer, and the Chief Engineer/Director of Highways of the Illinois Department of Transportation when the Illinois Department of Transportation is the awarding authority and the County is observing construction.

The City Engineer or Consultant retained by the Municipality, when a city, village or town is the awarding agency. The City Engineer or the Consultant retained by the Municipality, and the Chief Engineer/Director of Highways of the Illinois Department of Transportation when the Illinois Department of Transportation is the awarding agency and a city, village, or town is observing construction.

Art. 101.19 is revised to read:

101.19 Inspector. The authorized representative of the Engineer assigned to make detailed observation of any or all portions of the work or materials for the sole purpose of determining if the Work is proceeding in accordance with the technical plans and specifications for the Project.

Section 105 Control of Work

Article 105.01 Authority of the Engineer

Article 105.01 is amended to include the following:

However, in no case, does the Engineer have the authority to:

1. Exceed limitations of Engineer's authority as set forth in the Engineering Agreement;
2. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers or any Constructor;
3. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of the Work, by Contractor or any other Constructor;
4. Advise on, issue directions relative to, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor;
5. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by the Local Agency;
6. Accept Shop Drawing or Sample submittals from anyone other than Contractor; and/or
7. Authorize Local Agency to occupy the Project in whole or in part.

SCOPE OF WORK

This project consists of the removal of a right turn lane and reconstruction to a new geometry on South Street at 67th Court. Additionally, hot-mix asphalt grinding and resurfacing, HMA pavement, curb and gutter removal and replacement, pavement marking, driveway removal and replacement, drainage structure adjustments/reconstructions, water main replacement and sanitary sewer replacement are all included.

Coordination with the village METRA lots for the road closure is required. An informational message board shall be provided a minimum of 2 weeks prior to the road closure.

The permit for the sanitary work has been submitted and no work shall begin prior to its execution. For purposes of the schedule completion dates, the contractor is to assume that the permit shall be issued by August 1, 2018.

AGGREGATE FOR TEMPORARY ACCESS

This work shall consist of providing temporary driveway/roadway access during construction in accordance with Article 107.09 and 402.10 of the Standard Specifications.

This work will not be paid for separately, and shall be included in the unit cost of various contract items.

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.

This work will not be paid for separately, and shall be included in the unit cost of various contract items.

COMPLETION DATE

The contractor is advised that all paving work shall be completed on or before October 1, 2018, all striping work shall be completed by October 15, 2018, all restoration work shall be completed by November 1, 2018, all punch list work (non- landscaping related) by November 1, 2018, all punch list work (landscaping related) by November 15, 2018. Should the contractor fail to comply with the listed dates, the provisions of Section 108.09 shall be applied.

PREQUALIFICATION

The Contractor shall be IDOT prequalified for roadway. A copy of the current IDOT Prequalification shall be presented at the time of bid document pick up. If this information is not supplied or on file, 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/. "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.state.il.us/agency/idol/rates/rates.HTM>. 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.

MATERIAL INSPECTION – REPORTS

All materials incorporated in this contract are to be inspected according to the Project Procedures Guidelines (PPG) and the process and frequency of testing under the QC/QA specifications.

The Contractor shall be responsible for QC testing of these materials with the Engineer being notified at least forty-eight (48) hours in advance of the placement of any of these materials. The Local Agency shall be responsible for the QA testing of these materials on the job and at the plant per article 1030 of the Standard Specifications. Please note that the Contractor is required to submit a QC plan to the Engineer for approval per the referenced specifications.

All concrete materials incorporated in this contract are to be inspected according to the Recurring Special Provision, "Quality Control/Quality Assurance of Concrete Mixtures". Please note that the Contractor is required to submit a QC plan to the Engineer for approval per the referenced specifications.

The contractor shall coordinate his work operations with the engineer to assure that the testing agencies can provide proper and sufficient notice to schedule their work. Also, all QC 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 all documentation and approval of the Engineer's Final Payment Estimate by the Village.

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.

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 be required as part of this project.

Section 7-2.02E Pollution Liability WILL be required as part of this project.

NOTIFICATION COORDINATION

If the Contractor is required to impede access to any driveway/property for any reason during the course of this project, the Contractor shall provide 24-hour advance written notice to the affected properties. The notification shall be of a form and method as approved by the Village of Tinley Park.

GUARANTEE

All materials and equipment shall be guaranteed for a period of one (1) year from the date of written acceptance by the Owner. Upon receipt of notice from the Owner of failure of any part of the improvements during the guarantee period, replacement of the improvements 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 Village or Authorized Representative 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 |
| 4. Curb condition | 5. Driveway condition | 6. Existing manholes |
| 7. Fire hydrants | 8. Fences | 9. Trees and landscaped areas |

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 – SOUTH STREET RECONSTRUCTION." One (1) copy of the finished video shall be delivered to the Village or Authorized Representative prior to commencing excavation.

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 videotaping and log preparation shall not be compensated for separately but shall be considered incidental to the contract.

MAINTENANCE OF ROADWAYS, ALLEYS, AND DRIVEWAYS

Beginning on the date that the Contractor begins work on this project, he shall assume responsibility for the normal maintenance of all existing roadways, alleys, and driveways within the limits of the improvement. This normal maintenance shall include all repair work deemed necessary by the Engineer but shall not include snow removal operations. Traffic control and protection for this work shall be provided by the Contractor.

Access to driveways and alleys shall be maintained at all times by means of placing temporary aggregate. All driveways and curb and gutter removed shall be replaced within five (5) days of removal. Temporary aggregate will be required to allow residents access for all driveways and alleys that are determined to be removed and replaced. The temporary aggregate used to maintain alleys, and driveways shall not be paid separately but shall be incidental to the various removal items.

COORDINATION/SCHEDULING OF WORK

The Contractor shall be advised that the work of all subcontractors will be coordinated by the General Contractor and not by the Village or their authorized representative.

All equipment parking and work in general must be coordinated with the Village event schedule.

All equipment must be removed off the Village streets during all holiday weekends at the request of the Village.

Work hours will be 7AM to 7PM Monday through Friday. Weekend/Holiday work hours as approved by the Village. No work including the start up of machinery can occur outside of these hours.

Priming/tacking of the streets must be done on the day of paving.

Prior to HMA surface removal, all curb removal and replacement and curb slot restoration must be completed.

Milling operations cannot be more than ten days ahead of any paving operation unless granted special permission by the Village and their authorized representative.

Street sweeping will be required after grinding operations, within 24 hours before paving.

Any irrigation systems, brick pavers, decorative rock, special corner landscaping, mailboxes, etc., within the ROW disturbed during construction will be the Contractor's responsibility to repair and shall be included in the unit price for the various removal items.

Contractor is expected to inspect all locations before beginning work and have all material on hand to complete the project. No compensation will be had for inadequate inventory, shipping, trucking or re-stocking of materials.

Stockpiling of material 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.

All water use shall be coordinated with the Village and be in compliance with their rules and regulations.

PUBLIC UTILITIES

There are existing underground and above ground public and private, municipal and non-municipal utilities at the site, such as, but not necessarily limited to electrical and telephone cables including fiber-optic

facilities, natural gas pipes, sewers, and water main, etc. All due notifications, vertical/horizontal separations, and other safety precautions required by the owners/operators of the facilities being crossed shall be observed by the contractor and/or all sub-contractors at all times. Any damage caused by the construction to any of the existing facilities on-site shall be promptly repaired to the satisfaction of the owners/operators of the facility involved, at no additional compensation.

It shall be the contractor's responsibility to very carefully inspect the site, identify and locate both horizontally and vertically all existing facilities, contact their owner/operators for their notification, separation, and safety requirements, and follow such requirements very carefully. It shall be the Contractor's responsibility to notify J.U.L.I.E. at least 48 hours prior to excavation to verify locations of all utilities.

The contractor shall protect and save harmless the Village of Tinley Park and Robinson Engineering, Ltd from any claim(s) of damage resulting from his/her activities at the site or from failing to undertake due and proper safety measures to avoid such damage to any utilities during the construction.

The contractor shall repair any damage to any of the utilities, caused by his/her work, to the satisfaction of the involved utility and the Village of Tinley Park at no additional compensation. The cost of compliance with this provision shall be considered incidental to the contract and will not be compensated for separately.

TRAFFIC CONTROL PLAN

Effective: September 30, 1985

Revised : January 1, 2007

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

Special attention is called to Article 107.09 of the Standard Specifications and the following Highway Standards, Details, Quality Standard for Work Zone Traffic Control Devices, Recurring Special Provisions and Special Provisions contained herein, relating to traffic control.

The Contractor shall contact the Resident Engineering Representative at least 72 hours in advance of beginning work.

STANDARDS: 701427-05, 701606-10, 701611-01, 701701-10, 701901-07

DISTRICT ONE DETAILS: TC-10, TC-16, TC-22

SPECIAL PROVISIONS: Traffic Control Plan, Maintenance of Roadways, Alleys and Driveways

The Contractor shall not remove any traffic control or safety devices until the entire job is complete. 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 Article 107.14 of the Standard Specifications and the Illinois Manual on Uniform Traffic Control Devices for Streets and Highways and the attached special provisions. The Contractor is solely responsible for ensuring all traffic control devices are installed and maintained in accordance with applicable state standards.

Work Zone Traffic Control will not be paid for separately but will be considered incidental to the contract.

The Contractor is hereby advised that notification to all affected residents is his responsibility including the placement of No Parking signs at least 48 hours prior to paving operations. In addition, signage indicating road conditions such as "Bump, "Rough Surface", "Fresh Oil", "Dip", etc., as requested by the Village will also be required at no additional expense.

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 will not be paid for separately but shall be included in the unit price bid for the various removal items.

RUBBER ADJUSTING RINGS

Both new and or existing storm, sanitary, water and municipal utility structures shall have all adjustments to grade performed with rubber fibrepolyurethane prepolymer composite adjusting rings as approved by the Engineer. The cost of the adjustment rings is considered incidental to the various pay items.

TOPSOIL FURNISH AND PLACE, 6"

This work shall consist of the furnishing and placing of four inches (6") of pulverized topsoil at all areas disturbed by the construction. All work shall be done in accordance with Sections 211 of the Standard Specifications with the exception the timeframe. All topsoil must be placed within 14 days of the curb replacement regardless of the schedule for the sod replacement. If this topsoil is not placed the Contractor will be charged \$500 per day after day 14 in liquidated damages. In addition, if the Village has to undertake this work, the Contractor will be responsible for the cost to the Village to procure the work and this amount will be withheld from any amount due the Contractor by the Village.

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 three feet (3').

This work, including the topsoil, pulverizing, etc. shall be paid for at the contract unit price per SQUARE YARD for TOPSOIL FURNISH AND PLACE, 6".

SODDING, SPECIAL

This work shall consist of preparing the ground surface, fertilizing the areas to be sodded and furnishing and placing the salt tolerant sod. All work shall be in accordance with the applicable portions of Section 252 of the Standard Specifications.

180 pounds of fertilizer nutrients per acre shall be applied at a 1:1:1 ratio as follows:

1. Nitrogen Fertilizer Nutrient 60 lb/acre
2. Phosphorus Fertilizer Nutrient 60 lb/acre
3. Potassium Fertilizer Nutrient 60 lb/acre

Watering shall be done as directed by the Engineer, in accordance with Article 252.08 of the Standard Specifications.

This work shall be measured in place and the area calculated in square yards and shall be paid for at the contract unit price per SQUARE YARD for SODDING, SPECIAL, which price shall be full compensation for all labor, equipment, and material needed to complete the work as specified in these Special Provisions.

HOT-MIX ASPHALT DRIVEWAY REMOVAL AND REPLACEMENT, 6"

Where existing asphalt driveways or parkways are to be removed, they shall be removed to a straight sawed joint and restored with an application on the aggregate base of Bituminous Materials (Prime Coat) at a rate of 0.25 pounds per square foot, four inches (4") of Hot-Mix Asphalt Binder Course, IL 19.0, N50, then an application of Bituminous Materials (Tack Coat) at a rate of 0.025 pounds per square foot and a two inches (2") of Hot-Mix Asphalt Surface Course, Mix "D", N50. The replacement width shall be a maximum of three feet (3') unless otherwise directed by the Engineer and done in accordance with Section 440 of the Standard Specifications. Any material needed below the HMA material due to the depth of the curb removal, shall be brought to the proper depth with Aggregate Base Course, Type B (CA-6) as specified in Section 1004.01 and shall be considered incidental to this pay item.

The cost for Hot-Mix Asphalt Binder and Surface Courses, prime coat, tack coat, and aggregate will be paid for at the contract unit price bid per SQUARE YARD of HOT-MIX ASPHALT DRIVEWAY PAVEMENT, 6". The cost for saw cutting, any additional excavation, and removal of the existing driveway pavement (regardless of the depth needed to obtain the required thickness) will be paid for at the contract unit price bid per SQUARE YARD of DRIVEWAY PAVEMENT REMOVAL.

Access to all properties shall be maintained throughout the duration of construction by means of temporary aggregate accordance with Articles 107.09 and 402.10 and shall be incidental to the various removal items.

All grassed areas disturbed by the removal and replacement of this item shall be restored in accordance with the TOPSOIL FURNISH AND PLACE, 6" and SODDING, SPECIAL specified elsewhere in these special provisions and paid for through those items.

PROJECT HOT-MIX ASPHALT MIXTURE REQUIREMENT CHART

HOT-MIX ASPHALT MIXTURE REQUIREMENT CHART	
ITEM	AIR VOIDS @ Ndes
RESURFACING	
HMA Surface Course, Mix "D", N70 (IL 9.5 mm); 2"	4% @ 70 Gyr.
FULL DEPTH PAVEMENTS	
HMA Surface Course, Mix "D", N70 (IL 9.5 mm); 2"	4% @ 70 Gyr.
HMA Base Course (HMA Binder Course (IL-19mm); 8")	4% @ 70 Gyr.
DRIVEWAY AND METRA LOT PAVEMENT	
HMA Surface Course, Mix "D", N50 (IL 9.5 mm); 2"	4% @ 50 Gyr.
HMA Binder Course (IL-19mm); 4"	4% @ 50 Gyr.

The "AC Type" for Non-Polymerized HMA the "AC Type" shall be "PG 64-22" unless modified by District One Special Provisions. For Use of Recycled Materials, see Special Provisions.

The unit weight used to calculate all Hot-Mix Asphalt Surface Mixtures is 112 lbs/sq yd/in.

PORTLAND CEMENT CONCRETE SIDEWALK

Where new concrete sidewalk is to be constructed, it shall be constructed with a minimum four inches (4") of cushion of CA 6 stone and five inches (5") of PC Concrete. This work shall be done in conformance with Sections 424 and 440 of the Standard Specifications except as modified herein.

All sidewalk replacement shall be done with a minimum form size of 2 inches by 6 inches. Form material can be wood or steel. All sidewalks through driveways shall be 8 inches thick.

The saw cutting and any additional excavation required to construct these sidewalks will be considered incidental to the sidewalk removal. The placement of a minimum four inches (4") of CA 6 stone will be considered incidental to sidewalk placement. This work will be paid for at the contract unit price per SQUARE FOOT for PORTLAND CEMENT CONCRETE SIDEWALK, of the thickness specified.

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 in accordance with Article 424.09 of the Standard Specifications. The detectable warning plate(s) shall be polymer composite material brick red in color cast in place design and meet the Village of Tinley Park Standards. No hardware shall be used to fasten the tiles

to the concrete. 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 will be paid for at the contract unit price per SQUARE FOOT for DETECTABLE WARNINGS and will include all materials, equipment and labor required to complete the work as specified above.

DRAINAGE & UTILITY STRUCTURES TO BE ADJUSTED OR RECONSTRUCTED

This work shall consist of the adjustment and/or reconstruction of drainage and utility structures at those locations as indicated in the plans or as directed by the engineer in the field.

This work shall also include the adjustment of drainage and utility structures in HMA pavement at locations where the existing surface of the pavement is to be lowered to an elevation resulting in the existing structure being too high. Under this item the Contractor shall remove the existing frames and rings as required, plate the structure and backfill with HMA binder course to a level even with the existing pavement. After all HMA surface has been removed, the existing pavement shall be removed at the structure and frame adjusted prior to placing the surface course.

The General Contractor shall be responsible for coordinating this work with the subcontractor, not the Village or their authorized representative. This work shall be completed in accordance with the applicable portions of Section 602 of the Standard Specifications. ***All adjustments shall be made with rubber adjustment rings unless otherwise directed by the Engineer. The cost for the rubber adjustment rings will be paid for separately and shall not be included in the cost of the structure adjustment. It is anticipated that one (1) structure will require steel adjusting rings as noted on the plans per Article 603 of the Standard Specifications. Any steel adjusting rings shall not be paid for separately but shall be considered included in the cost of DRAINAGE & UTILITY STRUCTURES TO BE ADJUSTED.***

Concrete will not be allowed to fill the gap between the structure and the existing pavement. A full depth patch will be required for adjustments not within the curb and will be paid for at the Class D patch unit price. This work will be paid for at the contract unit price EACH for DRAINAGE & UTILITY STRUCTURES TO BE ADJUSTED and for DRAINAGE & UTILITY STRUCTURES TO BE RECONSTRUCTED.

Design footnote:

If provided as a pay item, the preparation of the base will be paid for in accordance with Article 358.07. If not provided as a pay item, preparation of the base beyond cleaning will be paid for in accordance with Article 109.04.

CLEAN CONSTRUCTION OR DEMOLITION DEBRIS (CCDD) REQUIREMENTS PER 35 IAC 1100

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 / 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 at locations determined by the Owner (or Engineer). The Contractor shall

expose soils at one or more distinct locations as directed by the Owner (or Engineer). The Contractor may need to remove pavement, sidewalk or other surface improvements to expose the soil. 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.

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 to the contract.

The owner will test for the following: VOC's, SVOC's, Pesticides, RCRA 8 total metals and pH. If the Contractor elects to utilize a CCDD facility that requires the full MAC list, the Contractor will be responsible for paying all sampling costs above \$1,000.00.

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.

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 vendors 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:

Contract Value	Range (up to a maximum of)
\$0 to \$250,000	5%
\$250,000 to \$500,000	4%
\$500,000 to \$750,000	3%
\$750,000 to \$1,000,000	2%
\$1,000,000 to \$2,000,000	1%

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.

AGGREGATE SUBGRADE IMPROVEMENT (D-1)

Effective: February 22, 2012

Revised: April 1, 2016

Add the following Section to the Standard Specifications:

"SECTION 303. AGGREGATE SUBGRADE IMPROVEMENT"

303.01 Description. This work shall consist of constructing an aggregate subgrade improvement.

303.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Coarse Aggregate	1004.07
(b) Reclaimed Asphalt Pavement (RAP) (Notes 1, 2 and 3)	1031

Note 1. Crushed RAP, from either full depth or single lift removal, may be mechanically blended with aggregate gradation CS 01 but shall not exceed 40 percent by weight of the total product. The top size of the Coarse RAP shall be less than 4 in. (100 mm) and well graded.

Note 2. RAP having 100 percent passing the 1 1/2 in (37.5 mm) sieve and being well graded, may be used as capping aggregate in the top 3 in. (75 mm) when aggregate gradation CS 01 is used in lower lifts. When RAP is blended with any of the coarse aggregates, the blending shall be done with mechanically calibrated feeders. The final product shall not contain more than 40 percent by weight of RAP.

Note 3. The RAP used for aggregate subgrade improvement shall be according to the current Bureau of Materials and Physical Research Policy Memorandum, "Reclaimed Asphalt Pavement (RAP) for Aggregate Applications".

303.03 Equipment. The vibratory machine shall be according to Article 1101.01, or as approved by the Engineer. The calibration for the mechanical feeders shall have an accuracy of ± 2.0 percent of the actual quantity of material delivered.

303.04 Soil Preparation. The stability of the soil shall be according to the Department's Subgrade Stability Manual for the aggregate thickness specified.

303.05 Placing Aggregate. The maximum nominal lift thickness of aggregate gradation CS 01 shall be 24 in. (600 mm).

303.06 Capping Aggregate. The top surface of the aggregate subgrade shall consist of a minimum 3 in. (75 mm) of aggregate gradations CA 06 or CA 10. When Reclaimed Asphalt Pavement (RAP) is used, it shall be crushed and screened where 100 percent is passing the 1 1/2 in. (37.5 mm) sieve and being well graded. RAP that has been fractionated to size will not be permitted for use in capping. Capping aggregate will not be required when the aggregate subgrade improvement is used as a cubic yard pay item for undercut applications. When RAP is blended with any of the coarse aggregates, the blending shall be done with mechanically calibrated feeders.

303.07 Compaction. All aggregate lifts shall be compacted to the satisfaction of the Engineer. If the moisture content of the material is such that compaction cannot be obtained, sufficient water shall be added so that satisfactory compaction can be obtained.

303.08 Finishing and Maintenance of Aggregate Subgrade Improvement. The aggregate subgrade improvement shall be finished to the lines, grades, and cross sections shown on the plans, or as directed by the Engineer. The aggregate subgrade improvement shall be maintained in a smooth and compacted condition.

303.09 Method of Measurement. This work will be measured for payment according to Article 311.08.

303.10 Basis of Payment. This work will be paid for at the contract unit price per cubic yard (cubic meter) for AGGREGATE SUBGRADE IMPROVEMENT or at the contract unit price per square yard (square meter) for AGGREGATE SUBGRADE IMPROVEMENT, of the thickness specified.

Add the following to Section 1004 of the Standard Specifications:

1004.07 Coarse Aggregate for Aggregate Subgrade Improvement. The aggregate shall be according to Article 1004.01 and the following.

- (a) Description. The coarse aggregate shall be crushed gravel, crushed stone, or crushed concrete. The top 12 inches of the aggregate subgrade improvement shall be 3 inches of capping material and 9 inches of crushed gravel, crushed stone or crushed concrete. In applications where greater than 36 inches of subgrade material is required, rounded gravel, meeting the CS01 gradation, may be used beginning at a depth of 12 inches below the bottom of pavement.
- (b) Quality. The coarse aggregate shall consist of sound durable particles reasonably free of deleterious materials. Non-mechanically blended RAP may be allowed up to a maximum of 5.0 percent.
- (c) Gradation.
 - (1) The coarse aggregate gradation for total subgrade thicknesses of 12 in. (300 mm) or greater shall be CS 01.

COARSE AGGREGATE SUBGRADE GRADATIONS					
Grad No.	Sieve Size and Percent Passing				
	8"	6"	4"	2"	#4
CS 01	100	97 ± 3	90 ± 10	45 ± 25	20 ± 20

COARSE AGGREGATE SUBGRADE GRADATIONS (Metric)					
Grad No.	Sieve Size and Percent Passing				
	200 mm	150 mm	100 mm	50 mm	4.75 mm
CS 01	100	97 ± 3	90 ± 10	45 ± 25	20 ± 20

- (2) The 3 in. (75 mm) capping aggregate shall be gradation CA 6 or CA 10.

WATER

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 will be paid for at the contract unit price per FOOT for DUCTILE IRON WATER MAIN, [SPECIFIED SIZE] 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.

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, cut and cap, and tapping sleeve installations, will be paid at the contract unit price per POUND for DUCTILE IRON FITTINGS.

VALVES

All 10 inches and smaller valves shall be East Jordan, Mueller, or approved equal resilient wedge type abiding to AWWA C509 and AWWA C550.

All proposed valves 12 inches or larger 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 in the plans or as directed by the Engineer. Valves shall be centered directly under the vault lid opening unless otherwise approved by the 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 vaults sections shall be sealed with mastic and McWrap or 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 102223 embossed "WATER" and "VILLAGE OF TINLEY PARK". Valve vault construction shall be as specified in the Division II Technical Specifications and detail drawings shown in 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 in the plans and proposal sheet.

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 will be paid for at the contract unit price bid per EACH for [SPECIFIED SIZE] CUT AND CAP.

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.

ABANDON VALVE VAULT

Valves in valve vaults specified on the plans to be abandoned shall be closed and then cut a minimum of twelve inches (12") below the existing ground surface. The uppermost cone/barrel section of the vaults shall also be removed to a minimum depth of twelve inches (12") below the existing ground surface. The remaining vault shall then be filled with concrete, sand, or other appropriate material as directed by the Engineer. This work will be paid for at the contract unit price per EACH for ABANDON VALVE VAULT.

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 Article 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.

SANITARY SEWERS, PVC PIPE

This work shall consist of the installation of PVC sanitary sewer ASTM F-679 with gasketed watertight joints meeting specification D-3212.

All trenches beneath and within 2' of roadways, shoulders, curb, sidewalks or driveways shall be backfilled with aggregate meeting the requirements of Section 208 of the standard specifications.

Bedding shall consist of crushed gravel, or crushed stone 1/4" to 1" in size. As a minimum, the material shall conform to the requirements of Article 1104.01 of the "Standard Specifications for Road and Bridge Construction," of the State of Illinois. The gradation shall conform to gradation CA 11 of the Illinois Standard Specifications or to ASTM Gradation 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. Bedding shall be a minimum of 4 inches. The backfill material to a level twelve inches (12") over the top of the pipe shall be of the same material as the bedding material specified above and shall be carefully placed so as to completely fill the space under and around the pipe, in eight inch layers, loose measurement, and compacted to the satisfaction of the Engineer. The remainder of the trench shall be backfilled as provided in Division II, Excavation and Cleanup, Section 1. Materials shall be backfilled to 95% standard laboratory density. Excess excavated material shall be disposed of in accordance with Section 2-2.06.

Sanitary sewers shall be tested by the air testing method as outlined in the general specifications and this cost is to be included in the unit price per lineal foot of sewer line.

Each PVC pipe length and fitting shall be clearly marked with the following:

- a. Manufacturer's Name
- b. Nominal Pipe Size
- c. Cell Classification
- d. Minimum Pipe Stiffness

All pipe shall be factory air tested with gasket in place and marked accordingly.

PVC pipe and fittings shall be manufactured in accordance with the requirements of ASTM F 679. PVC pipe shall be made from a compound meeting the requirements of cell classification 12454B.

PVC pipe joints shall be the bell and spigot type. Gaskets shall meet the requirements of ASTM F 477 and be molded into a circular form or extruded to the proper section, then spliced into circular form, and shall be made of a properly cured high grade elastomeric compound. Gaskets shall be factory installed and chemically bonded to the bell end of the pipe. Field installed gaskets and field cut beveled lengths of pipe shall be done in accordance with the manufacturer's instructions and recommended equipment and materials. All pipe gaskets and spigots shall be thoroughly cleaned and lubricated prior to assembly.

The sanitary sewer shall be televised prior to reconnection of flow.

This work will be paid for at the contract unit price per FOOT of PVC SANITARY SEWER, 27" which price shall include the installation of the sewer, tees, service risers, by-pass pumping, excavation, bedding and backfilling, testing of the sewer line and all work as mentioned above.

DROP SANITARY MANHOLES

This work shall consist of constructing a drop sanitary manholes where indicated on the contract drawings and/or as directed by the Engineer. Manhole structures shall be precast concrete manholes, type A,

constructed in accordance with the applicable articles of Section 3 of the Division II, Technical Specifications, Sanitary Sewer and Storm Sewer and Section 602 of the Standard Specifications, along with the details of the MWRD. All manholes shall be of the diameter specified and shall be provided with a Type 1 Frame and a locking and watertight Gasket Seal Cover and a Cretex, or approved equal, internal grade adjustment skirt.

Both the frame and the lid shall be made by the same manufacturer, unless approved otherwise in advance by the engineer. All castings used for this work shall, as a minimum requirement, meet the provisions of Section 604 of the Standard Specifications.

The gasket seal cover shall be either a Neenah Self Sealing Lid, East Jordan Gasket Seal Cover, or equal, of appropriate size to fit the newly constructed manhole frame. The lid shall have a continuous gasket which fits firmly and smoothly on the existing frame, and provide a non-rocking contact between the lid and the frame. The gasket shall be of a material with good sealing qualities, abrasion resistance and low compression set. The pick holes shall be concealed type which do not go through the entire thickness of the lid. The words "TINLEY PARK" and "SANITARY" shall be cast on the lid in raised letters.

The Contractor shall keep the excavation area to a minimum during the manhole replacement. The cost for all equipment necessary for trench dewatering and trench maintenance shall be considered incidental to the manhole replacement.

The frame shall be set in a full bituminous mastic bed. The frame and adjustment rings (if any) shall be placed concentrically over the manhole opening. Only butyl rope shall be used as a sealant between adjustment rings or frames. A layer of bituminous mastic of a minimum thickness of three eighths of an inch (3/8") shall then be applied to the exterior joints of the replacement ring (if any) and the frame. The exterior mastic application shall extend from the top of the ring(s) to a point six to twelve inches (6"-12") below the bottom of the lowest adjustment ring.

3" x 3" steel shims with a minimum of 6 per joint shall be used. Steel shims shall be 1/8 inch in height less than the butyl rope to allow for compression and seating of the butyl rope. The frame and adjustment rings shall be positively positioned and securely fastened and shall match the surface grade and slope and prevent movement under traffic loads. Shims shall not be used to adjust the height of the frame more than 15/16 of an inch. Adjustments equal to or greater than 1-inch and less than 2 inches require the use of 1-inch adjustment rings and shims, not shims only. Steel shims are to be used only on manholes in paved areas, streets, alleys, sidewalks, driveways, etc. They are not required in parkway areas.

A sheet of polyvinyl chloride (PVC) with a minimum thickness of four (4) mils shall be placed over the exposed mastic and manhole frame and secured to the frame at the top by tape before backfilling the excavation. The gasket seal cover will then be installed. The contractor shall measure the frames to ensure the adequacy of the seat dimension to accept a gasket seal cover. The manufacturer's directions shall be followed in making this determination. Generally, the seat width should be a minimum of seven-eighths inch (7/8") for effective sealing.

New manhole connections to precast concrete bases can be made with elastomeric gasket seals such as ALOK or KOR'N SEAL. Connections to poured in-place manholes shall use manhole adaptors or waterstops.

All work will be paid for at the contract unit price per EACH for SANITARY MANHOLES, DROP, 72"-DIAMETER, TYPE 1 FRAME, LOCKING LID.

SEWER FLOW CONTROL AND BYPASS PUMPING

The Contractor shall provide all labor, equipment, supervision, and materials necessary to control flows via bypass pumping. The Contractor shall be responsible for controlling and maintaining all sanitary flows

within the sewer system during the Work. The Contractor may drain flows by pipes, chases, fluming, bypass pumping, or other appropriate methods approved by the Owner.

Precautions shall be taken to ensure that flow control and dewatering operations shall not cause flooding or damage to public or private properties. In the event flooding or damage occurs, the Contractor shall make provisions to correct such damage at no additional cost to the Owner. The Contractor shall be responsible for any damages to public or private property, overflows from the sewer system and violations resulting in fines as a result of the dewatering/bypass operation.

When required for this project, the Contractor shall provide all labor, equipment, and materials necessary for the transfer of flow around the sections of pipe. If the Contractor utilizes a subcontractor for bypass pumping operations, the subcontractor shall have at least five years of experience in the bypass pumping industry.

The bypass shall be made by diversion of the flow from an existing upstream location, around the section(s) to be taken from service for inspection or rehabilitation, to an existing downstream location. The bypass system shall be of adequate capacity to handle all flows, including wet weather related flows. If bypass pumping is utilized by the Contractor to control flows, the Contractor shall be responsible for monitoring the bypass pumping operation at all times until Work is complete. The location of pump(s), force main, discharge point, pumping rates, etc., shall be approved by the Owner.

The Contractor shall prepare a detailed Flow Control Plan that describes the measures to be used to control flows. The Contractor shall submit the Plan to the Engineer for review prior to beginning any flow control work. The Contractor's Plan shall include, but not necessarily be limited to, the following:

- Stand-by/back-up pump set for the bypass application
- Detail plan for 24-hour monitoring
- Fueling of pump sets on demand
- Location of flow diversion structures, collapsible sewer plugs, dams, pumps, and related materials and equipment. Sewer plug method and type of plugs or gates to be used.
- Key operational control factors, (i.e. maximum flow elevations upstream of dams)
- Pump sizes and flow rates
- Destination of bypassed flows, including routing of force mains and provisions for vehicular and pedestrian traffic as necessary
- Wet weather event procedures
- Staging areas for the pump
- Number, size, material, locations, and method of installation of suction piping
- Bypass pump sizes, capacity, number of each size to be on site, and power requirements
- Calculations of static lift, friction loss, and flow velocity
- Stand-by power
- Downstream discharge plan
- Method of noise control for each pump
- Temporary pipe supports and anchoring required
- Heavy equipment needed for installation of pumps and piping

The number and size of pumps utilized in bypass pumping shall be such that if the largest pump is out of service, bypass flows will be maintained during the bypass operation. Bypass pumping equipment shall include pumps, conduits, engines, and related equipment necessary to divert the flow or sewage around the section in which work is to be performed. In addition, the Contractor shall maintain at the same location and in operable condition, duplicate equipment to be used in case there is equipment failure. In this event, the Contractor shall promptly repair or replace the failed equipment to the satisfaction of the Owner.

The bypass system shall be of sufficient capacity to handle the peak flow of the pipe. The Contractor shall provide the necessary labor and supervision to set up and operate the pumping and bypassing system. The Contractor shall comply with any local sound ordinance. The equipment shall be manned continuously. During bypass pumping operations, the Contractor shall provide the necessary labor to continually monitor the operation and ensure uninterrupted and sufficient pumping at all times. The bypass pumping system shall be fueled every 24 hours or when the fuel tank reaches one quarter full, whichever comes first.

The Contractor shall provide all materials and labor as necessary to maintain flows in the existing sewer interceptor and all collector and lateral lines at all times and under all weather conditions. Interruption of flows will not be permitted. Overflows from bypass operations will not be permitted to enter into any streams or bodies of water. The Contractor will be solely responsible for any legal actions taken by the federal or state regulatory agencies if such overflows occur during construction.

New sewer pipes may be used by the Contractor to carry the sanitary flows after the new pipes have passed inspection and testing. Any "temporary" connections to the new sewer pipes shall be approved by the Owner.

New sewer pipes may be used by the Contractor to carry the sanitary flows after the new pipes have passed inspection and testing. Any "temporary" connections to the new sewer pipes shall be approved by the Owner.

Engine driven equipment for bypass pumping equipment shall have "critical grade mufflers." The enclosure shall be portable in order to allow the enclosure to be moved when bypass pumping equipment is moved. These conditions are subject to any other additional stipulations that may be required by local sound ordinances.

This work shall be paid for at the contract unit price per LUMP SUM for SEWER FLOW CONTROL AND BYPASS PUMPING.

TRENCH BACKFILL

This work shall consist of backfilling excavations made for sanitary sewer mains, services, stubs and manholes lying within 2' of existing or proposed paved areas with compacted trench backfill, gradation CA 6 in accordance with Section 208 of the Standard Specifications.

This work will be paid for per FOOT for TRENCH BACKFILL, SANITARY SEWER, [of the depth specified] or TRENCH BACKFILL, STORM or TRENCH BACKFILL, WATER MAIN. No additional consideration will be given to over-excavation resulting from the use of trench boxes.

MANHOLES TO BE INTERNALLY SEALED - EPOXY COATING

Scope: This work shall consist of sealing existing manholes by applying an epoxy coating to the manhole walls, benches, frames and adjusting rings, as indicated on the plans or as directed by the Engineer. The finished coating shall eliminate all groundwater infiltration into the manhole. All active leaks must be sealed. Materials used for sealing active leaks must be compatible with the epoxy coating material

to be used and shall conform to the standards for sealing active leaks as specified elsewhere in these provisions.

Technical data sheets on each product used shall be submitted to the Engineer. Additionally, copies of independent testing performed on the coating product, indicating the product meets the requirements as specified herein shall be provided to the Engineer. Technical data sheets and project specific data for repair materials to be top coated with the coating product(s) including application, cure time and surface preparation procedures shall be provided to the Engineer.

The Contractor shall provide current documentation from coating product manufacturer certifying Contractor's training and equipment complies with the requirements specified herein including ASTM test results indicating the product conforms to and is suitable for its intended use per these specifications. Five (5) recent references of the Contractor indicating successful application of coating product(s) of the high-build 100% Solids epoxy coating, applied by spray application within the wastewater environment shall be provided to the Engineer.

Coating product(s) shall be capable of being installed and curing properly within a manhole environment. Coating product(s) shall be resistant to all forms of chemical or bacteriological attack found in sanitary sewer systems; and shall be capable of adhering to the manhole structure substrates. Repair product(s) shall be fully compatible with coating product(s) including ability to bond effectively forming a composite system. The Contractor shall utilize equipment for the spray application of the coating product(s) which has been approved by the coating product manufacturer; and shall have received training on the operation and maintenance of said equipment from the coating product manufacturer. The Contractor shall be trained by, or have their training approved and certified by, the coating product manufacturer for the handling, mixing, application and inspection of the coating product(s) to be used as specified herein. The Contractor shall initiate and enforce quality control procedures consistent with the coating product(s) manufacturer recommendations and applicable NACE or SSPC standards as referenced herein.

Material Requirements:

- High Modulus High Build Amine Cured Epoxy Polymer Gel (HM):
 - Solids by weight 100%
 - Flash point 200°F
 - Temperature resistance 175°F
 - Net weight/gallon, lbs./gallon 9.2+ .5 lbs
 - Shelf life 1 year
 - Potlife, 77°F 45+10 min.
 - Bond Strength ACI 503R Pass
 - Abrasion resistance ASTM D968, neat material 50 liters
 - Compressive Strength, ASTM D579 13,400 psi
 - Flexural Strength, ASTM D580 9,500 psi
 - Flexural Modulus, ASTM D580 505,000 psi
 - Flexural Strength, ASTM D790 11,600 psi
 - Flexural Modulus, ASTM D790 552,000 psi
 - Tensile Elongation, ASTM D638 4-7%

- Tensile Strength, ASTM D638 7,500 psi
- Shore D Hardness, ASTM D2440 82-84
- Low Modulus Epoxy Polymer Gel (LM):
 - Solids by weight 100%
 - Flash point 200°F
 - Temperature resistance 175°F
 - Shelf life 1 year
 - Potlife, 77°F (25°C) 35 ±10 min.
 - Tensile Elongation, ASTM D638 500 ± 50%
 - Tensile Strength, ASTM D638 500± 50 psi

Construction Requirements:

All structures to be coated shall be readily accessible to the Contractor. New Portland cement concrete structures shall have endured a minimum of 28 days since manufacture prior to commencing coating installation. Any active flows shall be dammed, plugged or diverted as required to ensure all liquids are maintained below or away from the surfaces to be coated. Temperature of the surface to be coated should be maintained between 40 and 120 degrees F. Specified surfaces should be shielded to avoid exposure of direct sunlight or other intense heat sources. Where varying surface temperatures do exist, coating installation should be scheduled when the temperature is falling versus rising. Prior to commencing surface preparation, the Contractor shall inspect all surfaces specified to receive the coating and notify the Owner, in writing, of any noticeable disparity in the site, structure or surfaces which may interfere with the work, use of materials or procedures as specified herein. Oils, grease, incompatible existing coatings, waxes, form release, curing compounds, efflorescence, sealers, salts, or other contaminants which may affect the performance and adhesion of the coating to the substrate shall be removed.

Concrete and/or mortar damaged by corrosion, chemical attack or other means of degradation shall be removed so that only sound substrate remains. Existing coatings which may affect the performance and adhesion of the coating product(s) shall be removed by the Contractor prior to the application of the coating product(s).

Choice of surface preparation method(s) should be based upon the condition of the structure and concrete or masonry surface, potential contaminants present, access to perform work, and required cleanliness and profile of the prepared surface to receive the coating product(s). Surface preparation method, or combination of methods, that may be used include high pressure water cleaning, high pressure water jetting, abrasive blasting, shotblasting, grinding, scarifying, detergent water cleaning, hot water blasting and others as described in NACE No. 6/SSPC SP-13. Whichever method(s) are used, they shall be performed in a manner that provides a uniform, sound clean neutralized surface suitable for the specified coating product(s).

Pressure water cleaning with a minimum of 5,000 psi at 5 gpm, using a rotating pencil nozzle, shall be used to clean and free all foreign material within the manhole. Active water infiltration must be stopped by using a cementitious water plug or chemical grout that is compatible with the substrate and specified coating system. Metal surfaces shall be prepared to Nace No. 2 "Near White Blast Cleaning" and immediately coated with protective epoxy coating.

Repair products shall be used to fill voids, bungholes, and/or smooth transitions between components prior to the installation of the coating product(s). Repair materials must be compatible with the specified coating

product(s) and shall be used and applied in accordance with the manufacturer's recommendations. Resurfacing products shall be used to fill large voids, lost mortar in masonry structures, smooth deteriorated surfaces and rebuild severely deteriorated structures.

Areas where rebar has been exposed shall be repaired in accordance with the Engineer's recommendations. Areas where rebar has been exposed and is corroded shall be first prepared. The exposed rebar shall then be abrasive blasted and coated with the coating product specified. Repair products shall be used to fill voids, bugholes, and other surface defects which may affect the performance or adhesion of the coating product(s). Resurfacing products shall be used to repair, smooth or rebuild surfaces with rough profiles to provide a concrete or masonry substrate suitable for the coating product(s) to be applied. These products shall be installed to minimum thickness as recommended within manufacturers published guidelines. Should structural rebuild be necessary, these products shall be installed to a thickness as specified by the Engineer. Repair and resurfacing products shall be handled, mixed, installed and cured in accordance with manufacturer guidelines. All repaired or resurfaced surfaces shall be inspected for cleanliness and suitability to receive the coating product(s). Additional surface preparation may be required prior to coating application.

Application procedures shall conform to the recommendations of the coating product(s) manufacturer, including environmental controls, product handling, mixing, application equipment and methods. Spray equipment shall be specifically designed to accurately apply the coating product(s) and shall be in proper working order. Contractors qualified in accordance with these specifications shall perform all aspects of coating product(s) installation. Prepared surfaces shall be coated by spray application of the coating product(s) described herein to a minimum wet film thickness of 125 mils. Subsequent top coating or additional coats of the coating product(s) shall occur within the products recoat window. Additional surface preparation procedures will be required if this recoat window is exceeded. Coating product(s) shall interface with adjoining construction materials throughout the manhole structure to effectively seal and protect concrete or masonry substrates from infiltration and attack by corrosive elements. Procedures and materials necessary to effect this interface shall be as recommended by the coating product(s) manufacturer. Termination points of the coating product(s) shall be made at the manhole chimney joint, 1" below normal flow levels at the bench or within the invert [unless invert is specified to receive coating], and a minimum of 1" interfacing with each pipe penetration. Sewage flow shall be stopped, bypassed or diverted for application of the coating product(s) to the invert and interface with pipe materials.

Upon the prepared manhole surface, a lining of epoxy shall be applied at a minimum thickness of 125 mils (1/8") or greater. Final thickness may increase in areas of major damage. The coating material shall be moisture tolerant SewerTuff High-Build Epoxy as manufactured by ThermalChem of Franklin Park, IL or approved equal.

The frame and adjusting rings are to be lined as part of the EPOXY MANHOLE COATING. All of the procedures indicated for the lining of an entire manhole are to be performed prior to the application of the epoxy lining. Material used to seal the manhole frame to the riser section will be a low modulus epoxy such as moisture tolerant SewerTuff LM as manufactured by "ThermalChem" or approved equal.

Testing and Inspection:

During application a wet film thickness gauge, meeting ASTM D4414 - Standard Practice for Measurement of Wet Film Thickness of Organic Coatings by Notched Gages, shall be used to ensure a monolithic coating and uniform thickness during application. The Contractor is to furnish the Engineer with two (2) Notched Gages that can be used to inspect epoxy coatings near the surface of the manhole. These items will become the property of the Owner upon completion at no additional cost. Cost for these items shall be incidental to the contract. Measurements shall be taken, documented and attested to by the Contractor for submission to the Owner/Engineer.

Holiday Detection shall be done for coating systems installed in corrosive environments, only when it can be safely and effectively performed. After the coating product(s) have set in accordance with manufacturer instructions, all surfaces shall be inspected for holidays with high-voltage holiday detection equipment. The spark tester shall be initially set at 100 volts per 1 mil (25 microns) of film thickness. Reference NACE RPO 188-99 for performing holiday detection. All detected holidays shall be marked and repaired by abrading the coating surface with grit disk paper or other hand tooling method. After abrading and cleaning, additional coating can be hand applied to the repair area. All touch-up/repair procedures shall follow the coating manufacturer's recommendations. The Contractor shall provide all documentation on areas tested, results and repairs made to Owner/Engineer.

A maximum of one (1) coated manhole shall be tested for adhesion/bond of the coating to the substrate. The Engineer shall select the manhole to be tested. A minimum of three 20 mm dollies shall be affixed to the coated surface at the cone area, mid-section and at the bottom of the structure. The adhesive used to attach the dollies to the coating shall be rapid setting with tensile strengths in excess of the coating product and permitted to cure in accordance with manufacturer recommendations. The coating and dollies shall be adequately prepared to receive the adhesive. Failure of the dolly adhesive shall be deemed a non-test and require retesting. Prior to performing the pull test, the coating shall be scored to within 30 mils of the substrate by mechanical means without disturbing the dolly or bond within the test area. Two of the three adhesion pulls shall exceed 200 psi or concrete failure with more than 50% of the subsurface adhered to the coating. Should a structure fail to achieve two successful pulls as described above, additional testing shall be performed at the discretion of the Owner/Engineer. The Engineer shall evaluate any areas detected to have inadequate bond strength. Further bond tests may be performed in that area to determine the extent of potentially deficient bonded area and the Contractor shall make repairs. The Engineer shall make a visual inspection. Any deficiencies in the finished coating shall be marked and repaired according to the procedures set forth herein by the Contractor.

Vacuum Testing

The Contractor shall perform a vacuum test conforming to the ASTM C1244-93 on all new and internally sealed manholes. Vacuum testing shall not be conducted earlier than 7 days after application. The Contractor shall repair all leaks, which may cause a manhole to fail the test, including removal and re-application of spray lining if necessary. The Vacuum tests shall be witnessed by the city's representative or the engineer. The cost for additional tests required, or re-lining of manholes, due to the failure of the lined manholes to satisfactorily pass the initial test shall be borne by the Contractor. All pipes entering the manhole should be plugged, taking care to securely restrain the plugs from being drawn into the manhole. The test head shall be placed and the seal inflated in accordance with the manufacturer's recommendations. A vacuum pump of ten (10) inches of mercury shall be drawn and the vacuum pump shut off. With the valves closed, the time shall be measured for the vacuum to drop to nine (9) inches. Following table define the minimum allowable test times for manhole acceptance at the specified vacuum drop:

MANHOLE DEPTH (feet)	MANHOLE DIAMETER (Inches)								
	30	33	36	42	48	54	60	66	72
	Minimum Test Time for Each Manhole Depth and Diameter (seconds)								
<4	6	7	7	9	10	12	13	15	16
6	9	10	11	13	15	18	20	22	25
8	11	12	14	17	20	23	26	29	33

10	14	15	18	21	25	29	33	36	41
12	17	18	21	25	30	35	39	43	49
14	20	21	25	30	35	41	46	51	57
16	22	24	29	34	40	46	52	58	67
18	25	27	32	38	45	52	59	65	73
20	28	30	35	42	50	53	65	72	81
22	31	33	39	46	55	64	72	79	89
24	33	36	42	51	59	64	78	87	97
26	36	39	46	55	54	75	85	94	105
28	39	42	49	59	69	81	91	101	113
30	42	45	53	63	74	87	98	108	121

Note: These numbers have been taken from ASTM C1244-93 (reapproved 2000).

Any replaced sections, which do not pass the inspection(s), shall be repaired at the Contractor's expense. The cost for all sewer televising shall be considered incidental to the contract.

Measurement and Payment: Payment shall be measured per vertical foot depth of manholes sealed by measuring from the invert elevation of the manhole to the top of the frame under the manhole lid. The cost for cleaning the manhole structure, patching of manhole defects, bypass pumping, sealing leaks, application of the cementitious liner, and restoration of disturbed areas will be paid for at the contract unit price per vertical FOOT for MANHOLES TO BE INTERNALLY SEALED - EPOXY COATING.

ABANDON AND FILL EXISTING 27" SANITARY SEWER

This work shall consist of filling the abandoned 27" sanitary sewer with Controlled Low-Strength Material (CLSM) that meet the requirement of Section 1019. The contractor shall use whatever means required to fill the entire run of sewer pipe and a set-up from each end may be required.

This work shall be paid for measured in place per FOOT of ABANDON AND FILL EXISTING 27" SANITARY SEWER WITH CLSM.

DRAINAGE AND INLET PROTECTION UNDER TRAFFIC (DISTRICT 1)

Effective: April 1, 2011

Revised: April 2, 2011

Add the following to Article 603.02 of the Standard Specifications:

- (i) Temporary Hot-Mix Asphalt (HMA) Ramp (Note 1) 1030
(j) Temporary Rubber Ramps (Note 2)

Note 1. The HMA shall have maximum aggregate size of 3/8 in. (95 mm).

Note 2. The rubber material shall be according to the following.

Property	Test Method	Requirement
Durometer Hardness, Shore A	ASTM D 2240	75 ±15
Tensile Strength, psi (kPa)	ASTM D 412	300 (2000) min
Elongation, percent	ASTM D 412	90 min
Specific Gravity	ASTM D 792	1.0 - 1.3
Brittleness, °F (°C)	ASTM D 746	-40 (-40)°

Revise Article 603.07 of the Standard Specifications to read:

"603.07 Protection Under Traffic. After the casting has been adjusted and the Class PP concrete has been placed, the work shall be protected by a barricade and two lights according to Article 701.17(e)(3)b.

When castings are under traffic before the final surfacing operation has been started, properly sized temporary ramps shall be placed around the drainage and/or utility castings according to the following methods.

- (a) Temporary Asphalt Ramps. Temporary hot-mix asphalt ramps shall be placed around the casting, flush with its surface and decreasing to a featheredge in a distance of 2 ft (600 mm) around the entire surface of the casting.
- (b) Temporary Rubber Ramps. Temporary rubber ramps shall only be used on roadways with permanent posted speeds of 40 mph or less and when the height of the casting to be protected meets the proper sizing requirements for the rubber ramps as shown below.

Dimension	Requirement
Inside Opening	Outside dimensions of casting + 1 in. (25 mm)

Thickness at inside edge	Height of casting $\pm 1/4$ in. (6 mm)
Thickness at outside edge	1/4 in. (6 mm) max.
Width, measured from inside opening to outside edge	8 1/2 in. (215 mm) min

Placement shall be according to the manufacturer's specifications.

Temporary ramps for castings shall remain in place until surfacing operations are undertaken within the immediate area of the structure. Prior to placing the surface course, the temporary ramp shall be removed. Excess material shall be disposed of according to Article 202.03."

RECLAIMED ASPHALT PAVEMENT AND RECLAIMED ASPHALT SHINGLES (D-1)

Effective: November 1, 2012

Revise: January 1, 2018

Revise Section 1031 of the Standard Specifications to read:

"SECTION 1031. RECLAIMED ASPHALT PAVEMENT AND RECLAIMED ASPHALT SHINGLES

1031.01 Description. Reclaimed asphalt pavement and reclaimed asphalt shingles shall be according to the following.

- (a) Reclaimed Asphalt Pavement (RAP). RAP is the material resulting from cold milling or crushing an existing hot-mix asphalt (HMA) pavement. RAP will be considered processed FRAP after completion of both crushing and screening to size. The Contractor shall supply written documentation that the RAP originated from routes or airfields under federal, state, or local agency jurisdiction.
- (b) Reclaimed Asphalt Shingles (RAS). Reclaimed asphalt shingles (RAS). RAS is from the processing and grinding of preconsumer or post-consumer shingles. RAS shall be a clean and uniform material with a maximum of 0.5 percent unacceptable material, as defined in Central Bureau of Materials Policy Memorandum, "Reclaimed Asphalt Shingle (RAS) Sources", by weight of RAS. All RAS used shall come from a Central Bureau of Materials approved processing facility where it shall be ground and processed to 100 percent passing the 3/8 in. (9.5 mm) sieve and 90 percent passing the #4 (4.75 mm) sieve. RAS shall meet the testing requirements specified herein. In addition, RAS shall meet the following Type 1 or Type 2 requirements.
 - (1) Type 1. Type 1 RAS shall be processed, preconsumer asphalt shingles salvaged from the manufacture of residential asphalt roofing shingles.
 - (2) Type 2. Type 2 RAS shall be processed post-consumer shingles only, salvaged from residential, or four unit or less dwellings not subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP).

1031.02 Stockpiles. RAP and RAS stockpiles shall be according to the following.

- (a) RAP Stockpiles. The Contractor shall construct individual, sealed RAP stockpiles meeting one of the following definitions. Additional processed RAP (FRAP) shall be stockpiled in a separate working pile, as designated in the QC Plan, and only added to the sealed stockpile when test results for the working pile are complete and are found to meet tolerances specified herein for the original sealed FRAP stockpile. Stockpiles shall be sufficiently separated to prevent intermingling at the base. All stockpiles (including unprocessed RAP and FRAP) shall be identified by signs indicating the type as listed below (i.e. "Non- Quality, FRAP #4 or Type 2 RAS", etc...).

- (1) Fractionated RAP (FRAP). FRAP shall consist of RAP from Class I, HMA (High and Low ESAL) or equivalent mixtures. The coarse aggregate in FRAP shall be crushed aggregate and may represent more than one aggregate type and/or quality, but shall be at least C quality. All FRAP shall be processed prior to testing and sized into fractions with the separation occurring on or between the #4 (4.75 mm) and 1/2 in. (12.5 mm) sieves. Agglomerations shall be minimized such that 100 percent of the RAP in the coarse fraction shall pass the maximum sieve size specified for the mix the FRAP will be used in.
- (2) Restricted FRAP (B quality) stockpiles shall consist of RAP from Class I, HMA (High ESAL), or HMA (High ESAL). If approved by the Engineer, the aggregate from a maximum 3.0 in. (75 mm) single combined pass of surface/binder milling will be classified as B quality. All millings from this application will be processed into FRAP as described previously.
- (3) Conglomerate. Conglomerate RAP stockpiles shall consist of RAP from Class I, HMA (High and Low ESAL) or equivalent mixtures. The coarse aggregate in this RAP shall be crushed aggregate and may represent more than one aggregate type and/or quality, but shall be at least C quality. This RAP may have an inconsistent gradation and/or asphalt binder content prior to processing. All conglomerate RAP shall be processed (FRAP) prior to testing. Conglomerate RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department.
- (4) Conglomerate "D" Quality (DQ). Conglomerate DQ RAP stockpiles shall consist of RAP from HMA shoulders, bituminous stabilized subbases or HMA (Low ESAL)/HMA (Low ESAL) IL-19.0L binder mixture. The coarse aggregate in this RAP may be crushed or round but shall be at least D quality. This RAP may have an inconsistent gradation and/or asphalt binder content. Conglomerate DQ RAP stockpiles shall not contain steel slag or other expansive material as determined by the Department.
- (5) Non-Quality. RAP stockpiles that do not meet the requirements of the stockpile categories listed above shall be classified as "Non-Quality".

RAP or FRAP containing contaminants, such as earth, brick, sand, concrete, sheet asphalt, bituminous surface treatment (i.e. chip seal), pavement fabric, joint sealants, plant cleanout etc., will be unacceptable unless the contaminants are removed to the satisfaction of the Engineer. Sheet asphalt shall be stockpiled separately.

- (b) RAS Stockpiles. Type 1 and Type 2 RAS shall be stockpiled separately and shall be sufficiently separated to prevent intermingling at the base. Each stockpile shall be signed indicating what type of RAS is present.

However, a RAS source may submit a written request to the Department for approval to blend mechanically a specified ratio of Type 1 RAS with Type 2 RAS. The source will not be permitted to change the ratio of the blend without the Department prior written

approval. The Engineer's written approval will be required, to mechanically blend RAS with any fine aggregate produced under the AGCS, up to an equal weight of RAS, to improve workability. The fine aggregate shall be "B Quality" or better from an approved Aggregate Gradation Control System source. The fine aggregate shall be one that is approved for use in the HMA mixture and accounted for in the mix design and during HMA production.

Records identifying the shingle processing facility supplying the RAS, RAS type, and lot number shall be maintained by project contract number and kept for a minimum of three years.

1031.03 Testing. FRAP and RAS testing shall be according to the following.

- (a) FRAP Testing. When used in HMA, the FRAP shall be sampled and tested either during processing or after stockpiling. It shall also be sampled during HMA production.
 - (1) During Stockpiling. For testing during stockpiling, washed extraction samples shall be run at the minimum frequency of one sample per 500 tons (450 metric tons) for the first 2000 tons (1800 metric tons) and one sample per 2000 tons (1800 metric tons) thereafter. A minimum of five tests shall be required for stockpiles less than 4000 tons (3600 metric tons).
 - (2) Incoming Material. For testing as incoming material, washed extraction samples shall be run at a minimum frequency of one sample per 2000 tons (1800 metric tons) or once per week, whichever comes first.
 - (3) After Stockpiling. For testing after stockpiling, the Contractor shall submit a plan for approval to the District proposing a satisfactory method of sampling and testing the RAP/FRAP pile either in-situ or by restockpiling. The sampling plan shall meet the minimum frequency required above and detail the procedure used to obtain representative samples throughout the pile for testing.

Before extraction, each field sample of FRAP, shall be split to obtain two samples of test sample size. One of the two test samples from the final split shall be labeled and stored for Department use. The Contractor shall extract the other test sample according to Department procedure. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

- (b) RAS Testing. RAS shall be sampled and tested during stockpiling according to Central Bureau of Materials Policy Memorandum, "Reclaimed Asphalt Shingle (RAS) Sources". The Contractor shall also sample as incoming material at the HMA plant.
 - (1) During Stockpiling. Washed extraction and testing for unacceptable materials shall be run at the minimum frequency of one sample per 200 tons (180 metric tons) for the first 1000 tons (900 metric tons) and one sample per 1000 tons (900 metric tons) thereafter. A minimum of five samples are required for stockpiles less than

1000 tons (900 metric tons). Once a ≤ 1000 ton (900 metric ton), five-sample/test stockpile has been established it shall be sealed. Additional incoming RAS shall be in a separate working pile as designated in the Quality Control plan and only added to the sealed stockpile when the test results of the working pile are complete and are found to meet the tolerances specified herein for the original sealed RAS stockpile.

- (2) Incoming Material. For testing as incoming material at the HMA plant, washed extraction shall be run at the minimum frequency of one sample per 250 tons (227 metric tons). A minimum of five samples are required for stockpiles less than 1000 tons (900 metric tons). The incoming material test results shall meet the tolerances specified herein.

The Contractor shall obtain and make available all test results from start of the initial stockpile sampled and tested at the shingle processing facility in accordance with the facility's QC Plan.

Before extraction, each field sample shall be split to obtain two samples of test sample size. One of the two test samples from the final split shall be labeled and stored for Department use. The Contractor shall extract the other test sample according to Department procedures. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

1031.04 Evaluation of Tests. Evaluation of test results shall be according to the following.

- (a) Evaluation of FRAP Test Results. All test results shall be compiled to include asphalt binder content, gradation and, when applicable (for slag), G_{mm} . A five test average of results from the original pile will be used in the mix designs. Individual extraction test results run thereafter, shall be compared to the average used for the mix design, and will be accepted if within the tolerances listed below.

Parameter	FRAP
No. 4 (4.75 mm)	$\pm 6 \%$
No. 8 (2.36 mm)	$\pm 5 \%$
No. 30 (600 μm)	$\pm 5 \%$
No. 200 (75 μm)	$\pm 2.0 \%$
Asphalt Binder	$\pm 0.3 \%$
G_{mm}	± 0.03 ^{1/}

- 1/ For stockpile with slag or steel slag present as determined in the current Manual of Test Procedures Appendix B 21, "Determination of Reclaimed Asphalt Pavement Aggregate Bulk Specific Gravity".

If any individual sieve and/or asphalt binder content tests are out of the above tolerances when compared to the average used for the mix design, the FRAP stockpile shall not be

used in Hot-Mix Asphalt unless the FRAP representing those tests is removed from the stockpile. All test data and acceptance ranges shall be sent to the District for evaluation.

The Contractor shall maintain a representative moving average of five tests to be used for Hot-Mix Asphalt production.

With the approval of the Engineer, the ignition oven may be substituted for extractions according to the ITP, "Calibration of the Ignition Oven for the Purpose of Characterizing Reclaimed Asphalt Pavement (RAP)" or Illinois Modified AASHTO T-164-11, Test Method A.

- (b) Evaluation of RAS Test Results. All of the test results, with the exception of percent unacceptable materials, shall be compiled and averaged for asphalt binder content and gradation. A five test average of results from the original pile will be used in the mix designs. Individual test results run thereafter, when compared to the average used for the mix design, will be accepted if within the tolerances listed below.

Parameter	RAS
No. 8 (2.36 mm)	± 5 %
No. 16 (1.18 mm)	± 5 %
No. 30 (600 µm)	± 4 %
No. 200 (75 µm)	± 2.5 %
Asphalt Binder Content	± 2.0 %

If any individual sieve and/or asphalt binder content tests are out of the above tolerances when compared to the average used for the mix design, the RAS shall not be used in Hot-Mix Asphalt unless the RAS representing those tests is removed from the stockpile. All test data and acceptance ranges shall be sent to the District for evaluation.

- (c) Quality Assurance by the Engineer. The Engineer may witness the sampling and splitting conduct assurance tests on split samples taken by the Contractor for quality control testing a minimum of once a month.

The overall testing frequency will be performed over the entire range of Contractor samples for asphalt binder content and gradation. The Engineer may select any or all split samples for assurance testing. The test results will be made available to the Contractor as soon as they become available.

The Engineer will notify the Contractor of observed deficiencies.

Differences between the Contractor's and the Engineer's split sample test results will be considered acceptable if within the following limits.

Test Parameter	Acceptable Limits of Precision
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% Passing: ^{1/}	FRAP	RAS
1/2 in.	5.0%	
No. 4	5.0%	
No. 8	3.0%	4.0%
No. 30	2.0%	4.0%
No. 200	2.2%	4.0%
Asphalt Binder Content	0.3%	3.0%
G _{mm}	0.030	

1/ Based on washed extraction.

In the event comparisons are outside the above acceptable limits of precision, the Engineer will immediately investigate.

- (d) Acceptance by the Engineer. Acceptable of the material will be based on the validation of the Contractor's quality control by the assurance process.

1031.05 Quality Designation of Aggregate in RAP and FRAP.

- (a) RAP. The aggregate quality of the RAP for homogeneous, conglomerate, and conglomerate "D" quality stockpiles shall be set by the lowest quality of coarse aggregate in the RAP stockpile and are designated as follows.

- (1) RAP from Class I, HMA (High ESAL), or (Low ESAL) IL-9.5L surface mixtures are designated as containing Class B quality coarse aggregate.
- (2) RAP from HMA (Low ESAL) IL-19.0L binder mixture is designated as Class D quality coarse aggregate.
- (3) RAP from Class I, HMA (High ESAL) binder mixtures, bituminous base course mixtures, and bituminous base course widening mixtures are designated as containing Class C quality coarse aggregate.
- (4) RAP from bituminous stabilized subbase and BAM shoulders are designated as containing Class D quality coarse aggregate.

- (b) FRAP. If the Engineer has documentation of the quality of the FRAP aggregate, the Contractor shall use the assigned quality provided by the Engineer.

If the quality is not known, the quality shall be determined as follows. Fractionated RAP stockpiles containing plus #4 (4.75 mm) sieve coarse aggregate shall have a maximum tonnage of 5,000 tons (4,500 metric tons). The Contractor shall obtain a representative sample witnessed by the Engineer. The sample shall be a minimum of 50 lb (25 kg). The sample shall be extracted according to Illinois Modified AASHTO T 164 by a consultant laboratory prequalified by the Department for the specified testing. The consultant laboratory shall submit the test results along with the recovered aggregate to

the District Office. The cost for this testing shall be paid by the Contractor. The District will forward the sample to the Central Bureau of Materials Aggregate Lab for MicroDeval Testing, according to ITP 327. A maximum loss of 15.0 percent will be applied for all HMA applications. The fine aggregate portion of the fractionated RAP shall not be used in any HMA mixtures that require a minimum of "B" quality aggregate or better, until the coarse aggregate fraction has been determined to be acceptable thru a MicroDeval Testing.

1031.06 Use of FRAP and/or RAS in HMA. The use of FRAP and/or RAS shall be the Contractor's option when constructing HMA in all contracts.

(a) FRAP. The use of FRAP in HMA shall be as follows.

- (1) Coarse Aggregate Size (after extraction). The coarse aggregate in all FRAP shall be equal to or less than the nominal maximum size requirement for the HMA mixture to be produced.
- (2) Steel Slag Stockpiles. FRAP stockpiles containing steel slag or other expansive material, as determined by the Department, shall be homogeneous and will be approved for use in HMA (High ESAL and Low ESAL) mixtures regardless of lift or mix type.
- (3) Use in HMA Surface Mixtures (High and Low ESAL). FRAP stockpiles for use in HMA surface mixtures (High and Low ESAL) shall have coarse aggregate that is Class B quality or better. FRAP shall be considered equivalent to limestone for frictional considerations unless produced/screened to minus 3/8 inch.
- (4) Use in HMA Binder Mixtures (High and Low ESAL), HMA Base Course, and HMA Base Course Widening. FRAP stockpiles for use in HMA binder mixtures (High and Low ESAL), HMA base course, and HMA base course widening shall be FRAP in which the coarse aggregate is Class C quality or better.
- (5) Use in Shoulders and Subbase. FRAP stockpiles for use in HMA shoulders and stabilized subbase (HMA) shall be FRAP, Restricted FRAP, conglomerate, or conglomerate DQ.

(b) RAS. RAS meeting Type 1 or Type 2 requirements will be permitted in all HMA applications as specified herein.

(c) FRAP and/or RAS Usage Limits. Type 1 or Type 2 RAS may be used alone or in conjunction with FRAP in HMA mixtures up to a maximum of 5.0 percent by weight of the total mix.

When FRAP is used alone or FRAP is used in conjunction with RAS, the percent of virgin asphalt binder replacement (ABR) shall not exceed the amounts indicated in the table below for a given N Design.

Max Asphalt Binder Replacement for FRAP with RAS Combination

HMA Mixtures ^{1/ 2/ 4/}	Maximum % ABR		
	Binder/Leveling Binder	Surface	Polymer Modified ^{3/}
30L	50	40	30
50	40	35	30
70	40	30	30
90	40	30	30
4.75 mm N-50			40
SMA N-80			30

- 1/ For Low ESAL HMA shoulder and stabilized subbase, the percent asphalt binder replacement shall not exceed 50 % of the total asphalt binder in the mixture.
- 2/ When the binder replacement exceeds 15 % for all mixes, except for SMA and IL-4.75, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 % binder replacement using a virgin asphalt binder grade of PG64-22 will be reduced to a PG58-28). When constructing full depth HMA and the ABR is less than 15 %, the required virgin asphalt binder grade shall be PG64-28.
- 3/ When the ABR for SMA or IL-4.75 is 15 % or less, the required virgin asphalt binder shall be SBS PG76-22 and the elastic recovery shall be a minimum of 80. When the ABR for SMA or IL-4.75 exceeds 15%, the virgin asphalt binder grade shall be SBS PG70-28 and the elastic recovery shall be a minimum of 80.
- 4/ When FRAP or RAS is used alone, the maximum percent asphalt binder replacement designated on the table shall be reduced by 10 %.

1031.07 HMA Mix Designs. At the Contractor's option, HMA mixtures may be constructed utilizing RAP/FRAP and/or RAS material meeting the detailed requirements specified herein.

- (a) FRAP and/or RAS. FRAP and /or RAS mix designs shall be submitted for verification. If additional FRAP or RAS stockpiles are tested and found to be within tolerance, as defined under "Evaluation of Tests" herein, and meet all requirements herein, the additional FRAP or RAS stockpiles may be used in the original design at the percent previously verified.
- (b) RAS. Type 1 and Type 2 RAS are not interchangeable in a mix design.

The RAP, FRAP and RAS stone specific gravities (G_{sb}) shall be according to the "Determination of Aggregate Bulk (Dry) Specific Gravity (G_{sb}) or Reclaimed Asphalt Pavement (RAP) and

Reclaimed Asphalt Shingles (RAS)" procedure in the Department's Manual of Test Procedures for Materials.

1031.08 HMA Production. HMA production utilizing FRAP and/or RAS shall be as follows.

To remove or reduce agglomerated material, a scalping screen, gator, crushing unit, or comparable sizing device approved by the Engineer shall be used in the RAS and FRAP feed system to remove or reduce oversized material. .

If during mix production, corrective actions fail to maintain FRAP, RAS or QC/QA test results within control tolerances or the requirements listed herein the Contractor shall cease production of the mixture containing FRAP or RAS and conduct an investigation that may require a new mix design.

(a) RAS. RAS shall be incorporated into the HMA mixture either by a separate weight depletion system or by using the RAP weigh belt. Either feed system shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all rates of production and batch sizes. The portion of RAS shall be controlled accurately to within ± 0.5 percent of the amount of RAS utilized. When using the weight depletion system, flow indicators or sensing devices shall be provided and interlocked with the plant controls such that the mixture production is halted when RAS flow is interrupted.

(b) HMA Plant Requirements. HMA plants utilizing FRAP and/or RAS shall be capable of automatically recording and printing the following information.

(1) Dryer Drum Plants.

- a. Date, month, year, and time to the nearest minute for each print.
- b. HMA mix number assigned by the Department.
- c. Accumulated weight of dry aggregate (combined or individual) in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).
- d. Accumulated dry weight of RAS and FRAP in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).
- e. Accumulated mineral filler in revolutions, tons (metric tons), etc. to the nearest 0.1 unit.
- f. Accumulated asphalt binder in gallons (liters), tons (metric tons), etc. to the nearest 0.1 unit.
- g. Residual asphalt binder in the RAS and FRAP material as a percent of the total mix to the nearest 0.1 percent.

- h. Aggregate RAS and FRAP moisture compensators in percent as set on the control panel. (Required when accumulated or individual aggregate and RAS and FRAP are printed in wet condition.)
 - i. When producing mixtures with FRAP and/or RAS, a positive dust control system shall be utilized.
 - j. Accumulated mixture tonnage.
 - k. Dust Removed (accumulated to the nearest 0.1 ton (0.1 metric ton))
- (2) Batch Plants.
- a. Date, month, year, and time to the nearest minute for each print.
 - b. HMA mix number assigned by the Department.
 - c. Individual virgin aggregate hot bin batch weights to the nearest pound (kilogram).
 - d. Mineral filler weight to the nearest pound (kilogram).
 - f. RAS and FRAP weight to the nearest pound (kilogram).
 - g. Virgin asphalt binder weight to the nearest pound (kilogram).
 - h. Residual asphalt binder in the RAS and FRAP material as a percent of the total mix to the nearest 0.1 percent.

The printouts shall be maintained in a file at the plant for a minimum of one year or as directed by the Engineer and shall be made available upon request. The printing system will be inspected by the Engineer prior to production and verified at the beginning of each construction season thereafter.

1031.09 RAP in Aggregate Surface Course and Aggregate Wedge Shoulders, Type B.
The use of RAP or FRAP in aggregate surface course and aggregate shoulders shall be as follows.

- (a) Stockpiles and Testing. RAP stockpiles may be any of those listed in Article 1031.02, except "Non-Quality" and "FRAP". The testing requirements of Article 1031.03 shall not apply. RAP used shall be according to the current Central Bureau of Materials Policy Memorandum, "Reclaimed Asphalt Pavement (RAP) for Aggregate Applications".
- (b) Gradation. The RAP material shall meet the gradation requirements for CA 6 according to Article 1004.01(c), except the requirements for the minus No. 200 (75 μ m) sieve shall not apply. The sample for the RAP material shall be air dried to constant weight prior to being tested for gradation."

FRICITION AGGREGATE (D-1)

Effective: January 1, 2011

Revised: April 29, 2016

Revise Article 1004.03(a) of the Standard Specifications to read:

"1004.03 Coarse Aggregate for Hot-Mix Asphalt (HMA). The aggregate shall be according to Article 1004.01 and the following.

(a) Description. The coarse aggregate for HMA shall be according to the following table.

Use	Mixture	Aggregates Allowed
Class A	Seal or Cover	<u>Allowed Alone or in Combination</u> ^{5/} : Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag Crushed Concrete
HMA Low ESAL	Stabilized Subbase or Shoulders	<u>Allowed Alone or in Combination</u> ^{5/} : Gravel Crushed Gravel Carbonate Crushed Stone Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag ^{1/} Crushed Concrete
HMA High ESAL Low ESAL	Binder IL-19.0 or IL-19.0L SMA Binder	<u>Allowed Alone or in Combination</u> ^{5/ 6/} : Crushed Gravel Carbonate Crushed Stone ^{2/} Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Concrete ^{3/}

Use	Mixture	Aggregates Allowed								
HMA High ESAL Low ESAL	C Surface and Leveling Binder IL-9.5 or IL-9.5L	<u>Allowed Alone or in Combination</u> ^{5/} : Crushed Gravel Carbonate Crushed Stone ^{2/} Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag ^{4/} Crushed Concrete ^{3/}								
	SMA Ndesign 50 Surface									
HMA High ESAL	D Surface and Leveling Binder IL-9.5 SMA Ndesign 50 Surface	<u>Allowed Alone or in Combination</u> ^{5/} : Crushed Gravel Carbonate Crushed Stone (other than Limestone) ^{2/} Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag ^{4/} Crushed Concrete ^{3/}								
		<u>Other Combinations Allowed:</u>								
		<table><tr><td><i>Up to...</i></td><td><i>With...</i></td></tr><tr><td>25% Limestone</td><td>Dolomite</td></tr><tr><td>50% Limestone</td><td>Any Mixture D aggregate other than Dolomite</td></tr><tr><td>75% Limestone</td><td>Crushed Slag (ACBF) or Crushed Sandstone</td></tr></table>	<i>Up to...</i>	<i>With...</i>	25% Limestone	Dolomite	50% Limestone	Any Mixture D aggregate other than Dolomite	75% Limestone	Crushed Slag (ACBF) or Crushed Sandstone
		<i>Up to...</i>	<i>With...</i>							
		25% Limestone	Dolomite							
		50% Limestone	Any Mixture D aggregate other than Dolomite							
		75% Limestone	Crushed Slag (ACBF) or Crushed Sandstone							
HMA High ESAL	E Surface IL-9.5 SMA Ndesign 80 Surface	<u>Allowed Alone or in Combination</u> ^{5/ 6/} : Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag No Limestone.								
		<u>Other Combinations Allowed:</u>								
		<table><tr><td><i>Up to...</i></td><td><i>With...</i></td></tr></table>	<i>Up to...</i>	<i>With...</i>						
<i>Up to...</i>	<i>With...</i>									

Use	Mixture	Aggregates Allowed	
		50% Dolomite ^{2/}	Any Mixture E aggregate
		75% Dolomite ^{2/}	Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or Crystalline Crushed Stone
		75% Crushed Gravel ^{2/} or Crushed Concrete ^{3/}	Crushed Sandstone, Crystalline Crushed Stone, Crushed Slag (ACBF), or Crushed Steel Slag
HMA High ESAL	F Surface IL-9.5 SMA Ndesign 80 Surface	<u>Allowed Alone or in Combination</u> ^{5/ 6/} :	
		Crystalline Crushed Stone Crushed Sandstone Crushed Slag (ACBF) Crushed Steel Slag No Limestone.	
		<u>Other Combinations Allowed:</u>	
		<i>Up to...</i>	<i>With...</i>
		50% Crushed Gravel ^{2/} , Crushed Concrete ^{3/} , or Dolomite ^{2/}	Crushed Sandstone, Crushed Slag (ACBF), Crushed Steel Slag, or Crystalline Crushed Stone

- 1/ Crushed steel slag allowed in shoulder surface only.
- 2/ Carbonate crushed stone (limestone) and/or crushed gravel shall not be used in SMA Ndesign 80. In SMA Ndesign 50, carbonate crushed stone shall not be blended with any of the other aggregates allowed alone in Ndesign 50 SMA binder or Ndesign 50 SMA surface.
- 3/ Crushed concrete will not be permitted in SMA mixes.
- 4/ Crushed steel slag shall not be used as leveling binder.
- 5/ When combinations of aggregates are used, the blend percent measurements shall be by volume."
- 6/ Combining different types of aggregate will not be permitted in SMA Ndesign 80."

HMA MIXTURE DESIGN REQUIREMENTS (D-1)

Effective: January 1, 2013

Revised: January 1, 2018

1) Design Composition and Volumetric Requirements

Revise the table in Article 406.06(d) of the Standard Specifications to read:

"MINIMUM COMPACTED LIFT THICKNESS	
Mixture Composition	Thickness, in. (mm)
IL-4.75	3/4 (19)
SMA-9.5, IL-9.5, IL-9.5L	1 1/2 (38)
SMA-12.5	2 (50)
IL-19.0, IL-19.0L	2 1/4 (57)"

Revise the table in Article 1004.03(c) of the Standard Specifications to read:

"Use	Size/Application	Gradation No.
Class A-1, 2, & 3	3/8 in. (10 mm) Seal	CA 16
Class A-1	1/2 in. (13 mm) Seal	CA 15
Class A-2 & 3	Cover	CA 14
HMA High ESAL	IL-19.0 IL-9.5	CA 11 ^{1/} CA 16, CA 13 ^{3/}
HMA Low ESAL	IL-19.0L IL-9.5L Stabilized Subbase or Shoulders	CA 11 ^{1/} CA 16
SMA ^{2/}	1/2 in. (12.5mm) Binder & Surface IL 9.5 Surface	CA13 ^{3/} , CA14 or CA16 CA16, CA 13 ^{3/}

1/ CA 16 or CA 13 may be blended with the gradations listed.

2/ The coarse aggregates used shall be capable of being combined with stone sand, slag sand, or steel slag sand meeting the FA/FM 20 gradation and mineral filler to meet the approved mix design and the mix requirements noted herein.

3/ CA 13 shall be 100 percent passing the 1/2 in. (12.5mm) sieve.

Revise Article 1004.03(e) of the Supplemental Specifications to read:

"(e) Absorption. For SMA the coarse aggregate shall also have water absorption ≤ 2.0 percent."

Revise the last paragraph of Article 1102.01 (a) (5) of the Standard Specifications to read:

"IL-4.75 and Stone Matrix Asphalt (SMA) mixtures which contain aggregate having absorptions greater than or equal to 2.0 percent, or which contain steel slag sand, shall have minimum surge bin storage plus haul time of 1.5 hours."

Revise the nomenclature table in Article 1030.01 of the Standard Specifications to read:

"High ESAL	IL-19.0 binder; IL-9.5 surface; IL-4.75; SMA-12.5, SMA-9.5
Low ESAL	IL-19.0L binder; IL-9.5L surface; Stabilized Subbase (HMA) ^{1/} ; HMA Shoulders ^{2/}

1/ Uses 19.0L binder mix.

2/ Uses 19.0L for lower lifts and 9.5L for surface lift."

Revise Article 1030.02 of the Standard Specifications and Supplemental Specifications to read:

"1030.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Coarse Aggregate	1004.03
(b) Fine Aggregate	1003.03
(c) RAP Material	1031
(d) Mineral Filler	1011
(e) Hydrated Lime	1012.01
(f) Slaked Quicklime (Note 1)	
(g) Performance Graded Asphalt Binder (Note 2)	1032
(h) Fibers (Note 3)	
(i) Warm Mix Asphalt (WMA) Technologies (Note 4)	

Note 1. Slaked quicklime shall be according to ASTM C 5.

Note 2. The asphalt binder shall be an SBS PG 76-28 when the SMA is used on a full-depth asphalt pavement and SBS PG 76-22 when used as an overlay, except where modified herein. The asphalt binder shall be an Elvaloy or SBS PG 76-22 for IL-4.75, except where modified herein. The elastic recovery shall be a minimum of 80.

Note 3. A stabilizing additive such as cellulose or mineral fiber shall be added to the SMA mixture according to Illinois Modified AASHTO M 325. The stabilizing additive shall meet the Fiber Quality Requirements listed in Illinois Modified AASHTO M 325. Prior to approval and use of fibers, the Contractor shall submit a notarized certification by the producer of these materials stating they meet these requirements. Reclaimed Asphalt Shingles (RAS) may be used in Stone Matrix Asphalt (SMA) mixtures designed with an SBA polymer modifier as a fiber additive if the mix design with RAS included meets AASHTO T305 requirements. The RAS shall be from a certified source that

produces either Type I or Type 2. Material shall meet requirements noted herein and the actual dosage rate will be determined by the Engineer.

Note 4. Warm mix additives or foaming processes shall be selected from the current Bureau of Materials and Physical Research Approved List, "Warm Mix Asphalt Technologies".

Revise Article 1030.04(a)(1) of the Standard Specifications and the Supplemental Specifications to read:

"(1) High ESAL Mixtures. The Job Mix Formula (JMF) shall fall within the following limits.

High ESAL, MIXTURE COMPOSITION (% PASSING) ^{1/}										
Sieve Size	IL-19.0 mm		SMA ^{4/} IL-12.5 mm		SMA ^{4/} IL-9.5 mm		IL-9.5 mm		IL-4.75 mm	
	min	max	min	max	min	max	min	max	min	max
1 1/2 in. (37.5 mm)										
1 in. (25 mm)		100								
3/4 in. (19 mm)	90	100		100						
1/2 in. (12.5 mm)	75	89	80	100		100		100		100
3/8 in. (9.5 mm)				65	90	100	90	100		100
#4 (4.75 mm)	40	60	20	30	36	50	34	69	90	100
#8 (2.36 mm)	20	42	16	24 ^{5/}	16	32 ^{5/}	34 ^{6/}	52 ^{2/}	70	90
#16 (1.18 mm)	15	30					10	32	50	65
#30 (600 µm)			12	16	12	18				
#50 (300 µm)	6	15					4	15	15	30
#100 (150 µm)	4	9					3	10	10	18
#200 (75 µm)	3	6	7.0	9.0 ^{3/}	7.5	9.5 ^{3/}	4	6	7	9 ^{3/}
Ratio Dust/Asphalt Binder		1.0		1.5		1.5		1.0		1.0

- 1/ Based on percent of total aggregate weight.
- 2/ The mixture composition shall not exceed 44 percent passing the #8 (2.36 mm) sieve for surface courses with Ndesign = 90.
- 3/ Additional minus No. 200 (0.075 mm) material required by the mix design shall be mineral filler, unless otherwise approved by the Engineer.
- 4/ The maximum percent passing the #635 (20 µm) sieve shall be ≤ 3 percent.

- 5/ When establishing the Adjusted Job Mix Formula (AJMF) the percent passing the #8 (2.36 mm) sieve shall not be adjusted above the percentage stated on the table.
- 6/ When establishing the Adjusted Job Mix Formula (AJMF) the percent passing the #8 (2.36 mm) sieve shall not be adjusted below 34 percent.

Revise Article 1030.04(b)(1) of the Standard Specifications to read:

- "(1) High ESAL Mixtures. The target value for the air voids of the HMA shall be 4.0 percent and for IL-4.75 it shall be 3.5 percent at the design number of gyrations. The VMA and VFA of the HMA design shall be based on the nominal maximum size of the aggregate in the mix, and shall conform to the following requirements.

VOLUMETRIC REQUIREMENTS High ESAL				
	Voids in the Mineral Aggregate (VMA), % minimum			Voids Filled with Asphalt Binder (VFA), %
Ndesign	IL-19.0	IL-9.5	IL-4.75 ^{1/}	
50	13.5	15.0	18.5	65 - 78 ^{2/}
70				65 - 75
90				

1/ Maximum Draindown for IL-4.75 shall be 0.3 percent

2/ VFA for IL-4.75 shall be 72-85 percent"

Replace Article 1030.04(b)(3) of the Standard Specifications with the following:

- "(3) SMA Mixtures.

Volumetric Requirements SMA ^{1/}			
Ndesign	Design Air Voids Target %	Voids in the Mineral Aggregate (VMA), % min.	Voids Filled with Asphalt (VFA), %
80 ^{4/}	3.5	17.0 ^{2/}	75 - 83
		16.0 ^{3/}	

1/ Maximum draindown shall be 0.3 percent. The draindown shall be determined at the JMF asphalt binder content at the mixing temperature plus 30 °F.

2/ Applies when specific gravity of coarse aggregate is ≥ 2.760 .

3/ Applies when specific gravity of coarse aggregate is < 2.760.

4/ Blending of different types of aggregate will not be permitted.

For surface course, the coarse aggregate can be crushed steel slag, crystalline crushed stone or crushed sandstone. For binder course, coarse aggregate shall be crushed stone (dolomite), crushed gravel, crystalline crushed stone, or crushed sandstone.

Add to the end of Article 1030.05 (d) (2) a. of the Standard Specifications:

"During production, the Contractor shall test SMA mixtures for draindown according to AASHTO T305 at a frequency of 1 per day of production."

Delete last sentence of the second paragraph of Article 1102.01(a) (4) b. 2.

Add to the end of Article 1102.01 (a) (4) b. 2.:

"As an option, collected dust (baghouse) may be used in lieu of manufactured mineral filler according to the following:

(a.) Sufficient collected dust (baghouse) is available for production of the SMA mix for the entire project.

(b.) A mix design was prepared based on collected dust (baghouse).

2) Design Verification and Production

Revise Article 1030.04 (d) of the Standard Specifications to read:

"(d) Verification Testing. High ESAL, IL-4.75, and SMA mix designs submitted for verification will be tested to ensure that the resulting mix designs will pass the required criteria for the Hamburg Wheel Test (IL mod AASHTO T-324) and the Tensile Strength Test (IL mod AASHTO T-283). The Department will perform a verification test on gyratory specimens compacted by the Contractor. If the mix fails the Department's verification test, the Contractor shall make the necessary changes to the mix and resubmit compacted specimens to the Department for verification. If the mix fails again, the mix design will be rejected.

All new and renewal mix designs will be required to be tested, prior to submittal for Department verification and shall meet the following requirements:

(1) Hamburg Wheel Test criteria. The maximum allowable rut depth shall be 0.5 in. (12.5 mm). The minimum number of wheel passes at the 0.5 in. (12.5 mm) rut depth criteria shall be based on the high temperature binder grade of the mix as specified in the mix requirements table of the plans.

Illinois Modified AASHTO T 324 Requirements ^{1/}

Asphalt Binder Grade	# Repetitions	Max Rut Depth (mm)
PG 70 -XX (or higher)	20,000	12.5
PG 64 -XX (or lower)	10,000	12.5

- 1/ When produced at temperatures of 275 ± 5 °F (135 ± 3 °C) or less, loose Warm Mix Asphalt shall be oven aged at 270 ± 5 °F (132 ± 3 °C) for two hours prior to gyratory compaction of Hamburg Wheel specimens.

Note: For SMA Designs (N-80) the maximum rut depth is 6.0 mm at 20,000 repetitions.

For IL 4.75mm Designs (N-50) the maximum rut depth is 9.0mm at 15,000 repetitions.

- (2) Tensile Strength Criteria. The minimum allowable conditioned tensile strength shall be 60 psi (415 kPa) for non-polymer modified performance graded (PG) asphalt binder and 80 psi (550 kPa) for polymer modified PG asphalt binder. The maximum allowable unconditioned tensile strength shall be 200 psi (1380 kPa)."

Production Testing. Revise first paragraph of Article 1030.06(a) of the Standard Specifications to read:

"(a) High ESAL, IL-4.75, WMA, and SMA Mixtures. For each contract, a 300 ton (275 metric tons) test strip, except for SMA mixtures it will be 400 ton (363 metric ton), will be required at the beginning of HMA production for each mixture at the beginning of each construction year according to the Manual of Test Procedures for Materials "Hot Mix Asphalt Test Strip Procedures". At the request of the Producer, the Engineer may waive the test strip if previous construction during the current construction year has demonstrated the constructability of the mix using Department test results."

Add the following after the sixth paragraph in Article 1030.06 (a) of the Standard Specifications:

"The Hamburg Wheel test shall also be conducted on all HMA mixtures from a sample taken within the first 500 tons (450 metric tons) on the first day of production or during start up with a split reserved for the Department. The mix sample shall be tested according to the Illinois Modified AASHTO T 324 and shall meet the requirements specified herein. Mix production shall not exceed 1500 tons (1350 metric tons) or one day's production, whichever comes first, until the testing is completed and the mixture is found to be in conformance. The requirement to cease mix production may be waived if the plant produced mixture demonstrates conformance prior to start of mix production for a contract.

If the mixture fails to meet the Hamburg Wheel criteria, no further mixture will be accepted until the Contractor takes such action as is necessary to furnish a mixture meeting the criteria"

Method of Measurement:

Add the following after the fourth paragraph of Article 406.13 (b):

"The plan quantities of SMA mixtures shall be adjusted using the actual approved binder and surface Mix Design's Gmb."

Basis of Payment.

Replace the fourth paragraph of Article 406.14 of the Standard Specifications with the following:

"Stone matrix asphalt will be paid for at the contract unit price per ton (metric ton) for POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE, STONE MATRIX ASPHALT, of the mixture composition and Ndesign specified; and POLYMERIZED HOT-MIX ASPHALT BINDER COURSE, STONE MATRIX ASPHALT, of the mixture composition and Ndesign specified."

GROUND TIRE RUBBER (GTR) MODIFIED ASPHALT BINDER (D-1)

Effective: June 26, 2006

Revised: April 1, 2016

Add the following to the end of article 1032.05 of the Standard Specifications:

"(c) Ground Tire Rubber (GTR) Modified Asphalt Binder. A quantity of 10.0 to 14.0 percent GTR (Note 1) shall be blended by dry unit weight with a PG 64-28 to make a GTR 70-28 or a PG 58-28 to make a GTR 64-28. The base PG 64-28 and PG 58-28 asphalt binders shall meet the requirements of Article 1032.05(a). Compatible polymers may be added during production. The GTR modified asphalt binder shall meet the requirements of the following table.

Test	Asphalt Grade GTR 70-28	Asphalt Grade GTR 64-28
Flash Point (C.O.C.), AASHTO T 48, °F (°C), min.	450 (232)	450 (232)
Rotational Viscosity, AASHTO T 316 @ 275 °F (135 °C), Poises, Pa·s, max.	30 (3)	30 (3)
Softening Point, AASHTO T 53, °F (°C), min.	135 (57)	130 (54)
Elastic Recovery, ASTM D 6084, Procedure A (sieve waived) @ 77 °F, (25 °C), aged, ss, 100 mm elongation, 5 cm/min., cut immediately, %, min.	65	65

Note 1. GTR shall be produced from processing automobile and/or light truck tires by the ambient grinding method. GTR shall not exceed 1/16 in. (2 mm) in any dimension and shall contain no free metal particles or other materials. A mineral powder (such as talc) meeting the requirements of AASHTO M 17 may be added, up to a maximum of four percent by weight of GTR to reduce sticking and caking of the GTR particles. When tested in accordance with Illinois modified AASHTO T 27, a 50 g sample of the GTR shall conform to the following gradation requirements:

Sieve Size	Percent Passing
No. 16 (1.18 mm)	100
No. 30 (600 µm)	95 ± 5
No. 50 (300 µm)	> 20

Add the following to the end of Note 1. of article 1030.03 of the Standard Specifications:

"A dedicated storage tank for the Ground Tire Rubber (GTR) modified asphalt binder shall be provided. This tank must be capable of providing continuous mechanical mixing throughout by continuous agitation and recirculation of the asphalt binder to provide a uniform mixture. The tank shall be heated and capable of maintaining the temperature

of the asphalt binder at 300 °F to 350 °F (149 °C to 177 °C). The asphalt binder metering systems of dryer drum plants shall be calibrated with the actual GTR modified asphalt binder material with an accuracy of ± 0.40 percent."

Revise 1030.02(c) of the Standard Specifications to read:

"(c) RAP Materials (Note 5)1031"

Add the following note to 1030.02 of the Standard Specifications:

Note 5. When using reclaimed asphalt pavement and/or reclaimed asphalt shingles, the maximum asphalt binder replacement percentage shall be according to the most recent special provision for recycled materials.

TEMPORARY INFORMATION SIGNING

Effective: November 13, 1996

Revised: January 2, 2007

Description.

This work shall consist of furnishing, installing, maintaining, relocating for various states of construction and eventually removing temporary informational signs. Included in this item may be ground mount signs, skid mount signs, truss mount signs, bridge mount signs, and overlay sign panels which cover portions of existing signs.

Materials.

Materials shall be according to the following Articles of Section 1000 - Materials:

	<u>Item</u>	<u>Article/Section</u>
a.)	Sign Base (Notes 1 & 2)	1090
b.)	Sign Face (Note 3)	1091
c.)	Sign Legends	1092
d.)	Sign Supports	1093
e.)	Overlay Panels (Note 4)	1090.02

Note 1. The Contractor may use 5/8 inch (16 mm) instead of 3/4 inch (19 mm) thick plywood.

Note 2. Type A sheeting can be used on the plywood base.

Note 3. All sign faces shall be Type A except all orange signs shall meet the requirements of Article 1106.01.

Note 4. The overlay panels shall be 0.08 inch (2 mm) thick.

GENERAL CONSTRUCTION REQUIREMENTS

Installation.

The sign sizes and legend sizes shall be verified by the Contractor prior to fabrication.

Signs which are placed along the roadway and/or within the construction zone shall be installed according to the requirements of Article 701.14 and Article 720.04. The signs shall be 7 ft (2.1 m) above the near edge of the pavement and shall be a minimum of 2 ft (600 mm) beyond the edge of the paved shoulder. A minimum of two (2) posts shall be used.

The attachment of temporary signs to existing sign structures or sign panels shall be approved by the Engineer. Any damage to the existing signs due to the Contractor's operations shall be repaired or signs replaced, as determined by the Engineer, at the Contractor's expense.

Signs which are placed on overhead bridge structures shall be fastened to the handrail with stainless steel bands. These signs shall rest on the concrete parapet where possible. The Contractor shall furnish mounting details for approval by the Engineer.

Method of Measurement.

This work shall be measured for payment in square feet (square meters) edge to edge (horizontally and vertically).

All hardware, posts or skids, supports, bases for ground mounted signs, connections, which are required for mounting these signs will be included as part of this pay item.

Basis Of Payment.

This work shall be paid for at the contract unit price per square foot (square meter) for TEMPORARY INFORMATION SIGNING.

**INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS**

Adopted January 1, 2018

This index contains a listing of SUPPLEMENTAL SPECIFICATIONS, frequently used RECURRING SPECIAL PROVISIONS, and LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS.

ERRATA Standard Specifications for Road and Bridge Construction
(Adopted 4-1-16) (Revised 1-1-18)

SUPPLEMENTAL SPECIFICATIONS

<u>Std. Spec. Sec.</u>	<u>Page No.</u>
106 Control of Materials	1
403 Bituminous Surface Treatment (Class A-1, A-2, A-3)	2
404 Micro-Surfacing and Slurry Sealing	3
405 Cape Seal	14
420 Portland Cement Concrete Pavement	24
442 Pavement Patching	26
502 Excavation for Structures	27
503 Concrete Structures	29
504 Precast Concrete Structures	32
542 Pipe Culverts	33
586 Sand Backfill for Vaulted Abutments	34
630 Steel Plate Beam Guardrail	36
631 Traffic Barrier Terminals	39
670 Engineer's Field Office and Laboratory	40
701 Work Zone Traffic Control and Protection	41
704 Temporary Concrete Barrier	42
781 Raised Reflective Pavement Markers	44
888 Pedestrian Push-Button	45
1003 Fine Aggregates	46
1004 Coarse Aggregates	47
1006 Metals	50
1020 Portland Cement Concrete	51
1050 Poured Joint Sealers	53
1069 Pole and Tower	55
1077 Post and Foundation	56
1096 Pavement Markers	57
1101 General Equipment	58
1102 Hot-Mix Asphalt Equipment	59
1103 Portland Cement Concrete Equipment	61
1106 Work Zone Traffic Control Devices	63



Check Sheet For Recurring Special Provisions



The Following Recurring Special Provisions Indicated By An "X" Are Applicable To This Contract And Are Included By Reference:

Recurring Special Provisions

<u>Check Sheet #</u>		<u>Page No.</u>
1	☐ Additional State Requirements for Federal-Aid Construction Contracts	64
2	☐ Subletting of Contracts (Federal-Aid Contracts)	67
3	☐ EEO	68
4	☐ Specific EEO Responsibilities Non Federal-Aid Contracts	78
5	☐ Required Provisions - State Contracts	83
6	☐ Asbestos Bearing Pad Removal	89
7	☐ Asbestos Waterproofing Membrane and Asbestos Hot-Mix Asphalt Surface Removal	90
8	☐ Temporary Stream Crossings and In-Stream Work Pads	91
9	☐ Construction Layout Stakes Except for Bridges	92
10	☐ Construction Layout Stakes	95
11	☐ Use of Geotextile Fabric for Railroad Crossing	98
12	☐ Subsealing of Concrete Pavements	100
13	☐ Hot-Mix Asphalt Surface Correction	104
14	☐ Pavement and Shoulder Resurfacing	106
15	☐ Patching with Hot-Mix Asphalt Overlay Removal	107
16	☐ Polymer Concrete	109
17	☐ PVC Pipeliner	111
18	☐ Bicycle Racks	112
19	☐ Temporary Portable Bridge Traffic Signals	114
20	☐ Work Zone Public Information Signs	116
21	☐ Nighttime Inspection of Roadway Lighting	117
22	☐ English Substitution of Metric Bolts	118
23	☐ Calcium Chloride Accelerator for Portland Cement Concrete	119
24	☐ Quality Control of Concrete Mixtures at the Plant	120
25	☒ Quality Control/Quality Assurance of Concrete Mixtures	128
26	☐ Digital Terrain Modeling for Earthwork Calculations	144
27	☐ Reserved	146
28	☐ Preventive Maintenance - Bituminous Surface Treatment	147
29	☐ Reserved	153
30	☐ Reserved	154
31	☐ Reserved	155
32	☐ Temporary Raised Pavement Markers	156
33	☐ Restoring Bridge Approach Pavements Using High-Density Foam	157
34	☐ Portland Cement Concrete Inlay or Overlay	160
35	☐ Portland Cement Concrete Partial Depth Hot-Mix Asphalt Patching	164

The Following Local Roads And Streets Recurring Special Provisions Indicated By An "X" Are Applicable To This Contract And Are Included By Reference:

Local Roads And Streets Recurring Special Provisions

<u>Check Sheet #</u>		<u>Page No.</u>
LRS 1	Reserved	168
LRS 2	☐ Furnished Excavation	169
LRS 3	☒ Work Zone Traffic Control Surveillance	170
LRS 4	☒ Flaggers in Work Zones	171
LRS 5	☐ Contract Claims	172
LRS 6	☐ Bidding Requirements and Conditions for Contract Proposals	173
LRS 7	☐ Bidding Requirements and Conditions for Material Proposals	179
LRS 8	Reserved	185
LRS 9	☐ Bituminous Surface Treatments	186
LRS 10	Reserved	187
LRS 11	☐ Employment Practices	188
LRS 12	☐ Wages of Employees on Public Works	190
LRS 13	☐ Selection of Labor	192
LRS 14	☐ Paving Brick and Concrete Paver Pavements and Sidewalks	193
LRS 15	☐ Partial Payments	196
LRS 16	☐ Protests on Local Lettings	197
LRS 17	☐ Substance Abuse Prevention Program	198
LRS 18	☐ Multigrade Cold Mix Asphalt	199

State of Illinois
Department of Transportation

SPECIAL PROVISION
FOR
QUALITY CONTROL/QUALITY ASSURANCE OF CONCRETE MIXTURES

Effective: April 1, 1992
Revised: January 1, 2015

Add the following to Section 1020 of the Standard Specifications:

"1020.16 Quality Control/Quality Assurance of Concrete Mixtures. This Article specifies the quality control responsibilities of the Contractor for concrete mixtures (except Class PC and PS concrete), cement aggregate mixture II, and controlled low-strength material incorporated in the project, and defines the quality assurance and acceptance responsibilities of the Engineer.

A list of quality control/quality assurance (QC/QA) documents is provided in Article 1020.16(g), Schedule D.

A Level I Portland Cement Concrete (PCC) Technician shall be defined as an individual who has successfully completed the Department's training for concrete testing.

A Level II Portland Cement Concrete (PCC) Technician shall be defined as an individual who has successfully completed the Department's training for concrete proportioning.

A Level III Portland Cement Concrete (PCC) Technician shall be defined as an individual who has successfully completed the Department's training for concrete mix design.

A Concrete Tester shall be defined as an individual who has successfully completed the Department's training to assist with concrete testing and is monitored on a daily basis.

Aggregate Technician shall be defined as an individual who has successfully completed the Department's training for gradation testing involving aggregate production and mixtures.

Mixture Aggregate Technician shall be defined as an individual who has successfully completed the Department's training for gradation testing involving mixtures.

Gradation Technician shall be defined as an individual who has successfully completed the Department's training to assist with gradation testing and is monitored on a daily basis.

- (a) Equipment/Laboratory. The Contractor shall provide a laboratory and test equipment to perform their quality control testing.

CHECK SHEET #25

The laboratory shall be of sufficient size and be furnished with the necessary equipment, supplies, and current published test methods for adequately and safely performing all required tests. The laboratory will be approved by the Engineer according to the current Bureau of Materials and Physical Research Policy Memorandum "Minimum Private Laboratory Requirements for Construction Materials Testing or Mix Design". Production of a mixture shall not begin until the Engineer provides written approval of the laboratory. The Contractor shall refer to the Department's "Required Sampling and Testing Equipment for Concrete" for equipment requirements.

Test equipment shall be maintained and calibrated as required by the appropriate test method, and when required by the Engineer. This information shall be documented on the Department's "Calibration of Concrete Testing Equipment" forms BMPR PCCQ01 through BMPR PCCQ09.

Test equipment used to determine compressive or flexural strength shall be calibrated each 12 month period by an independent agency, using calibration equipment traceable to the National Institute of Standards and Technology (NIST). The Contractor shall have the calibration documentation available at the test equipment location.

The Engineer will have unrestricted access to the plant and laboratory at any time to inspect measuring and testing equipment, and will notify the Contractor of any deficiencies. Defective equipment shall be immediately repaired or replaced by the Contractor.

- (b) **Quality Control Plan.** The Contractor shall submit, in writing, a proposed Quality Control (QC) Plan to the Engineer. The QC Plan shall be submitted a minimum of 45 calendar days prior to the production of a mixture. The QC Plan shall address the quality control of the concrete, cement aggregate mixture II, and controlled low-strength material incorporated in the project. The Contractor shall refer to the Department's "Model Quality Control Plan for Concrete Production" to prepare a QC Plan. The Engineer will respond in writing to the Contractor's proposed QC Plan within 15 calendar days of receipt.

Production of a mixture shall not begin until the Engineer provides written approval of the QC Plan. The approved QC Plan shall become a part of the contract between the Department and the Contractor, but shall not be construed as acceptance of any mixture produced.

The QC Plan may be amended during the progress of the work, by either party, subject to mutual agreement. The Engineer will respond in writing to a Contractor's proposed QC Plan amendment within 15 calendar days of receipt. The response will indicate the approval or denial of the Contractor's proposed QC Plan amendment.

- (c) **Quality Control by Contractor.** The Contractor shall perform quality control inspection, sampling, testing, and documentation to meet contract requirements. Quality control includes the recognition of obvious defects

and their immediate correction. Quality control also includes appropriate action when passing test results are near specification limits, or to resolve test result differences with the Engineer. Quality control may require increased testing, communication of test results to the plant or the jobsite, modification of operations, suspension of mixture production, rejection of material, or other actions as appropriate. The Engineer shall be immediately notified of any failing tests and subsequent remedial action. Passing tests shall be reported no later than the start of the next work day.

When a mixture does not comply with specifications, the Contractor shall reject the material, unless the Engineer accepts the material for incorporation in the work, according to Article 105.03.

- (1) **Personnel Requirements.** The Contractor shall provide a Quality Control (QC) Manager who will have overall responsibility and authority for quality control. The jobsite and plant personnel shall be able to contact the QC Manager by cellular phone, two-way radio, or other methods approved by the Engineer.

The QC Manager shall visit the jobsite a minimum of once a week. A visit shall be performed the day of a bridge deck pour, the day a non-routine mixture is placed as determined by the Engineer, or the day a plant is anticipated to produce more than 1000 cu yd (765 cu m). Any of the three required visits may be used to meet the once per week minimum requirement.

The Contractor shall provide personnel to perform the required inspections, sampling, testing, and documentation in a timely manner. The Contractor shall refer to the Department's "Qualifications and Duties of Concrete Quality Control Personnel" document.

A Level I PCC Technician shall be provided at the jobsite during mixture production and placement, and may supervise concurrent pours on the project. For concurrent pours, a minimum of one Concrete Tester shall be required at each pour location. If the Level I PCC Technician is at one of the pour locations, a Concrete Tester is still required at the same location. Each Concrete Tester shall be able to contact the Level I PCC Technician by cellular phone, two-way radio, or other methods approved by the Engineer. A single Level I PCC Technician shall not supervise concurrent pours for multiple contracts.

A Level II PCC Technician shall be provided at the plant, or shall be available, during mixture production and placement. A Level II PCC Technician may supervise a maximum of three plants. Whenever the Level II PCC Technician is not at the plant during mixture production and placement, a Concrete Tester or Level I PCC Technician shall be present at the plant to perform any necessary concrete tests. The Concrete Tester, Level I PCC Technician, or other individual shall also be trained to perform any necessary aggregate moisture tests, if the Level II PCC Technician is not at the plant during mixture production and placement. The Concrete Tester, Level I PCC Technician, plant personnel, and jobsite personnel shall have the ability to contact the

CHECK SHEET #25

Level II PCC Technician by cellular phone, two-way radio, or other methods approved by the Engineer.

For a mixture which is produced and placed with a mobile portland cement concrete plant as defined in Article 1103.04, a Level II PCC Technician shall be provided. The Level II PCC Technician shall be present at all times during mixture production and placement. However, the Level II PCC Technician may request to be available if operations are satisfactory. Approval shall be obtained from the Engineer, and jobsite personnel shall have the ability to contact the Level II PCC Technician by cellular phone, two-way radio, or other methods approved by the Engineer.

A Concrete Tester, Mixture Aggregate Technician, and Aggregate Technician may provide assistance with sampling and testing. A Gradation Technician may provide assistance with testing. A Concrete Tester shall be supervised by a Level I or Level II PCC Technician. A Gradation Technician shall be supervised by a Level II PCC Technician, Mixture Aggregate Technician, or Aggregate Technician.

- (2) Required Plant Tests. Sampling and testing shall be performed at the plant, or at a location approved by the Engineer, to control the production of a mixture. The required minimum Contractor plant sampling and testing is indicated in Article 1020.16(g) Schedule A.
- (3) Required Field Tests. Sampling and testing shall be performed at the jobsite to control the production of a mixture, and to comply with specifications for placement. For standard curing, after initial curing, and for strength testing, the location shall be approved by the Engineer. The required minimum Contractor jobsite sampling and testing is indicated in Article 1020.16(g), Schedule B.
- (d) Quality Assurance by Engineer. The Engineer will perform quality assurance tests on independent samples and split samples. An independent sample is a field sample obtained and tested by only one party. A split sample is one of two equal portions of a field sample, where two parties each receive one portion for testing. The Engineer may request the Contractor to obtain a split sample. Aggregate split samples and any failing strength specimen shall be retained until permission is given by the Engineer for disposal. The results of all quality assurance tests by the Engineer will be made available to the Contractor. However, Contractor split sample test results shall be provided to the Engineer before Department test results are revealed. The Engineer's quality assurance independent sample and split sample testing are indicated in Article 1020.16(g), Schedule C.
- (1) Strength Testing. For strength testing, Article 1020.09 shall apply, except the Contractor and Engineer strength specimens may be placed in the same field curing box for initial curing and may be cured in the same water storage tank for final curing.

CHECK SHEET #25

- (2) Comparing Test Results. Differences between the Engineer's and the Contractor's split sample test results will be considered reasonable if within the following limits:

Test Parameter	Acceptable Limits of Precision
Slump	0.75 in. (20 mm)
Air Content	0.9%
Compressive Strength	900 psi (6200 kPa)
Flexural Strength	90 psi (620 kPa)
Slump Flow (Self-Consolidating Concrete (SCC))	1.5 in. (40 mm)
Visual Stability Index (SCC)	Not Applicable
J-Ring (SCC)	1.5 in. (40 mm)
L-Box (SCC)	10 %
Hardened Visual Stability Index (SCC)	Not Applicable
Dynamic Segregation Index (SCC)	1.0 %
Flow (Controlled Low-Strength Material (CLSM))	1.5 in. (40 mm)
Strength (CLSM)	40 psi (275 kPa)
Aggregate Gradation	See "Guideline for Sample Comparison" in Appendix "A" of the Manual of Test Procedures for Materials.

When acceptable limits of precision have been met, but only one party is within specification limits, the failing test shall be resolved before the material may be considered for acceptance.

(3) Test Results and Specification Limits.

- a. Split Sample Testing. If either the Engineer's or the Contractor's split sample test result is not within specification limits and the other party is within specification limits, immediate retests on a split sample shall be performed for slump, air content, slump flow, visual stability index, J-Ring, L-Box, dynamic segregation index, flow (CLSM), or aggregate gradation. A passing retest result by each party will require no further action. If either the Engineer's or Contractor's slump, air content, slump flow, visual stability index, J-Ring, L-Box, dynamic segregation index, flow (CLSM), or aggregate gradation split sample retest result is a failure; or if either the Engineer's or Contractor's strength or hardened visual stability index test result is a failure and the other party is within specification limits; the following actions shall be initiated to investigate the test failure:
 1. The Engineer and the Contractor shall investigate the sampling method, test procedure, equipment condition, equipment calibration, and other factors.

CHECK SHEET #25

2. The Engineer or the Contractor shall replace test equipment, as determined by the Engineer.
3. The Engineer and the Contractor shall perform additional testing on split samples, as determined by the Engineer.

For aggregate gradation, jobsite slump, jobsite air content, jobsite slump flow, jobsite visual stability index, jobsite J-Ring, jobsite L-Box, jobsite dynamic segregation index, and jobsite flow (CLSM), if the failing split sample test result is not resolved according to 1., 2., or 3., and the mixture has not been placed, the Contractor shall reject the material; unless the Engineer accepts the material for incorporation in the work, according to Article 105.03. If the mixture has already been placed, or if a failing strength or hardened visual stability index test result is not resolved according to 1., 2., or 3., the material will be considered unacceptable.

If a continued trend of difference exists between the Engineer's and the Contractor's split sample test results, or if split sample test results exceed the acceptable limits of precision, the Engineer and the Contractor shall investigate according to items 1., 2., and 3.

- b. Independent Sample Testing. For aggregate gradation, jobsite slump, jobsite air content, jobsite slump flow, jobsite visual stability index, jobsite J-Ring, jobsite L-Box, jobsite dynamic segregation index, jobsite flow (CLSM), if the result of a quality assurance test on a sample independently obtained by the Engineer is not within specification limits, and the mixture has not been placed, the Contractor shall reject the material; unless the Engineer accepts the material for incorporation in the work, according to Article 105.03. If the mixture has already been placed or the Engineer obtains a failing strength or hardened visual stability index test result, the material will be considered unacceptable.
- (e) Acceptance by the Engineer. Final acceptance will be based on the Standard Specifications and the following:
- (1) The Contractor's compliance with all contract documents for quality control.
 - (2) Validation of Contractor quality control test results by comparison with the Engineer's quality assurance test results using split samples. Any quality control or quality assurance test determined to be flawed may be declared invalid only when reviewed and approved by the Engineer. The Engineer will declare a test result invalid only if it is proven that improper sampling or testing occurred. The test result is to be recorded and the reason for declaring the test invalid will be provided by the Engineer.

CHECK SHEET #25

- (3) Comparison of the Engineer's quality assurance test results with specification limits using samples independently obtained by the Engineer.

The Engineer may suspend mixture production, reject materials, or take other appropriate action if the Contractor does not control the quality of concrete, cement aggregate mixture II, or controlled low-strength material for acceptance. The decision will be determined according to (1), (2), or (3).

(f) Documentation.

- (1) Records. The Contractor shall be responsible for documenting all observations, inspections, adjustments to the mix design, test results, retest results, and corrective actions in a bound hardback field book, bound hardback diary, or appropriate Department form, which shall become the property of the Department. The documentation shall include a method to compare the Engineer's test results with the Contractor's results. The Contractor shall be responsible for the maintenance of all permanent records whether obtained by the Contractor, the consultants, the subcontractors, or the producer of the mixture. The Contractor shall provide the Engineer full access to all documentation throughout the progress of the work.

The Department's form BMPR MI504, form BMPR MI654, and form BMPR MI655 shall be completed by the Contractor, and shall be submitted to the Engineer weekly or as required by the Engineer. A correctly completed form BMPR MI504, form BMPR MI654, and form BMPR MI655 are required to authorize payment by the Engineer for applicable pay items.

- (2) Delivery Truck Ticket. The following information shall be recorded on each delivery ticket or in a bound hardback field book: initial revolution counter reading (final reading optional) at the jobsite, if the mixture is truck-mixed; time discharged at the jobsite; total amount of each admixture added at the jobsite; and total amount of water added at the jobsite.

- (g) Basis of Payment and Schedules. Quality Control/Quality Assurance of portland cement concrete mixtures will not be paid for separately, but shall be considered as included in the cost of the various concrete contract items.

CHECK SHEET #25

SCHEDULE A

CONTRACTOR PLANT SAMPLING AND TESTING			
Item	Test	Frequency	IL Modified AASHTO, IL Modified ASTM, or Illinois Test Procedure ^{1/}
Aggregates (Arriving at Plant)	Gradation ^{2/}	As needed to check source for each gradation number	ITP 2, ITP 11, ITP 27, and ITP 248
Aggregates (Stored at Plant in Stockpiles or Bins)	Gradation ^{2/}	2500 cu yd (1900 cu m) for each gradation number ^{3/}	ITP 2, ITP 11, ITP 27, and ITP 248
Aggregates (Stored at Plant in Stockpiles or Bins)	Moisture ^{4/} : Fine Aggregate	Once per week for moisture sensor, otherwise daily for each gradation number	Flask, Dunagan, Pychnometer Jar, or ITP 255
	Moisture ^{4/} : Coarse Aggregate	As needed to control production for each gradation number	Dunagan, Pychnometer Jar, or ITP 255
Mixture ^{5/}	Slump Air Content Unit Weight / Yield Slump Flow (SCC) Visual Stability Index (SCC) J-Ring (SCC) ^{6/} L-Box (SCC) ^{6/} Temperature	As needed to control production	R 60 and T 119 R 60 and T 152 or T 196 R 60 and T 121 ITP SCC-1 and ITP SCC-2 ITP SCC-1 and ITP SCC-2 ITP SCC-1 and ITP SCC-3 ITP SCC-1 and ITP SCC-4 R 60 and ASTM C 1064
Mixture (CLSM) ^{7/}	Flow Air Content Temperature	As needed to control production	ITP 307

1/ Refer to the Department's "Manual of Test Procedures for Materials".

2/ All gradation tests shall be washed. Testing shall be completed no later than 24 hours after the aggregate has been sampled.

3/ One per week (Sunday through Saturday) minimum, unless the stockpile has not received additional aggregate material since the previous test.

One per day minimum for a bridge deck pour, unless the stockpile has not received additional aggregate material since the previous test. The sample shall be taken and testing completed prior to the pour. The bridge deck aggregate sample may be taken the day before the pour or as approved by the Engineer.

4/ If the moisture test and moisture sensor disagree by more than 0.5 percent, retest. If the difference remains, adjust the moisture sensor to an average of two or more moisture tests. The Department's "Water/Cement Ratio Worksheet" form (BMPPR PCCW01) shall be completed, when applicable.

CHECK SHEET #25

- 5/ The Contractor may also perform strength testing according to Illinois Modified AASHTO R 60, T 23, and T 22 or T 177; or water content testing according to Illinois Modified AASHTO T 318.

The Contractor may also perform other available self-consolidating concrete (SCC) tests at the plant to control mixture production.

- 6/ The Contractor shall select the J-Ring or L-Box test for plant sampling and testing.
- 7/ The Contractor may also perform strength testing according to ITP 307.

CHECK SHEET #25

SCHEDULE B

CONTRACTOR JOBSITE SAMPLING & TESTING ^{1/}			
Item	Measured Property	Random Sample Testing Frequency per Mix Design and per Plant ^{2/}	IL Modified AASHTO, IL Modified ASTM, or Illinois Test Procedure
Pavement, Shoulder, Base Course, Base Course Widening, Driveway Pavement, Railroad Crossing, Cement Aggregate Mixture II	Slump ^{3/ 4/}	1 per 500 cu yd (400 cu m) or minimum 1/day	R 60 and T 119
	Air Content ^{3/ 5/ 6/}	1 per 100 cu yd (80 cu m) or minimum 1/day	R 60 and T 152 or T 196
	Compressive Strength ^{7/ 8/} or Flexural Strength ^{7/ 8/}	1 per 1250 cu yd (1000 cu m) or minimum 1/day	R 60, T 22 and T 23 or R 60, T 177 and T 23
Bridge Approach Slab ^{9/} , Bridge Deck ^{9/} , Bridge Deck Overlay ^{9/} , Superstructure ^{9/} , Substructure, Culvert, Miscellaneous Drainage Structures, Retaining Wall, Building Wall, Drilled Shaft Pile & Encasement Footing, Foundation, Pavement Patching, Structural Repairs	Slump ^{3/ 4/}	1 per 50 cu yd (40 cu m) or minimum 1/day	R 60 and T 119
	Air Content ^{3/ 5/ 6/}	1 per 50 cu yd (40 cu m) or minimum 1/day	R 60 and T 152 or T 196
	Compressive Strength ^{7/ 8/} or Flexural Strength ^{7/ 8/}	1 per 250 cu yd (200 cu m) or minimum 1/day	R 60, T 22 and T 23 or R 60, T 177 and T 23
Seal Coat	Slump ^{3/}	1 per 250 cu yd (200 cu m) or minimum 1/day	R 60 and T 119
	Air Content ^{3/ 5/ 6/}	1 per 250 cu yd (200 cu m) or minimum 1/day when air is entrained	R 60 and T 152 or T 196
	Compressive Strength ^{7/ 8/} or Flexural Strength ^{7/ 8/}	1 per 250 cu yd (200 cu m) or minimum 1/day	R 60, T 22 and T 23 or R 60, T 177 and T 23

CHECK SHEET #25

CONTRACTOR JOBSITE SAMPLING & TESTING ^{1/}			
Curb, Gutter, Median, Barrier, Sidewalk, Slope Wall, Paved Ditch, Fabric Formed Concrete Revetment Mat ^{10/} , Miscellaneous Items, Incidental Items	Slump ^{3/ 4/}	1 per 100 cu yd (80 cu m) or minimum 1/day	R 60 and T 119
	Air Content ^{3/ 5/ 6/}	1 per 50 cu yd (40 cu m) or minimum 1/day	R 60 and T 152 or T 196
	Compressive Strength ^{7/ 8/} or Flexural Strength ^{7/ 8/}	1 per 400 cu yd (300 cu m) or minimum 1/day	R 60, T 22 and T 23 or R 60, T 177 and T 23
Items Using Self- Consolidating Concrete	Slump Flow ^{3/} VSI ^{3/} J-Ring ^{3/ 11/} L-Box ^{3/ 11/}	Perform at same frequency that is specified for the Item's slump	ITP SCC-1 & ITP SCC-2 ITP SCC-1 & ITP SCC-2 ITP SCC-1 & ITP SCC-3 ITP SCC-1 & ITP SCC-4
	HVSI ^{12/}	Minimum 1/day at start of production for that day	ITP SCC-1 and ITP SCC-6
	Dynamic Segregation Index (DSI)	Minimum 1/week at start of production for that week	ITP SCC-1 and ITP SCC-8 (Option C)
	Air Content ^{3/ 5/ 6/}	Perform at same frequency that is specified for the Item's air content	ITP SCC-1 and T 152 or T 196
	Compressive Strength ^{7/ 8/} or Flexural Strength ^{7/ 8/}	Perform at same frequency that is specified for the Item's strength	ITP SCC-1, T 22 and T 23 or ITP SCC-1, T 177 and T 23
All	Temperature ^{3/}	As needed to control production	R 60 and ASTM C 1064
Controlled Low- Strength Material (CLSM)	Flow, Air Content, Compressive Strength (28-day) ^{13/} , and Temperature	First truck load delivered and as needed to control production thereafter	ITP 307

1/ Sampling and testing of small quantities of curb, gutter, median, barrier, sidewalk, slope wall, paved ditch, miscellaneous items, and incidental items may be waived by the Engineer, if requested by the Contractor. However, quality control personnel are still required according to Article 1020.16(c)(1). The Contractor shall also provide recent evidence that similar material has been found to be satisfactory under normal sampling and testing

CHECK SHEET #25

procedures. The total quantity that may be waived for testing shall not exceed 100 cu yd (76 cu m) per contract.

If the Contractor's or Engineer's test result for any jobsite mixture test is not within the specification limits, all subsequent truck loads delivered shall be tested by the Contractor until the problem is corrected.

- 2/ If one mix design is being used for several construction items during a day's production, one testing frequency may be selected to include all items. The construction items shall have the same slump, air content, and water/cement ratio specifications. For self-consolidating concrete, the construction items shall have the same slump flow, visual stability index, J-Ring, L-Box, air content, and water/cement ratio specifications. The frequency selected shall equal or exceed the testing required for the construction item.

One sufficiently sized sample shall be taken to perform the required test(s). Random numbers shall be determined according to the Department's "Method for Obtaining Random Samples for Concrete". The Engineer will provide random sample locations.

- 3/ The temperature, slump, and air content tests shall be performed on the first truck load delivered, for each pour. For self-consolidating concrete, the temperature, slump flow, visual stability index, J-Ring or L-Box, and air content tests shall be performed on the first truck load delivered, for each pour. Unless a random sample is required for the first truck load, testing the first truck load does not satisfy random sampling requirements.
- 4/ The slump random sample testing frequency shall be a minimum 1/day for a construction item which is slipformed.
- 5/ If a pump or conveyor is used for placement, a correction factor shall be established to allow for a loss of air content during transport. The first three truck loads delivered shall be tested, before and after transport by the pump or conveyor, to establish the correction factor. Once the correction is determined, it shall be re-checked after an additional 50 cu yd (38 cu m) is pumped, or an additional 100 cu yd (76 cu m) is transported by conveyor. This shall continue throughout the pour. If the re-check indicates the correction factor has changed, a minimum of two truckloads is required to re-establish the correction factor. The correction factor shall also be re-established when significant changes in temperature, distance, pump or conveyor arrangement, and other factors have occurred. If the correction factor is greater than 3.0 percent, the Contractor shall take corrective action to reduce the loss of air content during transport by the pump or conveyor. The Contractor shall record all air content test results, correction factors, and corrected air contents. The corrected air content shall be reported on form BMPR MI654.
- 6/ If the Contractor's or Engineer's air content test result is within the specification limits, and 0.2 percent or closer to either limit, the next truck load delivered shall be tested by the Contractor. For example, if the specified air content range is 5.0 to 8.0 percent and the test result is 5.0, 5.1, 5.2, 7.8, 7.9, or 8.0 percent, the next truck shall be tested by the Contractor.

- 7/ The test of record for strength shall be the day indicated in Article 1020.04. For cement aggregate mixture II, a strength requirement is not specified and testing is not required. Additional strength testing to determine early falsework and form removal, early pavement or bridge opening to traffic, or to monitor strengths is at the discretion of the Contractor. Strength shall be defined as the average of two 6 x 12 in. (150 x 300 mm) cylinder breaks, three 4 x 8 in. (100 x 200 mm) cylinder breaks, or two beam breaks for field tests. Per Illinois Modified AASHTO T 23, cylinders shall be 6 x 12 in. (150 x 300 mm) when the nominal maximum size of the coarse aggregate exceeds 1 in. (25 mm). Nominal maximum size is defined as the largest sieve which retains any of the aggregate sample particles.
- 8/ In addition to the strength test, a slump test, air content test, and temperature test shall be performed on the same sample. For self-consolidating concrete, a slump flow test, visual stability index test, J-Ring or L-Box test, air content test, and temperature test shall be performed on the same sample as the strength test. For mixtures pumped or conveyed, the Contractor shall sample according to Illinois Modified AASHTO R 60.
- 9/ The air content test will be required for each delivered truck load.
- 10/ For fabric formed concrete revetment mat, the slump test is not required and the flexural strength test is not applicable.
- 11/ The Contractor shall select the J-Ring or L-Box test for jobsite sampling and testing.
- 12/ In addition to the hardened visual stability index (HVSI) test, a slump flow test, visual stability index (VSI) test, J-Ring or L-Box test, air content test, and temperature test shall be performed on the same sample. The Contractor shall retain all hardened visual stability index cut cylinder specimens until the Engineer notifies the Contractor that the specimens may be discarded.
- 13/ The test of record for strength shall be the day indicated in Article 1019.04. In addition to the strength test, a flow test, air content test, and temperature test shall be performed on the same sample. The strength test may be waived by the Engineer if future removal of the material is not a concern.

CHECK SHEET #25

SCHEDULE C

ENGINEER QUALITY ASSURANCE INDEPENDENT SAMPLE TESTING		
Location	Measured Property	Testing Frequency ^{1/}
Plant	Gradation of aggregates stored in stockpiles or bins, Slump and Air Content	As determined by the Engineer.
Jobsite	Slump, Air Content, Slump Flow, Visual Stability Index, J-Ring, L-Box, Hardened Visual Stability Index, Dynamic Segregation Index, and Strength	As determined by the Engineer.
	Flow, Air Content, Strength (28-day), and Dynamic Cone Penetration for Controlled Low-Strength Material (CLSM)	As determined by the Engineer

ENGINEER QUALITY ASSURANCE SPLIT SAMPLE TESTING ^{2/}		
Location	Measured Property	Testing Frequency ^{1/}
Plant	Gradation of aggregates stored in stockpiles or bins	At the beginning of the project, the first test performed by the Contractor. Thereafter, a minimum of 10% of total tests required of the Contractor will be performed per aggregate gradation number and per plant.
	Slump, Air Content, Slump Flow (SCC), Visual Stability Index (SCC), J-Ring (SCC), and L-Box (SCC)	As determined by the Engineer.
Jobsite	Slump, Air Content ^{3/} , Slump Flow, Visual Stability Index, J-Ring and L-Box	At the beginning of the project, the first three tests performed by the Contractor. Thereafter, a minimum of 20% of total tests required of the Contractor will be performed per plant, which will include a minimum of one test per mix design.
	Hardened Visual Stability Index	As determined by the Engineer.
	Dynamic Segregation Index	As determined by the Engineer.
	Strength	At the beginning of the project, the first test performed by the Contractor. Thereafter, a minimum of 20% of total tests required of the Contractor will be performed per plant, which will include a minimum of one test per mix design.
	Flow, Air Content, and Strength (28-day) for Controlled Low-Strength Material (CLSM)	As determined by the Engineer.

CHECK SHEET #25

- 1/ The Engineer will perform the testing throughout the period of quality control testing by the Contractor.
- 2/ The Engineer will witness and take immediate possession of or otherwise secure the Department's split sample obtained by the Contractor.
- 3/ Before transport by pump or conveyor, a minimum of 20 percent of total tests required of the Contractor will be performed per mix design and per plant. After transport by pump or conveyor, a minimum of 20 percent of total tests required of the Contractor will be performed per mix design and per plant.

CHECK SHEET #25

SCHEDULE D

CONCRETE QUALITY CONTROL AND QUALITY ASSURANCE DOCUMENTS

- (a) Model Quality Control Plan for Concrete Production (*)
- (b) Qualifications and Duties of Concrete Quality Control Personnel (*)
- (c) Development of Gradation Bands on Incoming Aggregate at Mix Plants (*)
- (d) Required Sampling and Testing Equipment for Concrete (*)
- (e) Method for Obtaining Random Samples for Concrete (*)
- (f) Calibration of Concrete Testing Equipment (BMPR PCCQ01 through BMPR PCCQ09) (*)
- (g) Water/Cement Ratio Worksheet (BMPR PCCW01) (*)
- (h) Field/Lab Gradations (BMPR MI504) (*)
- (i) Concrete Air, Slump and Quantity (BMPR MI654) (*)
- (j) P.C. Concrete Strengths (BMPR MI655) (*)
- (k) Aggregate Technician Course or Mixture Aggregate Technician Course (*)
- (l) Portland Cement Concrete Tester Course (*)
- (m) Portland Cement Concrete Level I Technician Course - Manual of Instructions for Concrete Testing (*)
- (n) Portland Cement Concrete Level II Technician Course - Manual of Instructions for Concrete Proportioning (*)
- (o) Portland Cement Concrete Level III Technician Course - Manual of Instructions for Design of Concrete Mixtures (*)
- (p) Manual of Test Procedures for Materials

* Refer to Appendix C of the Department's "Manual of Test Procedures for Materials" for more information.

BDE SPECIAL PROVISIONS
For the August 3 and September 21, 2018 Lettings

The following special provisions indicated by an "x" are applicable to this contract and will be included by the Project Development and Implementation Section of the BD&E. An * indicates a new or revised special provision for the letting.

<u>File Name</u>	<u>#</u>	<u>Special Provision Title</u>	<u>Effective</u>	<u>Revised</u>
80099	1	☐ Accessible Pedestrian Signals (APS)	April 1, 2003	Jan. 1, 2014
80382	2	☐ Adjusting Frames and Grates	April 1, 2017	
80274	3	☒ Aggregate Subgrade Improvement	April 1, 2012	April 1, 2016
80192	4	☐ Automated Flagger Assistance Device	Jan. 1, 2008	
80173	5	☐ Bituminous Materials Cost Adjustments	Nov. 2, 2006	Aug. 1, 2017
80241	6	☐ Bridge Demolition Debris	July 1, 2009	
50261	7	☐ Building Removal-Case I (Non-Friable and Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50481	8	☐ Building Removal-Case II (Non-Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50491	9	☐ Building Removal-Case III (Friable Asbestos)	Sept. 1, 1990	April 1, 2010
50531	10	☐ Building Removal-Case IV (No Asbestos)	Sept. 1, 1990	April 1, 2010
80366	11	☒ Butt Joints	July 1, 2016	
80386	12	☐ Calcium Aluminate Cement for Class PP-5 Concrete Patching	Nov. 1, 2017	
80396	13	☐ Class A and B Patching	Jan. 1, 2018	
80384	14	☐ Compensable Delay Costs	June 2, 2017	
80198	15	☐ Completion Date (via calendar days)	April 1, 2008	
80199	16	☐ Completion Date (via calendar days) Plus Working Days	April 1, 2008	
80293	17	☐ Concrete Box Culverts with Skews > 30 Degrees and Design Fills ≤ 5 Feet	April 1, 2012	July 1, 2016
80311	18	☐ Concrete End Sections for Pipe Culverts	Jan. 1, 2013	April 1, 2016
80277	19	☐ Concrete Mix Design – Department Provided	Jan. 1, 2012	April 1, 2016
80261	20	☒ Construction Air Quality – Diesel Retrofit	June 1, 2010	Nov. 1, 2014
80387	21	☐ Contrast Preformed Plastic Pavement Marking	Nov. 1, 2017	
80378	22	☐ Disadvantaged Business Enterprise Participation	Sept. 1, 2000	April 1, 2016
80378	23	☐ Dowel Bar Inserters	Jan. 1, 2017	Jan. 1, 2018
80388	24	☐ Equipment Parking and Storage	Nov. 1, 2017	
80229	25	☐ Fuel Cost Adjustment	April 1, 2009	Aug. 1, 2017
80304	26	☒ Grooving for Recessed Pavement Markings	Nov. 1, 2012	Nov. 1, 2017
80246	27	☒ Hot-Mix Asphalt – Density Testing of Longitudinal Joints	Jan. 1, 2010	Aug. 1, 2016
80393	28	☐ Hot-Mix Asphalt – Longitudinal Joint Sealant	Aug. 1, 2016	
80396	29	☐ Hot-Mix Asphalt – Oscillatory Roller	Aug. 1, 2016	
80347	30	☐ Hot-Mix Asphalt – Pay for Performance Using Percent Within Limits – Job-site Sampling	Nov. 1, 2014	Aug. 1, 2016
80383	31	☐ Hot-Mix Asphalt – Quality Control for Performance	April 1, 2017	Nov. 1, 2017
80376	32	☒ Hot-Mix Asphalt – Tack Coat	Nov. 1, 2016	
80392	33	☐ Lights on Barricades	Jan. 1, 2018	
80336	34	☐ Longitudinal Joint and Crack Patching	April 1, 2014	April 1, 2016
80381	35	☐ Manholes, Valve Vaults, and Flat Slab Tops	Jan. 1, 2016	March 1, 2016
80381	36	☐ Manhole Assembly and Poles	Aug. 1, 2016	
80045	37	☐ Material Transfer Device	June 15, 1999	Aug. 1, 2014
80394	38	☐ Metal Flared End Section for Pipe Culverts	Jan. 1, 2018	April 1, 2018
80165	39	☐ Moisture Cured Urethane Paint System	Nov. 1, 2006	Jan. 1, 2010
80349	40	☐ Pavement Marking Blackout Tape	Nov. 1, 2014	April 1, 2016
80371	41	☐ Pavement Marking Removal	July 1, 2016	
80390	42	☐ Payments to Subcontractors	Nov. 2, 2017	
80377	43	☐ Portable Changeable Message Signs	Nov. 1, 2016	April 1, 2017
80389	44	☒ Portland Cement Concrete	Nov. 1, 2017	
80359	45	☐ Portland Cement Concrete Bridge Deck Curing	April 1, 2015	Nov. 1, 2017
80359	46	☐ Portland Cement Concrete Pavement Connector for Bridge Approach	Aug. 1, 2016	

File Name	#	Special Provision Title	Effective	Revised
80385	47	Portland Cement Concrete Sidewalk	Aug. 1, 2017	
80300	48	Preformed Plastic Pavement Marking Type D - Inlaid	April 1, 2012	April 1, 2016
80328	49	Progress Payments	Nov. 2, 2013	
3426I	50	Railroad Protective Liability Insurance	Dec. 1, 1986	Jan. 1, 2006
80157	51	Railroad Protective Liability Insurance (5 and 10)	Jan. 1, 2006	
80306	52	Reclaimed Asphalt Pavement (RAP) and Reclaimed Asphalt Shingles (RAS)	Nov. 1, 2012	Jan. 1, 2018
80395	53	Sloped Metal End Section for Pipe Culverts	Jan. 1, 2018	
80340	54	Speed Display Trailer	April 2, 2014	Jan. 1, 2017
80127	55	Steel Cost Adjustment	April 2, 2004	Aug. 1, 2017
80397	56	Subcontractor and DBE Payment Reporting	April 2, 2018	
80391	57	Subcontractor Mobilization Payments	Nov. 2, 2017	
80317	58	Surface Testing of Hot-Mix Asphalt Overlays	Jan. 1, 2013	April 1, 2016
80298	59	✓ Temporary Pavement Marking (NOTE: This special provision was previously named "Pavement Marking Tape Type IV".)	April 1, 2012	April 1, 2017
20338	60	Training Special Provisions	Oct. 15, 1975	
80318	61	Traversable Pipe Grate for Concrete End Sections (NOTE: This special provision was previously named "Traversable Pipe Grate".)	Jan. 1, 2013	Jan. 1, 2018
80288	62	Warm Mix Asphalt	Jan. 1, 2012	April 1, 2016
80302	63	Weekly DBE Trucking Reports	June 2, 2012	April 2, 2015
80071	64	Working Days	Jan. 1, 2002	

The following special provisions are in the 2018 Supplemental Specifications and Recurring Special Provisions.

File Name	Special Provision Title	New Location	Effective	Revised
80368	Light Tower	Article 1069.08	July 1, 2016	
80369	Mast Arm Assembly and Pole	Article 1077.03(a)(1)	July 1, 2016	
80338	Portland Cement Concrete Partial Depth Hot-Mix Asphalt Patching	Recurring CS #35	April 1, 2014	April 1, 2016
80379	Steel Plate Beam Guardrail	Articles 630.02, 630.05, 630.06, and 630.08	Jan. 1, 2017	
80381	Traffic Barrier Terminal, Type 1 Special	Article 631.04	Jan. 1, 2017	
80380	Tubular Markers	Articles 701.03, 701.15, 701.18, and 1106.02	Jan. 1, 2017	

The following special provisions require additional information from the designer. The additional information needs to be submitted as a separate document. The Project Development and Implementation section will then include the information in the applicable special provision. The Special Provisions are:

- Bridge Demolition Debris
- Building Removal - Case I
- Building Removal - Case II
- Building Removal - Case III
- Building Removal-Case IV
- Completion Date
- Completion Date Plus Working Days
- DBE Participation
- Material Transfer Device
- Railroad Protective Liability Insurance
- Training Special Provisions
- Working Days

BUTT JOINTS (BDE)

Effective: July 1, 2016

Add the following to Article 406.08 of the Standard Specifications.

- "(c) Temporary Plastic Ramps. Temporary plastic ramps shall be made of high density polyethylene meeting the properties listed below. Temporary plastic ramps shall only be used on roadways with permanent posted speeds of 55 mph or less. The ramps shall have a minimum taper rate of 1:30 (V:H). The leading edge of the plastic ramp shall have a maximum thickness of 1/4 in. (6 mm) and the trailing edge shall match the height of the adjacent pavement $\pm$ 1/4 in. ($\pm$ 6 mm).

The ramp will be accepted by certification. The Contractor shall furnish a certification from the manufacturer stating the temporary plastic ramp meets the following requirements.

Physical Property	Test Method	Requirement
Melt Index	ASTM D 1238	8.2 g/10 minutes
Density	ASTM D 1505	0.965 g/cc
Tensile Strength @ Break	ASTM D 638	2223 psi (15 MPa)
Tensile Strength @ Yield	ASTM D 638	4110 psi (28 MPa)
Elongation @ Yield ^{1/} , percent	ASTM D 638	7.3 min.
Durometer Hardness, Shore D	ASTM D 2240	65
Heat Deflection Temperature, 66 psi	ASTM D 648	176 °F (80 °C)
Low Temperature Brittleness, F ₅₀	ASTM D 746	<-105 °F (<-76 °C)

1/ Crosshead speed -2 in./minute

The temporary plastic ramps shall be installed according to the manufacturer's specifications and fastened with anchors meeting the manufacturer's recommendations. Temporary plastic ramps that fail to stay in place or create a traffic hazard shall be replaced immediately with temporary HMA ramps at the Contractor's expense."

CONSTRUCTION AIR QUALITY – DIESEL RETROFIT (BDE)

Effective: June 1, 2010

Revised: November 1, 2014

The reduction of emissions of particulate matter (PM) for off-road equipment shall be accomplished by installing retrofit emission control devices. The term "equipment" refers to diesel fuel powered devices rated at 50 hp and above, to be used on the jobsite in excess of seven calendar days over the course of the construction period on the jobsite (including rental equipment).

Contractor and subcontractor diesel powered off-road equipment assigned to the contract shall be retrofitted using the phased in approach shown below. Equipment that is of a model year older than the year given for that equipment's respective horsepower range shall be retrofitted:

Effective Dates	Horsepower Range	Model Year
June 1, 2010 ^{1/}	600-749	2002
	750 and up	2006
June 1, 2011 ^{2/}	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006
June 1, 2012 ^{2/}	50-99	2004
	100-299	2003
	300-599	2001
	600-749	2002
	750 and up	2006

1/ Effective dates apply to Contractor diesel powered off-road equipment assigned to the contract.

2/ Effective dates apply to Contractor and subcontractor diesel powered off-road equipment assigned to the contract.

The retrofit emission control devices shall achieve a minimum PM emission reduction of 50 percent and shall be:

- a) Included on the U.S. Environmental Protection Agency (USEPA) *Verified Retrofit Technology List* (<http://www.epa.gov/cleandiesel/verification/verif-list.htm>), or verified by the California Air Resources Board (CARB) (<http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm>); or
- b) Retrofitted with a non-verified diesel retrofit emission control device if verified retrofit emission control devices are not available for equipment proposed to be used on the project, and if the Contractor has obtained a performance certification from the retrofit

device manufacturer that the emission control device provides a minimum PM emission reduction of 50 percent.

Note: Large cranes (Crawler mounted cranes) which are responsible for critical lift operations are exempt from installing retrofit emission control devices if such devices adversely affect equipment operation.

Diesel powered off-road equipment with engine ratings of 50 hp and above, which are unable to be retrofitted with verified emission control devices or if performance certifications are not available which will achieve a minimum 50 percent PM reduction, may be granted a waiver by the Department if documentation is provided showing good faith efforts were made by the Contractor to retrofit the equipment.

Construction shall not proceed until the Contractor submits a certified list of the diesel powered off-road equipment that will be used, and as necessary, retrofitted with emission control devices. The list(s) shall include (1) the equipment number, type, make, Contractor/rental company name; and (2) the emission control devices make, model, USEPA or CARB verification number, or performance certification from the retrofit device manufacturer. Equipment reported as fitted with emissions control devices shall be made available to the Engineer for visual inspection of the device installation, prior to being used on the jobsite.

The Contractor shall submit an updated list of retrofitted off-road construction equipment as retrofitted equipment changes or comes on to the jobsite. The addition or deletion of any diesel powered equipment shall be included on the updated list.

If any diesel powered off-road equipment is found to be in non-compliance with any portion of this special provision, the Engineer will issue the Contractor a diesel retrofit deficiency deduction.

Any costs associated with retrofitting any diesel powered off-road equipment with emission control devices shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed. The Contractor's compliance with this notice and any associated regulations shall not be grounds for a claim.

Diesel Retrofit Deficiency Deduction

When the Engineer determines that a diesel retrofit deficiency exists, a daily monetary deduction will be imposed for each calendar day or fraction thereof the deficiency continues to exist. The calendar day(s) will begin when the time period for correction is exceeded and end with the Engineer's written acceptance of the correction. The daily monetary deduction will be \$1,000.00 for each deficiency identified.

The deficiency will be based on lack of diesel retrofit emissions control.

If a Contractor accumulates three diesel retrofit deficiency deductions for the same piece of equipment in a contract period, the Contractor will be shutdown until the deficiency is corrected.

Such a shutdown will not be grounds for any extension of the contract time, waiver of penalties, or be grounds for any claim.

80261



Illinois Department of Transportation

Memorandum

To: Regional Engineers
From: Maureen M. Addis *MA*
Subject: Special Provision for Grooving for Recessed Pavement Markings
Date: August 4, 2017

This special provision was developed by the Bureau of Operations to create a statewide specification for installing a pavement groove for recessed pavement markings that provides for improved durability of pavement marking materials. It has been revised to reduce the offset of the groove from longitudinal joints and to reduce the waiting time for new HMA pavements from 14 to ten days.

This special provision should be inserted into contracts where the grooving of pavement marking materials has been specified.

The districts should include the BDE Check Sheet marked with the applicable special provisions for the November 17, 2017 and subsequent lettings. The Project Development and Implementation Section will include a copy in the contract.

This special provision will be available on the transfer directory August 4, 2017.

80304m

GROOVING FOR RECESSED PAVEMENT MARKINGS (BDE)

Effective: November 1, 2012

Revised: November 1, 2017

Description. This work shall consist of grooving the pavement surface in preparation for the application of recessed pavement markings.

Equipment. Equipment shall be according to the following.

- (a) Preformed Plastic Pavement Marking Installations. The grooving equipment shall have a free-floating saw blade cutting head equipped with gang-stacked diamond saw blades. The diamond saw blades shall be of uniform wear and shall produce a smooth textured surface. Any ridges in the groove shall have a maximum height of 15 mils (0.38 mm).
- (b) Liquid and Thermoplastic Pavement Marking Installations. The grooving equipment shall be equipped with either a free-floating saw blade cutting head or a free-floating grinder cutting head configuration with diamond or carbide tipped cutters and shall produce an irregular textured surface.

CONSTRUCTION REQUIREMENTS

General. The Contractor shall supply the Engineer with a copy of the pavement marking material manufacturer's recommendations for constructing a groove.

Pavement Grooving Methods. The grooves for recessed pavement markings shall be constructed using the following methods.

- (a) Wet Cutting Head Operation. When water is required or used to cool the cutting head, the groove shall be flushed with high pressure water immediately following the cut to avoid build up and hardening of slurry in the groove. The pavement surface shall be allowed to dry for a minimum of 24 hours prior to the final cleaning of the groove and application of the pavement marking material.
- (b) Dry Cutting Head Operation. When used on HMA pavements, the groove shall be vacuumed or cleaned by blasting with high-pressure air to remove loose aggregate, debris, and dust generated during the cutting operation. When used on PCC pavements, the groove shall be flushed with high pressure water or shot blasted to remove any PCC particles that may have become destabilized during the grooving process. If high pressure water is used, the pavement surface shall be allowed to dry for a minimum of 24 hours prior to the final cleaning of the groove and application of the pavement marking material.

Pavement Grooving. Grooving shall not cause ravels, aggregate fractures, spalling or disturbance of the joints to the underlying surface of the pavement. Grooves shall be cut into

the pavement prior to the application of the pavement marking material. Grooves shall be cut such that the width is 1 in. (25 mm) greater than the width of the pavement marking line as specified on the plans. Grooves for letters and symbols shall be cut in a square or rectangular shape so that the entire marking will fit within the limits of the grooved area. The position of the edge of the grooves shall be a minimum of 2 in. (50 mm) from the edge of all longitudinal joints. The depth of the groove shall not be less than the manufacturer's recommendations for the pavement marking material specified, but shall be installed to a minimum depth of 110 mils (2.79 mm) and a maximum depth of 200 mils (5.08 mm) for pavement marking tapes thermoplastic markings and a minimum depth of 40 mils (1.02 mm) and a maximum depth of 80 mils (2.03 mm) for liquid markings. The cutting head shall be operated at the appropriate speed in order to prevent undulation of the cutting head and grooving at an inconsistent depth.

At the start of grooving operations, a 50 ft (16.7 m) test section shall be installed and depth measurements shall be made at 10 ft (3.3 m) intervals within the test section. The individual depth measurements shall be within the allowable ranges according to this Article. If it is determined the test section has not been grooved at the appropriate depth or texture, adjustments shall be made to the cutting head and another 50 ft (16.7 m) test section shall be installed and checked. This process shall continue until the test section meets the requirements of this Article.

For new HMA pavements, grooves shall not be installed within 10 days of the placement of the final course of pavement.

Final Cleaning. Immediately prior to the application of the pavement marking material or primer sealer, the groove shall be cleaned with high-pressure air blast.

Method of Measurement. This work will be measured for payment in place, in feet (meter) for the groove width specified.

Grooving for letter, numbers and symbols will be measured in square feet (square meters).

Basis of Payment. This work will be paid for at the contract unit price per foot (meter) for GROOVING FOR RECESSED PAVEMENT MARKING of the groove width specified, and per square foot (square meter) for GROOVING FOR RECESSED PAVEMENT MARKING, LETTERS AND SYMBOLS.

The following shall only apply when preformed plastic pavement markings are to be recessed:

Add the following paragraph after the first paragraph of Article 780.07 of the Standard Specifications.

"The markings shall be capable of being applied in a grooved slot on new and existing portland cement concrete and HMA surfaces, by means of a pressure-sensitive, precoated adhesive, or liquid contact cement which shall be applied at the time of installation. A primer sealer shall be applied with a roller and shall cover and seal the entire bottom of the groove.

The primer sealer shall be recommended by the manufacturer of the pavement marking material and shall be compatible with the material being used. The Contractor shall install the markings in the groove as soon as possible after the primer sealer cures according to the manufacturer's recommendations. The markings placed in the groove shall be rolled and tamped into the groove with a roller or tamper cart cut to fit the groove and loaded with or weighing at least 200 lb (90kg). Vehicle tires shall not be used for tamping. The Contractor shall roll and tamp the material with a minimum of 6 passes to prevent easy removal or peeling."

80304

HOT-MIX ASPHALT - DENSITY TESTING OF LONGITUDINAL JOINTS (BDE)

Effective: January 1, 2010

Revised: August 1, 2018

Description. This work shall consist of testing the density of longitudinal joints as part of the quality control/quality assurance (QC/QA) of hot-mix asphalt (HMA). Work shall be according to Section 1030 of the Standard Specifications except as follows.

Quality Control/Quality Assurance (QC/QA). Delete the second and third sentence of the third paragraph of Article 1030.05(d)(3) of the Standard Specifications.

Add the following paragraphs to the end of Article 1030.05(d)(3) of the Standard Specifications:

"Longitudinal joint density testing shall be performed at each random density test location. Longitudinal joint testing shall be located at a distance equal to the lift thickness or a minimum of 4 in. (100 mm), from each pavement edge. (i.e. for a 5 in. (125 mm) lift the near edge of the density gauge or core barrel shall be within 5 in. (125 mm) from the edge of pavement.) Longitudinal joint density testing shall be performed using either a correlated nuclear gauge or cores.

- a. Confined Edge. Each confined edge density shall be represented by a one-minute nuclear density reading or a core density and shall be included in the average of density readings or core densities taken across the mat which represents the Individual Test.
- b. Unconfined Edge. Each unconfined edge joint density shall be represented by an average of three one-minute density readings or a single core density at the given density test location and shall meet the density requirements specified herein. The three one-minute readings shall be spaced 10 ft (3 m) apart longitudinally along the unconfined pavement edge and centered at the random density test location.

When a longitudinal joint sealant (LJS) is applied, longitudinal joint density testing will not be required on the joint(s) sealed."

Revise the Density Control Limits table in Article 1030.05(d)(4) of the Standard Specifications to read:

"Mixture Composition	Parameter	Individual Test (includes confined edges)	Unconfined Edge Joint Density Minimum
IL-4.75	Ndesign = 50	93.0 – 97.4% ^{1/}	91.0%
IL-9.5	Ndesign = 90	92.0 – 96.0%	90.0%
IL-9.5, IL-9.5L	Ndesign < 90	92.5 – 97.4%	90.0%
IL-19.0	Ndesign = 90	93.0 – 96.0%	90.0%
IL-19.0, IL-19.0L	Ndesign < 90	93.0 ^{2/} – 97.4%	90.0%

SMA	Ndesign = 50 & 80	93.5 – 97.4%	91.0%"
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80246

HOT-MIX ASPHALT – TACK COAT (BDE)

Effective: November 1, 2016

Revise Article 1032.06(a) of the Standard Specifications to read:

"(a) Anionic Emulsified Asphalt. Anionic emulsified asphalts shall be according to AASHTO M 140. SS-1h emulsions used as a tack coat shall have the cement mixing test waived."

80376

PORTLAND CEMENT CONCRETE (BDE)

Effective: November 1, 2017

Revise the Air Content % of Class PP Concrete in Table 1 Classes of Concrete and Mix Design Criteria in Article 1020.04 of the Standard Specifications to read:

TABLE 1. CLASSES OF CONCRETE AND MIX DESIGN CRITERIA		
Class of Conc.	Use	Air Content %
PP	Pavement Patching	4.0 - 8.0"
	Bridge Deck Patching (10)	
	PP-1	
	PP-2	
	PP-3	
	PP-4	
	PP-5	

Revise Note (4) at the end of Table 1 Classes of Concrete and Mix Design Criteria in Article 1020.04 of the Standard Specifications to read:

"(4) For all classes of concrete, the maximum slump may be increased to 7 in (175 mm) when a high range water-reducing admixture is used. For Class SC, the maximum slump may be increased to 8 in. (200 mm). For Class PS, the maximum slump may be increased to 8 1/2 in. (215 mm) if the high range water-reducing admixture is the polycarboxylate type."

80389

TEMPORARY PAVEMENT MARKING (BDE)

Effective: April 1, 2012

Revised: April 1, 2017

Revise Article 703.02 of the Standard Specifications to read:

"703.02 Materials. Materials shall be according to the following.

- | | |
|--|----------|
| (a) Pavement Marking Tape, Type I and Type III | 1095.06 |
| (b) Paint Pavement Markings | 1095.02 |
| (c) Pavement Marking Tape, Type IV | 1095.11" |

Revise the second paragraph of Article 703.05 of the Standard Specifications to read:

"Type I marking tape or paint shall be used at the option of the Contractor, except paint shall not be applied to the final wearing surface unless authorized by the Engineer for late season applications where tape adhesion would be a problem. Type III or Type IV marking tape shall be used on the final wearing surface when the temporary pavement marking will conflict with the permanent pavement marking such as on tapers, crossovers and lane shifts."

Revise Article 703.07 of the Standard Specifications to read:

"703.07 Basis of Payment. This work will be paid for as follows.

- a) Short Term Pavement Marking. Short term pavement marking will be paid for at the contract unit price per foot (meter) for SHORT TERM PAVEMENT MARKING. Removal of short term pavement markings will be paid for at the contract unit price per square foot (square meter) for SHORT TERM PAVEMENT MARKING REMOVAL.
- b) Temporary Pavement Marking. Where the Contractor has the option of material type, temporary pavement marking will be paid for at the contract unit price per foot (meter) for TEMPORARY PAVEMENT MARKING of the line width specified, and at the contract unit price per square foot (square meter) for TEMPORARY PAVEMENT MARKING LETTERS AND SYMBOLS.

Where the Department specifies the use of pavement marking tape, the Type III or Type IV temporary pavement marking will be paid for at the contract unit price per foot (meter) for PAVEMENT MARKING TAPE, TYPE III or PAVEMENT MARKING TAPE, TYPE IV of the line width specified and at the contract unit price per square foot (square meter) for PAVEMENT MARKING TAPE, TYPE III - LETTERS AND SYMBOLS or PAVEMENT MARKING TAPE, TYPE IV - LETTERS AND SYMBOLS.

Removal of temporary pavement markings will be paid for at the contract unit price per square foot (square meter) for TEMPORARY PAVEMENT MARKING REMOVAL.

When temporary pavement marking is shown on the Standard, the cost of the temporary pavement marking and its removal will be included in the cost of the Standard."

Add the following to Section 1095 of the Standard Specifications:

"1095.11 Pavement Marking Tape, Type IV. The temporary, preformed, patterned markings shall consist of a white or yellow tape with wet retroreflective media incorporated to provide immediate and continuing retroreflection during both wet and dry conditions. The tape shall be manufactured without the use of heavy metals including lead chromate pigments or other similar, lead-containing chemicals.

The white and yellow Type IV marking tape shall meet the Type III requirements of Article 1095.06 and the following.

- (a) Composition. The retroreflective pliant polymer pavement markings shall consist of a mixture of high-quality polymeric materials, pigments and glass beads distributed throughout its base cross-sectional area, with a layer of wet retroreflective media bonded to a durable polyurethane topcoat surface. The patterned surface shall have approximately $40\% \pm 10\%$ of the surface area raised and presenting a near vertical face to traffic from any direction. The channels between the raised areas shall be substantially free of exposed beads or particles.
- (b) Retroreflectance. The white and yellow markings shall meet the following for initial dry and wet retroreflectance.
 - (1) Dry Retroreflectance. Dry retroreflectance shall be measured under dry conditions according to ASTM D 4061 and meet the values described in Article 1095.06 for Type III tape.
 - (2) Wet Retroreflectance. Wet retroreflectance shall be measured under wet conditions according to ASTM E 2177 and meet the values shown in the following table.

Wet Retroreflectance, Initial R_L

Color	R_L 1.05/88.76
White	300
Yellow	200

- (c) Color. The material shall meet the following requirements for daylight reflectance and color, when tested, using a color spectrophotometer with 45 degrees circumferential/zero degree geometry, illuminant D65, and a two degree observer angle. The color instrument shall measure the visible spectrum from 380 to 720 nm with a wavelength measurement interval and spectral bandpass of 10 nm.

Color	Daylight Reflectance %Y
White	65 minimum
*Yellow	36-59

*Shall match Federal 595 Color No. 33538 and the chromaticity limits as follows.

x	0.490	0.475	0.485	0.530
y	0.470	0.438	0.425	0.456

- (d) Skid Resistance. The surface of the markings shall provide an average minimum skid resistance of 50 BPN when tested according to ASTM E 303.
- (e) Sampling, Testing, Acceptance, and Certification. Prior to approval and use of the wet reflective, temporary, removable pavement marking tape, the manufacturer shall submit a notarized certification from an independent laboratory, together with the results of all tests, stating that the material meets the requirements as set forth herein. The certification test report shall state the lot tested, manufacturer's name, and date of manufacture.

After approval by the Department, samples and certification by the manufacturer shall be submitted for each batch used. The manufacturer shall submit a certification stating that the material meets the requirements as set forth herein and is essentially identical to the material sent for qualification. The certification shall state the lot tested, manufacturer's name, and date of manufacture.

All costs of testing (other than tests conducted by the Department) shall be borne by the manufacturer."

Laser Screed; Rock Drill (Self-Propelled); Rock Drill (Truck Mounted); Rollers, All; Steam Generators; Tractors, All; Tractor Drawn Vibratory Roller; Winch Trucks with "A" Frame.

Class 3. Air Compressor; Combination Small Equipment Operator; Generators; Heaters, Mechanical; Hoists, Inside Elevators (remodeling or renovation work); Hydraulic Power Units (Pile Driving, Extracting, and Drilling); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Low Boys; Pumps, Well Points; Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches.

Class 4. Bobcats and/or other Skid Steer Loaders; Oilers; and Brick Forklift.

Class 5. Assistant Craft Foreman.

Class 6. Gradall.

Class 7. Mechanics; Welders.

OPERATING ENGINEERS - HIGHWAY CONSTRUCTION

Class 1. Asphalt Plant; Asphalt Heater and Planer Combination; Asphalt Heater Scarfire; Asphalt Spreader; Autograder/GOMACO or other similar type machines; ABG Paver; Backhoes with Caisson Attachment; Ballast Regulator; Belt Loader; Caisson Rigs; Car Dumper; Central Redi-Mix Plant; Combination Backhoe Front Endloader Machine, (1 cu. yd. Backhoe Bucket or over or with attachments); Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Paver over 27E cu. ft.; Concrete Placer; Concrete Tube Float; Cranes, all attachments; Cranes, Tower Cranes of all types; Creter Crane; Spider Crane; Crusher, Stone, etc.; Derricks, All; Derrick Boats; Derricks, Traveling; Dredges; Elevators, Outside type Rack & Pinion and Similar Machines; Formless Curb and Gutter Machine; Grader, Elevating; Grader, Motor Grader, Motor Patrol, Auto Patrol, Form Grader, Pull Grader, Subgrader; Guard Rail Post Driver Truck Mounted; Hoists, One, Two and Three Drum; Heavy Duty Self-Propelled Transporter or Prime Mover; Hydraulic Backhoes; Backhoes with shear attachments up to 40' of boom reach; Lubrication Technician; Manipulators; Mucking Machine; Pile Drivers and Skid Rig; Pre-Stress Machine; Pump Cretes Dual Ram; Rock Drill - Crawler or Skid Rig; Rock Drill - Truck Mounted; Rock/Track Tamper; Roto Mill Grinder; Slip-Form Paver; Snow Melters; Soil Test Drill Rig (Truck Mounted); Straddle Buggies; Hydraulic Telescoping Form (Tunnel); Operation of Tieback Machine; Tractor Drawn Belt Loader; Tractor Drawn Belt Loader (with attached pusher - two engineers); Tractor with Boom; Tractaire with Attachments; Traffic Barrier Transfer Machine; Trenching; Truck Mounted Concrete Pump with Boom; Raised or Blind Hole Drills (Tunnel Shaft); Underground Boring and/or Mining Machines 5 ft. in diameter and over tunnel, etc; Underground Boring and/or Mining Machines under 5 ft. in diameter; Wheel Excavator; Widener (APSCO).

Class 2. Batch Plant; Bituminous Mixer; Boiler and Throttle Valve; Bulldozers; Car Loader Trailing Conveyors; Combination Backhoe Front Endloader Machine (Less than 1 cu. yd. Backhoe Bucket or over or with attachments); Compressor and Throttle Valve; Compressor, Common Receiver (3); Concrete Breaker or Hydro Hammer; Concrete Grinding Machine; Concrete Mixer or Paver 7S Series to and including 27 cu. ft.;

Concrete Spreader; Concrete Curing Machine, Burlap Machine, Belting Machine and Sealing Machine; Concrete Wheel Saw; Conveyor Muck Cars (Haglund or Similar Type); Drills, All; Finishing Machine - Concrete; Highlift Shovels or Front Endloader; Hoist - Sewer Dragging Machine; Hydraulic Boom Trucks (All Attachments); Hydro-Blaster; Hydro Excavating (excluding hose work); Laser Screed; All Locomotives, Dinky; Off-Road Hauling Units (including articulating) Non Self-Loading Ejection Dump; Pump Cretes: Squeeze Cretes - Screw Type Pumps, Gypsum Bulker and Pump; Roller, Asphalt; Rotary Snow Plows; Rototiller, Seaman, etc., self-propelled; Self-Propelled Compactor; Spreader - Chip - Stone, etc.; Scraper - Single/Twin Engine/Push and Pull; Scraper - Prime Mover in Tandem (Regardless of Size); Tractors pulling attachments, Sheeps Foot, Disc, Compactor, etc.; Tug Boats.

Class 3. Boilers; Brooms, All Power Propelled; Cement Supply Tender; Compressor, Common Receiver (2); Concrete Mixer (Two Bag and Over); Conveyor, Portable; Farm-Type Tractors Used for Mowing, Seeding, etc.; Forklift Trucks; Grouting Machine; Hoists, Automatic; Hoists, All Elevators; Hoists, Tugger Single Drum; Jeep Diggers; Low Boys; Pipe Jacking Machines; Post-Hole Digger; Power Saw, Concrete Power Driven; Pug Mills; Rollers, other than Asphalt; Seed and Straw Blower; Steam Generators; Stump Machine; Winch Trucks with "A" Frame; Work Boats; Tamper-Form-Motor Driven.

Class 4. Air Compressor; Combination - Small Equipment Operator; Directional Boring Machine; Generators; Heaters, Mechanical; Hydraulic Power Unit (Pile Driving, Extracting, or Drilling); Light Plants, All (1 through 5); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Pumps, Well Points; Vacuum Trucks (excluding hose work); Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches.

Class 5. SkidSteer Loader (all); Brick Forklifts; Oilers.

Class 6. Field Mechanics and Field Welders

Class 7. Dowell Machine with Air Compressor; Gradall and machines of like nature.

OPERATING ENGINEER - FLOATING

Class 1. Craft Foreman; Master Mechanic; Diver/Wet Tender; Engineer; Engineer (Hydraulic Dredge).

Class 2. Crane/Backhoe Operator; Boat Operator with towing endorsement; Mechanic/Welder; Assistant Engineer (Hydraulic Dredge); Leverman (Hydraulic Dredge); Diver Tender.

Class 3. Deck Equipment Operator, Machineryman, Maintenance of Crane (over 50 ton capacity) or Backhoe (115,000 lbs. or more); Tug/Launch Operator; Loader/Dozer and like equipment on Barge, Breakwater Wall, Slip/Dock, or Scow, Deck Machinery, etc.

Class 4. Deck Equipment Operator, Machineryman/Fireman (4 Equipment Units or More); Off Road Trucks; Deck Hand, Tug Engineer, Crane Maintenance (50 Ton Capacity and Under) or Backhoe Weighing (115,000 pounds or less); Assistant Tug Operator.

Class 5. Friction or Lattice Boom Cranes.

Class 6. ROV Pilot, ROV Tender

TERRAZZO FINISHER

The handling of sand, cement, marble chips, and all other materials that may be used by the Mosaic Terrazzo Mechanic, and the mixing, grinding, grouting, cleaning and sealing of all Marble, Mosaic, and Terrazzo work, floors, base, stairs, and wainscoting by hand or machine, and in addition, assisting and aiding Marble, Masonic, and Terrazzo Mechanics.

TRAFFIC SAFETY

Work associated with barricades, horses and drums used to reduce lane usage on highway work, the installation and removal of temporary lane markings, and the installation and removal of temporary road signs.

TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION - EAST & WEST

Class 1. Two or three Axle Trucks. A-frame Truck when used for transportation purposes; Air Compressors and Welding Machines, including those pulled by cars, pick-up trucks and tractors; Ambulances; Batch Gate Lockers; Batch Hopperman; Car and Truck Washers; Carry-alls; Fork Lifts and Hoisters; Helpers; Mechanics Helpers and Greasers; Oil Distributors 2-man operation; Pavement Breakers; Pole Trailer, up to 40 feet; Power Mower Tractors; Self-propelled Chip Spreader; Skipman; Slurry Trucks, 2-man operation; Slurry Truck Conveyor Operation, 2 or 3 man; Teamsters; Unskilled Dumpman; and Truck Drivers hauling warning lights, barricades, and portable toilets on the job site.

Class 2. Four axle trucks; Dump Crets and Adgetors under 7 yards; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turnapulls or Turntrailers when pulling other than self-loading equipment or similar equipment under 16 cubic yards; Mixer Trucks under 7 yards; Ready-mix Plant Hopper Operator, and Winch Trucks, 2 Axles.

Class 3. Five axle trucks; Dump Crets and Adgetors 7 yards and over; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turntrailers or turnapulls when pulling other than self-loading equipment or similar equipment over 16 cubic yards; Explosives and/or Fission Material Trucks; Mixer Trucks 7 yards or over; Mobile Cranes while in transit; Oil Distributors, 1-man operation; Pole Trailer, over 40 feet; Pole and Expandable Trailers hauling material over 50 feet long; Slurry trucks, 1-man operation; Winch trucks, 3 axles or more; Mechanic--Truck Welder and Truck Painter.

Class 4. Six axle trucks; Dual-purpose vehicles, such as mounted crane trucks with hoist and accessories; Foreman; Master Mechanic; Self-loading equipment like P.B. and trucks with scoops on the front.

Other Classifications of Work:

For definitions of classifications not otherwise set out, the Department generally has on file such definitions which are available. If a task to be performed is not subject to one of the classifications of pay set out, the Department will upon being contacted state which neighboring county has such a classification and provide such rate, such rate being deemed to exist by reference in this document. If no neighboring county rate applies to the task, the Department shall undertake a special determination, such special determination being then deemed to have existed under this determination. If a project requires these, or any classification not listed, please contact IDOL at 217-782-1710 for wage rates or clarifications.

LANDSCAPING

Landscaping work falls under the existing classifications for laborer, operating engineer and truck driver. The work performed by landscape plantsman and landscape laborer is covered by the existing classification of laborer. The work performed by landscape operators (regardless of equipment used or its size) is covered by the classifications of operating engineer. The work performed by landscape truck drivers (regardless of size of truck driven) is covered by the classifications of truck driver.

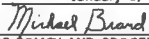
MATERIAL TESTER & MATERIAL TESTER/INSPECTOR I AND II

Notwithstanding the difference in the classification title, the classification entitled "Material Tester I" involves the same job duties as the classification entitled "Material Tester/Inspector I". Likewise, the classification entitled "Material Tester II" involves the same job duties as the classification entitled "Material Tester/Inspector II".

ABV	ABOVE	CU YD	CUBIC YARD	HD	HEAD	PED	PEDESTAL	STD	STANDARD
A/C	ACCESS CONTROL	CULV	CULVERT	HDW	HEADWALL	PNT	POINT	SBI	STATE BOND ISSUE
AC	ACRE	C&G	CURB & GUTTER	HDUTY	HEAVY DUTY	PC	POINT OF CURVATURE	SR	STATE ROUTE
ADJ	ADJUST	D	DEGREE OF CURVE	ha	HECTARE	PI	POINT OF INTERSECTION OF HORIZONTAL CURVE	STA	STATION
AS	AERIAL SURVEYS	DC	DEPRESSED CURVE	HMA	HOT MIX ASPHALT			SPBGR	STEEL PLATE BEAM GUARDRAIL
AGG	AGGREGATE	DET	DETECTOR	HWY	HIGHWAY	PRC	POINT OF REVERSE CURVE	SS	STORM SEWER
AH	AHEAD	DIA	DIAMETER	HORIZ	HORIZONTAL	PT	POINT OF TANGENCY	STY	STORY
APT	APARTMENT	DIST	DISTRICT	HSE	HOUSE	POT	POINT ON TANGENT	ST	STREET
ASPH	ASPHALT	DOM	DOMESTIC	IL	ILLINOIS	POLYETH	POLYETHYLENE	STR	STRUCTURE
AUX	AUXILIARY	DBL	DOUBLE	IMP	IMPROVEMENT	PCC	PORTLAND CEMENT CONCRETE	e	SUPERELEVATION RATE
AGS	AUXILIARY GAS VALVE (SERVICE)	DSEL	DOWNSTREAM ELEVATION	IN DIA	INCH DIAMETER	PP	POWER POLE OR PRINCIPAL POINT	S.E. RUN.	SUPERELEVATION RUNOFF LENGTH
AVE	AVENUE	DSFL	DOWNSTREAM FLOWLINE	INL	INLET	PRM	PRIME	SURF	SURFACE
AX	AXIS OF ROTATION	DR	DRAINAGE OR DRIVE	INST	INSTALLATION	PE	PRIVATE ENTRANCE	SMK	SURVEY MARKER
BK	BACK	DI	DRAINAGE INLET OR DROP INLET	IDS	INTERSECTION DESIGN STUDY	PROF	PROFILE	T	TANGENT DISTANCE
B-B	BACK TO BACK	DRV	DRIVEWAY	INV	INVERT	PGL	PROFILE GRADELINE	T.R.	TANGENT RUNOUT DISTANCE
BKPL	BACKPLATE	DCT	DUCT	IP	IRON PIPE	PROJ	PROJECT	TEL	TELEPHONE
B	BARN	EA	EACH	IR	IRON ROD	P.C.	PROPERTY CORNER	TB	TELEPHONE BOX
BARR	BARRICADE	EB	EASTBOUND	JT	JOINT	PL	PROPERTY LINE	TP	TELEPHONE POLE
BGN	BEGIN	EOP	EDGE OF PAVEMENT	kg	KILOGRAM	PR	PROPOSED	TEMP	TEMPORARY
BM	BENCHMARK	E-CL	EDGE TO CENTERLINE	km	KILOMETER	R	RADIUS	TBM	TEMPORARY BENCH MARK
BIND	BINDER	E-E	EDGE TO EDGE	LS	LANDSCAPING	RR	RAILROAD	TD	TILE DRAIN
BIT	BITUMINOUS	EL	ELEVATION	LN	LANE	RRS	RAILROAD SPIKE	TBE	TO BE EXTENDED
BTM	BOTTOM	ENTR	ENTRANCE	LT	LEFT	RPS	REFERENCE POINT STAKE	TBR	TO BE REMOVED
BLVD	BOULEVARD	EXC	EXCAVATION	LP	LIGHT POLE	REF	REFLECTIVE	TBS	TO BE SAVED
BRK	BRICK	EX	EXISTING	LGT	LIGHTING	RCCP	REINFORCED CONCRETE CULVERT PIPE	TWP	TOWNSHIP
BBOX	BUFFALO BOX	EXPWAY	EXPRESSWAY	LF	LINEAL FEET OR LINEAR FEET	REINF	REINFORCEMENT	TR	TOWNSHIP ROAD
BLDG	BUILDING	E	EXTERNAL DISTANCE OF HORIZONTAL CURVE	L	LITER OR CURVE LENGTH	REM	REMOVAL	TS	TRAFFIC SIGNAL
CIP	CAST IRON PIPE	E	OFFSET DISTANCE TO VERTICAL CURVE	LC	LONG CHORD	RC	REMOVE CROWN	TSCB	TRAFFIC SIGNAL CONTROL BOX
CB	CATCH BASIN	F-F	FACE TO FACE	LNG	LONGITUDINAL	REP	REPLACEMENT	TSC	TRAFFIC SYSTEMS CENTER
C-C	CENTER TO CENTER	FA	FEDERAL AID	L SUM	LUMP SUM	REST	RESTAURANT	TRVS	TRANSVERSE
CL	CENTERLINE OR CLEARANCE	FAI	FEDERAL AID INTERSTATE	MACH	MACHINE	RESURF	RESURFACING	TRVL	TRAVEL
CL-E	CENTERLINE TO EDGE	FAP	FEDERAL AID PRIMARY	MB	MAIL BOX	RET	RETAINING	TRN	TURN
CL-F	CENTERLINE TO FACE	FAS	FEDERAL AID SECONDARY	MH	MANHOLE	RT	RIGHT	TY	TYPE
CTS	CENTERS	FAUS	FEDERAL AID URBAN SECONDARY	MATL	MATERIAL	ROW	RIGHT-OF-WAY	T-A	TYPE A
CERT	CERTIFIED	FP	FENCE POST	MED	MEDIAN	RD	ROAD	TYP	TYPICAL
CHSLD	CHISELED	FE	FIELD ENTRANCE	m	METER	RDWY	ROADWAY	UNDGND	UNDERGROUND
CS	CITY STREET	FH	FIRE HYDRANT	METH	METHOD	RTE	ROUTE	USGS	U.S. GEOLOGICAL SURVEY
CP	CLAY PIPE	FL	FLOW LINE	M	MID-ORDINATE	SAN	SANITARY	USEL	UPSTREAM ELEVATION
CLSD	CLOSED	FB	FOOT BRIDGE	mm	MILLIMETER	SANS	SANITARY SEWER	USFL	UPSTREAM FLOWLINE
CLID	CLOSED LID	FDN	FOUNDATION	mm DIA	MILLIMETER DIAMETER	SEC	SECTION	UTIL	UTILITY
CT	COAT OR COURT	FR	FRAME	MIX	MIXTURE	SEED	SEEDING	VBOX	VALVE BOX
COMB	COMBINATION	F&G	FRAME & GRATE	MBH	MOBILE HOME	SHAP	SHAPING	VV	VALVE VAULT
C	COMMERCIAL BUILDING	FRWAY	FREEWAY	MOD	MODIFIED	S	SHED	VLT	VAULT
CE	COMMERCIAL ENTRANCE	GAL	GALLON	MFT	MOTOR FUEL TAX	SH	SHEET	VEH	VEHICLE
CONC	CONCRETE	GALV	GALVANIZED	N & BC	NAIL & BOTTLE CAP	SHLD	SHOULDER	VP	VENT PIPE
CONST	CONSTRUCT	G	GARAGE	N & C	NAIL & CAP	SW	SIDEWALK OR SOUTHWEST	VERT	VERTICAL
CONTD	CONTINUED	GM	GAS METER	N & W	NAIL & WASHER	SIG	SIGNAL	VC	VERTICAL CURVE
CONT	CONTINUOUS	GV	GAS VALVE	NOAA	NATIONAL OCEANIC ATMOSPHERIC	SOD	SODDING	VPC	VERTICAL POINT OF CURVATURE
COR	CORNER	GRAN	GRANULAR		ADMINISTRATION	SM	SOLID MEDIAN	VPI	VERTICAL POINT OF INTERSECTION
CORR	CORRUGATED	GR	GRATE	NC	NORMAL CROWN	SB	SOUTHBOUND	VPT	VERTICAL POINT OF TANGENCY
CMP	CORRUGATED METAL PIPE	GRVL	GRAVEL	NB	NORTHBOUND	SE	SOUTHEAST	WM	WATER METER
CNTY	COUNTY	GND	GROUND	NE	NORTHEAST	SPL	SPECIAL	WV	WATER VALVE
CH	COUNTY HIGHWAY	GUT	GUTTER	NW	NORTHWEST	SD	SPECIAL DITCH	WMAIN	WATER MAIN
CSE	COURSE	GP	GUY POLE	OLID	OPEN LID	SQ FT	SQUARE FEET	WB	WESTBOUND
XSECT	CROSS SECTION	GW	GUY WIRE	PAT	PATTERN	m ²	SQUARE METER	WIDFL	WILDFLOWERS
m ³	CUBIC METER	HH	HANDHOLE	PVD	PAVED	mm ²	SQUARE MILLIMETER	W	WITH
mm ³	CUBIC MILLIMETER	HATCH	HATCHING	PVMT	PAVEMENT	SQ YD	SQUARE YARD	WO	WITHOUT
				PM	PAVEMENT MARKING	STB	STABILIZED		

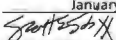

Illinois Department of Transportation

PASSED
January 1, 2011



ENGINEER OF POLICY AND PROCEDURES

APPROVED
January 1, 2011



ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS (Sheet 1 of 8)
1-1-11	Updated abbreviations and symbols.	
1-1-08	Updated abbreviations and symbols.	
		STANDARD 000001-06

ADJUSTMENT ITEMS			ALIGNMENT ITEMS			CONTOUR ITEMS		
	EX	PR		EX	PR		EX	PR
Structure To Be Adjusted		ADJ	Baseline			Approx. Index Line		
Structure To Be Cleaned		C	Centerline			Approx. Intermediate Line		
Main Structure To Be Filled		FM	Centerline Break Circle	o	○	Index Contour		
Structure To Be Filled		F	Baseline Symbol	\	\	Intermediate Contour		
Structure To Be Filled Special		FSP	Centerline Symbol	Ⓢ	Ⓢ	DRAINAGE ITEMS		
Structure To Be Removed		R	PI Indicator	Δ	Δ	Channel or Stream Line		
Structure To Be Reconstructed		REC	Point Indicator	o	o	Culvert Line		
Structure To Be Reconstructed Special		RSP	Horizontal Curve Data (Half Size)	CURVE P.I. STA= Δ= D= R= T= L= E= e= T.R.= S.E. RUN= P.C. STA= P.T. STA=	CURVE P.I. STA= Δ= D= R= T= L= E= e= T.R.= S.E. RUN= P.C. STA= P.T. STA=	Grading & Shaping Ditches		
Frame and Grate To Be Adjusted		A	BOUNDARIES ITEMS			Drainage Boundary Line		
Frame and Lid To Be Adjusted		⬡	Dashed Property Line			Paved Ditch		
Domestic Service Box To Be Adjusted		⬠	Solid Property/Lot Line			Aggregate Ditch		
Valve Vault To Be Adjusted		⬢	Section/Grant Line			Pipe Underdrain		
Special Adjustment		⬢	Quarter Section Line			Storm Sewer		
Item To Be Abandoned		AB	Quarter/Quarter Section Line			Flowline		
Item To Be Moved		M	County/Township Line			Ditch Check		
Item To Be Relocated		REL	State Line			Headwall		
Pavement Removal and Replacement			Iron Pipe Found	○		Inlet		
			Iron Pipe Set	●		Manhole		
			Survey Marker	⊙		Summit		
			Property Line Symbol	Ⓢ		Roadway Ditch Flow		
			Same Ownership Symbol (Half Size)	↗		Swale		
			Northwest Quarter Corner (Half Size)	Ⓢ		Catch Basin		
			Section Corner (Half Size)	Ⓢ		Culvert End Section		
			Southeast Quarter Corner (Half Size)	Ⓢ		Water Surface Indicator		
						Riprap		

EROSION & SEDIMENT CONTROL ITEMS		EX	PR	NON-HIGHWAY IMPROVEMENT ITEMS		EX	PR	EXISTING LANDSCAPING ITEMS (contd.)		EX	PR
Cleaning & Grading Limits				Noise Attn./Levee				Seeding Class 5			
Dike				Field Line				Seeding Class 7			
Erosion Control Fence				Fence				Seedlings Type 1			
Perimeter Erosion Barrier				Base of Levee				Seedlings Type 2			
Temporary Fence				Mailbox				Sodding			
Ditch Check Temporary				Multiple Mailboxes				Mowstake w/Sign			
Ditch Check Permanent				Pay Telephone				Tree Trunk Protection			
Inlet & Pipe Protection				Advertising Sign				Evergreen Tree			
Sediment Basin				LANDSCAPING ITEMS		EX	PR	Shade Tree			
Erosion Control Blanket				Contour Mounding Line				LIGHTING		EX	PR
Fabric Formed Concrete Revetment Mat				Fence				Duct			
Turf Reinforcement Mat				Fence Post				Conduit			
Mulch Temporary				Shrubs				Electrical Aerial Cable			
Mulch Method 1				Mowline				Electrical Buried Cable			
Mulch Method 2 Stabilized				Perennial Plants				Controller			
Mulch Method 3 Hydraulic				Seeding Class 2				Underpass Luminaire			
				Seeding Class 2A				Power Pole			
				Seeding Class 4							
				Seeding Class 4 & 5 Combined							

LIGHTING (contd.)

EX

PR

Pull Point



Handhole



Heavy Duty Handhole



Junction Box



Light Unit Comb.



Electrical Ground



Traffic Flow Arrow



High Mast Pole
(Half Size)



Light Unit-1



PAVEMENT (MISC.)

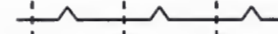
EX

PR

Keyed Long. Joint



Keyed Long. Joint w/Tie Bars



Sawed Long. Joint w/Tie Bars



Bituminous Shoulder



Bituminous Taper



Stabilized Driveway



Widening



PAVEMENT MARKINGS

EX

PR

Bike Lane Symbol



Bike Lane Text



Handicap Symbol



RR Crossing



Raised Marker Amber 1 Way



Raised Marker Amber 2 Way



Raised Marker Crystal 1 Way



Two Way Turn Left



Shoulder Diag. Pattern



Skip-Dash White



Skip-Dash Yellow



Stop Line



Solid Line



Double Centerline



Dotted Lines



CL 2Ln 2Way
RRPM 12.2 m (40') o.c.



CL 2Ln 2Way
RRPM 80' (24.4 m) o.c.



CL Multilane Div.
RRPM 40' (12.2 m) o.c.



CL Multilane Div.
RRPM 80' (24.4 m) o.c.



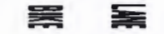
CL Multilane Div. Dbl.
RRPM 80' (24.4 m) o.c.



CL Multilane Undiv.



Two Way Turn Left Line



**STANDARD SYMBOLS,
ABBREVIATIONS
AND PATTERNS**

(Sheet 4 of 8)

STANDARD 000001-06

Illinois Department of Transportation	
PASSED January 1, 2011 Michael Brand ENGINEER OF POLICY AND PROCEDURES	ISSUED 1-1-97
APPROVED January 1, 2011 Scott Smith ENGINEER OF DESIGN AND ENVIRONMENT	

PAVEMENT MARKINGS
(contd.)

Urban Combination Left

Urban Combination Right

Urban Left Turn Arrow

Urban Right Turn Arrow

Urban Left Turn Only

Urban Right Turn Only

Urban Thru Only

Urban U-Turn

Urban Combined U-Turn

Rural Combination Left

Rural Combination Right

Rural Left Turn Arrow

Rural Right Turn Arrow

Rural Left Turn Only

Rural Right Turn Only

Rural Thru Only

EX

PR

ONLY ONLY ONLY

ONLY ONLY ONLY

RAILROAD ITEMS

EX

PR

Abandoned Railroad

Railroad

Railroad Point

Control Box

Crossing Gate

Flashing Signal

Railroad Cant. Mast Arm

Crossbuck

REMOVAL ITEMS

EX

PR

Removal Tic

Bituminous Removal

Hatch Pattern

Tree Removal Single

RIGHT OF WAY ITEMS

EX

PR

Future ROW Corner Monument

ROW Marker

ROW Line

Easement

Temporary Easement

**STANDARD SYMBOLS,
ABBREVIATIONS
AND PATTERNS**

(Sheet 5 of 8)

STANDARD 000001-06



Illinois Department of Transportation

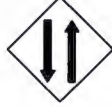
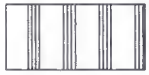
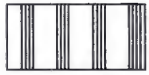
PASSED January 1, 2011

Michael Beard
ENGINEER OF POLICY AND PROCEDURES

APPROVED January 1, 2011

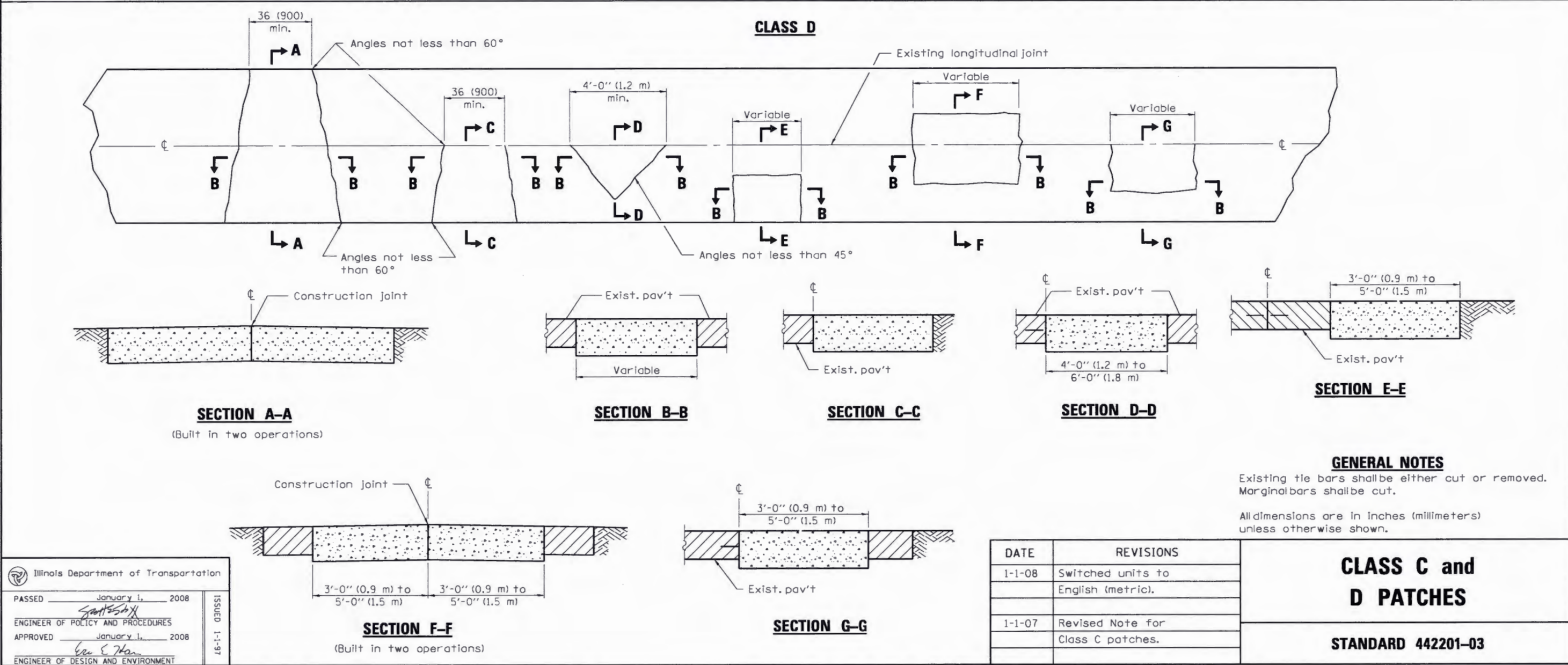
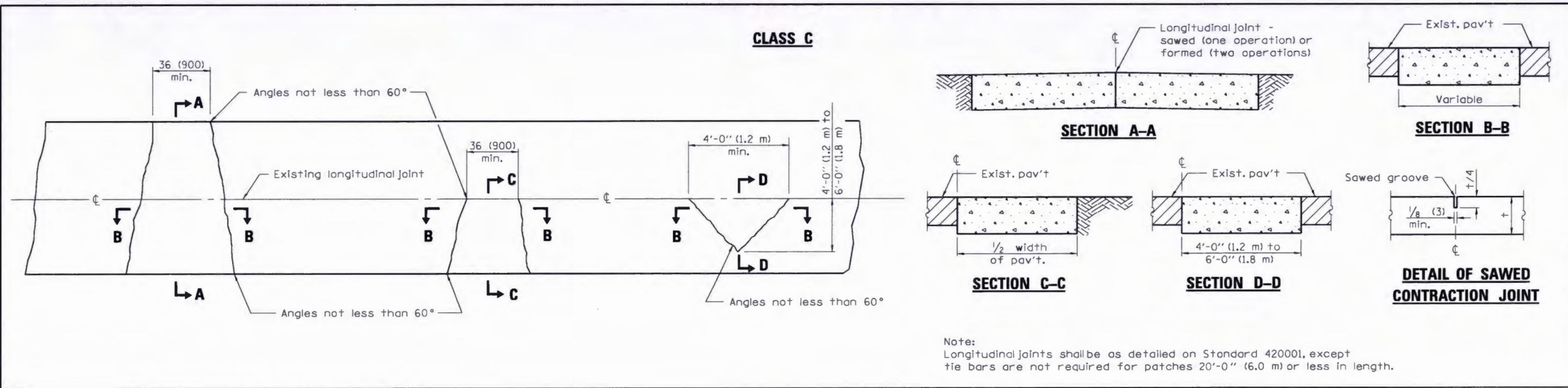
Scott Smith
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

RIGHT OF WAY ITEMS (contd.)		EX	PR	ROADWAY PROFILES		EX	PR	SIGNING ITEMS (contd.)		EX	PR
Access Control Line	—		— AC —	P.I. Indicator		▲	▲	Reverse Left W1-4L (Half Size)			
Access Control Line & ROW	—	— AC —	— AC —	Point Indicator		○	○	Reverse Right W1-4R (Half Size)			
Access Control Line & ROW with Fence	—	— AC —	— AC —	Earthworks Balance Point				Two Way Traffic Sign W6-3 (Half Size)			
Excess ROW Line			— XS —	Begin Point				Detour Ahead W20-2(O) (Half Size)			
ROADWAY PLAN ITEMS		EX	PR	SIGNING ITEMS		EX	PR	Left Lane Closed Ahead W20-5L(O) (Half Size)			
Cable Barrier				Vert. Curve Data		VPI = ELEV = E =	VPI = ELEV = E =	Right Lane Closed Ahead W20-5R(O) (Half Size)			
Concrete Barrier				Ditch Profile Left Side		-----	-----	Road Closed Ahead W20-3(O) (Half Size)			
Edge of Pavement		-----	-----	Ditch Profile Right Side		-----	-----	Road Construction Ahead W20-1-(O) (Half Size)			
Bit Shoulders, Medians and C&G Line		-----	-----	Roadway Profile Line		-----	-----	Single Lane Ahead (Half Size)			
Aggregate Shoulder		-----	-----	Storm Sewer Profile Left Side		-----	-----	Transition Left W4-2L (Half Size)			
Sidewalks, Driveways		-----	-----	Storm Sewer Profile Right Side		-----	-----	Transition Right W4-2R (Half Size)			
Guardrail											
Guardrail Post		□									
Traffic Sign		⏏	⏏								
Corrugated Median											
Impact Attenuator											
North Arrow with District Office (Half Size)											
Match Line			STA. 45+00								
Slope Limit Line		-----									
Typical Cross-Section Line		-----	-----								
 Illinois Department of Transportation PASSED January 1, 2011 <i>Michael Brand</i> ENGINEER OF POLICY AND PROCEDURES APPROVED January 1, 2011 <i>Scott Smith</i> ENGINEER OF DESIGN AND ENVIRONMENT ISSUED 1-1-97				Cone, Drum or Barricade			○				
				Barricade Type II							
				Barricade Type III							
				Barricade With Edge Line							
				Flashing Light Sign			○				
				Panels I							
				Panels II							
				Direction of Traffic							
				Sign Flag (Half Size)							
STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS (Sheet 6 of 8)										STANDARD 000001-06	

SIGNING ITEMS (contd.)			STRUCTURES ITEMS			TRAFFIC SHEET ITEMS		
	EX	PR		EX	PR		EX	PR
One Way Arrow Lrg. W1-6-(O) (Half Size)			Box Culvert Barrel	-----	_____	Cable Number		
Two Way Arrow Large W1-7-(O) (Half Size)			Box Culvert Headwall	_____	_____	Left Turn Green		
Detour M4-10L-(O) (Half Size)			Bridge Pier	-----	-----	Left Turn Yellow		
Detour M4-10R-(O) (Half Size)			Bridge	_____	_____	Signal Backplate		
One Way Left R6-1L (Half Size)			Retaining Wall	-----	_____	Signal Section 8" (200 mm)		
One Way Right R6-1R (Half Size)			Temporary Sheet Piling			Signal Section 12" (300 mm)		
Left Turn Lane R3-1100L (Half Size)						Walk/Don't Walk Letters		
Keep Left R4-7AL (Half Size)						Walk/Don't Walk Symbols		
Keep Left R4-7BL (Half Size)								
Keep Right R4-7AR (Half Size)								
Keep Right R4-7BR (Half Size)								
Stop Here On Red R10-6-AL (Half Size)								
Stop Here On Red R10-6-AR (Half Size)								
No Left Turn R3-2 (Half Size)								
No Right Turn R3-1 (Half Size)								
Road Closed R11-2 (Half Size)								
Road Closed Thru Traffic R11-2 (Half Size)								
Illinois Department of Transportation PASSED <u>January 1, 2011</u> <i>Michael Brand</i> ENGINEER OF POLICY AND PROCEDURES APPROVED <u>January 1, 2011</u> <i>Scott Schick</i> ENGINEER OF DESIGN AND ENVIRONMENT ISSUED 1-1-97						TRAFFIC SIGNAL ITEMS EX PR Galv. Steel Conduit Underground Cable Detector Loop Line Detector Loop Large Detector Loop Small Detector Loop Quadrapole		
						STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS (Sheet 7 of 8) STANDARD 000001-06		

TRAFFIC SIGNAL ITEMS (contd.)			UNDERGROUND UTILITY ITEMS			UTILITY ITEMS (contd.)		
	EX	PR		EX	PR		EX	PR
Detector Raceway			Cable TV			Traffic Signal		
Aluminum Mast Arm			Electric Cable			Traffic Signal Control Box		
Steel Mast Arm			Fiber Optic			Water Meter		
Veh. Detector Magnetic			Gas Pipe			Water Meter Valve Box		
Conduit Splice			Oil Pipe			Profile Line		
Controller			Sanitary Sewer			Aerial Power Line		
Gulfbox Junction			Telephone Cable			VEGETATION ITEMS		
Wood Pole			Water Pipe				EX	PR
Temp. Signal Head			UTILITIES ITEMS			Deciduous Tree		
Handhole				EX	PR	Bush or Shrub		
Double Handhole			Controller			Evergreen Tree		
Heavy Duty Handhole			Double Handhole			Stump		
Junction Box			Fire Hydrant			Orchard/Nursery Line		
Ped. Pushbutton Detector			GuyWire or Deadman Anchor			Vegetation Line		
Ped. Signal Head			Handhole			Woods & Bush Line		
Power Pole Service			Heavy Duty Handhole			WATER FEATURE ITEMS		
Priority Veh. Detector			Junction Box				EX	PR
Signal Head			Light Pole			Stream or Drainage Ditch		
Signal Head w/Backplate			Manhole			Waters Edge		
Signal Post			Pipeline Warning Sign			Water Surface Indicator		
Closed Circuit TV			Power Pole			Water Point		
Video Detector System			Power Pole with Light			Disappearing Ditch		
			Sanitary Sewer Cleanout			Marsh		
			Splice Box Above Ground			Marsh/Swamp Boundary		
			Telephone Splice Box Above Ground					
			Telephone Pole					



Illinois Department of Transportation

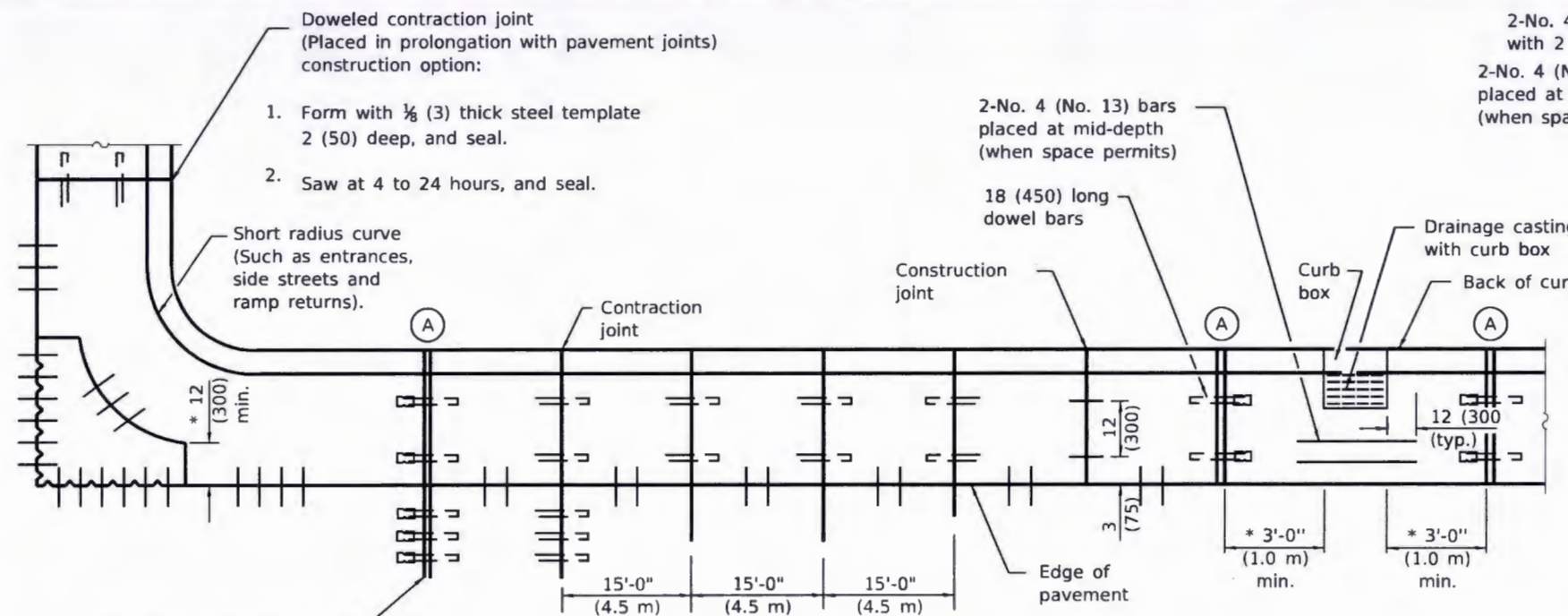
PASSED January 1, 2008

ENGINEER OF POLICY AND PROCEDURES

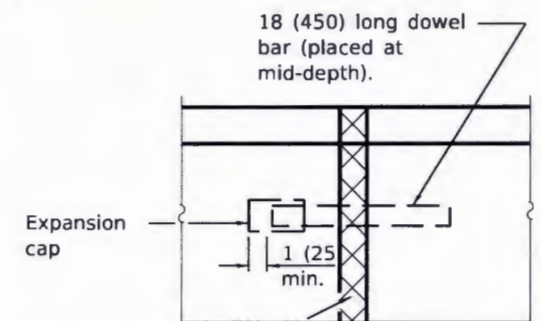
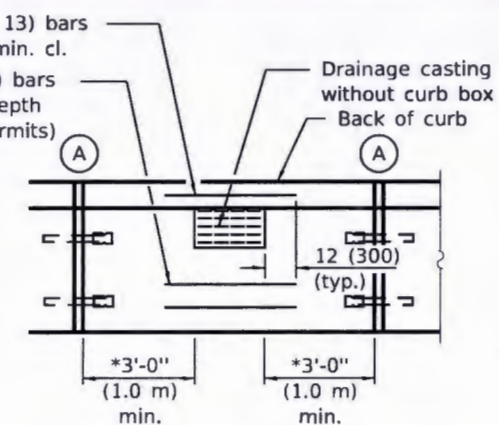
APPROVED January 1, 2008

ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

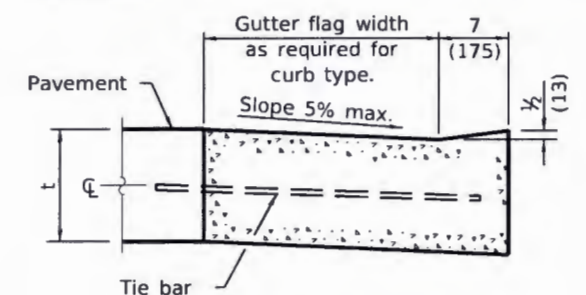


PLAN
ADJACENT TO PCC PAVEMENT OR PCC BASE COURSE



DETAIL A
EXPANSION JOINT

Full depth & width
1 (25) - thick (min.)
preformed expansion
joint filler.



**DEPRESSED CURB ADJACENT
TO CURB RAMP ACCESSIBLE
TO THE DISABLED**

GENERAL NOTES

The bottom slope of combination curb and gutter constructed adjacent to pcc pavement shall be the same slope as the subbase or 6% when subbase is omitted.

t = Thickness of pavement.

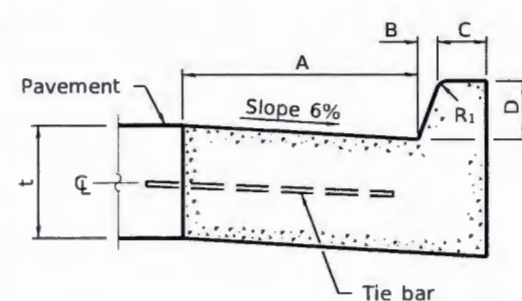
Longitudinal joint tie bars shall be No. 6 (No. 19) at 36 (900) centers in accordance with details for longitudinal construction joint shown on Standard 420001.

A minimum clearance of 2 (50) between the end of the tie bar and the back of the curb shall be maintained.

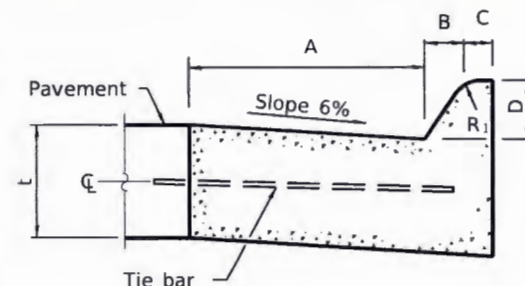
The dowel bars shown in contraction joints will only be required for monolithic construction.

See Standard 606301 for details of corner islands.

All dimensions are in inches (millimeters) unless otherwise shown.



BARRIER CURB

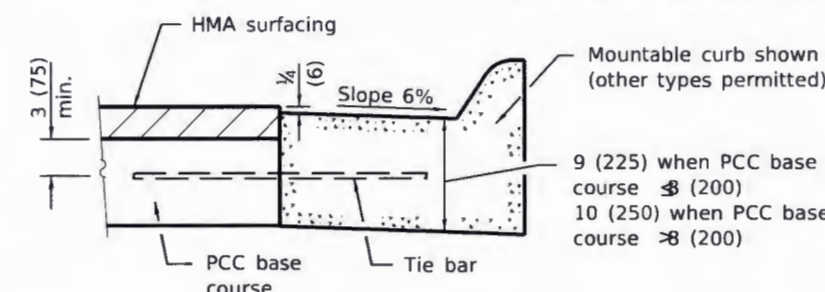


MOUNTABLE CURB

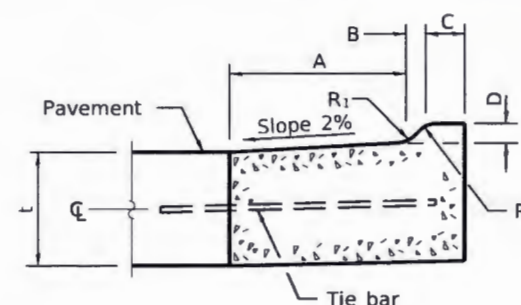
TYPE	A	B	C	D	R ₁
B-6.06 *	6	1	6	6	1
(B-15.15)	(150)	(25)	(150)	(150)	(25)
B-6.12	12	1	6	6	1
(B-15.3)	(300)	(25)	(150)	(150)	(25)
B-6.18	18	1	6	6	1
(B-15.45)	(450)	(25)	(150)	(150)	(25)
B-6.24	24	1	6	6	1
(B-15.60)	(600)	(25)	(150)	(150)	(25)
B-9.12	12	2	5	9	1
(B-22.30)	(300)	(50)	(125)	(225)	(25)
B-9.18	18	2	5	9	1
(B-22.45)	(450)	(50)	(125)	(225)	(25)
B-9.24	24	2	5	9	1
(B-22.60)	(600)	(50)	(125)	(225)	(25)

* For corner islands only.

TYPE	A	B	C	D	R ₁	R ₂
M-2.06	6	2	4	2	3	2
(M-5.15)	(150)	(50)	(100)	(50)	(75)	(50)
M-2.12	12	2	4	2	3	2
(M-5.30)	(300)	(50)	(100)	(50)	(75)	(50)
M-4.06	6	4	3	4	3	
(M-10.15)	(150)	(100)	(75)	(100)	(75)	NA
M-4.12	12	4	3	4	3	
(M-10.30)	(300)	(100)	(75)	(100)	(75)	NA
M-4.18	18	4	3	4	3	
(M-10.45)	(450)	(100)	(75)	(100)	(75)	NA
M-4.24	24	4	3	4	3	
(M-10.60)	(600)	(100)	(75)	(100)	(75)	NA
M-6.06	6	6	2	6	2	
(M-15.15)	(150)	(150)	(50)	(150)	(50)	NA
M-6.12	12	6	2	6	2	
(M-15.30)	(300)	(150)	(50)	(150)	(50)	NA
M-6.18	18	6	2	6	2	
(M-15.45)	(450)	(150)	(50)	(150)	(50)	NA
M-6.24	24	6	2	6	2	
(M-15.60)	(600)	(150)	(50)	(150)	(50)	NA



**ADJACENT TO PCC BASE COURSE
WITH HMA SURFACING**



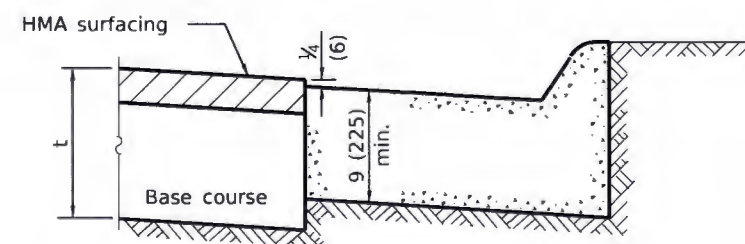
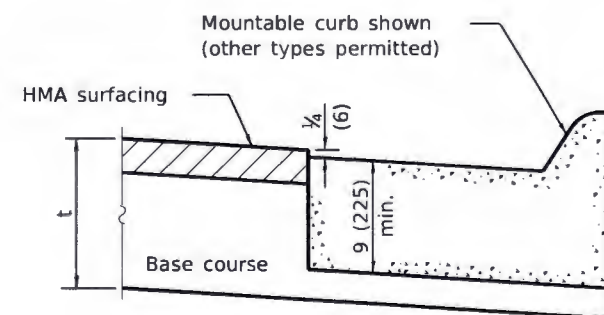
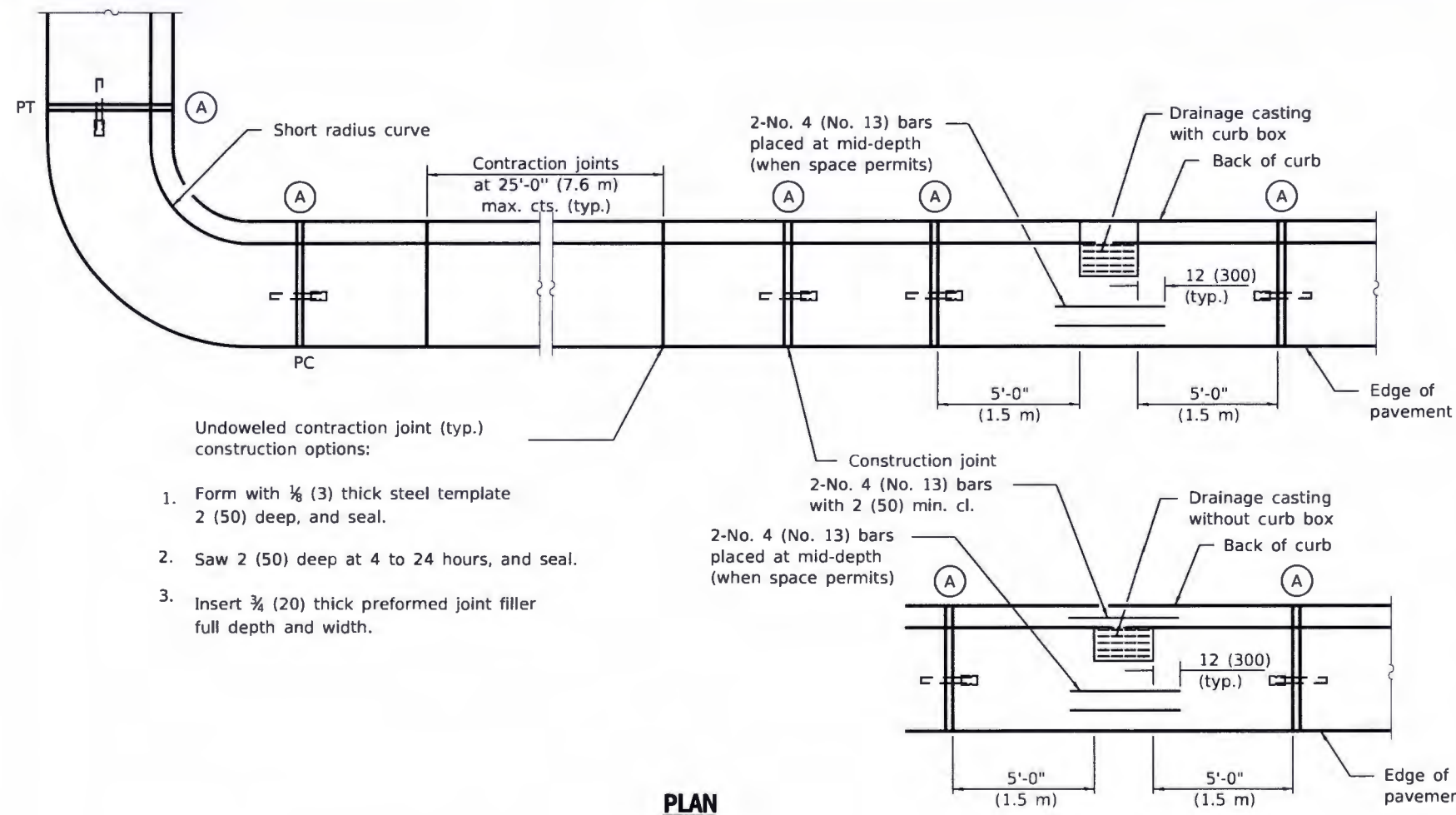
M-2.06 (M-5.15) and M-2.12 (M-5.30)

DATE	REVISIONS
1-1-18	Revised General Note for tie bar spacing to 36 (900) cts.
1-1-15	Added B-6.06 (B-15.15) barrier curb and gutter to table (corner islands only).

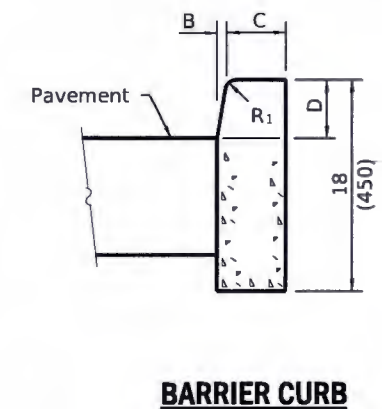
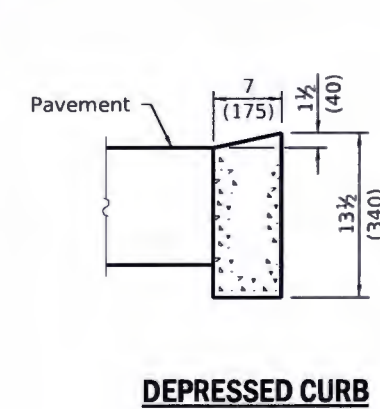
CONCRETE CURB TYPE B AND COMBINATION CONCRETE CURB AND GUTTER

(Sheet 1 of 2)

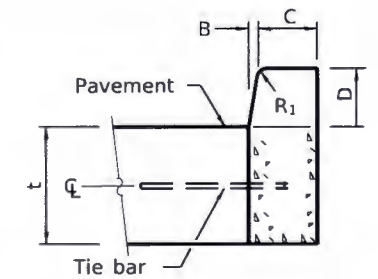
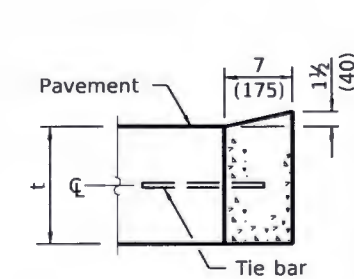
STANDARD 606001-07



ADJACENT TO FLEXIBLE PAVEMENT



ADJACENT TO FLEXIBLE PAVEMENT



DEPRESSED CURB

BARRIER CURB

ADJACENT TO PCC PAVEMENT OR PCC BASE COURSE

CONCRETE CURB TYPE B

**CONCRETE CURB TYPE B
AND COMBINATION
CONCRETE CURB AND GUTTER**

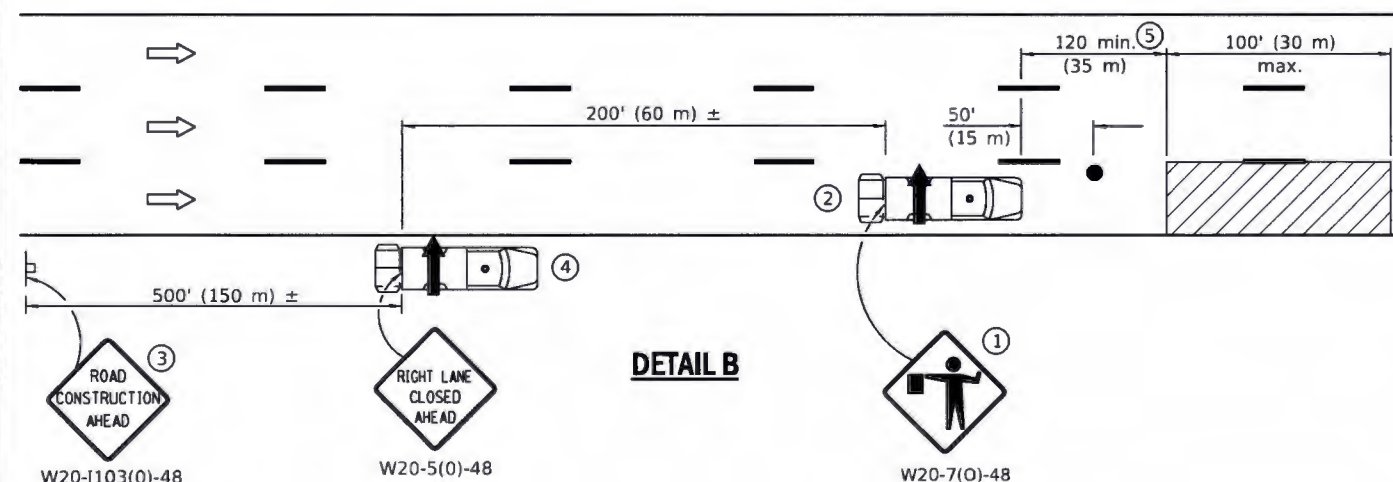
(Sheet 2 of 2)

STANDARD 606001-07



TYPICAL APPLICATIONS

- Landscaping work
- Utility work
- Pavement marking
- Weed spraying
- Roadometer measurements
- Debris cleanup
- Crack pouring



- ① Flaggers are required when workers are on the pavement.
- ② For striping operations only.
See sign arrow detail on this standard.
- ③ For stationary operations which are on the roadway or shoulder, greater than 15 minutes and up to 1 hour.
- ④ Omit truck, attenuator and arrow board when no shoulder exists due to curb and gutter.
- ⑤ The distance between the work and the lead truck may vary according to terrain or paint/crack sealing time.



G20-I101-2430
(appropriate arrow)
② (when striping only)

GENERAL NOTES

This Standard is used where any vehicle, equipment, workers or their activities will require:

- 1) stationary operations up to 1 hour, or
- 2) a continuous or intermittent moving operation where the average speed of movement is greater than 1 mph (2 km/h).

This Standard is also applicable when work is being performed in the left lane(s) or on the median shoulder. Under these conditions, KEEP RIGHT signs shall be substituted for KEEP LEFT signs and arrow board indications shall be directed to the right.

All dimensions are in inches (millimeter) unless otherwise shown.

SYMBOLS



Arrow board



Work area



Truck with flashing amber light



Truck/Trailer mounted attenuator



Flagger with traffic control sign



Sign

DATE	REVISIONS
1-1-17	Revised 'NOTE' on DETAIL A
	to use DETAIL B in lieu of
	DETAIL C.
4-1-16	Rev. gen. notes. Added
	note (5). Rev. dist. between
	work and lead truck.

**LANE CLOSURE, MULTILANE,
INTERMITTENT OR MOVING OPER.,
FOR SPEEDS ≤ 40 MPH**

STANDARD 701427-05

Illinois Department of Transportation

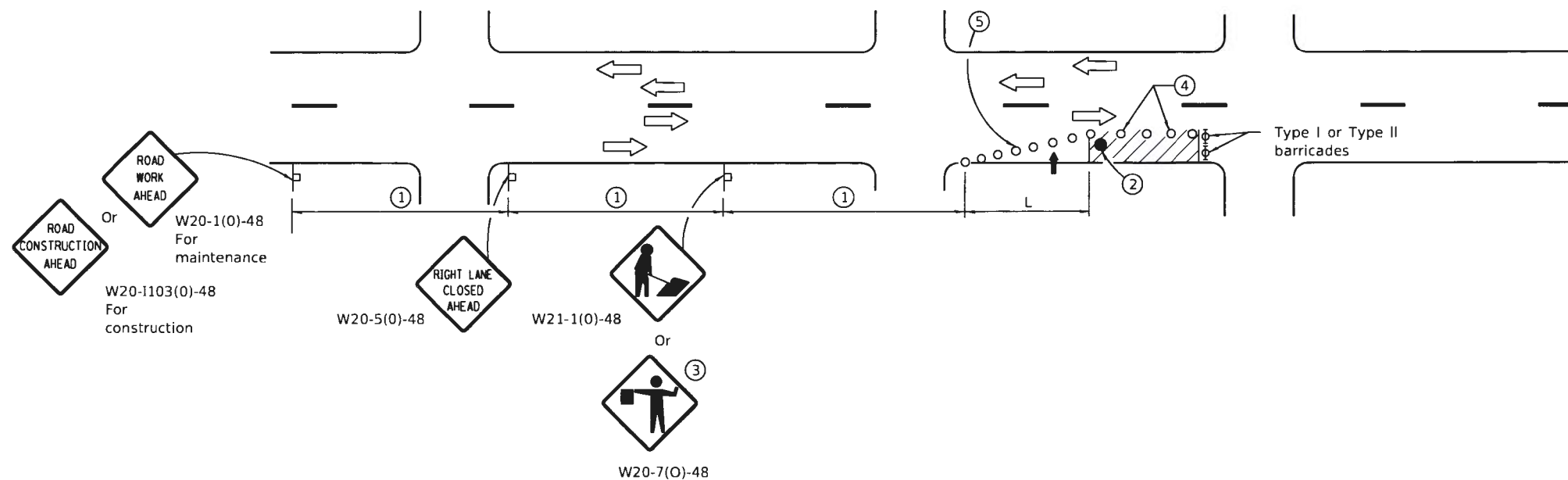
PASSED January 1, 2017

ENGINEER OF SAFETY PROG. AND ENGINEERING

APPROVED January 1, 2017

ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-11



SIGN SPACING	
Posted Speed	Sign Spacing
55	500' (150 m)
50-45	350' (100 m)
<45	200' (60 m)

SYMBOLS

- Arrow board
- Cone, drum or barricade
- Sign on portable or permanent support
- Work area
- Barricade or drum with flashing light
- Flagger with traffic control sign.

- ① Refer to SIGN SPACING TABLE for distances.
- ② Required for speeds > 40 mph.
- ③ Use flagger sign only when flagger is present.
- ④ Cones at 25' (8 m) centers for 250' (75 m). Additional cones may be placed at 50' (15 m) centers. When drums or Type I or Type II barricades are used, the interval between devices may be doubled.
- ⑤ Cones, drums or barricades at 20' (6 m) centers in taper.

GENERAL NOTES

This Standard is used where at any time, day or night, any vehicle, equipment, workers or their activities encroach on the pavement requiring the closure of one traffic lane in an Urban area.

Calculate L as follows:

SPEED LIMIT	FORMULAS	
	English	(Metric)
40 mph (70 km/h) or less:	$L = \frac{WS^2}{60}$	$L = \frac{WS^2}{150}$
45 mph (80 km/h) or greater:	$L = (W)(S)$	$L = 0.65(W)(S)$

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2015
 ENGINEER OF SAFETY ENGINEERING

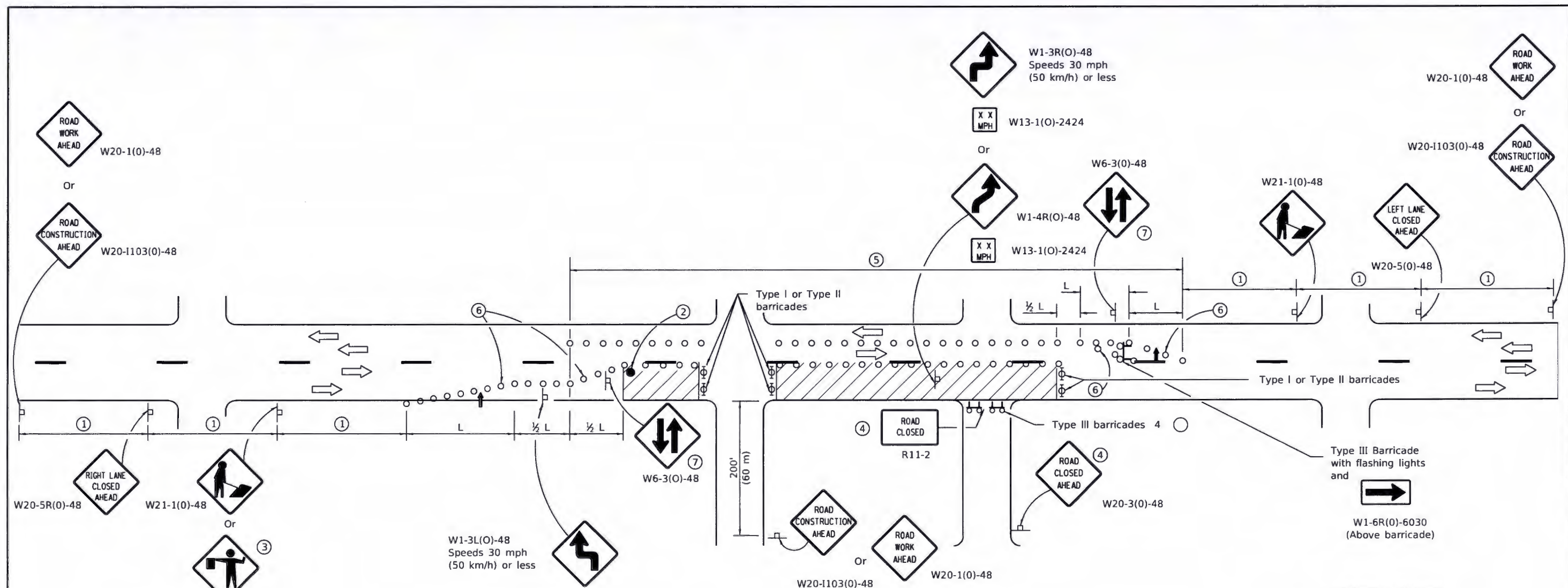
APPROVED January 1, 2015
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-15	Renamed standard. Moved case on Sheet 2 to new Highway Standard.
1-1-14	Revised workers sign number to agree with current MUTCD.

URBAN SINGLE LANE CLOSURE, MULTILANE, 2W WITH MOUNTABLE MEDIAN

STANDARD 701606-10



SIGN SPACING	
Posted Speed	Sign Spacing
55	500' (150 m)
50-45	350' (100 m)
<45	200' (60 m)

- W1-3L(O)-48
Speeds 30 mph
(50 km/h) or less
- W13-1(O)-2424
- Or
- W1-4L(O)-48
- W13-1(O)-2424
- W6-3(O)-48
- W20-1103(O)-48
- W20-1(O)-48
- W20-3(O)-48
- W20-5R(O)-48
- W21-1(O)-48
- W20-7(O)-48

SYMBOLS

- Arrow board
- Cone, drum or barricade
- Sign on portable or permanent support
- Work area
- Barricade or drum with flashing light
- Type III barricade with flashing lights
- Flagger with traffic control sign.

- ① Refer to SIGN SPACING TABLE for distances.
- ② Required for speeds > 40 mph.
- ③ Use flagger sign only when flagger is present.
- ④ For approved sideroad closures.
- ⑤ Cones at 25' (8 m) centers for 250' (75 m). Additional cones may be placed at 50' (15 m) centers. When drums or Type I or Type II barricades are used, the interval between devices may be doubled.
- ⑥ Cones, drums or barricades at 20' (6 m) centers in taper.
- ⑦ Repeat every 1 mile (1.6 km).

GENERAL NOTES

This Standard is used where at any time, day or night, any vehicle, equipment, workers or their activities encroach on the pavement requiring the closure of more than one traffic lane in an Urban area.

Calculate L as follows:

SPEED LIMIT	FORMULAS	
	English	(Metric)
40 mph (70 km/h) or less:	$L = \frac{WS^2}{60}$	$L = \frac{WS^2}{150}$
45 mph (80 km/h) or greater:	$L = (W)(S)$	$L = 0.65(W)(S)$

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED April 1, 2016

ENGINEER OF SAFETY ENGINEERING

APPROVED April 1, 2016

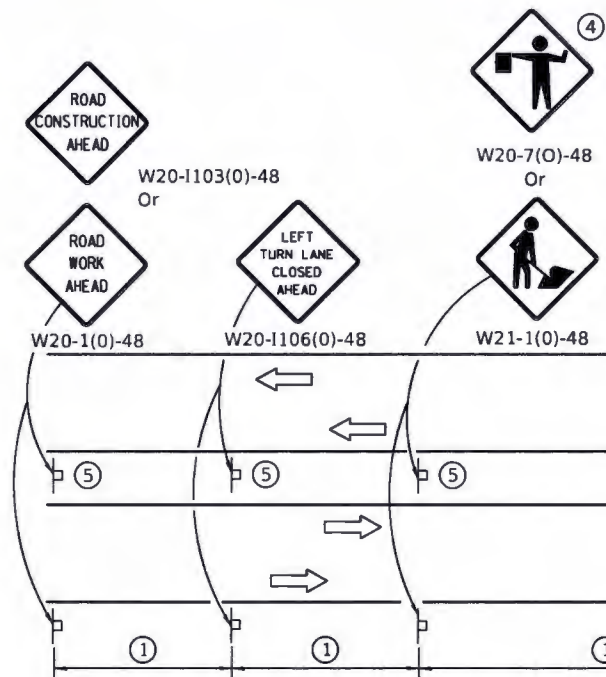
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-15

DATE	REVISIONS
4-1-16	Moved first reverse curve/turn sign to middle of tangent.
1-1-15	New Standard.

URBAN HALF ROAD CLOSURE, MULTILANE, 2W WITH MOUNTABLE MEDIAN

STANDARD 701611-01



LEFT TURN LANE OR CENTER MEDIAN OPERATIONS

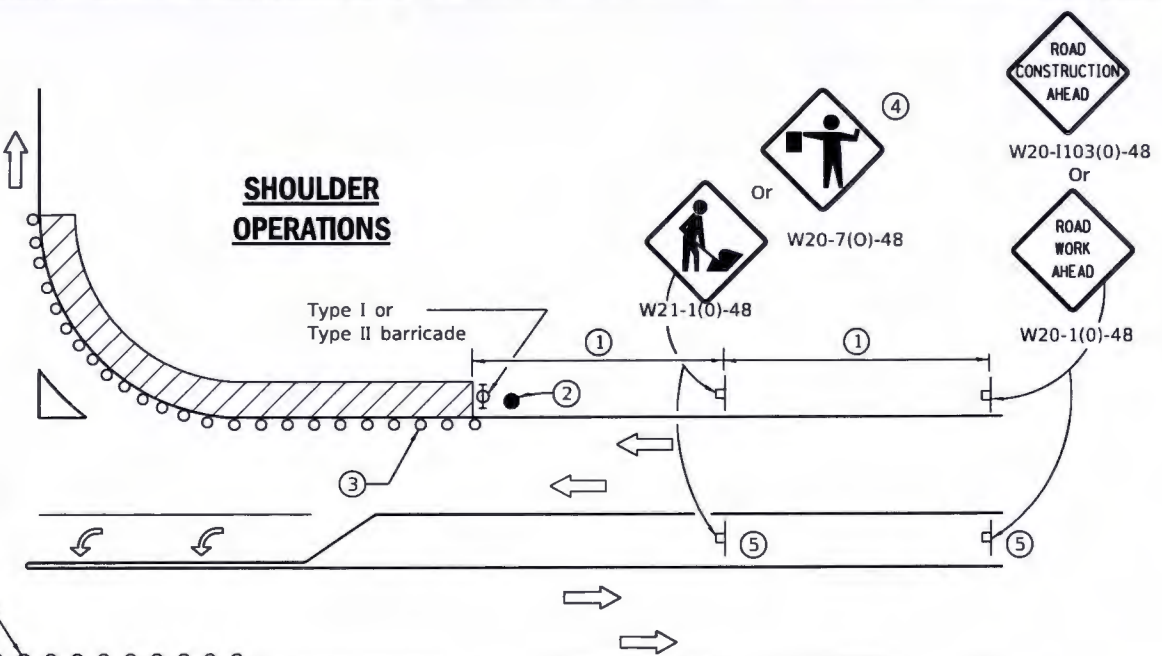
- ① Refer to SIGN SPACING TABLE for distance.
- ② Required for speed > 40 mph.
- ③ Cones at 25' (8 m) centers for 250' (75 m). Additional cones may be placed at 50' (15 m) centers. When drums or Type I or Type II barricades are used, the interval between devices may be doubled.
- ④ Use flagger sign only when flagger is present.
- ⑤ Omit this sign when median is less than 10' (3 m) or for bi-directional turn lanes.
- ⑥ Cones, drums or barricades at 20' (6 m) centers in taper.
- ⑦ Advanced arrow board required for speeds > 45 mph.
- ⑧ Three Type II barricades, drums or vertical barricades at 50' (15 m) centers.

SYMBOLS

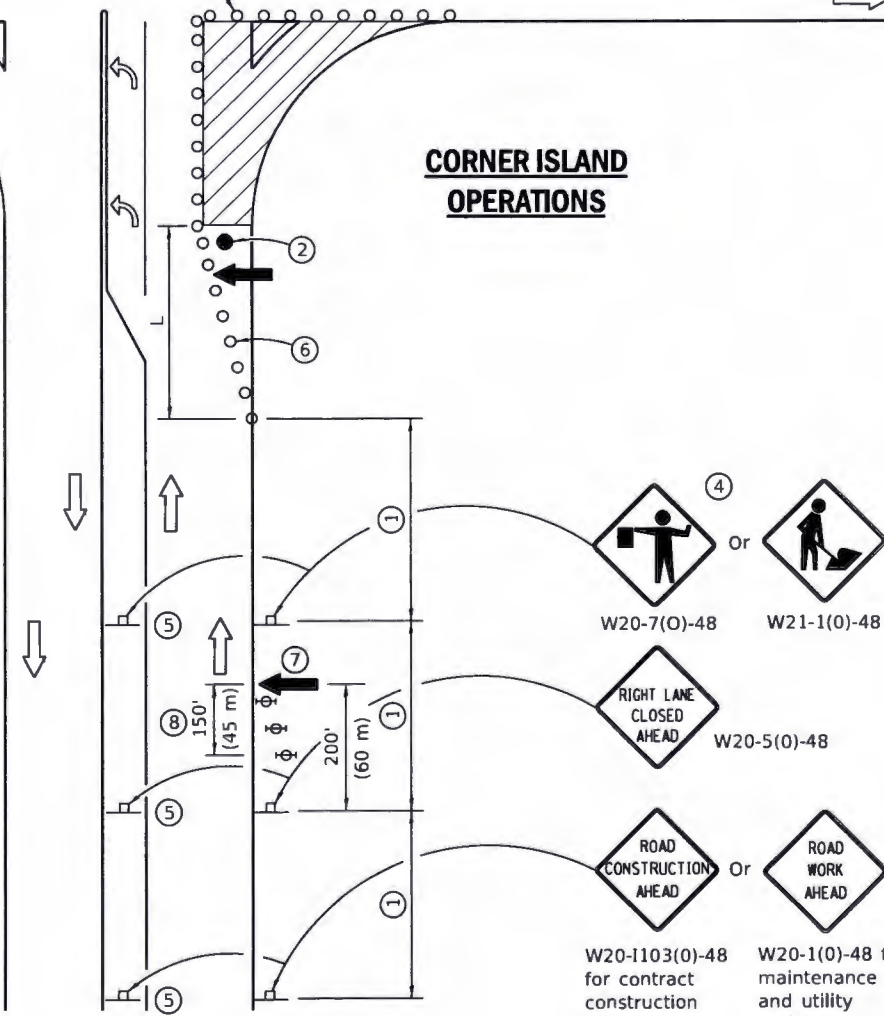
- Work area
- Cone, drum or barricade
- Sign on portable or permanent support
- Arrow board
- Barricade or drum with flashing light
- Flagger with traffic control sign

SIGN SPACING	
Posted Speed	Sign Spacing
55	500' (150 m)
50-45	350' (100 m)
<45	200' (60 m)

SHOULDER OPERATIONS



CORNER ISLAND OPERATIONS



GENERAL NOTES

This Standard is used where at any time, day or night, any vehicle, equipment, workers or their activities encroach on the pavement during shoulder operations or where construction requires lane closures in an urban area.

Calculate L as follows:

SPEED LIMIT	FORMULAS	
	English	(Metric)
40 mph (70 km/h) or less:	$L = \frac{WS^2}{60}$	$L = \frac{WS^2}{150}$
45 mph (80 km/h) or greater:	$L = (W)(S)$	$L = 0.65(W)(S)$

W = Width of offset in feet (meters).

S = Normal posted speed mph (km/h).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED April 1, 2016
 ENGINEER OF SAFETY ENGINEERING

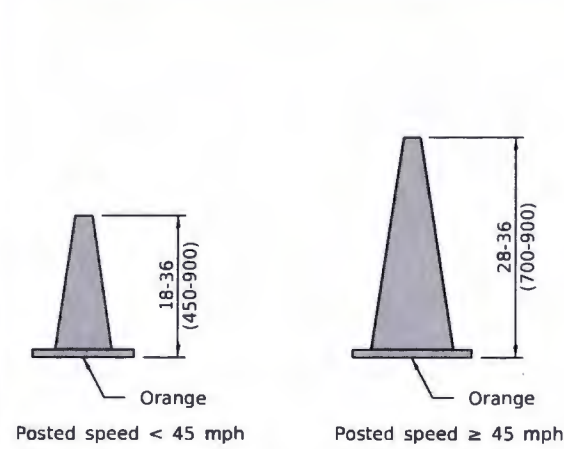
APPROVED April 1, 2016
 ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

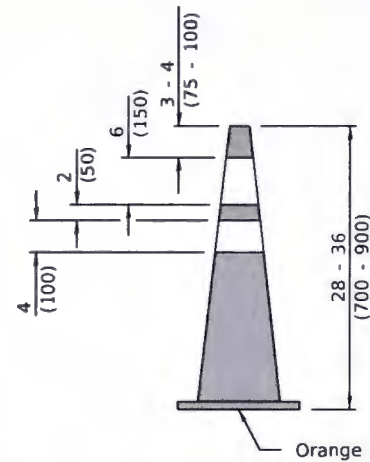
DATE	REVISIONS
4-1-16	Corrected sign number for LEFT TURN LANE CLOSED AHEAD.
1-1-14	Added devices at arrow board upstream from taper.
	Rev. workers sign number.

URBAN LANE CLOSURE, MULTILANE INTERSECTION

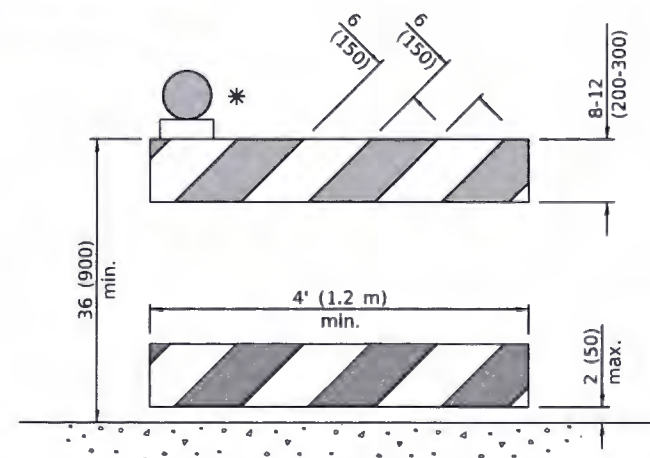
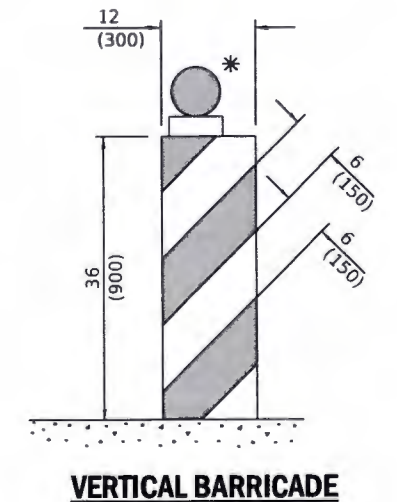
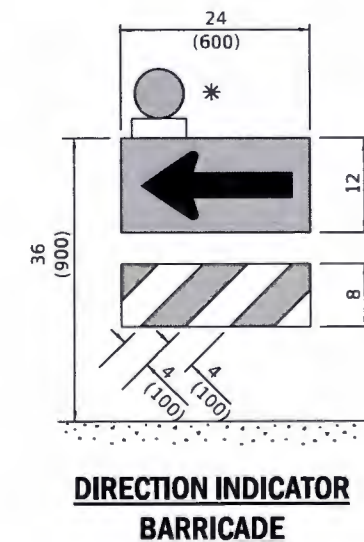
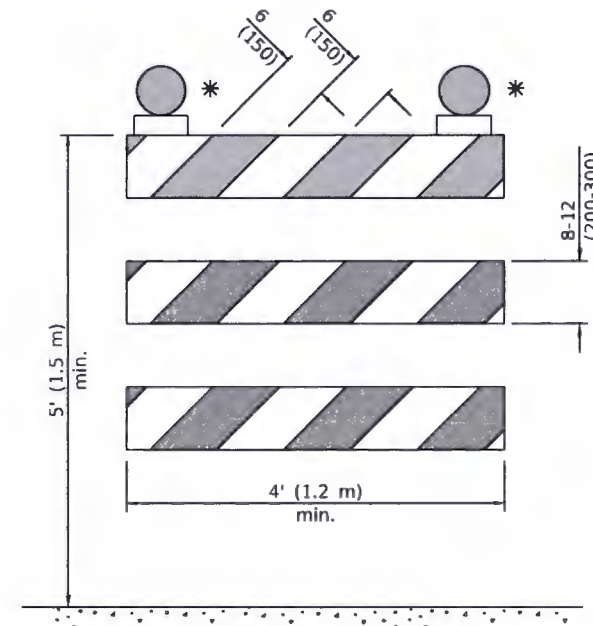
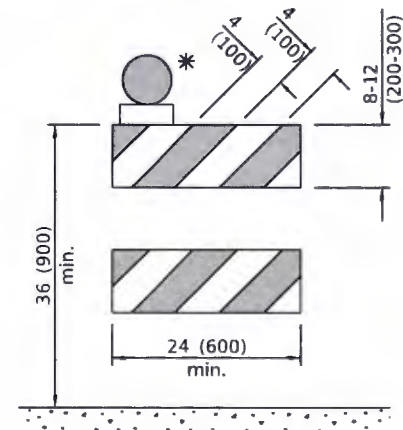
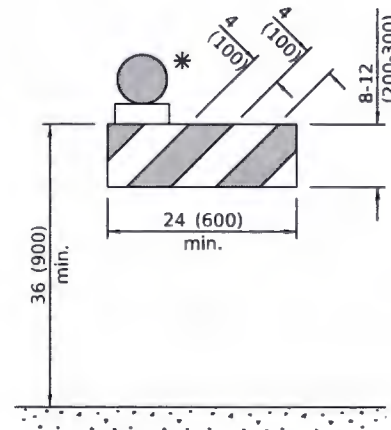
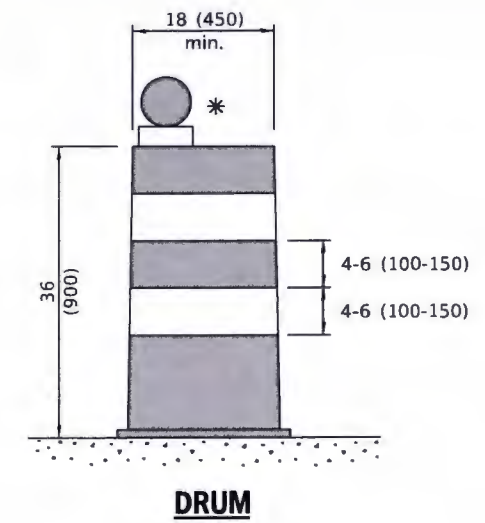
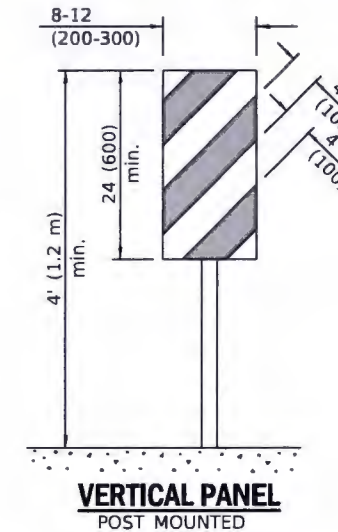
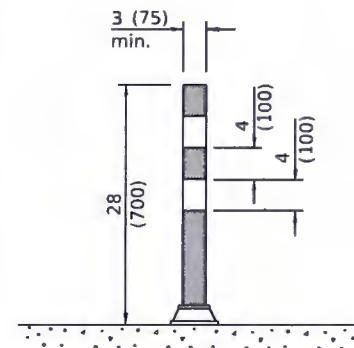
STANDARD 701701-10



**CONE FOR
DAYTIME**



**REFLECTORIZED CONE
FOR NIGHTTIME**



* Warning lights (if required)

GENERAL NOTES

All heights shown shall be measured above the pavement surface.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2018

ENGINEER OF OPERATIONS

APPROVED January 1, 2018

ENGINEER OF DESIGN AND ENVIRONMENT

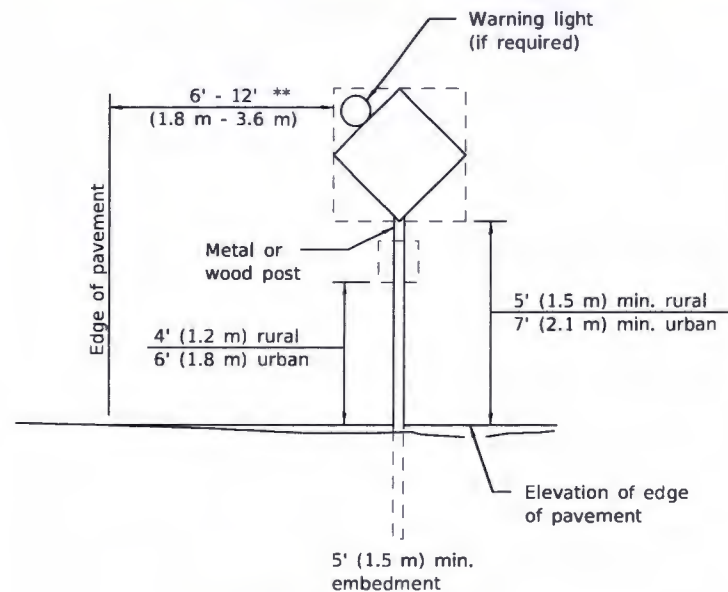
ISSUED 1-1-18

DATE	REVISIONS
1-1-18	Revised END WORK ZONE
	SPEED LIMIT sign from
	orange to white background.
1-1-17	Changed FLEXIBLE DELINEATOR
	to TUBULAR MARKER.

**TRAFFIC CONTROL
DEVICES**

(Sheet 1 of 3)

STANDARD 701901-07



POST MOUNTED SIGNS

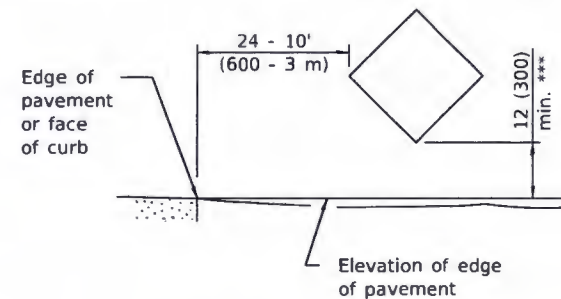
** When curb or paved shoulder are present this dimension shall be 24 (600) to the face of curb or 6' (1.8 m) to the outside edge of the paved shoulder.



W12-1103-4848

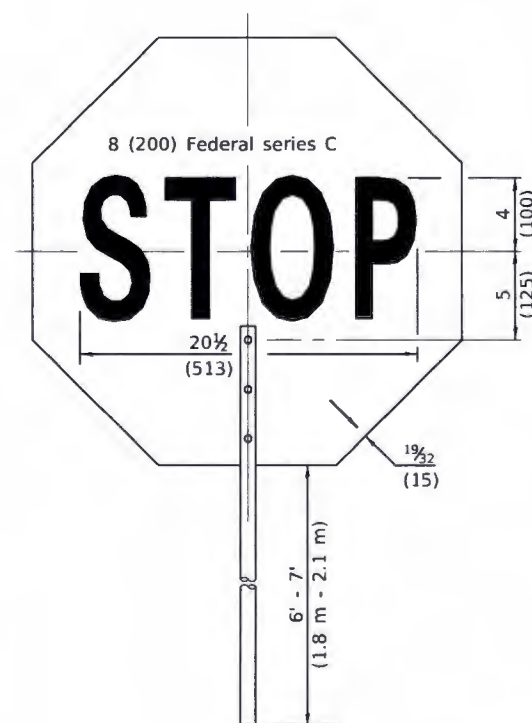
WIDTH RESTRICTION SIGN

XX'-XX" width and X miles are variable.

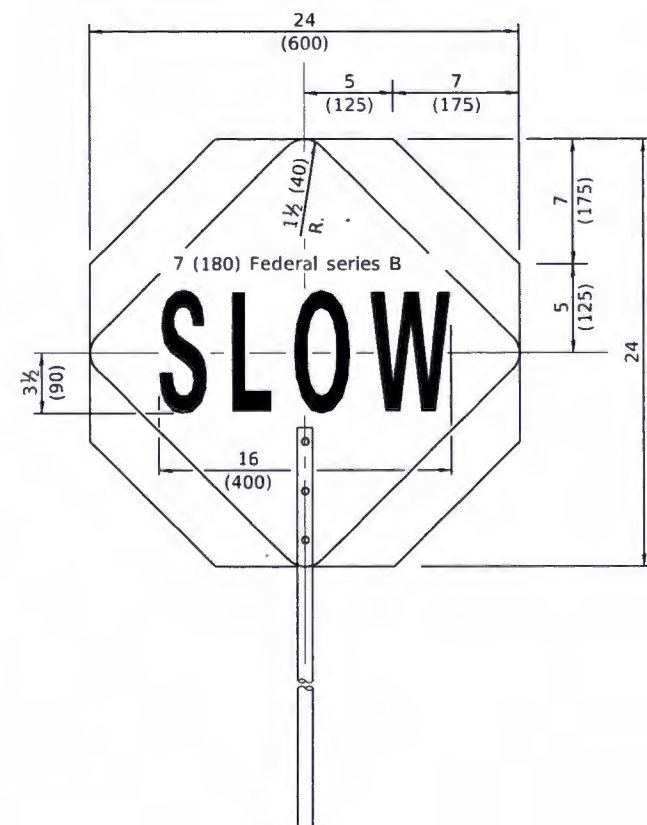


SIGNS ON TEMPORARY SUPPORTS

*** When work operations exceed four days, this dimension shall be 5' (1.5 m) min. If located behind other devices, the height shall be sufficient to be seen completely above the devices.

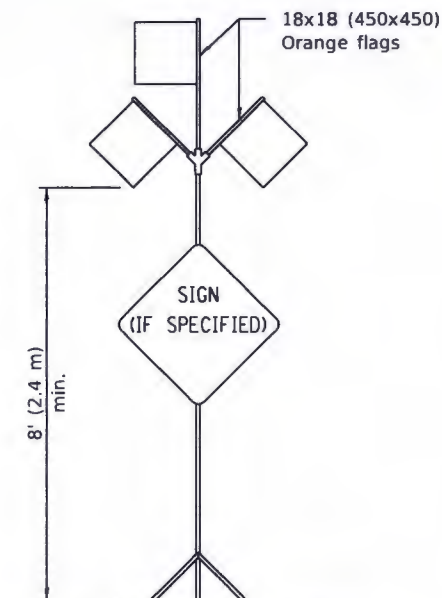


FRONT SIDE



REVERSE SIDE

FLAGGER TRAFFIC CONTROL SIGN



HIGH LEVEL WARNING DEVICE

ROAD
CONSTRUCTION
NEXT X MILES

G20-1104(0)-6036

END
CONSTRUCTION

G20-1105(0)-6024

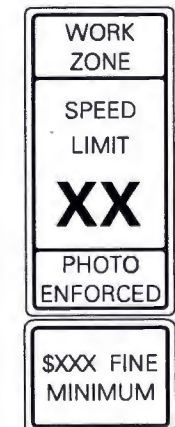
This signing is required for all projects 2 miles (3200 m) or more in length.

ROAD CONSTRUCTION NEXT X MILES sign shall be placed 500' (150 m) in advance of project limits.

END CONSTRUCTION sign shall be erected at the end of the job unless another job is within 2 miles (3200 m).

Dual sign displays shall be utilized on multi-lane highways.

WORK LIMIT SIGNING



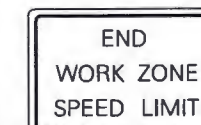
W21-1115(0)-3618

R2-1-3648

R10-1108p-3618 ****

R2-1106p-3618

Sign assembly as shown on Standards or as allowed by District Operations.



G20-1103-6036

This sign shall be used when the above sign assembly is used.

HIGHWAY CONSTRUCTION SPEED ZONE SIGNS

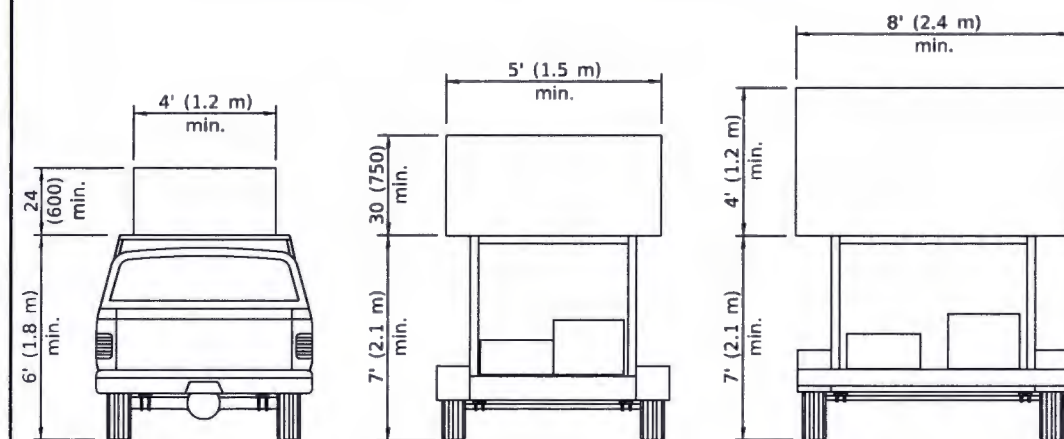
**** R10-1108p shall only be used along roadways under the jurisdiction of the State.

TRAFFIC CONTROL DEVICES

(Sheet 2 of 3)

STANDARD 701901-07

Illinois Department of Transportation	
PASSED	January 1, 2018
ENGINEER OF OPERATIONS	
APPROVED	January 1, 2018
ENGINEER OF DESIGN AND ENVIRONMENT	

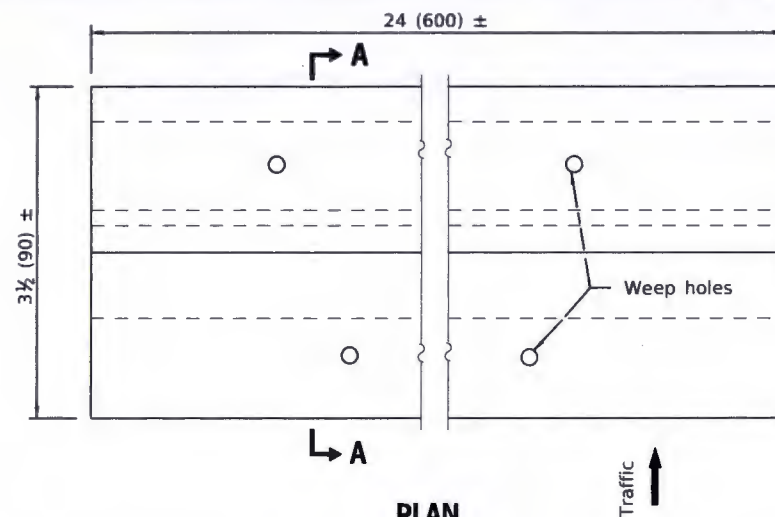


**TYPE A
ROOF
MOUNTED**

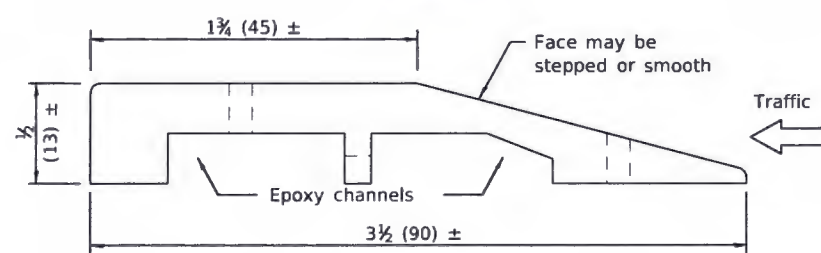
**TYPE B
ROOF OR TRAILER
MOUNTED**

**TYPE C
TRAILER
MOUNTED**

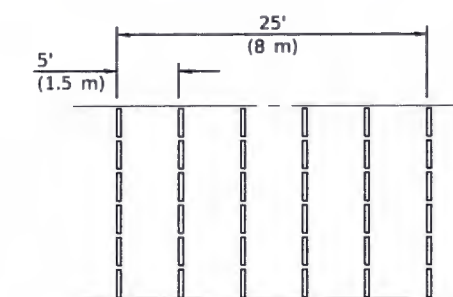
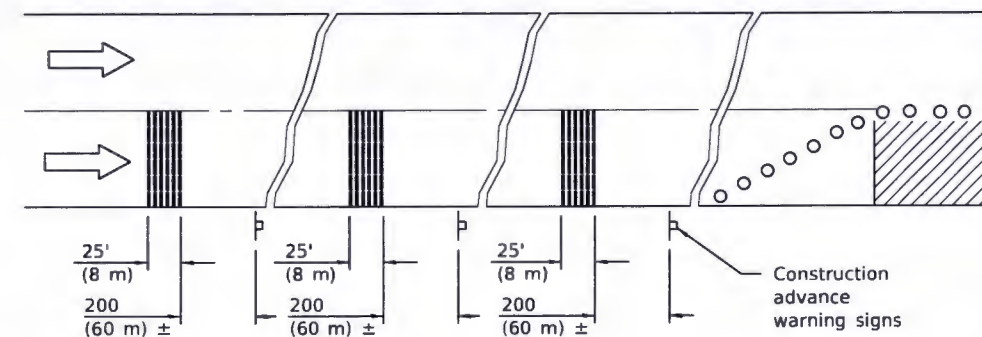
ARROW BOARDS



PLAN

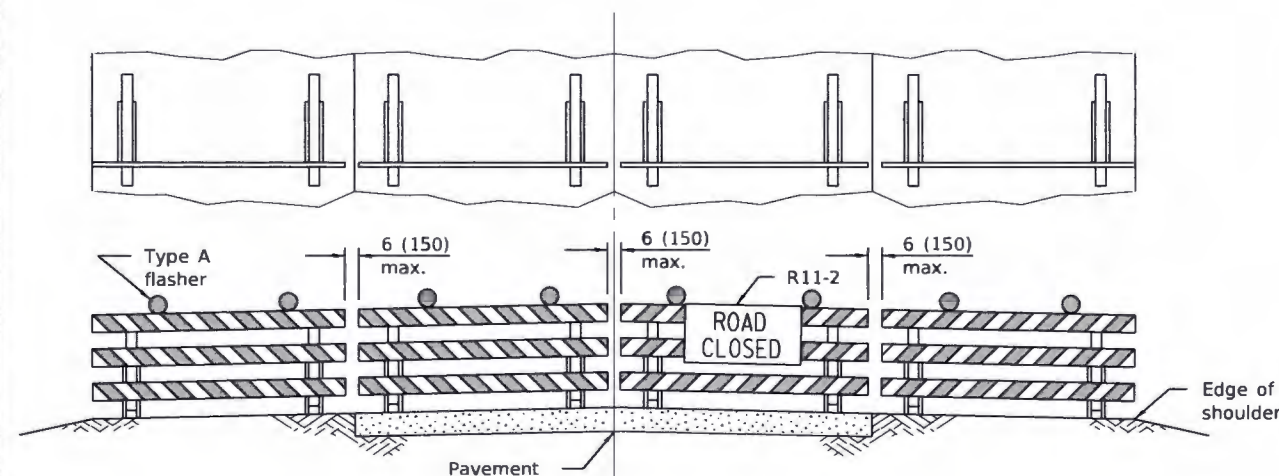


SECTION A-A



TYPICAL INSTALLATION

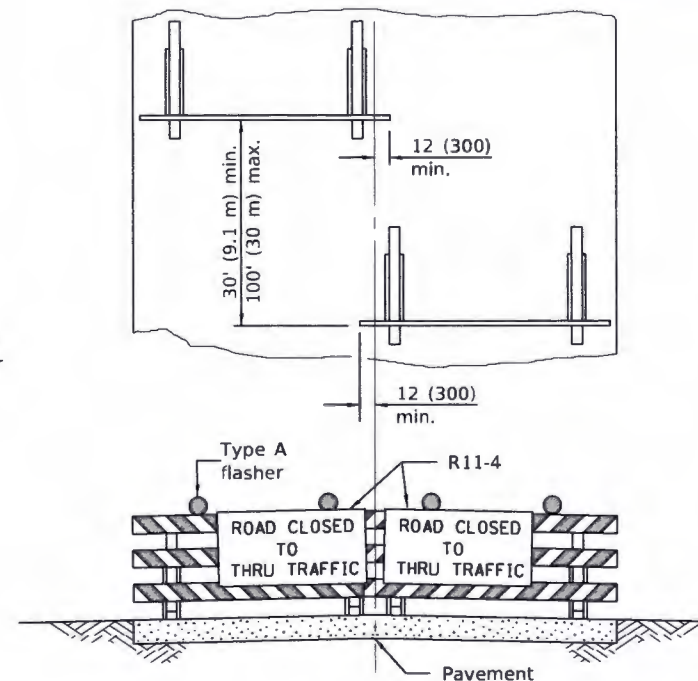
TEMPORARY RUMBLE STRIPS



ROAD CLOSED TO ALL TRAFFIC

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 sign may be mounted on an NCHRP 350 temporary sign support directly in front of the barricade.

TYPICAL APPLICATIONS OF TYPE III BARRICADES CLOSING A ROAD



ROAD CLOSED TO THRU TRAFFIC

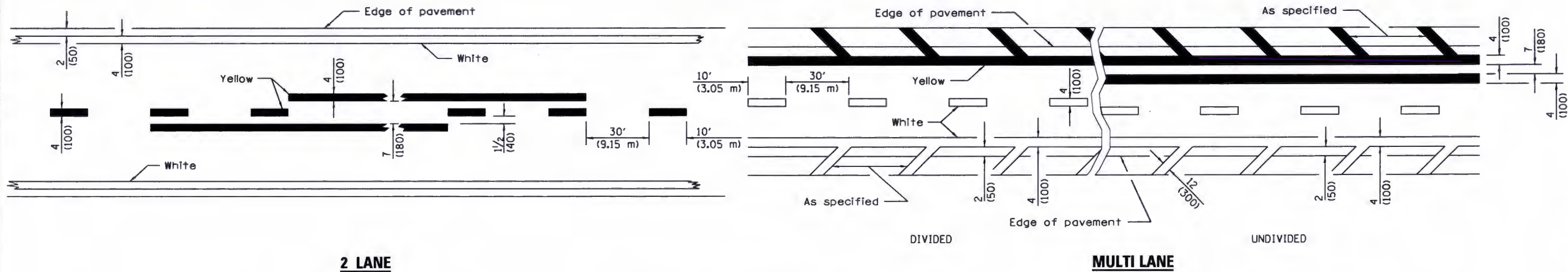
Reflectorized striping shall appear on both sides of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the signs may be mounted on NCHRP 350 temporary sign supports directly in front of the barricade.

Illinois Department of Transportation	
PASSED	January 1, 2018
Amy Allen ENGINEER OF OPERATIONS	
APPROVED	January 1, 2018
Matthew M. Bales ENGINEER OF DESIGN AND ENVIRONMENT	
ISSUED 1-1-97	

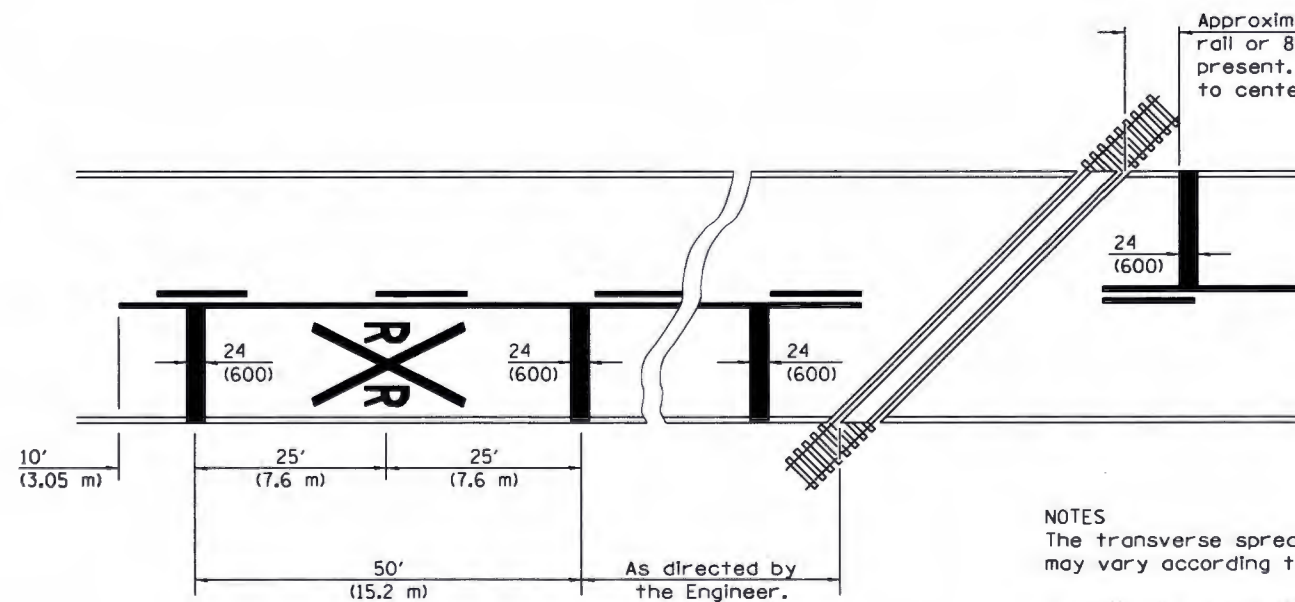
TRAFFIC CONTROL DEVICES

(Sheet 3 of 3)

STANDARD 701901-07



LANE AND EDGE LINES

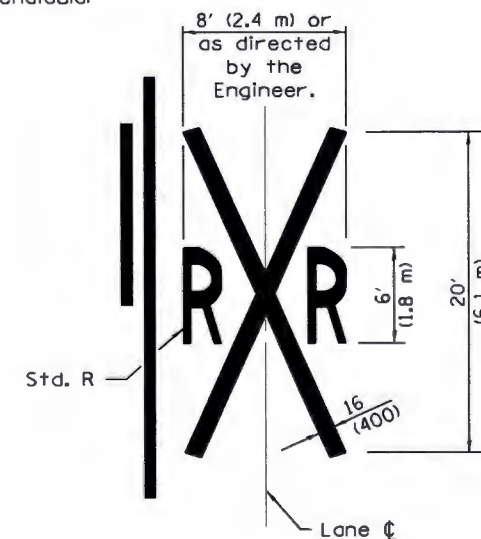


NOTES

The transverse spread of the "X" may vary according to lane width.

On multi-lane roads, the stop lines shall extend across all approach lanes and separate R XR symbols shall be placed adjacent to each other in each lane.

When the pavement marking symbol is used, a portion of the symbol should be located directly adjacent to the Advance Warning Sign (W10-1) as placed by Table 2C-4, Condition B of the MUTCD.



All dimensions are in inches (millimeters) unless otherwise shown.

PAVEMENT MARKINGS AT RAILROAD-HIGHWAY GRADE CROSSING

DATE	REVISIONS
1-1-15	Added symbols. Revised bike symbol. Revised note for stop line at RR crossing.
1-1-14	Added bike symbol. Renamed 'LANE DROP ARROW' detail to 'LANE-REDUCTION ARROW'.

TYPICAL PAVEMENT MARKINGS

(Sheet 1 of 3)

STANDARD 780001-05

Illinois Department of Transportation

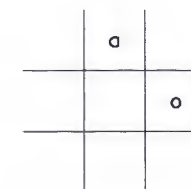
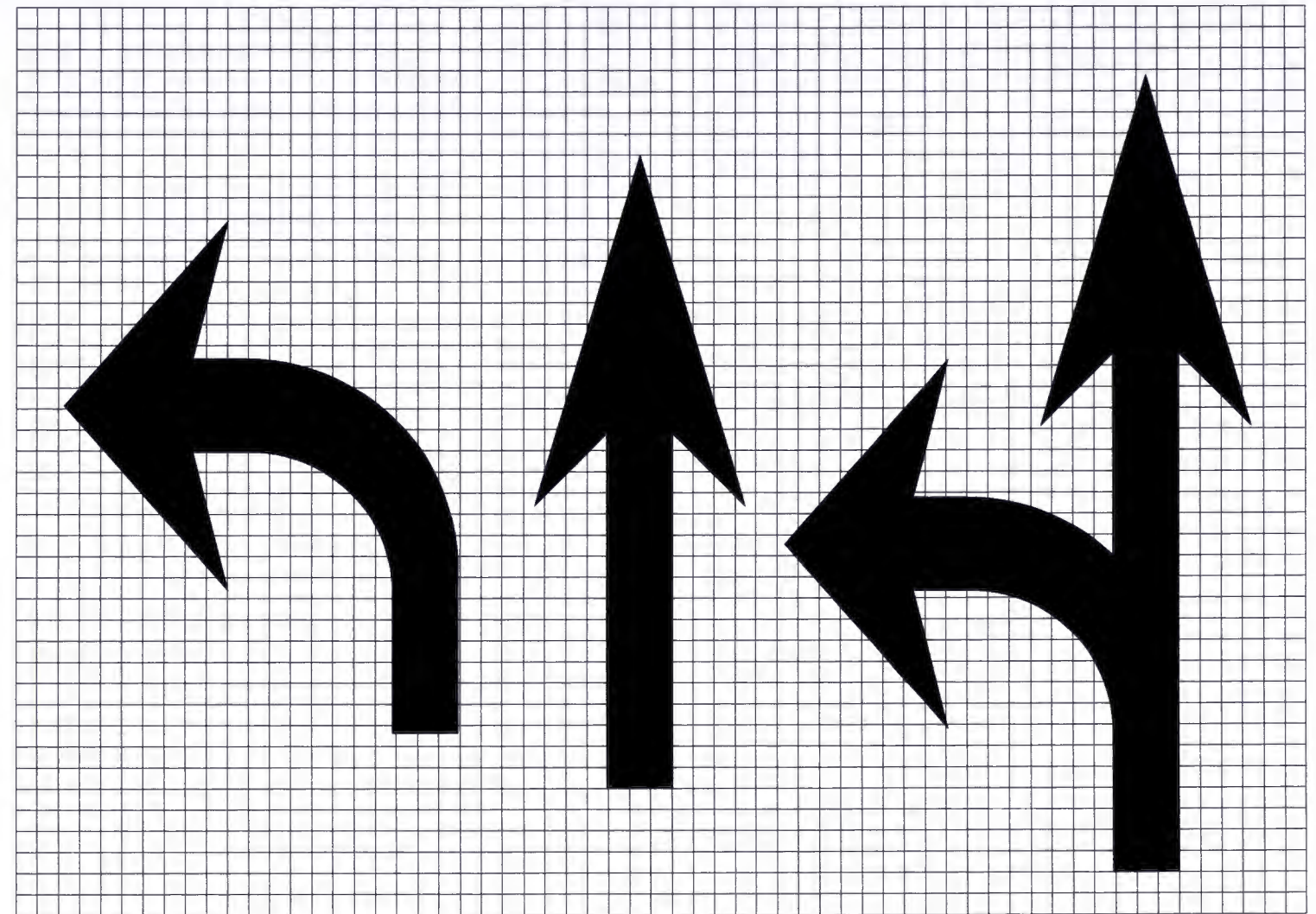
APPROVED January 1, 2015

ENGINEER OF OPERATIONS

APPROVED January 1, 2015

ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97



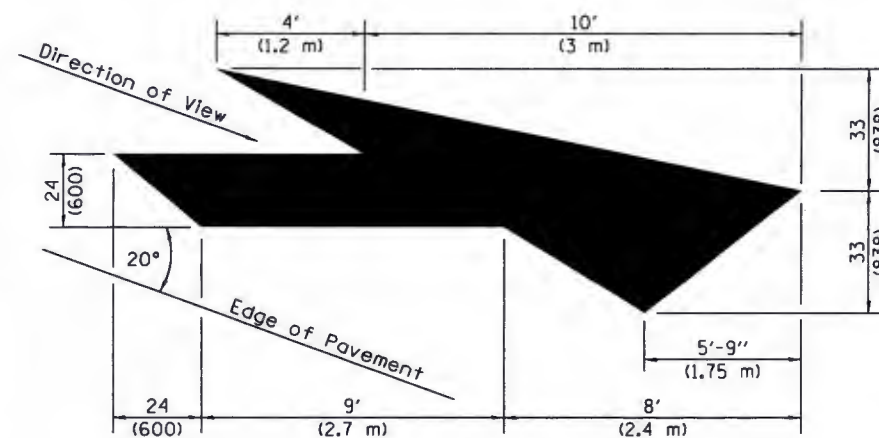
Legend Height	Arrow Size	a
6' (1.8 m)	Small	2.9 (74)
8' (2.4 m)	Large	3.8 (96)

The space between adjacent letters or numerals should be approximately 3 (75) for 6' (1.8 m) legend and 4 (100) for 8' (2.4 m) legend.

LETTER AND ARROW GRID SCALE

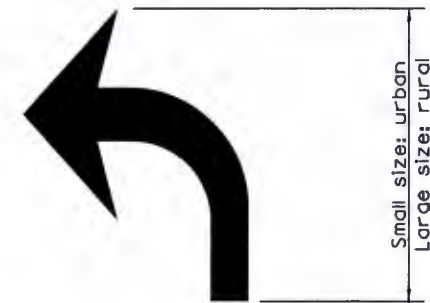
Illinois Department of Transportation	
APPROVED January 1, 2015	ISSUED 1-1-97
<i>Jerry Allen</i>	
ENGINEER OF OPERATIONS	
APPROVED January 1, 2015	
<i>DR</i>	
ENGINEER OF DESIGN AND ENVIRONMENT	

TYPICAL PAVEMENT MARKINGS
(Sheet 2 of 3)
STANDARD 780001-05



LANE-REDUCTION ARROW

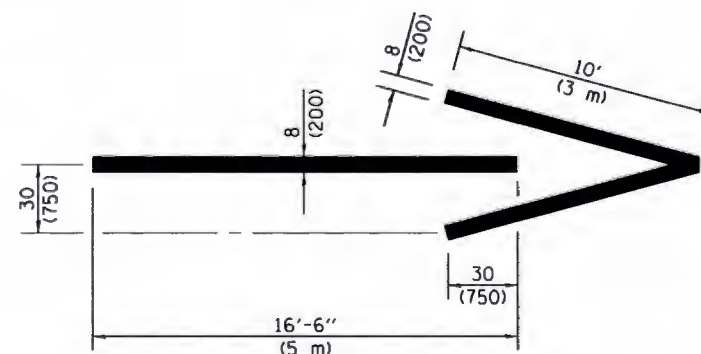
Right lane-reduction arrow shown.
Use mirror image for left lane.



20' (6 m): urban
50' (15 m): rural
(Between arrow
and word or
between words)

ONLY

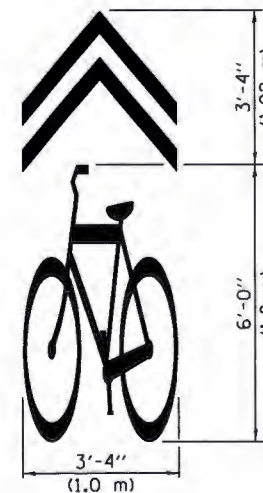
WORD AND ARROW LAYOUT



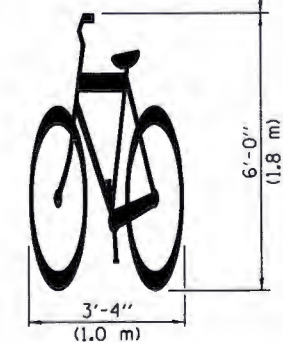
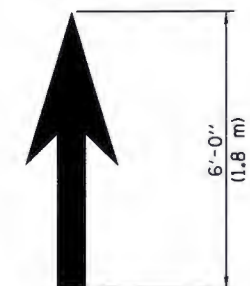
WRONG WAY ARROW



INTERNATIONAL SYMBOL OF ACCESSIBILITY



SHARED LANE SYMBOL

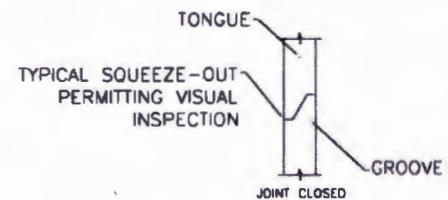
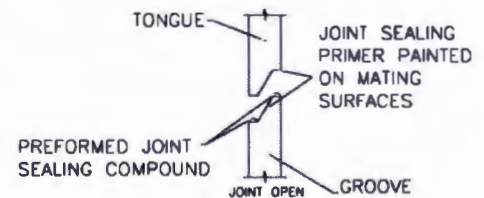
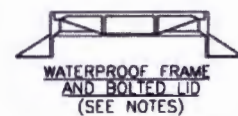
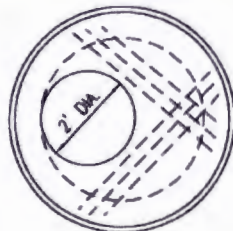
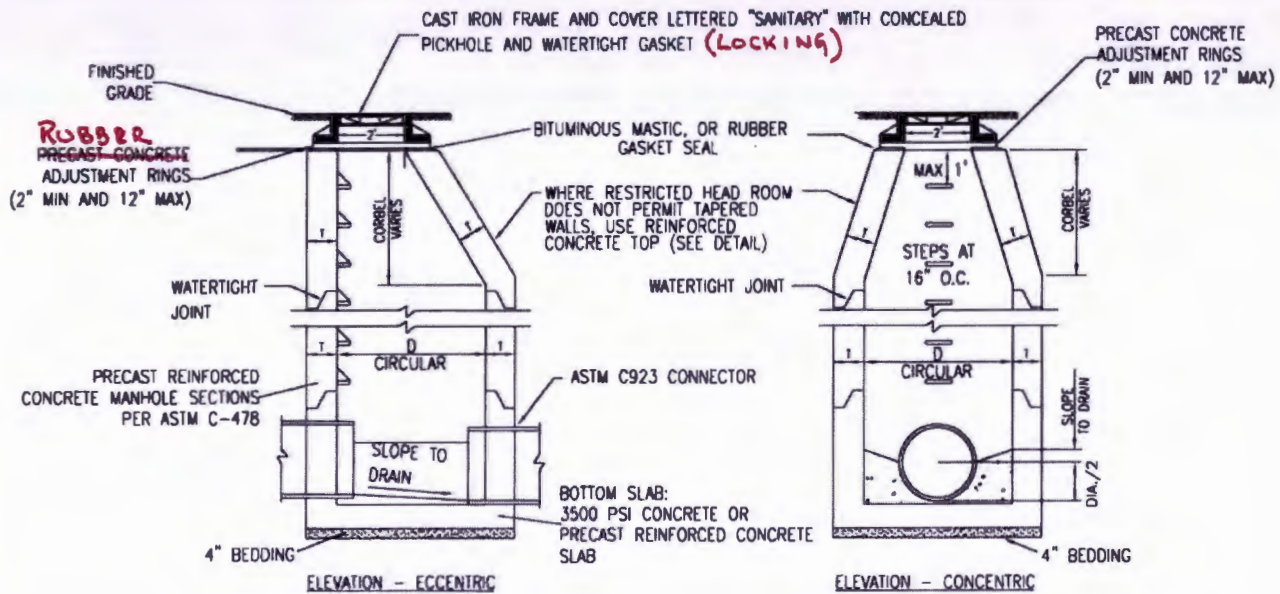


BIKE SYMBOL (Arrow is optional.)

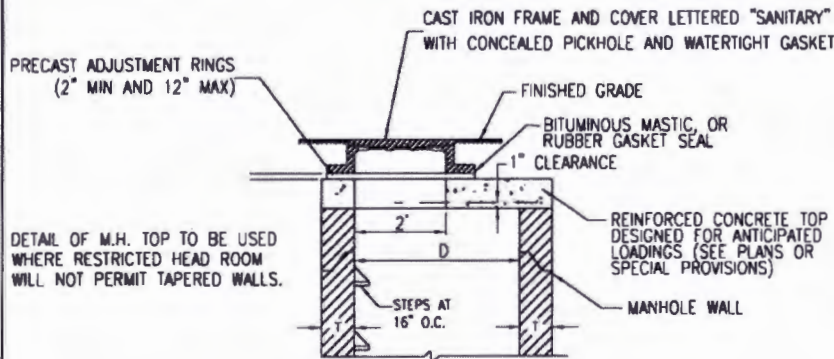
TYPICAL PAVEMENT MARKINGS

(Sheet 3 of 3)

STANDARD 780001-05



WATER TIGHT JOINT DETAIL



REINFORCED CONCRETE TOP

1. MANHOLES TO HAVE PRECAST "RUBBER BOOTS" CONFORMING TO ASTM C-923 AT ALL PIPE CONNECTIONS.
2. SANITARY MANHOLES SUBJECT TO SATURATION SOIL CONDITIONS OR SURFACE SUBMERGENCE SHALL BE EQUIPPED WITH CHIMNEY SEALS AND WATER TIGHT BOLTED DOWN MANHOLE COVERS.
3. MASTIC SEALANT OR RUBBER GASKET SEAL MUST BE APPLIED BETWEEN CONCRETE & FLANGE OF FRAME BEFORE LID BOLTS ARE TIGHTENED.
4. SAFETY LANDINGS REQUIRED FOR MANHOLES GREATER THAN 28 FEET DEPTH (RIM TO INVERT). MAXIMUM VERTICAL SPACING OF SAFETY LANDING IS 20 FEET.
5. FOR DROP CONNECTIONS, USE DROP CONNECTION MANHOLE DETAIL.
6. FOR ONLINE CONNECTIONS GREATER THAN 15 INCHES, USE DOGHOUSE MANHOLE DETAIL.

ALT MATERIALS FOR WALLS	D	T (MIN.)
PRECAST REINFORCED CONCRETE SECTION	4 FEET 5 FEET 6 FEET	4 IN 5 IN 6 IN
CAST-IN-PLACE CONCRETE	4 FEET 5 FEET 6 FEET	4 IN 5 IN 6 IN

NOT TO SCALE



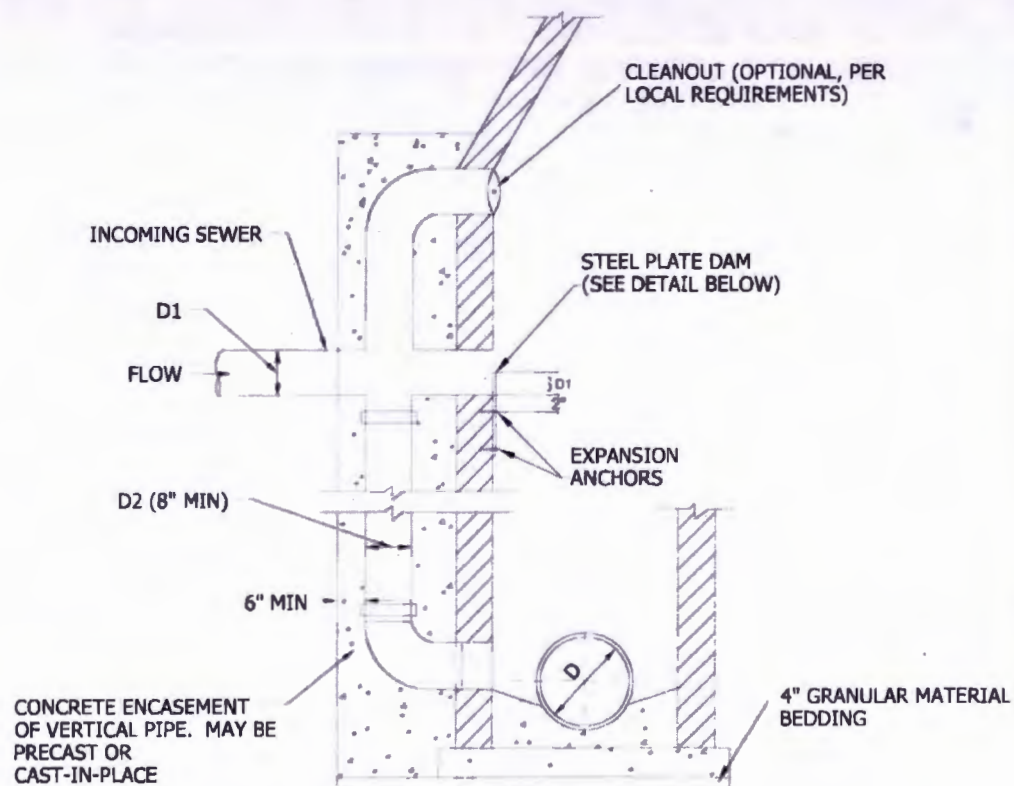
TECHNICAL GUIDANCE MANUAL

TYPICAL SANITARY MANHOLE "A" AND "B" DETAIL

7/1/15

STD DWG. NO 39

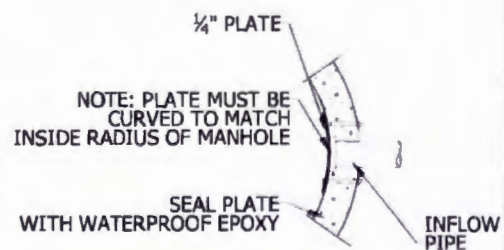
PAGE NO. 40



NOTES:

1. REQUIRED FOR 2FT. OR GREATER DROP TO SANITARY OR COMBINED SEWER.
2. MINIMUM WALL THICKNESS IS 6" FOR CAST IN PLACE CONCRETE STRUCTURES AND 1/12 MANHOLE DIAMETER FOR PRECAST CONCRETE STRUCTURES.
3. CONCRETE FOR ENCASEMENT SHALL BE 4,000 PSI @ 28 DAYS.
4. FORCEMAIN FLOW NOT ALLOWED AS INCOMING SEWER, SEE FORCEMAIN DISCHARGE DETAIL.

DIAMETER (INCHES)	
D1	D2
6	8
8	8
10	8
12	8
15	10
18	12
21	15
24	18



STEEL PLATE DAM

NOTES:

1. PLATE AND FASTENERS MUST BE FABRICATED IN STAINLESS STEEL, DUCTILE IRON, OR EQUIVALENT WATERPROOF/WEATHER PROOF MATERIALS.
2. BOLTS TACK WELDED TO PLATE.
3. ANCHOR EMBEDMENT: 3" MIN.

NOT TO SCALE



PLAN SHEETS

NO. ITEM DESCRIPTION UNIT TOTAL				NO. ITEM DESCRIPTION UNIT TOTAL			
1	TEMPORARY INFORMATION SIGNING	L SUM	1	46	FIRE HYDRANT WITH AUXILIARY VALVE, VALVE BOX AND TEE	EACH	2
2	TOPSOIL FURNISH AND PLACE, 6"	SQ YD	400	47	8" X 8" TAPPING SLEEVE AND VALVE IN VALVE VAULT, TYPE A, 5' DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	1
3	SODDING, SPECIAL	SQ YD	400	48	10" X 10" TAPPING SLEEVE AND VALVE IN VALVE VAULT, TYPE A, 5' DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	1
4	SEEDING, CLASS 2A	ACRE	0.10	49	12" X 12" TAPPING SLEEVE AND VALVE IN VALVE VAULT, TYPE A, 5' DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	1
5	EROSION CONTROL BLANKET	SQ YD	200	50	12" VALVE AND VALVE VAULT, TYPE A, 5' DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	3
6	PERIMETER EROSION BARRIER	FOOT	300	51	DUCTILE IRON FITTINGS	POUND	1968
7	INLET FILTERS	EACH	5	52	DUCTILE IRON WATER MAIN, CLASS 52 WITH POLYETHYLENE ENCASEMENT, 12"	FOOT	460
8	SUPPLEMENTAL WATERING	UNIT	5	53	6" CUT AND CAP	EACH	1
9	EXPLORATION TRENCH 48" DEPTH	FOOT	40	54	10" CUT AND CAP	EACH	1
10	AGGREGATE SUBGRADE IMPROVEMENT 6"	SQ YD	1600	55	12" CUT AND CAP	EACH	1
11	HOT-MIX ASPHALT BASE COURSE, 8"	SQ YD	1600	56	TRENCH BACKFILL, WATERMAIN	FOOT	460
12	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	732	57	ABANDON VALVE VAULT	EACH	2
13	HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT	SQ YD	142	58	FIRE HYDRANTS TO BE REMOVED	EACH	1
14	HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N70	TON	260	59	PVC SANITARY SEWER, 27"	FOOT	185
15	PORTLAND CEMENT CONCRETE SIDEWALK 5 INCH	SQ FT	2825	60	CONNECTION TO EXISTING SANITARY SEWER MANHOLE	EACH	2
16	PORTLAND CEMENT CONCRETE SIDEWALK 8 INCH	SQ FT	310	61	ABANDON AND FILL EXISTING 27" SANITARY SEWER WITH CLSM	L SUM	1
17	DETECTABLE WARNINGS	SQ FT	50	62	SANITARY MANHOLE, DROP, 72" DIAMETER, TYPE 1 FRAME, LOCKING LID	EACH	1
18	PAVEMENT REMOVAL	SQ YD	1870	63	TRENCH BACKFILL (SANITARY SEWER), 27 INCH 25-30 FEET DEEP	FOOT	185
19	HOT-MIX ASPHALT SURFACE REMOVAL, 2"	SQ YD	560	64	MANHOLES TO BE INTERNALLY SEALED - EPOXY COATING	FOOT	60
20	DRIVEWAY PAVEMENT REMOVAL	SQ YD	278	65	SEWER FLOW CONTROL AND BYPASS PUMPING	L SUM	1
21	COMBINATION CURB AND GUTTER REMOVAL	FOOT	810				
22	SIDEWALK REMOVAL	SQ FT	2600				
23	CLASS D PATCHES, TYPE III, 8 INCH	SQ YD	100				
24	STORM SEWERS, CLASS A, TYPE 1 12"	FOOT	222				
25	TRENCH BACKFILL, STORM	FOOT	222				
26	STORM SEWER REMOVAL 12"	FOOT	205				
27	CATCH BASINS, TYPE A, 4'-DIAMETER, TYPE 1 FRAME, OPEN LID	EACH	3				
28	MANHOLES, TYPE A, 4'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	1				
29	INLETS, TYPE A, TYPE 1 FRAME, OPEN LID	EACH	2				
30	REMOVING CATCH BASINS	EACH	1				
31	REMOVING INLETS	EACH	2				
32	CONCRETE CURB, TYPE B	FOOT	50				
33	COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.12	FOOT	740				
34	COMBINATION CONCRETE CURB AND GUTTER, TYPE M-2.12	FOOT	120				
35	STRUCTURES TO BE ADJUSTED	EACH	4				
36	PORTLAND CEMENT CONCRETE DRIVEWAY REMOVAL AND REPLACEMENT	SQ YD	100				
37	HOT-MIX ASPHALT DRIVEWAY PAVEMENT, 6"	SQ YD	220				
38	GROOVING FOR RECESSED PAVEMENT MARKING, LETTERS AND SYMBOLS	SQ FT	15				
39	GROOVING FOR RECESSED PAVEMENT MARKING 5"	FOOT	760				
40	GROOVING FOR RECESSED PAVEMENT MARKING 13"	FOOT	30				
41	GROOVING FOR RECESSED PAVEMENT MARKING 25"	FOOT	36				
42	MODIFIED URETHANE PAVEMENT MARKING - LETTERS AND SYMBOLS	SQ FT	15				
43	MODIFIED URETHANE PAVEMENT MARKING - LINE 4"	FOOT	760				
44	MODIFIED URETHANE PAVEMENT MARKING - LINE 6"	FOOT	30				
45	MODIFIED URETHANE PAVEMENT MARKING - LINE 24"	FOOT	36				

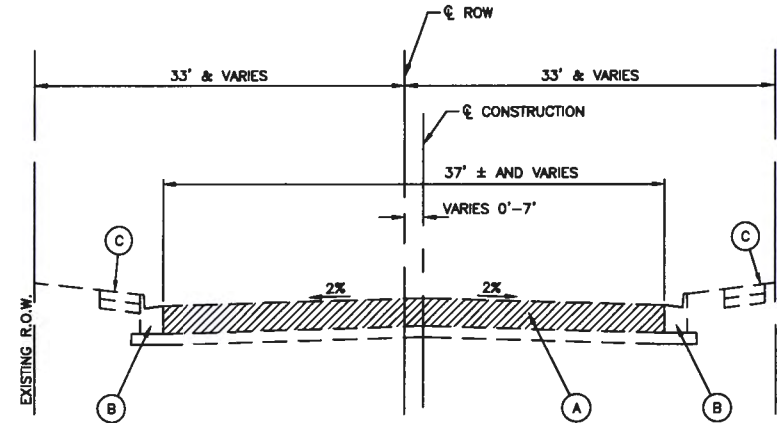
DATE = 03-30-18	DESIGNED -- CJK	REVISED --
SCALE = 1"=XX'	CHECKED --	REVISED --
PROJECT NO = 12-544	DRAWN -- CAD	REVISED --
FILE NAME = 12544-QUAN-01	CHECKED -- AG	REVISED --



OAK PARK AVENUE TO 174TH STREET
SOUTH STREET RECONSTRUCTION
SUMMARY OF QUANTITIES

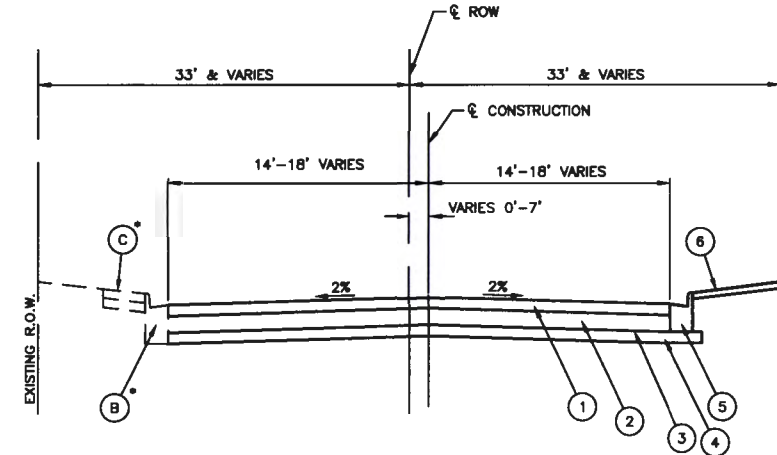
VILLAGE
of
TINLEY PARK,

SHEET NO.
2 of 15



EXISTING TYPICAL SECTION

SOUTH STREET - STA 500+38 TO STA 503+54
67TH COURT - STA 109+74.21 TO STA 112+00



PROPOSED TYPICAL SECTION

SOUTH STREET - STA 500+38 TO STA 503+54
67TH COURT - STA 109+74.21 TO STA 112+00
* EXISTING TO REMAIN ON NORTH SIDE OF SOUTH STREET

LEGEND

- (A) EXISTING BITUMINOUS PAVEMENT (TO BE REMOVED)
- (B) EXISTING CURB AND GUTTER, TYPE B-8.12
- (C) EXISTING CONCRETE SIDEWALK

LEGEND

- (1) HMA SURFACE COURSE, MIX D, N70, 2"
- (2) HMA BASE COURSE, IL 19.0, N70, 8"
- (3) BITUMINOUS MATERIALS (PRIME COAT)
- (4) AGGREGATE SUBGRADE IMPROVEMENT, 6"
- (5) COMBINATION CONCRETE CURB AND GUTTER, TYPE B6-12
- (6) TOPSOIL PLACEMENT, 6" AND SODDING (SPECIAL)

HOT-MIX ASPHALT MIXTURE REQUIREMENTS

MIXTURE TYPE	AIR VOIDS
PAVEMENT RESURFACING - SOUTH STREET (WEST LEG)	
HOT MIX ASPHALT SURFACE COURSE, MIX "D", N70(IL-9.5mm); 2"	4% @ 70 Gyr.
FULL DEPTH PAVEMENT - SOUTH STREET AND 67TH COURT	
HOT MIX ASPHALT SURFACE COURSE, MIX "D", N70(IL-9.5mm); 2"	4% @ 70 Gyr.
HOT MIX ASPHALT BASE COURSE, (HMA BINDER IL-19.0mm); 8" (2 LIFTS)	4% @ 70 Gyr.
DRIVEWAYS AND METRA LOT	
HOT MIX ASPHALT SURFACE COURSE, MIX "D", N50(IL-9.5mm); 2"	4% @ 50 Gyr.
HOT MIX ASPHALT BASE COURSE, (HMA BINDER IL-19.0mm); 6"	4% @ 50 Gyr.

THE UNIT WEIGHT USED TO CALCULATE ALL HMA SURFACE MIXTURE QUANTITIES IS 112 LBS/SY/IN. THE "AC TYPE" FOR POLYMERIZED HMA MIXES SHALL BE "SBS/SBR PG 76-22" AND FOR NON-POLYMERIZED HMA THE "AC TYPE" SHALL BE "PG 64-22" UNLESS MODIFIED BY DISTRICT ONE SPECIAL PROVISIONS. FOR HMA FULL DEPTH "AC TYPE" SEE SPECIAL PROVISIONS. FOR USE OF RECYCLED MATERIALS SEE DISTRICT THREE SPECIAL PROVISIONS.

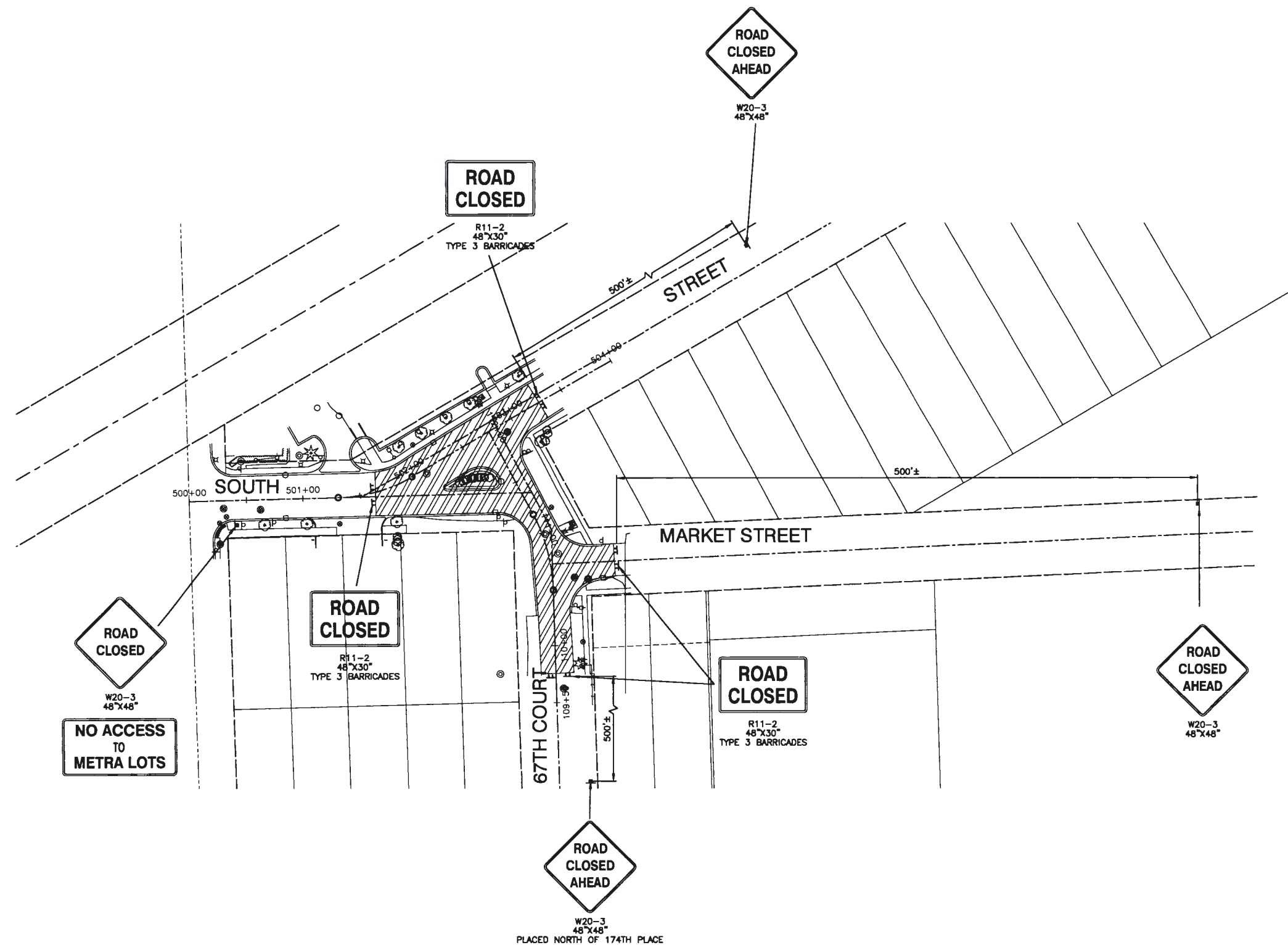
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OAK PARK AVENUE TO 174TH STREET
SOUTH STREET RECONSTRUCTION
TYPICAL CROSS SECTIONS

VILLAGE
of
TINLEY PARK,

SHEET NO.
4 of 15

**LEGEND**

▨ WORK AREA

⊥ TYPE III BARRICADE WITH STEADY BURNING LIGHT

⊥ SIGN

SUGGESTED SEQUENCE OF CONSTRUCTION

1. CONTRACTOR TO SET UP ROAD CLOSURE MAINTAINING THE EXIT MOVEMENT FROM THE BANK DRIVEWAY.
2. INSTALL TEMPORARY BY-PASS PUMPING.
3. INSTALL SANITARY SEWER
4. INSTALL WATER MAIN (SECTION ACROSS BANK FRONTAGE TO BE DONE WITH DAY CLOSURES AND COORDINATED WITH BANK) PARTIAL ACCESS FROM DRIVEWAY IS TO BE PROVIDED AT ALL TIMES.
5. INSTALL STORM SEWER
6. PERFORM PAVING WORK

AN ELECTRONIC MESSAGE BOARD SHALL BE PLACED A MINIMUM 2 WEEKS PRIOR TO THE ROAD CLOSURE INFORMING THE PUBLIC THAT THE ROAD WILL BE CLOSED AND THERE WILL BE NO ACCESS TO THE METRA LOTS FROM THE WEST.

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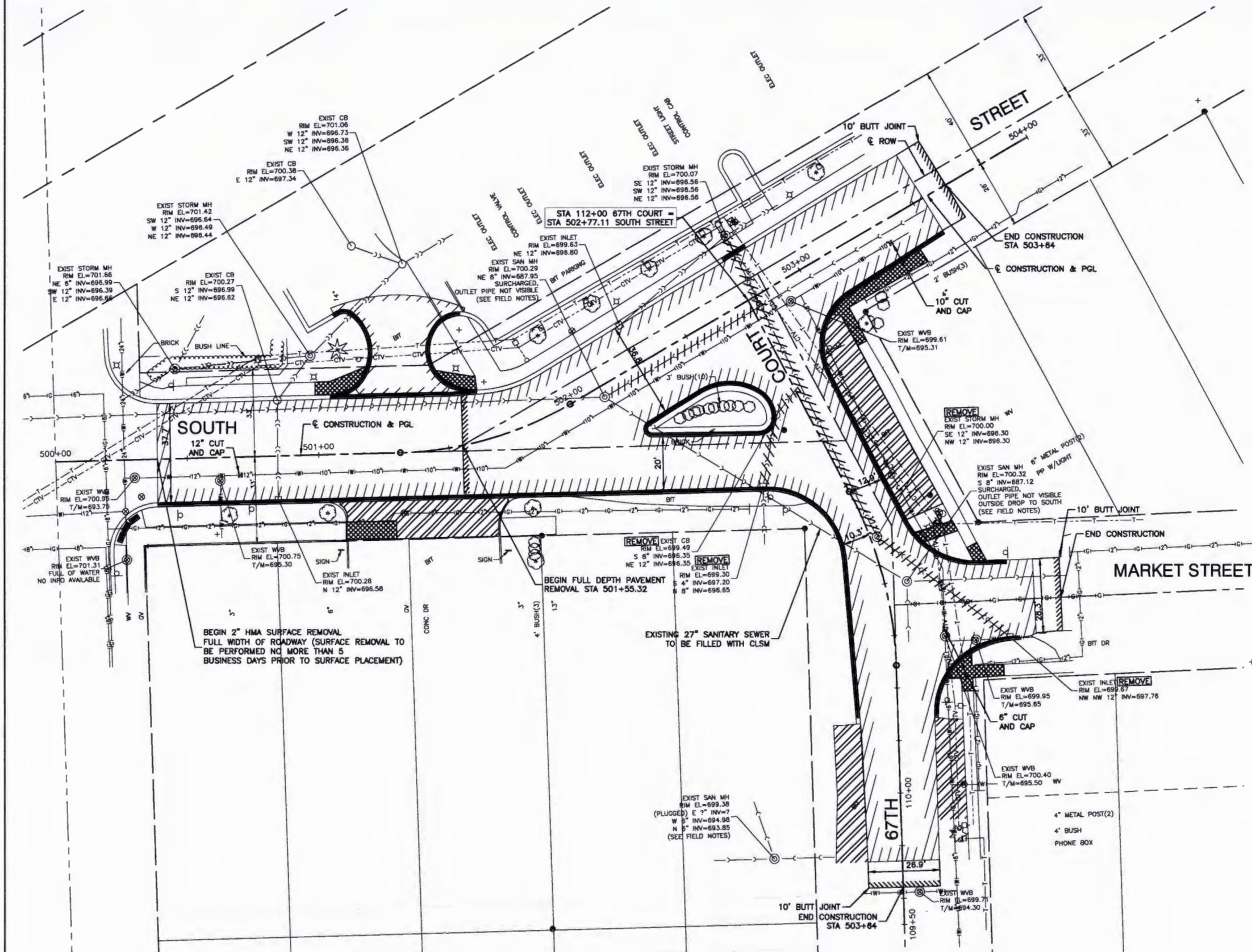
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OAK PARK AVENUE TO 174TH STREET
SOUTH STREET RECONSTRUCTION
TRAFFIC CONTROL ROAD CLOSED

VILLAGE
of
TINLEY PARK,

SHEET NO.
5 of 15



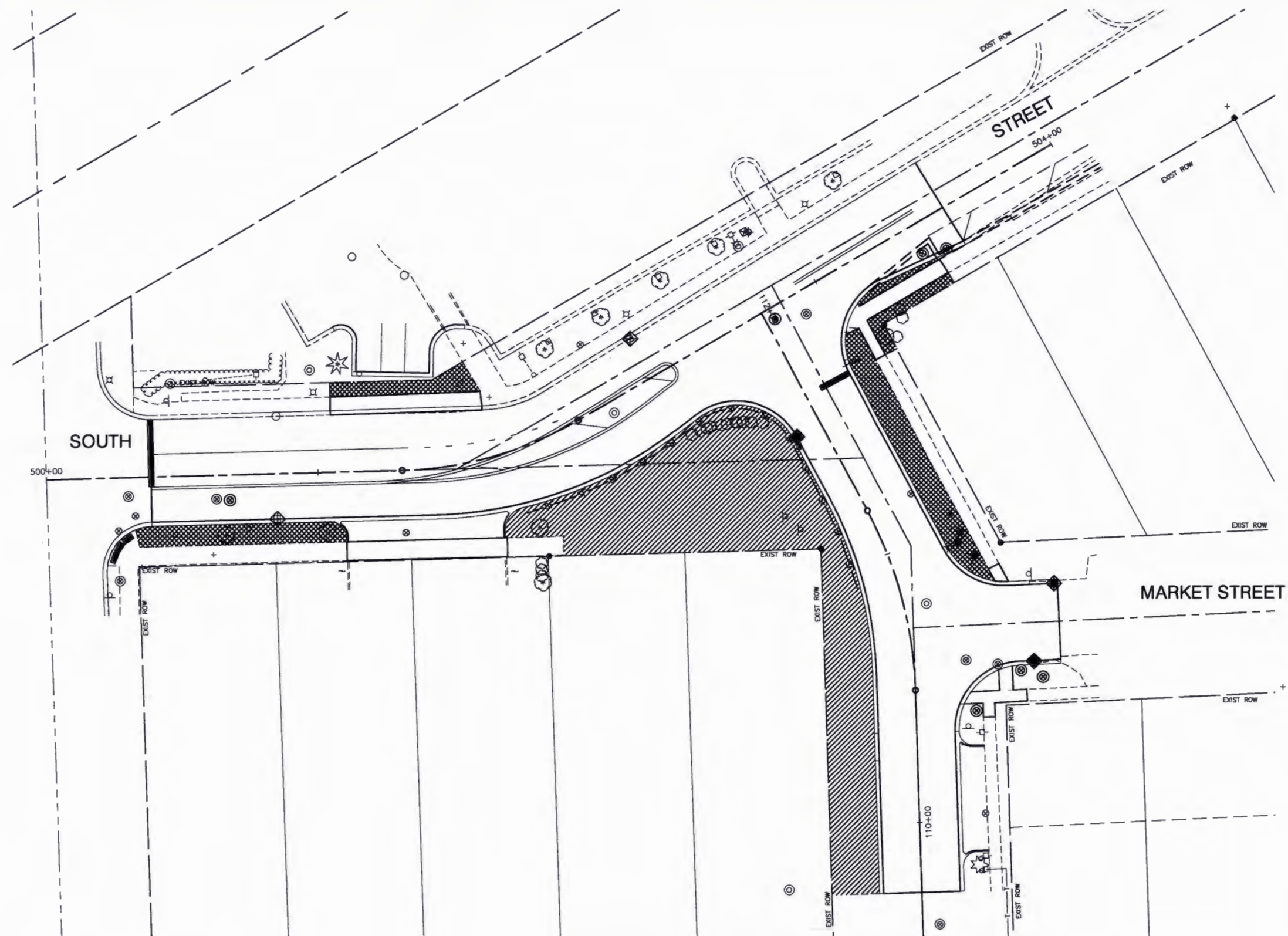
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OAK PARK AVENUE TO 174TH STREET
SOUTH STREET RECONSTRUCTION
EXISTING CONDITIONS AND REMOVAL PLAN

VILLAGE
of
TINLEY PARK,

SHEET NO.
6 of 15



KEY	ITEM NAME
	PERIMETER EROSION BARRIER TO BE PLACED 1' FROM R.O.W.
	TREE PROTECTION
	INLET FILTER
	INLET AND PIPE PROTECTION
	SODDING, SALT TOLERANT
	SEEDING CLASS 2A WITH EXCELSIOR BLANKET
	TEMPORARY DITCH CHECKS
	RIP RAP DITCH (STONE RIP RAP CL. A, GRADATION RR4)

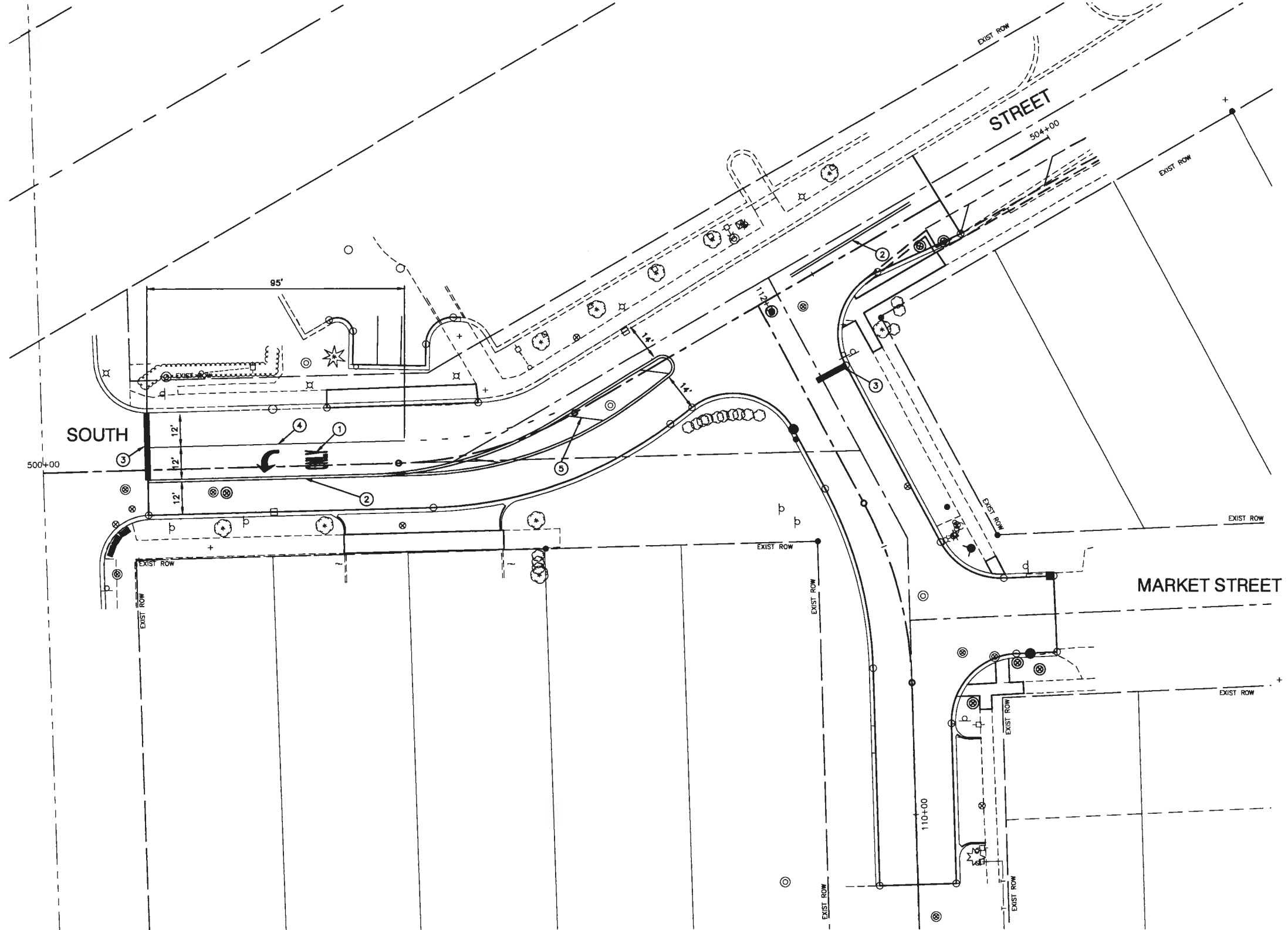
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OAK PARK AVENUE TO 174TH STREET
SOUTH STREET RECONSTRUCTION
LANDSCAPING & EROSION CONTROL

VILLAGE
of
TINLEY PARK,

SHEET NO.
9 of 15



PAVEMENT MARKING LEGEND

- ① WHITE LETTERS & SYMBOLS
- ② DOUBLE 4" YELLOW CENTERLINE (11" C/C)
- ③ 24" WHITE STOP BAR
- ④ 6" WHITE LANE LINE
- ⑤ 12" YELLOW DIAGONAL LINE (20' C/C)

NOTE

ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN A GROOVED RECESS FOR PAVEMENT MARKING AND SHALL BE MODIFIED URETHANE.

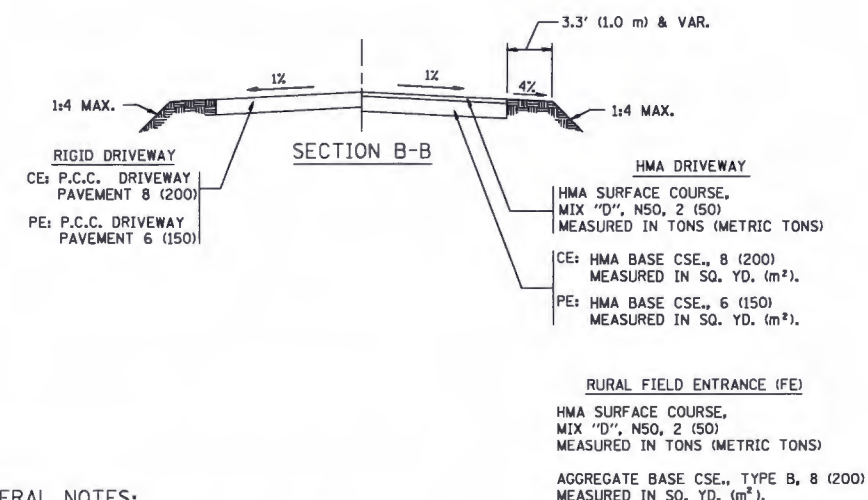
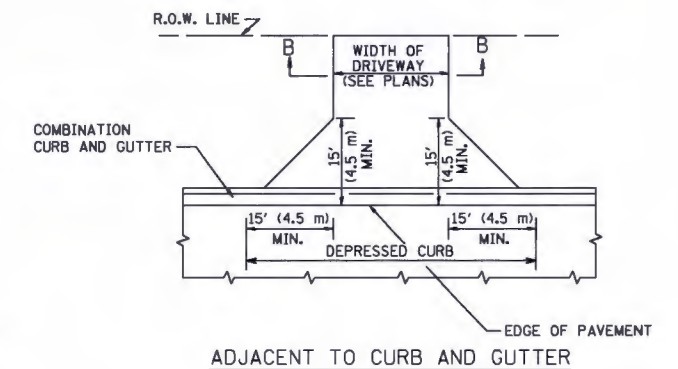
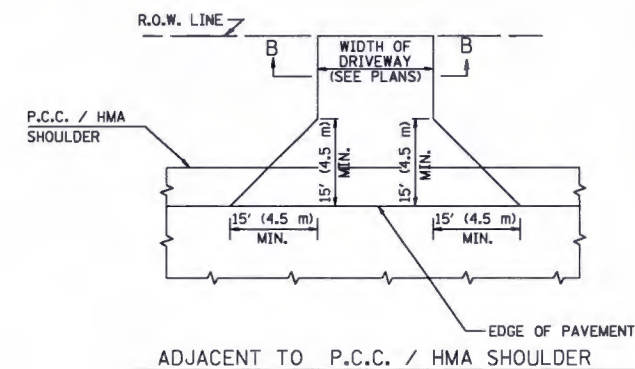
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OAK PARK AVENUE TO 174TH STREET
SOUTH STREET RECONSTRUCTION
PAVEMENT MARKING AND SIGNING PLAN

VILLAGE
of
TINLEY PARK,

SHEET NO.
10 of 15



GENERAL NOTES:

DRIVEWAY SLOPES, LOCATIONS, & GEOMETRIC LAYOUT SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "HANDBOOK FOR POLICY ON PERMITS FOR ACCESS DRIVEWAYS TO STATE HIGHWAYS". FOR FURTHER LAYOUT REQUIREMENTS, REFER TO ILLUSTRATIONS IN THE PERMIT HANDBOOK. DRIVEWAYS SHALL BE REPLACED IN KIND, UNLESS OTHERWISE NOTED ON THE PLANS.

COMMERCIAL DRIVEWAYS SHALL BE CONSTRUCTED WITH CONCRETE CURB, TYPE B RETURNS EXCEPT WHEN THE SIDEWALK EDGE IS 4 FEET (1.2 METERS) OR LESS FROM THE BACK OF CURB, CONSTRUCT A FLARE DRIVEWAY WITHOUT CURB.

THE RESIDENT ENGINEER SHALL CONTACT THE TRAFFIC PERMIT OFFICE AT 847/ 705-4131 FOR ANY QUESTIONS ON DRIVEWAYS SHOWN IN THE PLANS; SPECIFICALLY IN REFERENCE TO ADDITIONAL AND/OR RELOCATION/REMOVAL OF A DRIVEWAY.

COMBINATION CONCRETE CURB & GUTTER SHALL BE MEASURED STRAIGHT ACROSS THE DRIVEWAY. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR THE CURB & GUTTER TRANSITION.

1 (25) PREFORMED EXPANSION JOINT FILLER WILL NOT BE PAID
SEPARATELY, BUT SHALL BE CONSIDERED INCLUDED IN THE COST OF THE
P.C.C. DRIVEWAY PAVEMENT OR P.C.C. SIDEWALK.

WHEN THE P.C.C. SIDEWALK EXTENDS THROUGH THE DRIVEWAY, THE THICKNESS OF THE SIDEWALK IN THE DRIVEWAY AREA SHALL BE THE SAME AS THE DRIVEWAY THICKNESS. SIDEWALK WILL BE PAID FOR AS P.C.C. SIDEWALK OF THE THICKNESS SPECIFIED. SIDEWALK CROSS SLOPE THRU DRIVEWAY AREA TO BE A MAXIMUM OF 1:50.

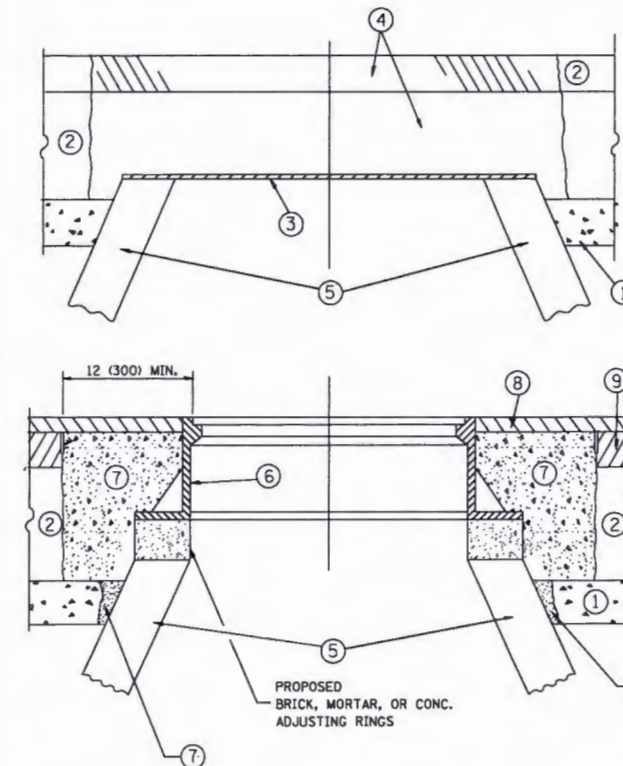
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SOUTH STREET RECONSTRUCTION
DRIVEWAY DETAILS - DISTANCE BETWEEN R.O.W.
AND FACE OF CURB & EDGE OF SHOULDER $\geq 15'$ (4.5 m)

VILLAGE
of
TINLEY PARK.

SHEET NO.
11 of 15



NOTES:

EXISTING BROKEN FRAMES AND LIDS SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR AND SHALL BE REPLACED AS DIRECTED BY THE ENGINEER. REPLACEMENT FRAMES AND LIDS WILL BE PAID FOR IN ACCORDANCE WITH ARTICLE 109.04 OF THE STANDARD SPECIFICATIONS UNLESS A SEPARATE PAY ITEM HAS BEEN PROVIDED.

IF THE EXISTING LIDS ARE OPEN, THE FRAME WILL BE ADJUSTED TO THE ELEVATION OF THE MILLED PAVEMENT SURFACE PRIOR TO THE MILLING OPERATION. THE FRAME WILL NOT BE REMOVED AND COVERED BY THE METAL PLATE.

CITY OF CHICAGO CASTINGS ARE THE PROPERTY OF THE CITY AND THE CONTRACTOR SHALL NOTIFY THE CITY FOR REMOVAL AND DISPOSITION OF THE CASTINGS.

THE METAL PLATE USED TO COVER THE STRUCTURE SHALL REMAIN THE PROPERTY OF THE CONTRACTOR.

WHEN STRUCTURES ARE TO BE ADJUSTED OR RECONSTRUCTED, THE LOWERING AND RAISING OF THE FRAMES AND LIDS WILL NOT BE PAID FOR SEPARATELY BUT WILL BE INCLUDED IN THE COST OF THE CORRESPONDING PAY ITEM.

CONSTRUCTION PROCEDURES

STAGE 1 (BEFORE PAVEMENT MILLING)

- REMOVE A MINIMUM OF 12 (300) OF THE PAVEMENT FROM AROUND THE STRUCTURE.
- REMOVE THE EXISTING FRAME AND LID FROM THE STRUCTURE.
- COVER THE STRUCTURE OPENING WITH A 36 (900) DIAMETER METAL PLATE.
- BACKFILL WITH CRUSHED STONE AND A MINIMUM 1½ (40) THICK HMA SURFACE MIX APPROVED BY THE ENGINEER.

STAGE 2 (AFTER PAVEMENT MILLING)

- REMOVE THE HMA SURFACE MIX AND CRUSHED STONE.
- INSTALL THE FRAME AND LID; ADJUST THE FRAME TO ITS FINAL SURFACE ELEVATION.
- THE SURROUNDING SPACE SHALL BE FILLED WITH CLASS PP-1# CONCRETE TO THE ELEVATION OF THE SURFACE OF THE EXISTING BASE COURSE OR THE BINDER COURSE.

*UNLESS OTHERWISE SPECIFIED IN THE PLANS.

THE PROCEDURE EXPLAINED ABOVE SHALL CONFORM TO THE APPLICABLE PORTIONS OF SECTIONS 353, 406, 602, AND 603 OF THE STANDARD SPECIFICATIONS EXCEPT THAT "THE CONTRACTOR SHALL ADJUST THE STRUCTURES TO THE FINISHED PAVEMENT ELEVATION NO MORE THAN 5 CALENDAR DAYS PRIOR TO PLACEMENT OF THE FINAL LIFT OF SURFACE UNLESS APPROVED BY THE ENGINEER."

LEGEND

- | | |
|--|-------------------------------|
| ① SUB-BASE GRANULAR MATERIAL | ⑥ FRAME AND LID (SEE NOTES) |
| ② EXISTING PAVEMENT | ⑦ CLASS PP-1# CONCRETE |
| ③ 36 (900) DIAMETER METAL PLATE | ⑧ PROPOSED HMA SURFACE COURSE |
| ④ PROPOSED CRUSHED STONE AND HMA SURFACE MIX | ⑨ PROPOSED HMA BINDER COURSE |
| ⑤ EXISTING STRUCTURE | |

LOCATION OF STRUCTURES:

THE CONTRACTOR WILL BE REQUIRED TO KEEP A RECORD OF THE LOCATIONS OF THE BURIED STRUCTURES ACCORDING TO THE STATION AND DISTANCE LEFT OR RIGHT OF THE CENTERLINE OF PAVEMENT. UPON COMPLETION OF THE WORK, THE CONTRACTOR WILL DELIVER THE RECORD TO THE ENGINEER.

BASIS OF PAYMENT:

REMOVING FRAMES AND LIDS ON DRAINAGE AND UTILITY STRUCTURES IN THE PAVEMENT PRIOR TO MILLING, AND ADJUSTING TO FINAL GRADE PRIOR TO PLACING THE SURFACE COURSE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH FOR "FRAMES AND LIDS TO BE ADJUSTED (SPECIAL)."

THIS WORK WILL NOT BE PAID FOR WHEN DRAINAGE AND UTILITY STRUCTURES ARE SPECIFIED FOR PAYMENT AS STRUCTURE RECONSTRUCTION.

NEW FRAMES AND LIDS, WHEN SPECIFIED, WILL BE PAID FOR SEPARATELY.

**DETAILS FOR FRAMES AND LIDS ADJUSTMENT
WITH MILLING**

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN

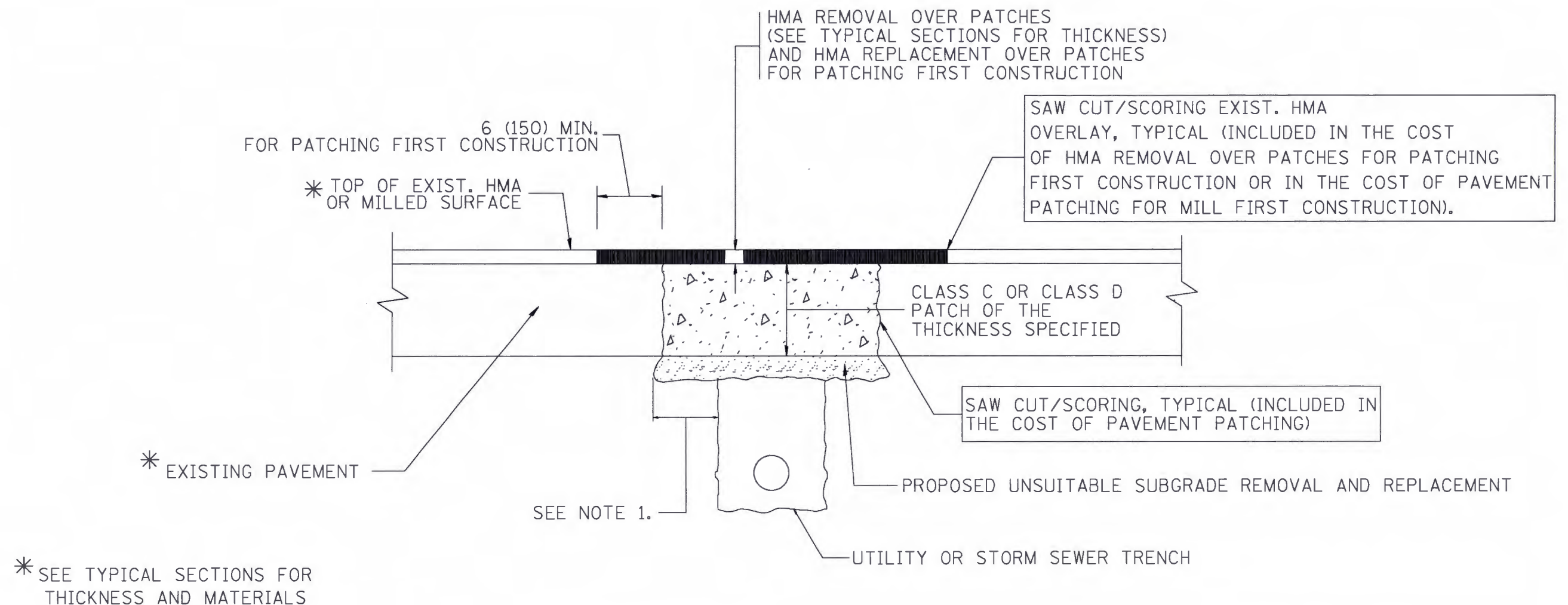
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SOUTH STREET RECONSTRUCTION
DETAILS FOR
FAMES AND LIDS ADJUSTMENT WITH MILLING

VILLAGE
of
TINLEY PARK,

SHEET NO.
12 of 15



NOTES:

1. THE WIDTH OF THE FULL DEPTH PATCH OVER A TRENCH SHALL BE 12 (300) WIDER ON EACH SIDE OF THE TRENCH.
2. FOR METHOD OF MEASUREMENT AND BASIS OF PAYMENT, SEE RECURRING SPECIAL PROVISION "PATCHING WITH HOT-MIX ASPHALT OVERLAY REMOVAL".

SEQUENCE OF CONSTRUCTION (PATCHING FIRST)

1. REMOVE THE EXISTING HMA MATERIAL OVER THE AREA TO BE PATCHED.
2. REMOVE AND REPLACE WITH CLASS C OR D PATCH.
3. REPLACE HMA MATERIAL OVER THE AREA TO BE PATCHED.

SEQUENCE OF CONSTRUCTION (MILLING FIRST)

1. MILL HMA FIRST IF THERE IS AT LEAST 4 1/2 INCHES OR MORE OF HMA MATERIAL ON TOP OF THE EXISTING PAVEMENT OR IF THE PAVEMENT IS FULL DEPTH HMA. A MINIMUM OF 2 INCHES OF HMA MATERIAL SHALL BE IN PLACE AFTER MILLING.
2. REMOVE AND REPLACE WITH FULL DEPTH CLASS D PATCHES TO TOP OF MILLED SURFACE.

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.

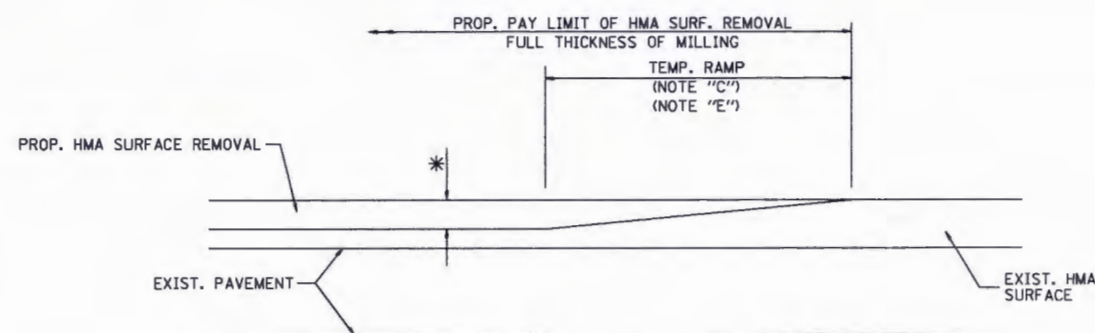
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SOUTH STREET RECONSTRUCTION
PAVEMENT PATCHING FOR
HMA SURFACED PAVEMENT

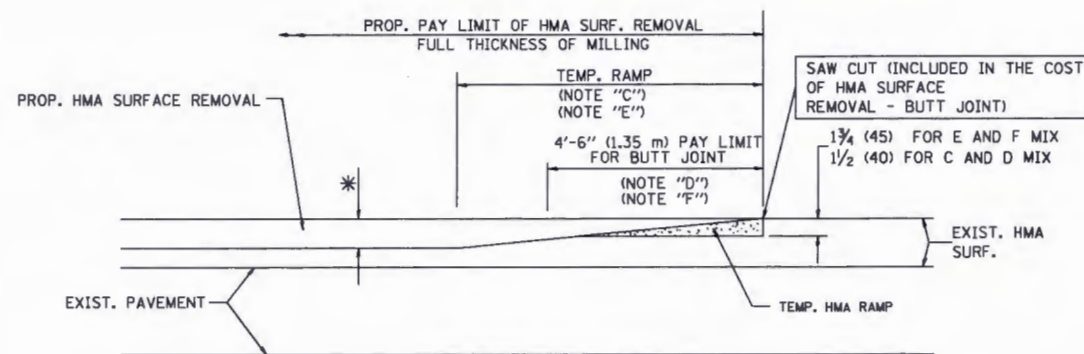
VILLAGE
of
TINLEY PARK,

SHEET NO.
13 of 15



MILLED TEMPORARY RAMP
(FOR BUTT JOINT AND HMA TAPER SEE DETAIL BELOW)

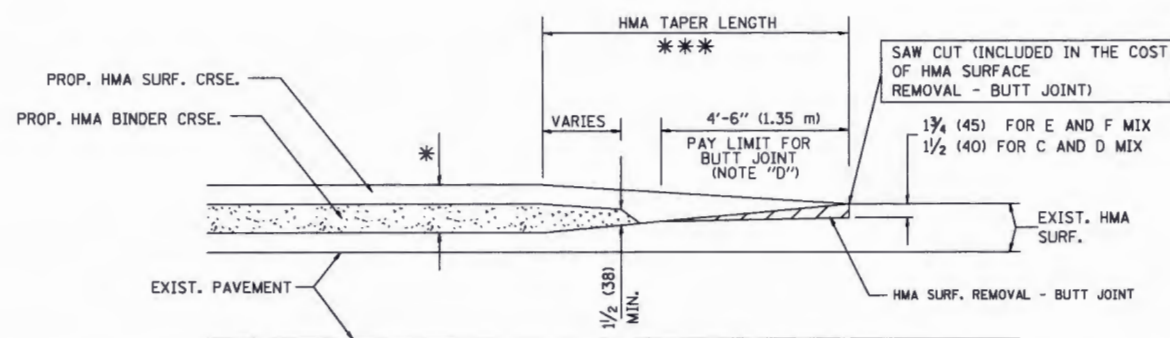
OPTION 1



HMA CONSTRUCTED TEMPORARY RAMP
(FOR BUTT JOINT AND HMA TAPER SEE DETAIL BELOW)

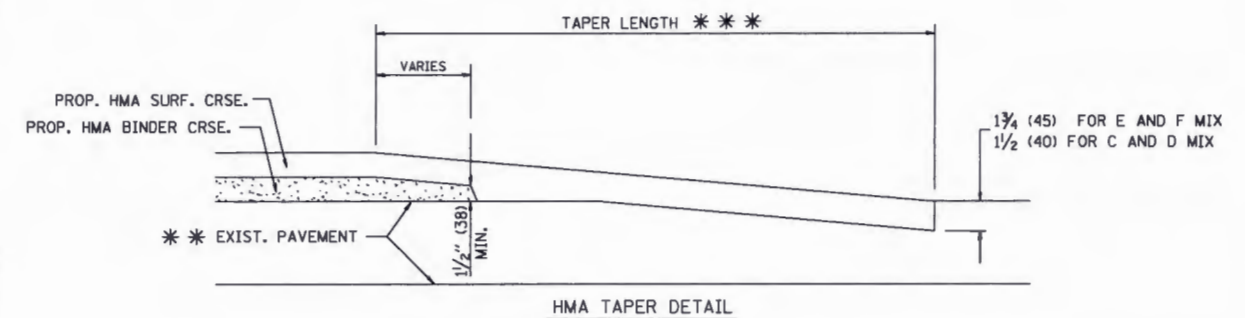
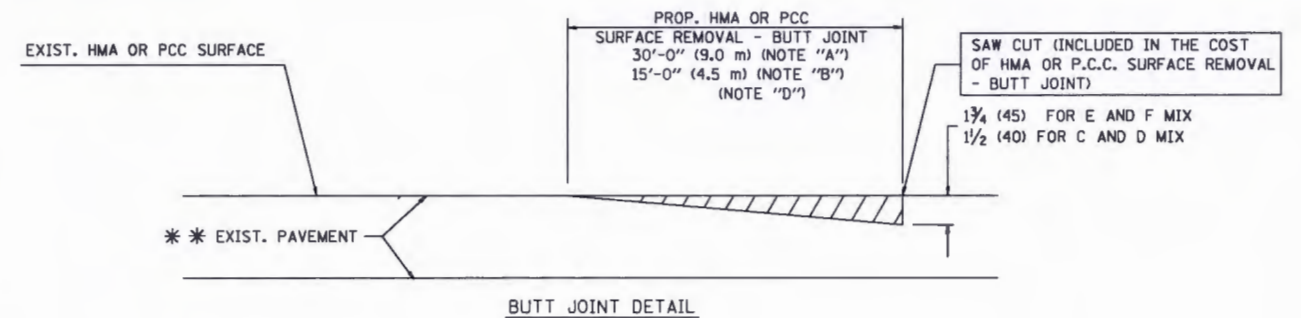
OPTION 2

TYPICAL TEMPORARY RAMP



BUTT JOINT AND
HMA TAPER

TYPICAL BUTT JOINT AND HMA TAPER FOR MILLING AND RESURFACING



TYPICAL BUTT JOINT AND HMA TAPER FOR RESURFACING ONLY

*** PC CONCRETE, HMA OR HMA RESURFACED PAVEMENT.

NOTES

- A: MAINLINE ROADWAYS AND MAJOR SIDE ROADS.
- B: MINOR SIDE ROADS.
- C: THE TEMP. RAMP SHALL BE CONSTRUCTED IMMEDIATELY UPON REMOVAL OF THE EXISTING HMA SURFACE.
- D: THE BUTT JOINT SHALL BE CONSTRUCTED IMMEDIATELY PRIOR TO PLACING THE PROPOSED HMA COURSES.
- E: TAPER THE TEMP. RAMP AT A RATE OF 3'-0" (900 mm) PER 1 INCH (25 mm) OF MILLING THICKNESS.
- F: INSTALLATION AND REMOVAL OF THE 4'-6" (1.35 m) TEMP. RAMP IS INCLUDED IN COST OF HMA SURFACE REMOVAL - BUTT JOINT
- G: SEE ARTICLE 406.08 AND 406.14 OF THE STANDARD SPECIFICATIONS FOR "HMA AND/OR PCC SURFACE REMOVAL, BUTT JOINT".
- * SEE TYPICAL SECTIONS FOR MILLING THICKNESS.
- *** 20'-0" (6.1 m) PER 1 (25) RESURFACING (NOTE "A")
10'-0" (3.0 m) PER 1 (25) RESURFACING (NOTE "B")

BASIS OF PAYMENT:

THE BUTT JOINT WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE YARD (SQUARE METER) FOR "HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT" OR FOR "PORTLAND CEMENT CONCRETE SURFACE REMOVAL - BUTT JOINT".

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.

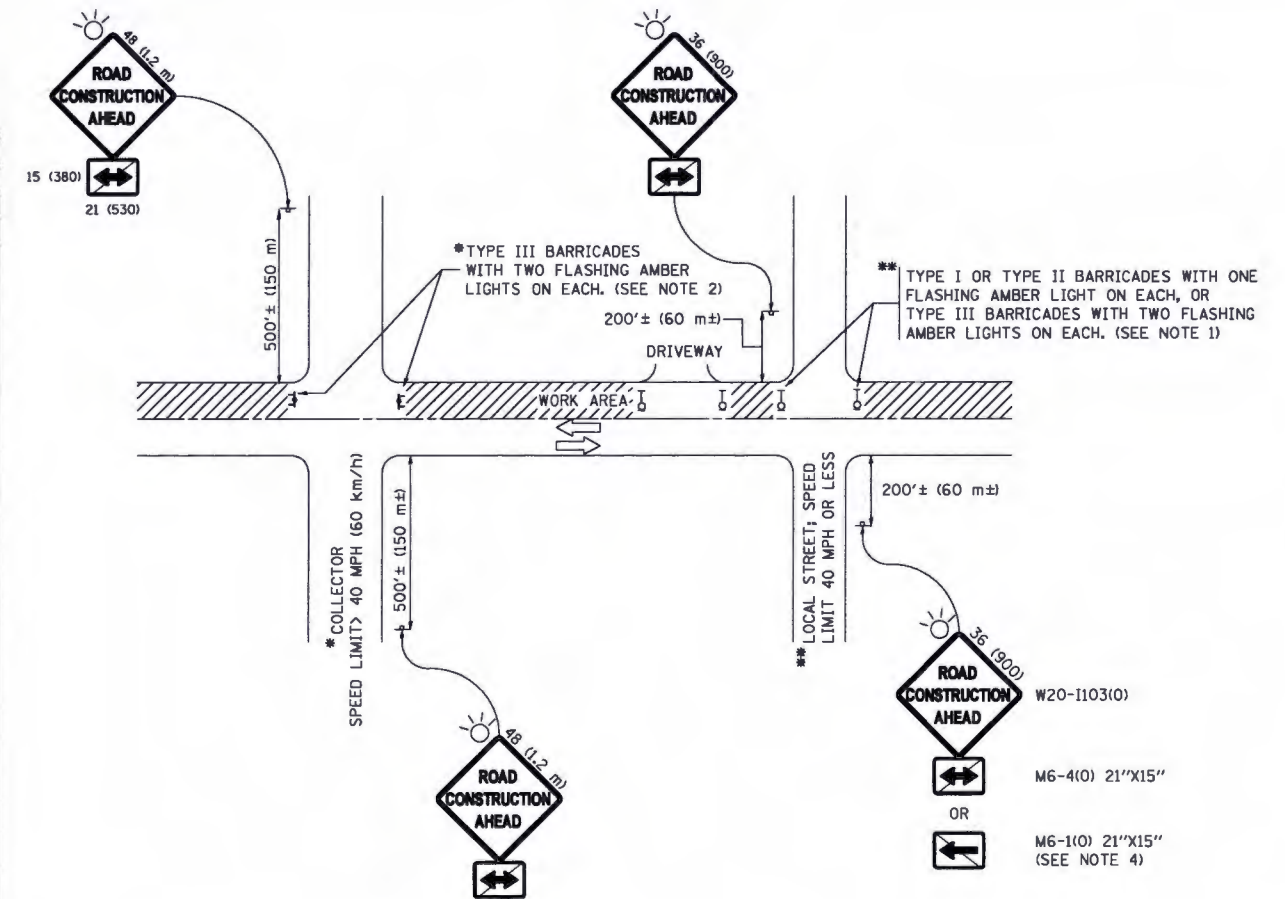
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SOUTH STREET RECONSTRUCTION
BUTT JOINT AND
HMA TAPER DETAILS

VILLAGE
of
TINLEY PARK,

SHEET NO.
14 of 15



NOTES:

- SIDE ROAD WITH A SPEED LIMIT OF 40 MPH (60 km/h) OR LESS AS SHOWN ON THE DRAWING AND AS DIRECTED BY THE ENGINEER:
 - ONE "ROAD CONSTRUCTION AHEAD" SIGN 36 x 36 (900x900) WITH A FLASHER MOUNTED ON IT APPROXIMATELY 200' (60 m) IN ADVANCE OF THE MAIN ROUTE.
 - THE CLOSED PORTION OF THE MAIN ROUTE SHALL BE PROTECTED BY BLOCKING WITH TYPE I, TYPE II OR TYPE III BARRICADES, 1/3 OF THE CROSS SECTION OF THE CLOSED PORTION.
- SIDE ROAD WITH A SPEED LIMIT GREATER THAN 40 MPH (60 km/h) AS SHOWN ON THE DRAWING AND AS DIRECTED BY THE ENGINEER:
 - ONE "ROAD CONSTRUCTION AHEAD" SIGN 48 x 48 (1.2 m x 1.2 m) WITH A FLASHER MOUNTED ON IT APPROXIMATELY 500' (150 m) IN ADVANCE OF THE MAIN ROUTE.
 - THE CLOSED PORTION OF THE MAIN ROUTE SHALL BE PROTECTED BY BLOCKING WITH TYPE III BARRICADES, 1/2 OF THE CROSS SECTION OF THE CLOSED PORTION.
- CONES MAY BE SUBSTITUTED FOR BARRICADES OR DRUMS AT HALF THE SPACING DURING DAY OPERATIONS. CONES SHALL BE A MINIMUM OF 28 (710) IN HEIGHT.
- WHEN THE SIDE ROAD LIES BETWEEN THE BEGINNING OF THE MAINLINE SIGNING AND THE WORK ZONE, A SINGLE HEADED ARROW (M6-1) SHALL BE USED IN LIEU OF THE DOUBLE HEADED ARROW (M6-4).
- WHEN WORK IS BEING PERFORMED ON A SIDE ROAD OR DRIVEWAY, FOLLOW THE APPLICABLE STANDARD(S). THE DIRECTIONAL ARROW (M6-1 OR M6-4) SHALL BE COVERED OR REMOVED WHEN NO LONGER CONSISTENT WITH THE TRAFFIC CONTROL SET-UP.
- ADVANCE WARNING SIGNS ARE TO BE OMITTED ON DRIVEWAYS UNLESS OTHERWISE SPECIFIED IN THE PLANS OR BY THE ENGINEER.
- THE TRAFFIC CONTROL AND PROTECTION FOR SIDE ROADS, INTERSECTIONS, AND DRIVEWAYS SHALL BE INCLUDED IN THE COST OF SPECIFIED TRAFFIC CONTROL STANDARDS OR ITEMS.

All dimensions are in inches (millimeters) unless otherwise shown.

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SOUTH STREET RECONSTRUCTION
TRAFFIC CONTROL AND PROTECTION FOR
SIDE ROADS, INTERSECTIONS, AND DRIVEWAYS

VILLAGE
of
TINLEY PARK,

SHEET NO.
15 of 15