Engineering Design and Development Standards Manual

CITY OF
WOOD DALE

THE CITY OF WOOD DALE
COUNTY OF DUPAGE
STATE OF ILLINOIS

Distributed by:
CITY OF WOOD DALE
DEPARTMENT OF PUBLIC WORKS
720 N. Central Avenue
Wood Dale, Illinois 60191
(630) 350-3530

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TABLE OF CONTENTS

1. Written Standards
    Bid Documents
    Standard Specifications
    Standard General Notes

2. Details
    100: General Administration
    200: Storm Sewer
    300: Sanitary Sewer
    400: Water Distribution System
    500: Pavement
    600: Street Lighting & Traffic Signals
    700: Grading, Landscaping & Erosion Control

1

Written Standards

Bid documents
Standard Specifications
Standard General Notes

BID DOCUMENTS

RETURN WITH **BID**

Submitted By: _____

Company Name: _____

Contact Person: _____

Address: _____

City, State, Zip: _____

Telephone: _____

Fax: _____

CITY OF
WOOD DALE

CITY OF WOOD DALE
DUPAGE COUNTY, ILLINOIS

NOTICE TO CONTRACTORS
CONTRACT DOCUMENTS
SPECIFICATIONS

FOR

PROJECT NAME
DATE

Annunziato Pulice, Mayor

Lynn Curiale, City Clerk

Prepared By:

City of Wood Dale, Public Works
404 N. Wood Dale Road
Wood Dale, Illinois 60191

TABLE OF CONTENTS

Cover Sheet……...1

Table of Contents……..2

Notice to Bidders……..3

Definitions……4

General Terms and Conditions and Instructions to Bidders ……5

Insurance Requirements……..11

Special Instructions…….14

Bid Proposal……15

Contract……..19

Disclosure of Beneficiaries…….22

Bidder's Certification Forms……..24

Contractor References…….30

Performance Bond...……...31

Maintenance Bond……..33

Project Special Provisions or Technical Specifications……...--

Attachments…….--

CITY OF WOOD DALE

PROJECT NAME

NOTICE TO BIDDERS

Sealed bids for the **"PROJECT NAME"** will be received in the office of the City Clerk, City of Wood Dale, IL 60191 until BID TIME on the BID DATE, at which time all bids will be publicly opened and read. All bids must be submitted in a sealed envelope marked in the lower left hand corner "SEALED BID, DO NOT OPEN; PROPOSAL OF [NAME OF BIDDER] FOR THE CITY OF WOOD DALE [PROJECT NAME]." Specifications may be obtained at the Clerk's office or by mail/email upon request. This is a prevailing wage project.

IF MANDATORY PRE-BID MEETING IS HELD INCLUDE THIS PARAGRAPH.
A mandatory pre-bid meeting will be held for all prospective bidders on PRE-BID MEETING DATE at PRE-BID MEETING TIME at PRE-BID MEETING LOCATION. All contractors planning on submitting bids for this project must attend the meeting. The City reserves the right to deny bid documents to any contractor they believe does not possess the necessary qualifications to complete the work.

Please contact CONTACT NAME, CONTACT TITLE, by phone at CONTACT PHONE, or by email at CONTACT EMAIL with any questions regarding the bid.

All proposals must be accompanied by a bid guarantee consisting of a bid bond, a cashier's check, or certified check in the amount of not less than ten percent (10%) of the amount of the bid.

Failure of the U.S. Post Office or any other messenger service to deliver the bid on time will not be the responsibility of the City of Wood Dale. The bidders accept full responsibility for timely delivery of their bids. The City of Wood Dale is not liable for any costs incurred in submitting a bid.

The City Council reserves the right to reject any or all bids and to waive any technicalities. The City of Wood Dale also reserves the right to delay the bid opening for a reasonable time and/or to make changes to the project's specifications by means of bid addendum which will be mailed to all interested parties that have obtained bid documents.

Lynn Curiale
City Clerk

Dated this ADVERTISE DATE.

CITY OF WOOD DALE
PROJECT NAME

DEFINITIONS

1. Owner - The officials, employees, and agents of the City of Wood Dale, Illinois.

2. Director - The City of Wood Dale's Director of Public Works or designee.

3. City - The geographic area of the City of Wood Dale, Illinois.

4. Contract - The agreement created by and consisting of the Contract Documents.

5. Contract Documents - The following documents including the Notice to Bidders, Definitions, General Terms and Conditions and Instructions to Bidders, Special Instructions, Proposal, Specifications, Special Provisions, Disclosure of Beneficiaries. Certifications, and attachments, together with all addenda issued prior to the award of the Contract supplementing or modifying any of those documents.

6. Contractor or General Contractor - The party contracting for the work.

7. Days - Unless otherwise stated, days as used herein will be understood to mean calendar days.

8. Completion Date - Date on which the work as described herein is to be completed, as set forth in the Contract.

9. Final Acceptance - The work shall be deemed to have been finally accepted after it has been determined that the Contractor has complied with the Specifications and other Contract Documents.

10. Notice of Award – Verbal or written communication by the Director of Public Works or designee informing the Contractor of the Council's decision to accept their proposal.

11. Notice to Proceed – Verbal or written communication by the Director of Public Works or designee authorizing the contractor to commence construction activities on a specified date.

12. Specifications - Specifications identified in the Contract.

13. Subcontractor - Secondary Contractor engaged by the Contractor.

14. Supplier - Any vendor supplying materials, equipment, or apparatus.

CITY OF WOOD DALE

PROJECT NAME

GENERAL TERMS AND CONDITIONS AND INSTRUCTIONS TO BIDDERS

THE GENERAL RULES AND CONDITIONS THAT FOLLOW APPLY TO EACH FORMAL INVITATION TO BID ISSUED BY THE CITY OF WOOD DALE, UNLESS OTHERWISE SPECIFIED. BIDDERS OR THEIR AUTHORIZED REPRESENTATIVES ARE EXPECTED TO FULLY INFORM THEMSELVES OF THE TERMS, CONDITIONS, REQUIREMENTS AND SPECIFICATIONS BEFORE SUBMITTING BIDS. FAILURE TO DO SO WILL BE AT THE BIDDER'S OWN RISK AND NO RELIEF WILL BE GRANTED OR SECURED ON A PLEA OF ERROR.

INSTRUCTIONS TO BIDDERS

1. PROPOSAL FORMS HAVE BEEN FURNISHED: Proposals shall be submitted on the forms provided, properly signed in the appropriate place and submitted in a sealed envelope.

2. LATE BIDS: Bids will opened precisely at the assigned time. Bids received after the assigned time will be rejected and returned unopened to the sender. Formal bids, amendments thereto, or requests for withdrawal of bids after the time specified for the bid opening will not be considered.

3. WITHDRAWAL OF BIDS: A written request for the withdrawal of a bid will be granted if the request is received by the City prior to the specified time of opening.

4. SUBMISSION OF BIDS: All bids are to be placed in a sealed, opaque envelope addressed to the City Clerk, City of Wood Dale, Illinois, clearly marked **"SEALED BID, DO NOT OPEN. PROPOSAL OF (NAME OF BIDDER) FOR CITY OF WOOD DALE PROJECT NAME.**

5. SIGNATURES: All signatures shall be in handwriting, and no proposal shall be considered unless properly signed by the bidder or its legally authorized agent or representative, with addresses given in the correct spaces provided in the Proposal and in accordance with the directions set forth.

6. ERRORS IN BIDS: When an error is made in extending total prices, the unit bid price will govern. Erasures, etc., must be initialed by the bidder prior to submission of the bid.

7. TIME FOR RECEIVING BIDS: Bids received prior to the time of opening will be kept secure and unopened. No responsibility will attach to the City Clerk or his or her representative for the premature opening of a bid not properly addressed or identified. The City Clerk or her representative, whose duty it is to open the bids, will decide when the specified time for opening has arrived, and no bid received after that time will be considered.

8. BIDDERS PRESENT: At the time assigned for the opening of formal bids, the bids will be opened and read aloud. Bidders are encouraged to attend all openings and to offer constructive suggestions for improvements to bid format or any way in which greater savings can be realized.

9. NO BID RESPONSE: In the event you cannot submit a bid on the Owner's requirements, please return the Proposal with an explanation as to why you are unable to bid and mark it "NO BID."

10. BIDDER INTERESTED IN MORE THAN ONE BID: Only one bid can be offered by any one bidder. A party who has quoted prices for work, materials, or supplies to a bidder is not thereby disqualified from quoting prices to other bidders or from submitting a bid directly for the work, materials, or supplies.

    Unless the proposal form states that an alternate proposal is permissible, each vendor may submit only ONE proposal. If an alternate is included in the bid and it was not requested by the Owner, the first proposal seen by the Owner will be read, and the other will not be considered.

11. CERTIFICATIONS AND DISCLOSURE OF BENEFICIARIES: The Bidder is required to complete the forms listed above and return with the Bid Proposal. Failure to complete and return these forms may be considered sufficient reason for rejection of the bid.

12. BID DEPOSIT: When a bid deposit (bid guarantee) is required as indicated in the Invitation to Bid, each bid must be accompanied by a bid bond signed by a surety company authorized to do business in the State of Illinois, or by a cashier's check or certified check in an amount equal to ten percent (10%) of the total bid price or the specific amount indicated in the Invitation to Bid.

13. RETURN OF CHECKS: The bid deposit of all except the three (3) lowest responsible, responsive bidders on each contract will be returned within fifteen (15) days after the opening of bids. The remaining bid deposits of each contract will be returned within fifteen (15) days after the City Council has awarded the contract and the required appurtenances to the contract have been received.

14. ACCEPTANCE OF PROPOSALS: The owner will accept, in writing, one of the proposals within sixty (60) days from the date of opening of bids, or the time specified within the specifications, unless the lowest responsible, responsive bidder extends the time of acceptance to the Owner.

15. TAX EXEMPTION: The City of Wood Dale is exempt from Illinois Retailers Occupational Tax (Sec. IROETA); the Illinois use tax (Sec. 3, IUTA), and the federal excise tax as an exempt entity (See. 4222, IRC). The City's Tax Exemption Identification Number is E9997-4282-03.

16. PREVAILING WAGE: Under Public Works contracts, the State of Illinois requires that the general prevailing rate of wages in this locality be paid for each craft or type of work hereunder. This shall include payment of the general prevailing rate for legal holiday and overtime work. It shall be mandatory upon the subcontractor under the Contractor. If wage rates change during the

course of the project, the new rate information will be available at http://labor.illinois.gov/. This requirement is in accordance with Public Act 86-799.

17. CHANGE ORDER AUTHORIZATIONS: All Change Orders which authorize a net increase or decrease in the cost of the contract by $10,000 or more or in the time of completion by 30 days or more require a written determination supporting the change, executed first by the Contractor, then by the City Council.

    All Change Orders which authorize a net increase or decrease in the cost of the contract by less than $10,000, or in the time of completion by less than 30 days, require a written determination supporting the change, executed first by the Contractor, then by the City Manager.

    Requests for Change Orders must state that the circumstances said to necessitate the change were not reasonably foreseeable at the time the contract was signed and were not within the contemplation of the contract as signed.

18. EQUAL EMPLOYMENT OPPORTUNITY: In the event of the contractor's noncompliance with any provision of the Equal Employment Opportunity Act, the Americans with Disabilities Act (ADA), the Illinois Fair Employment Practices Act, or the Fair Employment Practices Commission's Rules and Regulations for Public Contracts, the contractor may be declared non-responsible and therefore ineligible for future contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations, and the contract may be canceled or avoided, in whole or in part, and such other sanctions or penalties may be imposed or remedies involved as provided by statute or regulation.

19. AWARD OR REJECTION OF BIDS: The contract will be awarded to the lowest responsible, responsive bidder or any other bidder determined by the Owner to be in the best interest of the City of Wood Dale complying with all the provisions of the invitation, provided the bid price is reasonable and it is in the interest of the City to accept it. No proposal will be accepted from or contract awarded to any person, firm, or corporation that is in arrears or is in default to the City of Wood Dale upon any debt or contract, or that is a defaulter, as surety or otherwise, upon any obligation to said City of Wood Dale, or had failed to perform faithfully any previous contract with the City of Wood Dale. The Owner reserves the right to reject any or all bids and to waive any informality in bids received whenever such rejection or waiver is in the interests of the City.

    In determining responsibility, the following qualifications, in addition to price, will be considered by the Owner:

    A. The ability, capacity and skill of the bidder to perform the service required within the specified time;

    B. The character, integrity, reputation, judgment, experience, and efficiency of the bidder;

C. The quality of performance of previous contracts or services with the City of Wood Dale or other clients;

D. The previous and existing compliance by the bidder with laws and ordinances relating to previous contracts with the City of Wood Dale, the bidder's employment practices and compliance with ADA requirements;

E. The sufficiency of the financial resources and ability of the bidder to perform the contract or provide the service;

F. The quality, availability, and adaptability of the supplies or contractual services to the particular use required;

G. The ability of the bidder to provide future maintenance and service for the use of the subject of the contract;

H. The number and scope of conditions attached to the bid; and

I. Such other information as may be secured by the Owner having a bearing on the decision to make the award.

20. ESTIMATED BID QUANTITIES: On "Estimated Bid Quantities," acceptance will bind the Owner to pay for, at unit bid prices, only quantities ordered and delivered. Any reference to forecasted or estimated quantities within the bidding documents is intended to inform the bidder of approximate annual requirements. The Owner may purchase as little as zero (0) percent or as much as one hundred fifty (150) percent of the forecasted or estimated quantities.

21. CONTRACTOR PAYMENTS: Contractor will be paid from funds allocated to the project. Payments will be made according to the Local Government Prompt Payment Act (50 ILCS 505).

22. GENERAL GUARANTY: Contractor agrees to hold the City of Wood Dale, its agents, and employees harmless from liability of any nature or kind for the use of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, article, or appliance furnished or used in the performance of the contract of which the Contractor is not the patentee, assignee, licensee, or owner.

Contractor agrees to protect the City of Wood Dale against latent defective material or workmanship and to repair or replace any damages or marring occurring in transit or delivery.

Contractor agrees to pay for all permits, licenses, and fees; and give all notices and comply with all laws, ordinances, and rules of the City of Wood Dale and State of Illinois.

23. ASSIGNMENT: Assignment of this contract or any part thereof, or any funds to be received thereunder by the contractor shall be subject to written approval of the Owner.

24. DEFAULT: The contract may be canceled or annulled by the Owner in whole or in part by written notice of default to the Contractor upon nonperformance or violation of contract terms. An award made to the next low Bidder or materials/services specified may be procured on the open market similar to those so terminated. In either event, the defaulting Contractor (or his surety) shall be liable to the City of Wood Dale for costs to the City in excess of the defaulted contract prices provided, that the Contractor shall continue the performance of this contract to the extent not terminated under the provisions of this clause. Failure of the contractor to deliver materials or services within the time stipulated in the bid, unless extended in writing by the Owner, shall constitute contract default.

25. INSURANCE: The Contractor shall procure, and maintain for the duration of the contract, insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees, or subcontractors.

A. Minimum Scope of Insurance

Policy shall include the following coverage types:

1. Commercial General Liability Occurrence form with the City of Wood Dale named as additional insured;

2. Owners and Contractors Protective Liability (OCP) policy with the City of Wood Dale named as additional insured (if applicable);

3. Business Auto Liability Coverage;

4. Worker's Compensation as required by the Worker's Compensation Act of the State of Illinois and Employer's Liability insurance;

5. Builder Risk Property Coverage with City of Wood Dale as loss payee (if applicable); and

6. Environmental Impairment/Pollution Liability Coverage for pollution incidents as a result of a claim for bodily injury, property damage or remediation costs from an incident at, on or migrating beyond the contracted work site. Coverage shall be extended to Non-Owned Disposal sites resulting from a pollution incident at, on or mitigating beyond the site; and also provide coverage for incidents occurring during transportation of pollutants (if applicable).

B. Minimum Limits of Insurance: See attachment "A"

26. QUESTIONS OF THE BIDDER DIRECTED TO THE CITY REGARDING SPECIFICATIONS: If the question pertains to information which is provided in the specifications or the bidder is requesting a clarification of a point which is answerable within the context of the specification, the Director of Public Works, or designee, may refer the bidder to the location within the specification providing the information which will readily answer the contractor's question.

If the question is a request to deviate from the terms and conditions of the specification or if the bidder needs clarification that is not apparent in the specification such as an interpretation of the drawings, specifications, or the bid documents, the bidder must make such an inquiry in writing to Alan Lange, Director of Public Works, City of Wood Dale, 404 N. Wood Dale Road, Wood Dale, IL 60191. Phone Number: (630)787-3761. The Director of Public Works will then respond in writing in the form of an addendum to the specifications to all those who receive bid packages. Only inquiries received a minimum of seven (7) working days prior to the date set for the opening of bids will be given any consideration. Oral answers will not be binding on the City of Wood Dale.

27. SPECIAL CONDITIONS: Whenever special conditions are written into the Specifications, Special Provisions, or Special Instructions which conflict with conditions stated in these General Terms and Conditions and Instructions to Bidders, the conditions stated in the Specifications, Special Provisions, or Special Instructions shall take precedence.

ATTACHMENT "A"
INSURANCE REQUIREMENTS

Type of Insurance	Limits of Liability
General Liability:	Property Damage:
Comprehensive Form	$1,000.000 each occurrence
Premises – Operations	
Products/Completed Operations Hazard	
Contractual Insurance	
Broad Form Property Damage	Bodily Injury:
Independent Contractors	$1,000,000 aggregate
Personal Injury	
Explosion and Collapse Hazard	
Underground Hazard	
Automobile Liability:	Bodily Injury and Property
Comprehensive Form	Damage Combined:
Owned	$1,000,000 each occurrence
Hired	
Non-owned	
Excess Liability:	Bodily Injury and Property
Umbrella Form	Damage Combined:
	$2,000,000 each occurrence
	$2,000,000 aggregate
Worker's Compensation and Employer's Liability:	$500,000 each accident

The coverage afforded the additional insureds shall be primary insurance for the additional insureds with respect to claims or suits arising out of operations performed by or on behalf of the Contractor.

If the additional insures have other insurance which is applicable to the loss, such other insurance shall be on an excess or contingent basis. The amount of the company's liability under the insurance policy shall not be reduced by the existence of such other insurance.

A. Workers' Compensation and Employers' Liability Coverages

The insurer shall agree to waive all rights of subrogation against the City of Wood Dale, its officials, agents, employees and volunteers for losses arising from work performed by Contractor for the City of Wood Dale.

B. All Coverages

Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, cancelled, reduced in coverage or in limits except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the City.

C. Verification of Coverage

Contractor shall furnish the City with certificates of insurance naming the member, its officials, agents, employees and volunteers as additional insureds, and with original endorsements affecting coverage required by this clause. The certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates and endorsements may be on the forms provided by the City and are to be received and approved by the City before any work commences.

D. Assumption of Liability

The contractor assumes liability for all injury or death of any person or persons including employees of the contractor, or any sub-contractor, any supplier or any other person and assumes liability for all damage to property sustained by any person or persons so occasioned by or in any way arising out of any work performed pursuant to this agreement.

E. Regulatory Requirements

Contractor bidder must comply with all applicable laws, regulations, and rules promulgated by any Federal, State, County, Municipal and/or other governmental unit or regulatory body now in effect or which may be in effect during the performance of the work. Included within the scope of the laws, regulations, and rules referred to in this paragraph but in no way to operate as a limitation, are Occupational Safety and Health Act (OSHA), Illinois Department of Labor (IDOL), Department of Transportation, all forms of traffic regulations, public utility, Intrastate and Interstate Laws, the Social Security Act of the Federal Government and any of its titles, the Illinois Department of Human Rights, Human Rights Commission, or EEOC statutory provisions and rules and regulations.

F. Contractor's Drug-Free Workplace Certification

Pursuant to Chapter 30, Section 580/1 of the Illinois compiled Statutes (30 ILCS 580/1) "Drug Free Workplace Act", the Contractor must certify to the contracting agency that it will provide a drug free workplace that will be included in the bid packet.

G. Sexual Harassment Policy Certification

The contractor, pursuant to Illinois compiled statutes 775 ILCS 5/2-105 (A) (4), must be in full compliance and have a written sexual harassment policy in place and provide a copy of such written policy to the Illinois Department of Human Rights upon request.

H. Indemnity/Hold Harmless

The Contractor hereby agrees to indemnify and defend the City of Wood Dale, its officers, agents, and employees and each of them, against and hold it and them harmless from any and all lawsuits, claims, demands, liabilities, losses and expenses, including court costs and attorneys' fees, for or on account of any injury to any person, or any death at any time resulting from such injury, or any damage to any property, which may arise (or which may be alleged to have arisen) out of or in connection with the work covered by the Agreement. The foregoing indemnity (together with Contractor's obligation to defend) shall apply unless it shall be found by a court of competent jurisdiction that such injury, death, or damage shall have been caused solely by the negligence of the City of Wood Dale, its officers and employees, or any of them. The City of Wood Dale shall be entitled to withhold from any payment otherwise due pursuant to the Agreement such amount or amounts as may be reasonably necessary to protect it against liability from any personal injury, death, or property damage resulting from the performance of the work hereunder.

CITY OF WOOD DALE

PROJECT NAME

-SPECIAL INSTRUCTIONS-

1. Return With Bid:

   a) Cover Sheet;

   b) Signed Proposal, including location of Bidder's office or permanent place of business;

   c) Bid guarantee consisting of a bid bond, a cashier's check, or certified check in an amount not less than ten percent (10%) of the amount of the bid;

   d) Completed Disclosure of Beneficiaries Form;

   e) Signed Certification Forms; and

   f) Completed References Form listing similar projects.

RETURN WITH **BID**

CITY OF WOOD DALE

PROJECT NAME

PROPOSAL

Honorable Mayor and City Council
City of Wood Dale
404 N. Wood Dale Road
Wood Dale, IL 60191

Ladies and Gentlemen:

The undersigned does hereby state he has examined the Notice to Bidders, Instructions to Bidders, Special Instructions, General Requirements, Proposal, Sample Contract, Technical Specifications, Certifications, and all other documents, and all work shall be done in accordance with the documents contained herein.

The undersigned does hereby propose to furnish all labor, services, materials, supplies, equipment, apparatus, appliances and to do all work and pay all costs and expenses connected therein required to complete this order in accordance with the documents named in the foregoing paragraph, on the basis of the quantities of work and services actually performed and for the unit prices stated herein below.

Name of Company: _____

Address: _____

City, State, Zip: _____

Signed: _____ Date: _____

Title: _____

****Continued on next page****

RETURN WITH **BID**

BID SHEET

The undersigned, having become familiar with the specifications and with local conditions affecting the cost of the work, hereby proposes and agrees, if this bid is accepted, to enter into an agreement with the City in the form included in the contract documents for the contract sum and within the contract time indicated in this bid and in accordance with other terms and conditions of the contract documents, and in so doing, to provide and furnish all the labor, equipment, materials, supplies, hardware, necessary tools, expendable equipment and supplies, and all utility and transportation services necessary to perform and complete, in a first-class manner, the entire work in conjunction with the PROJECT NAME.

In accordance with the complete specifications, the following amount constitutes as a total sum of the bid:

PROJECT NAME

ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	AMOUNT
1					
2					
3					
4					
5					
6					
7					
8					
TOTAL:			**$**		

RETURN WITH **BID**

Accompanying this Proposal is a proposal guarantee in the amount of $_____ (10%) which is hereby tendered in accordance with the requirement of the Instructions to Bidders and the Specifications and/or Special Provisions. If this proposal is accepted and the undersigned fails to execute a contract as required herein, it is hereby agreed that the proposal guarantee shall become the property of the City of Wood Dale, and shall be considered as payment of damages due to delay and other consequences suffered by the City of Wood Dale due to the failure to execute said contract.

The undersigned acknowledges receipt of addenda as follows:

Addendum, No._____, dated _____

No._____, dated _____

No._____, dated _____

This bid is an offer which shall be considered accepted only after the Corporate Authorities authorize the execution of the contract. In the event that this proposal is accepted and an award of contract is made to the undersigned bidder, the undersigned does hereby covenant and agree to deliver to the Owner the signed and executed Contract as specified in the Instructions to Bidders and Specifications within ten (10) days after the date of such acceptance and notification thereof.

The proposal shall be binding for sixty (60) days following the bid opening date unless the bidder, upon request of the City of Wood Dale, agrees to an extension.

THIS BID, WHEN ACCEPTED AND SIGNED BY AN AUTHORIZED SIGNATORY OF THE CITY, SHALL BECOME A CONTRACT BINDING UPON BOTH THE PERSON, PARTNERSHIP, OR CORPORATION TO SUPPLY OR PERFORM AS SPECIFIED AND UPON THE CITY TO ACCEPT THE PRODUCT OR SERVICE.

RETURN WITH **BID**

The undersigned further agrees to begin work within ten (10) working days after the executions and acceptance of the Contract, and thereafter to carry on the work diligently and continuously in such manner as to insure final completion and delivery to the Owner of the entire work under contract in accordance with the provisions of the Contract and Detailed Specifications.

Witness _____ Hand(s) and Seal this_____day of_____, 2020.
my/our

If an individual, sign and give address.

_____

Address _____

If partnership, sign all individual names and give address of each partner.

_____
Partnership Name

Name and address of individual partners.

_____

_____

_____

If corporation, officers duly authorized should sign, attach corporate seal.

_____
Corporate Name

ATTEST:

_____

Address: _____

By:_____
Secretary

-CORPORATE SEAL-

CITY OF WOOD DALE
PROJECT NAME

CONTRACT

This CONTRACT, made and entered into this_____day of_____, 2020, by and between the CITY OF WOOD DALE, an Illinois municipal corporation (hereinafter "**City**"), and_____, an Illinois corporation (hereinafter "**Contractor**");

RECITALS

WHEREAS, the City desires to engage the Contractor to provide (hereinafter "**Work**"), located within the corporate limits of the City of Wood Dale; and

WHEREAS, the Contractor represents itself to be in compliance with Illinois Statutes relating to all matters affecting its status as a corporation operating as a general contractor within the State of Illinois and to have the necessary expertise and experience to furnish such services for the Work upon the terms and conditions set forth herein below:

NOW, THEREFORE, in consideration of the mutual promises herein contained, it is hereby agreed by and between the City and the Contractor that:

I. SCOPE OF SERVICES

The Scope of Services shall be as set forth in the "Notice to Bidders", "Instructions to Bidders", "Special Instructions", "Technical Specifications", "General Requirements", "Specifications", and "Special Provisions" prepared by the City. Should there be a conflict in terms between this Contract and the other documents, which are a component part hereof, this Document shall control.

II. PERFORMANCE OF WORK

The Contractor shall perform all work, furnishing all materials and labor, and shall abide by the terms of this Contract and the requirements of the City. Contractor must complete, in its entirety, the project within [specify contract length], weather permitting, from the date the City provides Contractor with notice to proceed.

III. SITE ABANDONMENT

The Contractor shall prioritize this Project in accordance with the timeliness set forth in the Bid Specifications and the Contract. In no event shall the Contractor cease to perform work on this Project for a period of more than five (5) consecutive business days.

In the event that circumstances arise which require or warrant the Contractor ceasing work on

the Project for a period in excess of five (5) business days, the Contractor shall provide Notice to the City, with Notice to the Public Works Director and the Project Engineer. Said Notice shall provide the basis for the Contractor being unable to perform work on the Project for said period of time.

In the event that the basis for the delay is not acceptable to the City, the City shall so notify the Contractor immediately. In such case, the Contractor shall arrange to return to the Project immediately following any five (5) day absence.

Nothing herein is intended to or shall alter the Substantial Completion or Final Completion requirements set forth in the Contract. In addition, nothing herein is intended to or shall alter the Liquidated Damages provisions of the Contract.

IV. PAYMENT TO THE CONTRACTOR

For the Work, the Contractor shall be paid in accordance with the Proposal. The City shall make payments to the Contractor within 30 days after completion of the Work and upon receipt of an invoice in a format approved by the City.

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 current "prevailing rate of wages" (hourly cash wages plus amount for fringe benefits) in the county where the work is performed. The Department publishes the prevailing wage rates on its website at http://labor.illinois.gov/. The Department revises the prevailing wage rates and the contractor/subcontractor has an obligation to check the Department's web site for revisions to prevailing wage rates. For information regarding current prevailing wage rates, please refer to the Illinois Department of Labor's website. All contractors and subcontractors rendering services under this contract must comply with all requirements of the Act, including but not limited to, all wage requirements and notice and record keeping duties.

V. NO CO-PARTNERSHIP OR AGENCY

It is understood that nothing herein contained is intended or shall be construed to, in any respect, create or establish the relationship of co-partners between the City and the Contractor, or as constituting the Contractor as the general representative or general agent for the City for any purpose whatsoever.

VI. CONTRACT DOCUMENTS

It is further understood that this Contract consists of the following documents which are hereby made a part hereof: the Notice to Bidders, Instructions to Bidders, Specifications, Special Instructions, Special Provisions, Proposal, Performance Bond, Maintenance Bond, Anti-Collusion Affidavit of Compliance, Americans with Disabilities Act of 1990 Certificate,

Policy Against Sexual Harassment Certificate, Hold Harmless Agreement, Anti-bid Rigging Certificate, and Drug-free Workplace Certificate.

VII. MATERIALS AND LABOR/WORKMANSHIP WARRANTY

Upon completion of the Work, and satisfactory acceptance by the City, the Contractor will provide a written one (1) year warranty covering both parts and labor/workmanship. Warranty shall include, but is not limited by this provision, that any defective material(s) and/or defective installation or workmanship will be repaired and/or replaced by Contractor at no cost to the City. The City's preferred warranty template is attached to this document.

VIII. SEVERABILITY

The parties intend and agree that, if any paragraph, subparagraph, phrase, clause, or other provision of this Contract, or any portion thereof, shall be held to be void or otherwise unenforceable, all other portions of this Contract shall remain in full force and effect.

IX. HEADINGS

The headings of the several paragraphs of this Contract are inserted only as a matter of convenience and for reference and in no way are they intended to define, limit, or describe the scope or intent of any provision of this Contract, nor shall they be construed to affect in any manner the terms and provisions hereof or the interpretation or construction thereof.

X. MODIFICATION OR AMENDMENT

This Contract constitutes the entire contract of the parties on the subject matter hereof and may not be changed, modified, discharged, or extended except by written amendment duly executed by the parties. Each party agrees that no representations or warranties shall be binding upon the other party unless expressed in writing herein or in a duly executed amendment hereof, or Change Order as herein provided.

XX. APPLICABLE LAW

This Contract shall be deemed to have been made in, and shall be construed in accordance with the laws of the 18th Judicial Circuit Court of DuPage County, State of Illinois.

XXI. NEWS RELEASES

The Contractor may not issue any news releases without prior approval from the City Manager nor will the Contractor make public proposals developed under this Contract without prior written approval from the City Manager prior to said documentation becoming a matter of public record.

XXII. COOPERATION WITH OTHER CONTRACTORS

The Contractor shall cooperate with any other Contractors in the City's employ or any matter associated with the Work.

XXIII. NOTICES

All notices, reports and documents required under this Contract shall be in writing and shall be mailed by first class mail, postage prepaid, addressed as follows:

If to City:
Jeffrey Mermuys
City Manager
404 N. Wood Dale Road
Wood Dale, Illinois 60191

With a copy to:
Lynn Curiale
City Clerk
404 N. Wood Dale Road
Wood Dale, Illinois 60191

If to Contractor: _____
_____
_____
_____

IN WITNESS WHEREOF, the undersigned have placed their hands and seals hereto on the date first above written.

CITY OF WOOD DALE:

_____
Annunziato Pulice, Mayor

ATTEST:

_____
Lynn Curiale, City Clerk

CONTRACTOR:

By_____
Its _____

ATTEST:

By _____

RETURN WITH **BID**

CITY OF WOOD DALE
PROJECT NAME

-DISCLOSURE OF BENEFICIARIES-

In compliance with City of Wood Dale Purchasing Procedures requiring the disclosure of certain interests by persons applying for permits, licenses, approval, or benefits from the City of Wood Dale:

1. Applicant: _____
Name

_____
Address

2. Nature of Transaction Sought; for example, license permit approval or sale of products, services. or miscellaneous (explain miscellaneous):

_____

_____

3. Nature of Applicant: (Please check one)

a. Natural Person: ____
b. Corporation: ____
c. Land Trust/Trustee: ____
d. Trust/Trustee: ____
e. Partnership: ____
f. Joint Venture: ____

4. If applicant is an entity other than described in Section 3, briefly state the nature and characteristics of the applicant:

_____

_____

5. If in your answer to Section 3 you have checked Box b, c, d, or e, identify by name and address each person or entity who is a 7.5 percent shareholder in the case of a corporation, a beneficiary in the case of a trust or land trust, a joint venturer in the case of a joint venture, or who otherwise has a proprietary interest, interest-in profits and losses, or right to control such entity.

Name Address Interest

a. _____
b. _____
c. _____

6. Name, address, and capacity of person making this disclosure on behalf of the applicant:

_____

IMPORTANT NOTE: In the event your answer to Section 5 identifies entities other than a natural person, additional disclosures are required for each such entity.

VERIFICATION

I,_____, being first duly sworn under oath, depose and state that I am the person making this disclosure on behalf of the applicant, that I am duly authorized to make this disclosure, that I have read the above and foregoing Disclosure of Beneficiaries, and that the statements contained therein are true in both substance and fact.

By:_____
(Authorized Signature and Title)

Subscribed and sworn to before me this_____ day

of_____, 2020.

_____
Notary Public

RETURN WITH **BID**

CITY OF WOOD DALE
PROJECT NAME

BID CERTIFICATION FORM

RE: CERTIFICATION OF BIDDER, COMPLIANCE WITH SECTION 33E-11
OF ILLINOIS CRIMINAL CODE OF 1961

I/we hereby certify that_____is not barred from bidding on this contract as the result of a violation of either Section 33E-3 or 33E-4 of this Article of the Illinois Criminal Code of 1961.

Signed:_____
Date: _____
Title: _____

INTERFERENCE WITH PUBLIC CONTRACTING - - BID RIGGING AND ROTATING - - KICKBACKS - - BRIBERY

PUBLIC ACT 85-1295
S.B. 2002

AN ACT to add Article 33E to the "Criminal Code of 1961", approved July 28, 1961, as amended.
Be it enacted by the People of the State of Illinois, represented in the General Assembly:
Section 1: Article 33E is added to the "Criminal Code of 1961", approved July 28, 1961, as amended, the added Article to read as follows:

ARTICLE 33E. PUBLIC CONTRACTS

Sec. 33E-3 Bid-rigging. A person commits the offense of bid-rigging when he knowingly agrees with any person who is, or but for such agreement would be, a competitor of such person concerning any bid submitted or not submitted by such person or another to a unit of State or local government when with the intent that the bid submitted or not submitted will result in the award of a contract to such person or another and he either (1) Provides such person or receives, from another, information be disclosed to a competitor in an independent, noncollusive submission of bids or (2) Submits a bid that is off such a price, or other material terms, that he does not intend the bid to be accepted.

Bid-rigging is a Class 3 felony. Any person convicted of this offense shall be barred for 5 years from the date of conviction from bidding on any contract offered for bid by any unit of State or local government.

Sec 33E-4. Bid rotating. A person commits the offense of bid rotating when pursuant to any

collusive scheme or agreement with another. He engages in a patter over time (which, for the purposes of this Section, shall include at least 3 contract bids within a period of 10 years, the most recent of which occurs after the effective date of this amendatory Act of 1988) of submitting sealed bids to units of State or local government with the intent that the award of such bids rotates, or is distributed among persons or business entities which submit bids on a substantial number of the same contracts. Bid rotating is a Class 2 felony. Any person convicted of this offense shall be permanently barred from bidding on public contracts in the State of Illinois.

Bidder hereby certifies:

A. That this bid is genuine and it not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation.

B. That he has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid.

C. That he has not solicited or induced any person, firm, or corporation to refrain from bidding.

D. That he has not sought by collusion or otherwise to obtain for himself any advantage over any other bidder or over the Owner.

E. That he is not barred from bidding for this Contract as a result of a violation of Section 33E-3 or Section 33E-4 of the Illinois Criminal Code of 1961 (Ill. Rev Stat. ch. 38, Paragraph 33E-1 et seq.).

SUBMITTED: _____ DATE: _____

FIRM NAME: _____ (SEAL)

ADDRESS: _____

SIGNED BY: _____
(Signature and Date)

_____
(Title)

ATTEST: _____
(Secretary)

Subscribed and sworn to before me this _____ day of _____ 2020.

(Notary Public)

RETURN WITH **BID**

CITY OF WOOD DALE
PROJECT NAME

CERTIFICATION

_____(hereinafter referred to as **"Contractor"**) having submitted a bid/proposal for_____to the City of Wood Dale, DuPage County, Illinois, for_____, herebycertifies that:

5/2-105(A) (4) including the following information:

1. An acknowledgement of the illegality of sexual harassment.
2. The definition of sexual harassment under State law.
3. A description of sexual harassment, utilizing examples.
4. The contractor's internal complaint process, including penalties.
5. The legal recourse, investigative and complaint process available through the Illinois Department of Human Rights and the Human Rights Commission.
6. Directions on how to contact the Department of the Commission.
7. An acknowledgement of protection of a complainant against retaliation as provided in Section 6-101 of the Human Rights Act.

Each contractor must provide a copy of such written policy to the Illinois Department of Human Rights upon request.

By:_____
Authorized Agent of Contractor

Subscribed and sworn to before me on this_____day of_____2020.

_____
Notary Public

RETURN WITH **BID**

CITY OF WOOD DALE
PROJECT NAME

CONTRACTOR'S DRUG-FREE WORKPLACE CERTIFICATION

Pursuant to Ill. Rev. Stat. ch. 127 paragraph 132.311 et. seq. ("Drug Free Workplace Act), the undersigned contractor hereby certifies to the contracting agency that it will provide a drug-free workplace by:

(a) Publishing a statement:

(1) Notifying employees that the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance, including cannabis, is prohibited in the grantee's of contractor's workplace.

(2) Specifying the actions that will be taken against employees for violations of such prohibition.

(3) Notifying the employee that, as a condition of employment on such contract or grant, the employee will:

(A) Abide by the terms of the statement; and
(B) Notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction.

(b) Establishing a drug free awareness program to inform employees about:

(1) The dangers of drug abuse in the workplace:

(2) The grantee's or contractor's policy of maintaining drug-free workplace;

(3) Any available drug counseling, rehabilitation, and employee assistance program; and

(4) The penalties that may be imposed upon employees for drug violation.

(c) Making it a requirement to give a copy of the statement required by subsection (a) to each employee engaged in the performance of the contract or grant and to post the statement in a prominent place in the workplace.

(d) Notifying the contracting agency within ten (10) days after receiving notice under par (B) of paragraph (3) of subsection (a) from an employee or otherwise receiving actual notice of such conviction.

Dated: _____ By: _____
Authorized Agent of Contractor

RETURN WITH **BID**

CITY OF WOOD DALE
PROJECT NAME

CERTIFICATION

_____, being first duly sworn, deposes and

states that he is_____of
(Partner, Officer, Owner, etc.)

_____,
(Corporation / Company)

and that he is cognizant of the following statutory requirements and under penalty of perjury and certifies the following:

Anti-Collusion Affidavit of Compliance: That bid is genuine and not collusive or sham; that said bidder has not colluded, conspired, connived or agreed directly or indirectly with any bidder or person to put in a sham bid or to refrain from bidding;, and has not in any manner directly or indirectly sought by agreement or collusion or communication or conference with any person to fix the bid price element of said bid or that of any other bidder; or to secure any advantage against any other bidder or any person interested in the proposed contract.

Public Act 85-1295: That bidder is not barred from bidding on this contract as a result of a violation of either Section 33E-3 or 33E-4 of P.A. 85-1295 (720ILCS 5).

Public Act 86-1039: That bidder is not barred from contracting with the City of Wood Dale because of any delinquency in the payment of any tax administered by the Department of Revenue unless the individual or entity is contesting, in accordance with the procedures established by the appropriate revenue act, liability for the tax, or the amount of the tax (65ILCS 5/11-42.1-1).

Public Act 86-1459: That bidder will provide a drug free workplace in accordance with the Illinois Drug Free Workplace Act (30ILCS 580/2).

Illinois Human Rights Act: That bidder is presently in compliance and agrees to comply with all applicable provisions of the Illinois Human Rights Act, together with all rules and regulations promulgated and adopted pursuant thereto (775ILCS 5/1 -101 et seq.).

Equal Employment Opportunities-Affirmative Action: That bidder is presently in compliance and agrees to comply with all applicable provisions of Equal Employment Opportunities--Affirmative Action (775ILCS 5/2-105 [A]).

Americans with Disabilities Act of 1990: That bidder is presently in compliance and agrees to comply with all applicable provisions of the Americans with Disabilities Act of 1990 together with all rules and regulations promulgated and adopted pursuant thereto.

INDIVIDUAL:

Signature of Bidder: _____

Business Address: _____

Business Phone Number: _____

PARTNERSHIP:

Partnership Name: _____

Signed By: _____

Business Address: _____

Business Phone Number: _____

Insert Names and Addresses of All Partners: _____

CORPORATION:

Corporate Name: _____

Signed By: _____

Title: _____

Business Address: _____

Business Phone Number: _____

Insert Names of Corporate Officers

President: _____

Secretary: _____

Treasurer: _____

Attest: _____

RETURN WITH **BID**

CITY OF WOOD DALE
PROJECT NAME

REFERENCES

Name of Bidding Firm: _____
(Please print)

The Contractor must list three (3) references with needs similar to the City of Wood Dale for whom Contractor has supplied the materials and services for which he is bidding on this contract within the last three years. Please include name, address, telephone number, contact person, and type of work you performed for that entity.

1. Company Name/Municipality: _____

   Address: _____

   Phone: _____

   Contact Person: _____

   Type of Work: _____

2. Company Name/Municipality: _____

   Address: _____

   Phone: _____

   Contact Person: _____

   Type of Work: _____

3. Company Name/Municipality: _____

   Address: _____

   Phone: _____

   Contact Person: _____

   Type of Work: _____

CITY OF WOOD DALE

PERFORMANCE BOND

BOND NO. _____

KNOW ALL MEN BY THESE PRESENTS: That the Contractor hereinafter identified and the Surety set forth herein jointly and severally bind themselves, their successors and assigns unto the CITY OF WOOD DALE, (hereinafter referred to as the "CITY"), for the full and complete performance of the Project identified herein.

_____[insert name of Contractor], located at _____[insert address of Contractor], (hereinafter referred to as the "Contractor"), is performing certain work in the CITY in connection with _____[insert Project name] Project No.: _____[insert Project No.] (hereinafter referred to as the "Project"). In order to ensure that the Contractor fully performs all work required as part of the Project referenced herein and as a condition of the CITY's approval of the Project, the Contractor agrees to enter into a Performance Bond with a Surety licensed and authorized to transact business in the State of Illinois.

_____[insert name of Surety], (hereinafter referred to as the "Surety") with its principal Office located at, _____[insert address of Surety], represents that it is a Corporation authorized to perform surety business in the State of Illinois, and hereby agrees to be held and firmly bound unto the CITY, with its Principal Office located at 404 N. Wood Dale Road, Wood Dale, Illinois, 60191, in the sum of _____[insert amount of Contract] ($_____) lawful money of the United States of America, for which payment is made, binds itself, its heirs, executors, administrators, successors and assigns.

The Surety, on behalf of the Contractor, as Principal, has entered into this Performance Bond with the CITY, guaranteeing that the Contractor will complete the Project, which Project shall be completed in accordance with the Project Specifications, Applications, Permits, Designs, Drawings and the applicable CITY Code provisions and State law on or before the completion date or any extension thereof. The Surety hereby provides the instant Performance Bond to ensure the timely completion of the Project.

If the Contractor fully performs the obligations of the Project, the Surety and Contractor shall have no obligation to the CITY under this Performance Bond.

If the Contractor fails to perform the obligations of the Project as required, said failure shall be deemed a default if the obligations are not remedied by the Contractor within ten (10) days from the date the Contractor is notified of said default by the CITY as provided for herein. In the event of said default, the CITY shall notify the Contractor and the Surety of said default. Notice shall be sent to the Contractor and the Surety by Regular or Certified Mail or electronic mail transmission. Upon receipt of Notice of Default from the CITY, the Surety shall be obligated for the costs to the CITY for completing the Project, including, but not limited to, any and all Contractor costs, Engineering fees and reasonable Attorney's fees incurred in connection with the completion of the Project and enforcing the conditions of the Performance Bond,

along with any Court costs associated therewith.

In the event of a dispute regarding the instant Performance Bond or the underlying Contract documents, the Parties agree to resolve any such dispute in the Eighteenth Judicial Circuit Court of DuPage County, Wheaton, Illinois. The CITY shall be entitled to recover reasonable Attorney's fees and costs incurred in said action

SIGNED, SEALED AND DATED THIS ___ day of _____, 2020.

CITY OF WOOD DALE

By: _____
Its:_____

CONTRACTOR

By : _____
Its: President

SURETY

By: _____
Its: Attorney-In-Fact

AGENT OR BROKER
[insert name, address, phone number and e-mail for Agent/Broker]

[NOTE: ATTACH SURETY POWER OF ATTORNEY]

CITY OF WOOD DALE

MAINTENANCE BOND

BOND NO. _____

KNOW ALL MEN BY THESE PRESENTS: That the Owner/Developer,_____ [insert name of Owner/Developer] (hereinafter referred to as "PRINCIPAL") and_____ [insert name of Surety Company], (hereinafter referred to as "SURETY") are held and firmly bound unto the CITY OF WOOD DALE, DuPage County, Illinois, (hereinafter referred to as the "CITY"), in the sum of _____ dollars ($_____) which represents ____% of the Project costs identified herein, for the payment of which we bind ourselves, our heirs, executors, successors and assigns, jointly and severally, firmly by these presents.

PRINCIPAL has constructed certain work in connection with _____[insert Project name] Project No.: _____[insert Project No], (hereinafter referred to as the "Project") including:

[ ]	Water System	[ ]	Street Drainage Inlets and Pipes
[ ]	Sewer System	[ ]	Sewage Lift Station
[ ]	Roadway Paving and Curbs	[ ]	Sewage Force Main

In connection with the Project, PRINCIPAL is obligated to protect the CITY against any defects resulting from faulty materials, faulty workmanship or faulty design of the improvements on said Project for a period of one (1) year from _____, 20_____.

The condition of this obligation is such that if PRINCIPAL shall promptly and faithfully protect the CITY against any defects resulting from faulty materials, faulty workmanship or faulty design of the aforesaid Project for a period of one (1) year from _____, 20___, then this obligation shall be null and void; otherwise, it shall remain in full force and effect.

The CITY shall notify the PRINCIPAL in writing of any defect for which the PRINCIPAL is responsible in connection with said Project and shall specify in said notice a reasonable period of time within which PRINCIPAL shall have to correct said defect. If the PRINCIPAL shall fail to correct such defect within the time specified in said notice, then the SURETY shall have thirty (30) days thereafter within which to take such action as it deems necessary to ensure performance of the PRINCIPAL'S obligation. If such defect is not corrected after the expiration of such thirty (30) day period, then the CITY shall have the right to correct such defect and the PRINCIPAL and SURETY, jointly and severally, shall pay all costs and expenses incurred by CITY in correcting such defect; including but not limited to, the engineering, legal and other costs, together with any damages either direct or consequential which the CITY may sustain on

account of PRINCIPAL'S failure to correct such defect. In addition, CITY shall have the right to contract for the correction of such defect and the PRINCIPAL and SURETY shall become immediately liable for the amount of the said Contract; and, in the event the CITY commences legal proceedings for the collection thereof of any sums due hereunder, interest shall accrue on said amount at the maximum rate allowed by law, but in no event less than six percent (6%) per annum, beginning at the commencement of said legal proceedings. The CITY, in its discretion, may permit the SURETY to correct such defect in the event of the PRINCIPAL'S failure to perform.

In the event of a dispute regarding the instant Maintenance Bond or the underlying Contract documents, the Parties agree to resolve any such dispute in the Eighteenth Judicial Circuit Court of DuPage County, Wheaton, Illinois. The CITY shall be entitled to recover reasonable Attorney's fees and costs incurred in said action

SIGNED, SEALED AND DATED THIS _____ day of _____ 20____.

PRINCIPAL

By : _____
Its: President

SURETY

By: _____
Its: Attorney-In-Fact

AGENT OR BROKER
[insert name, address, phone number and e-mail for Agent/Broker]

[NOTE: ATTACH SURETY POWER OF ATTORNEY]

STANDARD SPECIFICATIONS

SECTION 100:

GENERAL ADMINISTRATION

Page No.	Description
100-3	**101 GENERAL**
100-4	**102 STANDARD SPECIFICATIONS**
100-4	102.1 WOOD DALE STANDARD SPECIFICATIONS
100-4	102.2 OTHER SPECIFICATIONS
100-6	102.3 RESOLUTION OF CONFLICTS
100-6	102.4 USE OF OTHER MATERIALS
100-7	102.5 REVISIONS AND AMENDMENTS
100-7	102.6 DESIGN MANUAL FOR PUBLIC IMPROVEMENTS
100-8	**103 DEVELOPER/CONTRACTOR RESPONSIBILITIES**
100-8	103.1 PERMITTING
100-8	103.2 BONDING AND LICENSING
100-8	103.3 LIABILITY
100-8	103.4 WARRANTY OF WORK
100-9	**104 SURVEYING AND BENCHMARKS**
	104.1 CITY BENCHMARKS
100-9	**105 GENERAL CONSTRUCTION ACTIVITIES**
100-10	105.1 PRE-CONSTRUCTION
100-10	105.2 NOTIFICATION TO CITY
100-10	105.3 EXISTING UTILITY
100-10	105.4 HOURS OF WORK
100-11	**106 TRAFFIC CONTROL REQUIREMENTS**
100-11	106.1 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)
100-11	106.2 ARTERIAL LANE CLOSURES
100-11	**107 PERMITS**
100-11	**108 (RESERVED)**
100-11	**109 (RESERVED)**
100-12	**110 RECORD DRAWINGS**
100-12	110.1 RECORD DRAWING REQUIREMENT
100-15	110.2 RECORD DRAWING CERTIFICATION REQUIREMENTS
100-15	110.3 SUBMITTAL OF RECORD PLANS
100-16	110.4 PARTIAL SUBMITTAL OF RECORD PLANS
100-16	110.5 REVIEW OF RECORD PLANS

100-16 110.6 ACCEPTANCE OF RECORD DRAWINGS

100-18 **111 FINAL ACCEPTANCE OF IMPROVEMENTS**

101 GENERAL

The purpose of this document is to present standards and specifications for the design of public and private improvements that will result in uniform, long lasting, quality construction. It is not intended as a substitute for good engineering judgment, and it anticipates that actual design work will be done by qualified professional engineers.

These standards also expect and require only the highest quality in construction procedures, workmanship, and finished product. Defective, inappropriate, damaged, or unacceptable construction, as determined by the City or its representative, will be removed and replaced at no expense to the City.

102 STANDARD SPECIFICATIONS

102.1 WOOD DALE STANDARD SPECIFICATIONS

The specifications contained herein shall be for the construction of the following public facilities within the City of Wood Dale:

a) Section 100: General Administration

b) Section 200: Storm Sewer

c) Section 300: Sanitary Sewer

d) Section 400: Water Distribution System

e) Section 500: Pavement

f) Section 600: Street Lighting & Traffic Signals

g) Section 700: Grading, Landscaping & Erosion Control

These specifications shall be herein referred to as the Wood Dale Standard Specifications.

102.2 OTHER SPECIFICATIONS

In addition to the specifications contained herein, the following documents shall be incorporated by reference:

a) Illinois Department of Transportation, "Standard Specifications for Road and Bridge Construction", latest edition. (herein referred to as IDOT Standard Specifications)

b) Illinois Department of Transportation, "Supplemental Specifications and Recurring Special Provisions", latest edition. (herein referred to as IDOT Supplemental Specifications)

c) Illinois Department of Transportation, "Standard Specifications for Traffic Control Items", latest edition.

d) Illinois Department of Transportation, District 1 Traffic Signal Design Guidelines, latest edition.

e) Illinois Department of Transportation, Design Manual, latest edition.

f) Illinois Department of Transportation, Construction Manual, latest edition.

g) Illinois Department of Transportation, Soils Manual, latest edition.

h) Illinois Department of Transportation, Highway Standards, latest edition.

i) Illinois Department of Transportation, Manual of Instructions for Concrete Proportioning and Testing, latest edition.

j) Illinois Department of Transportation, Manual of Instructions for Bituminous Proportioning and Testing, latest edition.

k) Federal Highway Administration, "Manual on Uniform Traffic Control Devices, latest edition" and the Illinois Supplement, latest edition.

l) Illinois Society of Professional Engineers, Illinois Municipal League, et al, Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition.

m) ASTM Specifications, latest edition.

n) AASHTO Standards, latest edition.

o) The National Electrical Code, latest edition.

p) The National Electrical Safety Code, latest edition.

q) The Safety Rules for the Installation and Maintenance of Electric Supply and Communication Lines, latest edition.

r) Illinois Urban Manual, IEPA/NRCS, latest edition.

s) DuPage County, Countywide Stormwater and Flood Plain Ordinance, latest edition.

t) National Resources Conservation Services, National Engineering Handbook, latest edition.

u) City of Wood Dale Municipal Code Book.

102.3 RESOLUTION OF CONFLICTS

In the event of conflict between the Wood Dale Standard Specifications and the documents listed above in Section 102.2, the Wood Dale Standard Specifications shall take precedence and/or the City Engineer's decision will prevail. Any questions arising from these specifications should be directed in writing to the City Engineer for a determination. Any variation requested from these standards shall be submitted to the department head for approval.

102.4 USE OF OTHER MATERIALS

Products not currently approved for use within the City of Wood Dale may be considered for acceptance in accordance with the requirements of this section. The engineer, manufacturer, or City Department that desires to use a new product must submit that request in writing to the City Engineer. That request should include enough information about the product to allow the City Engineer to make a determination as to its appropriateness for use in the city. The request should also indicate if the product is requested for use on a specific project, or if the product is being

requested for inclusion in the Wood Dale Standard Specifications. Upon review of the material, the City Engineer will find the product to meet one of the following categories:

a) Not Approved – The product submitted is not considered to be acceptable or appropriate for use in the city.

b) More Information Required – The City Engineer may determine that the information provided is inadequate to make a determination. If that is the case, the applicant may resubmit to the City Engineer with additional information.

c) Special Use Application Only – The product submitted is acceptable for use on a specific project. Certain products which are not currently approved for use in the City of Wood Dale may have qualities which make them appropriate for use on special projects, even if they are not acceptable for general use throughout the city.

d) Trial Basis – A trial period may be required for products before they can be considered for inclusion in the Wood Dale Standard Specifications. For those products approved for use on a trial basis, the City Engineer will establish the conditions under which the product can be used. The trial period will typically be one year. The performance of the product will be evaluated during the trial period. At the conclusion of the trial period, the City Engineer will determine whether or not the product will be accepted into the Wood Dale Standard Specifications.

e) Inclusion in the Wood Dale Standard Specifications – The City Engineer may determine that the product is acceptable for general use throughout the city. If the product is approved, it will be added to the Wood Dale Standard Specifications through the Revision and Amendment process.

In all cases, the City Engineer will respond to the applicant in writing.

The City Engineer shall be responsible for the acceptance or rejection of materials or products for use on city projects. However, the City Engineer may confer with other city staff members to aid in those decisions. For instance, rehabilitation products, materials and construction methods for existing sewer and water mains, services and manholes will also be reviewed by the Public Works Department.

102.5 REVISIONS AND AMENDMENTS

The Wood Dale Standard Specifications will be revised and amended on a recurring basis as needed as determined by the City or its representative. All revisions and amendments will be cataloged in Appendix A.

All public improvements shall be constructed to the Wood Dale Standard Specifications in effect at the time final engineering approval is granted by the City unless specifically directed otherwise by the City Engineer.

102.6 ENGINEERING DESIGN AND DEVELOPMENT STANDARDS MANUAL

The Engineering Design and Development Standards Manual is a manual prepared by the City of Wood Dale to provide developers, contractors, architects, engineers and other building

professionals an easy to follow guide for development within the City of Wood Dale. This manual incorporates aspects of the Wood Dale Standard Specifications, the Wood Dale Municipal Code, and other design standards. In the event of conflict between the Wood Dale Standard Specifications and the Design Manual, the Wood Dale Standard Specifications shall take precedence and/or the City Engineer's decision will prevail.

103 DEVELOPER/CONTRACTOR RESPONSIBILITIES

103.1 PERMITTING

The owner or his/her representative is responsible to obtain any and all permits required by applicable governmental agencies.

Any Work on private property requires City of Wood Dale Community Development Department approval prior to beginning any construction work. The Community Development Department should be contacted to obtain information regarding any improvements to private property.

Work in the right-of-way requires approval of the Director of Public Works or their designee. A right-of-way permit must be processed through the City before any work is completed within the City's right-of-way.

103.2 BONDING AND REGISTRATION

All contractors must be registered with the Community Development Department to make public improvements within the Wood Dale corporate limits.

All contractors must provide a surety bond or letter of credit equal to 110 percent of the value of the proposed improvements. This bond or letter of credit will be held by the city for the duration of the project plus the warranty period. The contractor or developer may request reductions in the value of the letter of credit as approved by the City Engineer.

103.3 LIABILITY

The contractor or developer assumes all responsibility and liability for any action resulting from their work within the public right-of-way.

103.4 WARRANTY OF WORK

The contractor or developer maintains ownership of, and shall be responsible for, all public improvements until the City Engineer provides a Letter of Final Acceptance. From the date of that letter, the city will take ownership of the facilities provided a 12-month warranty by the contractor or developer of all improvements. If at any time during that 12 month period the city considers that any portion of the improvements fail to be meet the Wood Dale Standard Specifications, or exhibit poor workmanship or quality of materials, the city will require the contractor or owner to repair or replace the facility.

104 SURVEYING AND BENCHMARKS

104.1 CITY BENCHMARKS

The City of Wood Dale does not maintain any benchmarks within the City limits. Surveyors are directed to use the DuPage County GIS application called benchmarks NAVD88 found at: http://www.dupageco.org/GIS/1733/

105 GENERAL CONSTRUCTION ACTIVITIES

105.1 PRE-CONSTRUCTION MEETING

At the discretion of City staff, a preconstruction meeting may be required with the City of Wood Dale prior to any work being started. A preconstruction meeting will not be scheduled until the project has been approved by the City of Wood Dale.

105.2 NOTIFICATION TO CITY

A minimum of 2 business days' notice shall be given to the City of Wood Dale, prior to starting work, or restarting work after some absence of work for any reason.

105.3 EXISTING UTILITY LOCATIONS

It shall be the contractor's responsibility to adequately identify and locate all existing utilities prior to excavation. Before starting construction, the contractor shall contact JULIE for the location of any and all utilities. The toll-free number is 800-892-0123.

105.4 HOURS OF WORK

Unless otherwise specified in the contract, all work activities shall be limited to the following hours:

a) Working Hours
   Monday – Saturday: 7AM – 7PM
   Sunday and Holidays: No work permitted

Construction work includes the delivery of any materials or equipment and the operation of tools, machinery and apparatus. Holidays include: New Year's Day, Memorial Day, 4th of July, Labor Day, Thanksgiving Day, and Christmas Day. Any exceptions to these limitations must be authorized by the Public Works Director.

106 TRAFFIC CONTROL REQUIREMENTS

106.1 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

All developers and contractors shall provide suitable traffic control for their construction activities in accordance with Part 6 of the Manual on Uniform Traffic Control Devices, latest edition. Traffic control must be provided for any activity that impacts traffic flow. This includes, but is not limited to, road closures requiring detours, daily lane closures, long term lane closures, narrow lanes, and construction vehicles entering and exiting the public roadway. All traffic control set-ups may be inspected by the City of Wood Dale to ensure that they are providing positive guidance to motorists and are not in themselves presenting a hazardous situation. A representative of the developer or contractor must provide phone numbers at which they can be reached 24 hours a day and on weekends so that they can maintain traffic control devices.

Pedestrians must also be provided with a safe alternate route if pedestrian facilities are to be closed as a result of construction activities. Guidance must be provided to pedestrians so that they may avoid the work zone.

107 PERMITS

It shall be the responsibility of the owner/developer to obtain all required local, state and federal permits as needed to complete their work as contemplated. The City reserves the right to issue a stop work order in the event that proper permits have not been obtained, or if the work is not being conducted per the requirements of any permit.

108 (RESERVED)

109 (RESERVED)

110 RECORD DRAWINGS

Record drawings are required to provide a means of schematic verification that the intent of the approved engineering design has been met, thereby substantiating that the health, safety, and welfare aspects of the engineering design have been adequately provided by the construction of the project. Secondly, record drawings serve as a reference tool for future design and maintenance operations.

110.1 RECORD DRAWING REQUIREMENTS

a) General:

1) All improvements, whether private or public, are required to submit record drawings to the City for approval.

2) All elevations should be referenced to the same bench mark datum as the original design plans. The appropriate bench marks shall be noted on the cover sheet. Horizontal ties from the benchmark to fixed objects shall be included on the plans.

3) The information presented in the record drawings shall be clear and legible. Lettering on any plan shall not be smaller than 1/10 inch in height. Design data shall be lined out with one medium weight ink line and the record data shall then be lettered next to each lined out design dimension or elevation.

4) In the event that the civil engineering design drawings are larger than 24 inch x 36 inch, then the record plans shall be photographically reduced on photo fixed film to 24 inch x 36 inch and the scale of the reduced drawings marked on each sheet. However, photo reduction will only be allowed when the reduced drawing has a minimum lettering height of 1/10 inch.

5) If reduction of oversized plans yields a lettering height smaller than 1/10 inch, the plans will be copied at the existing scale onto several 24 inch x 36 inch Mylar sheets that overlap a minimum of 2 inches along each edge. A sheet key diagram will be added on the right or lower side of each sheet indicating how each 24 inch x 36 inch sheet should be assembled.

6) Digital Files: A standard layering scheme should be followed if possible. A sample scheme is attached as Exhibit 100-1. At a minimum, separate layers with clear concise layer names are required for alignment, profile, topography, soil borings, vegetation, water, rights of way, edge of pavement, roadway plan, roadside feature, property lines, buildings, traffic control, pavement markings, drainage, water, sanitary, electric, gas, telephone and railroads. Also, a plot file or pen schematic is required at time of submittal.

b) Watermain, Sanitary Sewers, and Storm Sewers

1) Watermain

i) Rim elevation on valve vaults, valve boxes, and service boxes.

ii) Breakaway flange elevation on fire hydrants and auxiliary valve boxes.

iii) Pipe sizes, materials and linear distance along water main from appurtenance to appurtenance (i.e. - valve vault to tee, tee to bend, bend to valve, etc.).

iv) Horizontal ties to all valve vaults, boxes and hydrants (1.0 foot tolerances).

v) Horizontal ties to all bends, tees, or other fittings (1.0 foot tolerances).

vi) Location of fire and domestic service lines and horizontal ties to connections along the main.

vii) Location, material, thickness, length and invert at both ends of casing pipes.

2) Sanitary Sewer

i) Rim elevations for manholes.

ii) Invert elevation for all pipes in manholes.

iii) Pipe sizes, materials and linear distance along sewer from structure to structure.

iv) Recalculated pipe slopes based on invert to invert elevation along the linear distance between manholes.

v) Locations of service lines and horizontal ties to connections along main, including horizontal ties to stub termini.

vi) Horizontal ties to all manholes (1.0 foot tolerance).

vii) Location, material, thickness, length and invert at both ends of casing pipes.

viii) Complete record drawings of lift stations, including all piping, electrical elements, and pumping elements.

3) Storm Sewers

i) Rim elevation on inlets, catch basins, manholes, and top and bottom of slope boxes, head walls, and other special structures.

ii) Invert elevation of all pipes within inlets, catch basins, manholes; end sections, slope boxes, culverts, and other special structures.

iii) Pipe sizes, materials, and linear distance along sewers from structure to structure.

iv) Recalculated pipe slopes based on invert to invert elevations along the linear distance between structures.

v) Horizontal ties on all inlets, catch basins, manholes, flared end sections, slope boxes, and culverts (1.0 foot tolerance).

vi) Location, material, thickness, length and invert at both ends of casing pipes.

4) Utilities Systems Identification

i) Privately owned utility mains that are connected to public utility mains must be clearly labeled as such on the record plans together with a note that states private utility mains shall not be maintained by the City of Wood Dale.

c) Stormwater Management

Upon completion of final grading or completion of all:

1) Detention basins

2) Retention basins

3) Constructed or regraded streams and channels

4) Overflow routes (street areas that act as overflow routes)

5) Street depressions which are planned detention areas

6) Permanent and/or temporary diversion berms, swales, and control structures

7) Parking lots which are planned detention areas

A topographical survey of the stormwater management areas outlined above shall be prepared by an Illinois Registered Professional Engineer. The plans shall contain sufficient spot elevations and grading contour lines to show that the stormwater management facilities have been constructed in compliance with the approved civil engineering design plans. Record information for all public improvements within the stormwater management area must be depicted on the record plans. Additionally, the as-constructed stormwater management volume together with the approved final engineering planned volume shall be depicted in tabular form. The potential as-constructed average and peak release rates as compared with the design release rates must be provided in tabular form when major deviations from the approved design have occurred.

d) Outdoor Lighting

1) Horizontal ties on lighting standards and control cabinets (if applicable) as referenced to the approved plan stationing or coordinates (1.0 foot tolerance)

2) Service cables and service transformers shall be depicted in schematic format

3) Directional orientation of mast arm with luminaire

4) Dimensional ties shall be provided for all conduit crossings which are provided for present or future use

e) Plats of Subdivision

i. The Illinois State plane grid based bearings and ground based distances shall be noted along the subdivision boundary lines and along the lot lines, from two control monuments to the subdivision boundary monuments.

110.2 RECORD DRAWING CERTIFICATION REQUIREMENTS

Certification of the record information shall be by a registered Professional Engineer in Illinois. The engineer shall review the improvements and provide a signed and sealed Statement of Opinion indicating that the project was constructed and will function in substantial conformance to the approved engineering plans, and that said improvements are accurately depicted on the record drawings. (A sample certification is attached for reference purposes as Exhibit 100-2.) The cover sheet for water, sanitary sewer, storm sewer, outdoor lighting and stormwater management submittals shall have the certification clearly printed thereon. The certification shall bear the original ink handwritten signature, date of signature and impressed seal of the Engineer that prepared the record civil engineering design plans. Per County ordinance, signatures over 90 days old at the time of submittal to the city will not be accepted.

In addition, each sheet shall bear the name of the project and be labeled, dated and initialed by the Professional Engineer using the standard legend denoting "Record Plan" as depicted on the sample certification, see Exhibit 100-3.

110.3 SUBMITTAL OF RECORD PLANS

Three sets of 24 inch x 36 inch record blueline prints (bound/stapled on the 24 inch side) and an electronic copy in PDF format shall be submitted by the developer or the engineer that prepared them to:

City of Wood Dale
Community Development Department
404 N. Wood Dale Road
Wood Dale, Illinois 60191

Each set shall be signed, sealed and dated by the engineer as described in Section 110.2. Additionally, the plans shall clearly indicate the type of submittal (i.e. watermain, sanitary sewer, stormwater, street lighting) and if the submission is a complete or a partial set as described in Section 110.4.

110.4 PARTIAL SUBMITTAL OF RECORD PLANS

When the developer or the engineer for a particular development desires to initiate a partial acceptance of public facilities contained within a development, a partial set of record drawings can be submitted. The partial record plans shall consist of the cover sheet and those sheets which are involved in the partial acceptance.

Partial submittals will comply fully with the specifications contained in this document. In addition, the engineer shall state within the certification the scope of the partial submission (i.e. phase number, unit number, lot numbers, streets), and each sheet shall note "partial" adjacent to the engineer's signature.

110.5 REVIEW OF RECORD PLANS

A review of all record plans shall be made by the City Engineer and/or City of Wood Dale Community Development staff. If the City Engineer finds that revisions to the subject record plans are required, then the engineer that prepared such record plans shall be notified in writing as to what items on the record plans should be revised. The engineer that prepared the record plans shall:

a) Make the revisions required promptly to avoid delay of acceptance or occupancy.

b) Clearly note on the cover sheet and each sheet thereafter, the nature of the revision and the date that revisions were made, even if no revisions were made to that particular sheet.

c) Re-date and resign the certification on the cover sheet.

d) Resubmit 3 sets of record drawings and an electronic copy in PDF format for review as detailed in Section 110.2.

110.6 ACCEPTANCE OF RECORD PLANS

Written approval of record plans must be obtained from the City Engineer and/or City of Wood Dale Community Development Staff and is an important part in the issuance of building permits, temporary/final occupancy permits, or acceptance of facilities by City Council.

Following review by the City Engineer, the Engineer/Developer will receive written notification that the record plans are in accordance with City Specifications. The Engineer/Developer shall then provide the city with copies of each sheet that the City Engineer has approved in the following formats:

a) One copy of a reproducible Mylar sepia (3 mil minimum thickness) – 24 inch x 36 inch with the original ink seal and signature certification. All drawings on Mylar must be ink pens, inkjet or other similar technology. Xerographic methods are not acceptable.

b) Two copies of record prints on paper – 24 inch x 36 inch

c) One copy in a digital format (.dxf or .dwg) and an electronic copy in PDF format submitted on a standard size CD-ROM. The drawing file shall be drawn using decimal units with actual Illinois State Plane Grid Coordinates.

In cases of a discrepancy between the drawings submitted, the sealed Mylar will prevail.
These drawings shall meet all specifications described within Section 110. No building permits, temporary/final occupancy permits, or acceptance of facilities by City Council will proceed until the reproducible documents have been submitted to:

City of Wood Dale
Community Development Department
404 North Wood Dale Road
Wood Dale, Illinois 60191

111 FINAL ACCEPTANCE OF IMPROVEMENTS

Final acceptance of public improvements shall be granted only after a final inspection has been completed and has revealed that all improvements have been satisfactorily completed in accordance with the Wood Dale Standard Specifications. The City Engineer shall provide a Letter of Final Acceptance. Upon issuance of that letter, the City will accept ownership of any public improvements.

Final acceptance does not relieve the developer or contractor or their responsibility to warranty their work for a period of one year from the date of final acceptance.

EXHIBIT 100-1
TYPICAL LAYER SCHEME FOR DIGITAL FILES

LAYER	**Items that may be found on that layer**
Alignment	Centerline, base line, survey line, stationing, roadway name, bench marks, horizontal ties.
Profile	Roadway profile, vertical curve data, profile elevations, roadway dimensioning, vertical ties.
Topography	Ground contours, detention and retention areas elevations, associated text.
Soil Borings	Soil boring details, plan and profile.
Vegetation	Trees, brush, hedges, forests, associated text.
Water	Lakes, rivers, streams, ponds and associated text.
Right of Way	Right of way, access control, easements and associated text.
Edge of Pavement	Streets, roads, alleys etc.
Roadway Plan	Medians, curbs, gutter, and shoulders.
Roadside Features	Sidewalks, private entrances, commercial entrances.
Buildings	Buildings, fences, parking lots, advertising signs, mailboxes, associated text.
Private Boundaries	Property lines, iron pipes, concrete monuments, survey markers, section corners, ownership information.
Pavement Marking	Pavement marking lines, letters and symbols, raised pavement markers, delineators, regulatory signs and warning signs.
Traffic Signal	Traffic signal plan.
Electric	Power poles, cables, control cabinets, schematics, and junction boxes.
Water utility	Fire hydrants, valve vaults, pipe, buffalo box, pump stations, and storage
Sanitary sewer	Manholes, pipe, lift stations, treatment plants.
Drainage	Manholes, inlets, catch basins, sewer main, overflow routes, ditch flow line, detention and retention areas.
Railroads	Control box, crossing gate, tracks, signal and overpass.
Gas	Gas main.
Telephone	Telephone.

These drawings shall meet all specifications described within Section 700. No building permits, temporary/final occupancy permits, or acceptance of facilities by City Council will proceed until the reproducible documents have been submitted to:

City of Wood Dale
Community Development Department
404 N. Wood Dale Road
Wood Dale, Illinois 60191

EXHIBIT 100-2 SAMPLE CERTIFICATION
STATEMENT OF OPINION

Pursuant to the Wood Dale Municipal Code, I _____ a registered Professional Engineer in the State of Illinois, hereby declare that these "Record Drawings" pertaining to (watermain, sanitary sewer, storm sewer) (stormwater management) (outdoor lighting) consisting of sheets _____ and _____ included herewith, have been prepared for a certain project known as_____and contain information as obtained by the surveyor _____and the contractor _____. It is my professional opinion that these "Record Drawings" adequately depict the Record Drawing Information required by the City of Wood Dale's "Record Drawing Procedures and Standards for Civil Engineering Site work Improvements," document bearing the effective date of _____, and substantiate that the improvements constructed as part of this project will function in substantial conformance to the design intent of the approved engineering plans.

Dated:_____

Signed:_____

Illinois Registration Number:_____

(SEAL)

EXHIBIT 100-3
STANDARD LEGEND

RECORD PLAN FOR		
TYPE	DATE	P.E. INITIALS
WATERMAIN SANITARY SEWER STORM SEWER		
STORMWATER MANAGEMENT		
OUTDOOR LIGHTING		

SECTION 200:
STORM SEWER

Page No.	Description
200-2	**201 GENERAL**
200-2	201.1 SPECIFICATIONS
200-2	201.2 CONNECTION TO EXISTING FACILITIES
200-3	**202 MATERIALS**
200-3	202.1 PIPES
200-4	202.2 GRANULAR PIPE BEDDING
200-4	202.3 GRANULAR PIPE BACKFILL
200-4	202.4 CONNECTING DISSIMILAR PIPE MATERIALS
200-4	202.5 MANHOLES
200-5	202.6 CATCH BASINS AND INLETS
200-5	202.7 CASING PIPES
200-6	**203 CONSTRUCTION REQUIREMENTS**
200-6	203.1 GENERAL REQUIREMENTS
200-6	203.2 MANHOLES, CATCH BASINS AND INLETS
200-7	203.3 TRENCH BACKFILL, BEDDING & BACKFILL
200-8	203.4 PIPE INSTALLATION
200-10	**204 INSPECTION AND TESTING**
200-10	204.1 CLEANING
200-10	204.2 VISUAL TEST
200-10	204.3 DEFLECTION TESTING FOR FLEXIBLE PIPE

201 GENERAL

The standards and requirements found in this article are for the materials and construction of storm sewer systems within the City of Wood Dale, Illinois.

201.1 SPECIFICATIONS

All work and equipment performed and installed under this section shall be governed by and shall comply with the following specifications, manuals, and codes listed in Section 102.2. The most current editions and all subsequent revisions and alterations for the specifications are required.

201.2 CONNECTION TO EXISTING FACILITIES

No connection to an existing public storm sewer may be made without permission of the Director of Public Works or their designee.

202 MATERIALS

202.1 PIPES

The following materials will be permitted for storm sewer and pipe culverts. Where a particular material is specified in the plans or special provisions, no other kind of material will be permitted all materials must be supplied by an IDOT approved supplier where applicable:

202.1.1 REINFORCED CONCRETE PIPE (RCP)

Reinforced concrete pipe shall conform to ASTM Designation C 76, Classes I, II, III, IV or V. Bituminous joints shall conform to ASTM Designations C 14 or C 76 as may be applicable. Bituminous material shall consist of a homogeneous blend of bitumen, inert filler, and suitable solvent approved by the City Engineer. Rubber gasket joints shall conform to ASTM C 433.

Reinforced concrete pipe shall also be permitted as round, elliptical, or box shaped or as Reinforced Concrete Arch Culvert.

202.1.2 NON-REINFORCED CONCRETE PIPE

Non-reinforced concrete pipe shall be allowed for pipes with a 10 inch or smaller diameter. Non-reinforced concrete pipe shall conform to ASTM Designation C 14, Class 3. Bituminous joints shall conform to ASTM Designations C 14 or C 76 as may be applicable. Bituminous material shall consist of a homogeneous blend of bitumen, inert filler, and suitable solvent approved by the City Engineer. Rubber gasket joints shall conform to ASTM C 433.

202.1.3 DUCTILE IRON PIPE (DIP)

Ductile iron pipe shall conform to ANSI A 21.51 (AWWA C-151), class thickness designed per ANSI A 21.50 (AWWA C-150), tar (seal) coated and cement lined per ANSI A 21.4 (AWWA C-104), with mechanical or rubber ring (slip seal or push on) joints. All ductile iron pipe shall be wrapped with polyethylene.

202.1.4 POLYVINYL CHLORIDE PIPE (PVC)

Polyvinyl Chloride (PVC) pipe shall conform to ASTM D3034, type PSM and ASTM D2241 for water main quality required pipe. The minimum Standard Dimension Ratio (SDR) shall be 26, for depth of 0'-12", SDR 21 for 12'-21', and SDR 18 for any depth over 21'. Joints for PVC pipe shall be flexible elastometric seals per ASTM D 3212 and ASTM F 477.

202.1.5 HIGH DENSITY POLYETHELYNE PIPE (HDPE)

High-density polyethylene (HDPE) pipe shall conform to the requirements of AASHTO M 252 and M 294. Pipe and fittings shall be made from virgin PE compounds which conform to the requirements of cell class 324420C as defined and described in ASTM D 3350. Rubber gasket joints shall be used.

202.1.6 FULLY GALVANIZED CORRUGATED STEEL PIPE

Fully Galvanized Corrugated Steel Pipe may be used for residential driveway crossings only when a ditch section is present. The minimum culvert size is 12" diameter.

202.2 GRANULAR PIPE BEDDING

Bedding, other than concrete embedment, shall consist of gravel, crushed gravel, or crushed stone 1/4 inch to 1 inch in size. As a minimum, the material shall conform to the requirements of IDOT standard specifications. The gradation shall conform to gradation CA-7 or CA-11 of the Standard Specifications.

202.3 GRANULAR PIPE BACKFILL

Backfill material shall conform to the requirements of IDOT standard specifications. The gradation shall conform to gradation CA-6 of the Standard Specifications.

202.4 CONNECTING DISSIMILAR PIPE MATERIALS

Joints connecting dissimilar pipe materials shall be made with sewer clamp non-shear type couplings; Cascade CSS, Romac LSS, Fernco, Inc. Shear Ring, or approved equal. When available, a standard joint with a transition gasket may be used. The name of the manufacturer, class, and date of issue shall be clearly identified on all sections of pipe. The contractor shall also submit bills of lading, or other quality assurance documentation when requested by the City Engineer.

202.5 MANHOLES

Manholes for storm sewers shall have a minimum inside diameter of 48 inches and shall be constructed of precast concrete units in accordance with ASTM C478-05 (or latest edition) and shall conform to the City of Wood Dale Standard Detail Storm 1. All manholes shall be water-tight. All visible leaks shall be sealed in a manner acceptable to the City Engineer.

202.5.1 FRAME AND COVER

Manholes shall be furnished with a self-sealing frame and solid cover (East Jordan Iron Works 1022 with Type A solid cover, or approved equal) with the word "Storm" imprinted on the cover in raised letters. All frames and lids shall meet or exceed AASHTO H-20 loading specifications. Frames shall be shop painted with asphaltic base paint.

Both the manhole frame and cover shall have machined horizontal and vertical bearing surfaces. Inverted manhole frames are not allowed.

Pick holes shall not create openings in the manhole cover.

202.5.2 STEPS

Manhole steps on maximum 16 inch center shall be furnished with each manhole, securely anchored in place, true to vertical alignment, in accordance with the Wood Dale Standard Details. Steps shall be copolymer polypropylene reinforced with 1/2 inch A615/A615M-05a (or latest edition) Grade 60 steel reinforcement, meeting or exceeding ASTM C 478-05 (or latest edition) and OSHA standards.

202.6 CATCH BASINS AND INLETS

Catch basins and inlets shall have a minimum inside diameter of 24 inches and shall be constructed of precast concrete units in accordance with ASTM C478-05 (or latest edition) and shall conform to the City of Wood Dale standard detail. All catch basins and inlets shall be water-tight at all points below grade. All visible leaks shall be sealed in a manner acceptable to the City Engineer.

202.6.1 FRAME AND GRATE

Catch basins and inlets shall be furnished with a frame and grate based upon the location of the installation as listed below. All frames and grates shall meet or exceed AASHTO H-20 loading specifications. Frames shall be shop painted with asphaltic base paint. All storm sewer lids and grates shall be cast with "Dump No Waste. Drains To River."

All manhole frames shall be required to have an external chimney seal. The chimney seal shall be Cretex or an approved equal product that is reviewed and approved by the City Engineer.

a) Pavement: East Jordan Iron Works 1022 Frame with Type M1 Radial Flat Grate, or approved equal.

b) Barrier curb and gutter: East Jordan Iron Works 7220 Frame with Type M1 Grate and T1 Curb Box, or approved equal.

c) Depressed curb: East Jordan Iron Works 5120 Frame and Grate, or approved equal.

d) Mountable curb: East Jordan Iron Works 7525 Frame and Grate, or approved equal.

e) Non-paved areas: East Jordan Iron Works 6527 Beehive Grate, or approved equal. Alternately, in areas where there is the likelihood of pedestrian traffic, East Jordan Iron Works 1022 Frame with Type M1 Radial Flat Grate, or approved equal may be used.

202.7 CASING PIPES

All steel casing pipe shall be bituminous coated, a minimum of 30 mils thickness inside and out, shall be of leak proof construction and capable of withstanding the anticipated loadings. The minimum wall thickness for the casing pipe shall be in accordance with Table 200-1. The steel casing pipe shall have minimum yield strength of 35,000 psi and shall meet the requirements of A139/A139M-04 (or latest edition), Grade B. Ring deflection shall not exceed 2% of the nominal diameter. The steel casing pipe shall be delivered to the jobsite with beveled ends to facilitate field welding.

TABLE 200-1
REQUIRED CASING PIPE WALL THICKNESS

Steel Casing Diameter	Minimum Wall Thickness (Inches)
20"- 22"	0.344
24"	0.375
28"	0.438
30"	0.469
32"	0.501
34"- 36"	0.532

203 CONSTRUCTION REQUIREMENTS

203.1 GENERAL REQUIREMENTS

203.1.1 RESPONSIBILITY FOR MATERIALS

The contractor shall be responsible for the acceptability and storage of all materials furnished by him and shall assume responsibility for the replacement of all such material found damaged in shipping or on job site or defective in manufacture. This shall include the furnishing of all material and labor required for the replacement of installed material discovered to be defective prior to the final acceptance of the work.

203.1.2 STORAGE OF PIPING MATERIALS

The interior, as well as all sealing surfaces of all pipe, fittings, and other accessories shall be kept free from dirt and foreign matter. Store pipe bundles on flat surfaces with uniform support. Pipe stored outside and exposed to prolonged periods of sunlight should be covered with canvas or other opaque material. Clear plastic sheets shall not be used. Air circulation shall be provided under covering. Keep gaskets away from oil, grease, electric motors (which produce ozone), excessive heat and direct rays of the sun. Consult the manufacturer for specific storage recommendations.

203.1.3 HANDLING OF PIPING MATERIALS

Piping materials shall be unloaded, hauled and distributed at the site of the project by the contractor. Materials shall at all times be handled properly to prevent damage in accordance with manufacturer's recommendations. Pipe and fittings shall not be thrown, dropped, or dragged. Damaged or defective material on the job site shall be rejected and replaced to the satisfaction of the City Engineer. Methods of construction conducive to the damage of sewer pipe shall be corrected when called to the attention of the contractor. All pipe and fittings shall be examined by the contractor above grade before placement in the trench.

203.2 MANHOLES, CATCH BASINS AND INLETS

203.2.1 INSTALLING STRUCTURES IN NON-PAVED AREAS

BMP shall be used at each structure to prevent debris and foreign material from entering the system during construction.

203.2.2 INSTALLING STRUCTURES IN PAVED AREAS

For structures located in paved areas, a minimum of four, 2 inch diameter holes shall be drilled or precast into the structure within 1 foot of the lowest pipe invert. The holes shall be distributed equidistant around the perimeter of the structure. A one (1) foot by one (1) foot section of underdrain filter cloth material shall be sufficiently fixed to the outside of the manhole with mastic materials to prevent slippage during backfilling.

203.2.3 WATER-TIGHTNESS

Non-shrinking hydraulic cement shall be used on all interior and exterior joints within the barrel section to provide a water-tight seal between structure sections. No hydraulic cement shall be applied above the cone section or flat top.

203.2.4 PIPE CONNECTIONS

All structures without sumps shall be provided with a precast or cast-in-place concrete fillet, or bench, to provide a smooth flow between pipe sections.

The inside and outside of all pipe section connections to storm structures shall be shaped with additional mortar to provide a 3 inch collar around the pipe.

203.2.5 FRAMES

All storm sewer structure frames without inside flanges shall be shaped with non-shrinking hydraulic cement to form a fillet to the structure or adjusting ring.

When adjustments are necessary, they shall be performed with a maximum of 2 precast concrete rings set in a continuous layer of preformed bituminous mastic. The maximum height of adjustment shall be 12 inches. Two inch concrete rings shall only be used when the adjustment is less than 3 inches.

Adjustments less than 4 inches may be made using hard composite rubber type rings, such as GNR or approved equal. Only one type of adjusting ring may be used on a structure: combining both concrete and hard composite rubber rings on a structure is not permitted.

203.3 TRENCH BACKFILL, BEDDING & BACKFILL

Granular pipe bedding and haunching shall be required on all storm sewers installed in the City of Wood Dale. Initial backfill shall be required for all sewers constructed of PVC or other flexible pipe material.

203.3.1 PIPE BEDDING

Bedding, other than concrete embedment, shall consist of gravel, crushed gravel, or crushed stone. 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, and shall be of a thickness equal to 1/4 of the outside diameter of the sewer pipe with a maximum thickness of 8 inches. Granular pipe bedding shall be a minimum of 4 inches in earth excavation and a minimum of 6 inches in rock excavation.

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. The size range and resulting high voids ratio of bedding material make it suitable for use to dewater trenches during pipe installation. This permeable characteristic dictates that its use be limited to locations where pipe support will not be lost by migration of fine grained natural material from the trench walls and bottom or migration of other materials into the bedding material. When such migration is possible, the material's minimum size range should be reduced to finer than 1/4 inch and the gradation properly designed to limit the size of the voids. Bedding materials shall be placed to provide uniform and adequate longitudinal support under the

pipe. Bell holes at each joint shall be provided to permit the joint to be assembled properly while maintaining uniform pipe support. When the joint has been made, the void under the bell will be filled with bedding or haunching material.

203.3.2 HAUNCHING

The most important factor affecting pipe performance and deflection is the haunching material and its density. Place and consolidate the material under the pipe haunch to provide adequate side support to the pipe while avoiding both vertical and lateral displacement of the pipe from proper alignment. The same coarse materials as used for initial backfill shall also be used for haunching. Place haunching up to the pipe spring line.

203.3.3 INITIAL BACKFILL FOR FLEXIBLE PIPE

Initial backfill begins above the spring line of the pipe and extends to a point 6 inches above the top of the pipe and shall be CA-7 or CA-11 carefully placed so as to completely fill the space around the pipe, in 8 inch layers, loose measurements, and compacted to the satisfaction of the City Engineer.

203.3.4 SELECTED GRANULAR BACKFILL

The backfill for trenches and excavation made in existing or under proposed pavements where the inner edge of the trench is within 2 feet of the edge of the pavement, curb, gutter, curb and gutter, or sidewalk, shall be made with compacted selected granular material conforming to IDOT gradation CA-6. Selected granular backfill shall be placed in uniform layers not exceeding 6 inches (loose measure) and compacted with mechanical equipment to 95% of the standard proctor density in accordance with the applicable AASHTO or ASTM requirements.

203.3.5 DEPTH OF PIPE COVER

The depth of cover over the pipe shall be appropriate for the material and class of pipe specified for the installation. In no case shall the cover over the pipe be less than 24 inches unless specifically allowed otherwise by the City Engineer.

203.4 PIPE INSTALLATION

203.4.1 LAYING OF PIPE

All pipe shall be laid true to line and grade. Dirt and other foreign material shall be prevented from entering the pipe or pipe joint during handling or laying operations.

203.4.2 PIPE TO PIPE CONNECTIONS

All storm sewer pipe to pipe connections shall be sealed with butyl mastic to ensure water tightness. Lift holes are to be sealed using butyl mastic and concrete plugs. At no time shall connections between the storm sewer system and sanitary sewer systems be allowed.

Alternately, premium joint pipe with integral O-rings may be used.

203.4.3 END SECTIONS

Storm sewer pipes may be terminated with special end sections including flared end sections and box inlets. Any end section with an opening greater than 12 inches in diameter shall be covered with a grate whose openings are 3 inch horizontal by 8 inch vertical and is rakeable.

203.4.4 EXISTING DRAIN OR FIELD TILES

All drain or field tiles encountered during construction must be connected to the storm drainage system. The location of known field tiles shall be depicted on the final engineering plans. The connection point of all field tiles to the storm drainage system must be shown on the record drawings for storm sewers.

204 INSPECTION AND TESTING

204.1 CLEANING

Prior to acceptance, all the storm sewer and storm sewer appurtenances shall be cleaned and operational to the satisfaction of the City Engineer.

204.2 VISUAL TEST

The City of Wood Dale may require that storm sewer lines be inspected visually to verify accuracy of alignment and freedom from debris and obstructions. The percentage of sewer lines inspected will be designated by the City Engineer. The full diameter of the pipe for straight alignments shall be visible when viewed between consecutive manholes. The method of test shall be either photography or closed circuit television, unless a specific method is required by the special provisions and approved by the City Engineer.

204.3 DEFLECTION TESTING FOR FLEXIBLE PIPE

A mandrel test is required by the City of Wood Dale. The City Engineer shall randomly select portions of the project to be deflection tested. Such portions shall consist of the manhole intervals for the initial sewer construction up to 1,200 linear feet and not less than 20% of the remainder of the sewer project. The City of Wood Dale reserves the right to test more or less pipe if considered appropriate by the City Engineer.

The 5% deflection test for pipe sizes 6 inches to 18 inches in diameter is to be run using a nine- arm mandrel having a diameter equal to 95% of the inside diameter of the pipe as established in ASTM D-2241-96b. Table 200-2 was developed using the equations outlined in Section 31- 1.11C of the Standard Specifications for Water and Sewer Main Construction in Illinois and shall be applied to testing of storm sewer pipe.

TABLE 200-2
REQUIRED MANDREL SIZE FOR FLEXIBLE PIPE

Nominal Pipe Size, Inches	Average Inside Diameter (PVC)	Required Mandrel Size, Inches
6	6.08	5.68
8	7.92	7.38
10	9.87	9.23
12	11.71	10.98
14	12.86	12.02
16	14.70	13.65

204.3.1 TIME OF TESTING

The individual lines to be tested shall be tested no sooner than 30 days after they have been installed by the contractor. During the first year of implementation, additional testing may be performed by the City of Wood Dale.

204.3.2 SEQUENCE OF TESTING

Wherever possible and practical, the testing shall initiate at the downstream lines and proceed towards the upstream lines.

204.3.3 TESTING OF ENTIRE PROJECT

In the event that the deflection exceeds the 5% limit in 10% or more of the manhole intervals tested, the total sewer project shall be tested.

204.3.4 RETEST OF FAILED SECTIONS

Where deflection is found to be in excess of 5% of the base inside diameter, the contractor shall excavate to the point of excess deflection and carefully compact around the point where excess deflection was found. The line shall then be retested for deflection. However, if the deflected pipe fails to return to the original size (inside diameter) after the initial testing, the affected segment shall be replaced.

SECTION 300:
SANITARY SEWER

Page No.	Description
300-2	**301 GENERAL**
300-2	301.1 SEWAGE COLLECTION AND TREATMENT
300-2	301.2 SPECIFICATIONS
300-2	301.3 REGULATIONS
300-2	301.4 START OF CONSTRUCTION
300-2	301.5 UTILITY IDENTIFICATION
300-4	**302 MATERIALS**
300-4	302.1 MANHOLES
300-5	302.2 PIPE TO MANHOLE CONNECTOR
300-5	302.3 PIPES
300-7	302.4 CONNECTING DISSIMILAR PIPE MATERIALS
300-7	302.5 CASING PIPES
300-7	302.6 BEDDING, HAUNCHING AND INITIAL BACKFILL
300-7	302.7 SELECTED GRANULAR BACKFILL
300-8	**303 CONSTRUCTION REQUIREMENTS**
300-8	303.1 GENERAL REQUIREMENTS
300-8	303.2 MANHOLES
300-8	303.3 TRENCHING
300-9	303.4 PIPE BEDDING AND BACKFILL
300-10	303.5 PIPE INSTALLATION
300-12	303.6 BRANCH FITTINGS
300-13	**304 INSPECTION AND TESTING**
300-13	304.1 MANHOLES
300-13	304.2 FLEXIBLE PIPE

301 GENERAL

The standards and requirements found in this article are for the materials and construction of sanitary sewers within the City of Wood Dale, Illinois.

301.1 SEWAGE COLLECTION AND TREATMENT

All sanitary sewage of domestic and other water borne wastes shall be collected and conveyed in a sanitary sewer pipe system to a point of discharge into an existing sanitary sewer system, City of Wood Dale interceptor, or sewage treatment plant. No sanitary sewage shall be allowed to enter any storm sewer system or discharge onto the ground or into receiving streams without first being treated in accordance with city, county, state and federal regulations.

301.2 SPECIFICATIONS

These specifications cover pipe for sanitary sewers and service connections, sewer fittings, manholes and all appurtenances normally used for sanitary sewer collection systems. Special considerations will be covered in the detailed plans and special provisions covering the proposed construction. Sanitary sewers shall be installed in accordance with the "Standard Specifications for Water and Sewer Main Construction in Illinois", latest edition, and applicable ordinances of the City of Wood Dale, except as modified herein.

301.3 REGULATIONS

Additional rules and regulations governing the construction of sanitary sewers in the City of Wood Dale are:

a) The Sewer Permit Ordinance

b) The Sewage and Wastewater Control Ordinance

c) The restrictions, policies, and instructions that may be adopted or issued by the City of Wood Dale

d) The Illinois Pollution Control Board Regulations

e) The Environmental Protection Act

f) Any variance request shall be submitted to the department head for review

301.4 START OF CONSTRUCTION

The contractor shall not begin construction until all required permits have been obtained. Copies of all permits obtained by outside agencies must be provided to the city prior to the start of construction.

301.5 UTILITY IDENTIFICATION

A wood stake (4 inch by 4 inch by 6 foot) stake with not less than the top 2 feet painted green shall be installed next to each sanitary sewer manhole, clean-out, and at the end of each sewer stub (termination at the end of the line). The 4 inch by 4 inch by 6 foot stake shall be maintained in a plumb position until City acceptance of the utility structures.

When newly poured curbs are installed, the contractor shall use a City approved stamp to indent the wet concrete with an "S" to identify the location of each sanitary manhole and sewer stub. The letter "S" shall be indented at the top of the curb 1-1/2 inches to two 2 inches in height and width at a depth of 3/8 inches.

In areas where new curbs are not present or if the developer and/or the contractor fail to indent the curbs as outlined above, the City will then require that identification symbols as approved by the City Engineer be cut into the curb.

302 MATERIALS

302.1 MANHOLES

Manholes for sanitary sewers shall have a minimum inside diameter of 48 inches and shall be constructed of precast concrete units in accordance with ASTM C478-05 (or latest edition) and Section 32 of the "Standard Specifications for Water and Sewer Main Construction in Illinois," and shall follow the City of Wood Dale sanitary sewer standards. All manholes shall be water-tight. All visible leaks shall be sealed in a manner acceptable to the City Engineer.

302.1.1 FRAME AND COVER

Manholes shall be furnished with a self-sealing frame and solid cover (Neenah Foundry R-1772, East Jordan Iron Works 1022-Z3, or equal approved by the City Engineer) with the word "Sanitary" imprinted on the cover in raised letters (see Wood Dale Standard Sanitary Detail 3). All frames and lids shall meet or exceed AASHTO H-20 loading specifications. Frames shall be shop painted with asphaltic base paint.

All manhole frames shall be required to have an external chimney seal. The chimney seal shall be Cretex or an approved equal product that is reviewed and approved by the City Engineer.

Both the manhole frame and cover shall have machined horizontal and vertical bearing surfaces. Inverted manhole frames are not allowed.

Pick holes shall not create openings in the manhole cover.

302.1.2 WATER-TIGHTNESS

Bolt-down frames shall be used in areas subject to flooding and where indicated on the plans. Bolt-down frames and covers shall be Neenah Foundry R-1916-F, East Jordan Iron Works 1040 ZPT or equal approved by the City Engineer. Frames are to be bolted to cone and cover to frame using stainless steel anchor bolts.

A continuous layer of non-hardening, preformed bituminous mastic material, Conseal 102B or approved equal, shall be applied to each manhole barrel cone and top section to provide a watertight seal. Each joint between sections shall be sealed by Cretex or an approved equal that is reviewed and approved by the City Engineer.

Rubber boots/seals must be used where pipes enter manholes. The internal connection shall be dressed up with non-shrink hydraulic cement. Hydraulic cement, mortar, and concrete must be of the strength and water-tightness quality as specified in the ASTM standards.

Lifting holes that extend through the wall of manhole shall not be allowed.

302.1.3 FRAME ADJUSTMENTS

Manhole frames shall be adjusted to proper grade using composite material rings as approved by City Engineer. Bricks, rocks, shims, or concrete blocks are not be allowed. Tapered composite adjusting rings, as approved by City Engineer, shall be required when the frame will be with a roadway area. No dressing or tuckpointing mortar is allowed on rings. Final frame adjustment for manholes within the roadway area shall be in accordance with Sections 602 and 603 of Standard Specifications for Road and Bridge Construction, prepared by the Illinois Department of Transportation, latest edition.

All manhole frames and adjusting rings shall be securely sealed to the cone section or top barrel section of the manhole using resilient, flexible, non-hardening, preformed bituminous mastic material, Conseal 102 B or approved equal. The mastic shall be applied in such a manner that no surface water or ground water inflow can enter the manhole through gaps between the top barrel section or cone section and the first adjusting ring, between adjusting rings, or between the last adjusting ring and the manhole frame. Up to 12 inches of adjusting rings may be installed on a given manhole. No more than one 2 inch adjusting ring, and no more than two adjusting rings in total shall be used.

302.1.4 STEPS

Manhole steps on maximum 16 inch center shall be furnished with each manhole, securely anchored in place, true to vertical alignment, in accordance with the Wood Dale Standard Details. Steps shall be copolymer polypropylene reinforced with ½ inch A615/A615M-05a (or latest edition) Grade 60 steel reinforcement, meeting or exceeding ASTM C 478-05 (or latest edition) and OSHA standards.

302.2 PIPE TO MANHOLE CONNECTOR

A flexible pipe-to-manhole connector shall be used for the connection of the sanitary sewer to precast concrete manholes. The connector shall meet ASTM C923-02 and ASTM A167- 99(2004), or latest edition, and be constructed of EPDM rubber with 304 or 316 series stainless steel connectors (KOR-N-SEAL by NPC, PSX by Press-Seal Gasket Corporation, or approved equal).

302.3 PIPES

All sanitary sewer pipe materials shall conform to the latest applicable ANSI, ASTM, AWWA, AASHTO, or other nationally accepted standards. Only the following sanitary sewer pipe and joint materials are approved for use in the City of Wood Dale, Illinois:

a) Class 50 ductile iron pipe conforming to ANSI/AWWA C151/A.21.51-02 (or latest edition) with joints conforming to ANSI/AWWA C111/A.21.11-00 (or latest edition). Ductile shall be encased in polyethylene encasement in accordance with ANSI/AWWA C105/A21.5-99 (or latest edition).

b) Polyvinyl chloride (PVC) pipe (6 inch -16 inch) conforming to ASTM D2241-05 (or latest edition) (SDR 26 – sewer depth between 4-20 feet and SDR 21 for depths between 20-25 feet) with joints conforming to ASTM D3139-98 (2005) or latest edition.

c) Also acceptable in lieu of ASTM D2241-05 are C900 (SDR 18) for 12 inch diameter sewers and C905 (SDR 25) for 14 inch through 18 inch sewers.

302.3.1 PVC PIPE

This specification is appropriate for PVC pipe (6 inch - 16 inch) complying with ASTM D2241-05 and ASTM D3139-98 (2005) or latest edition. Any proposed PVC pipe greater than 16 inches in size must be approved by City Engineer prior to use. PVC pipe cannot be used in Class V soils (i.e. organic silt, organic clay and peat) as defined according to the Unified Soil Classification System in ASTM D2487-00 (or latest edition). Solvent cement joints will not be allowed in the City of Wood Dale.

Pipe shall be clearly marked as follows at intervals of 5 feet or less:

a) Manufacture's name or trademark and code

b) Nominal pipe size

c) The PVC cell classification, for example 12454-B

d) The legend "Type IPS SDR-26 PVC 1120 Sewer Pipe"

e) This designation "Specification D-2241"

PVC Pipe shall be SDR 26. For sewer depths between 20 and 25 feet, SDR 21 shall be provided. Higher SDR numbers will only be allowed with the approval of the City Engineer.

302.3.2 PVC FITTINGS

All PVC fittings shall comply with ASTM F1970-05 (or latest edition) and fittings shall be clearly marked as follows:

a) Manufacturer's name or trademark

b) Nominal size

c) The material designation PVC or IPS (iron pipe size), and this designation “Specification D2241”

Fitting shall be molded for pipe sizes between 6 inches and 8 inches in diameter, and fabricated fittings for 10” to 16” in diameter. A minimum of 150 psi pressure class shall be provided.

PVC fittings shall be SDR 26. Higher SDR numbers will only be allowed with the approval of the City Engineer. Fittings shall be required to pass the same inspection and testing requirements of the PVC pipe.

302.4 CONNECTING DISSIMILAR PIPE MATERIALS

Joints connecting dissimilar pipe materials shall be made with sewer clamp non-shear type couplings; Cascade CSS, Romac LSS, Fernco, Inc. Shear Ring, or approved equal. When available, a standard joint with a transition gasket may be used. The name of the manufacturer, class, and date of issue shall be clearly identified on all sections of pipe. The contractor shall also submit bills of lading, or other quality assurance documentation when requested by the City Engineer.

302.5 CASING PIPES

All steel casing pipe shall be bituminous coated, a minimum of 30 mils thickness inside and out, shall be of leak proof construction and capable of withstanding the anticipated loadings. The minimum wall thickness for the casing pipe shall be in accordance with Table 300-1. The steel casing pipe shall have minimum yield strength of 35,000 psi and shall meet the requirements of A139/A139M-04 (or latest edition), Grade B. Ring deflection shall not exceed 2% of the nominal diameter. The steel casing pipe shall be delivered to the jobsite with beveled ends to facilitate field welding

TABLE 300-1
REQUIRED CASING PIPE WALL THICKNESS

Steel Casing Diameter	Minimum Wall Thickness (Inches)
20”- 22”	0.344
24”	0.375
28”	0.438
30”	0.469
32”	0.501
34”- 36”	0.532

302.6 BEDDING, HAUNCHING AND INITIAL BACKFILL

The material used for pipe bedding, haunching and initial backfill shall consist of gravel, crushed gravel, or crushed stone conforming to the requirements of Article 1004.01 of the "Standard Specifications for Road and Bridge Construction", prepared by the Illinois Department of Transportation. The gradation shall conform to gradation CA-7 or CA-11 of the Standard Specifications.

302.7 SELECTED GRANULAR BACKFILL

Selected granular backfill, or trench backfill, shall consist of gravel, crushed gravel, or crushed stone conforming to the requirements of Article 1004.01 of the "Standard Specifications for Road and Bridge Construction", prepared by the Illinois Department of Transportation. The gradation shall conform to gradation CA-6 of the Standard Specifications.

303 CONSTRUCTION REQUIREMENTS

303.1 GENERAL REQUIREMENTS

303.1.1 RESPONSIBILITY FOR MATERIALS

The contractor shall be responsible for the acceptability and storage of all materials furnished by him or herself and shall assume responsibility for the replacement of all such material found damaged in shipping or on job site or defective in manufacture. This shall include the furnishing of all material and labor required for the replacement of installed material discovered to be defective prior to the final acceptance of the work.

303.1.2 STORAGE OF PIPING MATERIALS

The interior, as well as all sealing surfaces of all pipe, fittings, and other accessories shall be kept free from dirt and foreign matter. Store pipe bundles on flat surfaces with uniform support. Pipe stored outside and exposed to prolonged periods of sunlight should be covered with canvas or other opaque material. Clear plastic sheets shall not be used. Air circulation shall be provided under covering. Keep gaskets away from oil, grease, electric motors (which produce ozone), excessive heat and direct rays of the sun. Consult the manufacturer for specific storage recommendations.

303.1.3 HANDLING OF PIPING MATERIALS

Piping materials shall be unloaded, hauled and distributed at the site of the project by the contractor. Materials shall at all times be handled properly to prevent damage in accordance with manufacturer's recommendations. Pipe and fittings shall not be thrown, dropped, or dragged. Damaged or defective material on the job site shall be rejected and replaced to the satisfaction of the City Engineer. Methods of construction conducive to the damage of sewer pipe shall be corrected when called to the attention of the contractor. All pipe and fittings shall be examined by the contractor above grade before placement in the trench.

303.2 MANHOLES

303.2.1 PIPE CONNECTIONS

Where a connection is made to an existing manhole, the manhole shall be cored, and a flexible pipe-to-manhole connector installed. The existing manhole bench shall be reworked as required by City Engineer.

Inverts shall be made to conform accurately to the sewer grades with smooth, well rounded junctions and transitions satisfactory to the City Engineer. If the invert is to be poured in place, the sanitary sewer pipe shall be extended through the manhole, the concrete poured and formed, and the pipe then sawed out through the manhole.

303.3 TRENCHING

Trench construction shall be done in accordance with Sections 20 and 31 of the Standard Specifications for Water and Sewer Main Construction in Illinois, except as modified herein.

303.3.1 WIDE TRENCH

Wide trenches are classified as trenches whose width at the top of the pipe is greater than 2 1/2 pipe diameters on each side of the pipe or a total of 6 pipe diameters. Although there is no width of trench beyond which the load on a flexible pipe exceeds the prism load, accepted installation practices usually dictate narrow trench construction. In isolated circumstances it may be more cost effective to use wide trench construction, i.e., in areas where narrow trench walls cannot be maintained. If trench width at the top of a small diameter pipe (4 inch - 10 inch diameter) must exceed 6 pipe diameters, the embedment up to the pipe spring line should be compacted to a point approximately 2 1/2 pipe diameters from each side of the pipe. For large diameter PVC pipe (12 inch - 48 inch diameter) installed in wide trenches, the embedment up to the pipe spring line should be compacted to a point at least one pipe diameter or 2 feet from side of the pipe, whichever is greater.

303.3.2 ROCK SUB-GRADE

Ledge rock, hard pan, cobbles, boulders or stones larger than 1 1/2 inches shall be removed from the trench bottom to permit a minimum bedding thickness of 6 inches.

303.4 PIPE BEDDING AND BACKFILL

Granular pipe bedding and haunching shall be required on all sanitary sewers installed in the City of Wood Dale. Initial backfill shall be required for all sanitary sewers constructed of PVC or other flexible pipe material.

303.4.1 PIPE BEDDING

Granular pipe bedding shall be provided so that the pipe 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, 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. Granular pipe bedding shall be a minimum of 4 inches in earth excavation and a minimum of 6 inches in rock excavation.

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. The size range and resulting high voids ratio of bedding material make it suitable for use to dewater trenches during pipe installation. This permeable characteristic dictates that its use be limited to locations where pipe support will not be lost by migration of fine grained natural material from the trench walls and bottom or migration of other materials into the bedding material. When such migration is possible, the material's minimum size range should be reduced to finer than 1/4 inch and the gradation properly designed to limit the size of the voids.

Bedding materials shall be placed to provide uniform and adequate longitudinal support under the pipe. Bell holes at each joint shall be provided to permit the joint to be assembled properly while maintaining uniform pipe support. When the joint has been made, the void under the bell will be filled with bedding or haunching material.

303.4.2 HAUNCHING

The most important factor affecting pipe performance and deflection is the haunching material and its density. Place and consolidate the material under the pipe haunch to provide adequate side support to the pipe while avoiding both vertical and lateral displacement of the pipe from proper alignment. Place haunching up to the pipe spring line.

303.4.3 INITIAL BACKFILL FOR FLEXIBLE PIPE

Initial backfill begins above the spring line of the pipe and extends to a point 6 inches above the top of the pipe. This material shall be carefully placed so as to completely fill the space around the pipe, in 8 inch layers, loose measurements, and compacted to the satisfaction of the City Engineer.

303.4.4 SELECTED GRANULAR BACKFILL (TRENCH BACKFILL)

The backfill for trenches and excavation made in existing or under proposed pavements where the inner edge of the trench is within 2 feet of the edge of the pavement, curb, gutter, curb and gutter, or sidewalk, shall be made with compacted selected granular material. Selected granular backfill shall be placed in uniform layers not exceeding 6 inches (loose measure) and compacted with mechanical equipment to 95% of the standard proctor density in accordance with the applicable AASHTO or ASTM requirements.

303.4.5 DEPTH OF PIPE COVER

All pipe shall be laid to a minimum depth of 7 feet measured from the proposed ground surface to the top of the pipe, unless specifically allowed otherwise in special circumstances by the City Engineer. If allowed, sanitary sewer and services with ground cover less than 4 feet or more than 25 feet must be constructed of ductile iron class 50 pipe. PVC pipe installed for sewer depths between 20-25 feet shall have a SDR 21 rating. All sanitary sewers and services with less than 4 feet of cover shall have insulation.

303.5 PIPE INSTALLATION

303.5.1 LAYING OF PIPE

Sanitary sewer pipe shall be laid true to line and grade as set forth in Section 31 paragraph 31-1.02 of the “Standard Specifications for Water and Sewer Main Construction in Illinois.” Dirt and other foreign material shall be prevented from entering the pipe or pipe joint during handling or laying operations.

Any pipe or fitting that has been installed with dirt or foreign material in it shall be cleaned and re-inspected. At times when pipe laying is not in progress, and at the end of each working day, the open end of the pipe shall be closed with a water tight plug to ensure absolute cleanliness inside the pipe. The City Engineer may request mechanical cleaning (jet flushing) and/or televising if necessary to ensure clean, acceptable pipes, at the contractor's expense.

303.5.2 LAYING OF PIPE ON CURVES

The curvature of sanitary sewers is allowed for sewers 8 inches to 12 inches in diameter. Alignments must follow the general alignment of streets. Only a simple curve design is acceptable. The minimum allowable radius of curvature is 300 feet. Compression type pipe joints are required and manholes are required at the beginning and end of all curves. Maximum joint deflection shall not exceed the manufacturer's recommendations.

303.5.3 INSTALLING PIPE THROUGH CASINGS

This work shall be in conformance with Section 20-2.19 of the Standard Specifications for Water and Sewer Main Construction in Illinois, except as modified herein. Encasements for pipes under highways or railroads shall conform to the requirements of the City of Wood Dale, or the owner of the highway or railroad. Manufactured non-metallic or non-corrosive casing spacers, adjustable runners, or cradles shall be used to support the pipe in the casing and shall be installed per manufacturer's recommendations. A minimum of two supports shall be used per joint of pipe for lengths up to 12.5 feet, and a minimum of three supports shall be used per joint for lengths greater than 12.5 feet. The annular space shall be filled with pea gravel, low- strength grout, or cellular foam concrete and provisions shall be made so that no voids are left. Contractor shall make arrangements to have a City of Wood Dale representative witness the annular spacing filling operations.

303.5.4 CUTTING AND BEVELING PIPE

For shorter than standard pipe lengths, field cuts may be made with either hand or mechanical saws or plastic pipe cutters. Ends shall be cut square and perpendicular to the pipe axis. Spigots shall have burrs removed and ends smoothly beveled by a mechanical bevel or by hand with a rasp or file. Field spigots shall be stop-marked with felt tip marker or wax crayon for the proper length of assembly insertion. The angle and depth of field bevels and lengths to stop-marks shall be comparable to factory pipe spigots.

303.5.5 ASSEMBLY OF JOINTS

Assemble all joints in accordance with recommendations of the manufacturer. If a lubricant is required to facilitate assembly it shall have no detrimental effect on the gasket or on the pipe when subjected to prolonged exposure. Proper jointing may be verified by rotation of the spigot by hand or with a strap wrench. If unusual joining resistance is encountered or if the insertion mark does not reach the flush position, dissemble the joint, inspect for damage, re-clean the joint components and repeat the assembly steps. Note that fitting bells may permit less insertion depth than pipe bells (NOTE: When mechanical equipment is used to assemble joints, care should be taken to prevent over insertion.)

303.5.6 BUILDING SERVICES

When main line bedding, haunching, initial and final backfill must be disturbed to install fittings and service lines, the contractor is directly responsible to ensure that the bedding, haunching, initial and final backfill with appropriate compaction are restored properly to eliminate the possibility of deflection or movement causing future pipe failure.

303.5.7 PIPE CAPS AND PLUGS

All caps and plugs shall be braced, staked, anchored, wired or otherwise secured to the pipe to prevent leakage under the maximum anticipated thrust from internal abnormal operating conditions or test pressures from water or air.

303.6 BRANCH FITTINGS

Fittings for service branches in new construction shall be molded for 6 inch and 8 inch pipe and fabricated for 10 inch to 16 inch diameter with all gasketed connections. Clay/plastic pipe connections must be watertight. The contractor will be permitted to use fittings which include factory molded saddles and tees with alignment rings, and factory molded wyes. When connecting to an existing sewer main by means other than an existing wye or tee, one of the following methods shall be used:

a) For PVC existing lines only, a sewer tap into the existing main shall be allowed. This would include a circular saw-cut of the sewer main by proper tools ("Shewer Tap" machine or similar) and proper installation of hub-wye saddle or hub-tee saddle. Holes for wye saddles shall be laid out with a template and shall be de-burred and carefully beveled where required to provide a smooth hole shaped to conform to the fitting.

b) A typical connection would involve a PVC "T" fitting, another 1' (or more) extension of PVC pipe, depending on location of existing joint, the non-shear coupling and the existing clay or PVC pipe. With pipe cutter or appropriate equipment, neatly and accurately cut out desired length of pipe for insertion of proper fitting, using non-shear reinforced banded style repair coupling with 300 series stainless steel shear ring as manufactured Fernco, Inc. or Mission Rubber Company, Inc., or approved equal, connect the sewer pipes and maintain matching flow line elevations. All couplings shall bear the manufacturer's identifying mark and size.

The contractor shall provide details of direct connections to City interceptors greater than 18 inches in diameter and show construction procedure for protecting City structures.

All proposed bypass pumping of sanitary flow shall be approved by Public Works Director or his/her designee prior to performing this work.

304 INSPECTION AND TESTING

All projects shall be inspected and tested upon completion of installation. The City Engineer will designate the locations of tests and extent of the system to be tested, and extent of recording test results. Equipment for performing tests and making measurements shall be furnished by the contractor. Sections of sewer which fail to pass the tests shall have defects located and repaired or replaced and be retested until within the specified allowance

304.1 MANHOLES

All manholes shall be thoroughly cleaned of dirt and debris and all visible leakage eliminated before final inspection and acceptance.

304.1.1 VACUUM TESTING OF SANITARY MANHOLES

All manholes shall be tested for leakage by vacuum testing. A vacuum of 10 inches Hg shall be placed on the manhole and the time shall be measured for the vacuum to drop to 9 inches Hg. The vacuum shall not drop below 9 inch Hg for the time indicated for each size of manhole as shown in Table 300-2.

TABLE 300-2
REQUIREMENTS FOR MANHOLE VACUUM TESTING

Manhole Diameter (inches)	Max. time for 9" Drop (seconds)
48	60
60	75
72	90
84	105

Any manholes that fail the test shall be sealed and re-tested until acceptable. The testing shall be done after backfilling. Leaks found shall be fixed externally unless approved by City Engineer. The manhole frame and adjusting rings shall be in place at finished grade prior to testing.

304.2 FLEXIBLE PIPE

Prior to other tests all sanitary sewer pipes shall be cleaned and inspected for major defects. Pre-cleaning by appropriately sized sewer cleaning ball or by high velocity jet or other method shall be performed. Any debris, grit, etc. shall be removed and shall not be allowed to enter the existing system.

304.2.1 VISUAL TEST

The City of Wood Dale requires that sewer lines be inspected visually to verify accuracy of alignment and freedom from debris and obstructions. The percentage of sewer lines inspected will be designated by the City Engineer. The full diameter of the pipe for straight alignments shall be visible when viewed between consecutive manholes. The method of test shall be either photography or closed circuit television, unless a specific method is required by the special provisions and approved by the City Engineer.

304.2.2 DEFLECTION TESTING

A mandrel test is required by the City of Wood Dale. The City Engineer shall randomly select portions of the project to be deflection tested. Such portions shall consist of the manhole intervals for the initial sewer construction up to 1,200 linear feet and not less than 20% of the remainder of the sewer project. The City of Wood Dale reserves the right to test more or less pipe if considered appropriate by the City Engineer.

The 5% deflection test for pipe sizes 6 inches to 18 inches in diameter is to be run using a nine-arm mandrel having a diameter equal to 95% of the inside diameter of the pipe as established in ASTM D-2241-96b. Table 300-3 was developed for various pipe sizes using the equations outlined in Section 31-1.11C of the Standard Specifications for Water and Sewer Main Construction in Illinois.

TABLE 300-3
REQUIRED MANDREL SIZE FOR SDR 26 PIPE
(ASTM D2241)

Nominal Pipe Size, Inches	Average Inside Diameter	Required Mandrel Size, Inches
6	6.08	5.68
8	7.92	7.38
10	9.87	9.23
12	11.71	10.98
14	12.86	12.02
16	14.70	13.65

TIME OF TESTING

The individual lines to be tested shall be tested no sooner than 30 days after they have been installed by the contractor. During the first year of implementation, additional testing may be performed by the City of Wood Dale.

SEQUENCE OF TESTING

Wherever possible and practical, the testing shall initiate at the downstream lines and proceed towards the upstream lines.

TESTING OF ENTIRE PROJECT

In the event that the deflection exceeds the 5% limit in 10% or more of the manhole intervals tested, the total sewer project shall be tested.

RETEST OF FAILED SECTIONS

Where deflection is found to be in excess of 5% of the base inside diameter, the contractor shall excavate to the point of excess deflection and carefully compact around the point where excess deflection was found. The line shall then be retested for deflection. However, if the deflected pipe fails to return to the original size (inside diameter) after the initial testing, the affected segment shall be replaced.

304.2.3 LEAKAGE TEST

Methods of test which are suitable for various conditions are low pressure air exfiltration or water exfiltration. Explicit instructions for the following methods of test will be supplied by the project design engineer. Plugs, caps, and branch connections must be secured against blow-off during leakage test.

AIR TESTING SAFETY

The contractor is required to follow OSHA rules for trench safety and confined space requirements.

PLUG RESTRAINT

All plugs shall be installed and braced in such a way that blowouts are prevented. Every plug shall be positively braced against the manhole walls, and no one shall be allowed in the manhole adjoining a line being tested so long as pressure is maintained in the line.

RELIEF VALVE

All pressurizing equipment used for low-pressure air testing shall include a regulator or relief valve set no higher than 9 psig to avoid over-pressurizing and displacing temporary or permanent plugs. As an added safety precaution pressure in the test section should be continuously monitored to make certain that it does not at any time exceed 9 psig.

PLUG DESIGN

Either mechanical or pneumatic plugs may be used. All plugs shall be designed to resist internal testing pressures without the aid of external bracing or blocking. However, the contractor shall internally restrain or externally brace the plugs to the manhole wall as an added safety precaution throughout the test.

SINGULAR CONTROL PANEL

To facilitate test verification by the City Engineer, all air used shall pass through a single, above ground control panel.

EQUIPMENT CONTROLS

The above ground air control equipment shall include a shut-off valve, pressure regulating valve, pressure relief valve, input pressure gauge, and a continuous monitoring pressure gauge having a pressure range from 0 to at least 10 psi. The continuous monitoring gauge shall be no less than 4 inches in diameter with minimum divisions of 0.10 psi and an accuracy of 0.04 psi.

SEPARATE HOSES

Two separate hoses shall be used to (1) connect the control panel to the sealed line for inducing low-pressure air, and (2) a separate hose connection for constant monitoring of air pressure build-up in the line. This requirement greatly diminishes any chance for over-pressurizing the line.

PNEUMATIC PLUGS

If pneumatic plugs are utilized, a separate hose shall also be required to inflate the pneumatic plugs from the above ground control panel.

LINE PREPARATION - LATERALS, STUBS AND FITTINGS

During sewer construction, all service laterals, stubs, and fittings into the sewer test section shall be properly capped or plugged so as not to allow for air loss that could cause an erroneous air test result. It may be necessary and is always advisable to restrain gasketed caps, plugs, or short pipe lengths with bracing stakes, clamps and tie-rods, or wire harnesses over the pipe bells.

PLUG INSTALLATION AND TESTING

After a manhole to manhole reach of pipe has been back-filled to final grade and prepared for testing, the plugs shall be placed in the line at each manhole and secured.

It is advisable to seal test all plugs before use. Seal testing may be accomplished by laying one length of pipe on the ground and sealing it at both ends with the plugs to be checked. The sealed pipe should be pressurized to 9 psig. No persons shall be allowed in the alignment of the pipe during plug testing.

It is required to plug the upstream end of the line first to prevent any upstream water from collecting in the test line.

When plugs are being placed, the pipe adjacent to the manhole shall be visually inspected to detect any evidence of shear in the pipe due to differential settlement between the pipe and the manhole.

LINE PRESSURIZATION

Low pressure air shall be slowly introduced into the sealed line until the internal air pressure reaches 4.0 psig greater than the average back pressure of any ground water above the pipe, but not greater than 9.0 psig. If ground water is present, refer to 'Determination of Ground-Water Elevation and Air Pressure Adjustment'.

PRESSURE STABILIZATION

After a constant pressure of 4.0 psig (greater than the average ground water back pressure), is reached, the air supply shall be throttled to maintain that internal pressure for at least 4 minutes. This time permits the temperature of the entering air to equalize with the temperature of the pipe wall.

TIMING PRESSURE LOSS

When temperatures have been equalized and the pressure stabilized at 4.0 psig (greater than the average ground water back pressure), the air hose from the control panel to the air supply shall be shut off or disconnected. The continuous monitoring pressure gauge shall then be observed while the pressure is decreased to no less than 3.5 psig (greater than the average back pressure of any ground water over the pipe). At a reading of 3.5 psig, or any convenient observed pressure reading between 3.5 psig and 4.0 psig (greater than the average ground water back pressure), timing shall commence with a stop watch or other timing device that is at least 99.8% accurate.

DETERMINATION OF LINE ACCEPTANCE

If the time shown in Table 2, for the designated pipe size length (which includes main line sewers and laterals), is achieved before the air pressure drops 0.5 psig; the section undergoing test shall have passed and shall be presumed to be free of defects. The test may be discontinued once the prescribed time has elapsed even though the 0.5 psig drop has not occurred.

DETERMINATION OF LINE FAILURE

If the pressure drops 0.5 psig before the appropriate time shown in Table 3 has elapsed, the air loss rate shall be considered excessive and the section of pipe has failed the test.

LINE REPAIR OR REPLACEMENT

If the section fails to meet these requirements, the contractor shall determine at his own expense, the source or sources of leakage and he shall repair or replace all defective materials and/or workmanship to the satisfaction of the City Engineer. The extent and type of repair which may be allowed, as well as the results, shall be subject to the approval of the City Engineer. The completed pipe installation shall then be retested and required to meet the requirements of this test.

304.2.4 LEAKAGE TESTING – ADJUSTMENTS FOR GROUND WATER

The requirements of this section shall only apply where ground water is known to exist or is anticipated above the sewer line to be tested.

AIR PRESSURE ADJUSTMENT

The air pressure correction, which must be added to the 3.5 psig normal testing starting pressure, shall be calculated by dividing the average vertical height, in feet of ground water above the invert of the sewer pipe to be tested, by 2.31. The result gives the air pressure correction in pounds per square inch to be added. (For example, if the average vertical height of ground water above the pipe invert is 2.8 feet the additional air pressure required would equal 2.8 divided by 2.31 or 1.2 psig. This would require a minimum starting pressure of 3.5 psig plus 1.2 psig or 4.7 psig.) The allowable pressure drop of 0.5 psig and the timing in Table 300-4 are not affected and shall remain the same.

MAXIMUM TEST PRESSURE

In no case should one starting test pressure exceed 9.0 psig If the average vertical height of ground water above the pipe invert is more than 12.7 feet, the section so submerged may be tested using 9.0 psig as the starting test pressure.

SPECIFIED TIME TABLES

To facilitate the proper use of this required practice for air testing, Table 300-4 is provided. Table 300-4 contains specified minimum times required for a 0.5 psig pressure drop from a starting pressure of at least 3.5 psig greater than the average back pressure of any ground water above the pipe's invert.

TABLE 300-4

SPECIFIED TIME REQUIRED FOR A 0.5 PSIG PRESSURE DROP FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q = 0.0015

(1) Pipe Dia. (in)	(2) Min. Time (min:sec)	(3) Length For Min. Time (ft)	(4) Time For Longer Length (sec)	Specification Time for Length (L) Shown (min:sec)								
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft	500 ft
4	1:53	597	0.190 L	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	0.427 L	2:50	2:50	2:50	2:50	2:50	2:50	2:51	3:12	3:34
8	3:47	298	0.760 L	3:47	3:47	3:47	3:47	3:48	4:26	5:04	5:42	6:20
10	4:43	239	1.187 L	4:43	4:43	4:43	4:57	5:56	6:55	7:54	8:54	9:54
12	5:40	199	1.709 L	5:40	5:40	5:42	7:08	8:33	9:58	11:24	12:50	14:15
15	7:05	159	2.671 L	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02	22:16
18	8:30	133	3.846 L	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51	32:03
21	9:55	114	5.235 L	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16	43:38
24	11:20	99	6.837 L	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17	56:59
27	12:45	88	8.653 L	14:25	21:38	28:51	36:04	43:16	50:30	57:42	46:54	72:07
30	14:10	80	10.683 L	17:48	26:43	35:37	44:31	53:25	62:19	71:13	80:07	89:02
33	15:35	72	12.926 L	21:33	32:19	43:56	53:52	64:38	75:24	86:10	96:57	107:43
36	17:00	66	15.384 L	25:39	38:28	51:17	64:06	76:55	89:44	102:34	115:23	128:12

SECTION 400:
WATER DISTRIBUTION SYSTEM

Page No.	Description
400-3	**401 GENERAL**
400-3	401.1 SPECIFICATIONS
400-3	401.2 START OF CONSTRUCTION
400-3	401.3 CONNECTION TO EXISTING WATER MAINS
400-3	401.4 UTILITY IDENTIFICATION
400-4	401.5 AS-BUILTS
400-5	**402 MATERIALS**
400-5	402.1 DUCTILE IRON PIPE
400-5	402.2 PIPE FITTINGS
400-5	402.3 JOINTS
400-5	402.4 RETAINER GLANDS
400-5	402.5 CASING PIPES
400-6	402.6 PIPE BEDDING
400-6	402.7 PIPE WRAP
400-7	402.8 VALVES
400-8	402.9 TAPPING AND LINE STOP SLEEVES
400-8	402.10 INSERT VALVES
400-9	402.11 CURB STOPS
400-9	402.12 CURB BOXES
400-9	402.13 VALVE BOXES
400-9	402.14 VALVE VAULTS
400-10	402.15 FIRE HYDRANTS
400-12	**403 CONSTRUCTION REQUIREMENTS**
400-12	403.1 GENERAL REQUIREMENTS
400-12	403.2 PIPE INSTALLATION
400-16	403.3 VALVES
400-16	403.4 TAPPING AND LINE STOP SLEEVES
400-17	403.5 INSERT VALVES
400-17	403.6 CURB BOXES
400-17	403.7 VALVE BOXES
400-17	403.8 VALVE VAULTS
400-18	403.9 FIRE HYDRANTS
400-18	403.10 THRUST BLOCKING AND TIE RODS
400-19	403.11 RETAINER GLANDS

400-20 **404 INSPECTION AND TESTING**
400-20 404.1 GENERAL INFORMATION
400-20 404.2 TESTING FOR TAPPING SLEEVES AND INSERT VALVES
400-20 404.3 PRESSURE TESTING
400-21 404.4 DISINFECTION (CHLORINATION)
400-24 404.5 FINAL FLUSHING AND TESTING

401 GENERAL

The standards and requirements found in this article are for materials and construction of water mains within the City of Wood Dale, Illinois.

401.1 SPECIFICATIONS

These specifications cover pipe and fittings and items normally used for water distribution systems. Special considerations will be covered in the plans and special provisions. Water distribution systems shall be constructed in accordance with the " Standard Specifications for Water and Sewer Main Construction in Illinois", latest edition, except as modified herein. In cases of conflict between standards, the more restrictive standard shall apply, as determined by the City Engineer.

401.2 START OF CONSTRUCTION

The contractor shall not begin construction until all required permits have been obtained. Copies of all permits obtained by outside agencies must be provided to the City prior to the start of construction.

401.3 CONNECTION TO EXISTING WATER MAINS

Connections to all City water mains must be by pressure tap or with the use of linestop(s) unless otherwise approved by the City Engineer, as shown on the approved engineering plans.

401.3.1 NOTIFICATION

When connecting to the end of an existing line, work must be coordinated with the Department of Public Works with 48 hours' notice. Personnel from the Department of Public Works are the only ones who are to operate water main valves. When water is needed to chlorinate new lines from adjacent City mains which are in service, Department of Public Works personnel must be present to operate or witness the contractor operation of existing City valves.

A representative from the Department of Public Works must be present at all connections to existing water mains. New water main valves, including pressure tap valves, adjacent to an existing water main, and existing water main valves shall only be operated by the City of Wood Dale, Department of Public Works personnel with 48-hour notice (Monday-Friday). 630-350-3530.

401.4 UTILITY IDENTIFICATION

A wood 4 inch by 4 inch by 6 foot stake with not less than the top 2 feet painted blue shall be installed next to each water vault, buffalo box, and valve box for protection of that appurtenance. The stake shall be maintained in a plumb position.

When newly poured curbs are installed, the contractor shall use a city approved stamp to indent the wet concrete with a "W" to identify the location of each water vault, buffalo box, and valve box. The letter "W" will be indented at the top of the curb 1-1/2 inches to 2 inches in height and width and at a depth of 3/8 inch. In areas where new curbs are not present or if the developer and/or the contractor fail to indent the curbs as outlined above, the City will then require that identification symbols as approved by the City Engineer be cut into the curb.

401.5 AS-BUILTS

Upon completion of work, the contractor shall provide as-built locations of all water main, valves, line stops, curb stops, and hydrants in conformance with the requirements of Section 110 of the Wood Dale Standards Specifications.

402 MATERIALS

Specific references made herein for manufactured materials such as pipe, hydrants, valves and fittings refer to designations for American Water Works Association (AWWA) or to the American National Standards Institute (ANSI). Nothing herein shall constitute or imply an endorsement by the City of Wood Dale of any one material over another.

401.3 DUCTILE IRON PIPE
Ductile Iron pipe shall conform to ANSI/AWWA C151/A21.5-02 (or latest edition). The minimum thickness designation shall be Class 52. Casting, marking, testing, etc. shall be provided in accordance with applicable ANSI or AWWA standards. Cement lining shall be provided in accordance with ANSI/AWWA C104/A21.4-03 (or latest edition).

401.4 PIPE FITTINGS
All cast and ductile iron fittings shall conform to the latest ANSI/AWWA C110/A21.10-03 (or latest edition) for short body, cast and ductile iron fittings, 3 inches to 48 inches in diameter. Ductile iron compact fittings 3 inches to 24 inches in diameter shall be in accordance with ANSI/AWWA C153/A21.53-00 (or latest edition) and be Made in the USA.

401.5 JOINTS
Joints for ductile iron pipe shall consist of one of the two following types unless otherwise provided in the special provisions:

a) Mechanical Joints with stainless steel nuts, bolts and washers, Type 304 or better.

b) Push-On Rubber Gasket Joints: AWWA C600-99 (or latest edition). Gaskets for water main located within 100 feet of a vehicle fueling facility shall be Buna N or Fluorocarbon rubber.

401.6 RETAINER GLANDS
For use on ductile iron pipe conforming to ANSI/AWWA C151/A21.51-02, nominal pipe sizes 3 inches through 48 inches, mechanical joint wedge action retainer glands shall be used as required to restrain valves, fittings, hydrants, and pipe joints. The retainer glands shall be:

a) MEGALUG 1100 Series as manufactured by EBAA IRON, INC., or

b) Uni-Flange Blockbuster 1400 Series from Ford Meter Box Co., or approved equal

Existing ductile iron systems requiring restraint shall be Series 1100SD (split MEGALUG) for mechanical joints. Restraint system for restraining push-on pipe bells shall be MEGALUG Series 1100HD, or FORD Series 1390. All nuts, bolts and washers shall be stainless steel, Type 304 or better.

401.7 CASING PIPES

Casing pipe shall be steel with a wall thickness as shown in Table 400-1. It shall be bituminous coated, a minimum of 30 mils thickness inside and out, and shall be of leak proof construction, capable of withstanding the anticipated loadings. The steel casing pipe shall have minimum yield strength of 35,000 psi and shall meet the requirements of A139/A139M-04 (or latest edition), Grade B. Ring deflection shall not exceed 2% of the nominal diameter. The steel casing pipe shall be delivered to the jobsite with beveled ends to facilitate field welding.

TABLE 400-1
STEEL CASING PIPE WALL THICKNESS

Casing Diameter	Minimum Wall Thickness (inches)
20” and 22”	0.344
24”	0.375
28”	0.438
30”	0.469
32”	0.501
34” and 36”	0.532

402.6 PIPE BEDDING

The material used for pipe bedding shall consist of gravel, crushed gravel, or crushed stone conforming to the requirements of Article 1004.01 of the "Standard Specifications for Road and Bridge Construction", prepared by the Illinois Department of Transportation. The gradation shall conform to gradation CA-7 or CA-11 of the Standard Specifications.

402.7 PIPE WRAP

The polyethylene film utilized for pipe wrap shall be in accordance ANSI/AWWA C105/A21.5- 99 (or latest edition). The film shall have a minimum thickness of 0.008 inch (8 mils). The minus tolerance of thickness shall not exceed 10 percent (10%) of the nominal thickness. The tube size or sheet width shall be as shown in Table 400-2.

TABLE 400-2 PIPE
WRAP SIZE

Nominal Pipe Diameter	Flat Tube (inches)	Sheet Width (inches)
3”	14	28
4”	16	32
6”	20	40
8”	24	48
10”	27	54
12”	30	60
14”	34	68
16”	37	74
18”	41	82
20”	45	90
24”	54	108

402.8 VALVES

402.8.1 MANUFACTURER AND MARKING

All 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. Valves may be approved from one of the following manufacturers: Mueller or Clow.

402.8.2 TYPE AND MOUNTING

a) The valve bodies shall be cast or ductile iron, mounted with approved non-corrosive metals. All wearing surfaces shall be of approved non-corrosive material.

b) All valves shall be resilient wedge gate valves with non-rising stems with upper and lower thrust collars. Waterways shall be smooth and have no groove or depression where foreign material can lodge and prevent sealing. The stem shall be bronze or other approved non-corrosive metal. All valves shall open by turning counterclockwise. Resilient wedge gate valves shall meet the standards of AWWA C509-01 or AWWA C515-01 (or latest edition) being made by either Mueller or Clow.

c) All nuts, bolts and washers shall be stainless steel, Type 304 or better.

d) End Connections - End connections of all valves shall be the mechanical joint type.

402.8.3 VALVE STEM SEALS

Unless otherwise designated in the special provisions, all valves shall be furnished with O- Ring Stem Seals. Number, size and design shall conform to the AWWA Standard for R/W valve O-Ring Stem Seals.

402.8.4 WRENCH NUTS

Wrench nuts shall be made of cast iron and shall be 1-15/16 inches square at the top, 2 inches square at the base, 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 2 inches long showing the direction of the opening. The word "open" in 1/2 inch or larger letters shall be cast on the nut to clearly indicate the direction of opening the valve. All operating nuts shall be accessible from above grade with use of an operating key.

402.8.5 FACTORY TESTING

Each valve shall be tested at the factory for performance and operation prior to painting. Each 3 inch to 20 inch R/W valve shall be subjected to a hydrostatic pressure test per AWWA C509- 01 or AWWA C515-01 (or latest edition).

402.8.6 FACTORY COATINGS

After the factory test and inspection, all ferrous parts of the valves except finished or bearing surfaces shall have a fusion bonded epoxy coating which complies with AWWA C550-05 (or latest edition).

402.9 TAPPING AND LINE STOP SLEEVES

Tapping sleeve shall be made of ductile iron. All approved stainless steel heavy-duty tapping sleeves shall be Cascade CST-EX, Ford FTSS, or Romac Industries SST III. All nuts, bolts and washers shall be stainless steel, Type 304 or better.

Line stop sleeves shall be stainless steel. Approved sleeve is Severn Trent Premier line stop fitting of all stainless steel construction with drop-in bolt option. All bolts, nuts, washers and blind flanges are to be 18- 8 Type 304 Stainless. Stopple (completion) plug is to be ductile iron.

All tapping and line stop sleeves shall conform to the following:

a) Sleeve to be pressure rated at 150 psi working pressure and 225 psi test pressure.

b) Construction to be T-304, 18-8 stainless steel, 14 gauge minimum.

c) Gaskets to provide 360 degree pipe coverage in addition to a full circumference branch seal gasket.

d) A stainless steel test port and plug shall be provided and the sleeve installation shall be tested prior to cutting the existing pipe.

e) V-lugs shall be fabricated to the sleeve and drop-in stainless steel bolts, nuts and washers provided. Nuts shall be coated to prevent galling.

402.10 INSERT VALVES

402.10.1 DOUBLE DISC INSERT GATE VALVE

The materials, internal design, construction, workmanship, and manufacture's tests of insert valves shall conform to AWWA Standard C-500-02 or the latest revision, as modified by the following:

a) Valves shall be of a ductile iron body, bronze-mounted, non-rising stem, double non-revolving disc, parallel seat, and side wedging construction.

b) All grey-iron castings shall conform to the requirements of ASTM Specification A126 Class B (31,000 psi minimum tensile strength), or the latest revision.

c) All nuts, bolts and washers shall be stainless steel, Type 304 or better.

d) Valve stems shall be cast, forged or rolled bonze, and free from defects.

e) Valves shall have a mechanical joint bell end, one bell being larger than normal to accept the inserting sleeve. Bells shall contain elastomeric gaskets permanently attached in a plane perpendicular to the centerline of the bore.

f) Valves shall be rated at 150 psig test with 80 psig working water pressure.

g) No bypass will be required.

h) Valves shall open to the left or counter-clockwise.

i) Valve stem seals shall consist of conventional stuffing boxes, or "O-ring type" seals. Gland bolts and nuts shall be of the same quality bronze as the valve stems.

j) Insert Sleeve- Each insert valve shall be provided with a split sleeve of the stuffing box type. Said sleeve shall have a bell mechanical outlet outboard of the valve for sealing to the conduit.

k) The Contractor shall submit three copies of all drawings, furnished by the manufacture, fully and distinctly illustrating and describing the insert valve and sleeve proposed to be furnished.

l) Double disk insert gate valve to be U.S. Pipe, or approved equal.

402.10.2 RESILIENT TYPE INSERT GATE VALVE

Valve shall be as manufactured by Occlude with material that meets and/or exceeds the AWWA C509-01 or AWWA C515-01 (or latest edition) valve specification. All nuts, bolts and washers shall be stainless steel, Type 304 or better.

402.11 CURB STOPS

Curb stops shall be compression type by Mueller or Ford.

402.12 CURB BOXES

Curb boxes (B-Boxes) shall be Minneapolis pattern base of Mueller -10302 or A.Y. McDonald 3623 MCD Tapped base of 2" including bushing. 1 1/2 inch I.D. box for a 1 inch curb stop, and a 1- l/4 inch I.D. curb box for a 1-1/2 inch curb stop or larger. One inch curb boxes shall have a 1 inch threaded brass pentagon plug with the word "WATER" in raised letters on the cap (1- l/2 inch curb boxes shall have a 1-1/2 inch plug).

402.13 VALVE BOXES

Valve boxes/lids shall be Tyler or Bingham and Taylor, two-piece with drop lid, 6850 series (screw type, 5-1/4 inch shafts), or approved equal. Valve boxes and extensions must be cast iron and conform to the requirements of Standard Specifications for Gray Iron Castings, ASTM Designation A-48.

402.14 VALVE VAULTS

Valve vaults shall be constructed of precast concrete units in accordance with ASTM C478-05 (or latest edition) and Section 32 of the "Standard Specifications for Water and Sewer Main Construction in Illinois," and shall follow the City of Wood Dale standards. All valve vaults shall be water-tight. All visible leaks shall be sealed in a manner acceptable to the City Engineer.

402.14.1 FRAME AND COVER

a) Valve Vaults shall be furnished with a self-sealing frame and slotted cover (Heavy Duty Neenah Foundry R-1772, Heavy Duty East Jordan Iron Works 1022-Z3 or approved equal). Pick holes shall not create openings through the vault cover.

b) The word "WATER" shall be imprinted on the cover in raised letters.

c) Frames and lids shall meet or exceed AASHTO H-20 loading specifications.

d) Frames shall be shop painted with asphaltic base paint.

e) Both the vault frame and cover shall have machined horizontal and vertical bearing surfaces.

402.15 FIRE HYDRANTS

a) All fire hydrants shall have 5-1/4 inch valve opening.

b) All materials used in the production of fire hydrants for ordinary service shall conform to the specifications designated for each material listed in AWWA Standard C502-05 (or latest edition).

c) The hydrant shall be Mueller A-423 5- 1/4 inch valve opening, or Clow Medallion 5-1/4 inch valve opening and of a pattern approved by the City Engineer. The seat must be of bronze to bronze. The name or mark of the manufacturer and size of the valve opening shall be plainly cast in raised letters and so placed on the hydrant barrel as to be visible after the hydrant has been installed.

d) Lugs, if required for harnessing the hydrant to the connection 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 City Engineer.

e) Hydrants shall be breakaway/traffic style. Breaking devices shall be at the breakaway flange which will allow the hydrant barrel to separate at this point with a minimum breakage of hydrant parts in case of damage. There shall also be provided at this point, a safety stem coupling on the operating stem that will shear at the time of impact. Unless otherwise specified, all hydrants shall be equipped with O-ring stem seals. The breakaway flange is to be just above the proposed ground level per manufacturer specifications.

f) Hydrant cap chains and chain hooks are not to be installed on hydrant. If any chains and chain hooks have been installed, they shall be removed prior to final acceptance.

g) The dimensions and details of hydrants and nozzles, unless otherwise noted, shall be as follows:

Hydrant connection pipe size inside diameter:	6 inches
Standpipe minimum inside diameter:	6 inches
Length of hydrant from bottom of hydrant connection to breakaway flange:	5-1/2 foot bury depth min.
Valve opening diameter:	5-1/4 inches
Size of auxiliary gate valve:	6 inches
Hose nozzles, number and size:	Two 2-1/2 inch & one 4-1/2 inch

Hydrant 6" Connection Thread Details:

Steamer Nozzles:	National Standard Hose Thread
Diameter at root of thread:	National Standard Hose Thread
Pattern of thread:	National Standard Hose Thread
Total length of threaded male nipple:	National Standard Hose Thread

h) All nozzles shall be fitted with cast iron threaded caps with operating nut of the same design and proportions as the hydrant stem nut. Caps shall be threaded to fit the corresponding nozzles and shall be fitted with suitable gaskets for positive water tightness under test pressures.

i) All nuts, bolts and washers shall be stainless steel, Type 304 or better.

j) The operating nuts on hydrant stem and nozzle caps shall be the same for all sizes of hydrants. Dimensions shall be as follows:

1) Pattern of Nut: Pentagonal

2) Height: 1-1/16 inch

3) Size of Pentagon: 1.35 inch at bottom of nut 1.23 inch at top of nut measured from point to flat

k) The hydrant valve shall open by turning to the left (counterclockwise).

402.15.2 FACTORY TESTING

Before the hydrant is painted at the factory, it shall be subjected to a minimum hydrostatic test of 300 pounds per square inch with the hydrant valve in a closed position and again with the hydrant valve in an open position

402.15.3 PAINTING

All iron parts of the hydrant, both inside and outside shall be thoroughly cleaned and thereafter painted with one coat of paint of a durable composition, and two additional exterior coats of Tnemec-Gloss Safety Red (#69HT) per National fire code specifications (final coat shall be applied after installation).

403 CONSTRUCTION REQUIRMENTS

403.1 GENERAL REQUIREMENTS

403.1.1 RESPONSIBILITY FOR MATERIALS

The contractor shall be responsible for the acceptability and storage of all materials furnished by him and shall assume responsibility for the replacement of all such material found damaged in shipping or on job site or defective in manufacture. This shall include the furnishing of all material and labor required for the replacement of installed material discovered to be defective prior to the final acceptance of the work.

403.1.2 HANDLING OF PIPE MATERIAL

All types of pipe shall be handled in such a manner as will prevent damage to the pipe or coating. Damaged pipe and other accessories shall be rejected and replaced to the satisfaction of the City Engineer. The methods of handling shall be corrected to prevent further damage when called to the attention of the contractor. The pipe and fittings shall be inspected by the contractor for defects while suspended above grade.

Dirt or other foreign material shall be prevented from entering the pipe or pipe joint during handling or laying operations and any pipe or fitting that has been installed with dirt or foreign material in it shall be thoroughly cleaned. At times when pipe laying is not in progress, and at the end of each working day, the open ends of the pipe shall be closed by a water tight plug to ensure absolute cleanliness inside the pipe. The plugs shall not be removed until the trench has been dewatered to the satisfaction of the City Engineer.

403.2 PIPE INSTALLATION

Pipe shall be installed in accordance with ANSI/AWWA Standard C600-99 (or latest edition), except as modified herein.

403.2.1 EXCAVATION AND BACKFILL

Excavation and backfill for water mains shall conform to the provisions of Section 20, 21 and 22 of the Standard Specifications for Water Sewer Main Construction in Illinois, latest edition, except as modified herein.

403.2.2 DEPTH OF PIPE COVER

Unless otherwise shown on the plans or indicated in the Special Provisions, all pipe shall be installed with a minimum of 5 feet of ground cover, measured from the proposed grade to the top of the pipe. In areas subject to subsequent excavation or fill, the mains shall be laid to the grades shown on the plans.

403.2.3 PIPE BEDDING

The trench shall have a flat bottom conforming to the grade to which the pipe is laid. The pipe shall be laid on sound aggregate bedding, no less than 4 inches in depth, true to grade and shall have a firm bearing for the full length of pipe. Any part of the trench excavated below grade shall be corrected with trench backfill material and thoroughly compacted.

403.2.4 DEWATERING OF TRENCH

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

403.2.5 LAYING OF PIPE ON CURVES

Long radius curves, either horizontal or vertical, may be laid with standard pipe by deflections at the joints. The maximum deflections at pipe joints and laying radius for various pipe lengths are as found in the following standards, but at no time shall the deflection of the pipe joints exceed the manufacturer's maximum recommended deflection:

a) Ductile Iron Pipe Mechanical Joints: AWWA C600-99 (or latest edition)

b) Ductile Iron Pipe Push-On Joints: AWWA C600-99 (or latest edition)

Where field conditions require deflection of pipe not shown on the plans, the City Engineer must give prior approval of the methods to be used.

403.2.6 MECHANICAL JOINTS

a) Jointing procedures shall be in accordance with AWWA C600-99 (or latest edition). The outside of the spigot and the inside of the bell shall be cleaned. Lubrication and additional cleaning shall be provided by brushing both the gasket and plain end with an approved pipe lubricant meeting the requirements of ANSI/AWWA C111/A21.11-00 (or latest edition) just prior to slipping gasket onto the plain end for joint assembly. The gland shall be placed on the plain end with the lip extension toward the plain end, followed by the gasket with the narrow edge of the gasket toward the plain end.

b) The pipe shall be inserted into the socket and the gasket shall be pressed firmly and evenly into the gasket recess. The joint shall be kept straight during assembly.

c) The gland shall be pushed toward the socket and centered around the pipe with the gland lip against the gasket. The bolts shall be inserted and the nuts hand tightened.

d) The bolts shall be tightened to the normal range of bolt torque as specified in AWWA C600-99 (or latest edition) which is 75-90 ft-lbs for pipes 4 inches to 24 inches, while at all times maintaining approximately the same distance between the gland and the face of the flange at all points around the socket.

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

403.2.7 PUSH-ON JOINTS

a) Jointing procedures shall be in accordance with AWWA C600-99 (or latest edition). The inside of the bell shall be thoroughly cleaned to remove all foreign matter from the joint. The circular rubber gasket shall be inserted in the gasket seat provided.

b) A thin film of approved gasket lubricant shall be applied to the inside surface of the gasket. Gasket lubricant shall be a solution of vegetable soap or other solution supplied by the pipe manufacturer and approved by the City Engineer. The lubricant shall be approved for use with potable water. The spigot end of the pipe shall be cleaned and entered into the rubber gasket in the bell, using care to keep the joint from contacting the ground. The joint shall then be completed by forcing the plain end to the seat of the bell. Care must be taken not to damage exterior coating or interior linings while forcing the joint. A timber header or other suitable means shall be used to push the pipe "home" to avoid damage.

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

d) All pipe shall be furnished with a depth mark to assure that the spigot end is inserted to the full depth of the joint.

403.2.8 INSTALLING PIPE THROUGH CASINGS

This work shall be in conformance with Section 20-2.19 of the Standard Specifications for Water and Sewer Main Construction in Illinois, except as modified herein. Encasements for pipes under highways or railroads shall conform to the requirements of the City of Wood Dale, or the owner of the highway or railroad. Manufactured non-metallic or non-corrosive casing spacers, adjustable runners, or cradles shall be used to support the pipe in the casing and shall be installed per manufacturer's recommendations. A minimum of two supports shall be used per joint of pipe for lengths up to 12-1/2 feet, and a minimum of three supports shall be used per joint for lengths greater than 12-1/2 feet. The annular space shall be filled with pea gravel, low-strength grout, or cellular foam concrete and provisions shall be made so that no voids are left. The Contractor shall make arrangements to have a City of Wood Dale representative witness the annular spacing filling operations.

403.2.9 CORROSION PROTECTION - POLYETHYLENE ENCASEMENT

Polyethylene encasement is required for all underground installations of gray, ductile and cast iron pipe and other related appurtenances or water main. Polyethylene encasement shall be required unless a soils report submitted to the City by the Ductile Iron Pipe Research Association indicates that the soils in the area are not corrosive to iron pipe. Should corrosive soils be encountered during the installation of the pipe, then the pipe shall be encased in polyethylene wrap.

Installation shall be in accordance with ANSI/AWWA C105/A21.5-99 (or latest edition). The polyethylene encasement shall prevent contact between the pipe and the surrounding backfill and bedding material but is not intended to be a completely air and water tight enclosure

Overlaps shall be secured by the use of approved adhesive tape, plastic string, or other material capable of holding the polyethylene encasement in place until backfilling operations are completed.

Three different methods for the installation of polyethylene encasement on pipe are acceptable. Methods A and B are for use with polyethylene tubes and method C for use with polyethylene sheets.

a) Method A

Cut the polyethylene tube to a length approximately two feet longer than that of the pipe section. Slip the tube around the pipe, centering it to provide a one foot overlap on each adjacent pipe section, and bunching it accordion fashion length-wise until it clears the pipe ends.

Lower the pipe into the trench and make up the pipe joint with the preceding section of pipe. A shallow bell hole must be made at joints to facilitate installation to the polyethylene tube.

After assembling the pipe joint, make the overlap of the polyethylene tube. Pull the bunched polyethylene from the preceding length of pipe, slip it over the end of the new length of pipe and secure in place. Then slip the end of the polyethylene from the new pipe section over the end of the first wrap until it overlaps the joint at the end of the preceding length of pipe.

Secure the overlap in place. Take up the slack width to make a snug, but not tight, fit along the barrel of the pipe, securing the fold at quarter points.

Repair any rips, punctures, or other damage to the polyethylene with adhesive tape or with a short length of polyethylene tube cut open, wrapped around the pipe and secured in place. Proceed with installation of the next section of pipe in the same manner.

b) Method B

Cut the polyethylene tube to a length approximately one foot shorter than that of the pipe section. Slip the tube around the pipe, centering it to provide six inches of bare pipe at each end. Make the polyethylene snug, but not tight; secure ends as described in Method A.

Before making up a joint, slip a three foot length of polyethylene tube over the end of the preceding pipe section, bunching it accordion fashion lengthwise. After completing the joint, pull the three foot length of polyethylene over the joint, overlapping the polyethylene previously installed on each adjacent section of pipe by at least one foot. Make the polyethylene snug and secure each end as described in Method A.

Repair any rips, punctures, or other damage to the polyethylene. Proceed with installation of the next section of pipe in the same manner.

c) Method C

Cut the polyethylene sheet to a length approximately two feet longer than that of the pipe section. Center the cut length to provide a one foot overlap on each adjacent pipe section, bunching it until it clears the pipe ends. Wrap the polyethylene around the pipe so that it circumventially overlaps the top quadrant of the pipe. Secure the cut edge of polyethylene sheet at intervals of approximately three feet.

Lower the wrapped pipe into the trench and create the pipe joint with the preceding section of pipe. A shallow bell hole must be made at joints to facilitate installation of the polyethylene. After completing the joint, make the overlap as described above.

Repair any rips, punctures or other damage to the polyethylene. Proceed with installation of the next section in the same manner.

Cover bends, reducers, offsets, and other pipe-shaped appurtenances with polyethylene in the same manner as the pipe. When valves, tees, crosses, and other odd-shaped pieces cannot be wrapped practically in a tube, wrap with a flat sheet or split length of polyethylene tube by passing the sheet under the appurtenance and bringing it up around the body. Make seams by bringing the edges together, folding over twice, and taping down. Handle width and overlaps at joints as described above. Tape polyethylene securely in place at valve stem and other penetrations.

403.3 VALVES

The minimum requirements for all valves shall, in design, material and workmanship, conform to AWWA C509-01 or AWWA C515-01 (or latest editions).

All 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.

The valves shall be suitable for ordinary water works service and intended to be installed in a normal position on buried pipe lines or water distribution systems.

All valves shall be provided with a standard valve chamber so arranged that no shock will be transmitted to the valve and the box or vault opening shall be centered over the operation nut, and the cast iron cover shall be set flush with the road bed or finished surface.

403.4 TAPPING AND LINE STOP SLEEVES

Pressure tap connections shall be made in accordance with Standard Details and in accordance with Section 46 of the Standard Specifications for Water and Sewer Main Construction in Illinois.

Tapping sleeves of stainless steel shall not be used for “size on size” installations nor on water mains larger than 12 inches in size.

The outside surface of the existing main and the inner face of the tapping sleeve shall be disinfected with a 1 % chlorine solution.

403.5 INSERT VALVES

Insert valves shall be furnished with flanged inlet and connections having a machined projection on the flanges to mate with a machined recess on the outlet flanges of the tapping sleeves and crosses.

Insert valves shall be furnished for and installed in a horizontal conduit with the valve stem plumb over the center line of the pipe.

403.6 CURB BOXES

Curb boxes shall be capable of extensions and installed to finished grade, and shall conform to the depth of bury of the service line as provided in the Wood Dale Standard Water Detail 1. "Pigtails" on customer side of curb stop are not allowed.

403.7 VALVE BOXES

Adjustable cast iron valve boxes shall be set to position during backfilling operations so they will be in a vertical alignment to the 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 R/W 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 at final grade. Backfilling around both units shall be placed and compacted to the satisfaction of the Engineer. Valve boxes must be free of debris, centered over operating nut and easily key-able.

403.8 VALVE VAULTS

Seal tight valve vaults shall be pre-cast with a minimum diameter of 48 inches for valve sizes 6" and 8". On valves larger than 8" and pressure connections, vaults shall be a minimum of 60 inches with eccentric cones installed so that the opening of the cone is placed as close to the centerline of the operation as possible.

A butyl mastic material (CONSEAL CS-102B or equal approved by the City Engineer) shall be used to provide a watertight seal between vault barrel sections, cone to barrel section, and the cone section to frame and cover.

Rubber boots/seals must be used where pipes enter manholes to provide a watertight connection where pipe enters. Elastomeric boots shall conform to ASTM C923-02 and ASTM A167-99(2004), or latest edition with stainless steel bands as manufactured by KOR-N-SEAL by NPC, PSX by Press-Seal Gasket Corporation or approved equal.

Vault frames shall be adjusted to proper grade utilizing reinforced precast concrete rings; brick or concrete blocks will not be allowed. Tapered composite adjusting rings, as approved by City Engineer, shall be required when the frame will be within a roadway area. Final frame adjustment for vaults within the roadway area shall be in accordance with Sections 602 and 603 of Standard Specifications for Road and Bridge Construction, prepared by the Illinois Department of Transportation, latest edition.

Adjusting rings shall be securely sealed to the cone section or top barrel section of the vault using resilient, flexible, non-hardening preformed butyl mastic material (CONSEAL CS-102B or an equal approved by the City Engineer). This mastic shall be applied in such a manner that no surface water or ground water inflow can enter the vault through gaps between the top barrel section or cone section and the first adjusting ring, between adjusting rings, or between the last adjusting ring and the vault frame. Up to 12 inches of adjusting rings may be installed on a given vault; however, no more than one 2 inch adjusting ring and no more than two rings in total shall be used.

403.9 FIRE HYDRANTS

These specifications are to be used in conjunction with the AWWA Standard C502-05 (or latest edition) for fire hydrants for ordinary water works service. Fire hydrants shall be installed at the locations shown on the approved engineering plans.

Hydrants shall be plumb and shall be set so that the center of the hydrant port is a minimum of 18 inches to a maximum of 24 inches above the surrounding finished grade ensuring the breakaway flange at proper ground height. All hydrants shall be inspected in the field upon delivery to the job to ensure proper operation before installation. A minimum of 1/4 cubic yard of washed coarse stone shall be placed at and around the base of the hydrant to ensure proper drainage of the hydrant after use. The blocking of the hydrant shall consist of a wedge of Portland cement concrete of not less than 1/4 cubic yard extending from the hydrant to undisturbed soil and shall be so placed to form a barrier adjacent to the hydrant base top 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 ensure a firm bearing for the hydrant base. The hydrant valve and tee shall be interconnected by stainless steel rods or approved retainer glands. Locking or restrained fittings may be substituted only after prior approval from the City Engineer. The resetting of existing hydrants and moving and reconnection of existing hydrants shall be handled in a manner similar to the new installation. Auxiliary valve shall be installed a minimum of 18 inches from the face of the hydrant. The contractor shall rotate and/or adjust the hydrants to the satisfaction of the department of Public Utilities. The hydrant settings shall follow the Wood Dale Standard Detail Water 2.

Fire hydrant should be bagged "NOT IN SERVICE" until all testing and disinfection has been completed and the new water main section is service.

403.10 THRUST BLOCKING AND TIE RODS

a) Blocking to prevent movement of lines under pressure at bends, tees, caps, valves (including inside vaults) and hydrants shall be Portland cement concrete, a minimum of 12 inches thick, placed between solid ground and the fittings (see Wood Dale Standard Water Detail 6) and shall be anchored in such a manner that pipe and fitting joints will be accessible for repairs. The Portland cement concrete shall meet or exceed a compressive strength of 3500 psi after 28 days. Thrust blocks may be precast or cast-in-place.

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

c) Where unstable soil and/or backfill conditions exist, it may be necessary to install thrust blocking at deflected sections as well as at fittings. If required by the City Engineer, deflection blocking shall be installed at a point approximately 1/5th of the pipe length each side of the coupling. Couplings/sleeves shall be restrained with approved retainer glands.

d) Tie rods shall be 5/8 inch diameter (minimum) stainless steel, grade 304. Eyebolts shall be high strength, low alloy steel.

e) Where conditions prevent the use of concrete thrust blocks, tied joints or restrained joints of a type approved by the City Engineer shall be used.

403.11 RETAINER GLANDS

The contractor may elect to use mechanical joint wedge action retainer glands in lieu of tie-rods. Installation shall be per manufacturers' recommended procedures, including length and/or number of joints to be restrained. Tied or restrained joints shall extend a minimum of two full pipe lengths back from the fitting. And shall utilize MEGALUG Series 1100 materials.

Note: Thrust blocking shall be required behind fire hydrant assemblies in addition to the use of retainer glands and/or tie rods. The use of set screw type retainer glands shall not be permitted for use within the City of Wood Dale.

Use of approved retainer glands does not eliminate the need for thrust blocking at fittings and valves unless approved by the Department of Public Utilities after review of the appropriate supporting calculations.

404 INSPECTION AND TESTING

404.1 GENERAL INFORMATION

When extending an existing line, the contractor must chlorinate and pressure test both new and valved sections of existing lines in accordance with City standards.

For fire lines to buildings, the permanent valve must be in place prior to disinfection and sampling.

404.2 TESTING FOR TAPPING SLEEVES AND INSERT VALVES

Before a tapping sleeve is installed, the exterior of the main to be tapped, as well as the interior surface of the sleeve, shall be thoroughly cleaned and swabbed with a 1 percent hypochlorite solution.

After the surface disinfection, the tapping saddle or sleeve shall be mounted to the main and tapping valve to form a pressure-tight connection. The installation shall be pressure tested at operating pressure plus 50 percent, to insure the integrity of the installation. This shall be a hydrostatic test, introduced through a port on the tapping machine, or through a tapped mechanical joint plug on the outlet side of the tapping valve. The tapping machine and the tapping valve and sleeve assembly shall be externally supported so that no additional weight is placed upon the main(s).

Prior to installation, the insert valve shall be operated in the position that it will assume in service and for the full length of gate travel in both directions to demonstrate the free and perfect functioning of all parts in the intended manner. Any defects of workmanship shall be corrected and tested repeated until satisfactory performance is demonstrated.

404.3 PRESSURE TESTING

All newly laid water mains shall be subjected to a hydrostatic pressure test. Testing shall be in accordance with provision AWWA C-600-99 (or latest edition). Each valved section of pipe shall be slowly filled with water and flushed. The specified test pressure shall be applied by means of a pump connected to the pipe in a satisfactory manner. Water used shall be metered. The pump to pipe connection and all necessary apparatus including gauges and meters shall be furnished by the contractor. Before applying the specified test pressure, all air shall be expelled from the pipe. To accomplish this, taps shall be made, if necessary, at points of highest elevation and afterwards turned off and capped. All joints showing visible leaks shall be repaired or replaced until they are free from leaks. Any cracked or defective pipes, fittings, valves, or hydrants discovered in consequence of this pressure test shall be removed and replaced by the contractor with sound material and the test shall be repeated until satisfactory to the City Engineer. In no instance shall "Bell Joint Clamps" be permitted to repair leaks at push-on Joints.

a) The newly laid water mains or any valved sections of it shall be subjected to a hydrostatic pressure test of no less than 150 pounds per square inch (psi) or 50% more than the operating pressure, whichever is greater. The test pressure shall not vary by more than $\pm$ 5 psi.

b) The duration of each pressure test shall be for a period of not less than 4 hours.

c) The pressure test gauge shall be glycerin or oil filled, with a range of not more than 200 psi and increments not greater than 5 psi.

404.3.1 PERMISSIBLE LEAKAGE

a) Suitable means approved by the City Engineer shall be provided by the contractor for determining the quantity of water lost by leakage. The leakage test shall be conducted after satisfactory completion of the pressure test before being accepted.

b) Allowable leakage shall not be greater than that indicated in Table 400-3.

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

d) Flanged pipes shall be watertight.

TABLE 400-3
ALLOWABLE LEAKAGE FOR HYDROSTATIC PRESSURE TEST (150 PSI)

Nominal Pipe Diameter	Allowable Leakage (gallons/hour/1000 LF)
2”	0.19
3”	0.28
4”	0.37
6”	0.55
8”	0.74
10”	0.92
12”	1.10
14”	1.29
16”	1.47
18”	1.66
20”	1.84
24”	2.21

404.4 DISINFECTION (CHLORINATION)

404.4.1 FLUSHING

a) Sections of pipe to be disinfected shall first be flushed to remove any solids or contaminated material that may have become lodged in the pipe. If no hydrant is installed at the end of the main, then a tap should be provided large enough to develop a velocity of at least 2.5 feet per second in the main. One 2-1/2 inch diameter hydrant opening will, under normal pressure, provide this velocity in pipe sizes up to and including 12 inches. See Table 400-4 for additional sizes.

b) All taps required by the contractor for chlorination or flushing purposes or for temporary or permanent release of air, shall be provided by him as part of the construction of water mains. When completed, the copper tubing shall be removed and the corporation stop placed at the "off" position. After testing, all corporation stops in valve vaults shall be brass-capped to protect threads.

TABLE 400-4
MINIMUM ORIFICE SIZE (INCHES) TO
FLUSH WATER MAIN AT 2.5 FPS

Pipe Diameter	Residual Pressure, PSI				
	20	40	60	80	100
4”	1.11	0.94	0.85	0.79	0.75
6”	1.64	1.38	1.24	1.16	1.09
8”	2.23	1.88	1.69	1.58	1.49
10”	2.75	2.31	2.09	1.94	1.84
12”	3.34	2.81	2.54	2.37	2.24
14”	3.86	3.25	2.94	2.73	2.58
16”	4.31	3.63	3.28	3.05	2.88
18”	4.98	4.19	3.78	3.52	3.33
20”	5.53	4.65	4.20	3.91	3.70

NOTE: Standard hydrant nozzle sizes are 2.5 inch and 4.5 inch

404.4.2 DISINFECTION REQUIREMENTS

a) Before being placed into service, all new water mains and/or extensions to existing mains shall be chlorinated so that an initial chlorine residual of at least 50 ppm is present, and that a chlorine residual of not less than 25 ppm remains in the water after standing 24 hours in the pipe.

b) For extensions and/or connections equal to or less than one pipe length (< 18 ft), the new pipe, fittings and valve(s) required for the connection/extension may be spray or swab disinfected with a minimum 1 percent hypochlorite solution just prior to being installed.

c) Before a tapping sleeve is installed, the exterior of the main to be tapped, as well as the interior surface of the sleeve, shall be thoroughly cleaned and swabbed with a 1 percent hypochlorite solution.

d) Fire service lines requiring disinfection shall have the permanent position indicating valve (OS&Y or approved equal) installed on the fire sprinkler riser prior to disinfection.

404.4.3 FORM OF APPLIED CHLORINE

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

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

b) Chlorine-Bearing Compounds in Water - In certain instances, when the usage of chlorine gas is not practical, such as in congested or confined areas, upon approval of the City Engineer, a chlorine bearing compound of known chlorine content, prepared in solution form, may be substituted for chlorine gas.

404.4.4 POINT AND RATE OF APPLICATION

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

b) Rate of Application - Water from the existing distribution system, or other approved source of supply shall be controlled to flow very slowly into the newly laid pipeline during the application of the chlorine. The rate of chlorine mixture flow shall be a constant feed and in such proportion to the rate of water entering the newly laid pipe that the dosage applied to the water will be at least 50 parts per million unless otherwise directed by the City Engineer.

c) Retention Period - Treated water shall be retained in the pipe at least 24 hours. After this period, the chlorine residual at pipe extremities and at other representative points shall be at least 25 parts per million.

d) Chlorinating Valves and Hydrants - After the process of chlorinating newly laid pipe, all valves internal to the isolated test section and other appurtenances shall be operated while the pipeline is filled with the chlorinating agent and under normal operating pressure.

a) Preventing Reverse Flow - Valves shall be manipulated so that the strong chlorine solution in the line being treated will not flow back into the existing distribution system supplying the water. Backflow valves are required on chorine equipment piping.

404.5 FINAL FLUSHING AND TESTING

a) Dechlorination/neutralization may be required by the City Engineer. The environment into which the chlorinated water is to be discharged shall be inspected. If there is any possibility that the chlorinated discharge will cause environmental damage, then a neutralizing chemical

shall be added to the discharge water to thoroughly neutralize the chlorine residual remaining in the water (see AWWA C651-05, or latest edition, Appendix B).

b) Following chlorination, all treated water shall be thoroughly flushed from the newly laid pipe at its extremity until the replacement water throughout its length shows, upon test, a residual not in excess of that carried in the source of supply.

c) After flushing, water samples collected on 2 successive work days from the treated piping system, as directed by the City Engineer, shall show satisfactory bacteriological results. Water main shall not be flushed to obtain the second day sample. Bacteriological analysis must be performed by a laboratory approved by the Director of the Illinois Department of Public Health and the City Engineer. A minimum of two samples is required. The actual number of samples will be determined by the City Engineer.

d) Should the initial treatment result in an unsatisfactory bacterial test, the original chlorination procedure shall be repeated by the contractor until satisfactory results are obtained.

e) Wood Dale Department of Public Works must be notified at least 48 hours prior to flushing. New water mains, including pressure tap valves, connected to an existing water main, and existing water main valves shall only be operated by Wood Dale Department of Public Works personnel.

SECTION 500:
PAVEMENT

Page No.	Description
500-2	**501 GENERAL**
500-2	501.1 STANDARD DOCUMENTS
500-2	501.2 PROTECTION OF RIGHT-OF-WAY IMPROVEMENTS
500-2	501.3 PRIVATE STREETS
500-3	501.4 PAVING RESTRICTIONS
500-3	501.5 MAINTENANCE OF TRAFFIC
500-3	501.6 UTILITY IDENTIFICATION
500-3	501.7 SIDEWALK CLOSURES
500-4	501.8 FINAL ACCEPTANCE
500-4	501.9 AMERICANS WITH DISABILITIES ACT
500-5	**502 MATERIALS**
500-5	502.1 SUBGRADE
500-5	502.2 SUBBASE
500-5	502.3 BITUMINOUS CONCRETE PAVEMENT
500-5	502.4 PORTLAND CEMENT CONCRETE PAVEMENT
500-6	**503 CONSTRUCTION**
500-6	503.1 SUBGRADE
500-7	503.2 SUBBASE
500-7	503.3 BITUMINOUS CONCRETE PAVEMENT
500-7	503.4 PORTLAND CEMENT CONCRETE PAVEMENT
500-7	503.5 PAVEMENT MARKINGS
500-7	503.6 PAVEMENT PROTECTION AND REPAIR
500-8	**504 INSPECTION AND TESTING**
500-8	504.1 GENERAL REQUIREMENTS
500-8	504.2 LABORATORY QUALIFICATIONS
500-9	504.3 TESTING REQUIREMENTS
500-9	504.4 PAVEMENT EVALUATION

501 GENERAL

The standards and requirements found in this article are for materials and construction of roadway pavement, parking lots, driveways, and bicycle/pedestrian pavement within the City of Wood Dale, Illinois.

501.1 STANDARD DOCUMENTS

The following list of Standard Construction Documents define the methods, materials, and testing to be utilized when designing and constructing transportation improvements. The sections in this specification are intended to define further particular elements of both design and construction of transportation projects in Wood Dale, Illinois. The City Engineer shall decide all questions that arise as to the interpretation of the specifications.

a) Design Manual, latest edition (IDOT)

b) Construction Manual, latest edition (IDOT)

c) Soils Manual, latest edition (IDOT)

d) Highway Standards, latest edition (IDOT)

e) Manual of instructions for Concrete Proportioning and Testing, latest edition (IDOT)

f) Manual of Instructions for Bituminous Proportioning and Testing, latest edition (IDOT)

501.2 PROTECTION OF RIGHT-OF-WAY IMPROVEMENTS

The developer and contractor shall have the responsibility to adequately protect the pavement and property, curb and gutter and other right-of-way improvements, whether newly constructed or existing, from any and all damage. Sufficient means shall be employed by the contractor to protect against such damage to the satisfaction of the City Engineer.

Any new or existing improvements that are damaged shall be repaired or replaced in a manner that is satisfactory to the City Engineer.

The contractor and/or developer shall secure all necessary rights to perform any work on private property not within the ownership rights of the developer. The developer shall bear the sole responsibility for damages that may occur as a result of work performed under contracts they initiate.

501.3 PRIVATE STREETS

Private streets shall be designed and constructed in accordance with the standards set forth for public streets.

501.4 PAVING RESTRICTIONS

Roadway construction shall only be permitted between April 15 and November 15, weather permitting, unless otherwise authorized in writing by the City Engineer. This authorization will in no manner void the obligation of the developer and contractor to adhere to the specifications or guarantee the work.

501.5 MAINTENANCE OF TRAFFIC

The contractor shall employ the appropriate methods of traffic control in accordance with the plans, specifications and the Manual on Uniform Traffic Control Devices, such that the safety of vehicles, and pedestrians is preserved at all times. The erection and maintenance of the traffic control devices shall be to the satisfaction of the agency of jurisdiction and the City Engineer.

501.6 UTILITY IDENTIFICATION

When newly poured curbs are installed, the contractor shall use a City approved stamp to indent the wet concrete with an "S" to identify the location of each sanitary manhole and sewer stub and/or indent the wet concrete with a "W" to identify the location of each water valve or water service. The letters shall be indented at the top of the curb and shall be one and one-half (1 l/2) inches to two (2) inches in height, one and one-half (1 l/2) inches to two (2) inches in width, embedded at least three-eighths (3/8) inch deep.

If the developer and/or the contractor fail to indent the curbs as outlined above, the City will require that identification medallions or other symbols as approved by the City Engineer be affixed to the curb.

501.7 SIDEWALK CLOSURES

Closure of sidewalk in a Commercial District poses a serious impediment to access by the heavy pedestrian volume of residents and business employees. Sidewalks shall not be closed unless approved by the City Engineer; any sidewalk closures will be granted only for the brief periods of time needed and shall not be for an entire project. Closure of a sidewalk will be granted by the City Engineer only for those phases of a construction project for which there are no acceptable safe methods of keeping the sidewalk open to pedestrian travel. The following requirements apply to all approved sidewalk closures:

a) Temporary sidewalks shall be used around or through closed off areas rather than closure of a sidewalk whenever possible. Temporary sidewalks shall comply with ADA standards.

b) For any closure of a sidewalk, a pedestrian guide signing plan shall be developed as part of the permit submittal. The pedestrian guide signing plan will include directional signing to adjacent municipal parking lots and directional signing to existing designated pedestrian crosswalks at all-way stop and traffic signal controlled intersections, as well as the sidewalk closure signs incorporated into the IDOT standards. The pedestrian guide signing plan shall comply with ADA standards. The project may not commence until the pedestrian guide and closure signing is in place.

c) Overhead and lateral pedestrian protection shall be installed, where necessary, to insure pedestrian safety, as directed by the City Engineer based upon a review of the project and its sequence of work.

d) Mid-block pedestrian crosswalks shall not be allowed on streets labeled as Corporate Main streets or thoroughfares due to the high volume of traffic and the multiple traffic lanes of these roads.

e) Mid-block pedestrian crosswalks for locations other than those noted above may be granted as part of the pedestrian work zone plan by the City Engineer based upon the submittal of a pedestrian traffic engineering study. Appropriate warning signs (and flashers) are required for mid-block pedestrian crossings.

f) Closure of a sidewalk shall be by a portable or permanent fencing as directed by the City Engineer. Barricades and warning tape are not to be used. Short term closures (those less than 5 days) may be done with barricades and warning tape.

501.8 FINAL ACCEPTANCE

The developer shall maintain the integrity of the pavement, provide periodic cleaning of the pavement, and perform snow removal until final acceptance of the roadway.

501.9 AMERICANS WITH DISABILITIES ACT

All pedestrian facilities shall be constructed in accordance with the latest requirements of the Americans with Disabilities Act (ADA). It is the Contractor's responsibility to review the site conditions and the design plans prior to construction to verify that the proposed improvements can be constructed per ADA requirements. In the event that the proposed improvements cannot be constructed per the ADA requirements, the designer should be consulted and appropriate action must be taken. Appropriate action may include a field change, a plan revision, or a memo to the City from the designer indicating why a certain aspect of the ADA cannot or will not be met. The City will not accept any improvements that fail to meet the requirements of the ADA without documentation from the designer.

It is recommended that the Wood Dale Standard Details be consulted when designing and constructing pedestrian improvements. However, all improvements must ultimately be in accordance with the 2010 ADA Standards for Accessible Design published by the Department of Justice and the Illinois Accessibility Code published by the Illinois Capital Development Board.

502 MATERIALS

502.1 SUBGRADE

All subgrade material shall have a minimum Illinois Bearing Ratio (IBR) of 3.0 as measured by a dynamic cone penetrometer. Subgrade material having an IBR of less than 3.0 shall be modified by undercutting and backfilling the unsuitable areas in accordance with Section 503.1. All materials shall be required to be supplied by a state approved supplier.

502.2 SUBBASE

Unless otherwise indicated, all subbase shall be constructed of compacted, crushed aggregate meeting IDOT gradation CA-6 and shall come from a state approved supplier.

502.3 BITUMINOUS CONCRETE PAVEMENT

Bituminous concrete base course, bituminous concrete binder course and bituminous concrete surface course shall meet the mix design and gradation for the State of Illinois specifications for Bituminous Aggregate Mixture, Bituminous Concrete Binder Course Class modified, and Bituminous Concrete Surface Course Class I modified, respectively. All mix designs shall be approved by the City Engineer. The surface course on all original roadway construction and pavement widenings shall be comprised of only virgin materials.

502.4 PORTLAND CEMENT CONCRETE PAVEMENT

The pavement shall be of Portland cement concrete with or without reinforcement constructed on a prepared subgrade and subbase.

502.4.1 ADMIXTURES

No admixtures other than air entrainment agents in accordance with ASTM C-33 shall be used in the concrete without prior written approval of the City Engineer. All admixtures shall meet all applicable AASHTO and ASTM standards and requirements. The use of calcium chloride is not allowed unless approved in writing by the City Engineer and then only when added by the concrete supplier at the batch plant in accordance with the IDOT Manual of Instructions for Concrete Proportioning and Testing.

502.4.2 SIDEWALKS,DRIVEWAYS & APRONS

Commercial, Industrial, and Multi-Family driveways and parking lots shall comply with applicable articles in sections 300 and 400 of the Illinois Department of Transportation Standards of Roads and Bridge Construction as well as Pavement Details 7 and 13 of this Manual .

All residential driveways and aprons shall be constructed of a minimum three inches (3”) bituminous surface over six inches (6”) compacted aggregate base or six inches (6”) concrete over two inches (2”) compacted aggregate base.

A permit is required from the Community Development Department for construction of new, expansion or replacement of driveways and parking lots on private property. A permit from the Public Works Department is required for construction of new, expansion or replacement of driveway apron within the right-of-way.

All driveways shall be a minimum of eight feet (8’) in width. All driveways shall extend to the curb or curb line. It shall be mandatory to have said driveway installed prior to the occupancy of the

premises. No driveway shall be so constructed or graded as to leave a step, sharp depression or other obstruction on the sidewalk. The grade shall be as nearly as possible to the same as that of the adjoining sidewalk. It shall be unlawful to have the surface finish of any driveway where the same crosses the sidewalk constructed of such material as to render it slippery or hazardous to pedestrians, or to have the grade of such portion vary from the grade of the sidewalk, or to be other than level. This shall not preclude compliance with the ADA standards.

502.4.3 CURING AND PROTECTION

If membrane curing compounds are utilized they shall also be a type which provides a protective seal which is satisfactory to the City Engineer.

503 CONSTRUCTION

503.1 SUBGRADE

The subbase material shall be laterally supported by a sufficient amount of initial backfill material to prevent movement of the subbase during placement of the concrete and/or removal of the form work.

503.1.1 UNSUITABLE SOILS

Any subgrade material deemed unsuitable by the City Engineer shall be removed and replaced with granular material. The depth of undercut shall be based on the existing subgrade material and strength and shall be approved by the City Engineer. All subgrade sections undercut and backfilled shall be drained with underdrain pipe connected to a new or existing storm sewer or drainage system. Underdrain pipe shall be PVC schedule 40 or SDR 35 with factory drilled perforations, with a minimum diameter of 4 inches.

503.1.2 LIME MODIFICATION

Modification of soils by the use of lime requires prior approval by the City Engineer. Lime modification will only be allowed as a means to expedite construction in those instances where the moisture levels of the subgrade soils prevent construction by standard methods in a time frame deemed acceptable to the City Engineer. Lime modification shall be done in accordance with Section 302 of the Standard Specifications for Road and Bridge Construction, except as modified herein.

The developer or his engineer shall provide a minimum of 10 pounds (5 kg) of lime and 100 pounds (45 kg) of on-site soil, located in the proposed subgrades to be modified, prior to construction of the lime modified subgrade. The lime shall be proportioned within a range of 2% to 6% of soil (oven-dry basis). The required proportion of lime shall be established by the developer's engineer or geotechnical consultant prior to construction, using samples of the proposed soil and lime and IDOT's laboratory procedure for lime modified soil.

The mix design and documentation of all the tests necessary to calculate the mix design shall be submitted to the City Engineer at least 5 days prior to the construction of the lime modified soils. The developer's engineer or geotechnical consultant does have the right to make such adjustments of lime proportioning as considered necessary during the progress of the work, within the range specified (2% to 6%). The source or type of lime shall not be changed during the progress of the work without permission of the City Engineer, and after additional documentation and soil testing.

Upon completion of the lime modified subgrade the developer's engineer or geotechnical consultant shall provide documentation of field tests certifying that the required standard dry density has been obtained. Upon receipt of the documentation the City Engineer shall allow the developer to schedule and perform a proof roll of the subgrade. All areas that fail the proof roll shall be repaired until the subgrade meets the proof roll requirements.

503.2 SUBBASE

A stabilized subbase shall be constructed in accordance with Article 312 of the IDOT Standard Specifications, except that pozzolanic stabilized mixtures are not permitted.

503.3 BITUMINOUS CONCRETE PAVEMENT

Bituminous concrete pavement shall be constructed in accordance with Article 403 through Article 408 of the IDOT Standard Specifications.

503.4 PORTLAND CEMENT CONCRETE PAVEMENT

503.4.1 CURB & GUTTER

All concrete curb and gutter shall be constructed in accordance with Wood Dale Standard Pavement Detail 8, and Section 1020 of the IDOT Standard Specifications.

Where curb and gutter crosses utility trenches, the curb and gutter shall be constructed with two No. 4 epoxy coated deformed steel reinforcement bars extending a minimum of 3 feet beyond the edges of the trench.

503.4.2 COMMERCIAL DRIVEWAY APRONS

All driveway aprons or approaches shall be constructed in accordance with Wood Dale Standard Pavement Detail 7, and Section 1020 of the IDOT Standard Specifications.

503.4.3 SIDEWALK

All sidewalks shall be constructed in accordance with Wood Dale Standard Pavement Details 2, 3A, 3B, and 4, and Section 1020 of the IDOT Standard Specifications.

503.4.4 CURING AND PROTECTION

All concrete curb and gutter, sidewalk and other concrete pavements in the City of Wood Dale shall be cured in accordance with the IDOT Standard Specifications. All provisions of Section 1020.13 shall be employed. All membrane products shall be applied in accordance with the manufacturer's recommendations.

503.5 PAVEMENT MARKINGS

All pavement markings and markers shall be installed in accordance with Article 780 through Article 783 of the IDOT Standard Specifications. Except that paint pavement marking shall only be used as temporary pavement markings.

503.6 PAVEMENT PROTECTION AND REPAIR

The contractor shall be responsible to adequately protect all pavement within the public right-of- way. The City Engineer shall have the sole authority in determining if the pavement has been damaged. Upon the request of the City Engineer, the contractor shall remove the damaged sections of pavement at no cost to the city. Any damaged curb and gutter shall be replaced by a new segment of no less than five feet in length.

504 INSPECTION AND TESTING

During the construction of any public roadways within the corporate limits of the City of Wood Dale, testing shall be performed in accordance with the requirements of this section.

In accordance with the Wood Dale Municipal Code, all sidewalk contractors must be licensed and the contractor must request an inspection by the Department of Transportation and Engineering for all work within the public right-of-way.

504.1 GENERAL REQUIREMENTS

The project owner will employ and pay for the services of a qualified independent testing laboratory to provide the materials testing, as specified, in conjunction with the owner's project engineer and the City Engineer.

Following the completion of the testing and the preparation of the applicable reports, copies shall be distributed as follows:

a) One copy to the project owner

b) One copy to the owner's project engineer

c) One copy to the City Engineer

d) One copy to the contractor

Failure to provide the applicable test reports will impede adjustments to bonds, letters of credit, the execution of further work, and acceptance of the improvements or the issuance of occupancy permits.

504.2 LABORATORY QUALIFICATIONS

The materials testing consultant and laboratory shall meet the general requirements of the ASTM E-329 "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete, Steel and Bituminous Materials used in Construction".

The materials testing consultant shall provide qualified personnel promptly upon notice and shall cooperate with the owner's project engineer, the City Engineer or representative and the contractor. Any irregularities or deficiencies in the work observed during the performance of services shall be promptly reported to the owner, the owner's project engineer and the City Engineer. The contractor shall cooperate with the materials testing consultant by providing sufficient notice in advance of operations to allow assignment of personnel and scheduling tests, provide access to the work and manufacturing facilities, and provide representative samples of the materials to be incorporated into the work.

504.3 TESTING REQUIREMENTS

Table 500-1 outlines the material and construction testing requirements for pavements constructed within the public right-of-way in the City of Wood Dale. The table defines the testing requirements based on the material to be incorporated into the work.

The testing frequencies outlined in Table 500-1 are the minimum required for verification of the work; additional testing may be required due to the unique nature of a particular project or to verify or examine further deficiencies or irregularities in the work. Both the owner's project engineer and the City engineer reserve the right to order additional testing. The cost of both the initial testing and any additional testing shall be paid for by the project owner. The contractor reserves the right to contract the services of an equally qualified independent testing laboratory, at their expense, to perform additional inspections, sampling and testing when the initial tests indicate that the work is not in accordance with the contract document and specifications. The City Engineer shall have the final authority to make decisions regarding the acceptability of the work.

504.4 PAVEMENT EVALUATION

The City engineer will evaluate pavement in the right-of-way prior to final acceptance. This evaluation shall be based on the test results required by these standards, and by visual inspection of the pavement surface.

Prior to the acceptance of a Portland cement concrete pavement or the installation of the bituminous concrete surface course on either a composite pavement with a Portland cement concrete base course, a bituminous base course or an aggregate base course, a Dynaflect Pavement Evaluation Program Report shall be performed. The program shall include the following general testing/pavement evaluation techniques:

a) Environmental Study (frost cycle, drainage, etc.)

b) Pavement Surface Evaluation

c) Soil borings at approximately one location per mile

d) Dynamic Pavement Deflection Analyses (Dynaflect machine or equal correlated with Benkelmen Beam or equal)

The cost of the pavement evaluation shall be paid for by the developer. The engineer's estimate and the public improvement letter of credit shall provide an amount sufficient to perform the pavement evaluation. The amount shall be retained until satisfactory completion of the evaluation, payment of the cost of the evaluation to the City by the developer, and City Council acceptance of the roadway.

Prior to construction of the surface course, a field inspection shall be performed of the curb and gutter, base course, and binder course and all failures and deficiencies of the pavement shall be repaired by the contractor to the satisfaction of the City Engineer.

TABLE 500-1
MATERIAL TESTING
FOR SUBGRADE/EMBANKMENT

TYPE OF TEST	**FIELD SAMPLING FREQUENCY**	**REMARKS**
SOIL BORINGS ASTM D1586-84	MIN. EVERY 1000' AT APPROX. CENTERLINE OF ROW & ONE PER CUL-DE-SAC[1,3]	
BEARING RATIO COMPUTATION (IBR B554)	ONE PER TYPE OF SOIL[1,3]	
STANDARD PROCTOR/SIEVE ANALYSIS ASTM D698-91	MIN. ONE TEST PER SOIL CLASSIFICATION[1,2,3]	THE CITY RESERVES THE RIGHT TO REQUIRE THE MODIFIED PROCTOR ASTM D1557-91 BY NUCLEAR DENSITY DEVICE
ATTERBERG LIMITS AASHTO T-89 & T-90/ASTM D4318-95		
IN-PLACE MOISTURE DENSITY ASTM D2922-96 (SUB-GRADE)	MIN. ONE TEST EVERY 500' AND ONE PER CUL-DE-SAC[2,3]	
IN-PLACE MOISTURE DENSITY ASTM D2922-96 (EMBANKMENT)	FOR EACH 500' OF FILL AREA, ONE TEST PER EACH 3' OF EM-BANKMENT HEIGHT	
GRAB SAMPLE ASTM D75-97	OCCASIONALLY[2]	LAB EVALUATIONS AS NEEDED
STRING-LINE SUBGRADE	MIN. EVERY 100' WITH A TOLERANCE OF ½"+/- [4]	
PROOF ROLL	MIN. ENTIRE ROAD, EACH LANE OF TRAVEL[4]	A FULLY LOADED 50,000 LB GVW TANDEM AXLE (6 WHEELER)

[1]/ PRE CONSTRUCTION
[2]/ CONSTRUCTION
[3]/ DEVELOPER'S/OWNER'S TESTING FIRM (MUST MEET ASTM REQUIREMENT E-329)
[4]/ MUST BE WITNESSED BY CITY OF WOOD DALE

TABLE 500-2
MATERIAL TESTING
FOR AGGREGATE BASE/SUB-BASE

TYPE OF TEST	**FIELD SAMPLING FREQUENCY**	**REMARKS**
STANDARD PROCTOR/GRADATION ASTM D698-91 (AASHTO T99-74)	MIN. ONE TEST PER TYPE OF MATERIAL & PER SOURCE OF SUPPLY[1,2,3]	THE CITY RESERVES THE RIGHT TO REQUIRE THE MODIFIED PROCTOR ASTM D1557-91
IN-PLACE MOISTURE DENSITY ASTM D2992-96	MIN. EVERY 500' PER LIFT[2,3]	MATERIAL MUST COME FROM AN APPROVED SOURCE
GRAB SAMPLE D75-97	OCCASIONALLY[2]	LAB EVALUATIONS AS NEEDED
STRING-LINE	MIN. EVERY 100' MAX, TOLERANCE OF 1/4" +/-[4]	
PROOF ROLL	MIN. OF ENTIRE ROAD, EACH LANE OF TRAVEL[4]	A FULLY LOADED 50,000 LB GVW TANDEM AXLE (6 WHEELER)

[1]/ PRE CONSTRUCTION
[2]/ CONSTRUCTION
[3]/ DEVELOPER'S/OWNER'S TESTING FIRM (MUST MEET ASTM REQUIREMENT E-329)
[4]/ MUST BE WITNESSED BY CITY OF WOOD DALE

TABLE 500-3 MATERIAL TESTING
FOR CONCRETE PAVEMENT

TYPE OF TEST	**FIELD SAMPLING FREQUENCY**	**REMARKS**
PLANT INSPECTION	REQUIRED WITH A MIN. OF 100 C.Y. PER DAY [2,3]	PAVEMENT ONLY
SLUMP (IN FIELD) AASHTO T119 ASTM C- 143, C-192	MIN. ONE TEST PER 50 C.Y.[2,3] (MIN. 2 TESTS PER DAY)	
AIR ENTRAINMENT (IN FIELD) ASTM C- 231 AASHTO T152	MIN. ONE TEST PER 50 C.Y.[2,3] (MIN. 2 TESTS PER DAY)	AS PER IDOT'S "CONC. PROPORTIONING AND MANUAL OF INSTRUCTIONS AND TESTING"
STRENGTH (AASHTO T22&T23) 6"x12" SPECIMANS MAY BE USED ASTM C-39, C-87- ROADWAYS	MIN. 4 CYLINDERS PER 100 C.Y. (BREAKS AT 3, 7 AND 14 DAYS WITH 4TH HELD IN RESERVE)	30" BEAMS MAY BE CAST INSTEAD OF CYLINDERS
STRENGTH (AASHTO T22&T23) 6"x12" SPECIMANS MAY BE USED ASTM C-39, C-87	MIN. 3 CYLINDERS PER 50 C.Y. (BREAKS @ 14 & 28 DAYS WITH 3RD CYLINDER IN RESERVE) [2,3]	30" BEAMS MAY BE CAST INSTEAD OF CYLINDERS

[1]/ PRE CONSTRUCTION
[2]/ CONSTRUCTION
[3]/ DEVELOPER'S/OWNER'S TESTING FIRM (MUST MEET ASTM REQUIREMENT E-329)
[4]/ MUST BE WITNESSED BY CITY OF WOOD DALE

TABLE 500-4 MATERIAL TESTING FOR ASPHALT PAVEMENT

TYPE OF TEST	**FIELD SAMPLING FREQUENCY**	**REMARKS**
PLANT INSPECTION	REQUIRED WITH A MIN. OF 100 TONS PER DAY[2,3]	
IN-PLACE DENSITY ASTM D1559, AASHTO T209, AASHTO T245	MIN. OF EVERY 200' PER LANE PER LIFT, ONE PER CUL-DE-SAC[2,3]	BY NUCLEAR DENSITY DEVICE
DENSITY/THICKNESS ASTM D2726-96, AASHTO T164, ASTM D1856-95, AASHTO T170, ASTM D2041-95	2 CORES MIN. PER DAY (ONE CORE FULL TESTING WITH SECOND CORE STANDBY)[2,3]	
[1]/ PRE CONSTRUCTION [2]/ CONSTRUCTION [3]/ DEVELOPER'S/OWNER'S TESTING FIRM (MUST MEET ASTM REQUIREMENT E-329) [4]/ MUST BE WITNESSED BY CITY OF WOOD DALE		

SECTION 600:
STREET LIGHTING & TRAFFIC SIGNALS

Page No.	Description
600-2	**601 GENERAL**
600-2	601.1 SPECIFICATIONS
600-2	601.2 RESOLUTION OF CONFLICTS
600-2	601.3 START OF CONSTRUCTION
600-2	601.4 AS-BUILTS
600-3	**602 MATERIALS**
600-3	602.1 GENERAL
600-3	602.2 STREET LIGHTING POLES
600-5	602.3 BREAK-AWAY DEVICE
600-5	602.4 STREET LIGHTING POLE FOUNDATIONS
600-7	602.5 LUMINAIRES
600-9	602.6 PHOTO-CELL
600-10	602.7 UNDERGROUND CONDUITS AND ELECTRICAL CABLE
600-11	602.8 ELECTRICAL CABLE, 600 VOLT
600-11	602.9 LIGHTING CABLE FUSE KITS
600-12	602.1 STREET LIGHTING HANDHOLES
600-12	602.1 COMPOSITE CONCRETE JUNCTION BOX
600-13	602.1 GROUNDING
600-13	602.1 GROUND ROD
600-14	602.1 STREET LIGHTING CONTROLLER
600-20	**603 CONSTRUCTION REQUIREMENTS**
600-20	603.1 TRAFFIC SIGNAL SYSTEMS CONTRACTOR PRE-QUALIFICATIONS
600-20	603.2 TRENCH AND BACKFILL FOR ELECTRICAL WORK
600-20	603.3 YELLOW WARNING TAPE OVER STREET LIGHTING CABLE
600-20	603.4 TRAFFIC SIGNAL SYSTEM SERVICE INSTALLATION
600-22	**604 INSPECTIONS AND TESTING**
600-22	604.1 STREET LIGHTING SYSTEMS
600-22	604.2 TRAFFIC SIGNAL SYSTEMS

601 GENERAL

The standards and requirements found in this article are for the materials and construction of street lighting and traffic signal systems within the City of Wood Dale, Illinois.

601.1 SPECIFICATIONS

All work and equipment performed and installed under this section shall be governed by and shall comply with the following specifications, manuals, and codes listed in Section 102.2. The most current editions and all subsequent revisions and alterations for the specifications are required.

601.2 RESOLUTION OF CONFLICTS

In the event of conflict between the City Standard Specifications and the documents listed in Section 102.2, the City Standard Specifications shall take precedence and/or the Director of Public Works decision will prevail. Any questions arising from these specifications should be directed in writing to the Director of Public Works for a determination.

601.3 START OF CONSTRUCTION

The contractor shall not begin construction until all required permits have been obtained. Copies of all permits obtained by outside agencies must be provided to the City prior to the start of construction.

601.4 AS-BUILTS

Upon completion of work, the contractor shall provide as-built information in conformance with the requirements of Section 110.

602 MATERIALS

602.1 GENERAL

The materials and equipment for installation of street lighting on public streets in Wood Dale are detailed as follows:

602.2 STREET LIGHTING POLES

602.2.1 DECORATIVE LIGHTING

a) Street lighting poles for decorative lighting shall be of aluminum material, 6061-T6 structural grade aluminum. The mounting height of the fixture shall be 16'-9". The fixture roof and housing shall be made of 356 alloy cast aluminum and shall be mounted directly to the pole and have white acrylic lenses. The luminaire shall be 95 Watt roof mounted LED array, 4500K color temp. The contractor shall submit the technical information, to include catalog cut sheets, for each electrical material item for approval prior to ordering the equipment. The pole shall be "UL Listed" or E.T.L. listed in U.S and Canada.

b) The straight fluted shaft shall be made of ASTM 6061 extruded aluminum and tempered to a T condition. It shall have a decorative fluted 3" O.D. tenon. The outside diameter of the pole shall not be less than 5 inches.

c) The wall thickness shall be a minimum of 0.188 inches. And it shall be welded for single unit construction.

d) The bolt circle of the pole base shall be of 14 inches and utilize ¾" diameter "L" type anchor bolts.

e) The base housing shall be 2'-3" tall and have an access door to be placed opposite the street side of the pole. It shall measure 19" square at the bottom have a 1" floor thickness and shall be fastened to the base with 1/4 inch – 20 threaded stainless steel hex head bolts and 1 ground lug mounted opposite the access door. The bolts shall be coated with an anti-seize compound during installation. It shall be secured with tamper proof, stainless steel hardware.

f) The pole and fixture shall be finished in a Smooth Black finish or a Swedish Iron finish as directed by the City of Wood Dale. The finish shall have a minimum 5-year guarantee by the manufacturer.

g) The fixture shall be either the Prairie style 1230LED Sternberg or an approved equal, the pole shall either be the 8200 Fort Collins series with GFI located 13'-3" above the base, or an approved equal.

602.2.2 REINFORCED LIGHT POLE

a) Street lighting poles for decorative lighting to be used with (2) way finding signs mounted by others shall be of aluminum material, 6061-T6 structural grade aluminum. The mounting height of the fixture shall be 14', 16'-9" to top of fixture. The fixture roof and housing shall be made of 356 alloy cast aluminum and shall be mounted directly to the pole and have white acrylic lenses. The luminaire shall be 95 Watt roof mounted LED array, 4500K color temp. The contractor shall submit the technical information, to include catalog cut sheets, for each electrical material item for approval prior to ordering the equipment. The pole shall be "UL Listed" or E.T.L. listed in U.S and Canada.

b) The straight fluted shaft shall be made of ASTM 6061 extruded aluminum and tempered to a T condition. It shall have a decorative fluted 3" O.D. tenon. The outside diameter of the pole shall not be less than 5 inches.

c) The wall thickness shall be a minimum of 0.250 inches. And it shall be welded for single unit construction.

d) The bolt circle of the pole base shall be of 14 inches and utilize 1" diameter "L" type anchor bolts.

e) The base housing shall be 2'-3" tall and have an access door to be placed opposite the street side of the pole. It shall measure 19" square at the bottom have a 1" floor thickness and shall be fastened to the base with 1/4 inch – 20 threaded stainless steel hex head bolts and 1 ground lug mounted opposite the access door. The bolts shall be coated with an anti-seize compound during installation. It shall be secured with tamper proof, stainless steel hardware.

f) The pole and fixture shall be finished in a Smooth Black finish or a Swedish Iron finish as directed by the City of Wood Dale. The finish shall have a minimum 5-year guarantee by the manufacturer.

g) The fixture shall be either the Prairie style 1230LED Sternberg or an approved equal, the pole shall either be the 8200 Fort Collins series with GFI located 13'-3" above the base, or an approved equal.

602.2.3 RESIDENTIAL LIGHT POLE

a) Street lighting poles for residential lighting shall be of aluminum material, Tapered (6"-4.5"). The height of the pole shall be 23'-0" with a mast arm affixed at 22'-6". The mast arm shall be 6' in length and have a rise of 2'-6". The rise shall taper off at 8" from the end. The mounting height of the fixture shall be 25'-0". The contractor shall submit the technical information, to include catalog cut sheets, for each electrical material item for approval prior to ordering the equipment. The pole shall be "UL Listed" or E.T.L. listed in U.S and Canada.

b) The tapered shaft shall be made of Aluminum tube alloy 6063-T6, 0.156" thick with a satin ground finish.

c) The outside diameter of the pole shall not be less than 6 inches tapering to 4.5 inches. It shall be furnished with a Pole cap secured with stainless steel screws.

d) The mounting bracket for the mast arm shall be extruded aluminum pole plate alloy 6063-T6 with ½"-13NC stainless Steel hardware.

e) The pole shall have a wire hole at 22'-6" with 1" I.D. rubber grommet.

f) The mast arm shall be tapered (4"-2") aluminum tube 0.125" wall alloy 6063-T6 with an elliptical section near the pole (2 ½"x 5 1/8")

g) The bolt circle of the pole base shall be 9-10 inches and utilize 4, 1" diameter "L" type anchor bolts 1"x36"x4" conforming with AASHTO M314-90 grade 55 with 10" of threaded end and galvanized per ASTM A153. The anchorage kit will contain 4 hex nuts, 4 lock washers, and 4 flat washers all components galvanized steel. The base flange shall be alloy 356-T6 with bolt covers and stainless steel hex screws. The bolts shall be coated with an anti-seize compound during installation. It shall be secured with tamper proof, stainless steel hardware.

h) The base foundation shall be 9 ¾" square minimum.

i) A reinforced handhole shall be located 1'-6" above the base minimum size of 3"x5" with a grounding lug located on the opposite side of the handhole. The handhole frame shall be cast aluminum Alloy 356-T6 with aluminum door and 2 stainless steel hex head screws.

f) The pole and fixture shall be finished in a satin ground finish as directed by the City of Wood Dale. The finish shall have a minimum 5-year guarantee by the manufacturer. The pole shall either be the Hapco single mast 4-bolt base, or an approved equal.

602.2.4 INDUSTRIAL LIGHT POLE

j) Street lighting poles for industrial lighting shall be of aluminum material, Tapered (8"-4.5"). The height of the pole shall be 32'-8" with a mast arm affixed at 32'-2". The mast arm shall be 7'-6"' in length and have a rise of 2'-6". The rise shall taper off at 8" from the end. The mounting height of the fixture shall be 34''-8". The contractor shall submit the technical information, to include catalog cut sheets, for each electrical material item for approval prior to ordering the equipment. The pole shall be "UL Listed" or E.T.L. listed in U.S and Canada.

k) The tapered shaft shall be made of Aluminum tube alloy 6063-T6 (ASTM B221), 0.219" thick with a satin ground finish.

l) The outside diameter of the pole shall not be less than 8 inches tapering to 4.5 inches. It shall be furnished with a Pole cap secured with ¼" 20NC stainless steel hex screws.

m) The mounting bracket for the mast arm shall be extruded aluminum pole plate alloy 6063-T6 with ½"-13NC stainless Steel hardware.

n) The pole shall have a 1 ¼" wire hole at 32'-2" with 1" I.D. rubber grommet.

o) The mast arm shall be tapered (4 ½ "-2 3/8") aluminum tube 0.125" wall alloy 6063-T6 with an elliptical section near the pole (2 ½"x 5 1/8")

p) The bolt circle of the pole base shall be 11-12 inches and utilize 4, 1" diameter "L" type anchor bolts 1"x36"x4" conforming with AASHTO M314-90 grade 55 with 10" of threaded end and galvanized per ASTM A153. The anchorage kit will contain 4 hex nuts, 4 lock washers, and 4 flat washers all components galvanized steel. The base flange shall be alloy 356-T6 with bolt covers and stainless steel hex screws. The bolts shall be coated with an anti-seize compound during installation. It shall be secured with tamper proof, stainless steel hardware.

q) The base foundation shall be 11 ¼" square minimum.

r) A reinforced handhole shall be located 12" above the base minimum size of 4"x8" with the frame tapped ½"-13NC for grounding purposes. The handhole frame shall be cast aluminum Alloy 356-T6 with aluminum door and 2 stainless steel hex head screws.

s) There shall be a factory installed internal damper.

t) There shall be a festoon box (Mod. #183) with cover and stainless steel screws located 17' above the bottom of the pole.

f) The pole and fixture shall be finished in a satin ground finish as directed by the City of Wood Dale. The finish shall have a minimum 5-year guarantee by the manufacturer. The pole shall either be the Hapco single mast 4-bolt base, or an approved equal.

602.3 BREAK-AWAY DEVICE

When directed by the City of Wood Dale lighting pole shall be connected to the foundation by a breakaway device of a frangible box design. Frangible coupling bolts are not acceptable. The breakaway device shall comply with the IDOT Standard Specifications. The device shall be approximately 9 inches tall and shall have an aluminum access door. Certification shall be submitted from the supplier of a breakaway device that the particular design meets the 1985 AASHTO breakaway specification. The contractor shall submit the technical information, to include catalog cut sheets. Breakaway devices shall match the finish and the color of the pole.

602.4 STREET LIGHTING POLE FOUNDATIONS

602.4.1 CONCRETE FOUNDATION

No direct bury metal foundations or concrete poles are allow for street lighting poles, reinforced concrete foundations are required to be used.

a) The concrete foundation shall comply with the requirements of the IDOT Standard Specifications.

b) Studs, Fasteners, Rods: Studs or rods shall be 1 inch diameter and shall be according to AASHTO M 314. Nuts shall be hexagon nuts according to AASHTO M 291 M (M291) and washers shall be according to AASHTO M293. Studs or rods, nuts and washers shall be hot dip galvanized according to AASHTO M232.

c) Each foundation shall include a copper coated steel ground rod not less than 3/4 inch in diameter and not less than 10 feet in length.

d) Reinforced street lighting pole foundations shall be a minimum of 24 inches in diameter. The outside top edge of the foundation shall have a 3/4 inch chamfer. The top of the finished foundation shall not protrude more than 4 inches above the finished grade. The anchor bolts, studs, or rods shall protrude a minimum of 3 inches above the concrete foundation.

e) The anchor bolts shall be inside the cage of reinforcing steel.

f) Concrete shall be class SI concrete.

g) Conduit raceways shall be 2 inches for insertion of 1-1/4 inch unit duct conduit. Raceways shall exit the foundation into the soil a minimum of 30 inches below the grade.

h) The depth of the foundation shall be as directed by the Director of Public Works or their designee and constructed as shown in Wood Dale Standard Lighting Detail 1, based upon an evaluation of the soil conditions encountered.

602.5 LUMINAIRES

602.5.1 RESIDENTIAL LUMINAIRE

a) The luminaire shall be a LED light comparable to 70-250W HPS roadway luminaires.

b) The luminaire shall have three different surge protection options that provide a minimum of ANSO C136.2 10kV/5kA or 20kV/10kA protection if needed.

c) The luminaire shall include standard AEL lineman-friendly features such as tool-less entry, 2 station terminal block and quick disconnects. Bubble level located inside the electrical compartment for easy leveling at installation.

d) The luminaire shall have types 2, 3, 4, & 5 distributions.

e) The Luminaire shall have an IP66 rated borosilicate glass optics.

f) The luminaire shall have 0% uplight

g) The luminaire shall either be an Autobahn ATBO or and Autobahn ATBM as approved by the Director of Public Works or their designee.

602.5.2 INDUSTRIAL LUMINAIRE

a) The luminaire shall be composed of 96 high performance white LEDs. Color temperature as per ANSI/NEMA bin Neutral White, 3,000K nominal CRI 70 min 75 typical.

b) The luminaire shall have a surge protector tested in accordance with ANSI/EEE C62.45 per ANSI/EEE C62.41.2 Scenario I category C high exposure 10kV/10kA waveforms for line-ground, line-neutral and neutral-ground, and in accordance with the U.S. DOE MSSLC model specification for LED roadway luminaires electrical immunity requirements for high test level 10kV/10kA..

c) The luminaire shall include standard AEL lineman-friendly features such as tool-less entry, 2 station terminal block and quick disconnects. Bubble level located inside the electrical compartment for easy leveling at installation.

d) The luminaire shall have types 2, 3, & 4 distributions.

e) The Luminaire housing shall be made of a low doper die cast aluminum alloy A360, 0.100" min thickness. Fits on a 1.66" O.D (1.25"NPS), 1.9" O.D. or 2 3/8" O.D. (2"NPS) by 7" min long tenon. Comes with 2 zinc plated clamp fixed by 4 zinc plated hexagonal bolts 3/8 16 UNC for ease of installation. Provides an easy step adjustment of +/- 5 degree tilt in 2.5" increments. A quick release, tool less entry, hinged, removable door opens downward or disengagement. A clearance of 17" at the rear in order to remove the door. Complete with a bird guard protecting against birds or similar intruders and an ANSI label to identify wattage and source (both included in the box).

f) The luminaire shall have 0% uplight.

g) Built in the housing, designed to ensure high efficacy and superior cooling by natural vertical convection air flow pattern always close to LEDs and driver optimizing their efficiency and life. Product does not use any cooling device with moving parts (only passive cooling). Wide openings enable natural cleaning and removal of dirt and debris. Entire luminaire is rated for operation in ambient temperature of -4 degrees C /-40 degrees F up to +50 degrees C/+122 degrees F.

h) The luminaire shall either be an American Electric Lighting product or approved equal as approved by the Director of Public Works or their designee.

602.6 PHOTO-CELL

Photo cells shall be DTL DBE 124 1.5 T UL, or equal, as approved by the Director of Public Works or their designee. The photo-cell shall be controller cabinet mounted.

Photo-electric control, must meet or exceed the following requirements:

a) ANSI C136.24.

b) Line voltage Operating Range of 105 to 400 VAC at 60 Hz.

c) Load Rating of 1000 VA ballast.

d) UL Listed.

e) ROHS compliant

f) Turn "on" mode calibrated at 1.6 +/- 0.3 foot candles at 120 VAC with turn "off" maximum ratio to turn "on" of 1.5:1.

g) Time delay: Control shall have an instantaneous "on" response to allow for easy testing. Operating temperature shall have a minimal effect on time delay duration.

h) MOV rated for 190 Joule/4500 Amp

i) Instant turn-on, standard 5-10 second turn-off delay

k) Warranty: The warranty for the photo-electric control shall be a minimum of 4 years.

602.7 UNDERGROUND CONDUITS AND ELECTRICAL CABLE

Wiring to distribute electrical energy to street lighting will be installed underground. All wiring and cabling shall be copper conductor.

602.7.1 UNIT DUCT, 1-1/4 INCH, WITH 4/C - #6 XLP USE-2 CABLE

Unless otherwise directed by the Director of Public Works, the electrical distribution wiring for street lighting from the service point to the pole for individually fed lights and from the controller out to the poles for a street lighting system shall be 4/C - #6 XLP USE-2 electrical cable (colored insulated jacket of black, white, red, and green), 600 volt in 1-1/4 inch Unit Duct installed in accordance with Section 816 of the IDOT Standard Specifications.

602.7.2 UNIT DUCT, 2 INCH, WITH 4/C - #2 XLP USE-2 CABLE

Unless otherwise directed by the Director of Public Works, the service distribution wiring between the City electrical service point and a street lighting system controller shall be 3/C - #2 XLP USE-2 electrical cable (colored insulated jacket of black, white, and red), 600 volt in 2 inch galvanized conduit installed in accordance with Section 810 of the IDOT Standard Specifications. The cabling in conduit shall be placed not less than 3 feet deep.

602.7.3 GALVANIZED STEEL CONDUIT – 2 INCH, 3 INCH OR 4 INCH

Where underground street lighting cables cross public streets or commercial driveways, all electrical cables and all electrical cables in Unit Duct shall be in an appropriate sized galvanized steel conduit. The galvanized steel conduit shall be placed not less than 3 feet deep.

602.8 ELECTRICAL CABLE, 600 VOLT

The material supplied shall be XLP USE-2, 600 volt cable (colored insulated jacket of black, white, red, and green) of the specified number of conductors and cable size per the IDOT Standard Specifications.

602.8.1 POLE WIRE

Pole Wire shall be 1/C No. 10 AWG 600 volt insulated copper conductor, XLP USE-2, stranded in conformance with ASTM B-8 from the luminaire terminal blocks to the pole handhole per IDOT Standard Specifications Sections 817 and 1066.06 for Roadway Lighting pole wire and from the pole handhole to the underground distribution system in a moisture-proof manner. Connection of pole wire to the terminals in the street lighting luminaire is incidental to the installation of the pole wire.

a) Pole wire shall be insulated with cross-linked polyethylene, (XLP) insulation jackets of black or red or white or green colored insulation. The wire is to run inside the pole and mast arm.

b) For aluminum poles, two 1/C - #10 pole wire conductors in black and white colors will be used.

c) For concrete poles, three 1/C - #10 pole wire conductors in black, white, and green color will be used. The green conductor will be connected to the ground lug of the luminaire and to the ground lug/ground cable in the base of the pole.

602.8.2 SPLICING

Splicing of Electrical Cable shall be in accordance with the IDOT Standard Specifications with the following additional requirements.

a) Splices above grade, such as in poles and junction boxes, shall have a waterproof sealant and a heat-shrinkable plastic cap. The cap shall be of a size suitable for the splice and shall have a factory-applied sealant within.

b) Additional seal of the splice shall be assured by the application of sealant tape or the use of a sealant insert prior to the installation of the cap. Either method shall be assured compatible with the cap sealant.

c) Tape sealant shall be applied in not less than one half-lapped layer for a length of at least 1/4 inch longer than the cap length and the tape shall also be wrapped into the crotch of the splice. Insert sealant shall be placed between the wires of the splice and shall be positioned to line up flush or extend slightly past the open base of the cap.

602.9 LIGHTING CABLE FUSE KITS

In-line fuse holder(s) and fuse(s) on all leads shall be in accordance with the IDOT Standard Specifications and as follows:

a) Fuse holders of the in-line quick disconnect breakaway type shall be used on all light pole installations in the base of each lighting standard. The fuse holder shall have a minimum rating of 30 amps and be sized for 13/32 inch x 1 1/2 inch fuses. Fuse holder shall be Edison HEB-AW-RLC-A 30A 600V for load/line and HET-AW-RLC-A for neutral or equal as approved by the Director of Public Works or their designee.

b) Wires shall be carefully stripped only as far as needed for connection to the device. Over-stripping shall be avoided. An oxide inhibiting lubricant shall be applied to the wire for minimum connection resistance before the terminals are crimped-on.

c) Crimping shall be performed in accordance with the fuse holder manufacturer's recommendations.

d) The exposed metal connecting portion of the assembly shall be taped with two half-lapped wraps of electrical tape and then covered by the specified insulating boot.

e) The fuse holder shall be installed such that the fuse side is connected to the pole wire (load side) and the receptacle side of the holder connected to the line side.

f) In-line fuse holder(s) shall be provided on all neutral conductors with a solid slug in place of the fuse in the base of each lighting standard.

g) Fuses for fuse holders on line/load cable to pole wire connection shall be time delay, rated for 12 ampere, Type MEQ or MEM, or equal.

602.10 STREET LIGHTING HANDHOLES

Street lighting handholes shall be used on the far side of any street crossing opposite a street lighting controller or a specified by the Director of Public works or their designee. Street lighting handholes shall be constructed in accordance with the IDOT Standard Specifications with the following provisions:

a) The handhole shall be poured in place concrete with inside dimensions of 21-1/2 inches minimum. Frames and lid openings shall match this dimension. Hinged lids shall not be used. The legend "STREET LIGHTING" shall be cast in the lid.

b) All conduits shall enter the handhole at depth of at least 30 inches.

c) Cable hooks are required, one per side of handhole. All cable hooks are to be hot-dipped galvanized in accordance with AASHTO Specification M111.

602.11 COMPOSITE CONCRETE JUNCTION BOX

Composite concrete junction boxes shall be constructed in accordance with the provisions of the IDOT Standard Specifications and for the connecting conduits into the junction box. The size shall be a minimum of 11 inches x 18 inches x 18 inches deep PC Style gasketed box with open base. The junction box shall be a:

a) 4 bolt cover by Quixote Compolsolite with a design load of 8000 pounds or greater, or,

b) 2 bolt cover by Synertech with a design load of 10,000 pounds or greater, unless otherwise specified in the plans and approved by the Director of Public Works or their designee. The cover shall bear a legend of "STREET LIGHTING". There shall be no holes cut into the sides of the junction box without approval from Director of Public Works or their designee.

602.12 GROUNDING

Street lighting equipment shall be grounded in accordance with the IDOT Standard Specifications with the following provisions:

a) Metal poles installed on metal foundations do not require a separate ground rod installation.

b) Metal light poles installed connected directly to a City service point must have a white 1/C #10 XLP/USE-2 bonding jumper installed between the pole grounding lug and the neutral conductor.

c) Metal light poles installed on a controller circuit do not require a separate bonding jumper at each pole.

602.13 GROUND ROD

Installation of ground rods are required for the grounding of individual electrical service non-metallic street lighting poles/foundations and for supplementing the equipment grounding system via connection at poles or other equipment throughout the street lighting system. All materials and work shall be in accordance with Article 250 of the NEC.

a) Grounding of concrete street light poles shall be by a 3/4 inch x 10 foot ground rod in accordance with the IDOT Standard Specifications, and connection by colored covered cable in accordance with the provisions of the IDOT Standard Specifications to the lighting system green 1/C #6 ground cable.

b) Grounding for concrete foundation street lighting poles shall be by installation of the ground rod in the concrete foundation projecting out into the ground or by installation adjacent to a concrete foundation for a street lighting pole, and connection by bare cable in accordance with the provisions of the IDOT Standard Specifications to the lighting system green 1/C #6 ground cable.

c) Grounding for controller cabinets shall be by installation of a ground rod in the concrete foundation projecting out into the ground and connected to the ground terminal bar in the cabinet by bare cable in accordance with the provisions of the IDOT Standard Specifications.

d) Where connections to ground rods are made to insulated conductors, the connection shall be wrapped with at least four layers of electrical tape extending 6 inches below finished grade.

602.14 STREET LIGHTING CONTROLLER

A street lighting controller shall be constructed as part of any lighting system for four or more street lights. This item shall consist of furnishing and installing a roadway lighting electrical control cabinet complete with foundation and wiring for control of roadway lighting as specified herein and as directed by the Director of Public Works or their designee. Unless otherwise indicated, the cabinet, including all components, shall be new. Controllers located in the Central Business District shall provide separate circuits and contactors for roadway, pedestrian, and holiday lights as specified in the City of Wood Dale CBD specifications.

602.14.1 STREET LIGHTING CABINET

a) The cabinet shall be a ground mounted or pedestal mounted as directed by the City Engineer and shall be 30 inches minimum width by 48 inches in height by 17-3/4 inches minimum depth (IDOT Type III) and shall be fabricated from aluminum alloy of 0.125 inches in thickness. The surfaces shall have a smooth, natural aluminum finish.

b) The main door is of NEMA type construction with a cellular neoprene gasket which is rain and dirt tight without louver slots in the lower portion of the door to exclude the entry of moisture, dirt, and insects. Hinges are 14 gauge stainless steel. Standard equipment includes a three point locking system which secures the door at the top, bottom, and center. A Corbin lock with two keys is also furnished. The main door is equipped with a two position door stop, one stop at 90 degrees and the other at 120 degrees. A nameplate with the legend "City of Wood Dale Street Lighting" shall be fabricated and mounted on the main door. Below the nameplate, a 2nd plate with the legend "Contact the Department of Public Works at (630) 350-3530 to report problems" shall be mounted.

c) The cabinet shall be equipped with a vent in the underside of the overhang above the cabinet door, which is designed to resist moisture, dirt, and insects.

d) The equipment mounting panel shall be made of 1/4 inch minimum non-asbestos, inorganic, non-conducting material and shall be drilled and tapped for front mounting of the equipment. The panel shall be easily installed and removed from the front of the panel.

602.14.2 CONTROLLER FOUNDATION

a) The foundation shall be furnished and installed in place per the dimensions shown on the attached Street Lighting Controller Cabinet Foundation Detail for Type III Cabinet.

b) The anchor bolts shall comply with ASTM A576. The top 6 inches of the anchor bolts shall be hot dipped galvanized steel according to ASTM 153. The nuts and lock washers shall be galvanized also. There shall be a minimum of 4 anchor bolts for each controller.

c) The foundation shall include a 2 inch galvanized steel conduit raceway for the service, four 2 inch rigid plastic raceways (for 1-1/4 inch unit duct) for the field circuits, and one spare raceway of 2 inch rigid plastic.

d) The foundation shall include a copper coated steel ground rod 3/4 inch in diameter and 10 feet in length, including copper bonding wire as shown in Street Lighting Controller Cabinet Foundation Detail for Type III Cabinet.

e) For the conditions of controller cabinet being a replacement/retrofit of an existing pedestal mounted street light controller, the foundation will include removal of the top 6 inches of the existing foundation, expose the remaining existing concrete foundation to a depth of 48 inch below the finished grade of the new foundation, setting of four anchor bolts into the remaining foundation at a depth to be a minimum of 12 inches below the finished grade of the new foundation to tie the existing foundation into the new ground mount cabinet foundation. Installation of new foundation includes raceways noted in c) above.

602.14.3 CONTROLLER OPERATION

a) The street light controller shall control and provide over current protection for up to eight individual street light circuits. Each circuit is to be protected by the use of individual thermal-magnetic circuit breakers. Provisions shall be made for connection of up to #6 stranded copper conductors for the individual circuits.

b) The street light controller shall be actuated by a cabinet mounted photocell in the cabinet overhang, which will operate through an auxiliary on-delay relay to pick up the controller's main mechanically held contactor. The operation of the photocell will insure that the street light circuits are energized during nighttime hours and de-energized during daytime hours.

602.14.4 CONTOLLER EQUIPMENT The controller must include the following:

a) 100 ampere main breaker, 2 pole, 240 volt, JDB 2100

b) 100 ampere contactor, 2 pole, single throw, electrically operated and mechanically held remote switch, 120 volt, ASCO 2P, 100 amp, model number 920210031.

c) Eight 35 ampere, 1 pole circuit breakers, 120 volt, "I-Line".

d) Control breaker, 1 pole, 15 amp, WE GC1015

e) Relay, DPDT, 120 v, on-delay, Magnacraft W211ACPSOX-7

f) 15 ampere, HOA switch, 120 volt, Square D Manual Return KS43FBH13 NEMA 4X enclosure

g) SPST 20 ampere switch

h) LED light fixture of the enclosed and gasketed type, Crouse Hinds

i) 20 ampere duplex receptacle, GFCI

j) Photocell terminal block

k) Thermostat, Grainger 2E552

l) Heating Strip, 150 watt Grainger 2E919 (shall not be mounted to equipment mounting panel)
m) Surge Protector, Square D SP-11100

n) Neutral bus bar, 1/4 inch by 1 inch by 12 inches, color coded white, labeled "neutral"

o) Ground bus bar, 1/4 inch by 1 inch by 12 inches, color coded green labeled "ground".

p) Secondary Pedestal shall be installed by the Wood Dale Department of Public Utilities – Electric

602.14.5 SERVICE TO STREET LIGHTING CONTROLLER

a) This section includes the installation of conduit and wire from the secondary pedestal to the street lighting controller. The secondary pedestal is installed by the City of Wood Dale – Electric at a minimum of 5 feet from the City service point.

b) The service wiring from the secondary pedestal to the street lighting controller shall be 3/C - #2 XLP/USE-2 colored insulation of black, red, and white in 2 inch galvanized steel conduit.

c) A metallic threaded bushing with lug shall be installed on the 2 inch galvanized steel conduit for the service and connected by a 1/C #6 XLP/USE-2 cable (green) to the ground rod.

d) A minimum of 8 feet of 4/C-#2 shall be provided at the secondary pedestal for the purpose of making the connections to the source by the City. Additionally, 10 feet of "tails" should be included in the service to the street lighting controller.

602.14.6 BUS BARS

All bus bars shall be of a size to handle the rated current of the connected equipment. Exposed bus bars shall be insulated, except for ground and neutral bus bars.

Separate ground and neutral bus bars shall be provided. The ground bus bar shall be copper and mounted on the equipment panel. The neutral bar shall be similar. The heads of the screws shall be painted white for the neutral bar and green for the ground bar.

602.14.7 WIRING AND IDENTIFICATION

a) All wiring shall be of a size to handle the rated current of the connected equipment.

b) Wiring within the cabinet shall be of the size specified for the corresponding service conductors and branch circuits and shall be rated RHH/RHW or MTW, 600 volts.

c) Control and auxiliary wiring shall be a minimum of #10 copper and rated RHH or MTW with jacket, 600 volt, stranded copper of appropriate colored insulation of red, black, white, and green.

d) All power and control wiring shall be tagged with self-sticking cable markers and shall be stranded copper.

e) All switches, controls and the like shall be identified as to function and position (as applicable) by means of engraved 2 color nameplates attached with screws.

602.14.8 CIRCUIT BREAKERS

a) All feeders, branch circuits, and auxiliary and control circuits shall have over current protection per the requirements of the NEC and as shown on the engineering plans. The over current protection shall be by means of circuit breakers.

b) Circuit breakers shall be standard UL-listed molded case, thermal magnetic "I-Line" breakers with trip free indicating handles with terminals adequate for #6 single conductor copper cable.

c) Circuit breakers shall have a UL-listed interrupting rating of not less than 10,000 rms symmetrical amperes at rated voltage.

d) The eight branch circuit breakers shall be as specified on the circuit schematic, unless a lesser number is specified.

602.14.9 CONTACTOR(S)

a) The contactor shall be electrically operated, mechanically held, with the number of poles required for the service and with 120 volt operating coil voltage as indicated or otherwise required. Unless otherwise indicated in the engineering plans, the contactor shall be an ASCO 2P, 100 amp, model number 920210031.

b) Contactor(s) shall be complete with a non-conducting inorganic, non-asbestos sub-panel for mounting.

c) Contactor(s) shall be mechanically held, and shall be complete with coil-clearing contacts to interrupt current through the coil once the contactor is held in position.

d) The main contactor contacts shall be double break, silver to silver type. They shall be spring-loaded and provide a wiping action when opening and closing. The contacts shall be renewable from the front panel, self-aligning, and protected by auxiliary arcing contacts.

e) The line and load terminals shall be pressure type terminals of copper construction and of the proper size for the ampere rating of the contactor.

f) The contactor operating coil shall be rated for nominal 120 volt, single phase.

g) Protection from accidental contact with current carrying parts, when operating the contactor manually, shall be provided.

h) Contactors shall be clearly marked to indicate whether they are in the open or closed position.

602.14.10 AUTO/MANUAL CONTROL

a) The cabinet shall be equipped with automatic and manual operating controls via a one-pole, double-throw switch. The switch shall be premium specification grade, rated for the applied duty, but not less than 20 amperes at 120 volts and shall be mounted in a 4 inch square box with cover.

b) The cabinet control and auxiliary device circuit shall have over current protection as indicated and as required by NEC.

c) Each street lighting controller shall be wired to a photocell mounted within the controller cabinet overhang. The photocell shall operate at 120 volts, 60 Hertz, AC, and be rated at 1,000 watts. The photocell shall be grounded to the luminaire. The photocell shall be wired to the street lighting controller in unit duct, 1-1/4 inch minimum size, 3/C - #10, 600V, XLP/USE-2 of colored insulation of red, black, and white, if the cabling to the photo-cell cannot be pulled into a field circuit conduit.

602.14.11 INTERIOR LIGHTING AND RECEPTACLE

a) The auxiliary device circuit shall provide 120 volts single phase to supply the convenience receptacle and cabinet light.

b) The cabinet shall be equipped with an interior, 60 watt equivalent LED lighting fixture of the enclosed and gasketed type switched from a single pole, single throw, 20 amperes switch. The switch shall be premium specification grade in a suitable 4 inch box with a cover.

c) The cabinet shall be equipped with a 120 volt, 20 ampere G.F.I. duplex receptacle, premium specification grade in a 4 inch square box with a cover.

d) The cabinet shall be equipped with a heating strip that shall maintain the temperature within the cabinet at a minimum of 40 degrees Fahrenheit.

602.14.12 TESTING OF THE ASSEMBLED CABINET

Prior to shipment of the completed cabinet, the control cabinet shall be tested for load, short circuits and complete operation of the cabinet as specified herein and as shown on the plans.

602.14.13 ACCEPTANCE AND CONNECTION

Upon final inspection and approval of the street light system by the City of Wood Dale, the contractor will provide all labor and material necessary to provide 120/240 volt, single-phase, 3 wire electrical service connection at the service point.

603 CONSTRUCTION REQUIREMENTS

603.1 TRAFFIC SIGNAL SYSTEMS CONTRACTOR PRE-QUALIFICATIONS

All contractors working on traffic signals under City of Wood Dale jurisdiction shall be pre- qualified for traffic signal work with the Illinois Department of Transportation in accordance with the IDOT Standard Specifications.

603.2 TRENCH AND BACKFILL FOR ELECTRICAL WORK

Constructing a trench for the accommodation of conduit and backfilling shall be carried out in accordance with the IDOT Standard Specifications except that the 3rd paragraph of Article 819.04 is deleted. Backfill material shall be CA-6 under all paved surfaces.

The trench shall not be less than 36 inches deep with cable installation at a minimum of 32 inches in depth.

603.3 YELLOW WARNING TAPE OVER STREET LIGHTING CABLE

A 4 inch wide yellow warning tape shall be installed over the street light duct at all locations where new cable is placed by the trench and backfill method. The warning tape shall be placed approximately 1 foot below grade.

603.4 TRAFFIC SIGNAL SYSTEM SERVICE INSTALLATION

Electrical service for traffic signals is to be provided by the City of Wood Dale from a pad-mounted transformer.

The Contractor shall install a meter socket, Milbank #U8980-0-KK supplied by the Contractor. The Milbank shall be located as shown in the plans. The meter shall be supplied and installed by the City of Wood Dale.

Standard service shall be 120/240 volt, two phase, 3 wire between the service point and the Milbank (meter) and shall be 120 volt, one phase, 4 wire between the Milbank (meter) and the traffic signal controller cabinet. The contractor is to contact the City of Wood Dale for Specifications if another service voltage is required.

The Contractor shall install #6 CU, STR, XLP, U.S.E., 600 volt cable (color coded black, white, and red) in 2 inch galvanized steel conduit between the meter socket and the service connection point. For underground service connections, the service conductors and conduit shall extend to within 2 feet of the service connection point. The Contractor shall coil 8 feet of 3C cable at the connection point for NPDU-E personnel to make the hook-up. The conductor shall be sealed, for overhead service connections, unit duct and service conductors shall be attached to utility pole and up to a minimum of ten feet above grade. The service conductors shall be coiled to provide a minimum of 20 feet of available conductor. The conductor shall be sealed.

A schematic detail drawing illustrating the connection to the Milbank and the traffic signal controller is shown as detail. The entire installation will be grounded in a manner satisfactory to the Director of Public Works or their designee.

604 INSPECTIONS AND TESTING

604.1 STREET LIGHTING SYSTEMS

New street lights must be inspected by the City prior to their acceptance. The contractor should contact the Department of Public Works at (630) 350-3530 to schedule an inspection. The inspection must be scheduled at least 48 hours in advance.

604.2 TRAFFIC SIGNAL SYSTEMS

604.2.1 CONCRETE

All concrete work associated with the installation of a traffic signal must be tested by the contractor.

604.2.2 FIELD INSPECTION

A field inspection is required prior to maintenance transfer of a signal from the contractor to the city. It is the intent to have all electrical work completed and equipment field tested by the vendor prior to the city's "turn-on" field inspection. If in the event the Engineer determines work is not complete and the inspection will require more than two hours to complete, the inspection shall be cancelled and the contractor will be required to reschedule at another date. The maintenance of the traffic signals will not be accepted until all punch list work is corrected and re-inspected.

When the road is open to traffic, except as otherwise provided in the IDOT Special Provisions, the contractor may request a turn-on and inspection of the completed traffic signal installation at each separate location. This request must be made to the Department of Public Works at (630) 350-3530 a minimum of 7 working days prior to the time of the requested inspection. The city will not grant a field inspection until written certification is provided by the contractor and the equipment has been field tested and the intersection is operating according to contract requirements. The city's facsimile number is (630) 595-8374.

SECTION 700:
GRADING, LANDSCAPING & EROSION CONTROL

Page No.	Description
700-2	**701 GENERAL**
700-2	701.1 SPECIFICATIONS
700-2	701.2 REGULATIONS
700-2	701.3 START OF CONSTRUCTION
700-3	**702 MATERIALS**
700-3	702.1 GRADING
700-3	702.2 EROSION CONTROL
700-3	702.3 RESTORATION
700-4	702.4 PLANTINGS
700-5	**703 CONSTRUCTION REQUIREMENTS**
700-5	703.1 GRADING
700-5	703.2 EROSION CONTROL
700-5	703.3 RESTORATION
700-5	703.4 TREE PROTECTION
700-5	703.5 PLANTINGS
700-6	**704 INSPECTION & TESTING**
700-6	704.1 INSPECTION
700-6	704.2 TESTING

701 GENERAL

The standards and requirements found in this section are to provide information on the grading of pervious (non-paved) areas, the restoration and landscaping of those areas, and erosion control during and after construction.

701.1 SPECIFICATIONS

The following documents are incorporated by reference:

a) Illinois Urban Manual, IEPA/NRCS, latest edition

b) NRCS National Engineering Handbook

c) Illinois Landscape Contractors Association technical specifications

701.2 REGULATIONS

Additional rules and regulations governing the construction of erosion control measures in the City of Wood Dale are:

a) The restrictions, policies, and instructions that may be adopted or issued by the City of Wood Dale

b) National Pollution Discharge Elimination System policies as administered by the Illinois Environmental Protection Agency.

701.3 START OF CONSTRUCTION

The contractor shall not begin construction until all required permits have been obtained. Copies of all permits obtained by outside agencies must be provided to the city prior to the start of construction. And no earth disturbance may commence until the appropriate sediment and erosion control measures are installed.

702 MATERIALS

702.1 GRADING

702.1.1 EMBANKMENT

All materials used for embankment must be suitable for such a use. No sod, frozen material or any material which, by decay or otherwise, might cause settlement shall be allowed to be used for embankment.

702.1.2 TOPSOIL

Topsoil shall be a loamy soil with an organic content between one and ten percent. It shall be relatively free from large roots, sticks, weeds, brush or stones larger than 1 inch in diameter, or other litter and waste products. The topsoil shall be capable of supporting and germinating vegetation.

702.2 EROSION CONTROL

Please refer to the Illinois Urban Manual, latest edition for specifications and instructions for use for the various methods of erosion control measures. The following is an abbreviated listing of some of the more common measures:

a) Temporary Seed Mixes

b) Silt Fence

c) Straw bales or silt boxes

d) Earth Stabilization: rip-rap, fabrics, etc

e) Structures: Stormceptor®, oil/grit separators, etc.

f) Chemical – flock logs, etc.

g) Stabilized Construction Entrance

702.3 RESTORATION

Ground cover shall be installed as a permanent erosion control measure, as shown on the approved landscape plans.

702.3.1 SEED MIX

All seed mixes shall be an appropriate mix for the soil type and inundation conditions, as designed. IDOT approved seed mixes per Article 250 of the IDOT Standard Specifications should be considered.

702.3.2 HYDROSEED

Hydroseeding shall be applied based on the coverage amount per area coverage, as specified by the manufacturer.

702.3.3 SOD

The sod shall be approved grass that is native to northeastern Illinois. It shall either be nursery grown or field grown and be well rooted and approved by the Engineer prior to being cut and again before it is laid. Sod that has been grown on soil that is high organic matter such as peat will not be accepted. The consistency of the adherent soil shall be such that it will not break, crumble or tear during handling and placing of the sod.

Each piece of sod shall be well covered with turf grass, shall be free from noxious weeds and other objectionable plants, and shall not contain substances injurious to growth. The grass shall be cut to a length of not less than 1-1/2 inches nor more than four inches before the sod is cut. The sod shall be cut in rectangular pieces with its shortest side not less than 12 inches. The sod shall not be cut less than one inch thick, a thickness which does not include the grass.

702.4 PLANTINGS

All plantings must be in conformance with the approved landscape plan. Materials must be healthy and free of disease. Prohibited trees are as follows:

1. The list of trees that are prohibited from being planted on public property or on private property meeting the requirements of Chapter 17, Article VI, Sec. 17.606 of this code shall be approved by the Public Works Director and kept on file with the City.

2. The list of said prohibited trees shall be reviewed annually to ensure the list includes species that are considered susceptible to disease or undesirable.

703 CONSTRUCTION REQUIREMENTS

703.1 GRADING

All pervious areas shall be graded per the approved plan or to meet the design requirements of section 702.1.

703.2 EROSION CONTROL

703.2.1 INSTALLATION OF EROSION CONTROL MEASURES

All erosion control measures shall be properly installed, as permitted, prior to any land disturbance activities.

703.2.2 MAINTENANCE OF EROSION CONTROL MEASURES

All erosion control measures shall be inspected weekly, after any 0.5 inch rainfall, or more frequently as necessary to maintain their function.

703.2.3 DUST

During extended dry periods, the construction area(s) may need to be watered down to prevent the blowing of soil from the site.

703.2.4 KEEPING PUBLIC ROADS CLEAN

During construction, a stabilized construction entrance shall be utilized to minimize the tracking of dirt onto the public streets. Any dirt that is tracked onto the public streets shall be removed the same day. If the amount tracked on the public street is excessive, cleaning may be required more frequently including by mechanical street sweeper.

703.3 RESTORATION

Restoration measures shall be installed only during the growing season, to enable them to take root. Any areas that do not take root, or that fail to grow, shall be replaced in an adequate time frame to minimize soil erosion. Adequate watering shall be provided to allow for the plantings survival. Final stabilization shall be in accordance with the Illinois Urban Manual standards.

703.4 TREE PROTECTION

Tree protection shall be provided for all trees shown on the plans to be saved within the limits of construction, or as directed by the Engineer. Tree protection shall be installed prior to the start of any clearing or removal work and shall remain protected through the duration of construction.

703.5 PLANTINGS

Plantings shall be planted per the approved landscape plan taking care not to damage the existing root system.

704 INSPECTION & TESTING

704.1 INSPECTION

It is the responsibility of the owner or his designee to inspect or to have inspected all temporary erosion control measures per the requirements of the NPDES permit and correct any deficiencies as needed.

On-site grading inspection will generally be limited to visual inspections of the materials used and the condition of the site prior to seeding. There will also be a verification that all required testing is completed for areas of embankment. As-built or record drawings must be submitted per the Wood Dale Standard Specifications to verify that the grading substantially meets the requirements of the city standards.

A visual inspection of the landscaping will be performed following installation. The health of the plant material will be periodically reviewed and replacement may be required up to 12 months following the installation.

704.2 TESTING

Compaction testing of any embankment will be required per Article 205 of the IDOT Standard Specifications.

No formal testing will be required for landscaping and erosion control devices unless otherwise directed by the City Engineer.

STANDARD GENERAL NOTES

Transportation, Engineering and Standard Construction Plan Notes

The City of Wood Dale has established Standard Notes, which should be included in the final engineering plans for private development projects. The Standard Notes are broken out by type of work. The Consultant designing the final engineering plans should review the lists below to determine which Standard Notes should be included.

General Notes:

The General Notes in this section should be included in all final engineering plans regardless of the type of project.

1. THE OWNER OR HIS/HER/THEIR REPRESENTATIVE IS RESPONSIBLE TO OBTAIN ANY AND ALL PERMITS REQUIRED BY APPLICABLE GOVERNMENTAL AGENCIES.

2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY OF WOOD DALE DESIGN MANUAL AND STANDARD SPECIFICATIONS (CURRENT EDITION) AND WITH THE ILLINOIS DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" (CURRENT EDITION).

3. THE CONTRACTOR SHALL GIVE NOTICES AND COMPLY WITH APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ALL PUBLIC AUTHORITIES BEARING ON SAFETY OR PERSONS OR PROPERTY ON THEIR PROTECTION FROMDAMAGE, INJURY, OR LOSS.

4. THE CONTRACTOR/DEVELOPER ASSUMES ALL RESPONSIBILITY AND LIABILITY FOR ANY ACTION RESULTING FROM THEIR WORK WITHIN THE PUBLIC RIGHT-OF-WAY.

5. THE CONTRACTOR/DEVELOPER SHALL INDEMNIFY AND HOLD HARMLESS THE CITY OF WOOD DALE AND ITS DESIGNEES.

6. PRIOR TO COMMENCEMENT OF ANY OFF-SITE CONSTRUCTION, THE CONTRACTOR SHALL SECURE WRITTEN AUTHORIZATION THAT ALL OFF-SITE EASEMENTS HAVE BEEN SECURED AND THAT PERMISSION HAS BEEN GRANTED TO ENTER ONTO PRIVATE PROPERTY.

7. THE CONTRACTOR AND THEIR ON-SITE REPRESENTATIVES WILL BE REQUIRED TO ATTEND A PRE-CONSTRUCTION MEETING WITH THE CITY OF WOOD DALE PRIOR TO ANY WORK BEING STARTED. A PRE-CONSTRUCTION MEETING WILL NOT BE SCHEDULED UNTIL THE PROJECT HAS BEEN APPROVED BY THE CITY OF WOOD DALE DEVELOPMENT REVIEW TEAM AND THE REQUIRED SURETY HAS BEEN POSTED.

8. NO EXTRA WORK OF ANY NATURE SHALL BE UNDERTAKEN WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE CITY OF WOOD DALE OR THEIR REPRESENTATIVES.

9. A MINIMUM OF 48 HOURS NOTICE SHALL BE GIVEN TO THE CITY OF WOOD DALE PRIOR TO STARTING WORK OR RESTARTING WORK AFTER SOME ABSENCE OF WORK FOR ANY REASON.

10. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ADEQUATELY IDENTIFY AND LOCATE ALL EXISTING UTILITIES PRIOR TO EXCAVATION. BEFORE STARTING CONSTRUCTION, THE CONTRACTOR SHALL CONTACT JULIE FOR THE LOCATION OF ANY AND ALL UTILITIES. THE TOLL-FREE NUMBER IS 800-892-0123. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ANY PRIVATE FACILITIES OR NON-JULIE MEMBER FACILITIES.

11. THE CONTRACTOR CAN SCHEDULE ALL NECESSARY SITE INSPECTIONS WITH THE CITY OF WOOD DALE BY CALLING (630) 766-5133 BETWEEN THE HOURS OF 8:30AM AND 4:00PM ON WEEKDAYS WHEN THE CITY IS OPEN FOR BUSINESS. THE CONTRACTOR WILL BE REQUIRED TO PROVIDE THE SITE PERMIT NUMBER FOR THE PROJECT IN ORDER TO SCHEDULE THE INSPECTION(S).

12. RECORD DRAWINGS ARE REQUIRED TO BE SUBMITTED AND APPROVED BY THE CITY OF WOOD DALE PRIOR TO FINAL OCCUPANCY BEING GRANTED.

13. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL STAKING AND LAYOUT OF THE GRADING, UNDERGROUND, AND PAVING IMPROVEMENTS.

14. THE CONTRACTOR IS REQUIRED TO RELOCATE, SALVAGE, AND RE-ERECT SIGNS WHICH INTERFERE WITH HIS CONSTRUCTION OPERATIONS, AND TEMPORARILY RESET ALL SUCH SIGNS DURING CONSTRUCTION. THIS WORK WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT. ALL WORK INVOLVING SIGNS SHALL BE GOVERNED BY THE FOLLOWING REQUIREMENTS:

    A. SIGNS SHALL NOT BE MOVED UNTIL PROGRESS OF WORK NECESSITATES IT.

    B. EVERY SIGN REMOVED MUST BE RE-ERECTED AT A TEMPORARY LOCATION IN A WORKMANLIKE MANNER AND BE VISIBLE TO TRAFFIC FOR WHICH IT IS INTENDED. ALL SUCH SIGNS MUST BE MAINTAINED STRAIGHT AND CLEAN FOR THE DURATION OF THE TEMPORARY SETTING.

C. ALL SIGNS SHALL BE RE-ERECTED IN PERMANENT LOCATIONS AS THE ROADWAY IS COMPLETED AT LOCATIONS DESIGNATED BY THE ENGINEER.

15. FINAL ACCEPTANCE OF PUBLIC IMPROVEMENTS SHALL BE GRANTED ONLY AFTER A FINAL INSPECTION HAS BEEN COMPLETED AND HAS REVEALED THAT ALL IMPROVEMENTS HAVE BEEN SATISFACTORILY COMPLETED IN ACCORDANCE WITH THE WOOD DALE STANDARD SPECIFICATIONS. UTLITIES ARE NOT CONSIDERED ACCEPTED UNTIL THEY ARE FORMALLY ACCEPTED BY THE CITY COUNCIL AS REQUIRED IN ACCORDANCE WITH THE WOOD DALE MUNICIPAL CODE.

General Notes (Project Specific):

Review the following General Notes to determine if they are applicable to the work to be completed with the project. Those Notes that are applicable should be included in the engineering plans.

1. TRAFFIC SIGNALS AND THEIR ASSOCIATED EQUIPMENT UNDER THE JURISDICTION OF DUPAGE COUNTY ARE NOT INCLUDED IN THE JULIE SYSTEM. THE CONTRACTOR SHALL CONTACT DUPAGE COUNTY DOT AND IDOT DIRECTLY REGARDING THE LOCATION OF TRAFFIC SIGNALS (CABLING AND ASSOCIATED SYSTEMS) UNDER DUPAGE COUNTY OR IDOT JURISDICTION.

Earth Excavation:

These notes should be included in all plans where earth moving operations will be taking place unless a duplicate of a note from another section.

1. EXCAVATION REQUIRED TO CONSTRUCT THE PROPOSED SUBGRADE OF THE ROADWAY, ALL CONCRETE CURB AND GUTTER TYPES, DRIVEWAYS, ALLEYS OR SIDE ROAD APPROACHES SHALL BE CONSIDERED INCIDENTAL TO PAVEMENT AND CURB REMOVAL.

2. PAVEMENT REMOVAL INCLUDES THE EXISTING PAVEMENT, AGGREGATE SUBBASE, AND SUBGRADE TO THE PROPOSED SUBGRADE ELEVATIONS SHOWN IN THE PLANS.

3. WHERE WORKING CONDITIONS AND RIGHT-OF-WAY PERMIT, PIPE LINE TRENCHES WITH SLOPING SIDES MAY BE USED.

    A. 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 HEREIN FOR THE VARIOUS SIZES OF PIPES.

B. OPEN-CUT TRENCHES SHALL BE SUPPORTED WITH PROTECTIVE MEASURES AS REQUIRED BY THE GOVERNING STATE AND FEDERAL LAWS AND MUNICIPAL ORDINANCES, AS MAY BE NECESSARY TO PROTECT LIFE, PROPERTY, OR THE WORK.

C. WHERE FIRM FOUNDATION IS NOT ENCOUNTERED AT THE GRADE ESTABLISHMENT DUE TO UNSUITABLE SOIL, ALL SUCH UNSUITABLE MATERIAL SHALL BE REMOVED AND REPLACED WITH APPROVED COMPACTED GRANULAR MATERIAL. THIS WORK SHALL BE PAID FOR AS REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL AND POROUS GRANULAR EMBANKMENT, SUBGRADE.

4. THE SUBGRADE SHALL BE FREE FROM UNSUITABLE MATERIAL AND SHALL BE COMPACTED TO A MINIMUM OF NINETY-FIVE PERCENT (95%) OF MODIFIED PROCTOR DENSITY. THIS REQUIREMENT APPLIES TO ALL SUBGRADES AND AGGREGATE BASE COURSES IN THE CONTRACT INCLUDING ROADWAY AND SIDEWALK PAVEMENTS. THE CITY OF WOOD DALE WILL REQUIRE A PROOF-ROLL TEST FOR DETERMINING THE STABILIZATION OF THE SUBGRADE.

5. BEFORE STARTING ANY EXCAVATION, THE CONTRACTOR SHALL CALL "J.U.L.I.E." AT 800-892-0123 FOR FIELD LOCATIONS OF BURIED ELECTRIC, TELEPHONE, AND GAS FACILITIES (48 HOUR NOTIFICATION IS REQUIRED).

Utilities:

This section is for general topics related to all utilities.

1. WATER MAINS AND WATER SERVICE LINES SHALL BE PROTECTED FROM SANITARY SEWERS, STORM SEWERS, COMBINED SEWERS, HOUSE SEWER SERVICE CONNECTIONS, AND DRAINS AS FOLLOWS:

   A. HORIZONTAL SEPARATION - WATER MAINS AND SEWERS

      (1) WATER MAINS SHALL BE LOCATED AT LEAST TEN (10) FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED DRAIN, STORM SEWER, SANITARY SEWER, COMBINED SEWER OR SEWER SERVICE CONNECTION.

      (2) WATER MAIN MAY BE LOCATED CLOSER THAN TEN (10) FEET TO A SEWER LINE WHEN:

         (A) LOCAL CONDITIONS PREVENT A LATERAL SEPARATION OF TEN (10) FEET AND;

         (B) THE WATER MAIN INVERT IS AT LEAST 18 INCHES ABOVE THE CROWN OF THE SEWER; AND

(C) THE WATER MAIN IS EITHER IN A SEPARATE TRENCH OR IN THE SAME TRENCH ON AN UNDISTURBED EARTH SHELF LOCATED TO ONE SIDE OF THE SEWER, MAINTAINING THE MINIMUM VERTICALSEPARATION OF 18 INCHES.

(3) WHEN IT IS IMPOSSIBLE TO MEET EITHER (A.) OR (B.), BOTH THE WATER MAIN AND DRAIN OR SEWER SHALL BE CONSTRUCTED OF SLIP-ON OR MECHANICAL JOINT CAST OR DUCTILE IRON PIPE, OR PVC PIPE MEETING THE REQUIREMENTS OF WATER MAIN STANDARDS OF CONSTRUCTION. THE DRAIN OR SEWER SHALL BE PRESSURE TESTED TO THE MAXIMUM EXPECTED SURCHARGE HEAD BEFORE BACKFILLING.

B. VERTICAL SEPARATION - WATER MAINS AND SEWERS

(1) A WATER MAIN SHALL BE LAID 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 (10) FEET HORIZONTALLY OF ANY SEWER OR DRAIN CROSSING. A LENGTH OF WATER MAIN PIPE SHALL BE CENTERED OVER THE SEWER TO BE CROSSED WITH JOINTS EQUIDISTANT FROM THE SEWER OR DRAIN.

(2) BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF SLIP-ON OR MECHANICAL JOINT CAST OR DUCTILE IRON PIPE, OR PVC PIPE MEETING THE REQUIREMENTS OF WATER MAIN STANDARDS OF CONSTRUCTION WHEN:

(A) IT IS IMPOSSIBLE TO OBTAIN THE PROPER VERTICAL SEPARATION AS DESCRIBED IN (A.); OR

(B) THE WATER MAIN PASSES UNDER A SEWER OR DRAIN

(3) A VERTICAL SEPARATION OF 18 INCHES BETWEEN THE INVERT OF THE SEWER OR DRAIN AND THE CROWN OF THE WATER MAIN SHALL BE MAINTAINED WHERE A WATER MAIN CROSSES UNDER A SEWER. SUPPORT THE SEWER OR DRAIN

LINES TO PREVENT SETTLING AND BREAKING THE WATER MAIN, AS APPROVED BY THE ENGINEER.

(4) CONSTRUCTION OF WATER MAIN QUALITY PIPE SHALL EXTEND ON EACH SIDE OF THE CROSSING UNTIL THE PERPENDICULAR DISTANCE FROM THE WATER MAIN TO THE SEWER OR DRAIN LINE IS AT LEAST TEN (10) FEET.

2. THE LOCATIONS OF EXISTING DRAINAGE STRUCTURES, STORM AND SANITARY SEWERS, WATER AND SANITARY SERVICE LINES, AND OTHER UTILITY LINES ARE APPROXIMATE. THEIR EXACT HORIZONTAL AND VERTICAL LOCATIONS ARE TO BE DETERMINED IN THE FIELD BY THE CONTRACTOR AT HIS OWN EXPENSE.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE OWNERS OF ALL EXISTING FACILITIES SO THAT THE UTILITIES AND THEIR APPURTENANCES MAY BE LOCATED, ADJUSTED, OR MOVED. IF NECESSARY, PRIOR TO THE START OF CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL COOPERATE WITH ALL UTILITY OWNERS AS PROVIDED FOR IN THE STANDARD SPECIFICATIONS.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UNDERGROUND OR SURFACE UTILITIES EVEN THOUGH THEY MAY NOT BE SHOWN ON THE PLANS. ANY UTILITY THAT IS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER. THIS WORK SHALL BE AT THE CONTRACTOR'S EXPENSE.

5. THE CONTRACTOR SHALL COOPERATE WITH THE CITY OF WOOD DALE IF ANY MUNICIPAL UTILITY IMPROVEMENTS ARE REQUIRED WITHIN THE DURATION OF THE CONTRACT.

Water Main:

The Water Main Notes in this section are intended to be included when a project includes water main work as part of the project. The Consultant should review the following Notes to determine if they are applicable to the work being completed.

1. FOR WATER MAIN SHUT OFFS, THE CONTRACTOR SHALL GIVE THE CITY A MINIMUM OF 48 HOURS NOTICE. THE CITY SHALL PROVIDE NOTIFICATION FORMS AND DETERMINE THE LIMIT OF THE AFFECTED AREAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISTRIBUTION OF THE NOTIFICATION FORMS TO ALL AFFECTED RESIDENTS AT LEAST 24 HOURS PRIOR TO SHUT OFF. ALL SHUT OFFS SHALL BE FOR A MAXIMUM TIME OF FOUR (4) HOURS.

2. THE CITY MAY ASSIST THE CONTRACTOR IN THE INITIAL LOCATING OF THE EXISTING SANITARY SERVICES TO THE INDIVIDUAL RESIDENCES WITHIN THE PROJECT LIMITS. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING KNOWLEDGE OF THE LOCATIONS OF THESE SERVICES. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AS-BUILT KNOWLEDGE OF THE LOCATIONS OF THE NEWLY INSTALLED SERVICES AND MAINS. THE CITY WILL NOT BE RESPONSIBLE FOR LOCATING NEW MAINS OR SERVICES FOR THE CONTRACTOR. FOR THE DURATION OF THE CONTRACT, THE CONTRACTOR SHALL MAKE THE AS-BUILT UNDERGROUND UTILITY INFORMATION AVAILABLE TO THE CITY WHENEVER REQUESTED.

3. THE CONTRACTOR SHALL NOT OPEN OR SHUT ANY WATER VALVES OR FIRE HYDRANTS WITHOUT PRIOR AUTHORIZATION FROM THE CITY WATER DEPARTMENT. UNAUTHORIZED USE SHALL SUBJECT THE OFFENDER TO ARREST AND PROSECUTION.

4. ALL WATER MAIN MATERIAL SHALL BE INSPECTED BY CITY'S PUBLIC WORKS DEPARTMENT PRIOR TO INSTALLATION.

5. THRUST BLOCKING IS REQUIRED AT ALL BENDS, TEES, CAPS, VALVES, AND HYDRANTS.

6. ALL VALVES SHALL BE INSTALLED IN VALVE VAULTS. UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY OF WOOD DALE, VALVE BOXES ARE ONLY PERMITTED FOR FIRE HYDRANT AUXILIARY VALVES.

7. FLUSHING, TESTING, AND DISINFECTION PROCEDURES: FOLLOWING THE INSTALLATION OR REPAIR OF ANY WATER MAIN, SERVICE PIPES, FITTINGS, VALVES, AND HYDRANTS, AND BEFORE THESE ITEMS ARE PLACED INTO SERVICE, FLUSHING, TESTING, AND DISINFECTION MUST OCCUR ACCORDING TO THE LATEST EDITIONS OF: STANDARD SPECIFICATIONS FOR WATER AND SEWER CONSTRUCTION IN ILLINOIS, AMERICAN WATER WORKS ASSOCIATION (AWWA), CITY REQUIREMENTS, AND IN ACCORDANCE WITH THE FOLLOWING SEQUENTIAL EVENTS:

    A. FLUSHING: PRIOR TO TESTING AND DISINFECTION PROCEDURES, FILLING AND FLUSHING OF ALL DEBRIS SHALL OCCUR ON ANY NEW OR REPAIRED WORK

    B. HYDROSTATIC PRESSURE TEST: AFTER FLUSHING OPERATIONS, A HYDROSTATIC PRESSURE TEST OF 150 PSI SHALL OCCUR FOR A TEST PERIOD OF TWO (2) HOURS. EACH SECTION OF WATER MAIN ANDCONNECTION TO BE PRESSURE TESTED SHALL BE CAREFULLY FILLED WITH WATER TO EXPEL ALL ENTRAPPED AIR AND THE TEST PRESSURE SHALL BE WITHOUT PRESSURE LOSS OR FURTHER

PRESSURE APPLICATION FOR A DURATION OF TWO (2) HOURS. SHOULD THE TEST PRESSURE DROP BELOW 145 PSI THE LINE SHALL BE PUMPED BACK UP TO 150 PSI AND THE AMOUNT OF WATER USED RECORDED. THIS PROCESS SHALL CONTINUE UNTIL THE TEST PERIOD ENDS. ALLOWABLE LEAKAGE SHALL BE PER THE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS. IN THE EVENT OF UNACCEPTABLE PRESSURE LOSS, THE CONTRACTOR SHALL LOCATE AND CORRECT ALL LEAKS, AND THEN REPEAT THE HYDROSTATIC PRESSURE TEST UNTIL SATISFACTORY TO THE ENGINEER.

(1) THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY TO PERFORM THE PRESSURE AND LEAKAGE TESTS. THIS COST WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN ASSOCIATED WATER MAIN ITEMS.

(2) THE CONTRACTOR SHALL SATISFACTORILY PERFORM THE PRESSURE AND LEAKAGE TEST PRIOR TO REQUESTING THE ENGINEER AND/OR BUILDING/FIRE INSPECTOR TO WITNESS THE OFFICIAL TESTS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 48 HOURS PRIOR TO THE TIME THAT THE OFFICIAL TESTS ARE REQUESTED. DEPENDING ON TRAFFIC CONDITIONS, PUBLIC HAZARD, OR OTHER REASONS, THE ENGINEER MAY DIRECT WHEN TESTING OF NEW WORK SHALL BE CONDUCTED, AND MAY ORDER THE TESTS TO BE MADE IN RELATIVELY SHORT SECTIONS OF NEW WATER MAINS.

C. DISINFECTION: AFTER COMPLETION OF A SATISFACTORY TEST OR SERIES OF TESTS, CHLORINE SHALL BE APPLIED. AFTER 24 HOURS, THE MAIN SHALL BE FLUSHED AND WATER SAMPLES SHALL BE TAKEN BY THE CITY OF WOOD DALE'S PUBLIC WORKS DEPARTMENT. WATER SAMPLES MAY ONLY BE TAKEN MONDAY THROUGH FRIDAY, THEREFORE, CHLORINATING MAY ONLY OCCUR MONDAY THROUGH THURSDAY. CHLORINATION MAY OCCUR ON FRIDAY IF SAMPLES ARE APPROVED AND ARRANGED TO BE TAKEN ON SATURDAY (48 NOTICE REQUIRED) AND MONDAY.

Sanitary Sewer:

The Sanitary Sewer Notes in this section are intended to be included when a project includes sanitary sewer work as part of the project. The Consultant should review the following Notes to determine if they are applicable to the work being completed.

1. ALL SANITARY SEWER SERVICES SHALL BE INSTALLED AT A MINIMUM 1% PITCH.

2. THE UNDERGROUND CONTRACTOR IS RESPONSIBLE FOR DOCUMENTING THE LOCATION OF EACH SERVICE. A FINAL COMPILATION OF SERVICE LOCATIONS SHALL BE PROVIDED UPON COMPLETION OF THE INSTALLATION.

3. WHEN NEW SANITARY SEWER STRUCTURES ARE PROPOSED OR REQUIRED, SANITARY MANHOLES SHALL HAVE EXTERNAL CHIMNEY SEALS INSTALLED OVER THE FRAME AND AROUND THE MANHOLE TO PREVENT INFILTRATION. WHEN SANITARY FRAMES ARE INSTALLED DIRECTLY ON TOP OF FLAT TOP MANHOLE STRUCTURES, IT IS PERMISSIBLE TO INSTALL AN INTERNAL CHIMNEY SEAL PER THE MANUFACTURER'S INSTRUCTIONS.

4. WHEN NEW SANITARY SEWER MAIN AND/OR SANITARY SEWER STRUCTURES ARE PROPOSED OR REQUIRED, TESTING OF SANITARY SEWER MAIN AND SANITARY SEWER STRUCTURES, PER THE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS AND APPLICABLE CITY OF WOOD DALE STANDARDS, IS REQUIRED AFTER INSTALLATION. ANY FAILURES OR PROBLEMS IDENTIFIED REQUIRE CORRECTION BY THE CONTRACTOR.

    A. AIR PRESSURE EXFILTRATION TESTING OF ALL SANITARY SEWER PIPE IS REQUIRED.

    B. TESTING OF ALL SANITARY SEWER PIPE RIGID MANDREL OR BALL WITH A DIAMETER OF 95% OF THE INSIDE PIPE DIAMETER IS REQUIRED.

    C. SANITARY SEWER PIPE SHALL BE TELEVISED USING A CLOSED CIRCUIT CAMERA AND RECORDING DEVICE. A COPY OF THE DVD VIDEO OF THE TELEVISED LINE SHALL BE SUBMITTED FOR APPROVAL.

    D. THE CONTRACTOR SHALL BE REQUIRED TO PERFORM MANHOLE LEAKAGE TESTS ON ALL SANITARY SEWER MANHOLES IN ACCORDANCE WITH THE STANDARDS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS, LATEST EDITION.

Storm Sewer:

The Storm Sewer Notes in this section are intended to be included when a project includes storm sewer work as part of the project. The Consultant should review the following Notes to determine if they are applicable to the work being completed.

Only those materials that are identified on the plans are required to be included. However, if the contractor requests a change to the pipe material and the associated pipe material information is not included in the engineering plans, the applicable Storm Sewer Note will need to be added to final engineering plans the as part of the Field Change request.

1. NO CONNECTION TO AN EXISTING PUBLIC STORM SEWER MAY BE MADE WITHOUT PERMISSION OF THE PUBLIC WORKS DIRECTOR.

2. THE CONTRACTOR SHALL REPAIR ANY EXISTING FIELD DRAINAGE TILE DAMAGED DURING CONSTRUCTION AND PROPERLY REROUTE AND/OR CONNECT SAID TILE TO THE NEAREST STORM SEWER OUTLET. ALL LOCATIONS OF ENCOUNTERED FIELD DRAINAGE TILE SHALL BE PROPERLY INDICATED ON THE CONTRACTOR'S RECORD DRAWINGS.

3. THE CONTRACTOR SHALL MAINTAIN PROPER DRAINAGE AT ALL TIMES DURING THE COURSE OF CONSTRUCTION AND SHALL PREVENT STORM WATER FROM RUNNING INTO OR STANDING IN EXCAVATED AREAS.

4. THE COST OF CONNECTING EXISTING STORM SEWERS AND STORM STRUCTURES TO THE PROPOSED DRAINAGE SYSTEM AND CONNECTING PROPOSED STORM SEWER TO EXISTING STRUCTURES, WHETHER A TEMPORARY OR PERMANENT CONNECTION, SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT. THIS ALSO INCLUDES ANY TEMPORARY STORM SEWER PIPE REQUIRED TO MAINTAIN PROPER DRAINAGE UNTIL PERMANENT SEWERS ARE CONSTRUCTED. NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

5. WHEN EXISTING DRAINAGE FACILITIES ARE DISTURBED, THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY OUTLETS AND CONNECTIONS FOR ALL PRIVATE OR PUBLIC DRAINS, SEWERS, OR CATCH BASINS. HE SHALL PROVIDE FACILITIES TO TAKE IN ALL STORMWATER WHICH WILL BE RECEIVED BY THESE DRAINS AND SEWERS AND DISCHARGE THE SAME. HE SHALL PROVIDE AND MAINTAIN AN EFFICIENT PUMPING PLANT, IF NECESSARY, AND A TEMPORARY OUTLET AND BE PREPARED AT ALL TIMES TO DISPOSE OF THE WATER RECEIVED FROM THESE TEMPORARY CONNECTIONS UNTIL SUCH TIME AS THE PERMANENT CONNECTIONS WITH SEWERS ARE BUILT AND IN SERVICE. THIS WORK WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE CONTRACT.

6. ALL OPENINGS IN EXISTING DRAINAGE STRUCTURES AND PIPES RESULTING FROM STORM SEWER/PIPE CULVERT REMOVAL SHALL BE PLUGGED IN ACCORDANCE WITH SECTION 550.05 OF THE STANDARD SPECIFICATIONS. THE COST WILL BE INCLUDED IN THE ASSOCIATED STORM SEWER ITEM.

7. DRAINAGE STRUCTURE OFFSETS AS SHOWN ON THE PLANS ARE GIVEN TO THE CENTER OF STRUCTURES.

8. CONTRACTOR TO USE FLAT SLAB TOPS WHERE FIELD CONDITIONS PROHIBIT THE USE OF TAPERED TOPS. FLAT TOPS AND CONES ARE TO BE TURNED SO THAT THE FRAME IS CLOSEST TO THE CENTERLINE OF THE ROAD, UNLESS OTHERWISE NOTED IN THE PLANS OR AN EXISTING UTILITY PROHIBITS IT. ALL FLAT TOPS AND CONES ARE ASSUMED TO BE ECCENTRIC.

9. THE FOLLOWING MATERIALS ARE PERMITTED FOR STORM SEWER AND PIPE CULVERTS. WHERE A PARTICULAR MATERIAL IS SPECIFIED IN THE PLANS OR SPECIAL PROVISIONS, NO OTHER KIND OF MATERIAL WILL BE PERMITTED:

   A. REINFORCED CONCRETE PIPE (RCP) - REINFORCED CONCRETE PIPE SHALL CONFORM TO ASTM DESIGNATION C 76, CLASSES I, II, III, IV OR V. BITUMINOUS JOINTS SHALL CONFORM TO ASTM DESIGNATIONS C 14 OR C 76 AS MAY BE APPLICABLE. BITUMINOUS MATERIAL SHALL CONSIST OF A HOMOGENEOUS BLEND OF BITUMEN, INERT FILLER, AND SUITABLE SOLVENT APPROVED BY THE CITY. RUBBER GASKET JOINTS SHALL CONFORM TO ASTM C 433. REINFORCED CONCRETE PIPE SHALL ALSO BE PERMITTED AS ROUND, ELLIPTICAL, OR BOX SHAPED OR AS REINFORCED CONCRETE ARCH CULVERT.

   B. NON-REINFORCED CONCRETE PIPE - NON-REINFORCED CONCRETE PIPE SHALL BE ALLOWED FOR PIPES WITH A 10 INCH OR SMALLER DIAMETER. NON-REINFORCED CONCRETE PIPE SHALL CONFORM TO ASTM DESIGNATION C 14, CLASS 3. BITUMINOUS JOINTS SHALL CONFORM TO ASTM DESIGNATIONS C 14 OR C 76 AS MAY BE APPLICABLE. BITUMINOUS MATERIAL SHALL CONSIST OF A HOMOGENEOUS BLEND OF BITUMEN, INERT FILLER, AND SUITABLE SOLVENT APPROVED BY THE CITY. RUBBER GASKET JOINTS SHALL CONFORM TO ASTM C 433.

   C. DUCTILE IRON PIPE (DIP) - DUCTILE IRON PIPE SHALL CONFORM TO ANSI A 21.51 (AWWA C-151), CLASS THICKNESS DESIGNED PER ANSI A 21.50 (AWWA C-150), TAR (SEAL) COATED AND CEMENT LINED PER ANSI A 21.4 (AWWA C-104), WITH MECHANICAL OR RUBBER RING (SLIP SEAL OR PUSH ON) JOINTS. ALL DUCTILE IRON PIPE SHALL BE WRAPPED WITH POLYETHYLENE.

   D. POLYVINYL CHLORIDE PIPE (PVC) - POLYVINYL CHLORIDE (PVC) PIPE SHALL CONFORM TO ASTM D 3034, TYPE PSM. THE MINIMUM STANDARD DIMENSION RATIO (SDR) SHALL BE 26. THE PIPE SHALL BE MADE OF PVC PLASTIC HAVING A MINIMUM CELL CLASSIFICATION OF 12454-C, AND SHALL HAVE A MINIMUM PIPE STIFFNESS OF FORTY-SIX (46) LBS. PER INCH (317 KPA). JOINTS FOR

PVC PIPE SHALL BE FLEXIBLE ELASTOMETRIC SEALS PER ASTM D 3212.

E. HIGH DENSITY POLYETHELYNE PIPE (HDPE) - HIGH-DENSITY POLYETHYLENE (HDPE) PIPE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 252 AND M 294. PIPE AND FITTINGS SHALL BE MADE FROM VIRGIN PE COMPOUNDS WHICH CONFORM TO THE REQUIREMENTS OF CELL CLASS 324420C AS DEFINED AND DESCRIBED IN ASTM D 3350. RUBBER GASKET JOINTS SHALL BE USED.

F. FULLY GALVANIZED CORRUGATED STEEL PIPE - FULLY GALVANIZED CORRUGATED STEEL PIPE MAY BE USED FOR RESIDENTIAL DRIVEWAY CROSSINGS ONLY WHEN A DITCH SECTION IS PRESENT. THE MINIMUM CULVERT SIZE IS 12" DIAMETER.

10. BEDDING, OTHER THAN CONCRETE EMBEDMENT, SHALL CONSIST OF GRAVEL, CRUSHED GRAVEL, OR CRUSHED STONE 1/4 INCH TO 1 INCH IN SIZE. AS A MINIMUM, THE MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF IDOT STANDARD SPECIFICATIONS. THE GRADATION SHALL CONFORM TO GRADATION CA-7 OR CA-11 OF THE STANDARD SPECIFICATIONS.

11. WHEN THE REQUIRED VERTICAL AND HORIZONTAL CLEARANCES, AS SPECIFIED BY THE IEPA, BETWEEN PROPOSED STORM SEWER AND EXISTING OR PROPOSED WATER MAIN CANNOT BE MET, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.

12. BACKFILL MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF IDOT STANDARD SPECIFICATIONS. THE GRADATION SHALL CONFORM TO GRADATION CA-6 OF THE STANDARD SPECIFICATIONS. BACKFILL MATERIAL SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.

13. JOINTS CONNECTING DISSIMILAR PIPE MATERIALS SHALL BE MADE WITH SEWER CLAMP NON-SHEAR TYPE COUPLINGS; CASCADE CSS, ROMAC LSS, FERNCO, INC. SHEAR RING, OR APPROVED EQUAL. WHEN AVAILABLE, A STANDARD JOINT WITH A TRANSITION GASKET MAY BE USED. THE NAME OF THE MANUFACTURER, CLASS, AND DATE OF ISSUE SHALL BE CLEARLY IDENTIFIED ON ALL SECTIONS OF PIPE. THE CONTRACTOR SHALL ALSO SUBMIT BILLS OF LADING, OR OTHER QUALITY ASSURANCE DOCUMENTATION WHEN REQUESTED BY THE CITY. ALL NUTS AND BOLTS FOR COUPLINGS SHALL BE STAINLESS STEEL.

14. MANHOLES FOR STORM SEWERS SHALL HAVE A MINIMUM INSIDE DIAMETER OF 48 INCHES AD SHALL BE CONSTRUCTED OF PRECAST CONCRETE UNITS IN ACCORDANCE WITH ASTM C478-05 (OR LATEST

EDITION) AND SHALL CONFORM TO THE CITY OF WOOD DALE STANDARD DETAIL. ALL MANHOLES SHALL BE WATER-TIGHT. ALL VISIBLE LEAKS SHALL BE SEALED IN A MANNER ACCEPTABLE TO THE CITY.

15. MANHOLES SHALL BE FURNISHED WITH A SELF-SEALING FRAME AND SOLID COVER (EAST JORDAN IRON WORKS 1022 WITH TYPE A SOLID COVER, OR APPROVED EQUAL) IT SHALL HAVE CAST INTO THE LID "CITY OF WOOD DALE" AND THE WORD "STORM" IMPRINTED ON THE COVER IN RAISED LETTERS. ALL FRAMES AND LIDS SHALL MEET OR EXCEED AASHTO H-20 LOADING SPECIFICATIONS. FRAMES SHALL BE SHOP PAINTED WITH ASPHALTIC BASE PAINT. BOTH THE MANHOLE FRAME AND COVER SHALL HAVE MACHINED HORIZONTAL AND VERTICAL BEARING SURFACES. INVERTED MANHOLE FRAMES ARE NOT ALLOWED. PICK HOLES SHALL NOT CREATE OPENINGS IN THE MANHOLE COVER.

16. MANHOLE STEPS ON MAXIMUM 16 INCH CENTER SHALL BE FURNISHED WITH EACH MANHOLE, SECURELY ANCHORED IN PLACE, TRUE TO VERTICAL ALIGNMENT, IN ACCORDANCE WITH THE WOOD DALE STANDARD DETAILS. STEPS SHALL BE COPOLYMER POLYPROPYLENE REINFORCED WITH 1/2 INCH A615/A615M-05A (OR LATEST EDITION) GRADE 60 STEEL REINFORCEMENT, MEETING OR EXCEEDING ASTM C 478-05 (OR LATEST EDITION) AND OSHA STANDARDS.

17. CATCH BASINS AND INLETS SHALL HAVE A MINIMUM INSIDE DIAMETER OF 24 INCHES AND SHALL BE CONSTRUCTED OF PRECAST CONCRETE UNITS IN ACCORDANCE WITH ASTM C478-05 (OR LATEST EDITION) AND SHALL CONFORM TO THE CITY OF WOOD DALE STANDARD DETAIL. ALL CATCH BASINS AND INLETS SHALL BE WATER-TIGHT AT ALL POINTS BELOW GRADE. ALL VISIBLE LEAKS SHALL BE SEALED IN A MANNER ACCEPTABLE TO THE CITY. CATCH BASINS AND INLETS SHALL BE FURNISHED WITH A FRAME AND GRATE BASED UPON THE LOCATION OF THE INSTALLATION AS LISTED BELOW. ALL FRAMES AND GRATES SHALL MEET OR EXCEED AASHTO H-20 LOADING SPECIFICATIONS. FRAMES SHALL BE SHOP PAINTED WITH ASPHALTIC BASE PAINT.

    A. PAVEMENT: EAST JORDAN IRON WORKS 1022 FRAME WITH TYPE M1 RADIAL FLAT GRATE, OR APPROVED EQUAL.

    B. BARRIER CURB AND GUTTER: EAST JORDAN IRON WORKS 7220 FRAME WITH TYPE M1 GRATE AND T1 CURB BOX, OR APPROVED EQUAL.

    C. DEPRESSED CURB: EAST JORDAN IRON WORKS 5120 FRAME AND GRATE, OR APPROVED EQUAL.

D. MOUNTABLE CURB: EAST JORDAN IRON WORKS 7525 FRAME AND GRATE, OR APPROVED EQUAL.

E. NON-PAVED AREAS: EAST JORDAN IRON WORKS 6527 BEEHIVE GRATE, OR APPROVED EQUAL. ALTERNATELY, IN AREAS WHERE THERE IS THE LIKELIHOOD OF PEDESTRIAN TRAFFIC, EAST JORDAN IRON WORKS 1022 FRAME WITH TYPE M1 RADIAL FLAT GRATE, OR APPROVED EQUAL MAY BE USED.

18. THE STEEL CASING PIPE SHALL BE BITUMINOUS COATED, A MINIMUM OF 30 MILS THICKNESS INSIDE AND OUT, AND SHALL BE OF LEAK PROOF CONSTRUCTION, CAPABLE OF WITHSTANDING THE ANTICIPATED LOADINGS. SEE TABLE 200-1 IN THE WOOD DALE STANDARD SPECIFICATIONS FOR THE MINIMUM WALL THICKNESSES OF VARIOUS STEEL CASING DIAMETERS.

    THE STEEL CASING PIPE SHALL HAVE MINIMUM YIELD STRENGTH OF 35,000 PSI AND SHALL MEET THE REQUIREMENTS OF A139/A139M-04 (OR LATEST EDITION), GRADE B. RING DEFLECTION SHALL NOT EXCEED 2% OF THE NOMINAL DIAMETER. THE STEEL CASING PIPE SHALL BE DELIVERED TO THE JOBSITE WITH BEVELED ENDS TO FACILITATE FIELD WELDING.

19. ALL PIPE SHALL BE LAID TRUE TO LINE AND GRADE. DIRT AND OTHER FOREIGN MATERIAL SHALL BE PREVENTED FROM ENTERING THE PIPE OR PIPE JOINT DURING HANDLING OR LAYING OPERATIONS. ALL STORM SEWER PIPE TO PIPE CONNECTIONS SHALL BE SEALED WITH BUTYL MASTIC TO ENSURE WATER TIGHTNESS. LIFT HOLES TO BE SEALED USING BUTYL MASTIC AND CONCRETE PLUGS. AT NO TIME SHALL CONNECTIONS BETWEEN THE TWORM SEWER AND SANITARY SEWER BE ALLOWED.

20. FOR STRUCTURES LOCATED IN PAVED AREAS, A MINIMUM OF FOUR, 2-INCH DIAMETER HOLES SHALL BE DRILLED OR PRECAST INTO THE STRUCTURE WITHIN 1 FOOT OF THE LOWEST PIPE INVERT. THE HOLES SHALL BE DISTRIBUTED EQUIDISTANT AROUND THE PERIMETER OF THE STRUCTURE. A 1-FOOT BY 1-FOOT SECTION OF UNDERDRAIN FILTER CLOTH MATERIAL SHALL BE SUFFICIENTLY FIXED TO THE OUTSIDE OF THE MANHOLE WITH MASTIC MATERIAL TO PREVENT SLIPPAGE DURING BACKFILLING.

21. ALL STORM SEWER STRUCTURE FRAMES WITHOUT INSIDE FLANGES SHALL BE SHAPED WITH NON-SHRINKING HYDRAULIC CEMENT TO FORM A FILLET TO THE STRUCTURE OR ADJUSTING RING.

    WHEN ADJUSTMENTS ARE NECESSARY, THEY SHALL BE PERFORMED WITH A MAXIMUM OF 2 PRECAST CONCRETE RINGS SET IN A CONTINUOUS LAYER OF PREFORMED BITUMINOUS MASTIC. THE MAXIMUM HEIGHT OF

ADJUSTMENTS SHALL BE 12 INCHES. TWO INCH CONCRETE RINGS SHALL ONLY BE USED WHEN THE ADJUSTMENT IS LESS THAN 3 INCHES.

ADJUSTMENTS LESS THAN 4 INCHES MAY BE MADE USING HARD COMPOSITE RUBBER TYPE RINGS, SUCH AS GNR OR APPROVED EQUAL. ONLY ONE TYPE OF ADJUSTING RING MAY BE USED ON A STRUCTURE; COMBINING BOTH CONCRETE AND HARD COMPOSITE RUBBER RINGS ON A STRUCTURE IS NOT PERMITTED.

Erosion Control and Drainage Notes (General):
The Erosion Control and Drainage Notes in this section should be included in all final engineering plans regardless of the type of work in the project.

1. THE CONTRACTOR SHALL MAINTAIN PROPER DRAINAGE AT ALL TIMES DURING THE COURSE OF CONSTRUCTION AND PREVENT STORM WATER FROM RUNNING INTO OR STANDING IN EXCAVATED AREAS.

2. DURING EXTENDED DRY PERIODS, THE CONSTRUCTION AREA(S) MAY NEED TO BE WATERED DOWN TO PREVENT THE BLOWING OF SOIL FROM THE SITE.

3. DURING CONSTRUCTION, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE UTILIZED TO MINIMIZE THE TRACKING OF DIRT ONTO THE PUBLIC STREETS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO KEEP PUBLIC STREET PAVEMENT CLEAN OF DIRT AND DEBRIS. ANY DIRT THAT IS TRACKED ONTO THE PUBLIC STREETS SHALL BE REMOVED THE SAME DAY. IF THE AMOUNT TRACKED ON THE PUBLIC STREET IS EXCESSIVE, CLEANING MAY BE REQUIRED MORE FREQUENTLY.

Erosion Control and Drainage Notes (Project Specific):
The Erosion Control and Drainage Notes in this section are intended to be included when a project includes erosion control work as part of the project. The Consultant should review the following Notes to determine if they are applicable to the work being completed.

1. ALL EROSION CONTROL MEASURES SHALL BE PROPERLY INSTALLED, AS PERMITTED, PRIOR TO ANY LAND DISTURBANCE ACTIVITIES. ALL EROSION CONTROL SHALL BE MAINTAINED UNTIL TURF IS ESTABLISHED.

2. ACCEPTABLE PERIMETER EROSION CONTROL INCLUDES SILT FENCE, SILT WORM AND ANY OTHER APPLICATION APPROVED BY THE CITY.

3. ALL OPEN GRATE STRUCTURES SHALL HAVE EROSION CONTROL PROTECTION IN ACCORDANCE WITH THE APPROVED EROSION CONTROL PLANS. INLET BASKETS ARE THE PREFERRED METHOD; STRAW BALES SHALL NOT BE USED.

4. STOCKPILES NOT BEING DISTURBED FOR MORE THAN 14 DAYS SHALL BE SEEDED.

5. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY, AFTER ANY 0.5 INCH RAINFALL, OR MORE FREQUENTLY AS NECESSARY TO MAINTAIN THEIR FUNCTION.

Erosion Control and Drainage Notes (NPDES Permit):
The Erosion Control and Drainage Note in this section should be included if the project requires an NPDES permit.

IT IS THE RESPONSIBILITY OF THE OWNER OR HIS DESIGNEE TO INSPECT ALL TEMPORARY EROSION CONTROL MEASURES PER THE REQUIREMENTS OF THE NPDES PERMIT AND CORRECT ANY DEFICIENCIES AS NEEDED.

Geometric and Paving Notes (General):
The Geometric and Paving Notes in this section should be included in all final engineering plans regardless of the type of work in the project.

1. THE DEVELOPER AND CONTRACTOR SHALL HAVE THE RESPONSIBILITY TO ADEQUATELY PROTECT THE PAVEMENT AND PROPERTY, CURB AND GUTTER AND OTHER RIGHT-OF-WAY IMPROVEMENTS, WHETHER NEWLY CONSTRUCTED OR EXISTING, FROM ANY AND ALL DAMAGE. SUFFICIENT MEANS SHALL BE EMPLOYED BY THE CONTRACTOR TO PROTECT AGAINST SUCH DAMAGE TO THE SATISFACTION OF THE CITY.

2. ANY NEW OR EXISTING IMPROVEMENTS THAT ARE DAMAGED SHALL BE REPAIRED OR REPLACED IN A MANNER THAT IS SATISFACTORY TO THE CITY.

3. THE CONTRACTOR AND/OR DEVELOPER SHALL SECURE ALL NECESSARY RIGHTS AND PERMISSIONS TO PERFORM ANY WORK ON PRIVATE PROPERTY NOT WITHIN THE OWNERSHIP RIGHTS OF THE DEVELOPER. THE DEVELOPER SHALL BEAR THE SOLE RESPONSIBILITY FOR DAMAGES THAT MAY OCCUR AS A RESULT OF WORK PERFORMED UNDER CONTRACTS THEY INITIATE.

4. THE CONTRACTOR/DEVELOPER WILL BE RESPONSIBLE FOR BRINGING PAVEMENTS (STREET, CURB AND GUTTER, SIDEWALK, DRIVEWAY) ON THE PROPERTY UP TO CITY STANDARDS INCLUDING ANY REPAIRS TO SUBSTANDARD PAVEMENTS THAT EXISTED PRIOR TO OR OCCURRED DURING CONSTRUCTION.

5. WHEREVER NEW WORK WILL MEET EXISTING CONDITIONS OTHER THAN LAWN AREAS, REGARDLESS OF WHETHER THE NEW OR EXISTING WORK IS ASPHALT OR CONCRETE, THE EXISTING ADJACENT SIDEWALK, DRIVEWAYS, PAVEMENT OR CURB SHALL BE NEATLY SAW CUT. THE SAW

CUT SHALL BE IN A NEAT STRAIGHT LINE SUFFICIENTLY DEEP SO THAT IT RENDERS A SMOOTH VERTICAL FACE TO MATCH TO. IF THE CONTRACTOR IS NOT CAREFUL OR DOES NOT SAW DEEP ENOUGH AND THE CUT LINE BREAKS OUT OR CHIPS TO AN IMPERFECT EDGE, THEN THE EXISTING SIDE MUST BE RE-CUT SQUARE AND DONE OVER UNTIL IT IS.

6. DURING AND AFTER CONSTRUCTION OPERATIONS, ANY LOOSE MATERIAL INCLUDING, BUT NOT LIMITED TO, HMA, GRAVEL, TOP SOIL, ETC., ON CITY ROADWAYS AS A RESULT OF CONTRACTOR OPERATIONS, SHALL BE REMOVED AND DEPOSITED OFF SITE BY THE CLOSE OF EACH BUSINESS DAY. THIS WORK WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT. THIS ALSO APPLIES TO EXCESSIVE PRIMER LEFT ON CITY ROADWAYS.

7. THE THICKNESS OF HMA MIXTURES SHOWN IN THE PLANS IS MINIMAL THICKNESS. DEVIATIONS MAY OCCUR DUE TO IRREGULARITIES IN THE SURFACE OR BASIS ON WHICH THEY ARE TO BE PLACED. PLAN THICKNESS SHOULD BE CONSIDERED THE MINIMUM THICKNESS PERMITTED.

8. THE CONTRACTOR SHALL SET AND CHECK ALL CURB FORMS AND STRING LINES PRIOR TO PLACING CONCRETE TO ENSURE POSITIVE DRAINAGE ALONG THE ROADWAY. IMPROPERLY DRAINING CURB SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.

9. BUTT JOINTS WILL BE INSTALLED AT THE ENDS OF ALL RECONSTRUCTION (WHERE NEW PAVEMENT MEETS EXISTING HMA PAVEMENT)

10. AT ANY LOCATION WHERE THERE IS CURB AND GUTTER REMOVAL AND REPLACEMENT ADJACENT TO SIDEWALK, THE NEW CURB SHALL BE DEPRESSED AND THE NEW SIDEWALK RAMPED TO PROVIDE ACCESSIBILITY. THIS WORK SHALL BE DONE AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH IDOT STANDARD 424001.

11. TYPE "A" SIDEWALK RAMPS FOR THE HANDICAPPED SHALL BE INSTALLED AT ALL INTERSECTING STREETS AND DETECTABLE WARNINGS SHALL BE PLACED IN SIDEWALK BEHIND DEPRESSED CONCRETE CURB AND GUTTER IN ACCORDANCE WITH IDOT STANDARD 424001, AND AS DIRECTED BY THE ENGINEER.

12. TESTING OF ROADWAY IS REQUIRED THROUGHOUT THE CONSTRUCTION PROCESS. ANY FAILURES OR PROBLEMS IDENTIFIED SHALL BE CORRECTED BY THE CONTRACTOR.

    A. THE SUBGRADE SHALL BE PROOF ROLLED USING EITHER A SINGLE DUMP TRUCK WITH TANDEM WHEELS WITH A MINIMUM GROSS

WEIGHT OF 40 THOUSAND POUNDS OR A SEMI TRAILER DUMP TRUCK WITH TANDEM WHEELS WITH A MINIMUM GROSS WEIGHT OF 70 THOUSAND POUNDS. ANY AREAS FOUND TO BE UNSTABLE SHALL BE CORRECTED USING AN UNDERCUT DEPTH AS DIRECTED BY THE ENGINEER A POROUS GRANULAR EMBANKMENT UNDERLAIN WITH GEOTECHNICAL FABRIC.

B. DURING PAVING OPERATIONS, THE CONTRACTOR IS REQUIRED TO HAVE A TESTING COMPANY ON SITE VERIFYING DENSITY OF THE ASPHALT MAT.

Traffic Control and Protection Notes (General):

The Traffic Control and Protection Notes in this section should be included in all final engineering plans regardless of the type of work in the project.

1. ALL DEVELOPERS AND CONTRACTORS SHALL PROVIDE SUITABLE TRAFFIC CONTROL FOR THEIR CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH PART 6 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION. TRAFFIC CONTROL MUST BE PROVIDED FOR ANY ACTIVITY THAT IMPACTS TRAFFIC FLOW. THIS INCLUDES, BUT IS NOT LIMITED TO, ROAD CLOSURES REQUIRING DETOURS, DAILY LANE CLOSURES, LONG TERM LANE CLOSURES, NARROW LANES, AND CONSTRUCTION VEHICLES ENTERING AND EXITING THE PUBLIC ROADWAY. ALL TRAFFIC CONTROL SET-UPS MAY BE INSPECTED BY THE CITY OF WOOD DALE TO ENSURE THAT THEY ARE PROVIDING POSITIVE GUIDANCE TO MOTORISTS AND ARE NOT IN THEMSELVES PRESENTING A HAZARDOUS SITUATION. A REPRESENTATIVE OF THE DEVELOPER OR CONTRACTOR MUST PROVIDE PHONE NUMBERS AT WHICH THEY CAN BE REACHED 24 HOURS A DAY AND ON WEEKENDS SO THAT THEY CAN MAINTAIN TRAFFIC CONTROL DEVICES.

2. PEDESTRIANS MUST BE PROVIDED WITH A SAFE ALTERNATE ROUTE IF PEDESTRIAN FACILITIES ARE TO BE CLOSED AS A RESULT OF CONSTRUCTION ACTIVITIES. GUIDANCE MUST BE PROVIDED TO PEDESTRIANS SO THAT THEY MAY AVOID THE WORK ZONE. SAID PEDESTRIAN DETOUR PLAN (WITH SIGNAGE) IS TO BE REVIEWED AND ACCEPTED BY THE CITY IN WRITING, PRIOR TO THE COMMENCEMENT OF THE WORK.

3. THE CONTRACTOR SHALL EMPLOY THE APPROPRIATE METHODS OF TRAFFIC CONTROL IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, SUCH THAT THE SAFETY OF VEHICLES, AND PEDESTRIANS IS PRESERVED AT ALL TIMES. THE ERECTION AND MAINTENANCE OF THE TRAFFIC CONTROL DEVICES SHALL BE TO THE SATISFACTION OF THE AGENCY OF JURISDICTION AND THE CITY.

4. ANY TEMPORARY OPEN HOLES SHOULD BE BARRICADED AND PROTECTED IN ACCORDANCE WITH APPLICABLE STANDARDS.

Traffic Control and Protection Notes (Arterial Roads):
The Traffic Control and Protection Notes in this section should be included in all final engineering plans if the project involves work either in or adjacent to arterial roadways.

1. LANE CLOSURES ON ARTERIAL ROADWAYS WITHIN THE CITY OF WOOD DALE ARE NOT PERMITTED BETWEEN THE HOURS OF 6AM-9AM AND 3PM-7PM MONDAY THROUGH FRIDAY, UNLESS OTHERWISE PERMITTED BY THE CITY. LANE CLOSURES ON ARTERIAL STREETS ARE PERMITTED BETWEEN 7AM AND 7PM ON WEEKENDS, UNLESS OTHERWISE PERMITTED BY THE CITY. ARTERIAL ROADWAYS ARE DEFINED AS BOTH MAJOR AND MINOR ARTERIAL ROADWAYS AS DESIGNATED ON THE CITY'S MASTER THOROUGHFARE PLAN, LATEST EDITION.

2. ANY WORK THAT IMPACTS A TRAFFIC LANE ON AN ARTERIAL ROADWAY REQUIRES AN ARROWBOARD AS PART OF THE TRAFFIC CONTROL.

3. AT THE END OF EACH DAY OF WORK, THE ROADWAY MUST BE COMPLETELY REOPENED TO TRAFFIC. ANY OPEN HOLES MUST BE PLATED OR COLD PATCHED; THE CITY WILL NOT ALLOW THE HOLES TO BE FILLED WITH GRAVEL.

Traffic Control and Protection Notes (Downtown):
The Traffic Control and Protection Notes in this section should be included in all final engineering plans if the project is located in downtown Wood Dale.

1. PEDESTRIAN TRAFFIC SHALL BE MAINTAINED IN THE DOWNTOWN. IF A PEDESTRIAN DETOUR CANNOT BE ACCOMMODATED, THE CITY MAY REQUIRE THE CONTRACTOR TO PROIVDE A PROTECTED COVERED WALKWAY.

2. ANY WORK IMPACTING THE PUBLIC RIGHT-OF-WAY SHALL NOT BE ALLOWED IN THE DOWNTOWN ON A FRIDAY, SATURDAY, SUNDAY, AND/OR HOLIDAY, UNLESS OTHERWISE PERMITTED BY THE CITY.

3. ALL WORK IN THE DOWNTOWN SHALL BE COORDINATED WITH THE DOWNTOWN WOOD DALE ALLIANCE (DNA) TO AVOID CONFLICT WITH SPECIAL EVENTS.

2

Details

100: General
200: Storm
300: Sanitary
400: Water
500: Roadway
600: Lighting & Traffic
700: Grading, Landscaping & Erosion Control

SECTION 100- GENERAL DETAILS

DIGITAL FILE LAYER SCHEME
SAMPLE CERTIFICATION STATEMENT
SAMPLE RECORD PLAN LEGEND

TYPICAL LAYER SCHEME FOR DIGITAL FILES

LAYER NAME	Items that may be found on that layer
Alignment	Centerline, base line, survey line, stationing, roadway name, bench marks, horizontal ties p.c. and p.t. stations and station equations.
Profile	Roadway profile, vertical curve data, profile elevations, roadway dimensioning, vertical ties.
Topography	Ground contours, detention and retention areas elevations, associated text.
Soil Borings	Soil boring details, plan and profile.
Vegetation	Trees, brush, hedges, forests, associated text.
Water	Lakes, rivers, streams, ponds and associated text.
Right of Way	Right of way, access control, easements and associated text.
Edge of Pavement	Streets, roads, alleys etc.
Roadway Plan	Medians, curbs, gutter, and shoulders.
Roadside Features	Sidewalks, private entrances, commercial entrances
Buildings	Buildings, fences, parking lots, advertising signs, mailboxes, associated text.
Private Boundaries	Property lines, iron pipes, concrete monuments, survey markers, section corners, ownership information.
Pavement Marking	Pavement marking lines, letters and symbols, raised pavement markers, delineators, regulatory signs and warning signs.
Traffic Signal	Traffic signal plan
Electric	Power poles, cables, control cabinets, schematics, and junction boxes
Water utility	Fire hydrants, valve vaults, pipe, buffalo box, pump stations, and storage towers.
Sanitary sewer	Manholes, pipe, lift stations, treatment plants.
Drainage	Manholes, inlets, catch basins, sewer main, overflow routes, ditch flow line, detention and retention areas.
Railroads	Control box, crossing gate, tracks, signal and overpass.
Gas	Gas main
Telephone	Telephone

These drawings shall meet all specifications described within the City Specifications. No building permits, temporary/final occupancy permits, or acceptance of facilities by the City will proceed until the reproducible documents have been submitted to:

City of Wood Dale
Public Works Department
720 Central Ave
Wood Dale, IL 60191

SAMPLE CERTIFICATION

STATEMENT OF OPINION

Pursuant to the Wood Dale Municipal Code, I _____ a registered Professional Engineer in the State of Illinois, hereby declare that these "Record Drawings" pertaining to (watermain, sanitary sewer, storm sewer) (stormwater management) (outdoor lighting) consisting of sheets_____ and _____ included herewith, have been prepared for a certain project known as _____ and contain information as obtained by the surveyor _____ and the contractor _____. It is my professional opinion that these "Record Drawings" adequately depict the Record Drawing Information required by the City of Wood Dale's "Record Drawing Procedures and Standards for Civil Engineering Site work Improvements," document bearing the effective date of _____, and substantiate that the improvements constructed as part of this project will function in substantial conformance to the design intent of the approved engineering plans.

Dated: _____

Signed: _____

Illinois Registration Number: _____

(SEAL)

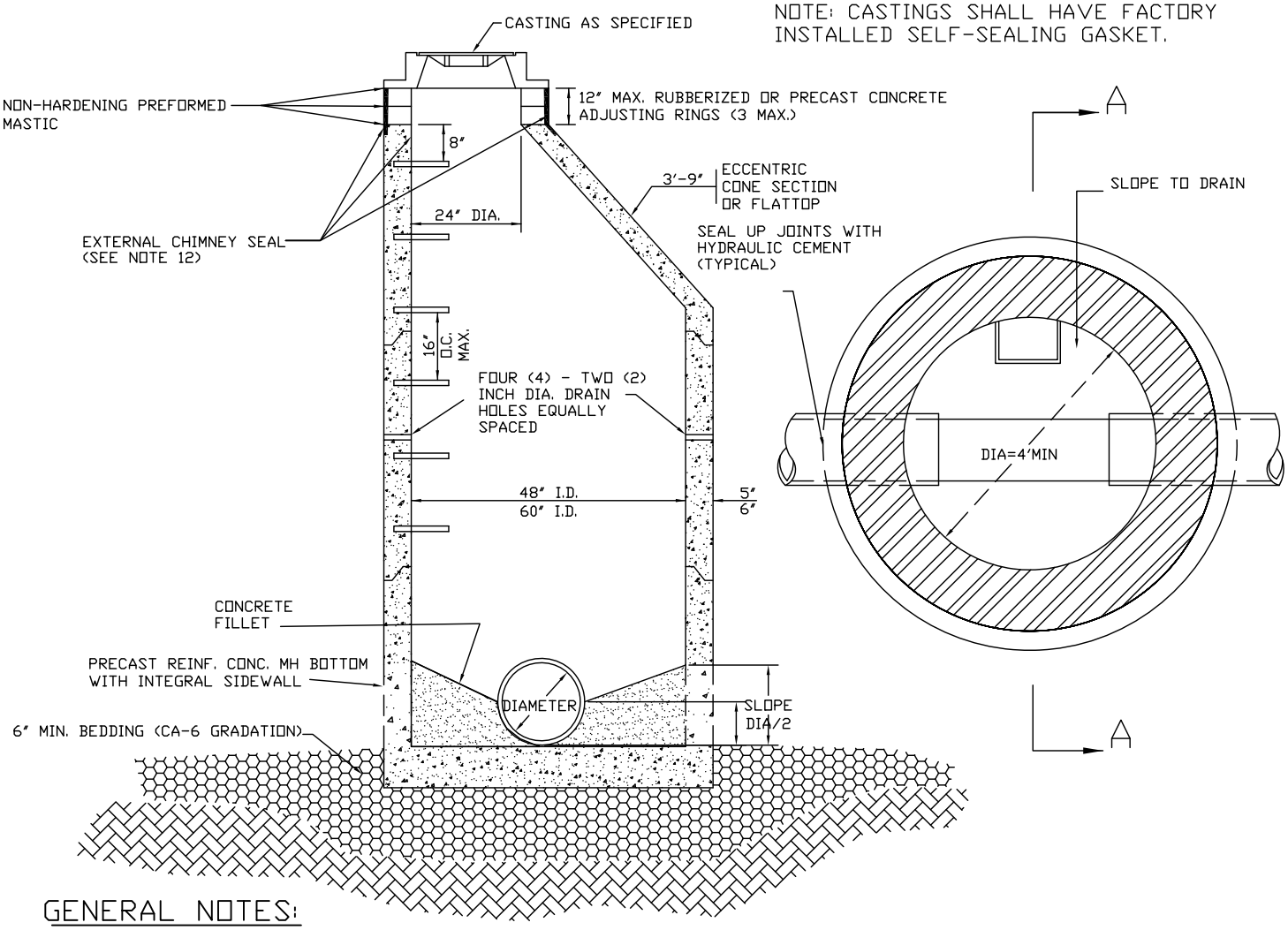
STANDARD LEGEND

RECORD PLAN FOR		
TYPE	DATE	P.E. INITIALS
WATERMAIN SANITARY SEWER STORM SEWER		
STORMWATER MANAGEMENT		
OUTDOOR LIGHTING		

SECTION 200- STORM SEWER

MANHOLE TYPE A
INLET TYPE A
CATCH BASIN TYPE A
CATCH BASIN TYPE C
PRECAST TEE MANHOLE
CONNECTION BOX FOR PRECAST MANHOLE 1
CONNECTION BOX FOR PRECAST MANHOLE 2
CONNECTION BOX FOR PRECAST MANHOLE 3
CASTING ADJUSTMENTS FOR STRUCTURES IN PAVED AREAS
CASTING ADJUSTMENTS FOR STRUCTURES IN CURB LINE
SUBSURFACE DRAIN TILE CONNECTION
DIRECT SUBSURFACE DRAIN TILE SUMP PUMP CONNECTION
SUBSURFACE DRAIN TILE SUMP PUMP CONNECTION
STORM SEWER TRENCH SECTION 1
STORM SEWER TRENCH SECTION 2
STORM SEWER GRATE FOR BOX INLET
MANHOLE STEP
SILT FENCE
RETAINING WALL 1
RETAINING WALL 2
SPLIT RAIL FENCE
DRY WELL
RESTRICTOR DETAIL
SWALE CONSTRUCTION

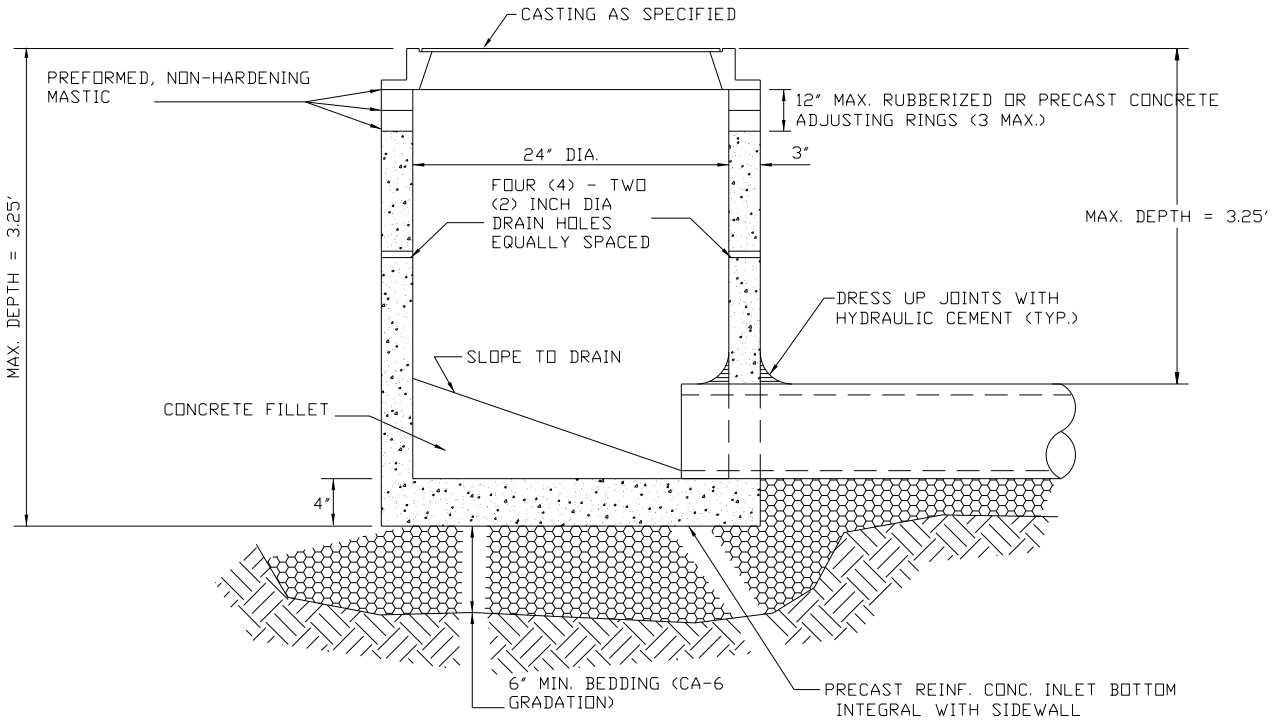
NOTE: CASTINGS SHALL HAVE FACTORY INSTALLED SELF-SEALING GASKET.



GENERAL NOTES:

1. PROVIDE PRECAST REINFORCED CONCRETE BARREL AND RISER SECTIONS. CONCRETE BLOCK CONSTRUCTION IS NOT PERMITTED.
2. PROVIDE GRANULAR BACKFILL AROUND MANHOLE TO SUBGRADE ELEVATION IN PAVED AREAS. MATERIAL SHALL MEET THE REQUIREMENTS OF IDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" FOR COARSE AGGREGATE (CA-6 GRADATION.)
3. APPLY A CONTINUOUS LAYER OF NON-HARDENING PREFORMED BITUMINOUS MASTIC MATERIAL (RUB-R-NEK OR EZ STICK) TO EACH JOINT BELOW THE BOTTOM OF CONE OR FLATTOP TO PREVENT INFLOW.
4. WHEN THE FRAME DOES NOT MEET PROPOSED ELEVATION, A MINIMUM OF TWO TAPERED RUBBERIZED ADJUSTING RINGS SHALL BE USED FOR FINAL ADJUSTMENT. ONE CONCRETE RING NOT LESS THAN TWO INCHES THICK MAY ALSO BE USED. A MAXIMUM OF THREE ADJUSTING RINGS MAY BE USED TO A MAXIMUM HEIGHT OF 12 INCHES. EACH RING AND THE FRAME SHALL BE SET IN A BED OF NON-PREFORMED MASTIC.
5. PRECAST ADJUSTING RINGS SHALL BE REINFORCED WITH NO. 3 GAUGE WIRE OR EQUIVALENT AND SHALL HAVE A MINIMUM THICKNESS OF 2 INCHES.
6. WITHIN NON-PAVED AREAS MORTAR SHALL ONLY BE USED TO DRESS UP ADJUSTING RINGS AND/OR FRAME ON THE EXTERIOR OF THE STRUCTURE. MORTAR IS NOT PERMITTED ON THE INSIDE OF THE RINGS AND/OR FRAME.
7. ONLY PLASTIC POLYMER STEPS SHALL BE USED.
8. WHEN MANHOLE DEPTH IS OVER 12 FEET, THE THICKNESS OF THE PRECAST, REINFORCED CONCRETE BASE SHALL BE A MINIMUM OF 10 INCHES. WHEN MANHOLE DEPTH IS LESS THAN 12 FEET, THE THICKNESS SHALL BE A MINIMUM OF 8 INCHES.
9. DRESS UP INTERIOR JOINTS OF PRECAST MANHOLE AND OPENINGS AROUND PIPES WITH HYDRAULIC CEMENT.
10. IN PAVED AREAS, DRAIN HOLES/WEEP HOLES SHALL BE COVERED WITH FILTER FABRIC. FILTER FABRIC SHALL BE SECURED TO THE OUTSIDE OF STRUCTURE PRIOR TO BACKFILL.
11. IN GRASSED AREAS, DRAIN HOLES/WEEP HOLES SHALL BE PLUGGED WITH HYDRAULIC CEMENT.
12. EXTERNAL CHIMNEY SEALS (UNLESS OTHERWISE DIRECTED BY CITY) SHALL BE REQUIRED UNLESS THE MANHOLE IS ADJUSTED TO FINAL GRADE IN ACCORDANCE WITH DETAIL STORM 7 - CASTING ADJUSTMENTS FOR STRUCTURES IN PAVED AREAS. EXTERNAL CHIMNEY SEALS SHALL BE CRETEX OR APPROVED EQUAL.

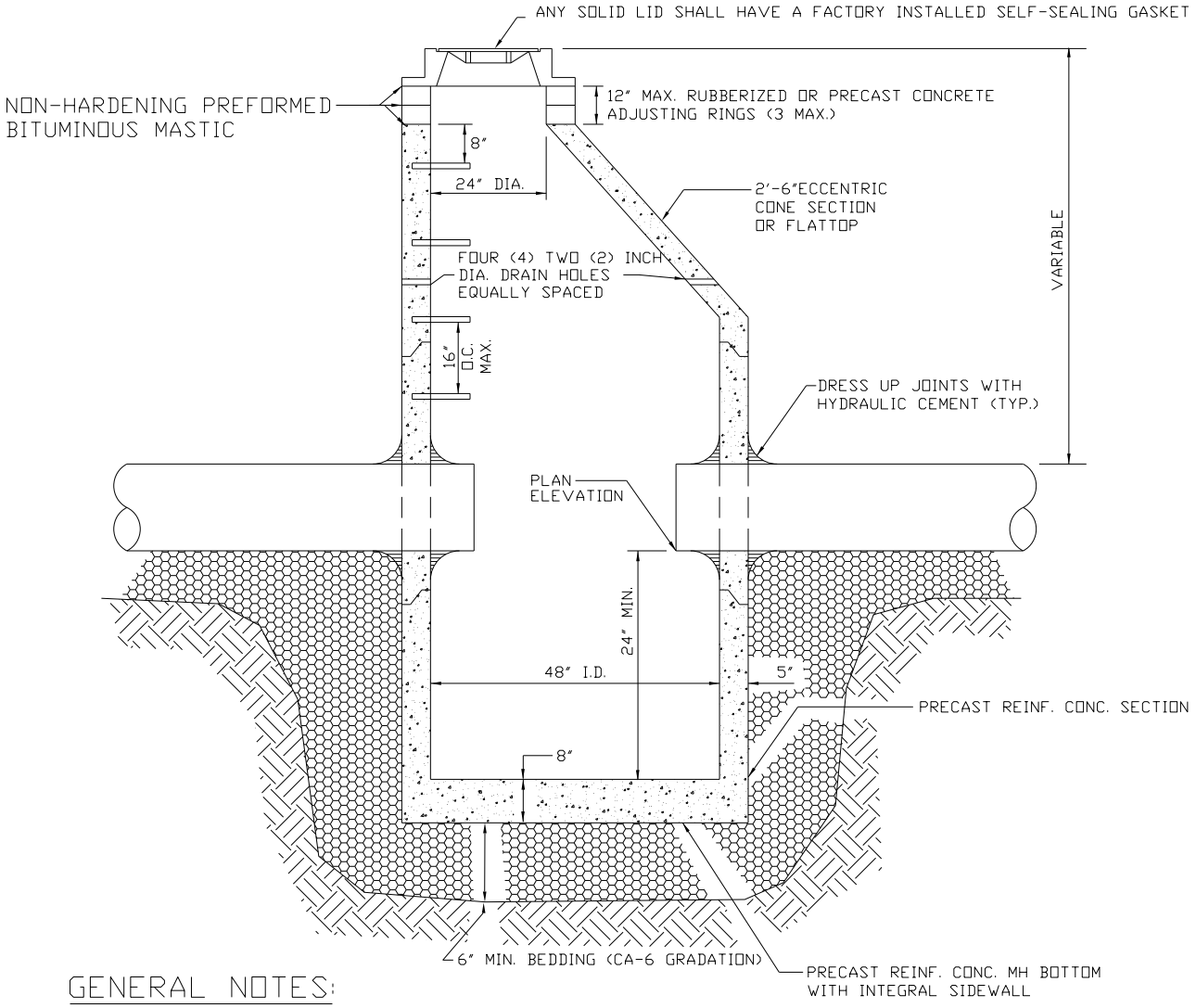
REV.:	REV.:	MANHOLE TYPE A	CITY OF WOOD DALE
REV.:	REV.:		STORM 1
DRAWN BY:	DATE: 4-3-18		



GENERAL NOTES:

1. PROVIDE PRECAST REINFORCED CONCRETE BARREL AND RISER SECTION. CONCRETE BLOCK CONSTRUCTION IS NOT PERMITED.
2. PROVIDE GRANULAR BACKFILL AROUND INLET TO SUBGRADE ELEVATION IN PAVED AREAS. MATERIAL SHALL MEET THE REQUIREMENTS OF IDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" FOR COARSE AGGREGATE (CA-6 GRADATION.)
3. WHEN THE FRAME DOES NO MEET PROPOSED ELEVATION, A MINIMUM OF TWO TAPERED RUBBERIZED ADJUSTING RINGS SHALL BE USED FOR FINAL ADJUSTMENT. ONE CONCRETE RING NOT LESS THAN TWO INCHES THICK MAY ALSO BE USED. A MAXIMUM OF THREE ADJUSTING RINGS MAY BE USED TO A MAXIMUM HEIGHT OF 12 INCHES. THE RING(S) AND FRAME SHALL BE SET IN A BED OF PREFORMED NON-HARDENING MASTIC (RUB-R-NEK, EZ STICK OR APPROVED EQUAL).
4. PRECAST ADJUSTING RINGS SHALL BE REINFORCED WITH NO. 3 GAUGE WIRE OR EQUIVALENT AND SHALL HAVE A MINIMUM THICKNESS OF TWO INCHES.
5. MORTAR SHALL NOT BE USED TO DRESS UP ADJUSTING RINGS AND/OR FRAME.
6. IN PAVED AREAS, DRAIN HOLES/WEEP HOLES SHALL BE COVERED WITH FILTER FABRIC. FILTER FABRIC SHALL BE SECURED TO THE OUTSIDE OF STRUCTURE PRIOR TO BACKFILL.
7. IN GRASSED AREAS, DRAIN HOLES/WEEP HOLES SHALL BE PLUGGED WITH HYDRAULIC CEMENT.
8. IF AN IDOT TYPE 8 GRATE CASTING IS CALLED OUT, NO MASTIC SHALL BE ALLOWED BETWEEN THE FRAME AND THE TOP RING OR STRUCTURE. A MINIMUM OF ONE RUBBER RING 1 /4" THICKNESS SHALL BE PLACED BETWEEN THE FRAME AND THE TOP RING OR STRUCTURE (EAST JORDAN INFRA-RISER c 24.0 / 36.0 F 0.25 OR APPROVED EQUAL). ALL EXCESS MATERIAL EXTENDING BEYOND THE EDGE OF THE GRATE SHALL BE TRIMMED FLUSH.

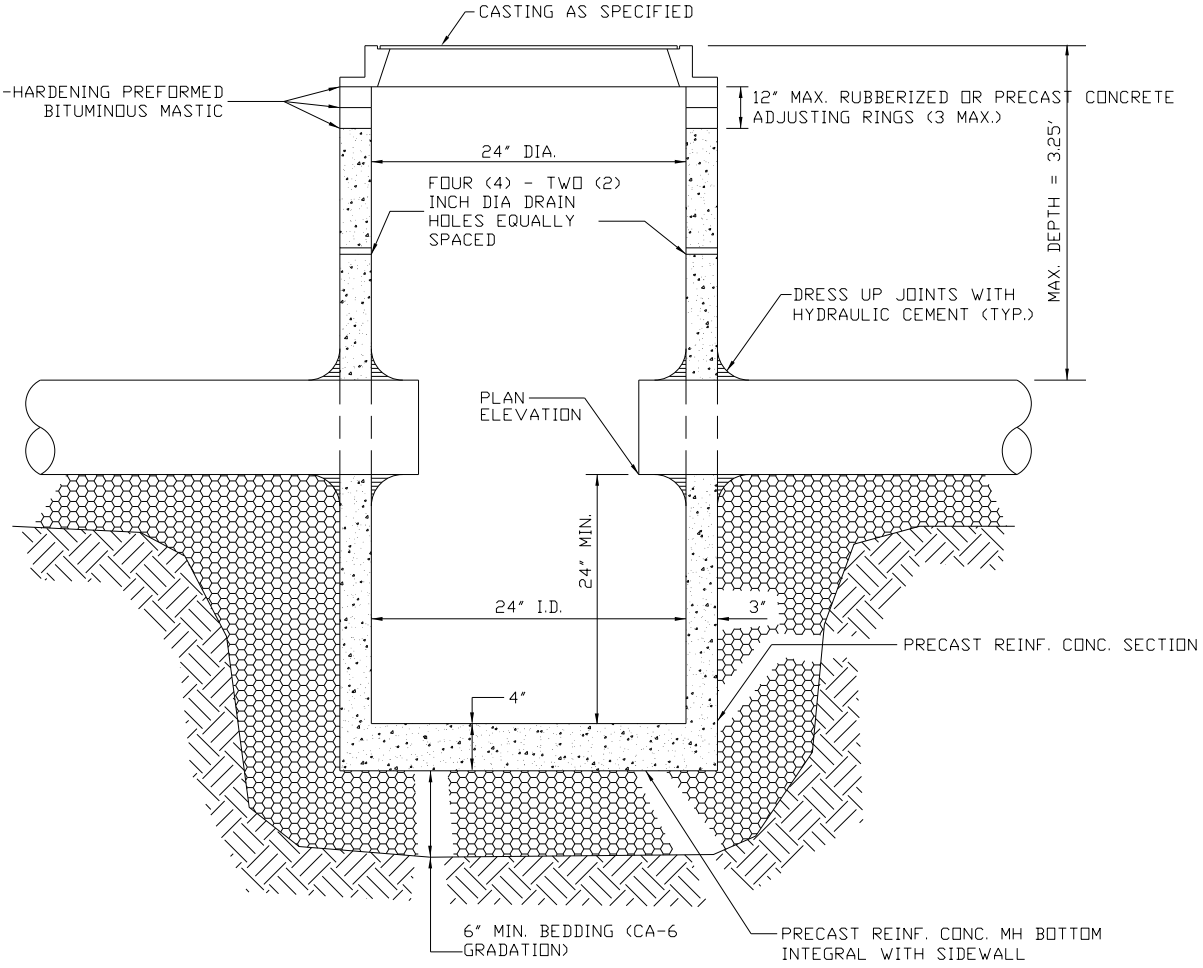
REV.:	REV.:	INLET TYPE A	CITY OF WOOD DALE
REV.:	REV.:		STORM 2
DRAWN BY:	DATE: 4-3-18		



GENERAL NOTES:

1. PROVIDE PRECAST REINFORCED CONCRETE BARREL AND RISER SECTIONS. CONCRETE BLOCK CONSTRUCTION IS NOT PERMITTED.
2. PROVIDE GRANULAR BACKFILL AROUND CATCHBASIN TO SUBGRADE ELEVATION IN PAVED AREAS. MATERIAL SHALL MEET THE REQUIREMENTS OF IDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" FOR COARSE AGGREGATE (CA-6 GRADATION).
3. APPLY A CONTINUOUS LAYER OF NON-HARDENING PREFORMED BITUMINOUS MASTIC MATERIAL (RUB-R-NEK OR E Z STICK) TO EACH JOINT BELOW THE BOTTOM OF CONE OR FLATTOP TO PREVENT INFLOW.
4. WHEN THE FRAME DOES NOT MEET PROPOSED ELEVATION, A MINIMUM OF TWO TAPERED RUBBERIZED ADJUSTING RINGS SHALL BE USED FOR FINAL ADJUSTMENT. ONE CONCRETE RING NOT LESS THAN TWO INCHES THICK MAY ALSO BE USED. A MAXIMUM OF THREE ADJUSTING RINGS MAY BE USED TO A MAXIMUM HEIGHT OF 12 INCHES. EACH RING AND THE FRAME SHALL BE SET ON A BED OF NON-PREFORMED MASTIC.
5. PRECAST ADJUSTING RINGS SHALL BE REINFORCED WITH NO. 3 GAUGE WIRE OR EQUIVALENT AND SHALL HAVE A MINIMUM THICKNESS OF TWO INCHES.
6. WITHIN NON-PAVED AREAS, MORTAR SHALL ONLY BE USED TO DRESS UP ADJUSTING RINGS AND/OR FRAMES ON THE EXTERIOR OF THE STRUCTURE. MORTAR IS NOT PERMITTED ON THE INSIDE OF THE RINGS AND/OR FRAME.
7. ONLY PLASTIC POLYMER STEPS SHALL BE USED.
8. WHEN CATCHBASIN DEPTH IS OVER 12 FEET, THE THICKNESS OF THE PRECAST, REINFORCED CONCRETE BASE SHALL BE A MINIMUM OF 10 INCHES. WHEN CATCHBASIN DEPTH IS LESS THAN 12 FEET, THE THICKNESS SHALL BE A MINIMUM OF 8 INCHES.
9. DRESS UP INTERIOR JOINTS OF PRECAST CATCHBASIN AND OPENINGS AROUND THE PIPES WITH HYDRAULIC CEMENT.
10. IN PAVED AREAS, DRAIN HOLES/WEEP HOLES SHALL BE COVERED WITH FILTER FABRIC. FILTER FABRIC SHALL BE SECURED TO THE OUTSIDE OF STRUCTURE PRIOR TO BACKFILL.
11. IN GRASSED AREAS, DRAIN HOLES/WEEP HOLES SHALL BE PLUGGED WITH HYDRAULIC CEMENT.

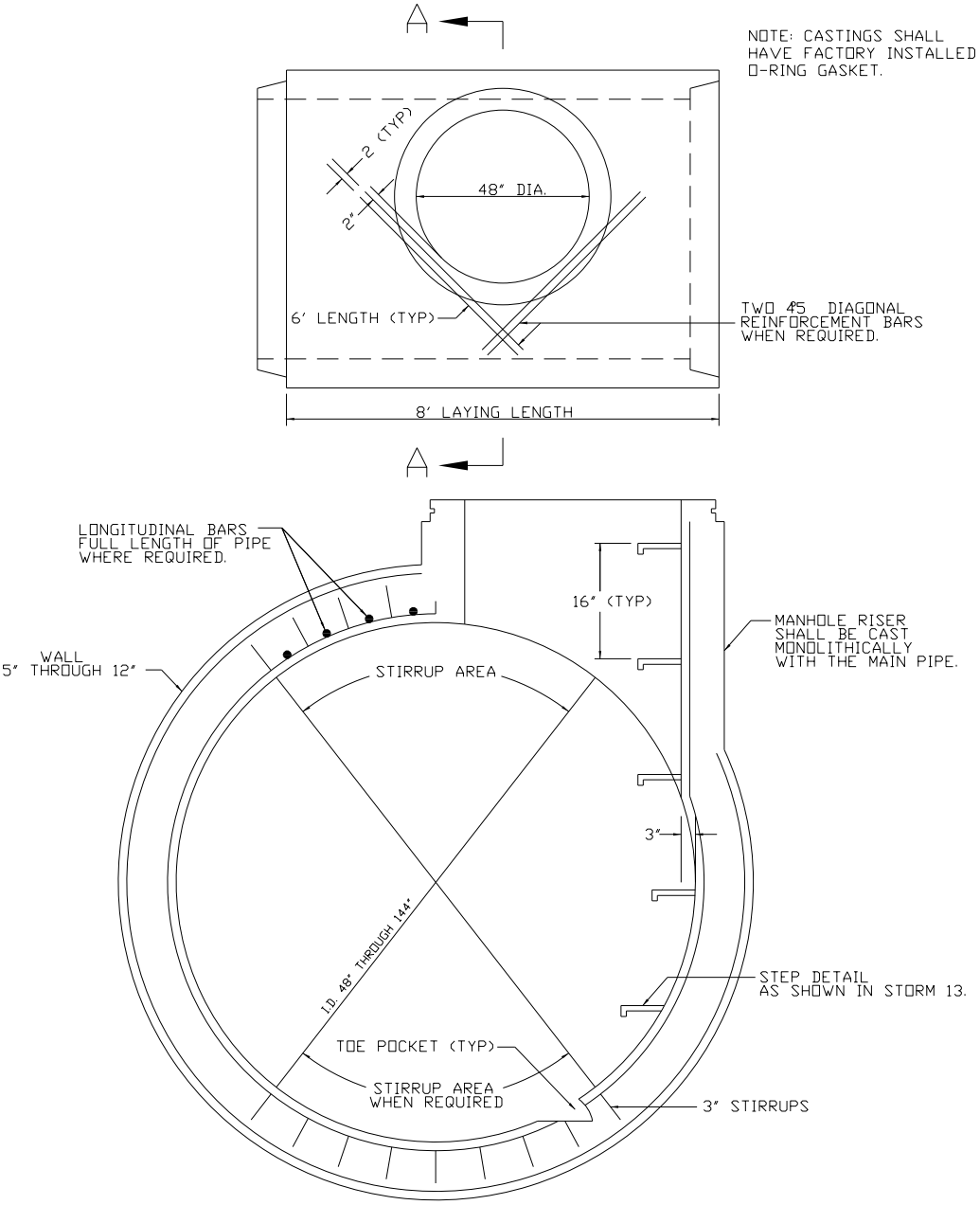
REV.:	REV.:	CATCH BASIN TYPE A	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		STORM 3



GENERAL NOTES:

1. PROVIDE PRECAST REINFORCED CONCRETE BARREL AND RISER SECTION. CONCRETE BLOCK CONSTRUCTION IS NOT PERMITED.
2. PROVIDE GRANULAR BACKFILL AROUND CATCH BASIN TO SUBGRADE ELEVATION IN PAVED AREAS. MATERIAL SHALL MEET THE REQUIREMENTS OF IDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" FOR COARSE AGGREGATE (CA-6 GRADATION.)
3. WHEN THE FRAME DOES NOT MEET PROPOSED ELEVATION, A MINIMUM OF TWO TAPERED RUBBERIZED ADJUSTING RINGS SHALL BE USED FOR FINAL ADJUSTMENT. ONE CONCRETE RING NOT LESS THAN TWO INCHES THICK MAY ALSO BE USED. A MAXIMUM OF THREE ADJUSTING RINGS MAY BE USED TO A MAXIMUM HEIGHT OF 12 INCHES. EACH RING AND THE FRAME SHALL BE SET ON A BED OF NON-PREFORMED MASTIC.
4. PRECAST ADJUSTING RINGS SHALL BE REINFORCED WITH NO. 3 GAUGE WIRE OR EQUIVALENT AND SHALL HAVE A MINIMUM THICKNESS OF TWO INCHES.
5. MORTAR IS NOT PERMITTED ON THE INSIDE OF THE RINGS AND/OR FRAME.
6. WITHIN NON-PAVED AREAS, MORTAR SHALL ONLY BE USED TO DRESS UP ADJUSTING RINGS AND/OR FRAME ON THE EXTERIOR OF THE STRUCTURE. MORTAR IS NOT PERMITTED ON THE INSIDE OF THE RINGS AND/OR FRAME.
7. DRESS UP INTERIOR JOINTS WITH HYDRAULIC CEMENT.
8. IN PAVED AREAS, DRAIN HOLES/WEEP HOLES SHALL BE COVERED WITH FILTER FABRIC. FILTER FABRIC SHALL BE SECURED TO THE OUTSIDE OF STRUCTURE PRIOR TO BACKFILL.
9. IN GRASSED AREAS, DRAIN HOLES/WEEP HOLES SHALL BE PLUGGED WITH HYDRAULIC CEMENT.

REV.:	REV.:	CATCH BASIN TYPE C	CITY OF WOOD DALE
REV.:	REV.:		STORM 4
DRAWN BY:	DATE: 4-3-18		

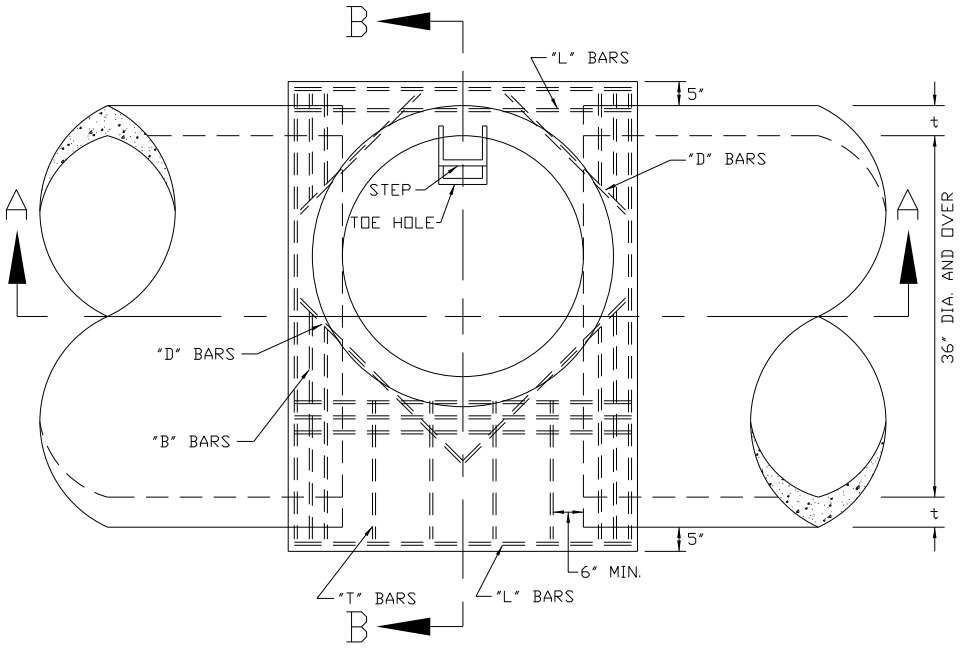


SECTION A - A

GENERAL NOTES:

1. PROVIDE GRANULAR BACKFILL AROUND MANHOLE TO SUBGRADE ELEVATION IN PAVED AREAS. MATERIAL SHALL MEET THE REQUIREMENTS OF THE IDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" FOR COARSE AGGREGATE (CA-6 GRADATION.)
2. APPLY A CONTINUOUS LAYER OF NON-HARDENING, PREFORMED BITUMINOUS MASTIC MATERIAL (RUB-R-NEK OR EZ STICK) TO EACH JOINT BELOW THE BOTTOM OF CONE OR FLATTOP TO PREVENT INFLOW.
3. WHEN THE FRAME DOES NOT MEET PROPOSED ELEVATION, A MINIMUM OF TWO TAPERED RUBBERIZED ADJUSTING RINGS SHALL BE USED FOR FINAL ADJUSTMENT. ONE CONCRETE RING NOT LESS THAT TWO INCHES THICK MAY ALSO BE USED. A MAXIMUM OF THREE ADJUSTING RINGS MAY BE USED TO A MAXIMUM HEIGHT OF 12 INCHES. THE RING(S) AND FRAME SHALL BE SET IN A BED OF NON-HARDENING BUCKET MASTIC.
4. PRECAST CONCRETE ADJUSTING RINGS SHALL BE REINFORCED WITH NO. 3 GAUGE WIRE OR EQUIVALENT AND SHALL HAVE A MINIMUM THICKNESS OF TWO INCHES.
5. MORTAR SHALL NOT BE USED TO DRESS UP ADJUSTING RINGS AND/OR FRAME.
6. ONLY PLASTIC POLYMER STEPS SHALL BE USED.
7. DRESS UP INTERIOR JOINTS OF PRECAST MANHOLE WITH HYDRAULIC CEMENT.
8. BEDDING BENEATH THE MANHOLE SHALL BE A MINIMUM OF SIX INCHES THICK AND SHALL MEET THE REQUIREMENTS FOR GRANULAR BACKFILL (CA-6 GRADATION).
9. WHEN A PRECAST TEE MANHOLE IS SPECIFIED, A SHOP DRAWING FOR THE STRUCTURE SHALL BE SUBMITTED TO THE DIRECTOR OF PUBLIC WORKS FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION OF THE STRUCTURE. THE SHOP DRAWING SHALL BE PREPARED, SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF ILLINOIS. PRIOR TO SUBMITTAL TO THE CITY, THE DESIGN ENGINEER SHALL REVIEW AND APPROVE THE SHOP DRAWING. APPROVAL BY THE DESIGN ENGINEER SHALL BE CLEARLY NOTED ON THE SHOP DRAWING.
10. CHIMNEY SEALS SHALL BE REQUIRED UNLESS THE MANHOLE IS ADJUSTED TO FINAL GRADE IN ACCORDANCE WITH DETAIL STORM 7 - CASTING ADJUSTMENTS FOR STRUCTURES IN PAVED AREAS.

REV.:	REV.:	PRECAST TEE MANHOLE	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		STORM 5



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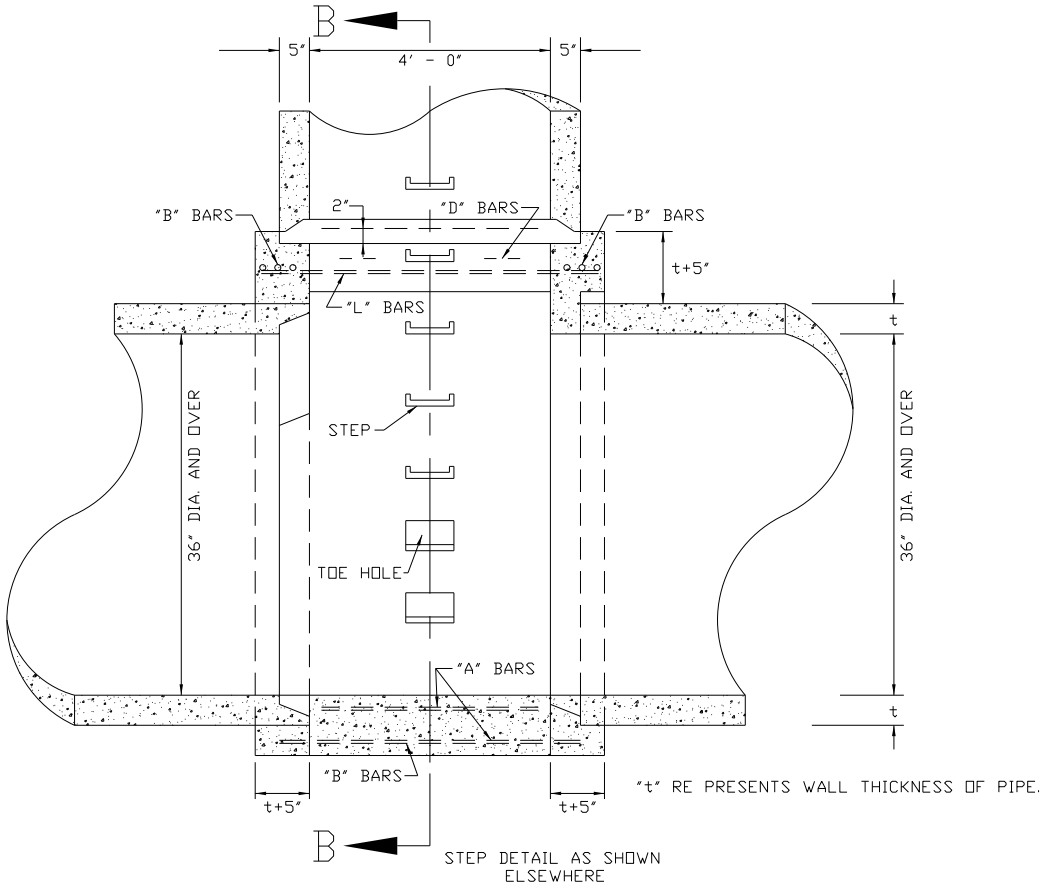
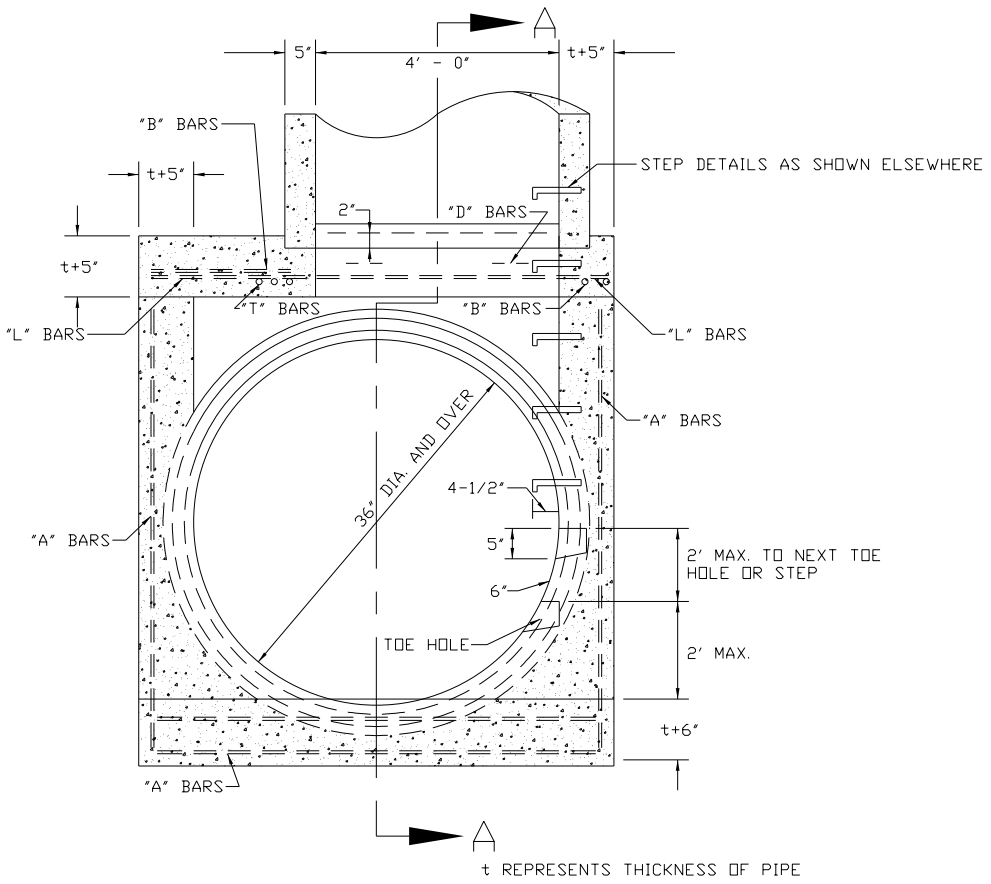


SECTION A-A

REV.:		CONNECTION BOX FOR PRECAST MANHOLE	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		STORM 6A



SECTION B-B

GENERAL NOTES:

1. CONCRETE FOR THE MANHOLE BASE AND CONNECTION BOX SHALL BE CLASS "SI OR PC".
2. REINFORCEMENT STEEL SHALL CONFORM TO STANDARD SPECIFICATIONS ASTM-3670 FOR STRUCTURAL STEEL. BENDS, HOOKS, AND SPLICES SHALL BE IN ACCORDANCE WITH ACI STANDARD 318.
3. PRECAST RISER RING AND CONE SHALL HAVE A MINIMUM CIRCULAR REINFORCEMENT OF 0.18 SQ. IN. PER FOOT.
4. CONNECTION BOXES FOR SEWERS 36" AND OVER IN DIAMETER SHALL HAVE AT LEAST THE MINIMUM SHOWN AND AS SPECIFIED BELOW:
   "A" BARS AT 12" C/C IN BOTH DIRECTIONS
   "B" BARS AT 3" C/C IN BOTH DIRECTIONS
   "A", "B", AND "L" BAR SIZES:
   - 5/8" DIA. FOR 36" TO 60" SEWERS
   - 3/4" DIA. FOR 66" TO 78" SEWERS
   - 7/8" DIA. FOR 84" TO 96" SEWERS

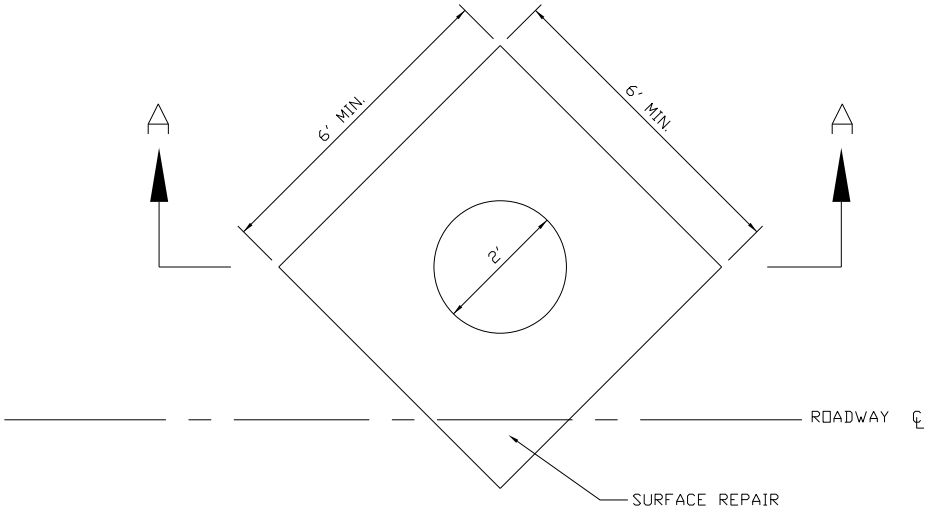
   "T" BARS: 5/8" DIA. AND AT 12" C/C
   "D" BARS: 5/8" DIA.
5. REINFORCING BARS SHALL HAVE A MINIMUM COVER OF 2" FROM THE EDGE OF THE STRUCTURE.
6. PRECAST CONCRETE ADJUSTING RINGS SHALL BE REINFORCED WITH NO. 3 GUAGE WIRE OR EQUIVALENT AND SHALL HAVE A MINIMUM THICKNESS OF TWO INCHES.

REV.:		CONNECTION BOX FOR PRECAST MANHOLE (CONTINUED)	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		STORM 6B

GENERAL NOTES CONT:

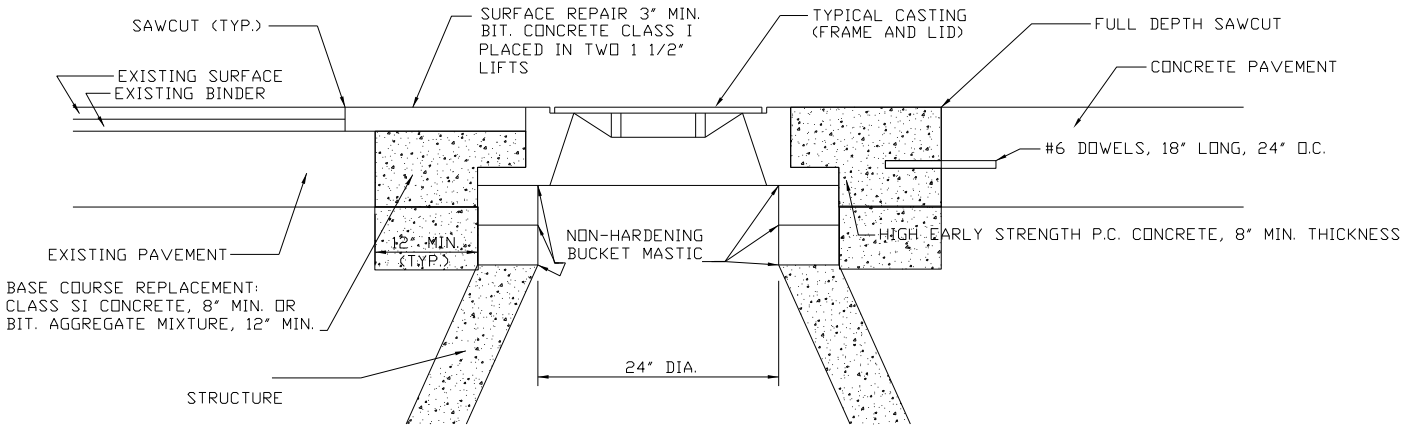
7. WHEN A CONNECTION BOX FOR PRECAST MANHOLE IS SPECIFIED, A SHOP DRAWING SHALL BE SUBMITTED TO THE PUBLIC WORKS DIRECTOR FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION OF THE STRUCTURE. THE SHOP DRAWING SHALL BE PREPARED, SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF ILLINOIS. THE DESIGN ENGINEER SHALL REVIEW AND APPROVE THE SHOP DRAWING PRIOR TO SUBMITTAL TO THE CITY (APPROVAL BY THE DESIGN ENGINEER SHALL BE CLEARLY NOTED ON THE SHOP DRAWING).
8. BEDDING BENEATH THE MANHOLE SHALL BE A MINIMUM OF SIX INCHES THICK AND SHALL MEET THE REQUIREMENTS FOR GRANULAR BACKFILL (CA-6 GRADATION).
9. PROVIDE GRANULAR BACKFILL AROUND MANHOLE TO SUBGRADE ELEVATION IN PAVED AREAS. MATERIAL SHALL MEET THE REQUIREMENTS OF THE IDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" FOR COARSE AGGREGATE (CA-6 GRADATION).
10. APPLY A CONTINUOUS LAYER OF PREFORMED, NON-HARDENING BITUMINOUS MASTIC MATERIAL (RUB-R-NEK, EZ STICK OR APPROVED EQUAL) TO EACH JOINT TO PREVENT INFLOW.
11. WHEN THE FRAME DOES NOT MEET PROPOSED ELEVATION, A MINIMUM OF TWO TAPERED RUBBERIZED ADJUSTING RINGS SHALL BE USED FOR FINAL ADJUSTMENTS. ONE CONCRETE RING NOT LESS THAN TWO INCHES THICK MAY ALSO BE USED. A MAXIMUM OF THREE ADJUSTING RINGS MAY BE USED TO A MAXIMUM HEIGHT OF 12 INCHES. THE RING(S) AND FRAME SHALL BE SET ON A BED OF NON-HARDENING BUCKET MASTIC.
12. DRESS UP INTERIOR JOINTS OF PRECAST MANHOLE WITH HYDRAULIC CEMENT. HOWEVER, ADJUSTING RINGS AND FRAME SHALL NOT BE DRESSED UP.

REV.:	REV.:	CONNECTION BOX FOR PRECAST MANHOLE (CONTINUED)	CITY OF WOOD DALE
REV.:	REV.:		STORM 6C
DRAWN BY:	DATE: 4-3-18		



PLAN

ADJUSTMENTS IN BITUMINOUS PAVEMENT | ADJUSTMENTS IN CONCRETE PAVEMENT

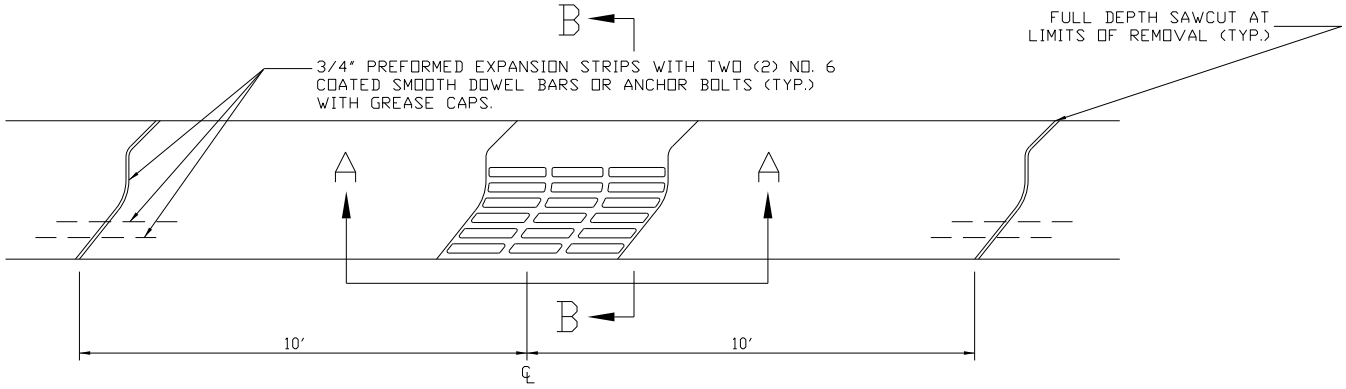


SECTION A-A

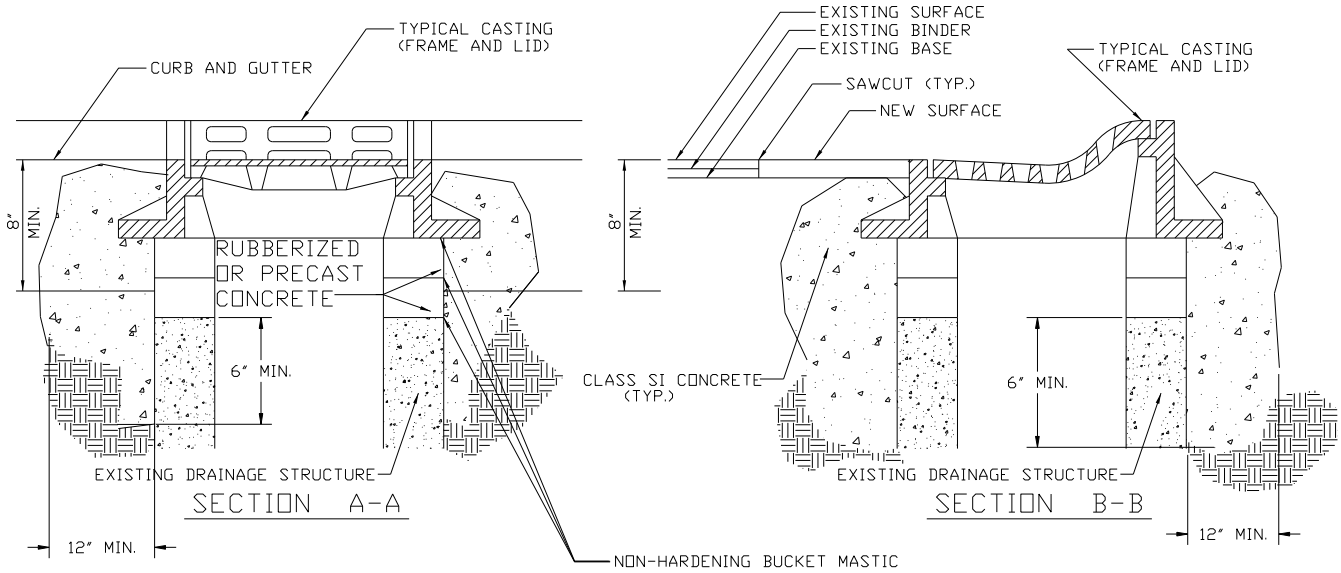
GENERAL NOTES:

1. PROVIDE SELECT GRANULAR BACKFILL, CA-6 GRADATION AROUND MANHOLE TO SUBGRADE ELEVATION.
2. WHEN THE FRAME DOES NOT MEET PROPOSED ELEVATION, A MINIMUM OF TWO TAPERED RUBBERIZED ADJUSTING RINGS SHALL BE USED FOR FINAL ADJUSTMENT. ONE CONCRETE RING NOT LESS THAN TWO INCHES THICK MAY ALSO BE USED. A MAXIMUM OF THREE ADJUSTING RINGS MAY BE USED TO A MAXIMUM HEIGHT OF 12 INCHES. THE RING(S) AND FRAME SHALL BE SET ON A BED OF NON-HARDENING BUCKET MASTIC.
3. PRECAST ADJUSTING RINGS SHALL BE REINFORCED WITH NO. 3 GAUGE WIRE OR EQUIVALENT AND SHALL HAVE A MINIMUM THICHNESS OF TWO (2) INCHES.
4. WHEN ADJUSTMENTS ARE LOCATED IN TRAVEL LANES, THEY SHALL BE PROTECTED BY A BARRICADE WITH TWO (2) FLASHING LIGHTS, TWO (2) BARRICADES EACH WITH A SINGLE FLASHING LIGHT OR COVERED BY A ONE (1) INCH STEEL PLATE PROVIDED AND MAINTAINED BY THE CONTRACTOR UNTIL THE SURFACE RESTORATION IS COMPLETE.
5. WHEN ADJUSTMENTS TEMPORARILY RAISE A CASTING ABOVE THE ELEVATION OF THE PAVEMENT SURFACE, IN AREAS SUBJECTED TO VEHICULAR TRAFFIC, A BITUMINOUS RAMP SHALL BE TRANSITIONED A DISTANCE OF ONE (1) FOOT HORIZONTAL FOR EACH INCH OF VERTICLE DISTANCE ABOVE THE EXISTING PAVEMENT. SUCH RAMPS SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL THE COMPLETION OF THE SURFACE RESTORATION.
6. FOR BOTH CONCRETE AND ASPHALT ROADS, THE BASE COURSE REPLACEMENT (CONCRETE COLLAR) SHALL BE EXTENDED DOWN TO THE TOP OF THE CONE SECTION.

REV.:	REV.:	CASTING ADJUSTMENTS FOR STRUCTURES IN PAVED AREAS	CITY OF WOOD DALE
REV.:	REV.:		STORM 7
DRAWN BY:	DATE: 4-3-18		



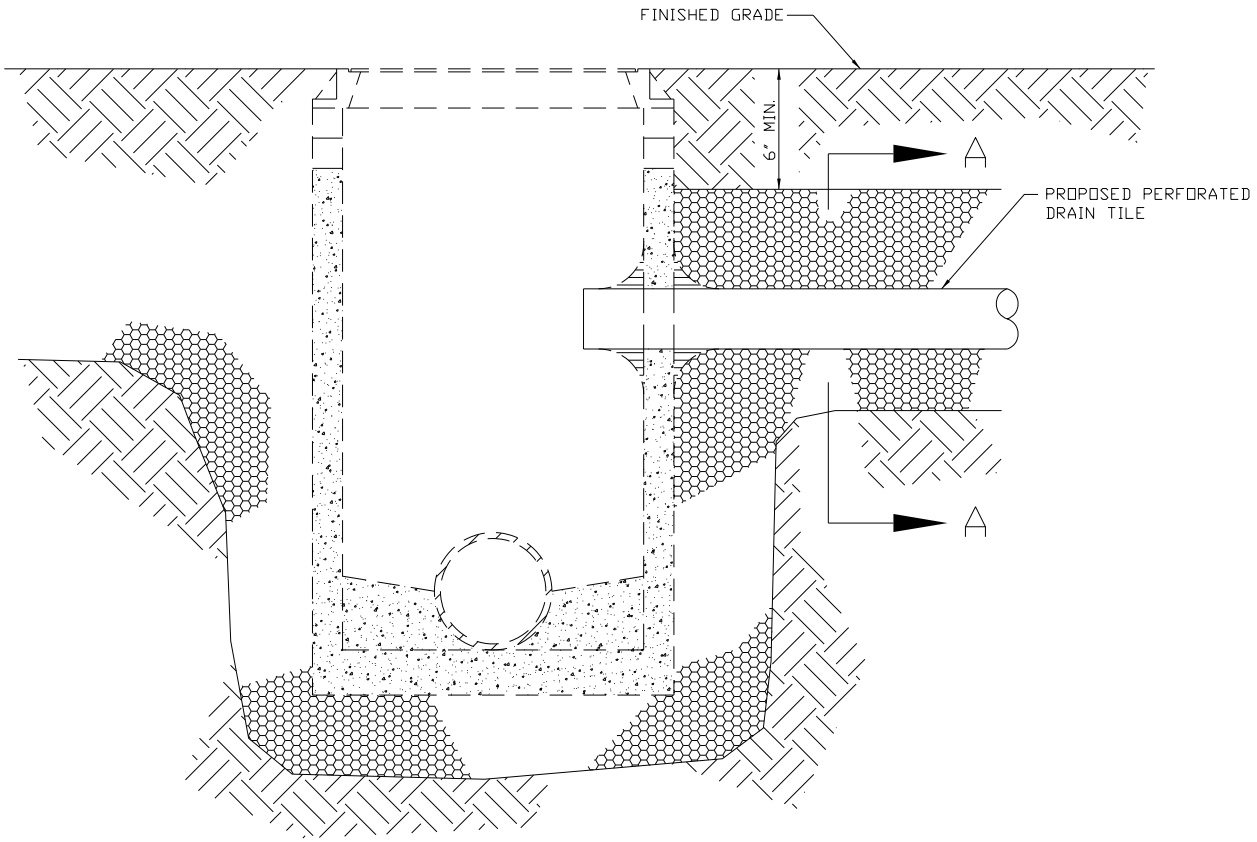
REMOVE AND REPLACE CURB A MINIMUM OF 10' EITHER SIDE OF STRUCTURE OR TO THE NEAREST EXPANSION JOINT (WHICHEVER IS CLOSEST)

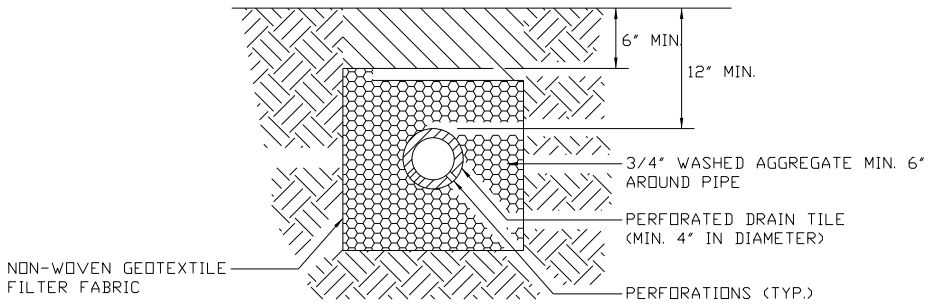


GENERAL NOTES:

1. WHEN THE FRAME DOES NOT MEET PROPOSED ELEVATION, A MINIMUM OF TWO TAPERED RUBBERIZED ADJUSTING RINGS SHALL BE USED FOR FINAL ADJUSTMENT. ONE CONCRETE RING NOT LESS THAN TWO INCHES THICK MAY ALSO BE USED. A MAXIMUM OF THREE ADJUSTING RINGS MAY BE USED TO A MAXIMUM HEIGHT OF 12 INCHES. THE RING(S) AND FRAME SHALL BE SET ON A BED OF NON-HARDENING BUCKET MASTIC.
2. PRECAST ADJUSTING RINGS SHALL BE REINFORCED WITH NO. 3 GAUGE WIRE OR EQUIVALENT AND SHALL HAVE A MINIMUM THICKNESS OF TWO (2) INCHES.
3. MORTAR SHALL NOT BE USED TO DRESS UP ADJUSTING RINGS.
4. ALL REMOVABLE CASTINGS SHALL BE ORIENTED SO THE OPENING IN THE GRATE PROVIDES THE MAXIMUM HYDRAULIC EFFICIENCY.

REV.:	REV.:	CASTING ADJUSTMENTS FOR STRUCTURES IN THE CURB LINE	CITY OF WOOD DALE
REV.:	REV.:		STORM 8
DRAWN BY:	DATE: 4-3-18		



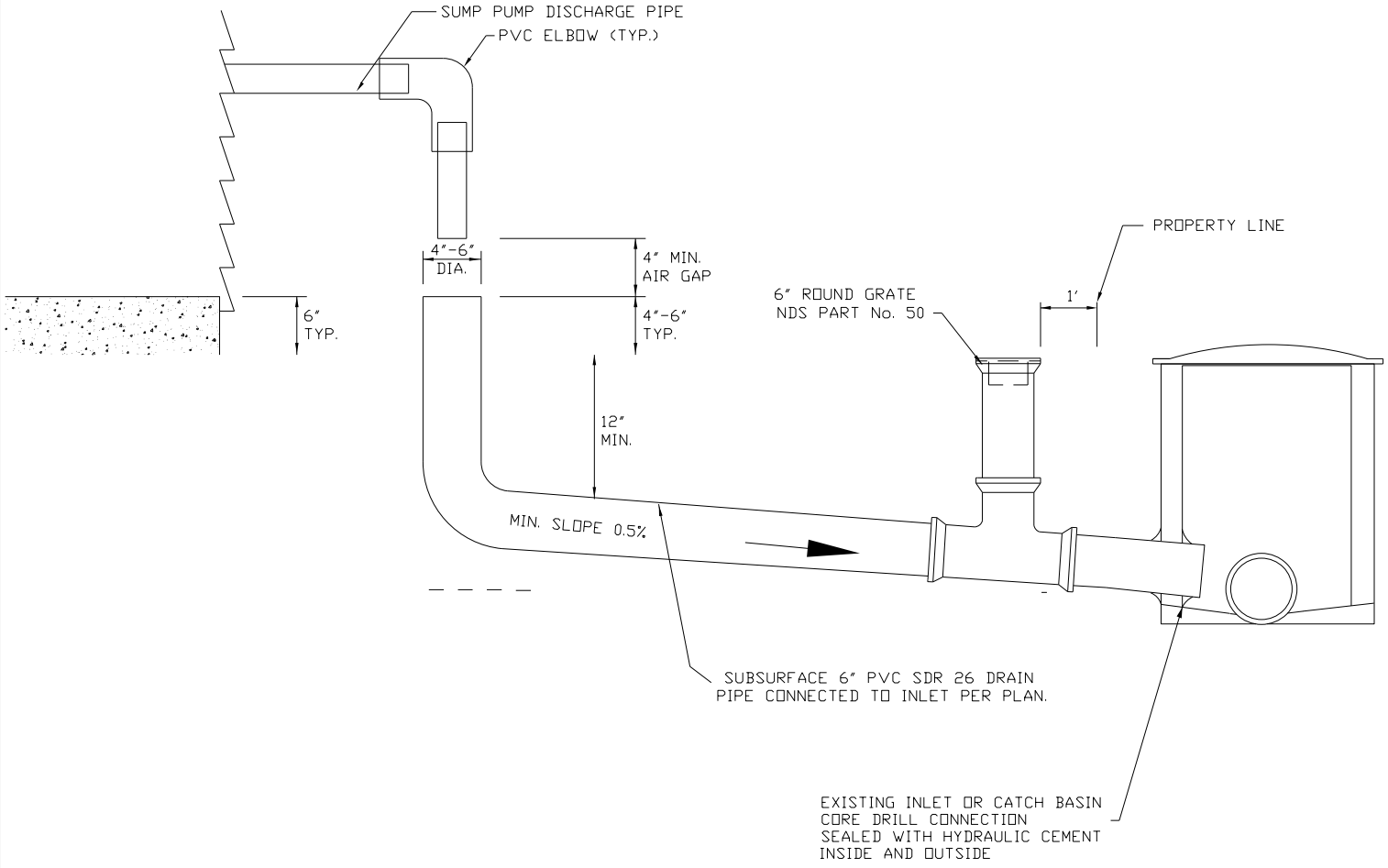


SECTION A-A

GENERAL NOTES:

1. BOTH THE TRENCH AND DRAIN TILE SHALL BE WRAPPED WITH NON-WOVEN GEOTEXTILE FILTER FABRIC.
2. WASHED AGGREGATE SHALL BE PLACED AROUND THE DRAIN TILE.
3. HOLE SHALL BE CORED DRILLED INTO STRUCTURE.
4. HYDRAULIC CEMENT SHALL BE PLACED AROUND THE PIPE TO SEAL THE OPENING, BOTH INSIDE AND OUTSIDE THE STRUCTURE.

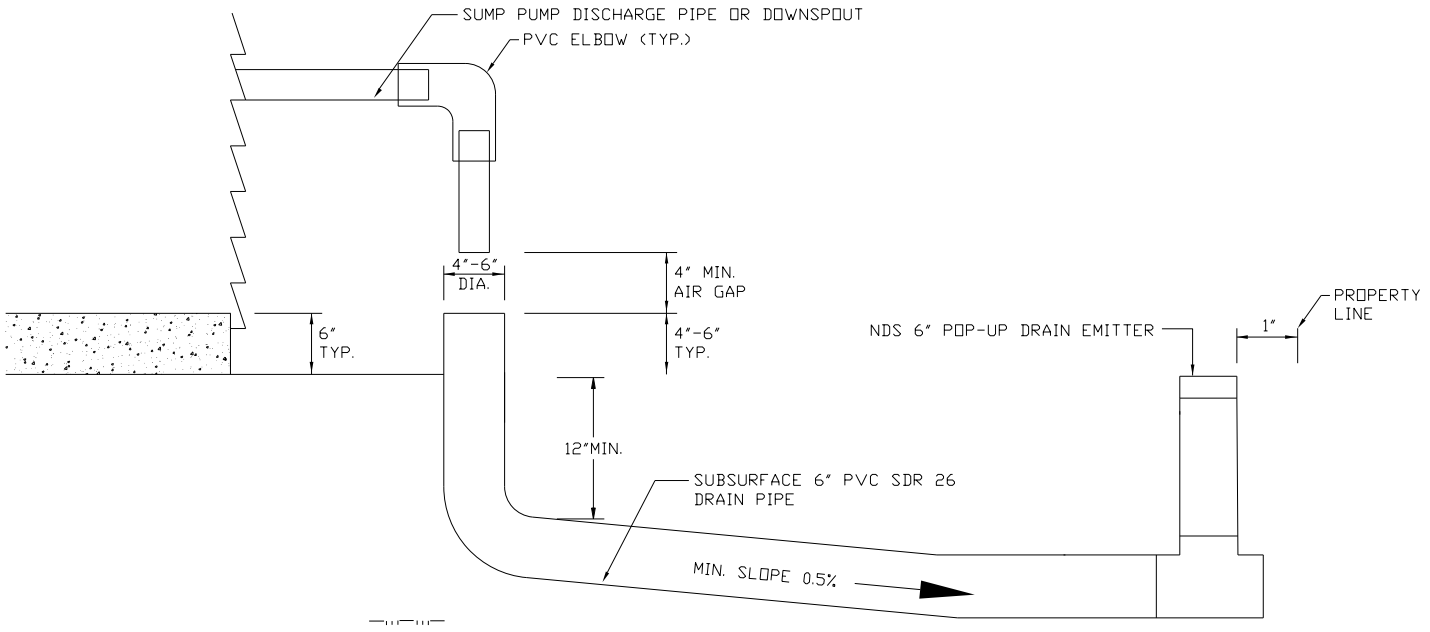
REV.:		SUBSURFACE DRAIN TILE CONNECTION	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		STORM 9

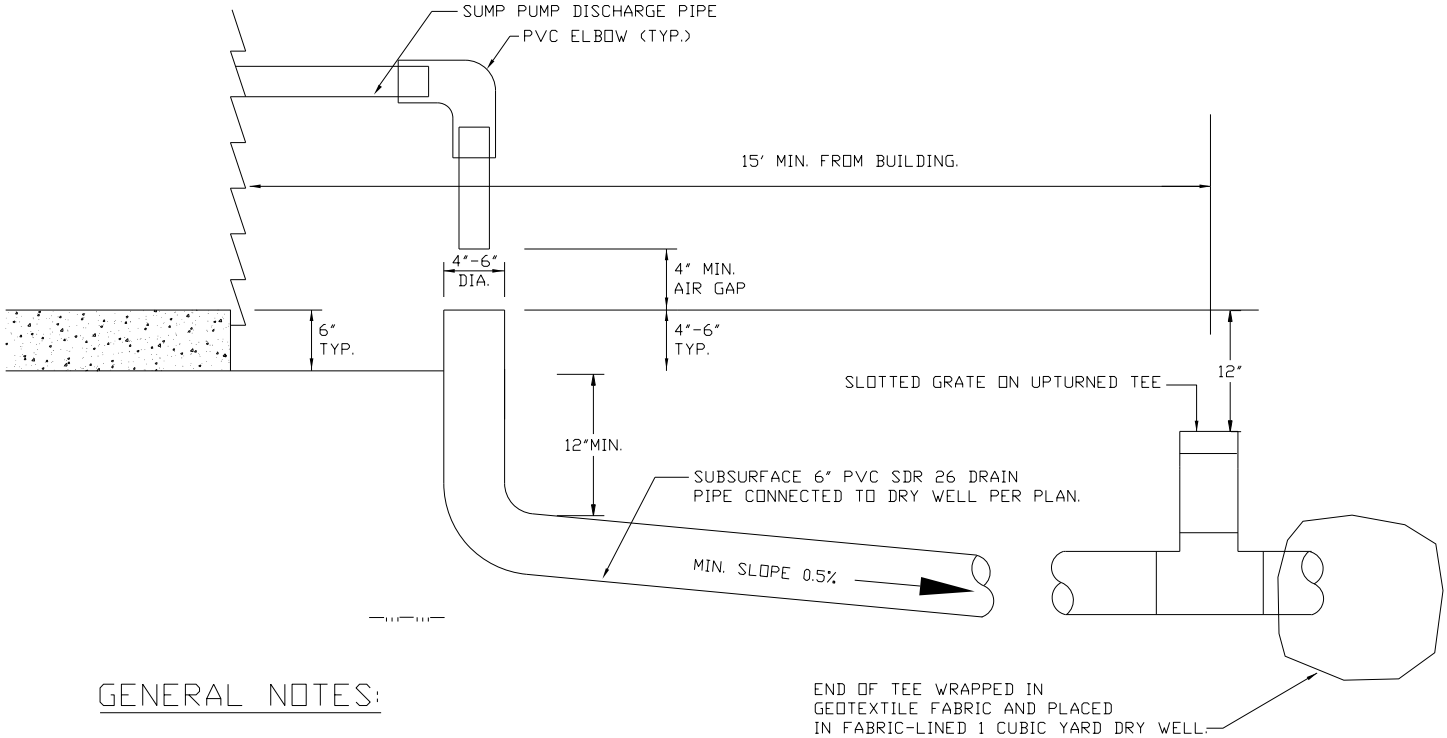


GENERAL NOTES:

1. SUMP PUMP CONNECTIONS THAT DIRECTLY CONNECT INTO THE SEPARATED STORM SEWER SYSTEM ARE ONLY PERMITTED IF APPROVED BY THE DIRECTOR OF PUBLIC WORKS OR COMMUNITY DEVELOPMENT.
2. INSTALLATION OF SUMP PUMP CONNECTION MUST BE INSPECTED BY THE CITY OF WOOD DALE.
3. INSTALLER ASSUMES FULL RESPONSIBILITY AND LIABILITY FOR ANY AND ALL DAMAGE TO UTILITIES OR ADJOINING PROPERTIES.
4. REFER TO STORM 10A FOR STANDARD SUBSURFACE DRAIN TILE SUMP PUMP CONNECTION.
5. EXISTING SIDEWALK SHALL BE REMOVED AND REPLACED.
6. SEE STORM 11 FOR TRENCH SECTION

REV.:	REV.:	DIRECT SUBSURFACE DRAIN TILE SUMP PUMP CONNECTION	CITY OF WOOD DALE
REV.:	REV.:		STORM 10
DRAWN BY:	DATE: 4-3-18		

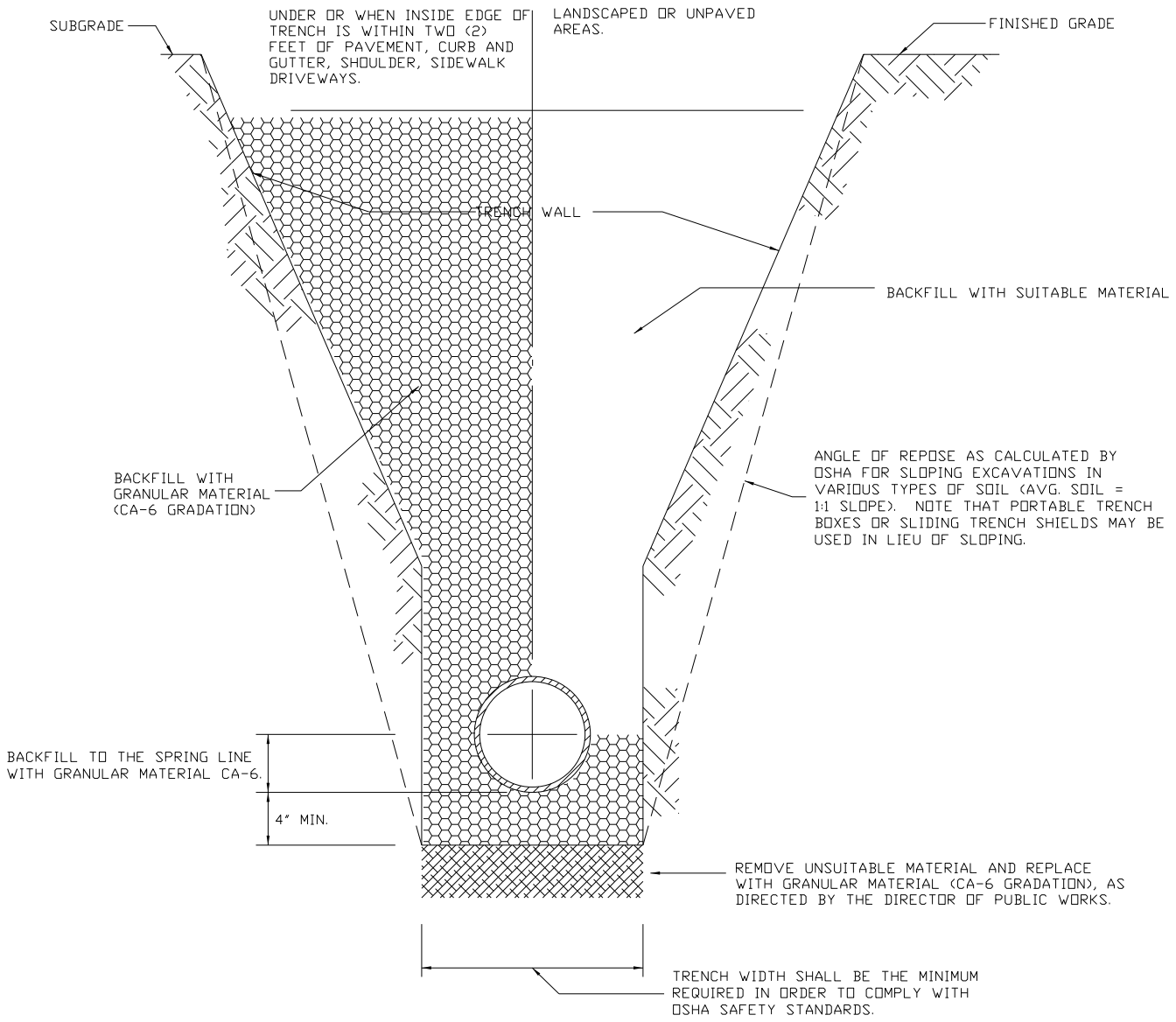




GENERAL NOTES:

1. FOR RESIDENTIAL DEVELOPMENTS WITH AN ON-SITE STORM WATER CONTROL FACILITY, THE SUMP PUMP SHALL BE CONNECTED INTO THE STORM SEWER SYSTEM NOT LOCATED WITHIN THE PUBLIC RIGHT-OF-WAY.
2. ALL OTHER SUMP PUMP CONNECTIONS ARE TO SPLASH TO GRADE UNLESS WRITTEN APPROVAL IS GIVEN BY THE DIRECTOR OF PUBLIC WORKS.
3. SUMP PUMP DISCHARGE SHALL BE DIRECTED AWAY FROM ADJACENT PROPERTIES.
4. INSTALLER ASSUMES FULL RESPONSIBILITY AND LIABILITY FOR ANY AND ALL DAMAGE TO UTILITIES OR ADJOINING PROPERTIES.
5. INSTALLATION OF SUMP PUMP DRAIN TILES MUST BE INSPECTED BY THE CITY OF WOOD DALE.
6. SLOTTED GRATE ON UPTURNED TEE SHALL BE 12" BELOW ENTRANCE POINT.
7. SEE STORM 11 FOR TRENCH SECTION.

REV.:	REV.:	SUBSURFACE DRAIN TILE SUMP PUMP CONNECTION	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		STORM 10A



GENERAL NOTES:

1. CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN A SAFE MANNER AT ALL TIMES AND SHALL COMPLY WITH ALL APPLICABLE GOVERNING REGULATIONS, INCLUDING BUT NOT LIMITED TO OSHA SAFETY STANDARDS.
2. ALL BACKFILL MATERIAL UP TO A HEIGHT OF 12 INCHES ABOVE THE PIPE SHALL BE CAREFULLY DEPOSITED IN UNIFORM LAYERS NOT EXCEEDING 8 INCHES THICK (LOOSE MEASURE). THE MATERIAL IN EACH LAYER SHALL BE FIRMLY COMPACTED BY RAMMING OR TAMPING WITH TOOLS APPROVED BY THE DIRECTOR OF PUBLIC WORKS IN SUCH A MANNER AS NOT TO DISTURB OR INJURE THE PIPE. THE BACKFILLING ABOVE THIS HEIGHT SHALL BE DONE AS NOTED BELOW.
3. GRANULAR BACKFILL MATERIAL SHALL BE PLACED AND COMPACTED AS SPECIFIED IN NOTE 2, ABOVE. THE USE OF JETTING SHALL NOT BE ALLOWED UNLESS AUTHORIZED IN WRITING BY THE DIRECTOR OF PUBLIC WORKS. IT SHALL BE THE DESIGN ENGINEER OR CONTRACTOR'S RESPONSIBILITY TO PROVIDE APPROPRIATE JUSTIFICATION AND DOCUMENTATION (SOIL INVESTIGATION REPORTS. ETC.) TO THE CITY WITH THE REQUEST FOR APPROVAL OF JETTING.

REV.:	REV.:	STORM SEWER TRENCH SECTION	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		STORM 11

GENERAL NOTES CONT:

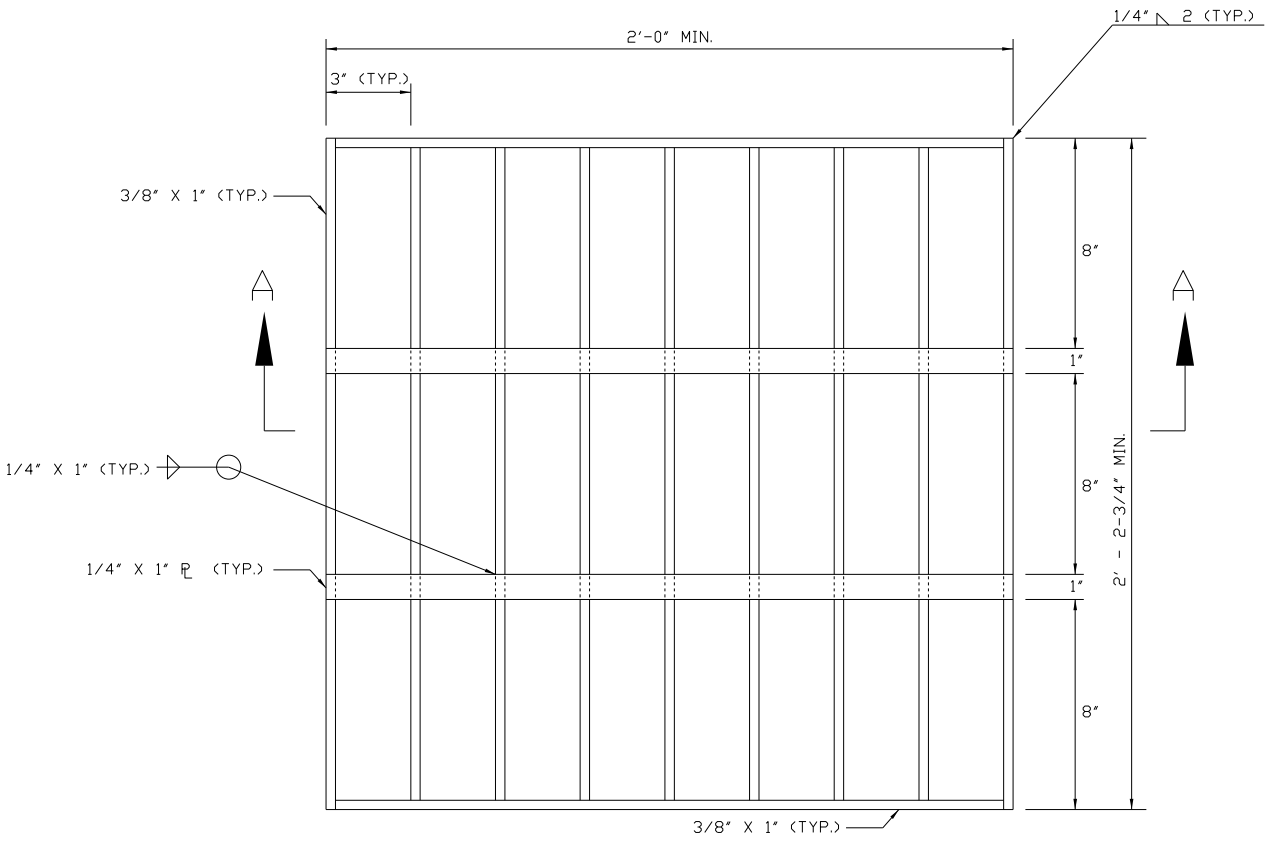
4. BACKFILL MATERIAL CONSISTING OF SUITABLE EXCAVATED MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING TWELVE (12) INCHES THICK (LOOSE MEASURE) AND EACH LAYER SHALL BE COMPACTED BY RAMMING OR TAMPING TO ACHIEVE THE REQUIRED COMPACTION. JETTING OF THIS MATERIAL MAY BE PERMITTED WHEN AUTHORIZED IN WRITING BY THE DIRECTOR OF PUBLIC WORKS. IT SHALL BE THE DESIGN ENGINEER OR THE CONTRACTOR'S RESPONSIBILITY TO SUBMIT APPROPRIATE JUSTIFICATION AND DOCUMENTATION (SOILS INVESTIGATION REPORTS, ETC.) TO THE CITY WITH THE REQUEST FOR APPROVAL OF JETTING.

5. GRANULAR MATERIAL FOR BACKFILL AND BEDDING SHALL BE GRAVEL, CRUSHED GRAVEL OR STONE MEETING THE REQUIREMENTS OF THE IDOT "STANDARD SPECIFICAITONS FOR ROAD AND BRIDGE CONSTRUCTION" FOR COURSE APPREGATE (CA-6 GRADATION).

6. MINIMUM COVER OVER THE TOP OF PIPE SHALL BE SIX (6) INCHES BELOW FINISHED SUBGRADE IN PAVED AREAS AND TWELVE (12) INCHES BELOW FINISHED GRADE IN LANDSCAPE AREAS.

7. THE BEDDING THICKNESS SHALL BE EQUAL TO ONE-QUARTER ($\frac{1}{4}$) OF THE OUTSIDE DIAMETER OF THE PIPE BUT NOT LESS THAN FOUR (4) INCHES.

REV.:	REV.:	STORM SEWER TRENCH SECTION	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		STORM-11A



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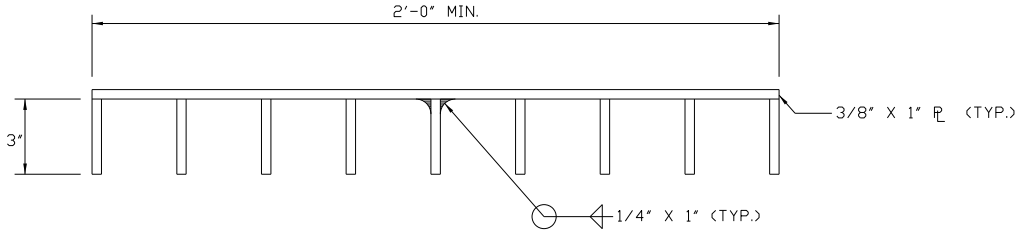
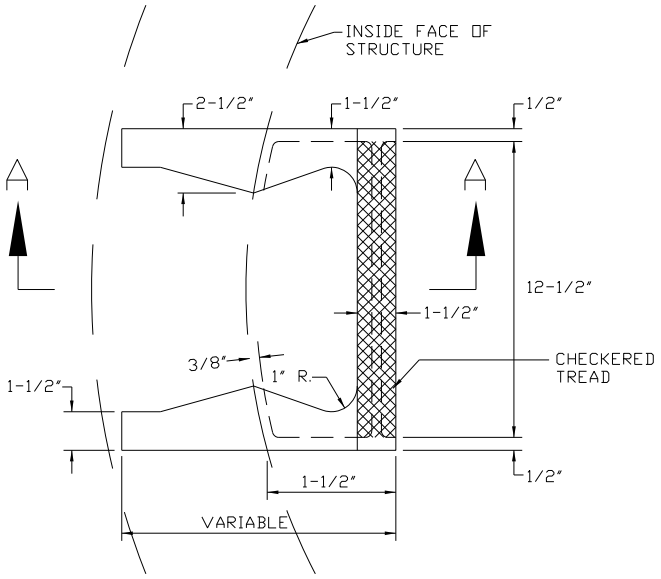


SECTION A-A

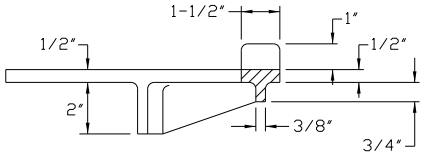
GENERAL NOTES:

1. STRUCTURAL STEEL SHAPES AND PLATES SHALL BE IN ACCORDANCE WITH ARTICLE 505.02 OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
2. ALL FABRICATIONS SHALL BE COMPLETED AND READY FOR INSTALLATION BEFORE GALVANIZING.
3. GRATES SHALL BE BOLTED DOWN.

REV.:		STORM SEWER GRATE FOR BOX INLET	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		STORM 12



PLAN



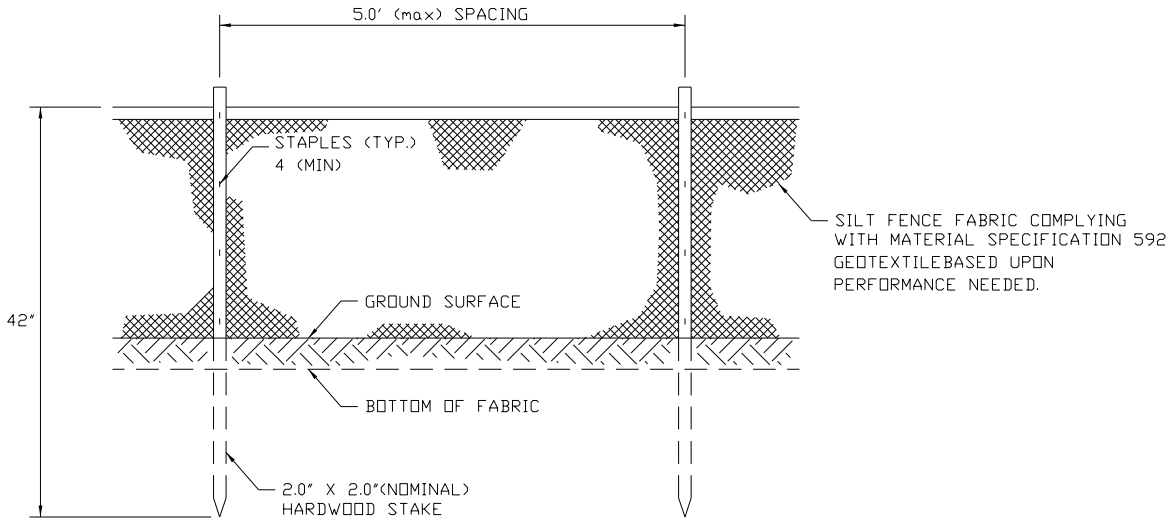
SECTION A-A

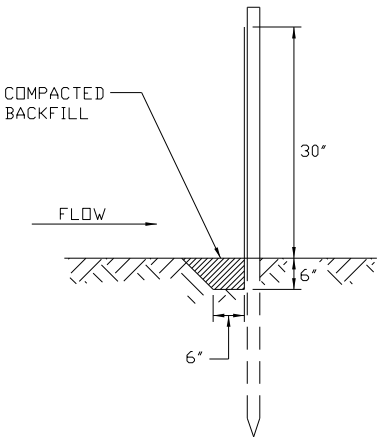
GENERAL NOTES:

1. PLASTIC POLYMER STEPS SHALL BE USED.

2. STEPS SHALL BE EMBEDDED INTO WALL A MINIMUM OF 4 INCHES. STEPS SHALL NOT BE EXTENDED ON THE OUTSIDE.

REV.:		MANHOLE STEP	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		STORM 13



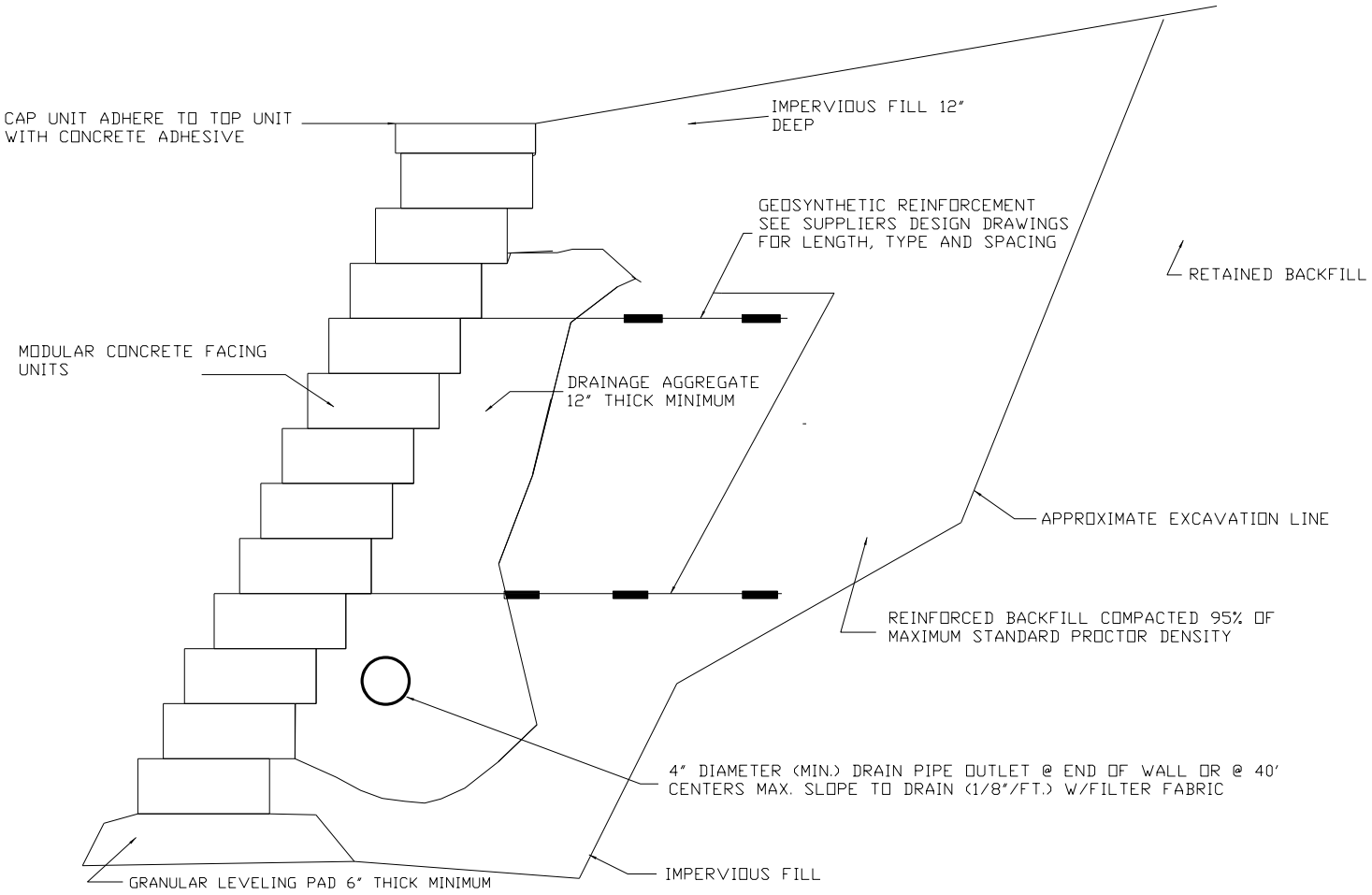


GENERAL NOTES:

1. SILT FENCE SHALL BE MAINTAINED UNTIL THE AREA TRIBUTARY TO THE STRUCTURE HAS STABILIZED GROUND COVER, AS DETERMINED BY THE DIRECTOR OF PUBLIC WORKS.

REV.:		SILT FENCE INSTALLATION	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		STORM 15

IF CONDITIONS ARE DIFFERENT THAN THOSE STATED IN THESE DRAWINGS AND SPECIFICATIONS, THE CONTRACTOR MUST CONTACT THE ENGINEER PRIOR TO PROCEEDING WITH THE CONSTRUCTION OF THE WALL.



TYPICAL SECTION-REINFORCED RETAINING WALL

GENERAL NOTES:

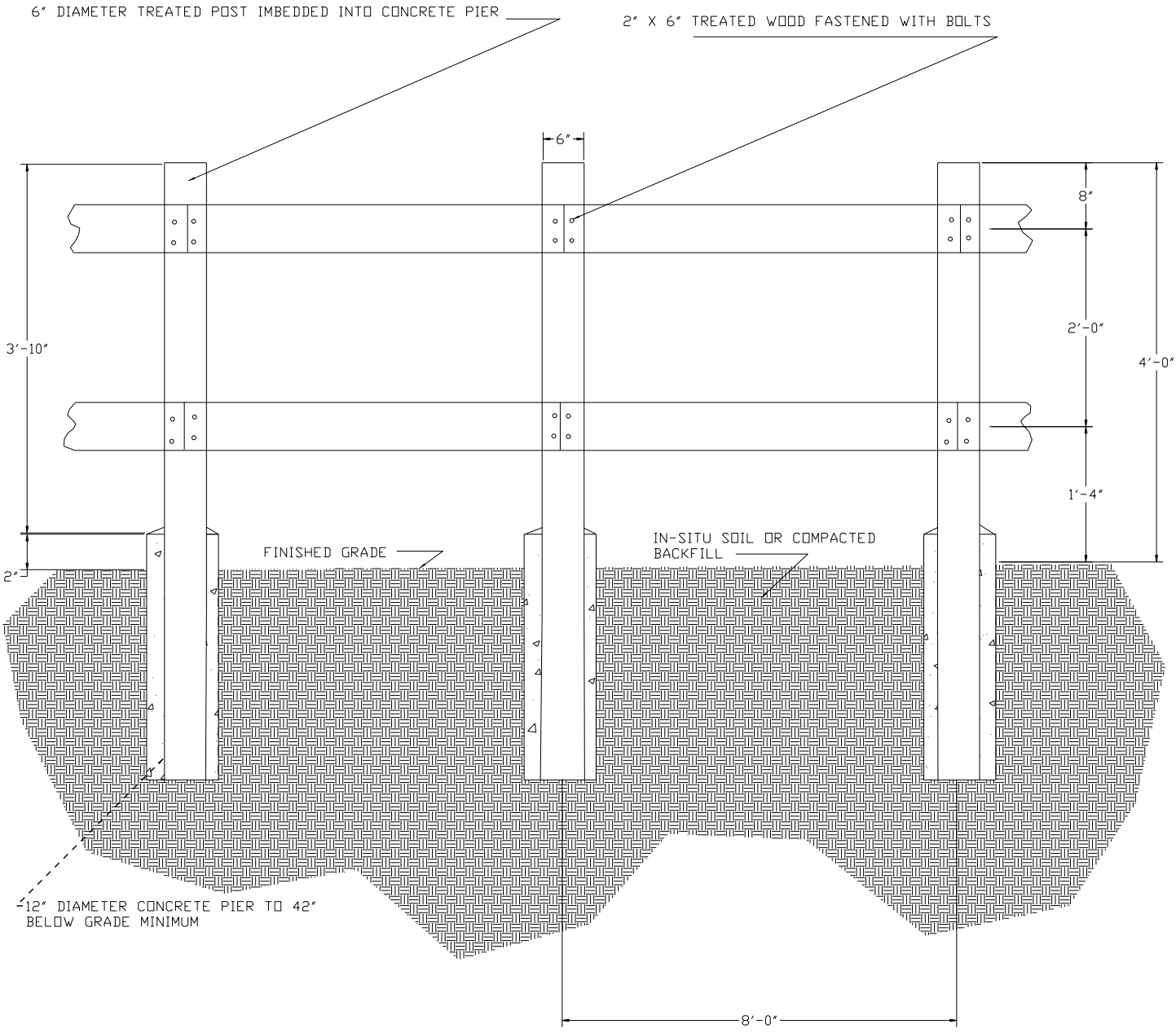
1. RETAINING WALLS SHALL NOT BE APPROVED FOR A PERMIT UNLESS SUCH PLANS ARE SIGNED AND SEALED BY STRUCTURAL ENGINEER, OR PROFESSIONAL ENGINEER AUTHORIZED TO SIGN AND SEAL SUCH PLANS BY STATE STATUTE.
2. STRIP VEGETATION AND ORGANIC SOIL FROM WALL AND GEOSYNTHETIC ALIGNMENT.
3. BENCH CUT ALL EXCAVATED SLOPES.
4. DO NOT OVER EXCAVATE UNLESS DIRECTED BY SITE SOIL ENGINEER TO REMOVE UNSUITABLE SOIL.
5. SITE SOILS ENGINEER SHALL VERIFY FOUNDATION SOILS AS BEING COMPETENT PER THE DESIGN STANDARDS AND PARAMETERS.
6. LEVELING PAD SHALL CONSIST OF COMPACTED COURSE SAND OR CRUSHED GRAVEL 6" THICK MIN.
7. CONTRACTOR MAY OPT FOR A LEAN CONCRETE PAD. CONCRETE PAD SHALL BE UNREINFORCED, 3" THICK MAXIMUM.
8. MINIMUM EMBEDMENT OF WALL BELOW FINISH GRADE SHALL BE 6" FOR WALL HEIGHTS UNDER 4 FT. AND 12" FOR WALLS OVER 4 FT. UNLESS SHOWN DIFFERENTLY.
9. FOR UNITS TO BE EMBEDDED, COMPACT FILL IN FRONT OF UNITS AT THE SAME TIME FILL BEHIND UNITS IS COMPACTED.
10. DRAINAGE AGGREGATE SHALL BE INSTALLED DIRECTLY BEHIND THE WALL WITHIN 12" OF THE TIP OF THE WALL. DRAINAGE AGGREGATE SHALL NOT EXTEND BELOW FINAL GRADE IN FRONT OF WALL.
11. COMPACTION SHALL BE TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY. (ASTM D-698)
12. COMPACTION TESTS SHALL BE TAKEN AS THE WALL IS INSTALLED. THE MIN. NUMBER OF TEST SHALL BE DETERMINED BY THE SITE SOIL ENGINEER.
13. COMPACTION WITHIN 3 FT. OF WALL SHALL BE LIMITED TO HAND OPERATED EQUIPMENT.
14. SEE SUPPLIERS DESIGN DRAWINGS FOR GEOSYNTHETIC TYPE, LENGTH AND LOCATION REQUIRED.
15. GEOSYNTHETIC SHALL BE PLACED WITH STRONGEST DIRECTION PERPENDICULAR TO WALL. FOLLOW GEOSYNTHETIC MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WRITTEN SPECIFICATIONS.
16. CONTRACTOR SHALL DIRECT SURFACE RUNOFF TO AVOID DAMAGING WALL WHILE UNDER CONSTRUCTION.
17. ANY SURFACE DRAINAGE FEATURES, FINISH GRADING, PAVEMENT, OR TURF SHALL BE INSTALLED IMMEDIATELY AFTER WALL IS COMPLETED.
18. FOLLOW APPLICABLE PROVISIONS OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WRITTEN SPECIFICATIONS.
19. A GEOTECHNICAL TESTING COMPANY MUST BE ON SITE FOR TESTING ON THE WALL BASE FOR ALL WALLS HIGHER THAN THREE FEET. A COPY OF ALL REPORTS SHALL BE PROVIDED TO THE CITY OF WOOD DALE.
20. A PROFESSIONAL ENGINEER OR STRUCTURAL ENGINEER SHALL PROVIDE A SIGNED AND SEALED STATEMENT THAT ALL WALLS HIGHER THAN THREE FEET WERE CONSTRUCTED PER APPROVED PLANS AND SPECIFICATIONS.

REV.:	REV.:	RETAINING WALL	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		STORM-16

21. A SPLIT-RAIL FENCE AT LEAST 42" HIGH SHALL BE CONSTRUCTED ALONG THE TOP OF ANY RETAINING WALL HIGHER THAN 3' WHEN A WALK OR PATH IS ON THE TOP SIDE OF THE WALL AND WITHIN 5' OF THE EDGE OF THE WALL. THE CITY MAY REQUIRE, OR THE OWNER/DEVELOPER MAY PROPOSE (SUBJECT TO APPROVAL BY THE DIRECTOR), AN ALTERNATIVE TYPE OF FENCE IF DEEMED APPROPRIATE BASED ON SPECIFIC SITE CONDITIONS AND CHARACTERISTICS. IF A PARKING LOT OR DRIVEWAY IS SIMILARLY LOCATED THEN A GUARDRAIL PER IDOT SPECIFICATIONS SHALL BE USED IN LIEU OF A FENCE.

22. A SPLIT-RAIL FENCE AT LEAST 42" HIGH SHALL BE CONSTRUCTED ALONG THE TOP OF ANY SLOPE STEEPER THAN 4H:1V THAT STARTS WITHIN 5' OF A WALK OR PATH AND DESCENDS CONTINUOULSY TO THE TOP OF A RETAINING WALL HIGHER THAN 3'. THE CITY MAY REQUIRE AN ALTERNATIVE TYPE OF FENCE IF DEEMED APPROPRIATE BASED ON SPECIFIC SITE CONDITIONS AND CHARACTERISTICS. IF A PARKING LOT OR DRIVEWAY IS SIMILARLY LOCATED THEN A GUARDRAIL PER IDOT SPECIFICATIONS SHALL BE USED IN LIEU OF A FENCE.

REV.:	REV.:	RETAINING WALL CONT.	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		STORM-16A



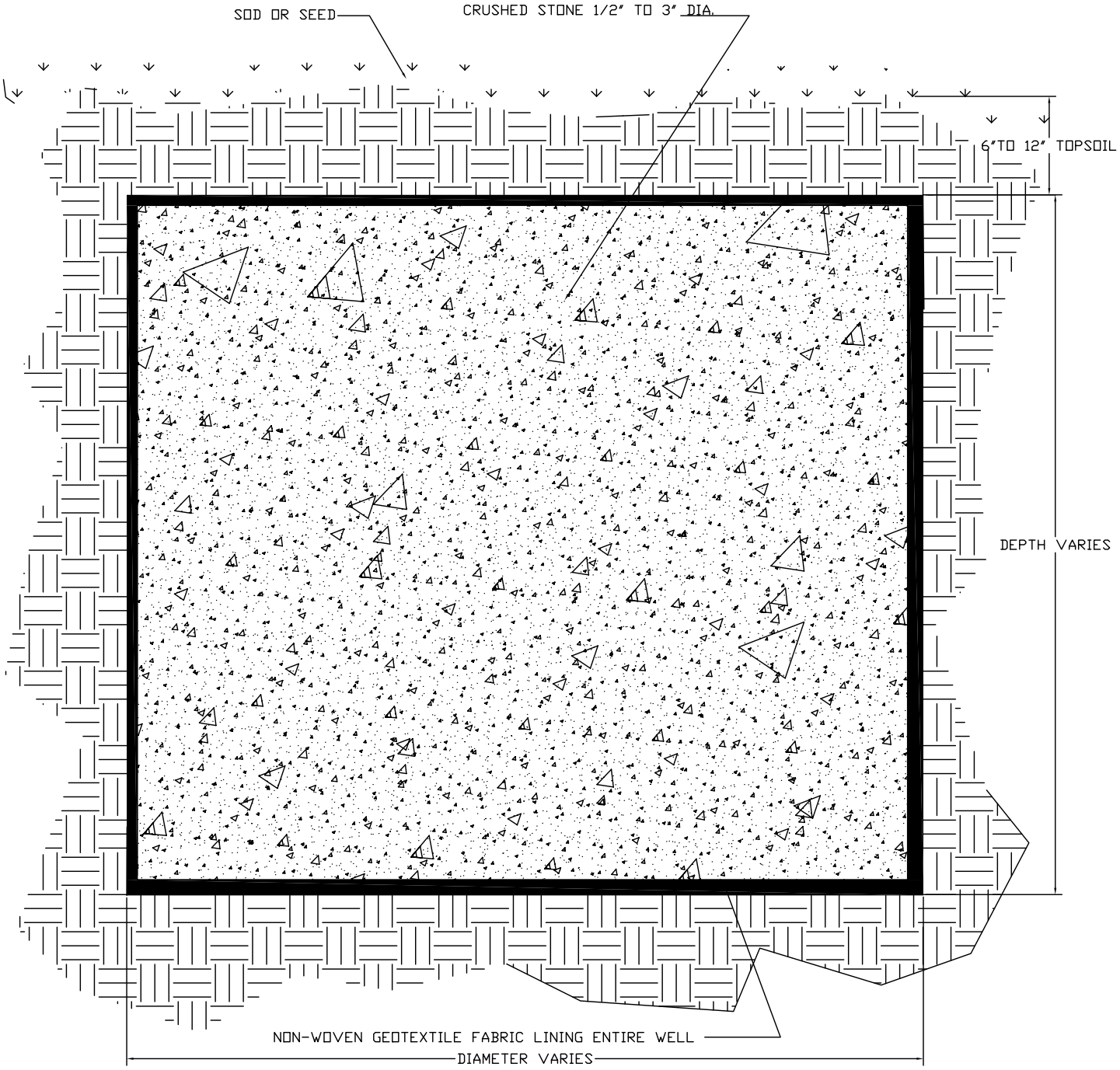
NOTES:

1. ALTERNATIVE MATERIALS AND DIMENSIONS MAY BE ALLOWED ONLY WITH WRITTEN PERMISSION FROM THE CITY.

2. POSTS SHALL BE NOTCHED 1-1/2" DEEP AT RAIL CONNECTIONS.

3. THE MATERIALS AND DIMENSIONS SHALL BE ADJUSTED BY THE DESIGN ENGINEER FOR REVIEW BY THE CITY ACCORDING TO ANTICIPATED LOADS AND CONDITIONS.

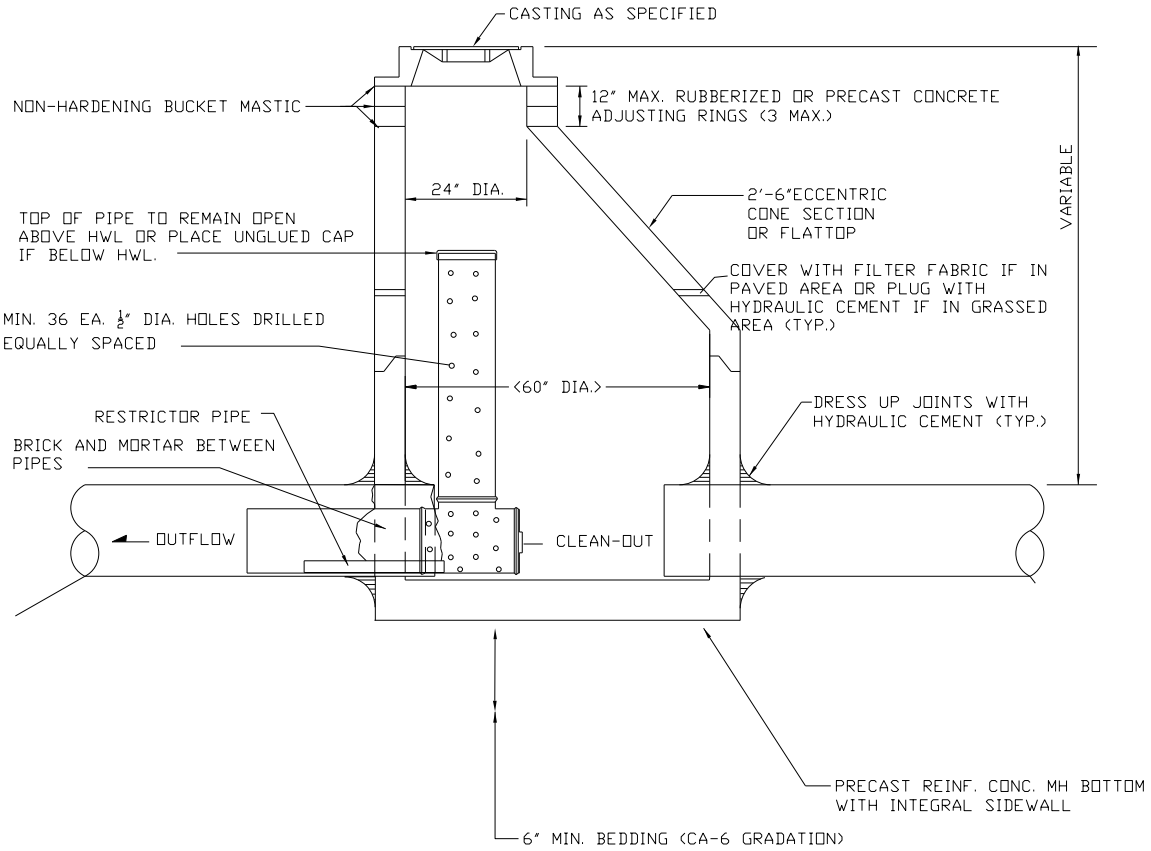
REV.:	REV.:	SPLIT-RAIL FENCE DETAIL	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		STORM-17



GENERAL NOTES:

1. AGGREGATE SHALL BE IDOT CA-7 OR APPROVED EQUIVALENT. AGGREGATE SHALL BE CLEAN AND WASHED FREE OF FINES,
2. DRY WELL SHALL BE LOCATED A MINIMUM OF 15 FEET FROM BUILDING FOUNDATIONS AND 20 FEET FROM SANITARY SEWERS.

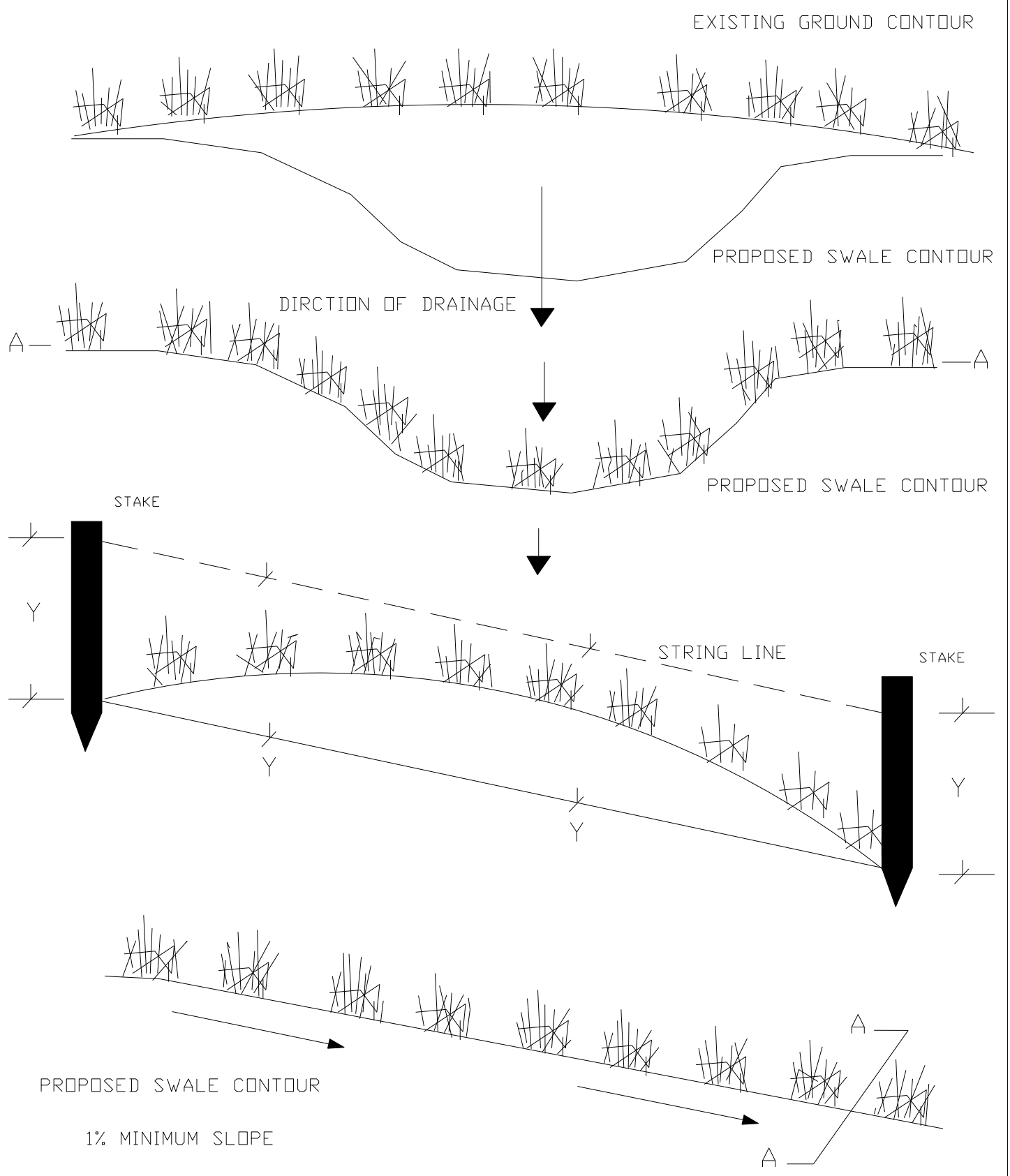
REV.:	REV.:	DRY WELL	CITY OF WOOD DALE
REV.:	DATE:		STORM-18
DRAWN BY:	DATE: 4-03-18		



GENERAL NOTES:

1. RESTRICTOR PIPE MATERIAL CAN BE SCHEDULE 40 PVC PIPE.
2. 6" DIA. SDR 26 PVC PIPE GROUTED INTO THE OUTLET PIPE. EXTEND RESTRICTOR PIPE INTO VISIBLE AREA OF TEE FOR VERIFICATION.
3. CASTINGS SHALL HAVE FACTORY INSTALLED O-RING GASKETS.
4. MANHOLE CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH MANHOLE TYPE A (STORM 1) SPECIFICATONS.

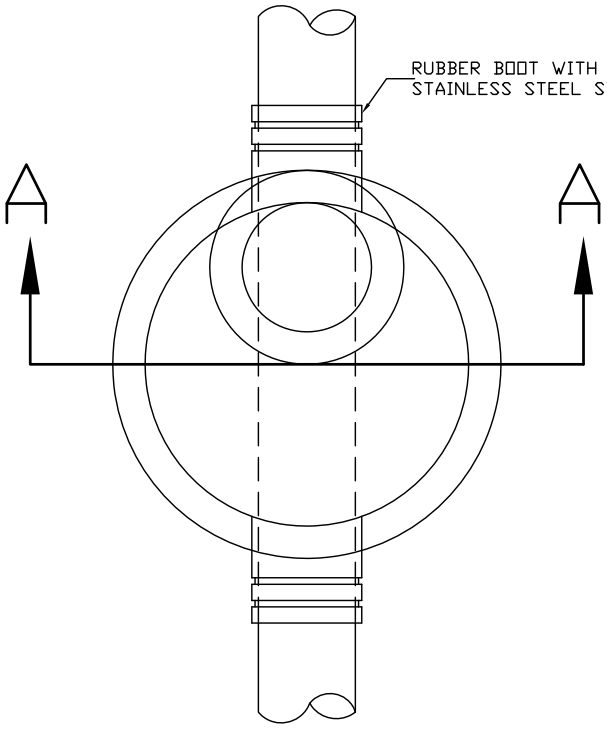
REV.:		RESTRICTOR DETAIL	CITY OF WOOD DALE
REV.:	REV.:		STORM 19
DRAWN BY:	DATE: 4-3-18		



REV.:	REV.:	SWALE CONSTRUCTION	CITY OF WOOD DALE
REV.:	REV.:		STORM 20
DRAWN BY:	DATE: 4-03-18		

SECTION 300- SANITARY SEWER DETAILS

SANITARY MANHOLE
SANITARY MANHOLE FRAME AND COVER
SANITARY RISER FOR SERVICE LATERAL 1
SANITARY RISER FOR SERVICE LATERAL 2
SANITARY SEWER TRENCH SECTION 1
SANITARY SEWER TRENCH SECTION 2
PRECAST CONE AND CHIMNEY
CASING DETAIL
CORING BOOT



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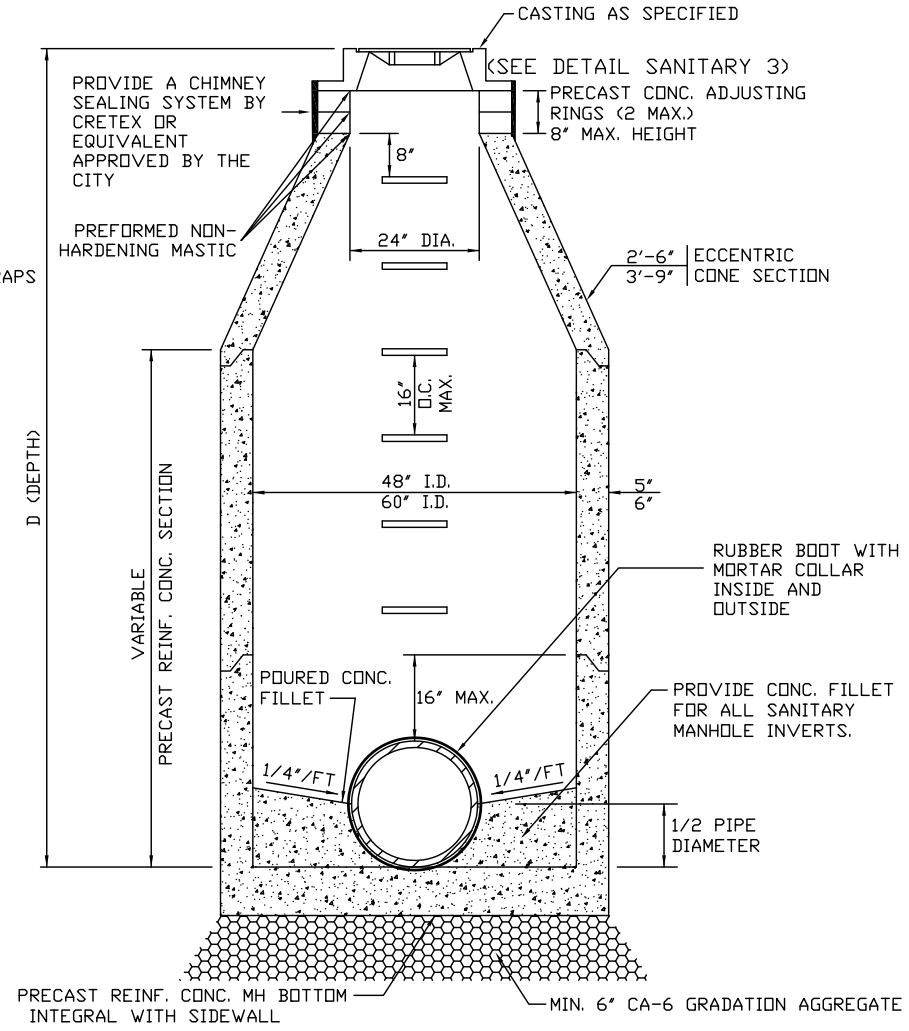
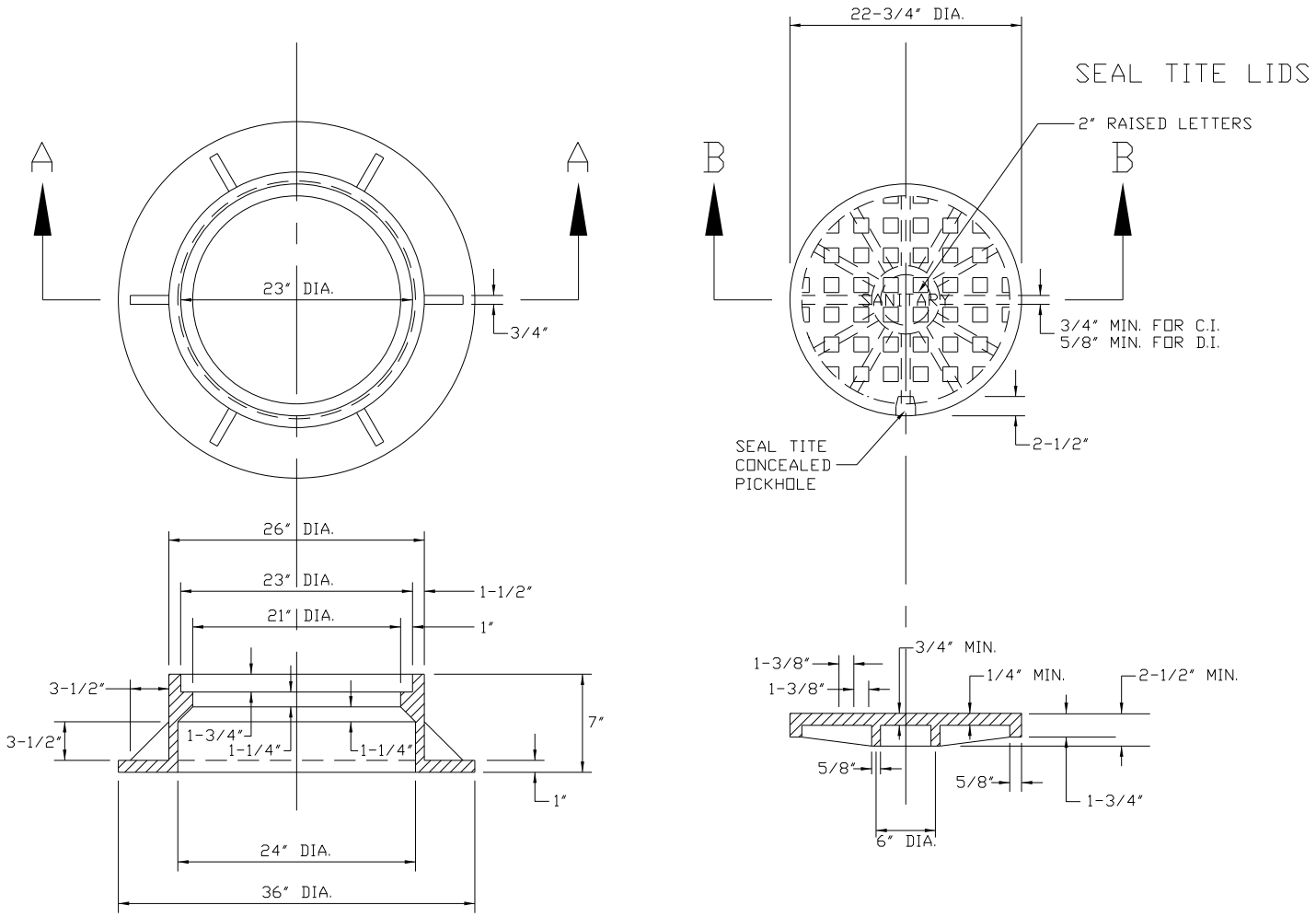


SECTION A-A

GENERAL NOTES:

1. PROVIDE PRECAST REINFORCED CONCRETE BARREL AND RISER SECTION. CONCRETE BLOCK CONSTRUCTION IS NOT PERMITED.
2. PROVIDE SELECT GRANULAR BACKFILL AROUND MANHOLE TO SUBGRADE ELEVATION IN PAVED AREAS. MATERIAL SHALL MEET THE REQUIREMENTS OF IDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" COARSE AGGREGATE CA-6 GRADATION, OR AS OTHERWISE DIRECTED BY THE CITY OR ITS REPRESENTATIVE.
3. APPLY A CONTINUOUS LAYER OF NON-HARDENING PREFORMED BITUMINOUS MASTIC MATERIAL (RUB-R-NEK OR EZ STICK) TO EACH JOINT TO PREVENT INFLOW.
4. WHEN THE FRAME DOES NOT MEET PROPOSED ELEVATION, A MAXIMUM OF TWO PRECAST CONCRETE RINGS MAY BE USED TO A MAXIMUM HEIGHT OF 8 INCHES. THE RING(S) AND FRAME SHALL BE SET IN A BED OF PREFORMED NON-HARDENING MASTIC (RUB-R-NEK OR APPROVED EQUAL).
5. PRECAST ADJUSTING RINGS SHALL BE REINFORCED WITH NO. 3 GUAGE WIRE OR EQUIVALENT.
6. MORTAR SHALL NOT BE USED TO DRESS UP ADJUSTING RINGS AND/OR FRAME.
7. ONLY PLASTIC POLYMER STEPS SHALL BE USED.
8. WHEN MANHOLE DEPTH IS OVER 12 FEET, THE THICKNESS OF THE BASE SHALL BE A MINIMUM OF 10 INCHES. WHEN MANHOLE DEPTH IS LESS THAN 12 FEET, THE THICKNESS SHALL BE A MINIMUM OF 8 INCHES.
9. DRESS UP INTERIOR JOINTS WITH HYDRAULIC CEMENT.
10. SANITARY MANHOLES SHALL BE CONSTRUCTED WITH A CHIMNEY SEALING SYSTEM BY CRETEX OR AN EQUAL APPROVED BY THE CITY, WHEN IN PAVMENT OR SUBJECT TO INUNDATION.

REV.:	REV.:	SANITARY MANHOLE	CITY OF WOOD DALE
REV.:	REV.:		SANITARY 1
DRAWN BY:	DATE: 4-3-18		



SECTION A-A

CAST FRAME

SECTION B-B

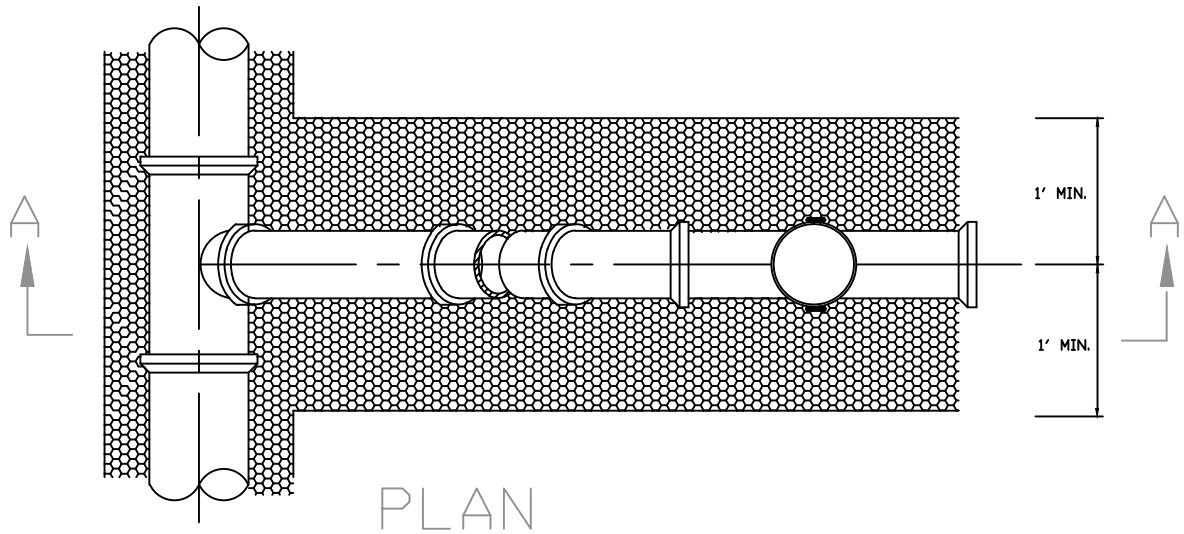
CAST CLOSED LID

(SEAL TITE CONCEALED PICKHOLE)

GENERAL NOTES:

1. DUCTILE IRON CASTING SHALL BE TESTED IN ACCORDANCE WITH FEDERAL SPECIFICATIONS.
2. ALL FRAMES AND COVERS SHALL HAVE A MACHINED HORIZONTAL AND VERTICAL BEARING SURFACES. PICK HOLES IN THE COVER SHALL NOT BE OPEN.
3. THE MANHOLE COVERS SHALL HAVE RAISED LETTERS AS SHOWN.
4. DIMENSIONS FOR CASTINGS ARE COMPARABLE TO EAST JORDAN IRON WORKS, INC. 1022 OR NEENAH FOUNDRY 1772 FURNISHED WITH TYPE F CONCEALED PICK HOLES.
5. WATERPROOF, BOLTDOWN FRAME AND COVER SHALL BE USED IN ANY LOCATION SUBJECT TO INUNDATION. (NEENAH R-1916, EAST JORDAN 1022 WT WITH TYPE 5 CLOSED PICK HOLES OR APPROVED EQUAL).
6. LIDS SHALL BE "WATERTITE" OR "SELF-SEALING" WITH A FACTORY INSTALLED GASKET.

REV.:	REV.:	SANITARY MANHOLE FRAME AND COVER	CITY OF WOOD DALE
REV.:	REV.:		SANITARY 3
DRAWN BY:	DATE: 4-3-18		



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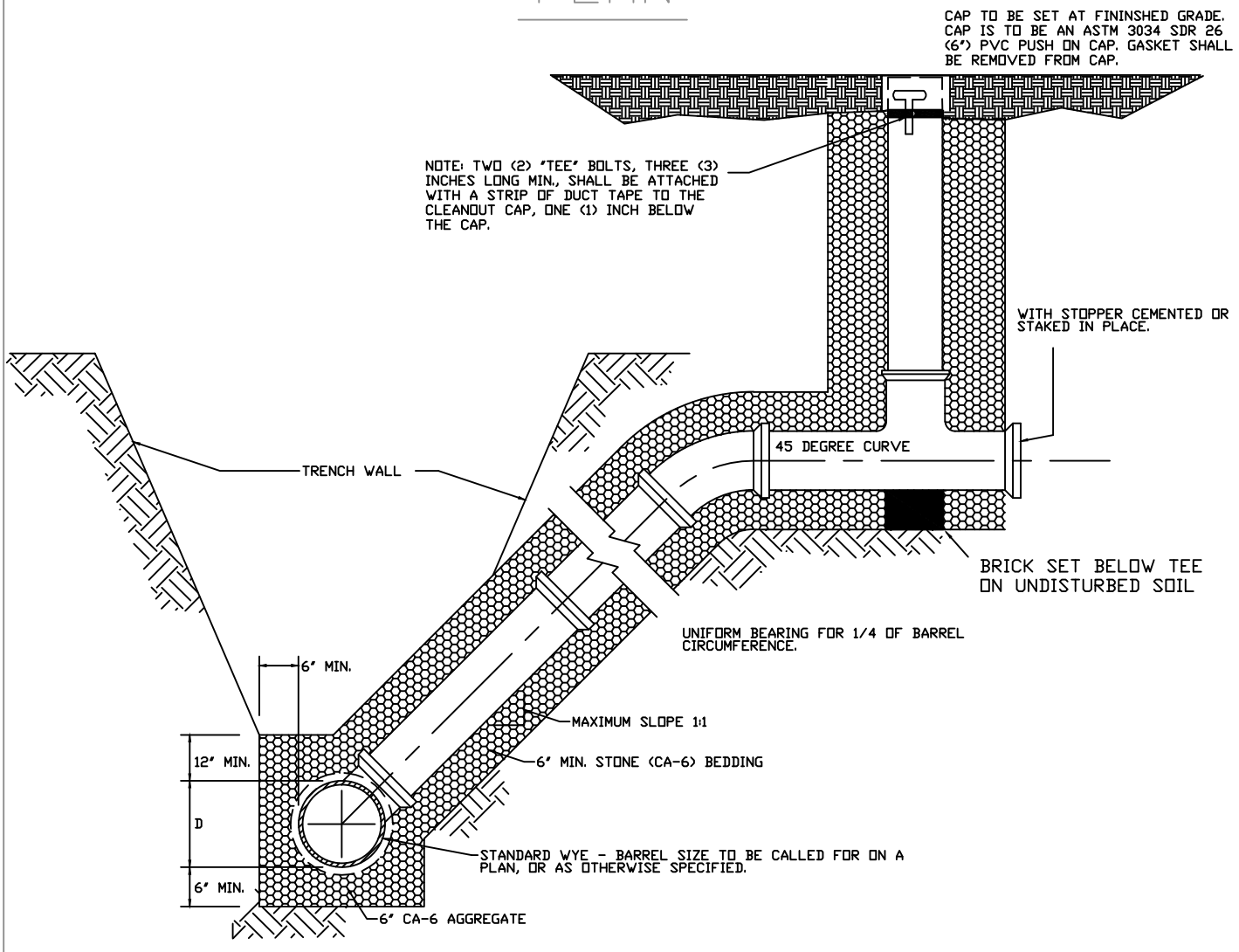


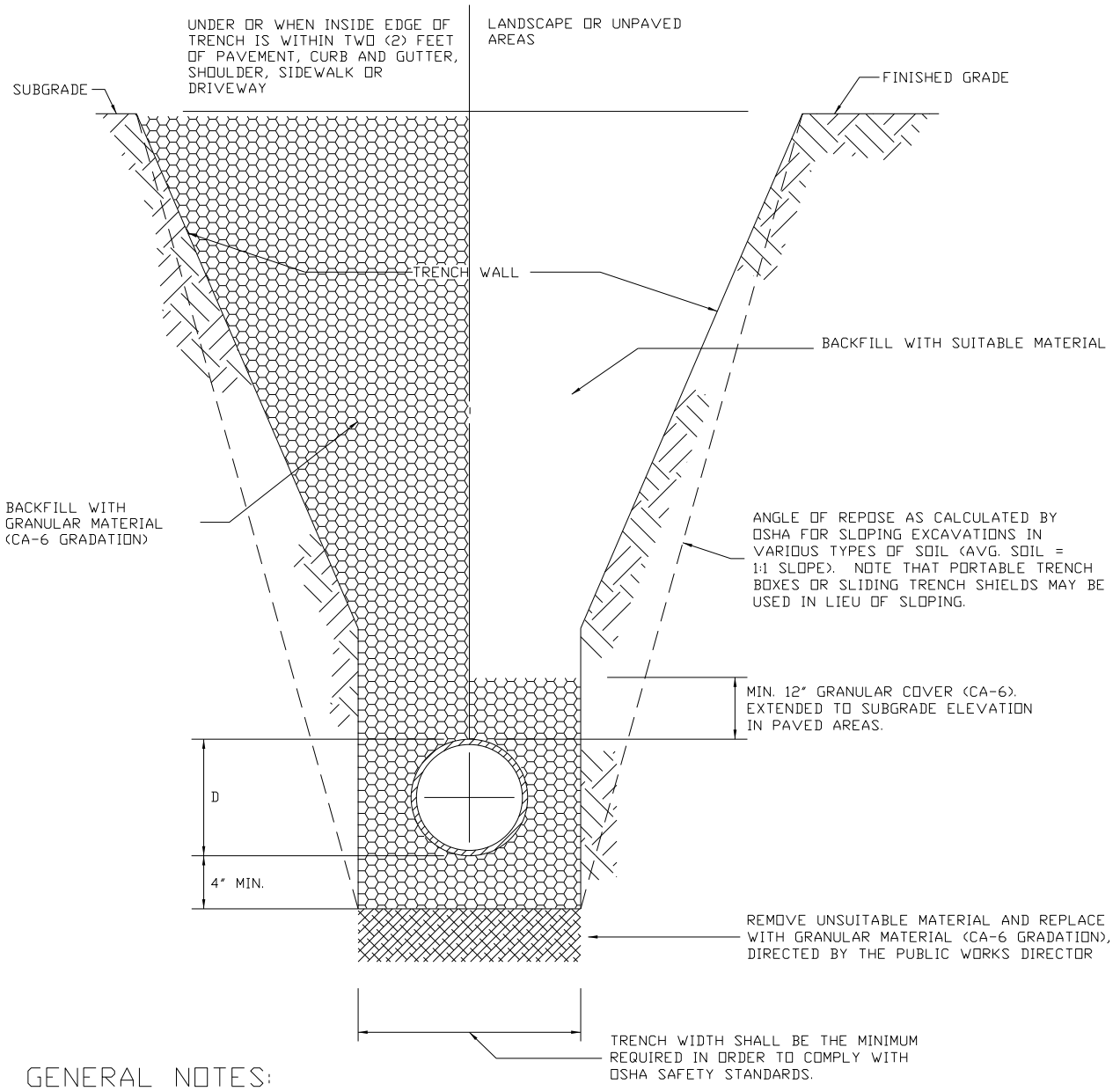
SECTION A-A

REV.: CJW	REV.: 11-05-2009	RISER W/CLEANOUT SERVICE LATERAL	CITY OF WOOD DALE	
REV.: ERH	REV.: 8-07-09		SANITARY 4	
DRAWN BY: VJGL	DATE: 2-16-98			

GENERAL NOTES:

1. THE OPEN ENDS SHALL BE PROTECTED FROM DEBRIS ENTERING THE LATERAL.
2. MAXIMUM SLOPE SHALL BE LESS THAN 1 TO 1 WHEN IT IS NECESSARY TO SECURE BEDDING IN UNDISTURBED EARTH.
3. WHEN SERVICE CONNECTION REQUIRES CORING AN EXISTING MAIN, A SEWER SADDLE SHALL BE USED. CLOW TYPE SHALL BE "SEALTITE" OR APPROVED EQUAL. BANDS AND BOLTS SHALL BE STAINLESS STEEL.
4. SERVICE TEE AND CLEAN OUT RISER SHALL BE PVC (SDR26/ASTM D2241). FOR CLEAN OUTS LOCATED WITHIN LANDSCAPED AREAS, THE CONTRACTOR SHALL USE P1215 DWV BUSHING AND G106 CAP MANUFACTURED BY PLASTIC TRENDS, INC (ASTM 3034). GASKET SHALL BE REMOVED FROM CAP.
5. CLEAN OUTS SHALL NOT BE LOCATED IN DRIVEWAY APRONS OR SIDEWALK UNLESS APPROVED BY THE PUBLIC WORKS DIRECTOR IF ALLOWED, THE CONTRACTOR SHALL USE SCHEDULE 40 DWV FIPT HUB ADAPTER AND THE RAISED MIPT PLUG (ASTM D 2665 OR ASTM D 1785) AND AN EAST JORDAN FRAME (2885) AND LID (2975). EQUIVALENT FITTINGS FROM OTHER MANUFACTURES ARE ACCEPTABLE AT THE DISCRETION OF THE PUBLIC WORKS DIRECTOR. WRITTEN ACCEPTANCE MUST BE OBTAINED PRIOR TO THE EQUIVALENT MATERIALS BEING APPROVED. GEOMETRIC STANDARDS CANNOT BE VARIED.

REV.:	REV.:	SANITARY RISER FOR SERVICE LATERAL	CITY OF WOOD DALE
REV.:	REV.:		SANITARY 4A
DRAWN BY:	DATE: 4-3-18		



GENERAL NOTES:

1. CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN A SAFE MANNER AT ALL TIMES AND SHALL COMPLY WITH ALL APPLICABLE GOVERNING REGULATIONS, INCLUDING BUT NOT LIMITED TO OSHA SAFETY STANDARDS.
2. ALL BACKFILL MATERIAL UP TO A HEIGHT OF 12 INCHES ABOVE THE PIPE SHALL BE CAREFULLY DEPOSITED IN UNIFORM LAYERS NOT EXCEEDING 8 INCHES THICK (LOOSE MEASURE). THE MATERIAL IN EACH LAYER SHALL BE FIRMLY COMPACTED BY RAMMING OR TAMPING WITH TOOLS APPROVED BY THE PUBLIC WORKS DIRECTOR IN SUCH A MANNER AS NOT TO DISTURB OR INJURE THE PIPE. THE BACKFILLING ABOVE THIS HEIGHT SHALL BE DONE AS NOTED BELOW.
3. GRANULAR BACKFILL MATERIAL SHALL BE PLACED AND COMPACTED AS SPECIFIED IN NOTE 2, ABOVE. THE USE OF JETTING SHALL NOT BE ALLOWED UNLESS AUTHORIZED IN WRITING BY THE PUBLIC WORKS DIRECTOR. IT SHALL BE THE DESIGN ENGINEER OR CONTRACTOR'S RESPONSIBILITY TO PROVIDE APPROPRIATE JUSTIFICATION AND DOCUMENTATION (SOIL INVESTIGATION REPORTS, ETC.) TO THE CITY WITH THE REQUEST FOR APPROVAL OF JETTING.
4. BACKFILL MATERIAL CONSISTING OF SUITABLE EXCAVATED MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING TWELVE (12) INCHES THICK (LOOSE MEASURE) AND EACH LAYER SHALL BE COMPACTED BY RAMMING OR TAMPING TO ACHIEVE THE REQUIRED COMPACTION. JETTING OF THIS MATERIAL MAY BE PERMITTED WHEN AUTHORIZED IN WRITING BY THE PUBLIC WORKS DIRECTOR. IT SHALL BE THE DESIGN ENGINEER OR THE CONTRACTOR'S RESPONSIBILITY TO SUBMIT APPROPRIATE JUSTIFICATION AND DOCUMENTATION (SOIL INVESTIGATION REPORTS, ETC.) TO THE CITY WITH THE REQUEST FOR APPROVAL OF JETTING.

REV.:	REV.:	SANITARY SEWER TRENCH SECTION	CITY OF WOOD DALE
REV.:	REV.:		SANITARY 5
DRAWN BY:	DATE: 4-3-18		

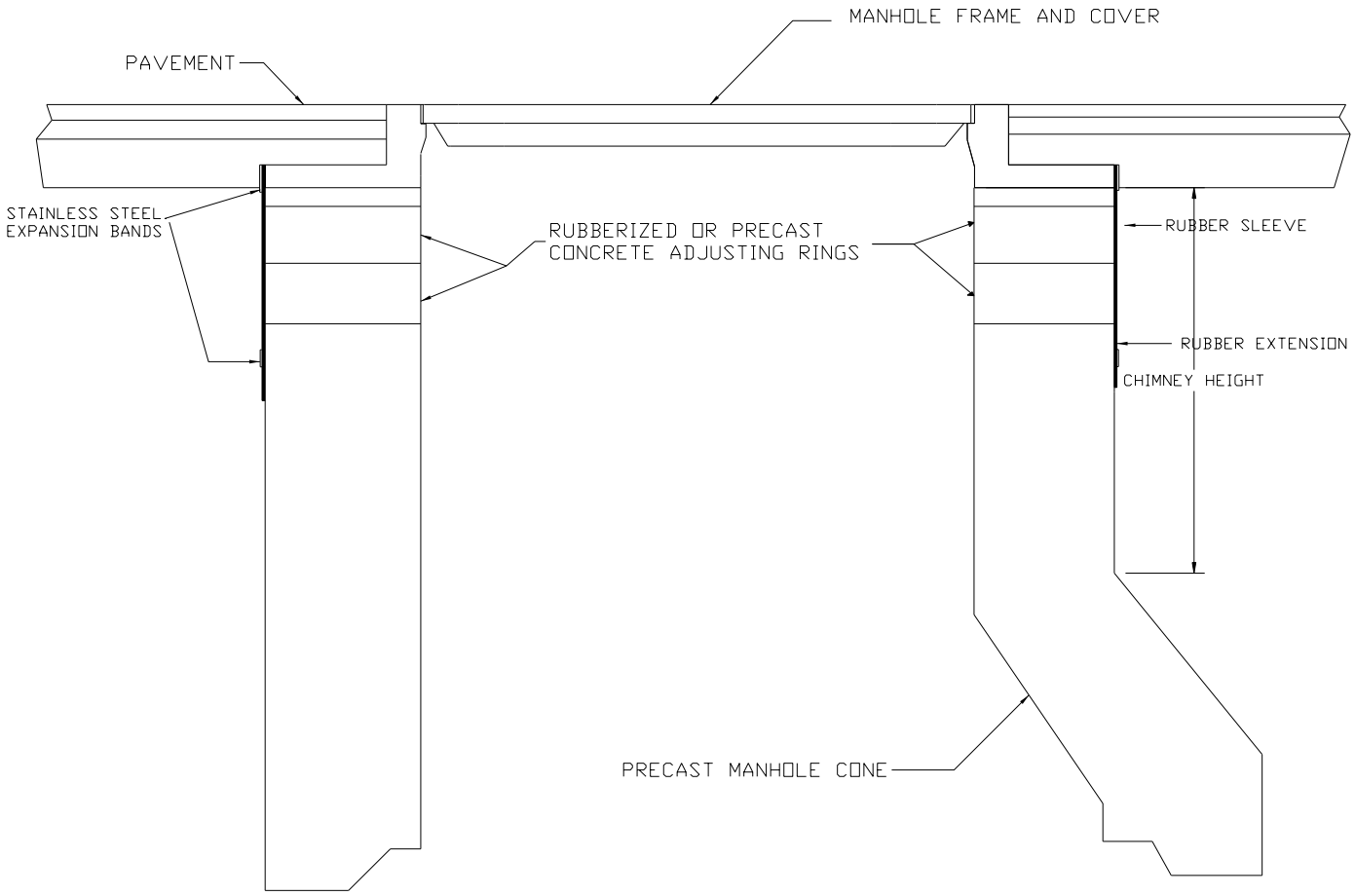
GENERAL NOTES CONT:

5. GRANULAR MATERIAL FOR BACKFILL AND BEDDING SHALL BE GRAVEL, CRUSHED GRAVEL OR STONE MEETING THE REQUIREMENTS OF THE IDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" FOR COARSE AGGREGATE (CA-6 GRADATION).

6. MINIMUM COVER OVER THE TOP OF PIPE SHALL BE TWELVE (12) INCHES BELOW FINISHED SUBGRADE IN PAVED AREAS AND TWELVE (12) INCHES BELOW FINISHED GRADE IN LANDSCAPE AREAS.

7. THE BEDDING THICKNESS SHALL BE EQUAL TO ONE-QUARTER (1/4) OF THE OUTSIDE DIAMETER OF THE PIPE BUT NOT LESS THAN FOUR (4) INCHES.

REV.:	REV.:	SANITARY SEWER TRENCH SECTION	CITY OF WOOD DALE
REV.:	REV.:		SANITARY 5A
DRAWN BY:	DATE: 4-3-18		



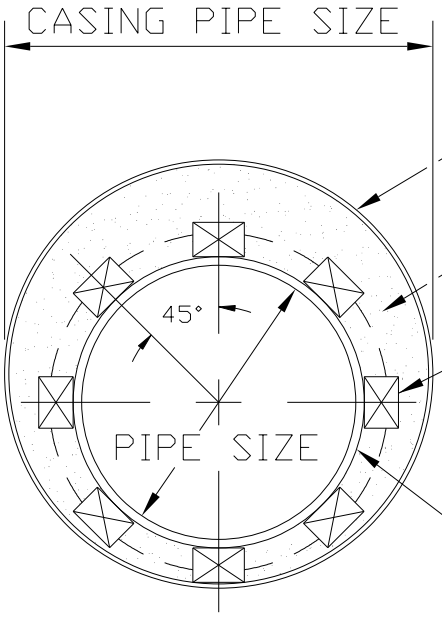
SECTIONAL VIEW PRECAST CONE AND CHIMNEY

GENERAL NOTES:

1. THE RUBBER SLEEVE IS AVAILABLE IN BOTH THE STANDARD 9" WIDE OR THE NARROW 6" WIDE CROSS SECTION.
2. SEE CHIMNEY HEIGHT TABLE OF SEAL AND EXTENSION COMBINATIONS NEEDED TO SPAN FROM THE FRAME TO THE TOP OF THE CONE ON MANHOLES WITH VARIOUS CHIMNEY HEIGHTS. DIAMETER DIFFERENTIALS WILL REDUCE THESE SPAN HEIGHTS.
3. THE TOP OF THE CONE MUST HAVE A MINIMUM 2" HIGH VERTICAL SURFACE THAT IS SMOOTH AND FREE OF ANY FORM OFFSETS OR EXCESSIVE HONEYCOMB.
4. CHIMNEY SEALS SHALL BE REQUIRED UNLESS THE MANHOLE IS ADJUSTED TO FINAL GRADE IN ACCORDANCE WITH DETAIL STORM 7 - CASTING ADJUSTMENTS FOR STRUCTURES IN PAVED AREAS.

COMBINATIONS OF SEALS & EXTENSIONS	TO SPAN HEIGHTS OF:
NARROW (6") SEAL ONLY	0 - 3"
STANDARD (9") SEAL ONLY	OVER 3" - 6.5"
STANDARD SEAL + EXTENSION	OVER 6.5" - 13.5"
SEAL + MULT. EXTENSIONS	OVER 13.5"
+ 7" FOR EACH ADDED EXTENSION NOTE: FRAME OFFSETS AND DIAMETER DIFFERENTIALS WILL REDUCE THESE SPAN HEIGHTS.	

REV.:	REV.:	PRECAST CONE AND CHIMNEY	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		SANITARY 6



CASING PIPE WITH 0.25" THICK WALL WITH WELDED JOINTS

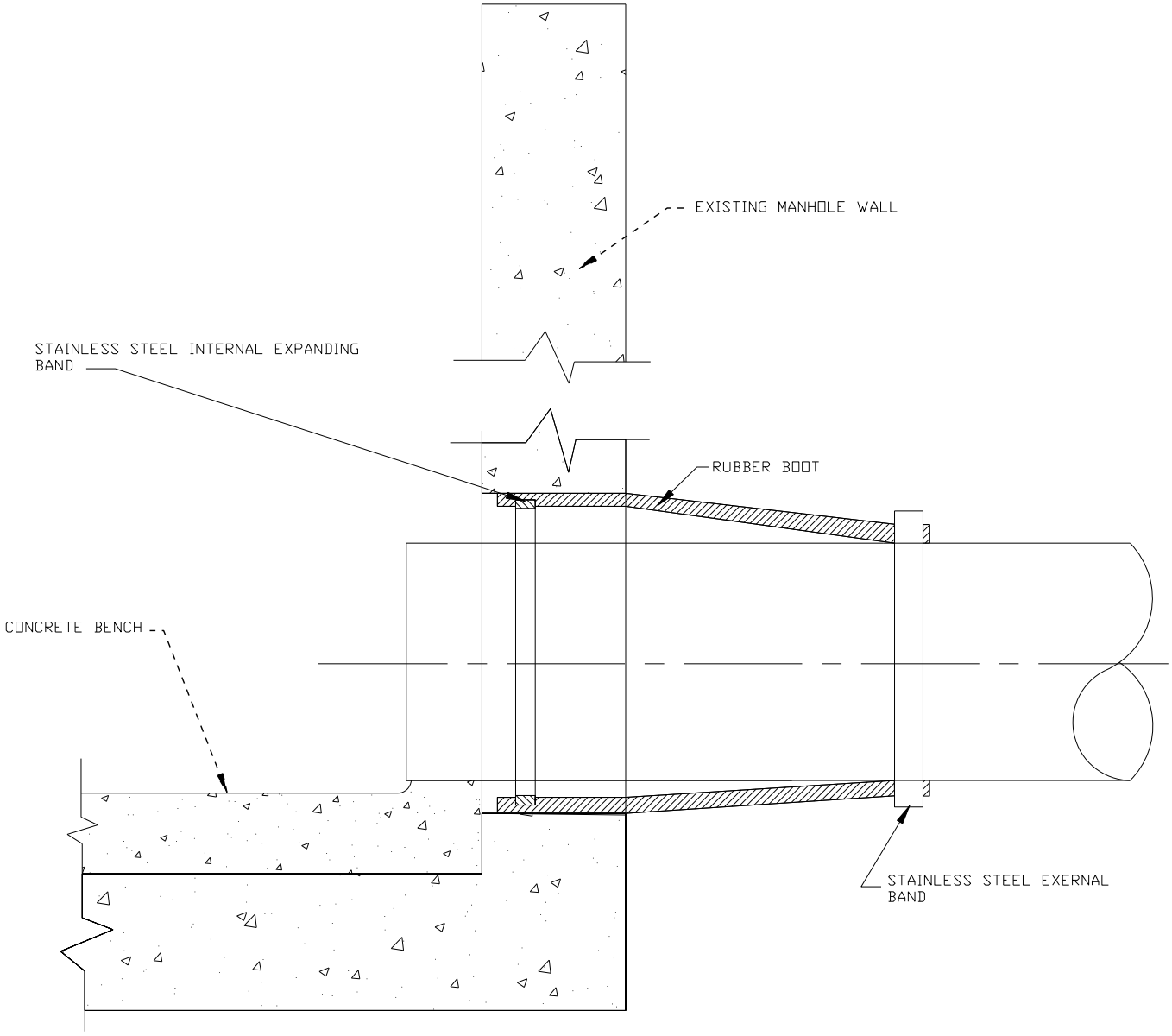
SAND BLOWN-IN THE ENTIRE LENGTH. SEAL ENDS WITH BRICK AND MORTAR

MANUFACTURED CASING SPACERS MIN. 24" LONG ATTACHED TO PIPING W/ METAL STRAPPING. PROVIDE SPACERS AT EACH END & INTERMEDIATE SPACERS AT MIN. 8' O.C. FOR EACH LENGTH OF PIPE.

PIPE PUSHED OR PULLED WITH CABLE THRU CASING PIPE.

CASING PIPE DETAILS

REV.:	REV.:	CASING DETAIL	CITY OF WOOD DALE
REV.:	DATE:		SANITARY 7
DRAWN BY:	DATE: 4-3-18		



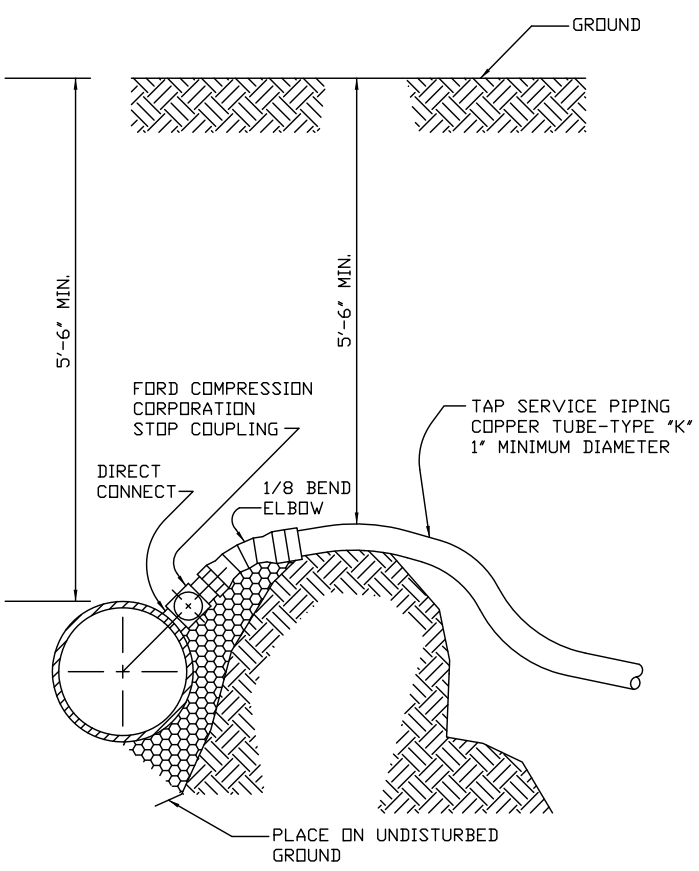
GENERAL NOTES:

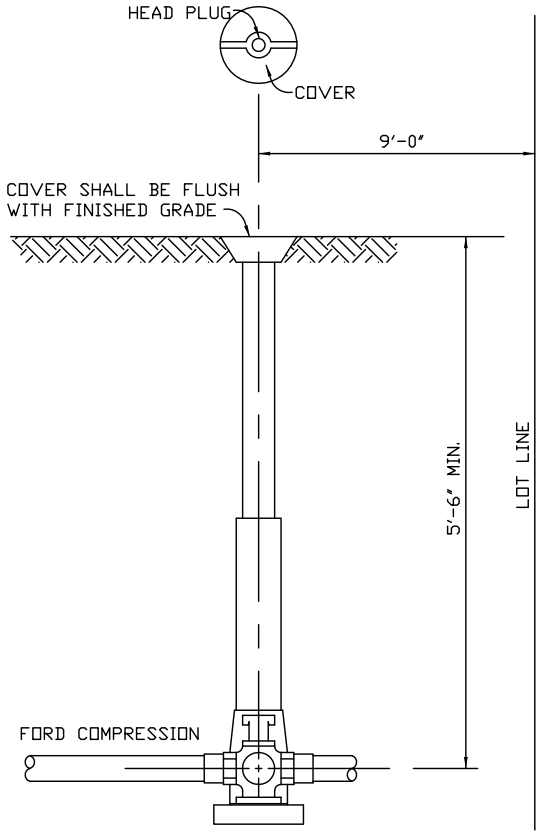
1. CORE-DRILL CIRCULAR OPENING IN MANHOLE WALL OF DIAMETER TO FIT THE REQUIRED BOOT SIZE.
2. KOR-N-SEAL FLEXIBLE RUBBER BOOT (MANUFACTURED BY NATIONAL POLLUTION CONTROL SYSTEMS, INC.) OR APPROVED EQUAL SHALL BE USED FOR WATERTIGHT CONNECTION.
3. CUT, SHAPE AND SLOPE NEW INVERT CHANNEL IN THE EXISTING CONCRETE BENCH FOR SMOOTH FLOW FROM NEW SANITARY SEWER CONNECTION.
4. CLEAN EXISTING MANHOLE OF ANY DIRT, CONCRETE OR DEBRIS WHICH MAY ACCUMULATE DURING THE CONSTRUCTION PROCESS.

REV.:	REV.:	CORING BOOT	CITY OF WOOD DALE
REV.:	REV.:		SANITARY 8
DRAWN BY:	DATE: 4-3-18		

SECTION 400- WATER MAIN DETAILS

WATER SERVICE TAP AND CONNECTION
HYDRANT SETTING
VALVE BOX INSTALLATION
WATER TIGHT VALVE VAULT
VALVE VAULT FRAME AND COVER
THRUST BLOCK INSTALLATION
WATER MAIN TRENCH SECTION
WATER AND SEWER SEPARATION
CONCRETE SADDLE SUPPORT
TYPICAL PRESSURE CONNECTION IN VAULT
B-BOX ENCASEMENT

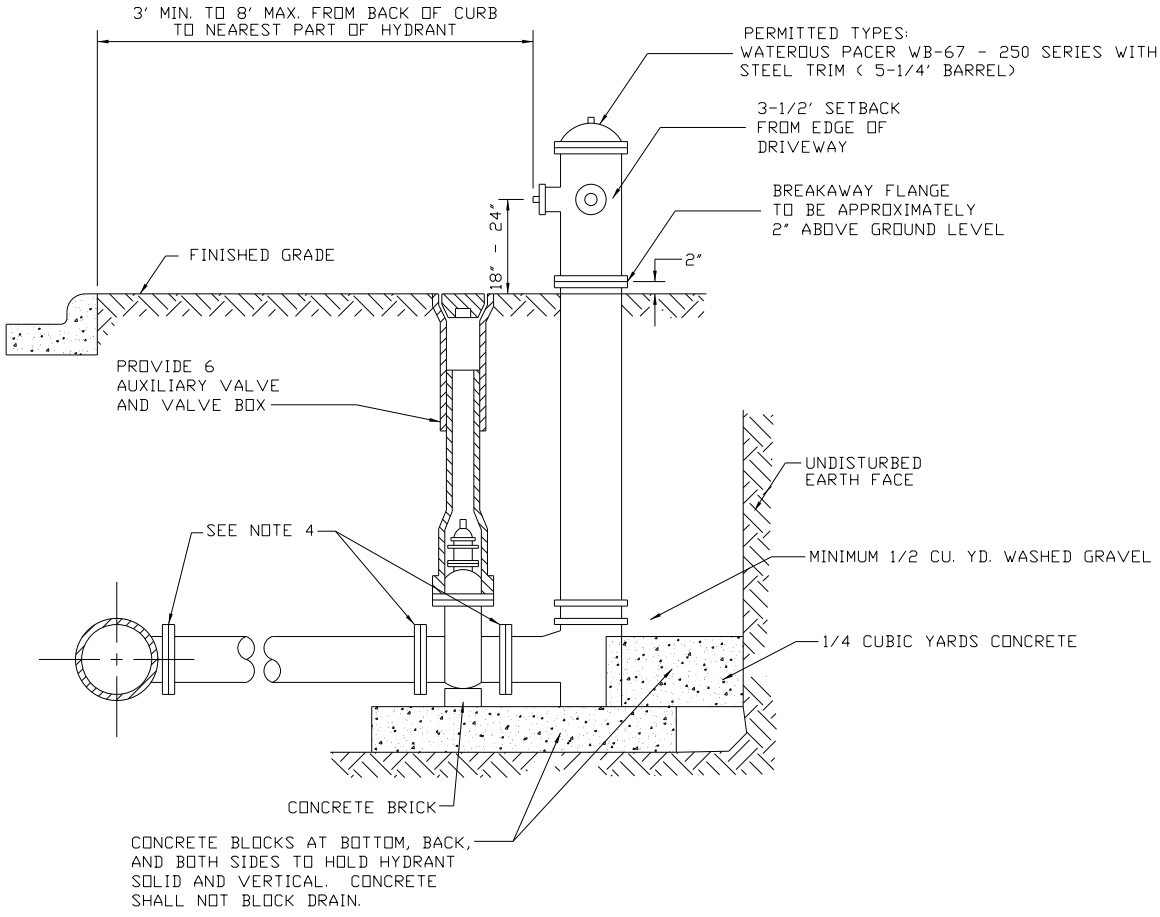




GENERAL NOTES:

1. WATER SERVICE LINE SHALL BE TYPE K COPPER MANUFACTURED IN ACCORDANCE WITH ASTM B88 AND B251 OR APPROVED EQUAL.
2. FOR 1" SERVICE LINES CORPORATION STOPS SHALL BE EITHER MUELLER H-15008 OR 2500 AY MCDONALD OR APPROVED EQUAL.
3. FOR 1 ½" AND 2" SERVICE LINES CORPORATION STOPS SHALL BE EITHER MUELLER B-25008 OR FORD FB600 OR APPROVED EQUAL.
4. SERVICE LINES GREATER THAN 1" N DIAMETER SHALL HAVE A STAINLESS STEEL BANDED DUCTILE IRON SADDLE (JCM 406 OR CASCADE C-2 TAPPING SLEEVE).
5. B-BOX SHALL BE MUELLER H-10302 OR APPROVED EQUAL.
6. CORPORATION STOPS SHALL BE INSTALLED A MINIMUM OF 18" FROM BELL SECTIONS AND/OR PIPE FITTINGS. MULTIPLE INSTALLATIONS SHALL BE STAGGERED AROUND THE MAIN BY 90° AND SEPARATED BY 18".

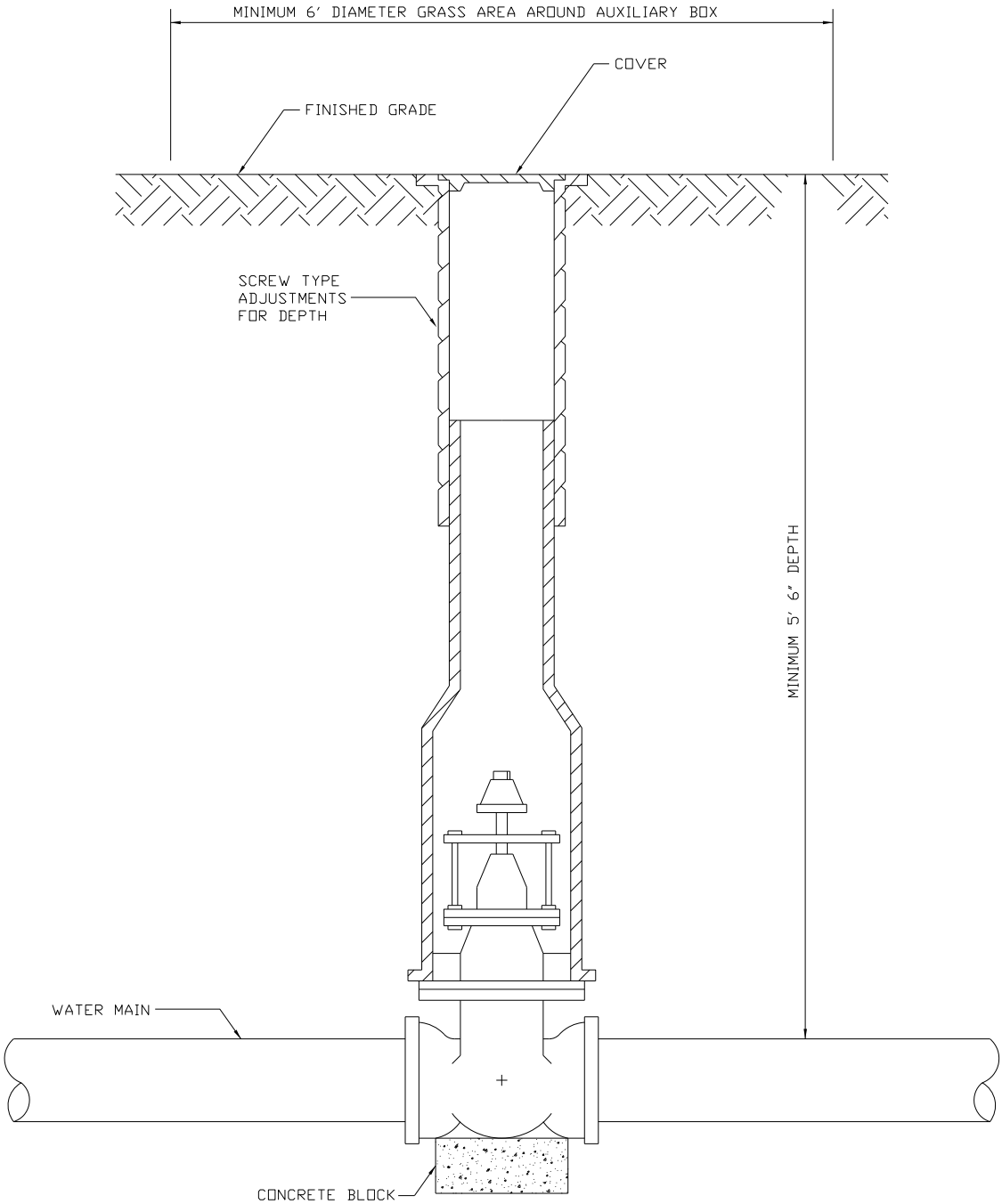
REV.:	REV.:	WATER SERVICE TAP AND CONNECTION	CITY OF WOOD DALE
REV.:	REV.:		WATER 1
DRAWN BY:	DATE: 4-3-18		



GENERAL NOTES:

1. MAXIMUM BARREL EXTENSIONS ARE 18 INCHES AND SHALL BE CLOW MEDALLION OR MUELLER CENTURION EXTENSION FOR WATEROUS HYDRANTS.
2. ALL HYDRANTS ARE TO BE SUPPLIED WITH A 6" FLANGED AND MECHANICAL JOINT AUXILIARY VALVE THAT CONFORMS TO AWWA C515. THE GATE VALVE STEM AND WEDGE NUT SHALL CONFORM WITH SECTION 4.4.5.1 OF AWWA 515. ALL TRIM BOLTS ARE TO BE STAINLESS STEEL.
3. THE HYDRANT WILL EXCEED ALL THE REQUIREMENTS OF AWWA C502.
4. RESTRAINED JOINTS ARE REQUIRED THROUGHOUT THE FIRE HYDRANT ASSEMBLY.

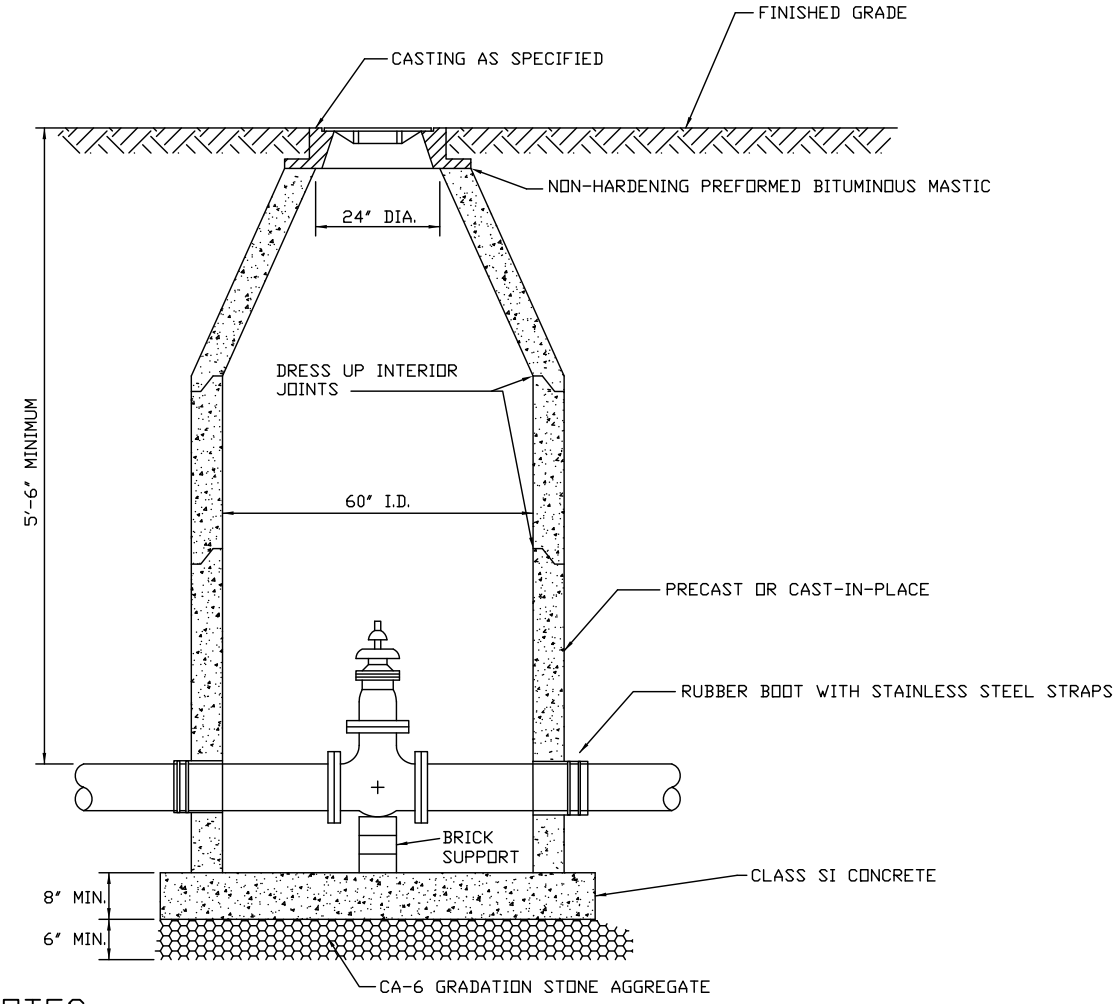
REV.:	REV.:	HYDRANT SETTING	CITY OF WOOD DALE
REV.:	REV.:		WATER 2
DRAWN BY:	DATE: 4-3-18		



GENERAL NOTES:

1. ALL VALVES 2-1/2" OR LARGER SHALL BE PLACED IN A VALVE VAULT, UNLESS APPROVED BY THE DIRECTOR OF PUBLIC WORKS.
2. VALVES SHALL BE MUELLER A-2360 RESILIENT WEDGE GATE VALVE WITH STAINLESS STEEL TRIM BOLTS OR WATEROUS 2500 RESILIENT WEDGE GATE VALVE WITH STAINLESS STEEL TRIM BOLTS OR APPROVED EQUAL.
3. VALVES THAT REQUIRE RESTRAINT JOINTS, MAY USE FIELD-LOK OR MEGA LUG BRANDS.

REV.:	REV.:	VALVE BOX INSTALLATION	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		WATER 3



GENERAL NOTES:

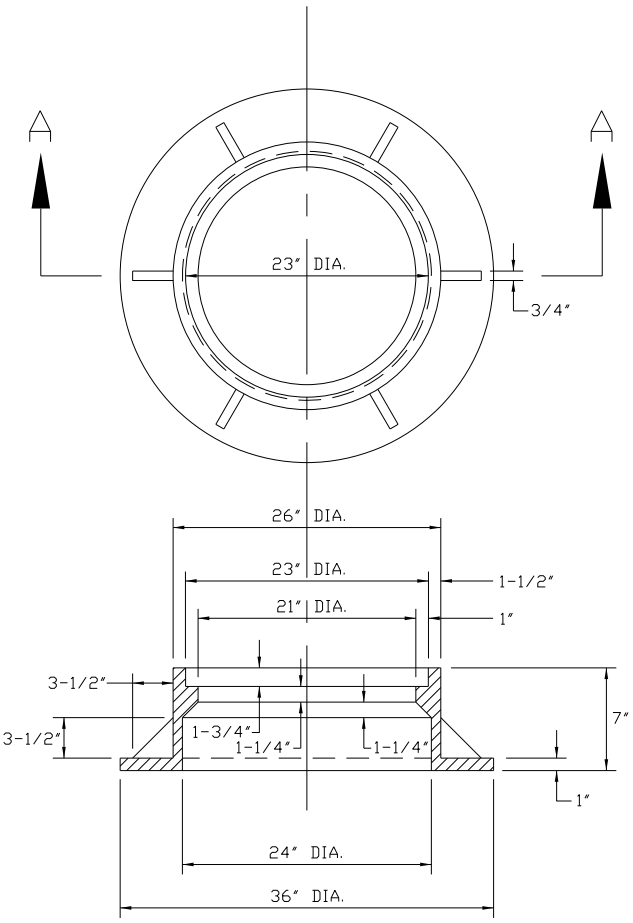
1. PROVIDE PRECAST REINFORCED CONCRETE BARREL AND RISER SECTION. CONCRETE BLOCK CONSTRUCTION IS NOT PERMITTED.
2. PROVIDE TRENCH BACKFILL, CA-6 GRADATION, AROUND MANHOLE TO SUBGRADE ELEVATION IN PAVED AREAS.
3. APPLY A CONTINUOUS LAYER OF NON-HARDENING PREFORMED BITUMINOUS MASTIC MATEERIAL (RUB-R-NEK OR E Z STICK) TO EACH JOINT TO PREVENT INFLOW.
4. WHEN THE FRAME DOES NOT MEET PROPOSED ELEVATION, A MINIMUM OF TWO TAPERED RUBBERIZED ADJUSTING RINGS SHALL BE USED FOR FINAL ADJUSTMENT. ONE CONCRETE RING NOT LESS THAN TWO INCHES THICK MAY ALSO BE USED. A MAXIMUM OF THREE ADJUSTING RINGS MAY BE USED TO A MAXIMUM HEIGHT OF 12 INCHES. EACH RING AND THE FRAME SHALL BE SET ON A BED OF NON-PREFORMED MASTIC.
5. PRECAST ADJUSTING RINGS SHALL BE REINFORCED WITH NO. 3 GAUGE WIRE OR EQUIVALENT.
6. WITHIN NON-PAVED AREAS, MORTAR SHALL ONLY BE USED TO DRESS UP ADJUSTING RINGS AND/OR FRAME ON THE EXTERIOR OF THE STRUCTURE. MORTAR IS NOT PERMITTED ON THE INSIDE OF THE RINGS AND/OR FRAME.
7. PLASTIC POLYMER STEPS SHALL NOT BE INSTALLED, UNLESS APPROVED BY THE DIRECTOR OF PUBLIC WORKS OR THEIR DESIGNEE.
8. DRESS UP INTERIOR JOINTS WITH HYDRAULIC CEMENT.
9. VALVE MUST ALIGN WITH CENTER OF VAULT OPENING.
10. CONES MUST BE CONCENTRIC WITH VALVES 12" AND SMALLER.
11. BUTTERFLY VALVES REQUIRE ECCENTRIC CONES.
12. ALL VALVE VAULTS REQUIRE RUBBER BOOTS WITH STAINLESS STEEL STRAPS WITH THE EXCEPTION OF PRESSURE CONNECTION VALVE VAULTS. (SEE WATER DETAIL 10).
13. CHIMNEY SEALS SHALL BE REQUIRED UNLESS THE VALVE VAULT IS ADJUSTED TO FINAL GRADE IN ACCORDANCE WITH DETAIL STORM 7 - CASTING ADJUSTMENTS FOR STRUCTURES IN PAVED AREAS.

REV.:	REV.:
REV.:	REV.:
DRAWN BY:	DATE: 4-3-18

WATER TIGHT VALVE VAULT

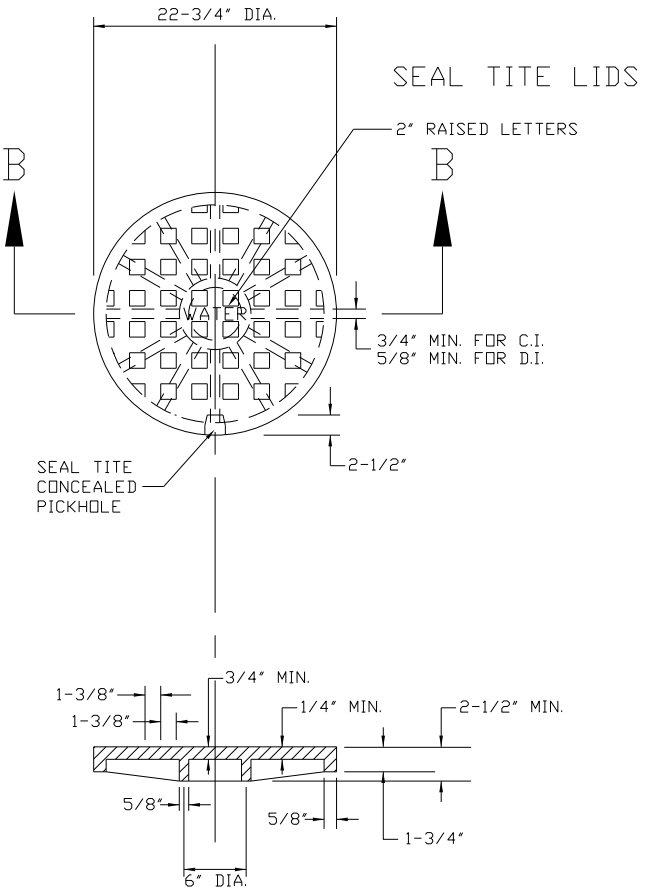
CITY OF WOOD DALE

WATER 4



SECTION A-A

CAST FRAME



SECTION B-B

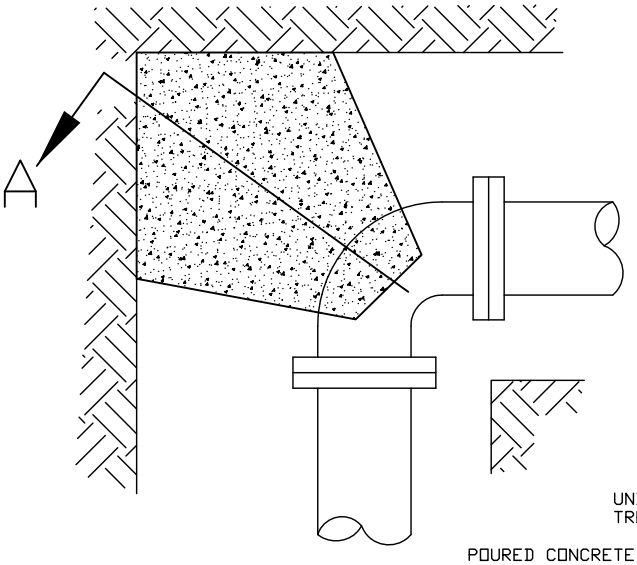
CAST CLOSED LID

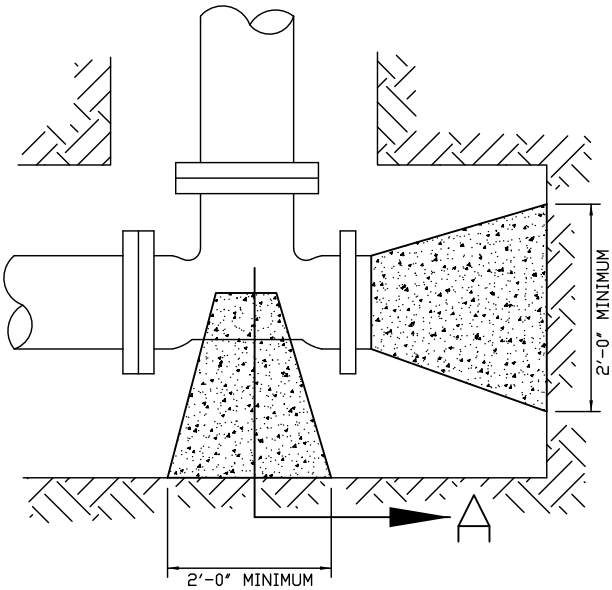
(SEAL TITE CONCEALED PICKHOLE)

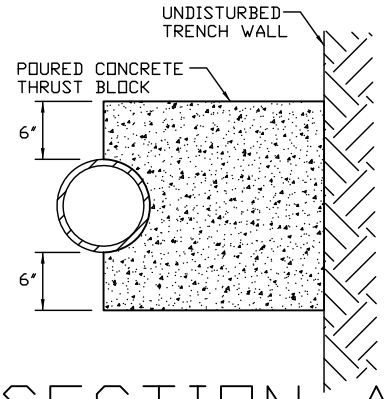
GENERAL NOTES:

1. DUCTILE IRON CASTING SHALL BE TESTED IN ACCORDANCE WITH FEDERAL SPECIFICATIONS.
2. ALL FRAMES AND COVERS SHALL HAVE A MACHINED HORIZONTAL AND VERTICAL BEARING SURFACES. PICK HOLES IN THE COVER SHALL NOT BE OPEN.
3. THE MANHOLE COVERS SHALL HAVE RAISED LETTERS AS SHOWN.
4. DIMENSIONS FOR CASTINGS ARE COMPARABLE TO EAST JORDAN 1022 OR NEENAH FOUNDRY 1772.
5. WATERPROOF, BOLTDOWN FRAME AND COVER SHALL BE USED IN ANY LOCATION SUBJECT TO INUNDATION. (NEENAH R-1916-C, EAST JORDAN 1022 WT OR APPROVED EQUAL).
6. LIDS SHALL BE "WATERTITE" OR "SELF-SEALING" WITH A FACTORY INSTALLED GASKET.

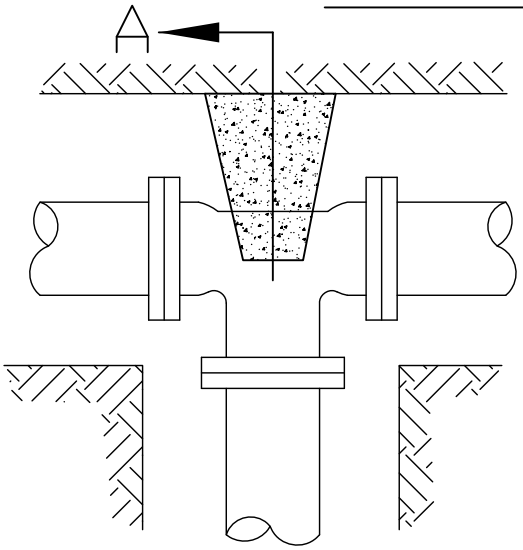
REV.:	REV.:	VALVE VAULT FRAME AND COVER	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		WATER 5

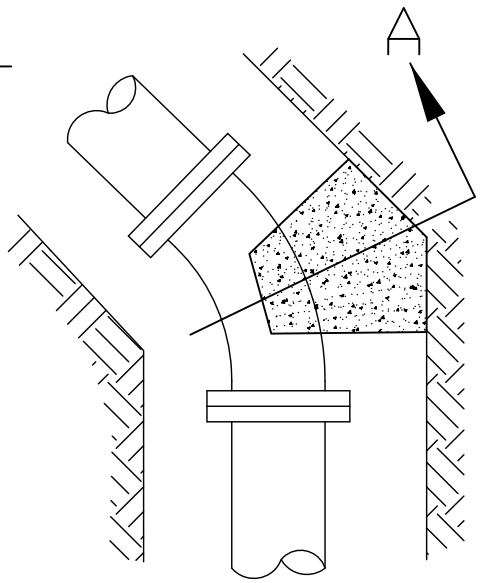






SECTION A

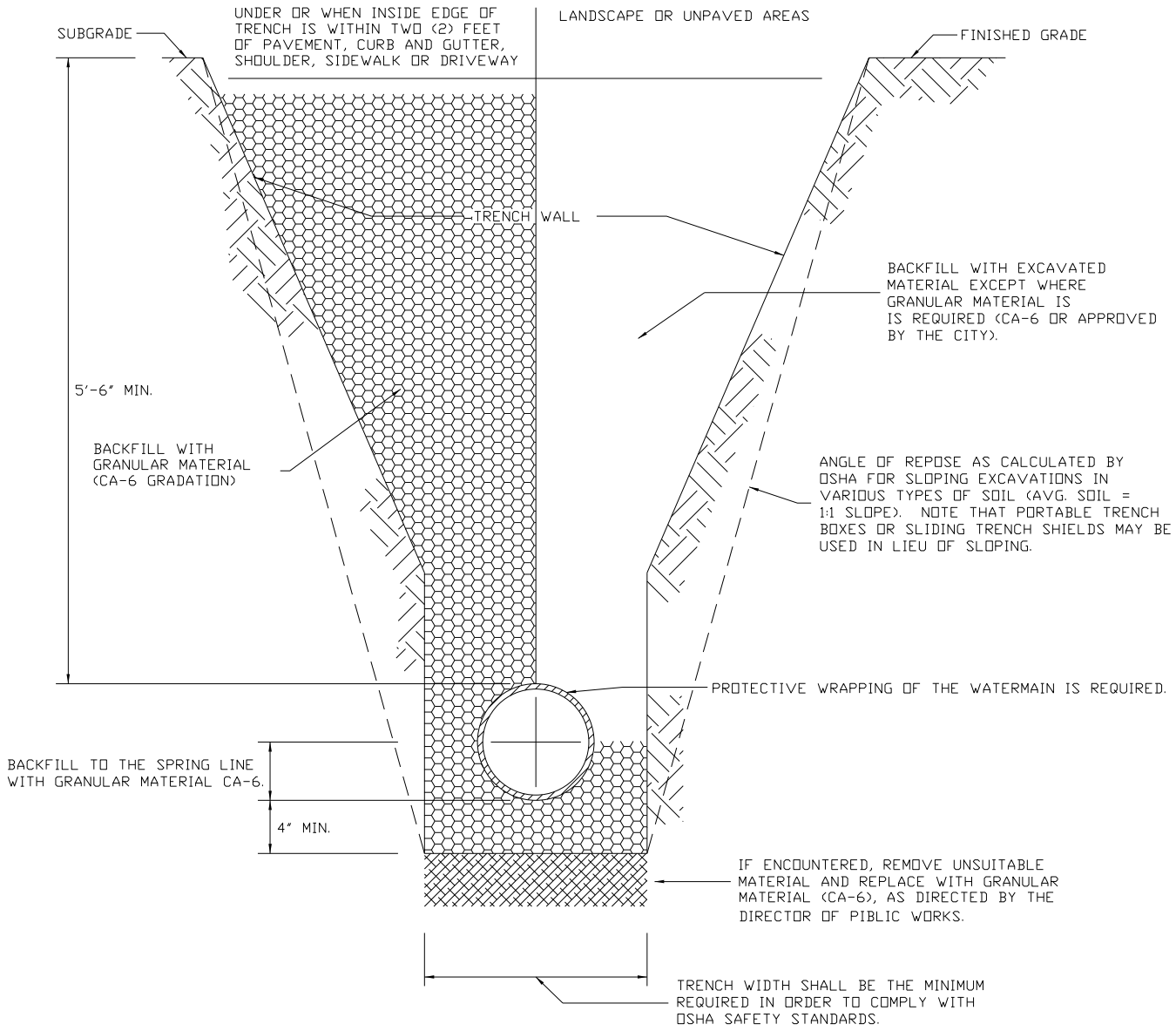




GENERAL NOTES:

1. THRUST BLOCKING IS USED TO PREVENT MOVEMENT OF LINES UNDER PRESSURE BENDS, TEES, CAPS, VALVES, HYDRANTS, AND AT POINTS SPECIFIED BY THE CITY. CONCRETE SHALL BE CLASS SI AND BE A MINIMUM OF TWELVE (12) INCHES THICK PLUS THE SIZE OF THE WATERMAIN. IT SHALL BE PLACED BETWEEN SOLID GROUND AND FITTINGS. FITTINGS WILL BE ACCESSIBLE FOR REPAIRS. THRUST BLOCK SHALL BE PLACED AT BENDS OF 11-1/4 DEGREES OR MORE. THE AREA OF BEARING SHALL BE SUFFICIENT TO RESIST THE APPLIED FORCES. USE OF 90 DEGREE BENDS REQUIRE APPROVAL FROM THE CITY PRIOR TO INSTALLATION.
2. USE OF WOOD MATERIAL FOR THRUST BLOCKING IS STRONGLY PROHIBITED.
3. THRUST BLOCKS MAY BE PRECAST OR CAST-IN-PLACE.

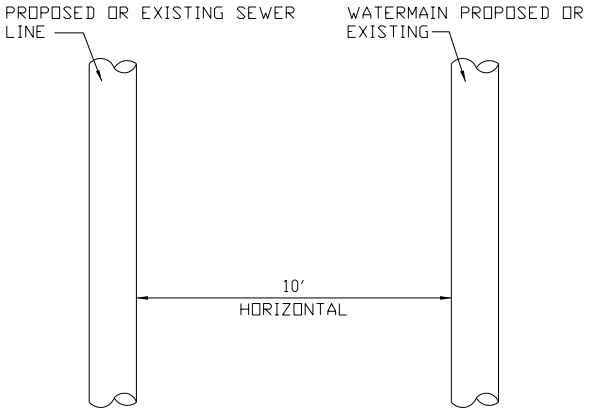
REV.:	REV.:	THRUST BLOCK INSTALLATION	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		WATER 6



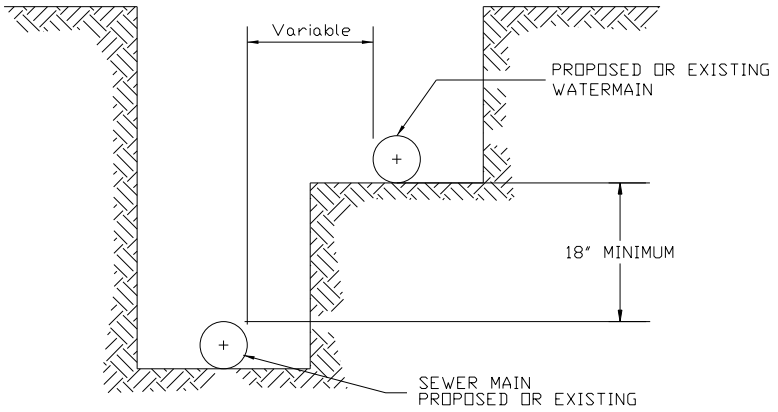
GENERAL NOTES:

1. CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN A SAFE MANNER AT ALL TIMES AND SHALL COMPLY WITH ALL APPLICABLE GOVERNING REGULATIONS, INCLUDING BUT NOT LIMITED TO OSHA SAFETY STANDARDS.
2. ALL BACKFILL MATERIAL UP TO A HEIGHT OF 12 INCHES ABOVE THE PIPE SHALL BE CAREFULLY DEPOSITED IN UNIFORM LAYERS NOT EXCEEDING 8 INCHES THICK (LOOSE MEASURE). THE MATERIAL IN EACH LAYER SHALL BE FIRMLY COMPACTED BY RAMMING OR TAMPING WITH TOOLS APPROVED BY THE CITY IN SUCH A MANNER AS NOT TO DISTURB OR INJURE THE PIPE. THE BACKFILLING ABOVE THIS HEIGHT SHALL BE DONE AS NOTED BELOW.
3. GRANULAR BACKFILL MATERIAL SHALL BE PLACED AND COMPACTED AS SPECIFIED IN NOTE 2, ABOVE. THE USE OF JETTING SHALL NOT BE ALLOWED UNLESS AUTHORIZED IN WRITING BY THE CITY. IT SHALL BE THE DESIGN ENGINEER OR CONTRACTOR'S RESPONSIBILITY TO PROVIDE APPROPRIATE JUSTIFICATION AND DOCUMENTATION (SOIL INVESTIGATION REPORTS, ETC.) TO THE CITY WITH THE REQUEST FOR APPROVAL OF JETTING.
4. BACKFILL MATERIAL CONSISTING OF SUITABLE EXCAVATED MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING TWELVE (12) INCHES THICK (LOOSE MEASURE) AND EACH LAYER SHALL BE COMPACTED BY RAMMING OR TAMPING TO ACHIEVE THE REQUIRED COMPACTION. JETTING OF THIS MATERIAL MAY BE PERMITTED WHEN AUTHORIZED IN WRITING BY THE CITY. IT SHALL BE THE DESIGN ENGINEER OR THE CONTRACTOR'S RESPONSIBILITY TO SUBMIT APPROPRIATE JUSTIFICATION AND DOCUMENTATION (SOIL INVESTIGATION REPORTS, ETC.) TO THE CITY WITH THE REQUEST FOR APPROVAL OF JETTING.

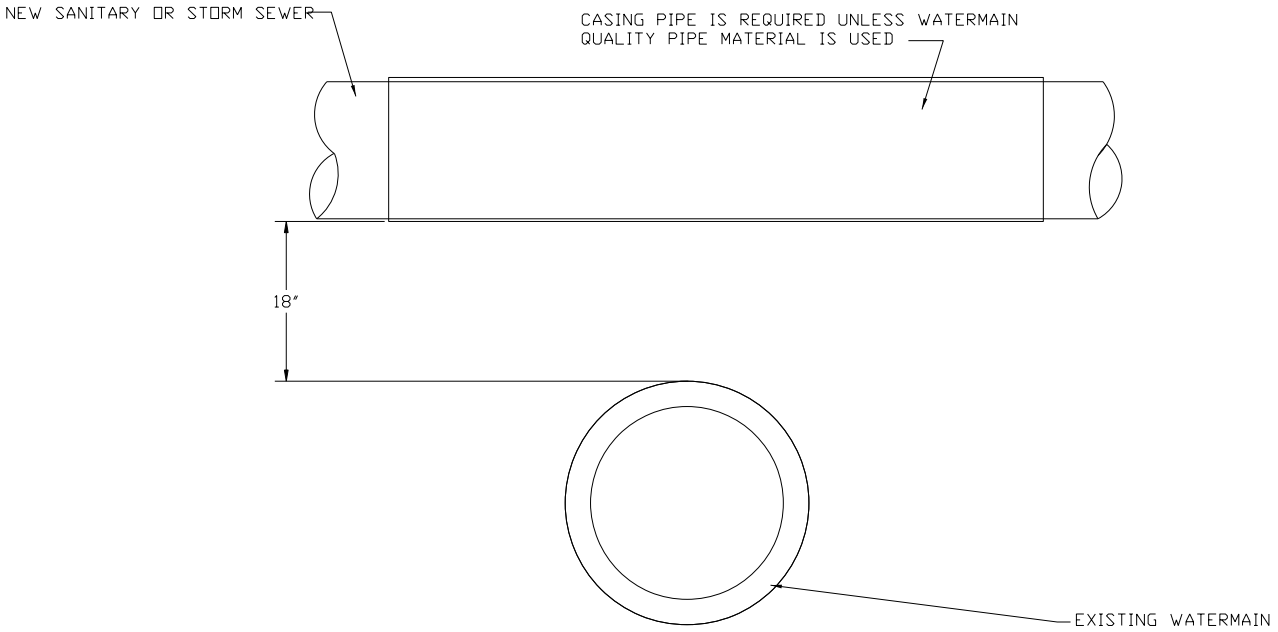
REV.:	ADD.:	WATER MAIN TRENCH SECTION	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		WATER 7



HORIZONTAL SEPARATION



VERTICAL SEPARATION



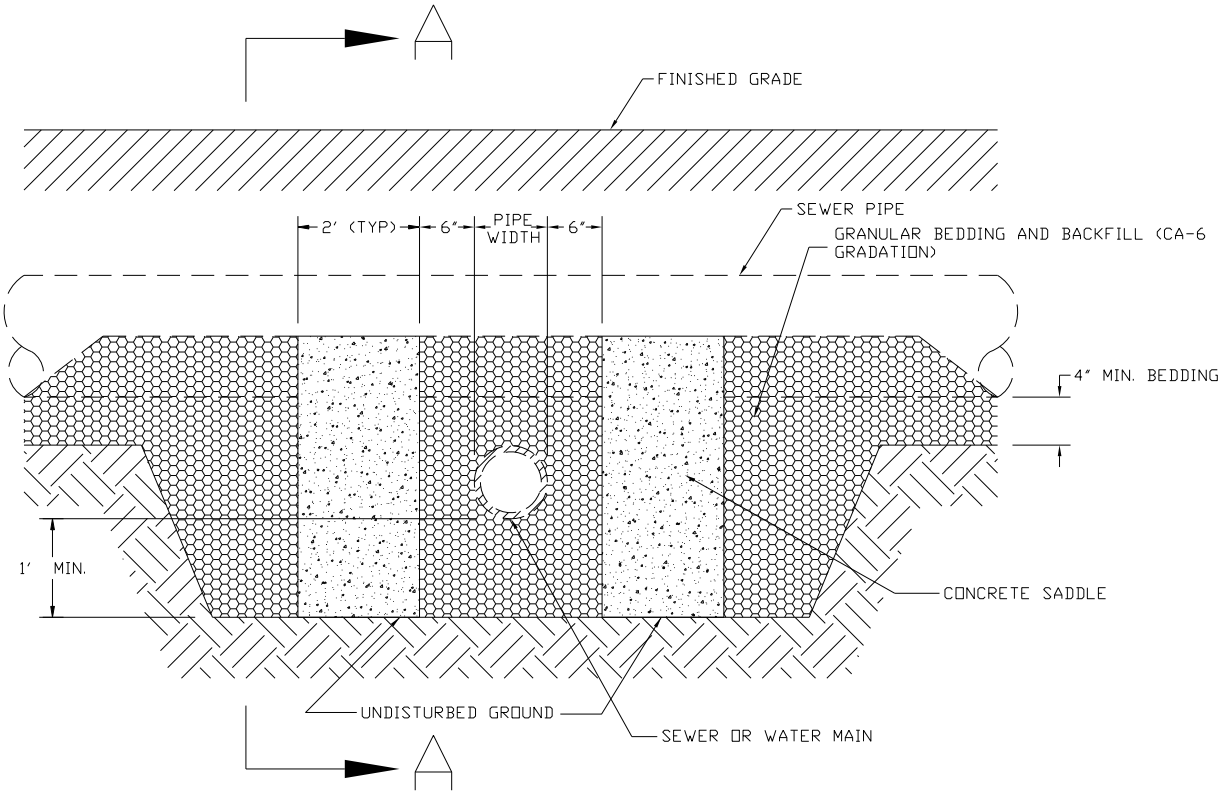
GENERAL NOTES:

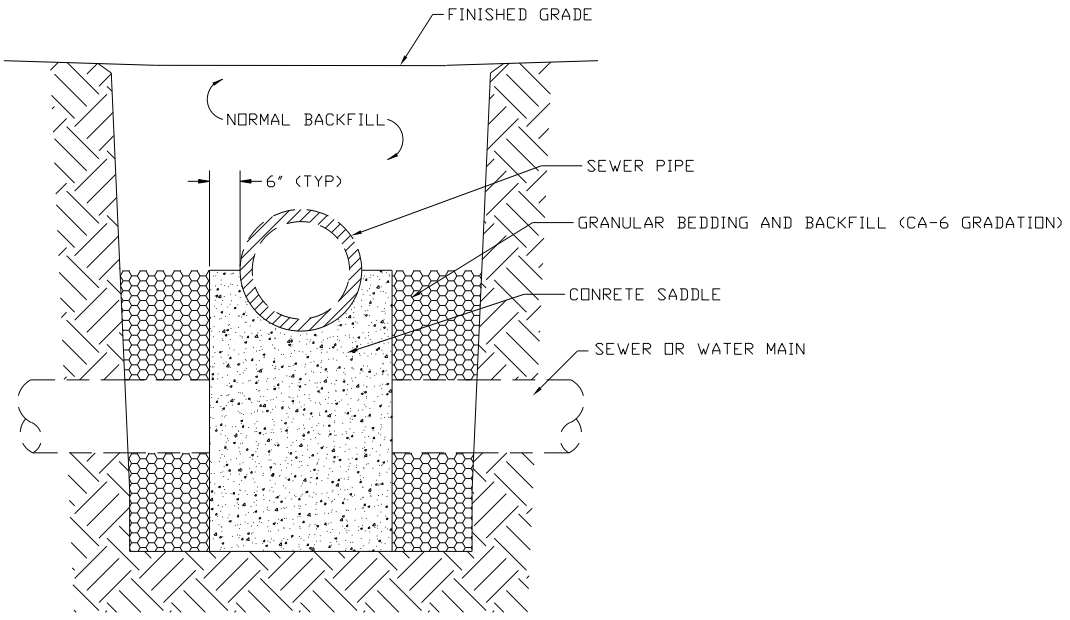
1. WHEN THE MINIMUM 10 FEET HORIZONTAL SEPARATION CANNOT BE ACHIEVED, AN 18 INCH VERTICAL SEPARATION MAY BE PERMITTED. THE VERTICAL SEPARATION SHALL BE MAINTAINED FOR ALL PORTIONS OF THE WATERMAIN THAT ARE WITHIN 10 HORIZONTAL FEET OF ANY SEWER OR DRAIN.

2. WHEN THE WATERMAIN MUST PASS UNDER A SEWER OR DRAIN, BOTH THE WATERMAIN AND SEWER SHALL BE CONSTRUCTED OF SLIP-ON OR MECHANICAL JOINT DUCTILE IRON PIPE, PRE-STRESSED CONCRETE PIPE, OR PVC PIPE MEETING WATERMAIN STANDARDS. (SEE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS).

3. WHEN THE WATERMAIN CROSSES UNDER A SEWER GREATER THAN 24 INCH IN DIAMETER, OR WHEN DIRECTED BY THE ENGINEER, THE SEWER SHALL BE SUPPORTED TO PREVENT SETTLING AND BREAKING OF THE WATER MAIN. REFER TO THE "CONCRETE SADDLE SUPPORT" WATER DETAIL 9.

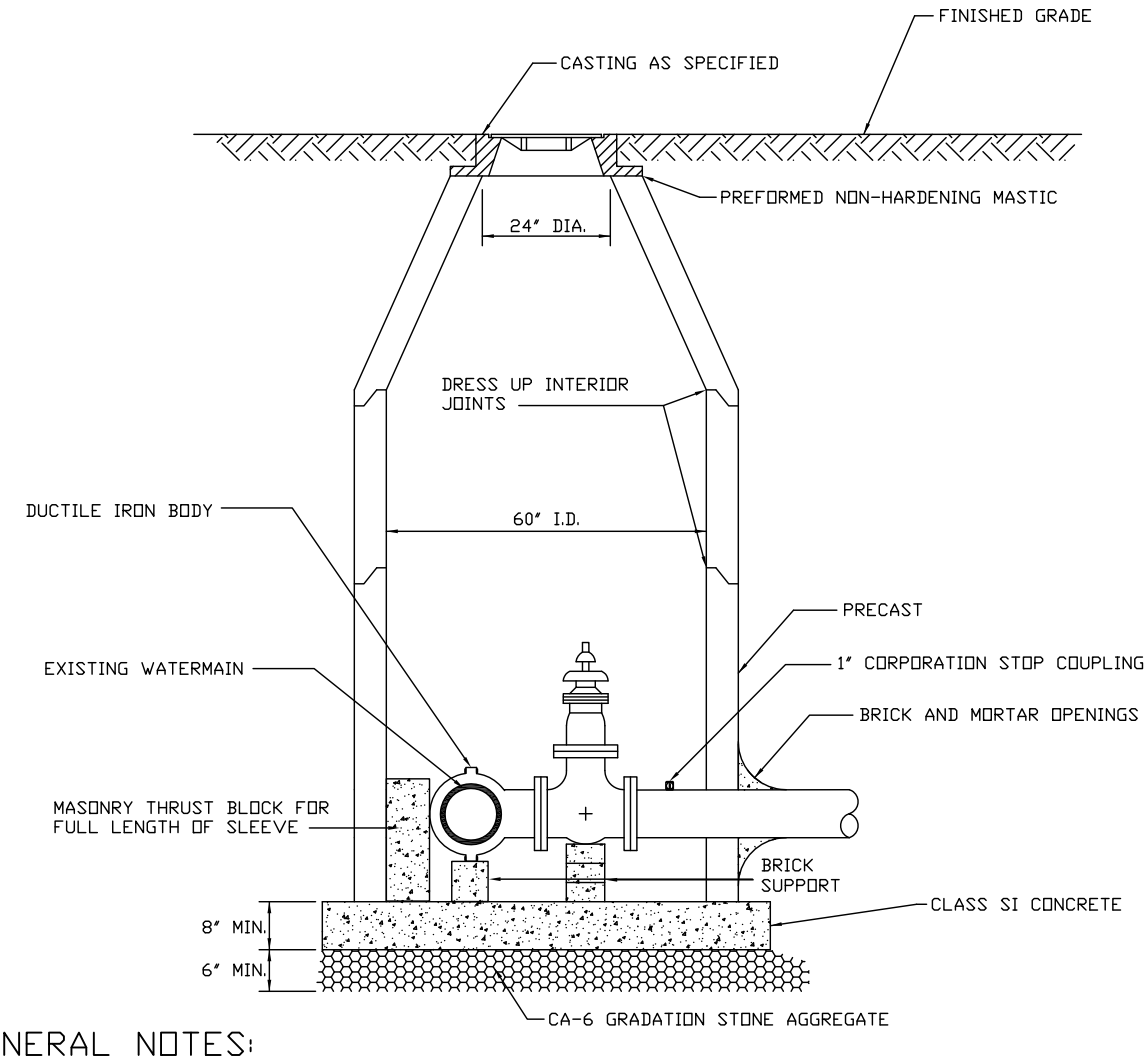
REV.:	REV	WATER AND SEWER SEPARATION	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		WATER 8





SECTION A-A

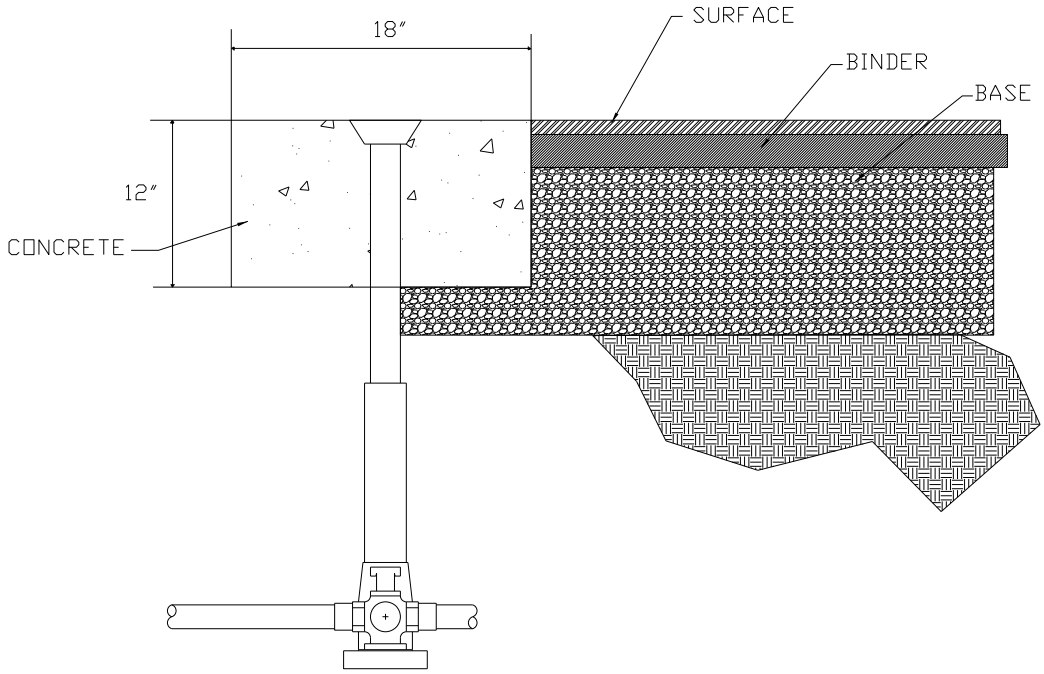
REV.:	ADD.:	CONCRETE SADDLE SUPPORT	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		WATER 9



GENERAL NOTES:

1. PROVIDE PRECAST REINFORCED CONCRETE BARREL AND RISER SECTION. CONCRETE BLOCK CONSTRUCTION IS NOT PERMITTED.
2. PROVIDE TRENCH BACKFILL, CA-6 GRADATION, AROUND MANHOLE TO SUBGRADE ELEVATION IN PAVED AREAS.
3. APPLY A CONTINUOUS LAYER OF NON-HARDENING PREFORMED BITUMINOUS MASTIC MATERIAL (RUB-R-NEK OR E Z STICK) TO EACH JOINT TO PREVENT INFLOW.
4. WHEN THE FRAME DOES NOT MEET PROPOSED ELEVATION, A MINIMUM OF TWO TAPERED RUBBERIZED ADJUSTING RINGS SHALL BE USED FOR FINAL ADJUSTMENT. ONE CONCRETE RING NOT LESS THAN TWO INCHES THICK MAY ALSO BE USED. A MAXIMUM OF THREE ADJUSTING RINGS MAY BE USED TO A MAXIMUM HEIGHT OF 12 INCHES. THE RING(S) AND FRAME SHALL BE SET ON A BED OF PREFORMED NON-HARDENING MASTIC (RUB-R-NEK OR APPROVED EQUAL).
5. PRECAST ADJUSTING RINGS SHALL BE REINFORCED WITH NO. 3 GUAGE WIRE OR EQUIVALENT.
6. MORTAR SHALL NOT BE USED TO DRESS UP ADJUSTING RINGS AND/OR FRAME.
7. PLASTIC POLYMER STEPS SHALL NOT BE INSTALLED, UNLESS APPROVED BY THE DIRECTOR OF PUBLIC WORKS OR THEIR DESIGNEE.
8. DRESS UP INTERIOR JOINTS WITH HYDRAULIC CEMENT.
9. VALVE MUST ALIGN WITH CENTER OF VAULT OPENING.
10. CONES MUST BE CONCENTRIC WITH VALVES 12" AND SMALLER.
11. BUTTERFLY VALVES REQUIRE ECCENTRIC CONES.

REV.:	REV.:	TYPICAL PRESSURE CONNECTION IN VAULT	CITY OF WOOD DALE
REV.:	REV.:		WATER 10
DRAWN BY:	DATE: 4-3-18		



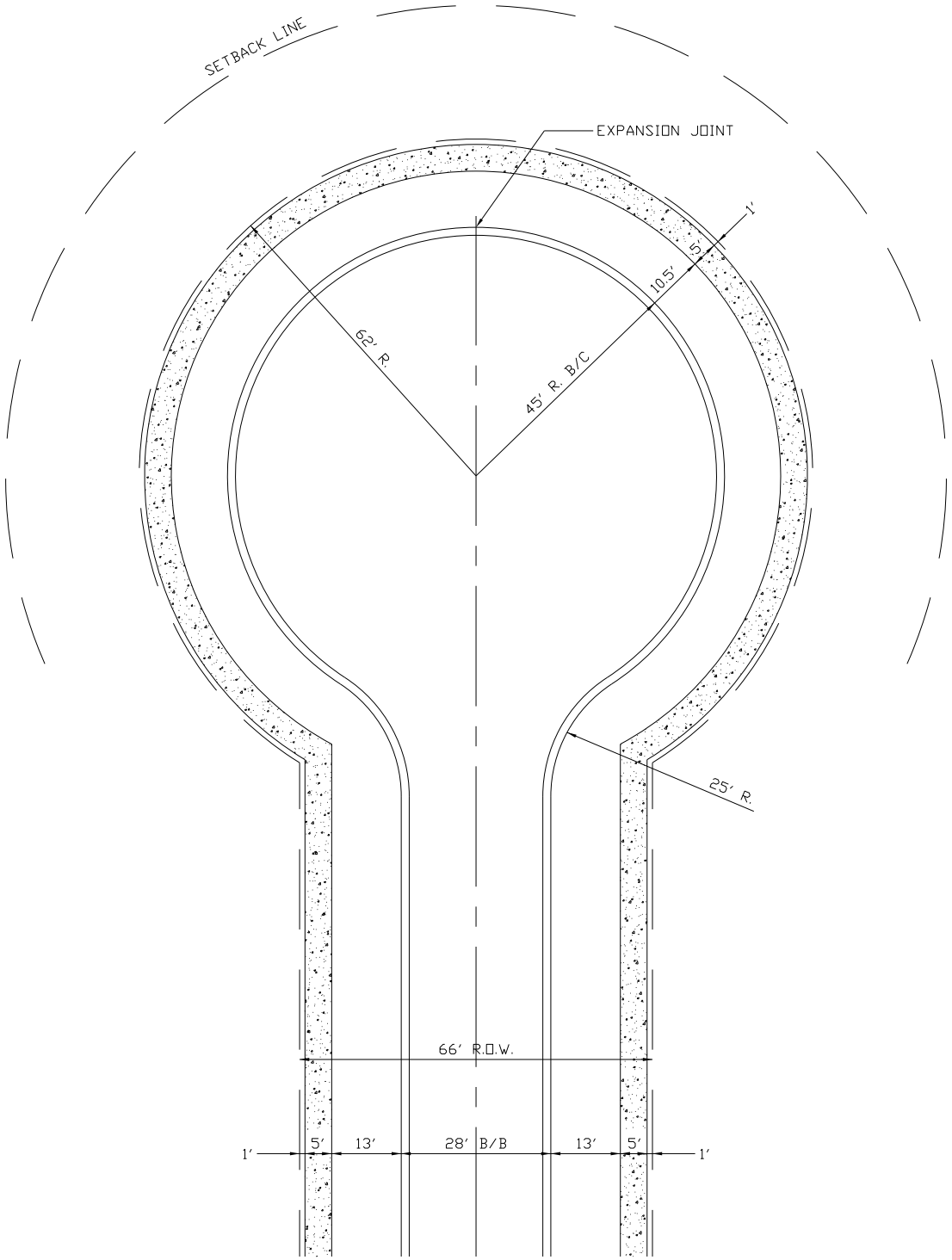
GENERAL NOTES:

1. CONCRETE COLLAR AROUND B-BOX WHEN B-BOX FALLS IN ASPHALT PAVEMENT.

REV.:		B-BOX ENCASEMENT	CITY OF WOOD DALE
REV.:			
DRAWN BY:	DATE: 4-3-18		WATER 11

SECTION 500- ROADWAY DETAILS

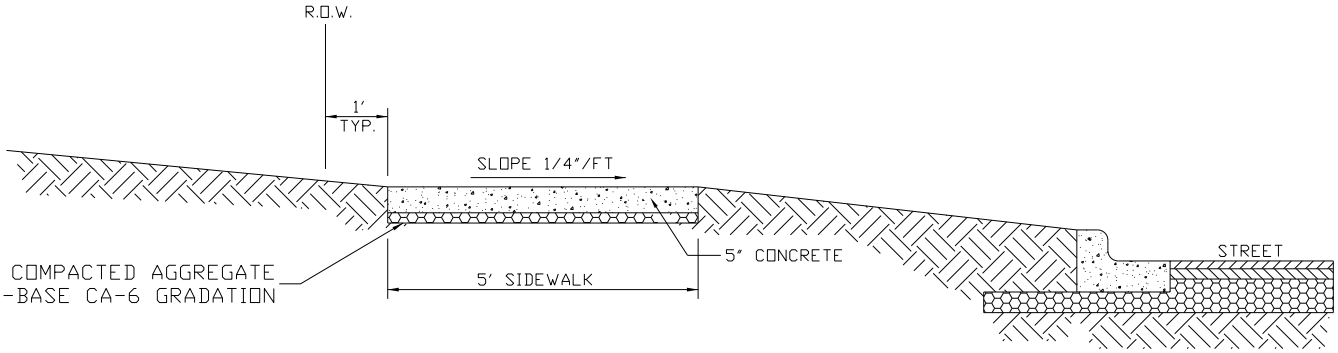
CONCENTRIC CUL-DE-SAC
SIDEWALK
HANDICAP SIDEWALK RAMP 1
HANDICAP SIDEWALK RAMP 2
SIDEWALK CONSTRUCTION
TYPICAL PAVEMENT CROSS SECTION 1
TYPICAL PAVEMENT CROSS SECTION 2
RESIDENTIAL DRIVEWAY APRON
COMMERCIAL DRIVEWAY APRON
CURB AND GUTTER
RIGID PAVEMENT UTILITY TRENCH
FLEXIBLE PAVEMENT UTILITY TRENCH
PAVEMENT BUTT JOINT
TYPICAL PARKING LOT PAVEMENT

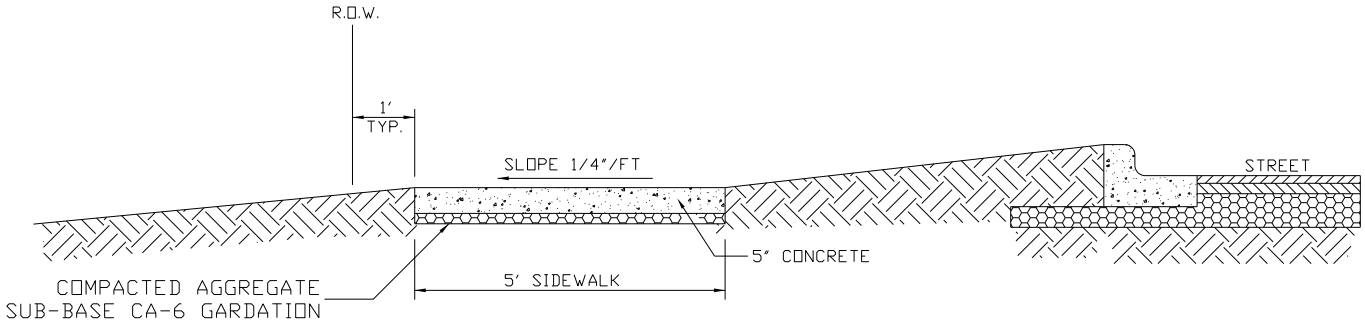


GENERAL NOTES:

1. THE CONCENTRIC CUL-DE-SAC ILLUSTRATION, AS PRESENTED ABOVE, IS PROVIDED AS A VISUAL AID. THE DIMENSIONS AS ILLUSTRATED ARE NOT ALL OF THE DIMENSION REQUIREMENTS FOR THE CITY OF WOOD DALE. DESIGNS SHALL BE REVIEWED ON A SITE SPECIFIC BASIS FOR COMPLIANCE WITH MUNICIPAL CODES. DIMENSION VARIATIONS MAY BE WARRANTED. ALL CONCENTRIC CUL-DE-SAC DESIGNS SUBMITTED FOR REVIEW AND APPROVAL, SHALL PROVIDE INFORMATION IN A FORM AS PRESENTED ABOVE.

DRAWN: 4-3-18		CONCENTRIC CUL-DE-SAC	CITY OF WOOD DALE
REV.:	REV.:		PAVEMENT 1

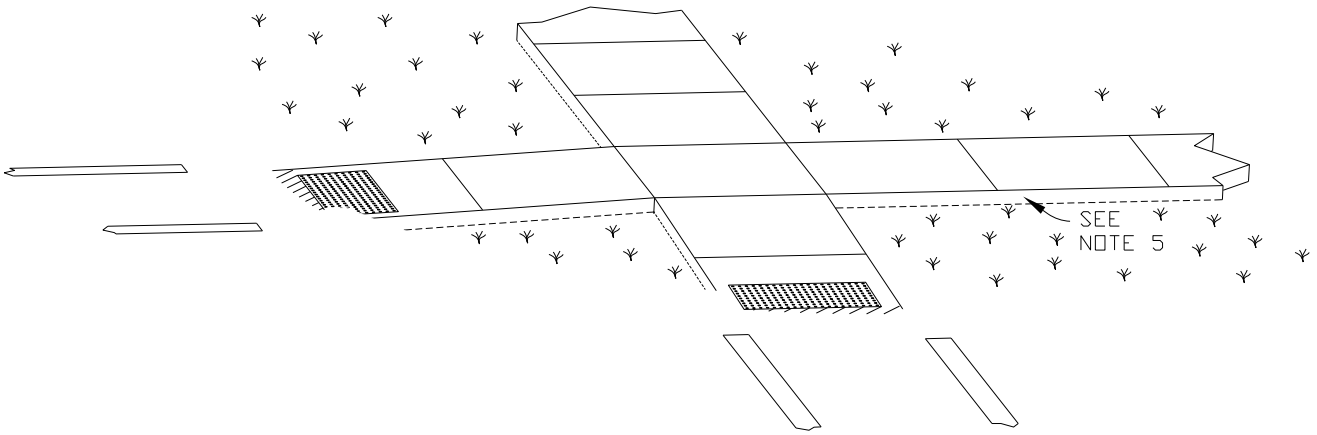


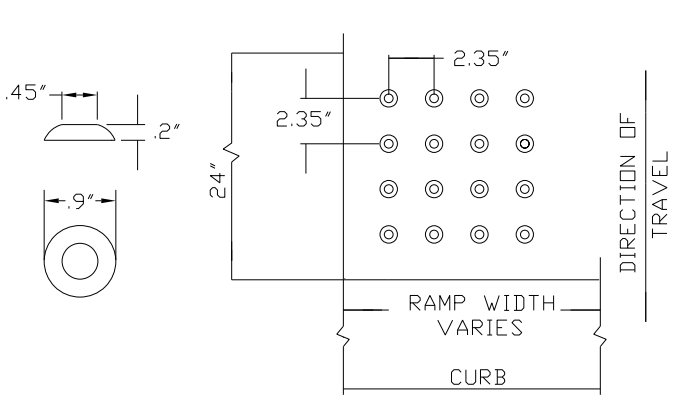


GENERAL NOTES:

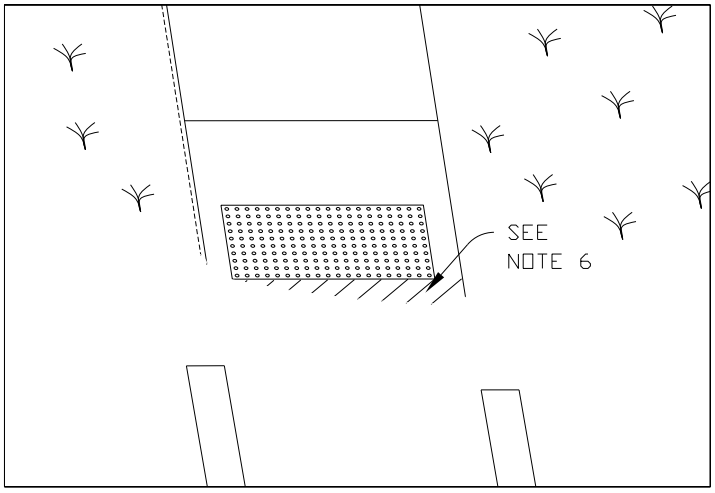
1. CONCRETE SHALL BE CLASS SI.
2. MINIMUM SIDEWALK THICKNESS SHALL BE FIVE INCHES (5").
3. SIDEWALK THICKNESS ACROSS DRIVEWAYS SHALL BE SIX INCHES (6") MINIMUM FOR RESIDENTIAL DRIVEWAYS, AND EIGHT INCHES (8") MINIMUM FOR NON-RESIDENTIAL DRIVEWAYS.
4. MAXIMUM LONGITUDINAL SLOPE SHALL NOT EXCEED 6% (16:1).
5. MINIMUM TRANSVERSE SLOPE SHALL BE 1/4"/FT. (2%) TYPICAL.
   MAXIMUM TRANSVERSE SLOPE SHALL BE NO GREATER THAN 1/2"/FT. (4%) TYPICAL.
6. A TWO INCH (2") MINIMUM AGGREGATE SUB-BASE (CA-6 GRADATION) SHALL BE PROVIDED (FOUR INCHES (4" MINIMUM) THROUGH NON-RESIDENTIAL DRIVEWAYS).
7. AGGREGATE SUB-BASE COURSE SHALL BE MECHANICALLY COMPACTED.
8. ALL SIDEWALK SHALL BE PROMPTLY BACKFILLED AND PROTECTED FROM DAMAGE.

DRAWN: 4-3-18		SIDEWALK	CITY OF WOOD DALE
REV.:			PAVEMENT 2





TRUNCATED DOME DETAIL
FOR PUBLIC RIGHT-OF-WAY



GENERAL NOTES:

1. RAMPS SHALL BE LOCATED AS SHOWN ON THE PLANS IN ALIGNMENT WITH NORMAL SIDEWALK AND/OR CROSSWALK AND SHALL HAVE SUFFICIENT CURB LENGTH AT CORNER RADIUS TO PREVENT VEHICULAR ENCROACHMENT.

2. CURB RAMPS AT MARKED CROSSINGS SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING ANY FLARED SIDES.

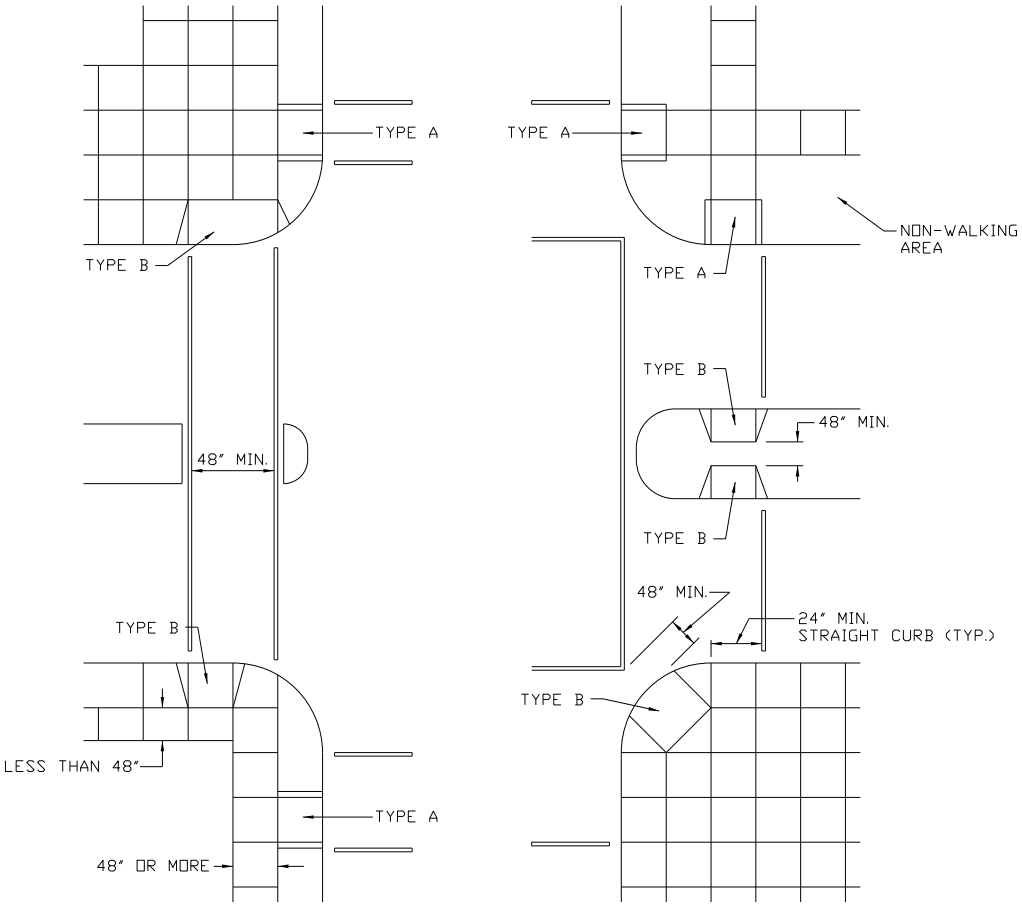
3. THE MAXIMUM SLOPE OF THE SIDE FLARE FOR TYPE B RAMPS SHALL BE 1:10. HOWEVER, IF THE WIDTH OF THE LANDING AREA BETWEEN THE TOP OF THE RAMP AND AN OBSTRUCTION IS LESS THAN 48 INCHES, THE MAXIMUM SLOPE SHALL BE 1:12.

4. RAMPS SHALL BE CONSTRUCTED OF P.C. CONCRETE IN ACCORDANCE WITH THE IDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION". DETECTABLE WARNING PANELS SHALL BE A 2 FOOT BY 4 FOOT SECTION CONSISTING OF TRUNCATED DOMES ALIGNED IN A SQUARE (PARALLEL ALIGNMENT) PATTERN. DETECTABLE WARNING PANELS SHALL BE SET BACK A MINIMUM OF 6 INCHES FROM THE FRONT OF CURB. THE TYPE OF DETECTABLE WARNING PANELS SHALL BE E-Z SET CERAMIC COMPOSITE DETECTIABLE WARNING PANELS, ARMOR-TILE, CAPE FEAR SYSTEM 3, OR APPROVED EQUAL.

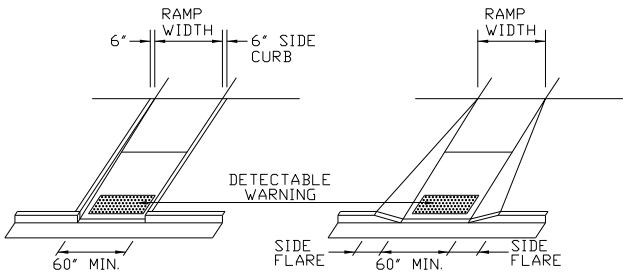
5. THICKNESS OF RAMPS WILL BE THE SAME AS THE ADJACENT SIDEWALK WITH A MINIMUM OF 5 INCHES. THICKNESS OF SIDEWALKS THROUGH RESIDENTIAL DRIVEWAYS SHALL BE A MINIMUM OF 6 INCHES. COMMERCIAL DRIVEWAYS SHALL BE A MINIMUM OF 8 INCHES.

6. UNLESS CURB RAMP IS ALIGNED PERPENDICULAR TO THE STREET RADIUS, AN AREA OF SPECIAL SHAPING MUST BE PROVIDED AT THE BOTTOM OF THE RAMP. THIS AREA SHALL ALLOW THE GRADE BREAK AT THE BOTTOM OF THE RAMP TO BE PERPENDICULAR TO THE RAMP AND SHALL PROVIDE A SMOOTH TRANSITION TO THE GUTTER LINE FOR WHEELCHAIR ACCESS. NO CURB LIP ALLOWED IN THIS AREA. MAXIMUM CROSS SLOPE SHALL BE 2%.

DRAWN:4-3-18	REV.:	HANDICAPPED SIDEWALK RAMP	CITY OF WOOD DALE
REV.:	REV.:		PAVEMENT 3A

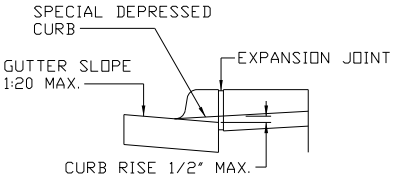


RECOMMENDED LOCATION OF RAMPS

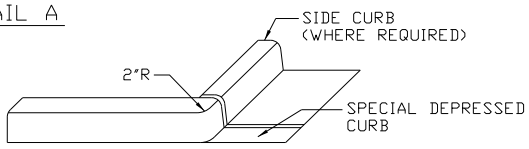


TYPE A TYPE B

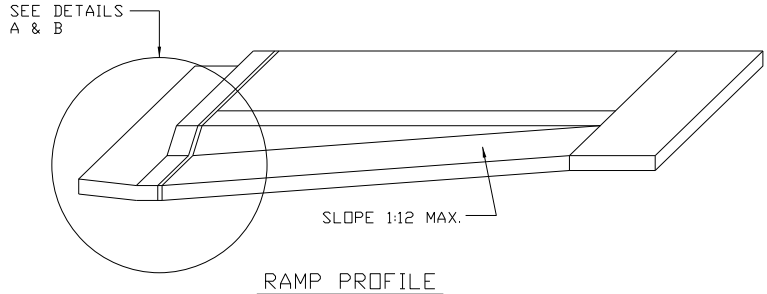
DETAILS OF RAMPS



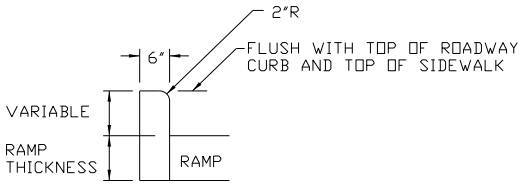
DETAIL A



DETAIL B



RAMP PROFILE



DETAIL OF SIDE CURB

(Side curb may be constructed monolithically with ramp.)

REV.:	REV.:	HANDICAPPED SIDEWALK RAMP (CONTINUED)	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		PAVEMENT 3B

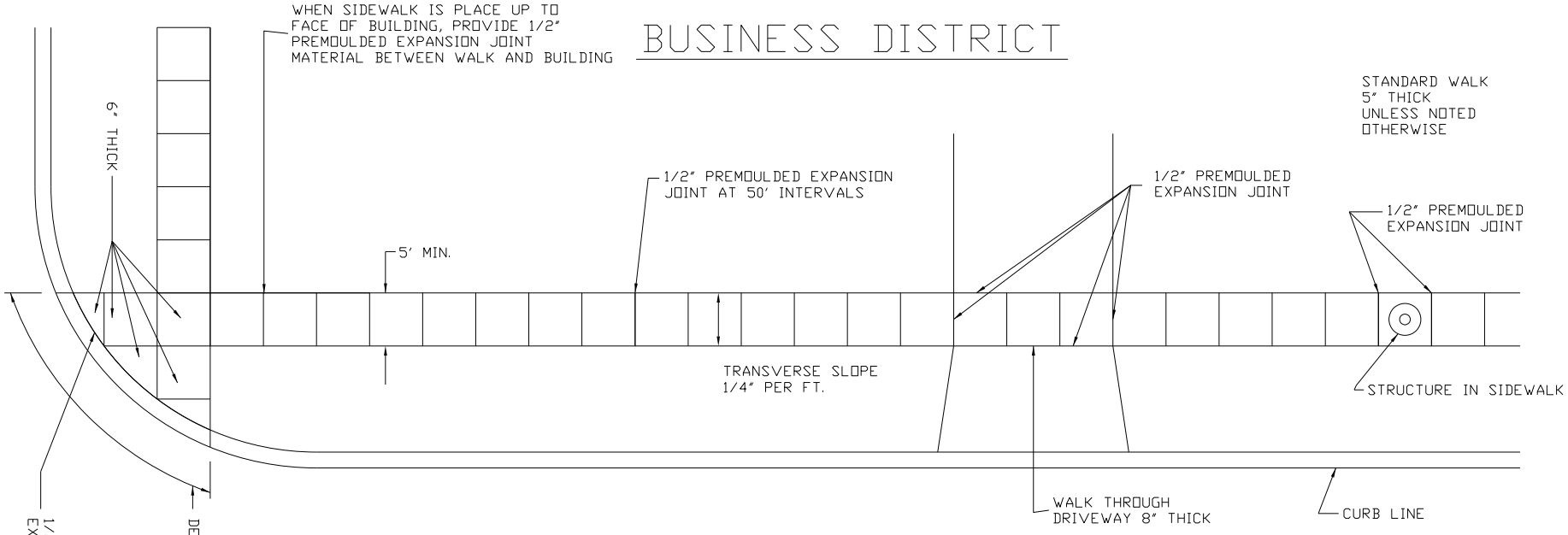
REV.:
REV.:
DRAWN BY:
REV.:
DATE: 4-3-18

SIDEWALK CONSTRUCTION

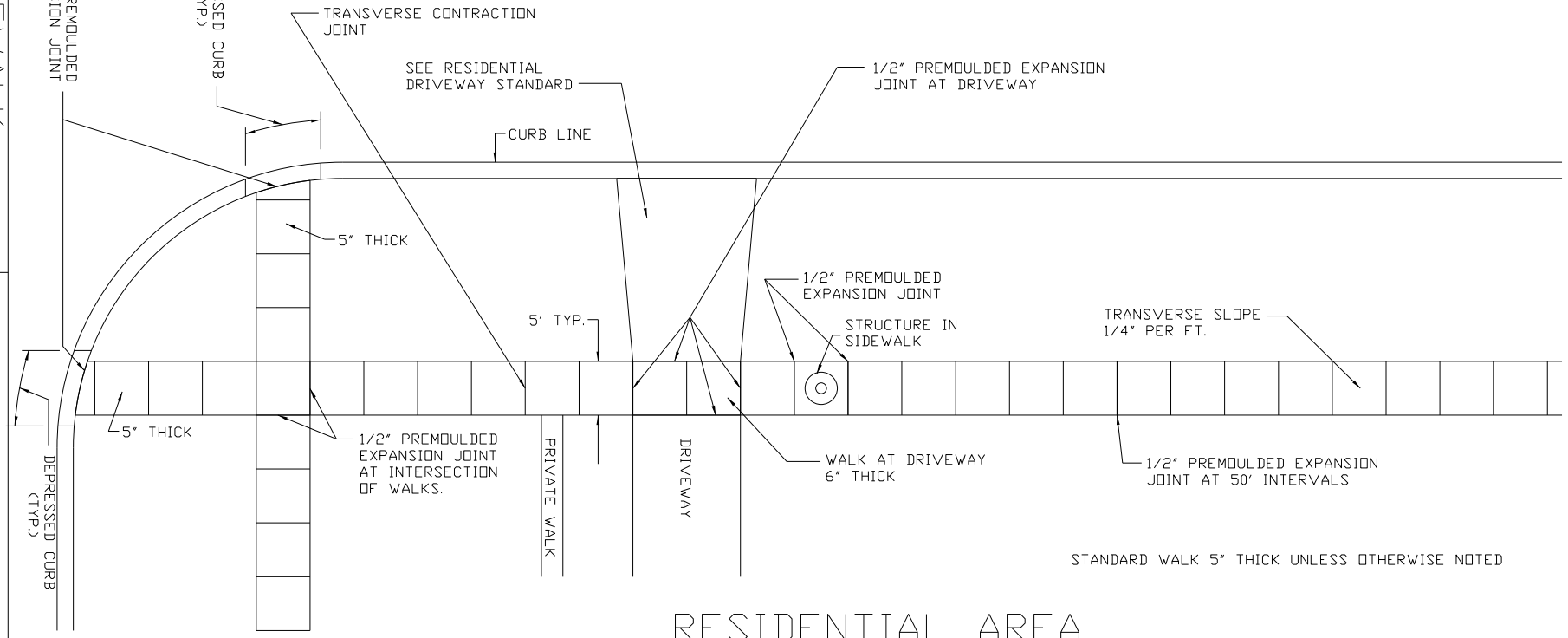
CITY OF WOOD DALE

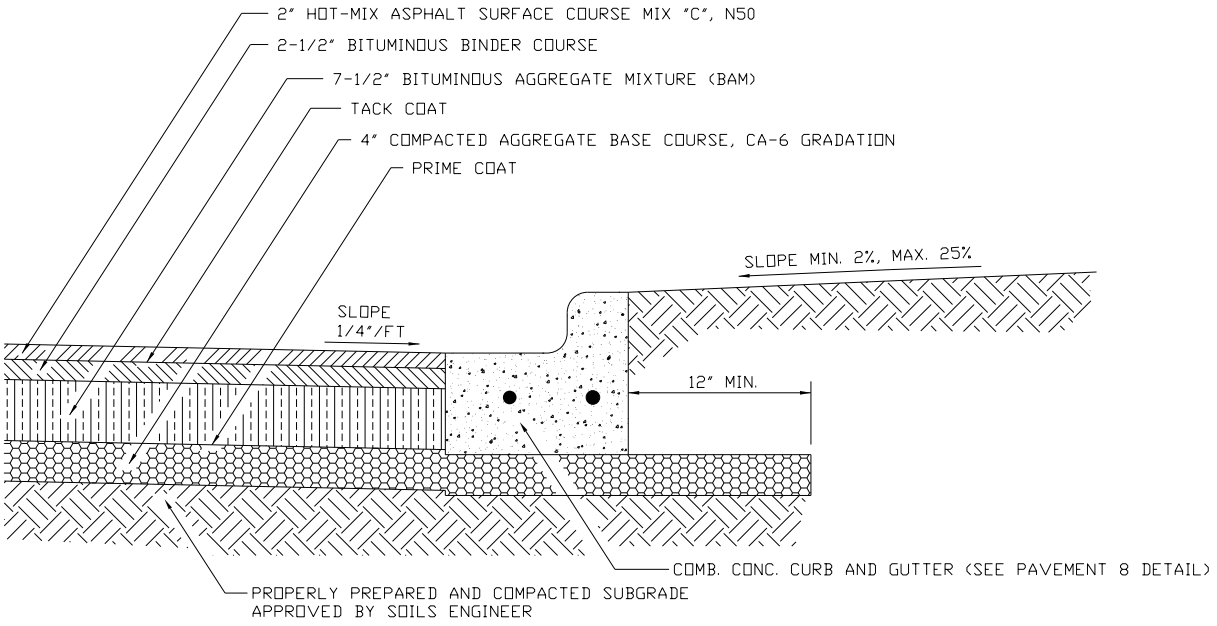
PAVEMENT 4

BUSINESS DISTRICT

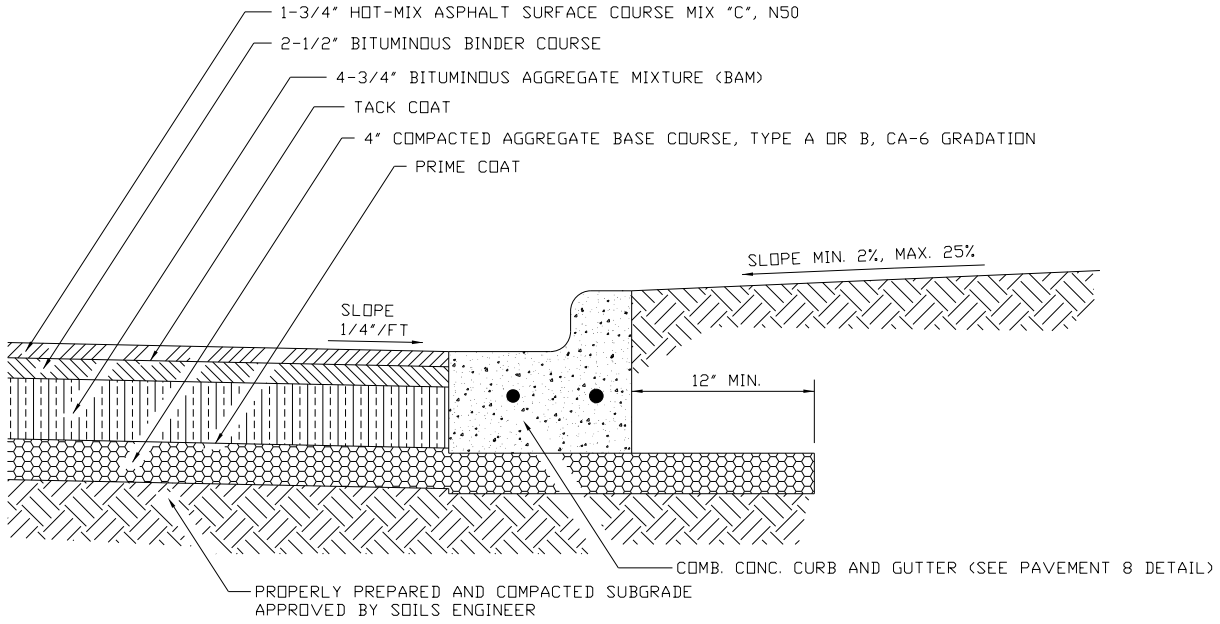


RESIDENTIAL AREA





FLEXIBLE PAVEMENT- NON-RESIDENTIAL

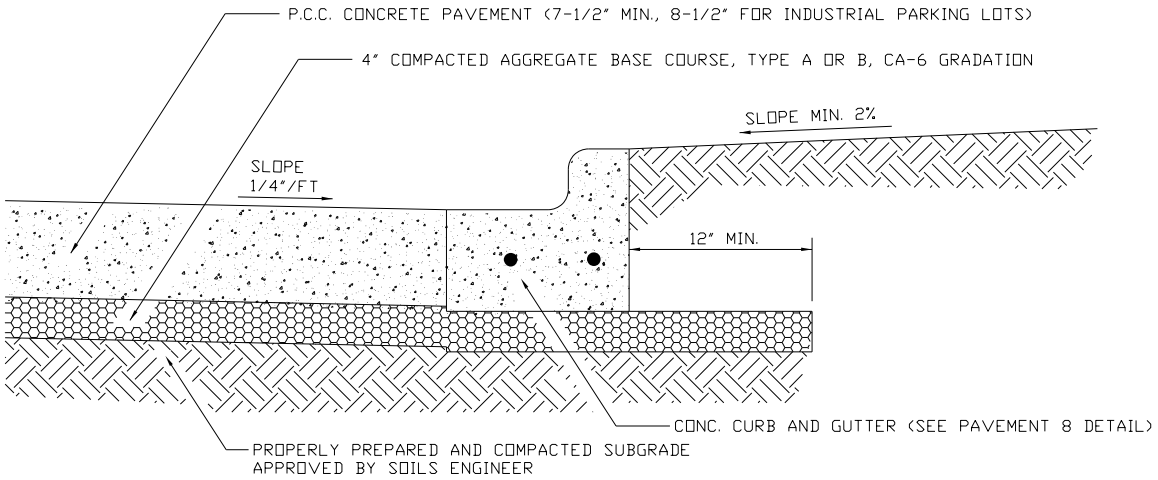


FLEXIBLE PAVEMENT - RESIDENTIAL

GENERAL NOTES:

1. DIMENSIONS SHOWN ARE MINIMUM VALUES. SOIL ANALYSIS AND TRAFFIC COUNTS SHALL BE USED FOR DETERMINING REQUIRED SECTION.
2. INTEGRAL CURB AND GUTTER SHALL NOT BE PERMITTED WITH RIGID OR COMPOSITE PAVEMENTS.
3. THE FOLLOWING MATERIALS ARE ACCEPTABLE AS BASE COURSE ALTERNATIVES: BITUMINOUS AGGREGATE MIXTURE (BAM) AND P.C. CONCRETE.
4. PROVIDE TACK COAT BETWEEN BAM AND BINDER COURSE IF NOT INSTALLED ON THE SAME DAY.

REV.:		TYPICAL PAVEMENT CROSS-SECTION	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		PAVEMENT 5

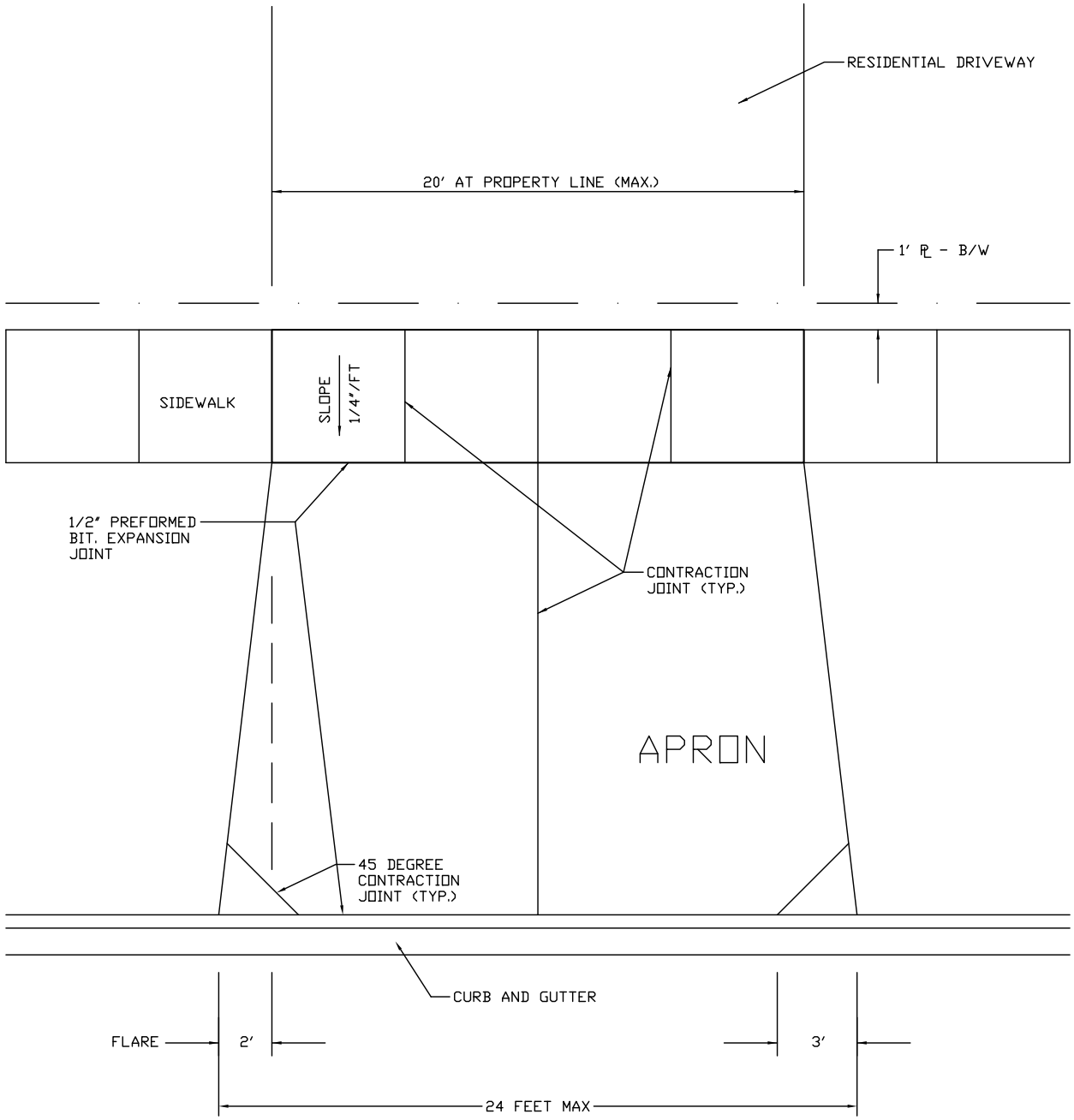


RIGID PAVEMENT

GENERAL NOTES:

1. DIMENSIONS SHOWN ARE MINIMUM VALUES. SOIL ANALYSIS AND TRAFFIC COUNTS SHALL BE USED FOR DETERMINING REQUIRED SECTION.
2. INTEGRAL CURB AND GUTTER SHALL NOT BE PERMITTED WITH RIGID OR COMPOSITE PAVEMENTS.
3. THE FOLLOWING MATERIALS ARE ACCEPTABLE AS BASE COURSE ALTERNATIVES: BITUMINOUS AGGREGATE MIXTURE (BAM) AND P.C. CONCRETE.
4. PROVIDE TACK COAT BETWEEN BAM AND BINDER COURSE IF NOT INSTALLED ON THE SAME DAY.

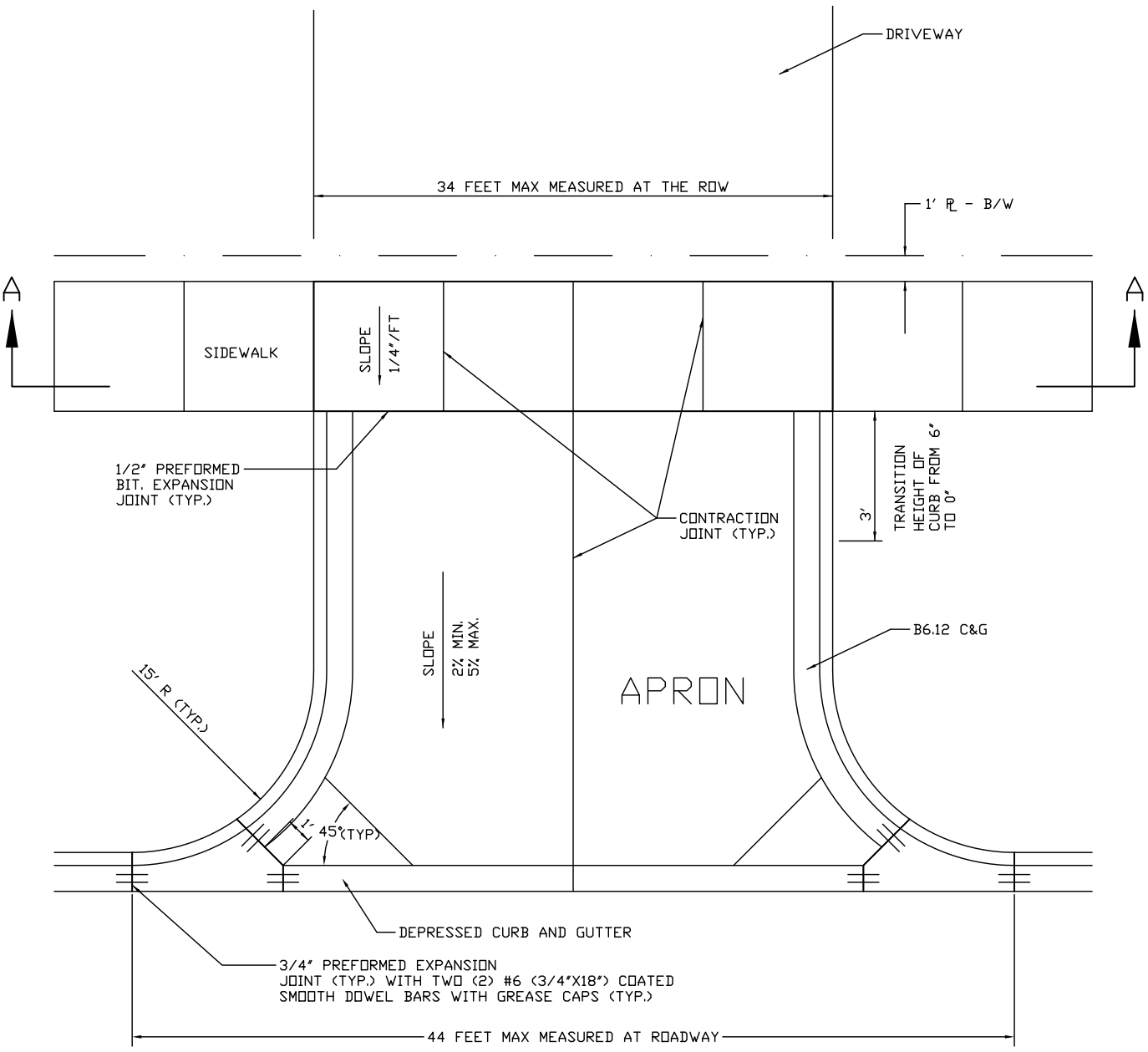
REV.:		TYPICAL PAVEMENT CROSS-SECTION	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		PAVEMENT 5A



GENERAL NOTES:

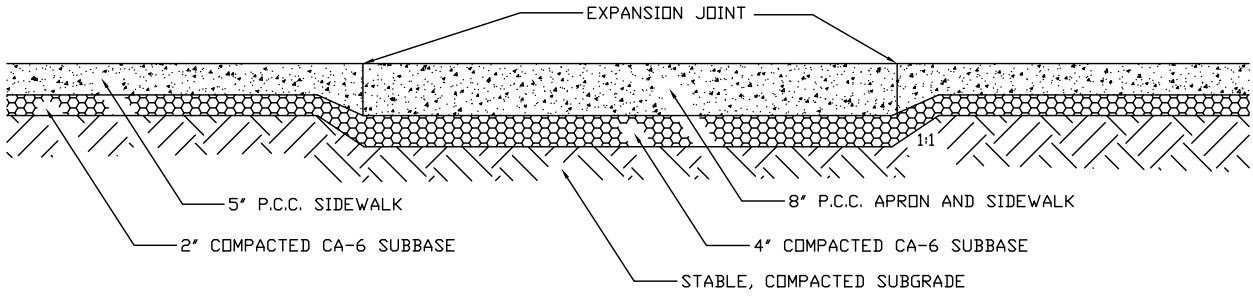
1. APRONS SHALL NOT EXCEED 20 FEET IN WIDTH MEASURED AT THE RIGHT-OF-WAY LINE NOR 24 FEET AT THE CURBLINE.
2. ALL AGGREGATE SUB-BASE SHALL BE MECHANICALLY COMPACTED.
3. MINIMUM THICKNESS FOR DRIVEWAY/APRONS: 6" P.C. CONCRETE ON 2" COMPACTED AGGREGATE SUB-BASE (CA-6 GRADATION), OR 3" BITUMINOUS SURFACE ON 6" COMPACTED AGGREGATE SUB-BASE (CA-6 GRADATION).
4. SIDEWALK SHALL EXTEND THROUGH THE DRIVEWAY.
5. DRIVEWAYS SHALL HAVE A MINIMUM SLOPE OF 2% AND A MAXIMUM SLOPE OF 8%.
6. DRIVEWAY APRONS SHALL HAVE A MINIMUM SLOPE OF 2% AND A MAXIMUM SLOPE OF 5%.
7. PATCHES ARE NOT ALLOWED IN NEW APRONS.

REV.:	REV.:	RESIDENTIAL DRIVEWAY/APRON	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		PAVEMENT 6



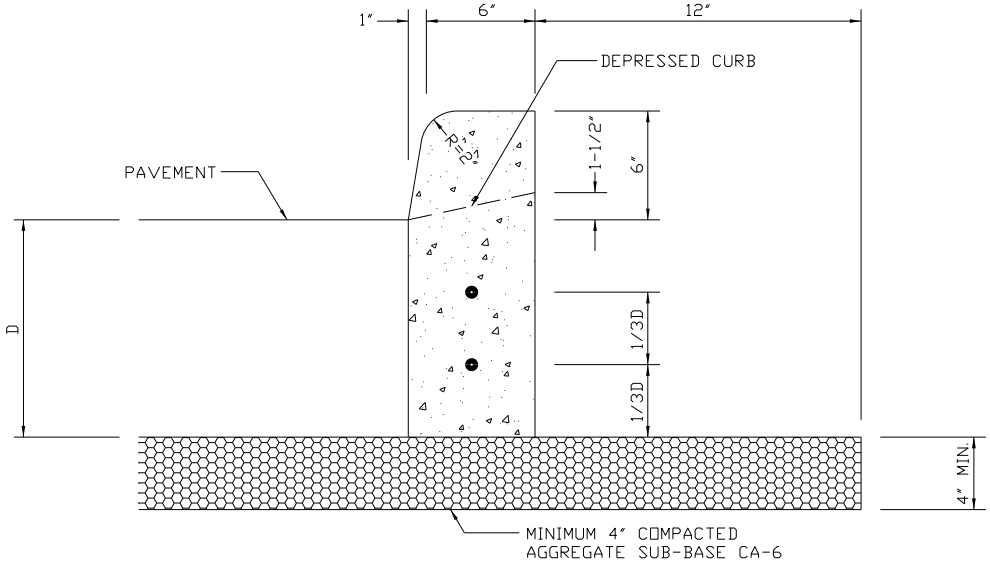
PLAN

NOTE:
ALL AGGREGATE SUBGRADE SHALL
BE MECHANICALLY COMPACTED.

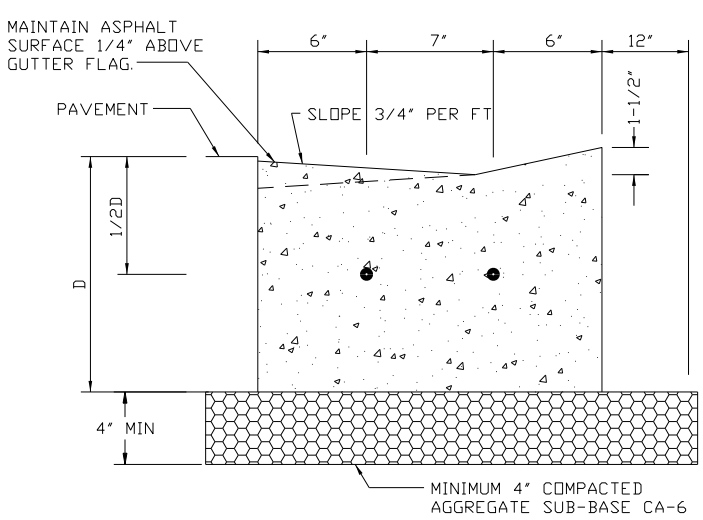


SECTION A-A

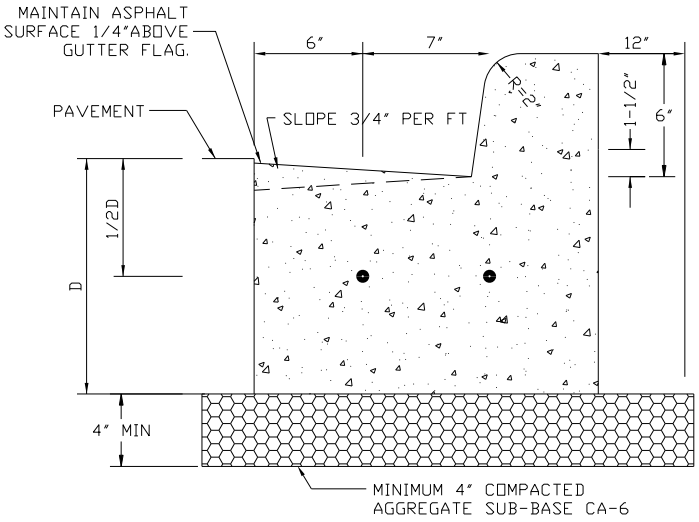
REV.:	REV.:	COMMERCIAL/INDUSTRIAL/ MULTI-FAMILY DRIVEWAY/APRON	CITY OF WOOD DALE
REV.:	REV.:		PAVEMENT 7
DRAWN BY:	DATE: 4-3-18		



6" CONCRETE CURB TYPE B



DEPRESSED COMBINATION CURB & GUTTER

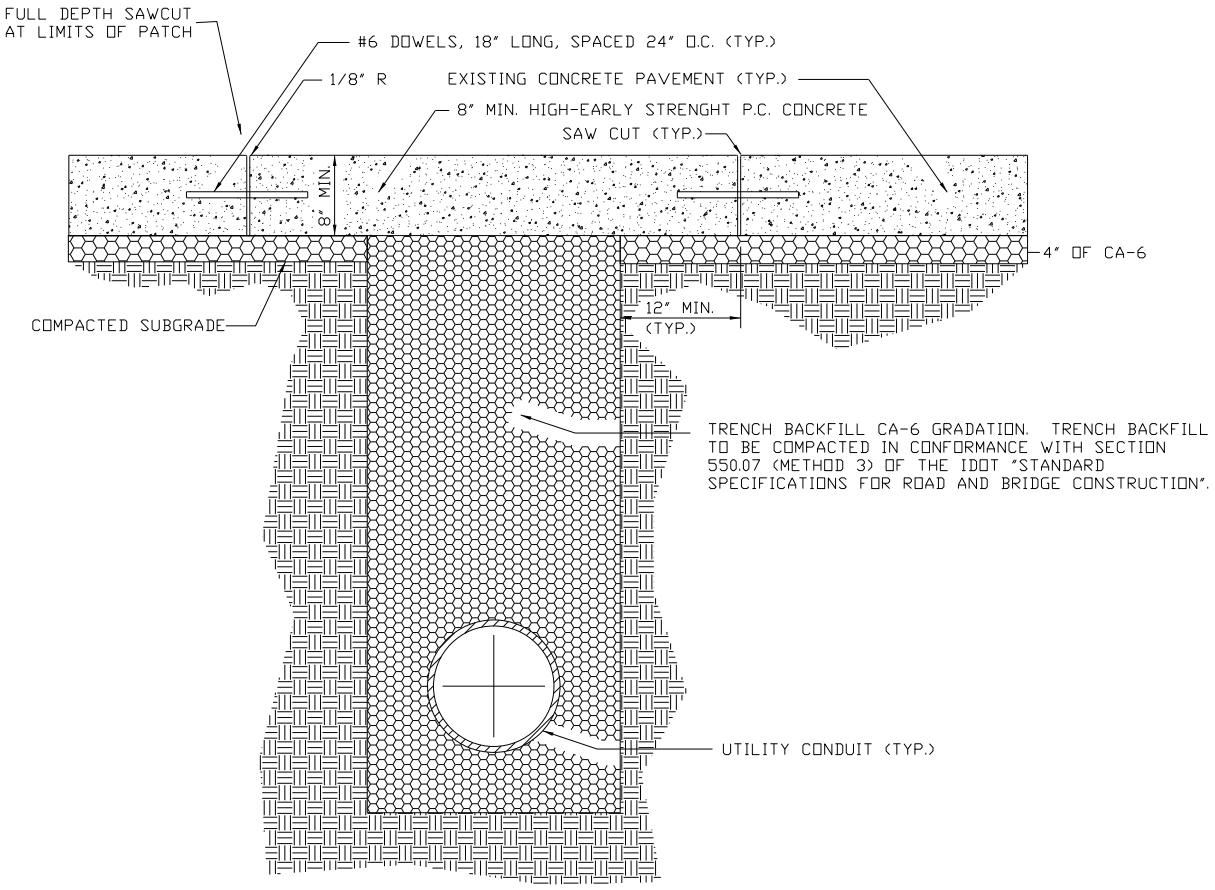


COMBINATION CURB & GUTTER

GENERAL NOTES:

1. 3/4" PREFORMED BITUMINOUS EXPANSION JOINT MATERIAL WITH TWO #6 COATED SMOOTH DOWEL BARS (3/4" DIAMETER X 18") WITH GREASED CAPS SHALL BE PLACED EVERY 45 FEET. THEY SHALL ALSO BE PLACED AT 10' EITHER SIDE OF DRAINAGE STRUCTURES, P.C.'S, RADIUS POINTS, AND BACK OF CUL-DE-SACS. WHEN EXPANSION JOINTS ARE CONSTRUCTED ADJACENT TO EXISTING CURB AND GUTTER, THE EXISTING CURB SHALL BE DRILLED, AND TWO # 6 COATED SMOOTH DOWEL BARS (3/4" DIAMETER x 18") SHALL BE GROUTED IN PLACE. GREASE CAPS SHALL BE PLACED ON THE SIDE OF THE NEW CURB AND GUTTER AND SHALL HAVE A PINCHED STOP THAT WILL PROVIDE A MINIMUM 1" EXPANSION.
2. TOOLED CONTROL JOINTS OR SAWCUTS SHALL BE MADE EVERY 15 FEET.
3. SAWCUTS SHALL BE MADE WITHIN TWENTY-FOUR (24) HOURS AND SEALED WITH A CITY APPROVED JOINT SEALANT. JOINTS SHALL BE CLEAN AND DRY PRIOR TO APPLICATION OF SEALANT.
4. TWO (2) #4 REBARS SHALL BE PLACED CONTINUEOUS THROUGHOUT THE CURB AND GUTTER.

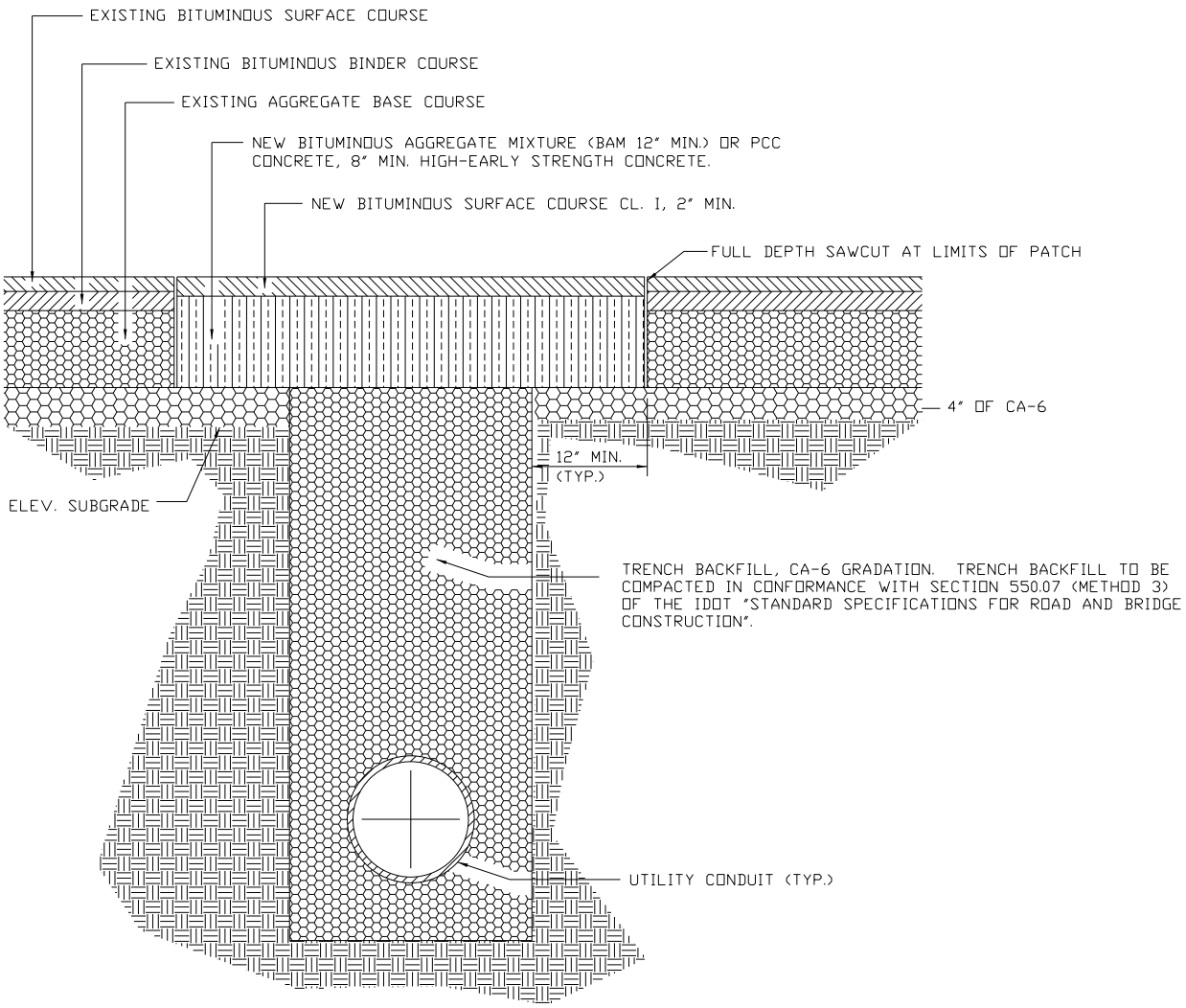
REV.:		CURB AND GUTTER	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		PAVEMENT 8



GENERAL NOTES:

1. PAVEMENT SHALL NOT BE OPENED WITHOUT FIRST RECEIVING A PERMIT FROM THE DEPARTMENT OF PUBLIC WORKS.
2. THE TRENCH SHALL BE BACKFILLED WITH AGGREGATE (CA-6 GRADATION) AND COMPACTED TO 95% OF THE STANDARD PROCTOR DENSITY. TRENCH SPOIL OR EXCAVATED MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR AT HIS EXPENSE.
3. PRIOR TO THE PLACING OF P.C. CONCRETE, THE EXPOSED EDGES OF ALL EXISTING PAVEMENT SHALL BE SAWCUT FULL DEPTH TO PROVIDE A SMOOTH, CLEAN VERTICAL EDGE, FREE OF LOOSE MATERIAL.
4. EXCAVATIONS SHALL BE PROTECTED BY BARRICADES WITH FLASHING LIGHTS, AT LOCATIONS WHERE ADJUSTMENTS ARE LOCATED IN TRAVEL LANES, A ONE-INCH (1") STEEL PLATE SHALL BE PLACED AND MAINTAINED BY THE CONTRACTOR UNTIL THE SURFACE RESTORATION IS COMPLETE. THE PLATE SHALL BE PROTECTED FROM SLIDING AND TRANSITIONED WITH BITUMINOUS RAMPS AS REQUIRED. BARRICADES AND STEEL PLATES SHALL BE PRESENT AT THE WORK SITE PRIOR TO THE ROAD OPENING.
5. MINIMUM WIDTH OF A CONCRETE PATCH SHALL BE FULL CONCRETE PANELS.

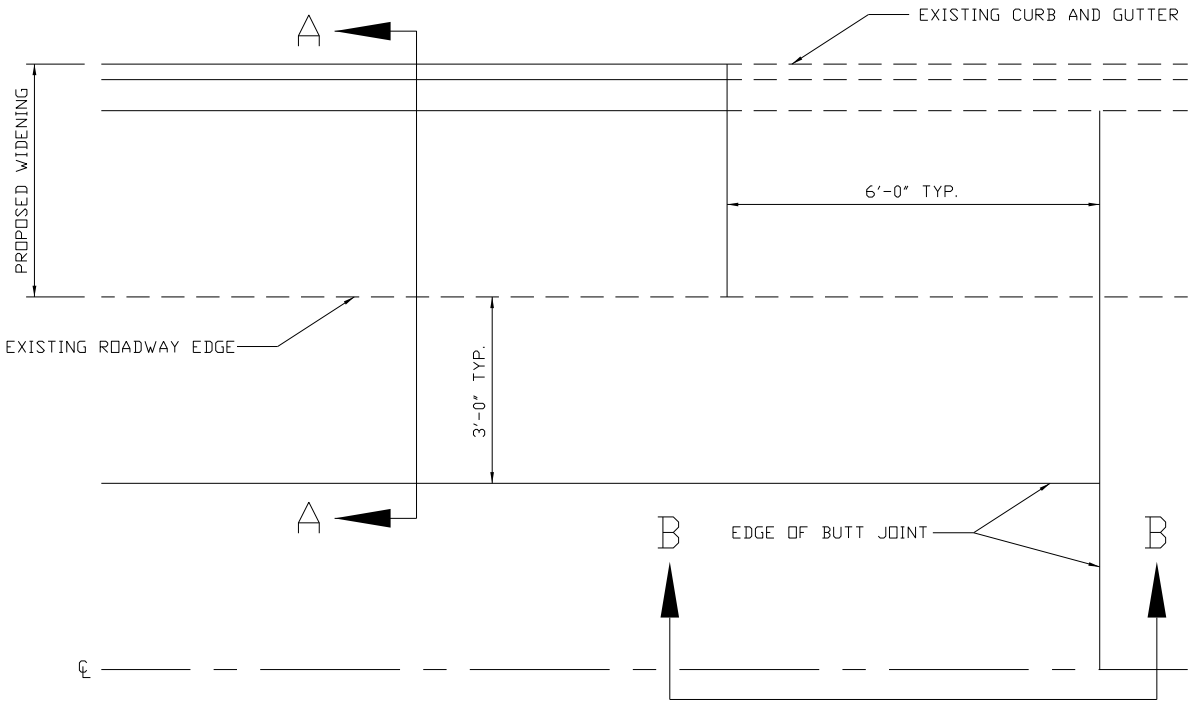
REV.:	REV.:	RIGID PAVEMENT UTILITY TRENCH	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		PAVEMENT 10

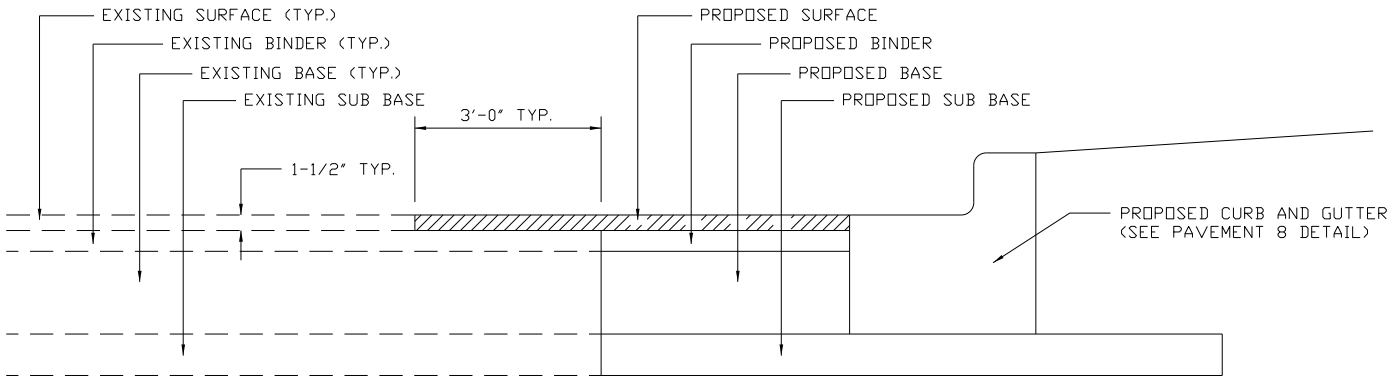


GENERAL NOTES:

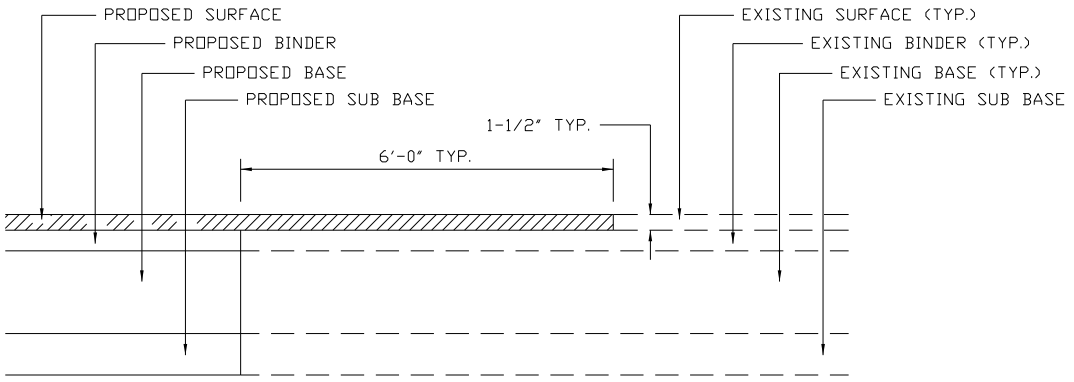
1. PAVEMENT SHALL NOT BE OPENED WITHOUT FIRST RECEIVING A PERMIT FROM THE DEPARTMENT OF PUBLIC WORKS.
2. THE TRENCH SHALL BE BACKFILLED WITH AGGREGATE (CA-6 GRADATION) AND COMPACTED TO 95% OF THE STANDARD PROCTOR DENSITY. TRENCH SPOIL OR EXCAVATED MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR AT HIS EXPENSE.
3. PRIOR TO THE PLACING OF P.C. CONCRETE, THE EXPOSED EDGES OF ALL EXISTING PAVEMENT SHALL BE SAWCUT FULL DEPTH TO PROVIDE A SMOOTH, CLEAN VERTICAL EDGE, FREE OF LOOSE MATERIAL.
4. EXCAVATIONS SHALL BE PROTECTED BY BARRICADES WITH FLASHING LIGHTS, AT LOCATIONS WHERE ADJUSTMENTS ARE LOCATED IN TRAVEL LANES, A ONE-INCH (1") STEEL PLATE SHALL BE PLACED AND MAINTAINED BY THE CONTRACTOR UNTIL THE SURFACE RESTORATION IS COMPLETE. THE PLATE SHALL BE PROTECTED FROM SLIDING AND TRANSITIONED WITH BITUMINOUS RAMPS AS REQUIRED. BARRICADES AND STEEL PLATES SHALL BE PRESENT AT THE WORK SITE PRIOR TO THE ROAD OPENING.
5. MINIMUM WIDTH OF A PATCH SHALL BE 4.0 FEET. ALL PATCHES SHALL FULL-DEPTH IN A RECTANGULAR SHAPE AND SHALL EXTEND ACROSS FULL LANES.

REV.:	REV.:	FLEXIBLE PAVEMENT UTILITY TRENCH	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		PAVEMENT 11





SECTION A-A

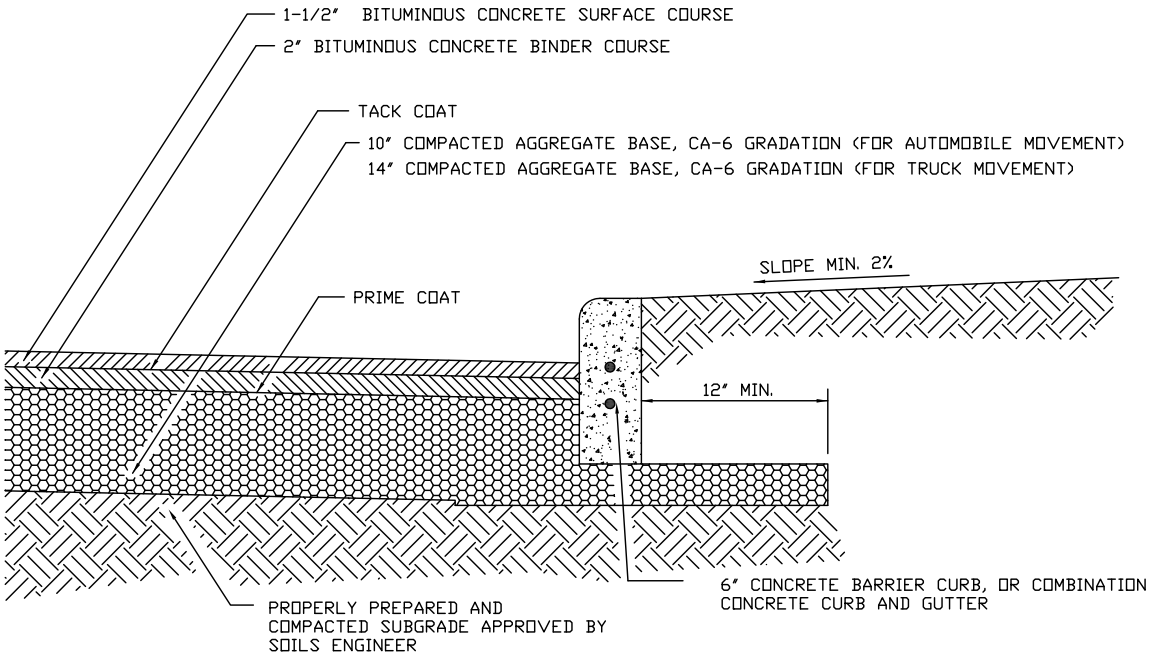


SECTION B-B

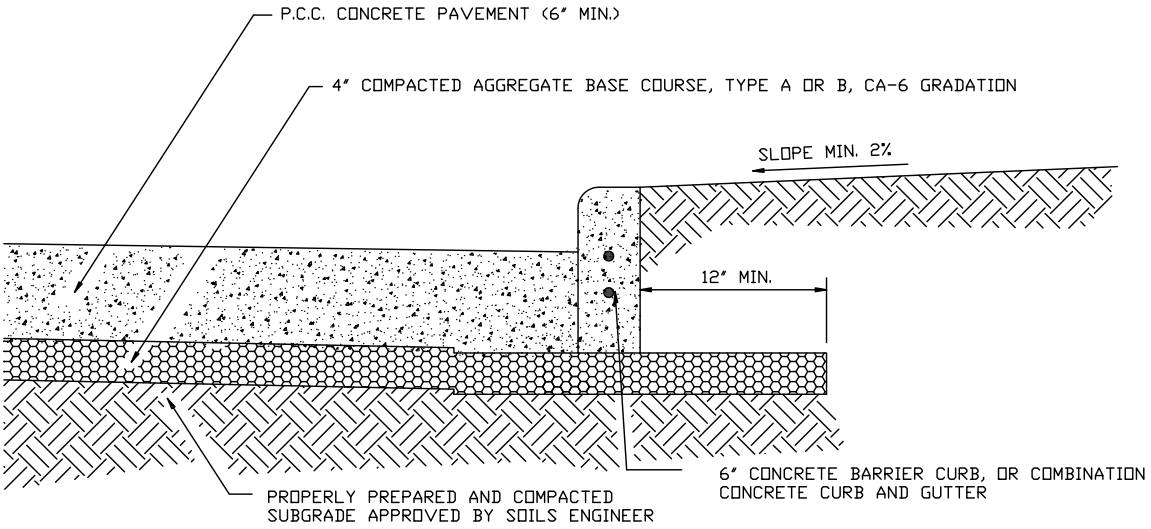
GENERAL NOTES:

1. FOR WIDENING LESS THAN 8 INCHES AND/OR WHERE REQUIRED COMPACTION IS DIFFICULT TO OBTAIN, CONCRETE BASE SHALL BE USED.

REV.:		PAVEMENT BUTT JOINT	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		PAVEMENT 12



FLEXIBLE PAVEMENT



RIGID PAVEMENT

GENERAL NOTES:

1. DIMENSIONS SHOWN ARE MINIMUM VALUES. SOIL ANALYSIS AND TRAFFIC COUNTS SHALL BE USED FOR DETERMINING REQUIRED PAVEMENT SECTION.
2. INTEGRAL CURB AND GUTTER SHALL NOT BE PERMITTED WITH RIGID OR COMPOSITE PAVEMENTS.
3. THE FOLLOWING MATERIALS ARE ACCEPTABLE AS BASE COURSE ALTERNATIVES: BITUMINOUS AGGREGATE MIXTURE (BAM) AND P.C. CONCRETE.
4. THE USE OF PERMEABLE AND NON-PERMEABLE PAVERS ARE ACCEPTABLE PROVIDED THAT THE INSTALLATION IS IN COMPLIANCE WITH THE MANUFACTURER'S REQUIREMENTS.

REV.:	REV.:	TYPICAL PARKING LOT PAVEMENT	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		PAVEMENT 13

SECTION 600- LIGHTING & TRAFFIC DETAILS

CITY STREET NAME SIGN STANDARD
DECORATIVE STREET NAME SIGN
DECORATIVE STOP SIGN
LIGHTING FOUNDATION
LIGHTING FOUNDATION SIZING CHART
CONCRETE POLE FOUNDATION
TRANSFORMER BASE 9”
CONTROL CABINET FOUNDATION
STREET LIGHT CONNECTION TYP 1
STREET LIGHT CONNECTION TYP 2
STREET LIGHTING CONTROLLER SCHEMATIC
CONDUIT UNDER PAVEMENT
CUT SHEETS OF APPROVED POLES, DECORATIVE POLES, AND FIXTURES

City Street Name Sign Standard

36"x 8"
C Series Letters

36"x 8"
C Series Letters

48"x 8"
C Series Letters

1) City street name signs shall be white background with black “C” series lettering and black border. All lettering sizes and spaces shall follow MUTCD Regulations
2) All street name signs shall contain the City Logo on the left hand side of the sign; this logo size shall be compliant with MUTCD Regulations.
3) Suffix shall be smaller than the street name.
4) All reflective sheeting shall be HIP or Diamond Grade. 3M products only unless approved by the Director of Public Works or their designee.
5) Blanks shall be .080 thickness
6) Minimum Blank size shall be 8” in with width. 12” blanks shall be used where applicable and appropriate per MUTCD as well as high visibility areas as designated by the Director of Public Works.

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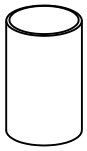
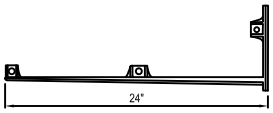
EXTRUDED ALUMINUM ALLOY 6005-T5
WALL THICKNESS .125"

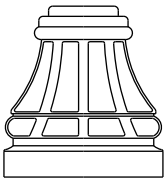


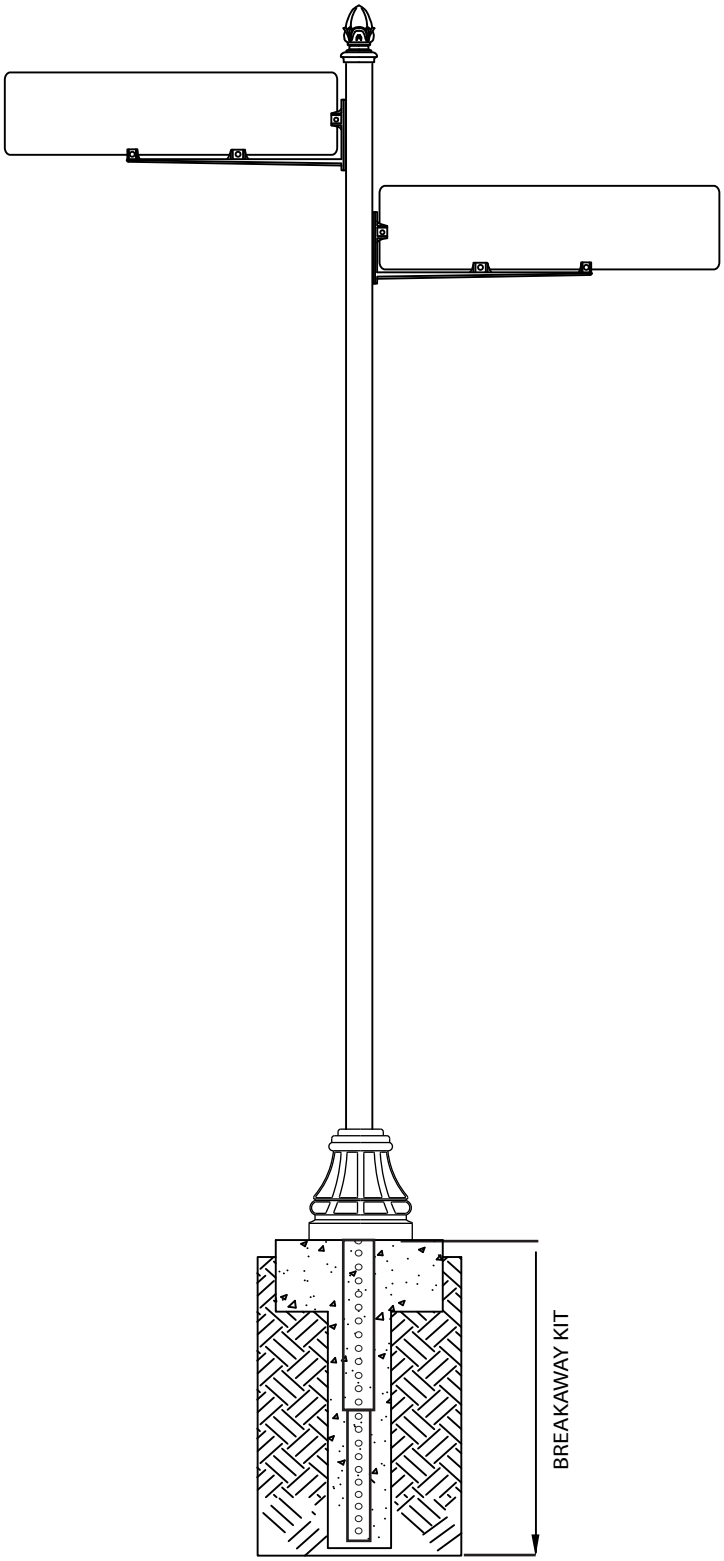
FINIAL:
FIN-A3- ACORN FINIAL FOR 3" OD ROUND POLE.
HEIGHT: 6.75"
WIDTH: 3.5"
CAST ALUMINUM ALLOY #356

TRIMS:
2WAYARM24 - CANTILEVER ARM FOR STREET SIGN
LENGTH: 24"



BASE:
2PCD - TWO-PIECE BASE FOR 3" OD POST
HEIGHT: 9.75"
WIDTH: 9"
CAST ALUMINUM ALLOY #356





NOTES:
COMPLETE UNIT SHOWN WITH 2' BELOW GRADE BURIAL.
DRAWING FOR INFORMATION ONLY, NOT INTENDED FOR CONSTRUCTION PURPOSES.

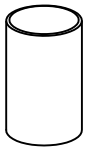
BRANDON®
INDUSTRIES

1601 Wilmeth Road
McKinney, Texas 75069
Phone: 972.542.3000
Toll Free: 800.247.1274
brandonindustries.com

Complete Sign Unit

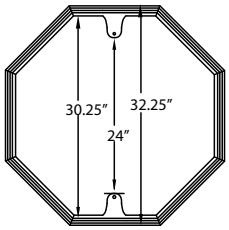
made from the following parts:

POLE:
SPS3X12 - 3" x 12' SMOOTH POLE
EXTRUDED ALUMINUM ALLOY 6005-T5
WALL THICKNESS .125"

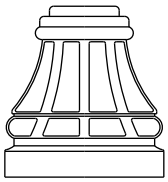


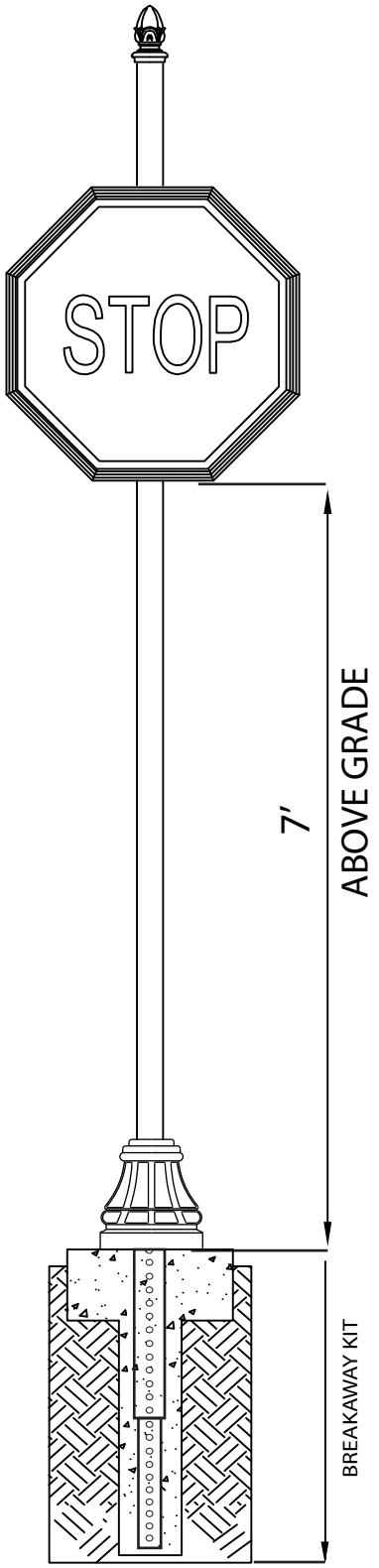
FINIAL:
FIN-A3- ACORN FINIAL FOR 3" OD ROUND POLE.
HEIGHT: 6.75"
WIDTH: 3.5"
CAST ALUMINUM ALLOY #356

TRIMS:
TSTOP30N- TRIM FOR 30" STOP SIGN
CAST ALUMINUM ALLOY #356

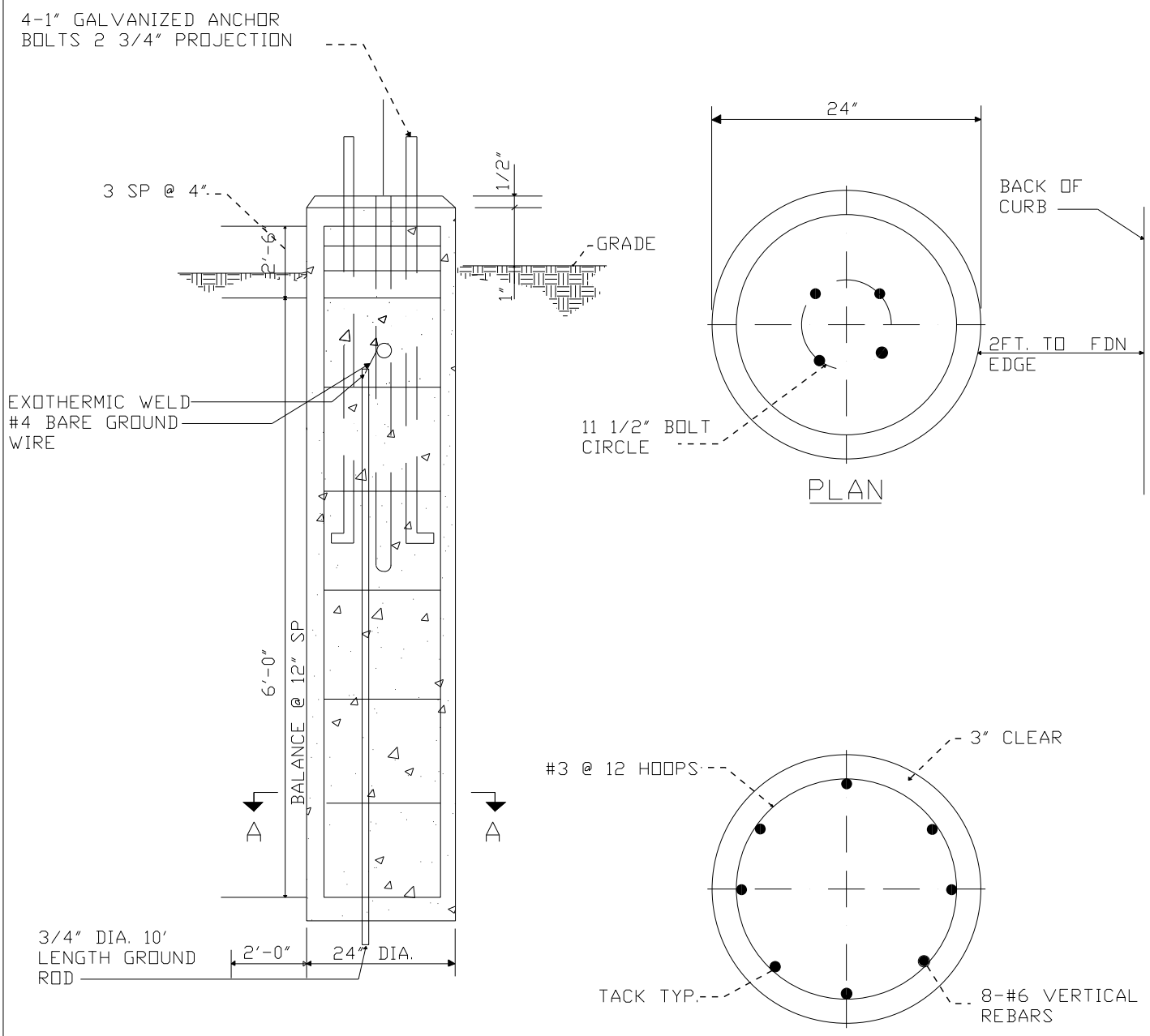


BASE:
2PCD - TWO-PIECE BASE FOR 3" OD POST
HEIGHT: 9.75"
WIDTH: 9"
CAST ALUMINUM ALLOY #356





NOTES:
COMPLETE UNIT SHOWN WITH 2' BELOW GRADE BURIAL.
DRAWING FOR INFORMATION ONLY, NOT INTENDED FOR CONSTRUCTION PURPOSES.



ELEVATION

SECTION A-A

CONCRETE FOUNDATION DETAIL

N.T.S.

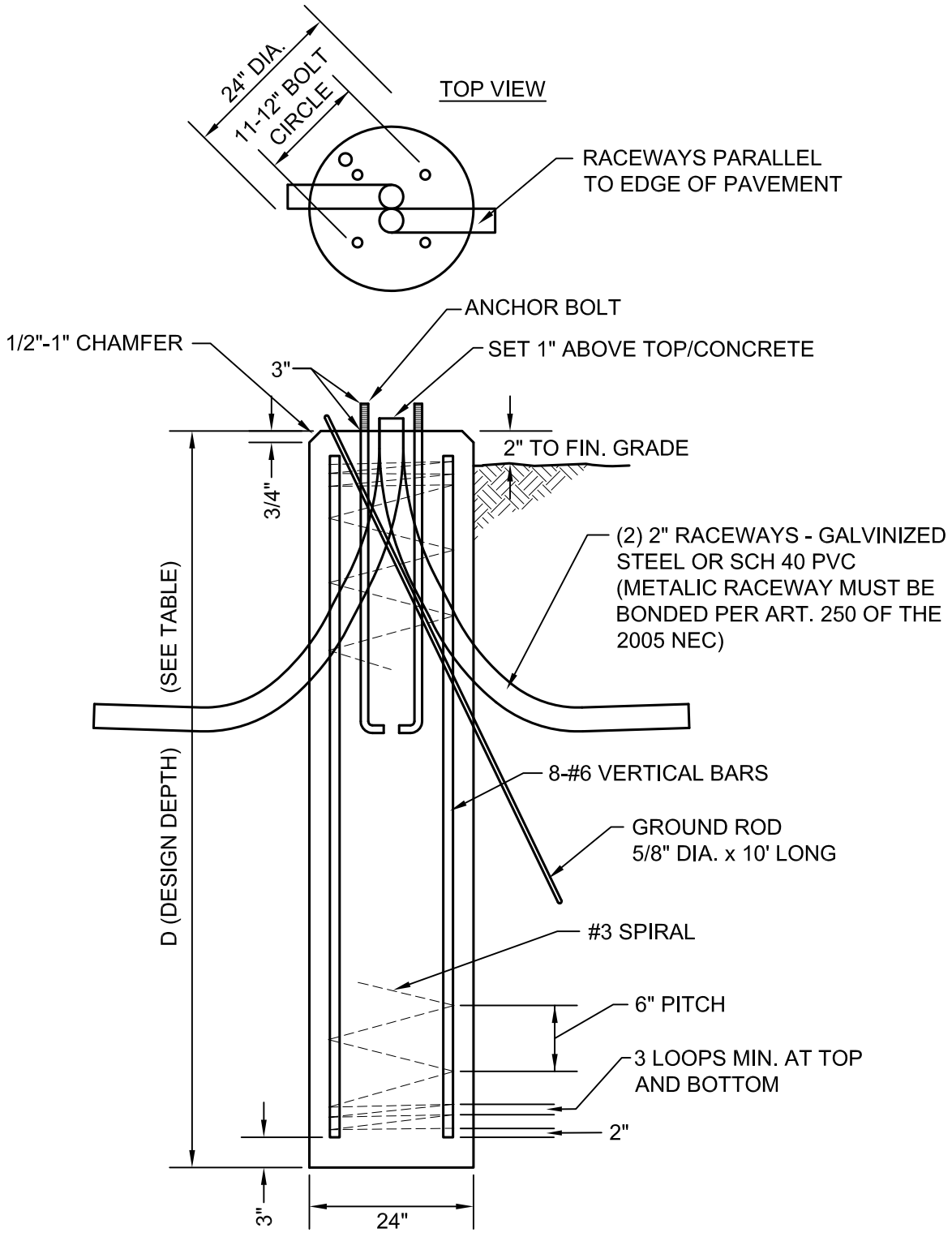
REV.:	REV.:	LIGHTING FOUNDATION	CITY OF WOOD DALE
REV.:			LIGHTING FOUNDATION 2
DRAWN BY:	DATE: 4-3-18		

24 IN. DIA. FOUNDATION DEPTH TABLE

DESIGN BASE ON 80 M.P.H. AASHTO WIND LOADING

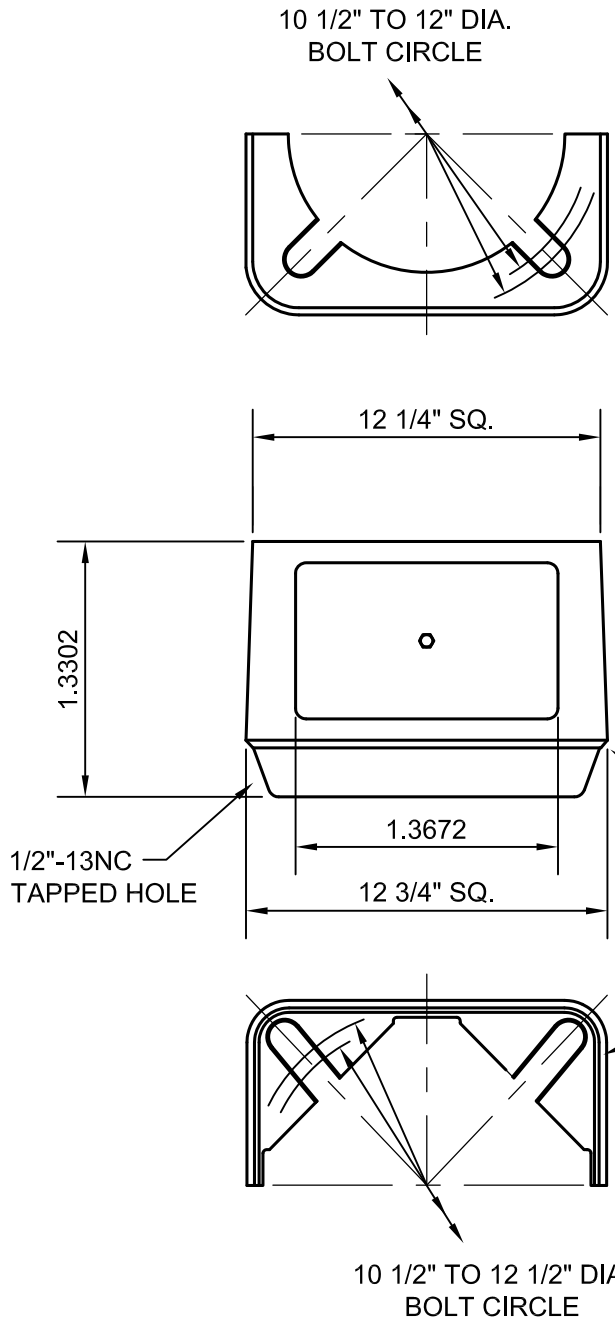
TYPE OF SOIL	FOUNDATION DEPTH D	REINFORCEMENT IN FOUNDATION	
		VERTICAL BARS	HORIZONTAL BARS
ROCK OR SOLIDIFIED SLAG	5′ - 0″	NONE	NONE
DENSE SAND	7′ - 9″	8 - #6 X 7′-4″	#3 X 73′
MEDIUM SAND	8′ - 3″	8 - #6 X 7′-10″	#3 X 78′
LOOSE SAND	9′ - 0″	8 - #6 X 8′-7″	#3 X 85′
STIFF CLAY	7′ - 0″	8 - #6 X 6′-7″	#3 X 66′
MEDIUM CLAY	9′ - 6″	8 - #6 X 9′-1″	#3 X 90′
SOFT CLAY	13′ - 0″	8 - #6 X 12′-7″	#3 X 122′

REV.:	REV.:	LIGHTING FOUNDATION SIZE CHART	CITY OF WOOD DALE
REV.:	REV.:		
DRAWN BY:	DATE: 4-3-18		LIGHTING 1



CONCRETE POLE FOUNDATION DETAIL

REVISED: 01/01/2013 | SHEET 1 OF 2



BASE SUPPLIED WITH:

1. DOOR AND 1/4"-20NC S.S. HEX. HD. SCREW
2. EIGHT 1" WASHERS 1/2" THICK X 2 3/4" O.D. (GALV. PER ASTM A153 OR ASTM B454)
3. FOUR 1"-8NC X 3 3/4" LONG GALV. STL. HEX. HD. BOLTS
4. FOUR 1"-8NC GALV. STL. HEX. NUTS
5. FOUR 1" GALV. STL. LOCK WASHERS
6. FOUR 1" GALV. STL. FLAT WASHERS

AKRON FOUNDRY TB6-9"

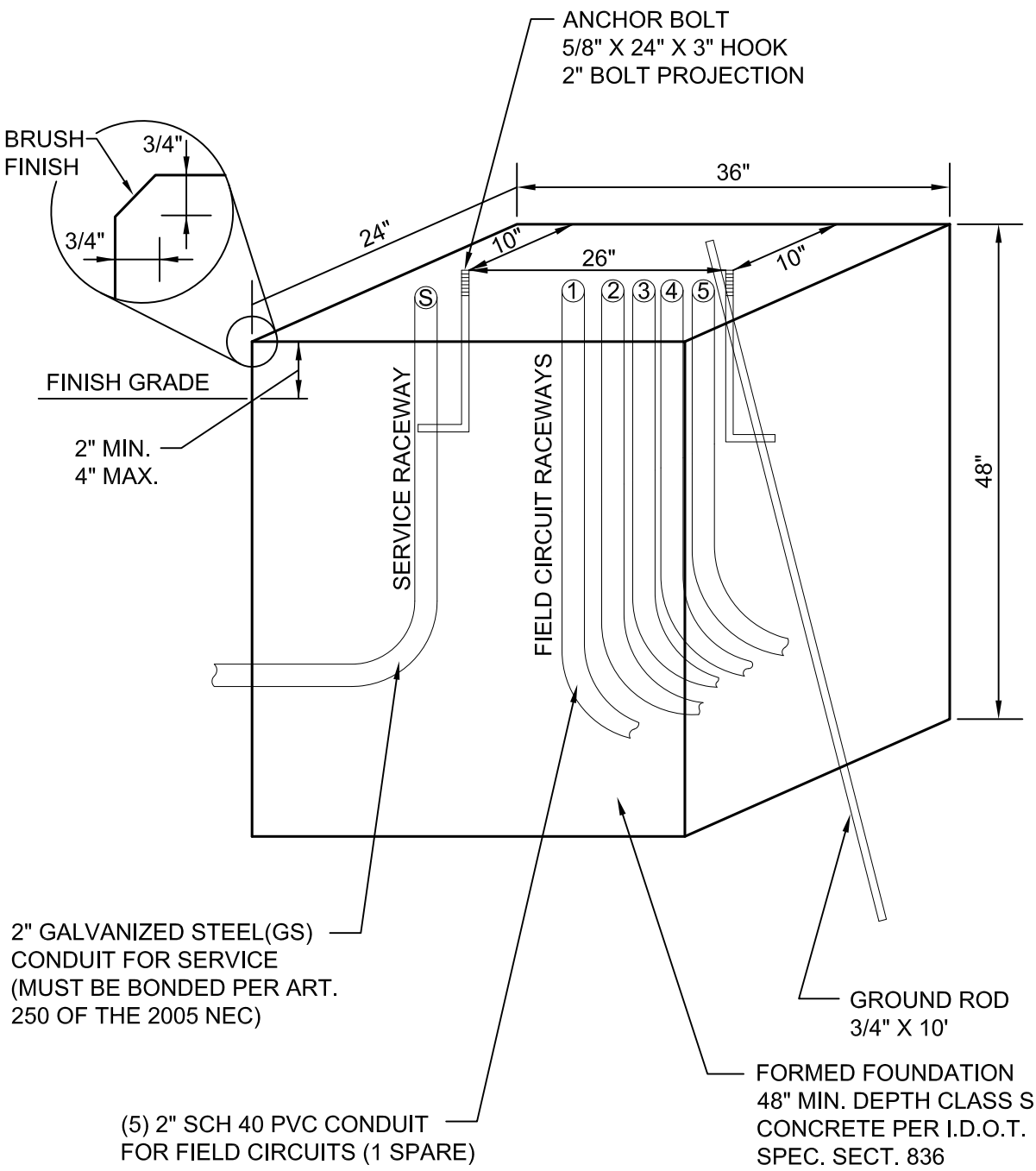
MATERIAL: ALUM. ALLOY 356-T6

NOTE:

BASE POWDER COATED TEXTURED DARK BRONZE PER 73737-T31 WHICH HAS HAPCO'S STANDARD 5 YEAR WARRANTY.

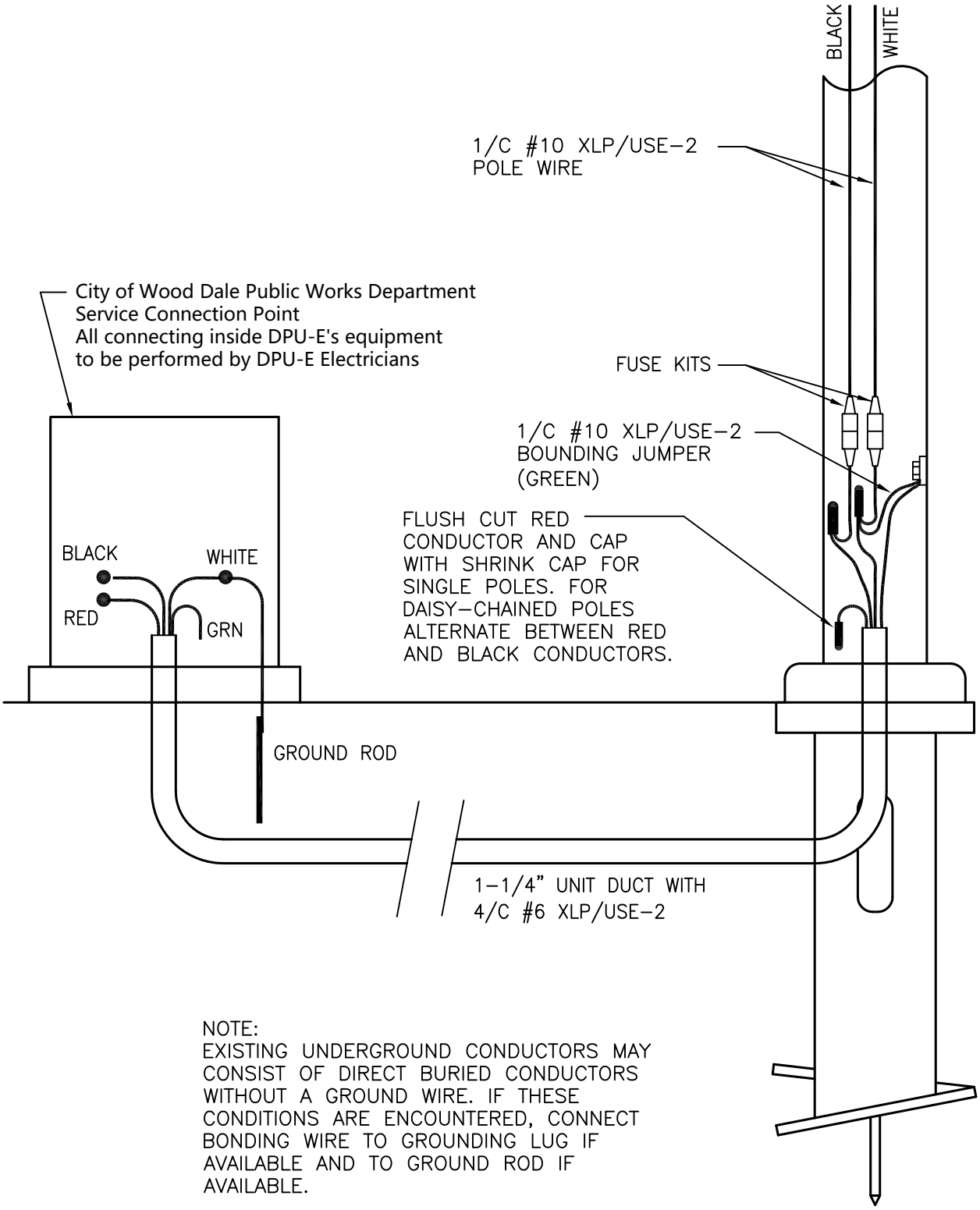
TRANSFORMER BASE - 9 INCH

REVISED: 01/01/2013 | SHEET 1 OF 1



I.D.O.T. TYPE III STREET LIGHTING CONTROL CABINET FOUNDATION

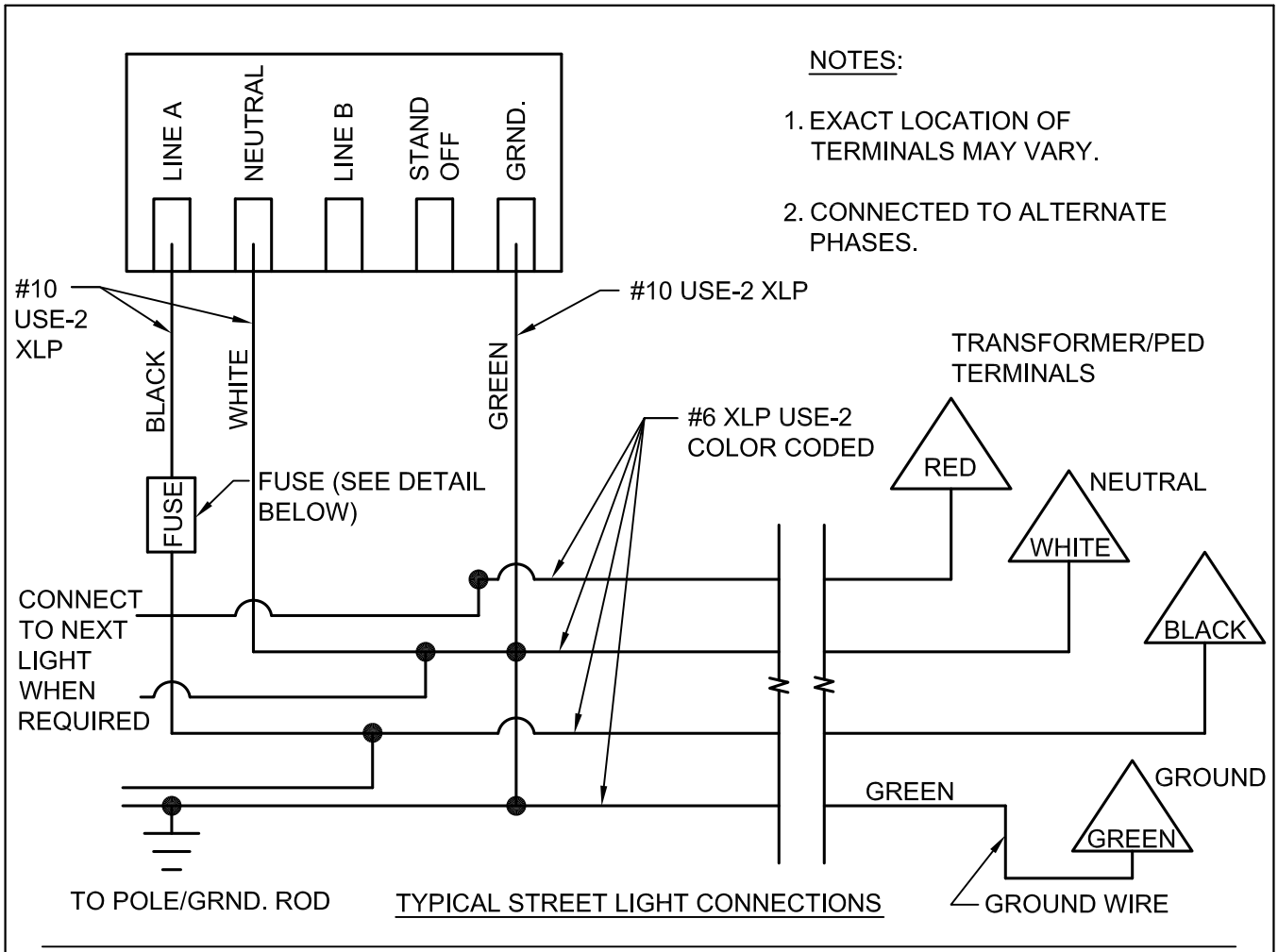
REVISED: 01/01/2013



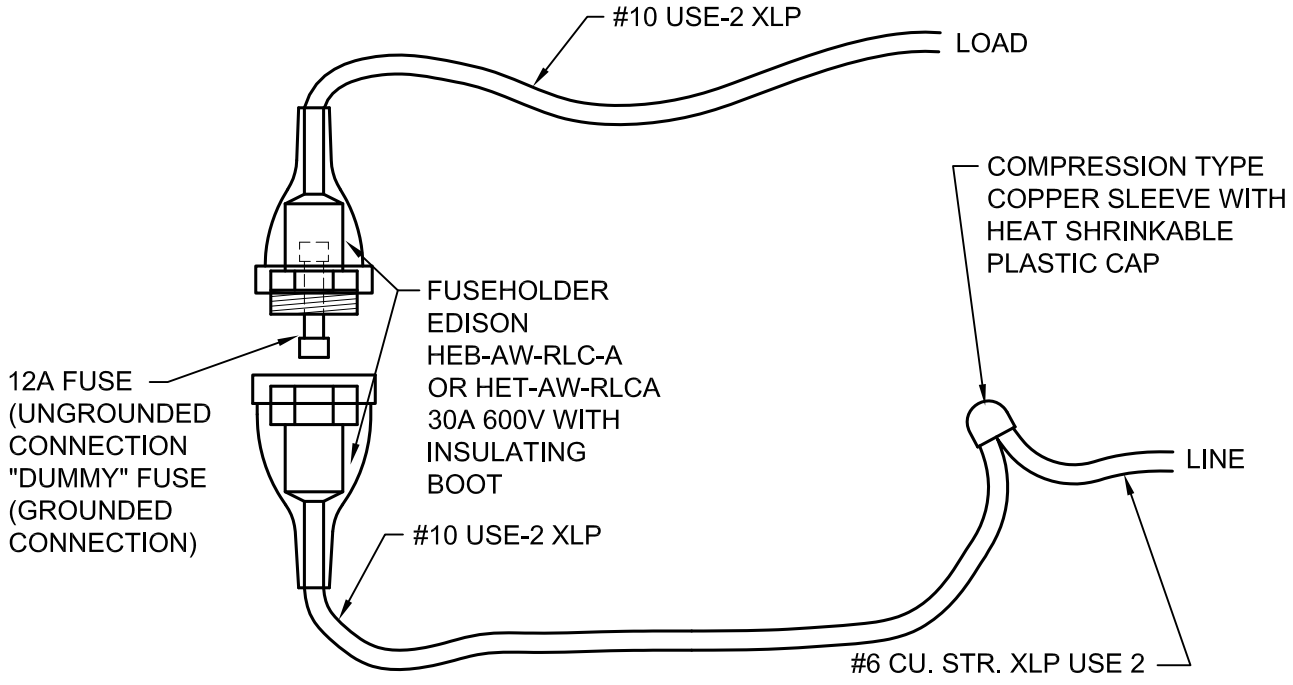
NOTE:
EXISTING UNDERGROUND CONDUCTORS MAY CONSIST OF DIRECT BURIED CONDUCTORS WITHOUT A GROUND WIRE. IF THESE CONDITIONS ARE ENCOUNTERED, CONNECT BONDING WIRE TO GROUNDING LUG IF AVAILABLE AND TO GROUND ROD IF AVAILABLE.

TYPICAL STREET LIGHT CONNECTION

REVISED: 01/01/2013

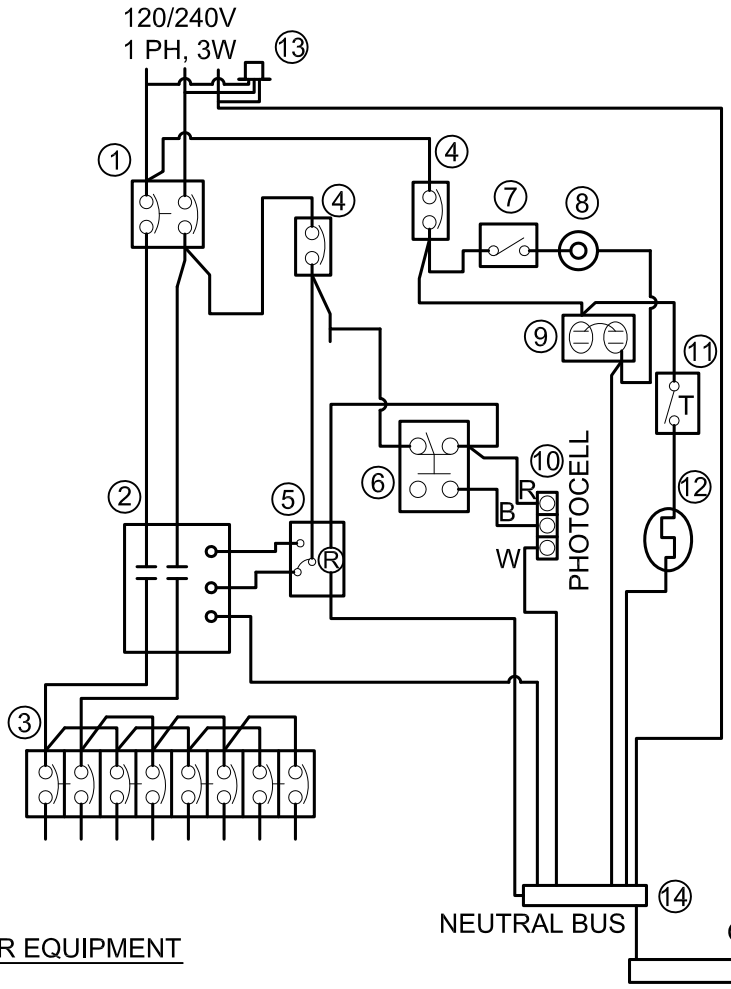


TYPICAL STREET LIGHT CONNECTIONS



TYPICAL FUSE HOLDER CONNECTION

	TYPICAL STREET LIGHT CONNECTION	
	REVISED: 01/01/2013 | SHEET 2 OF 2	



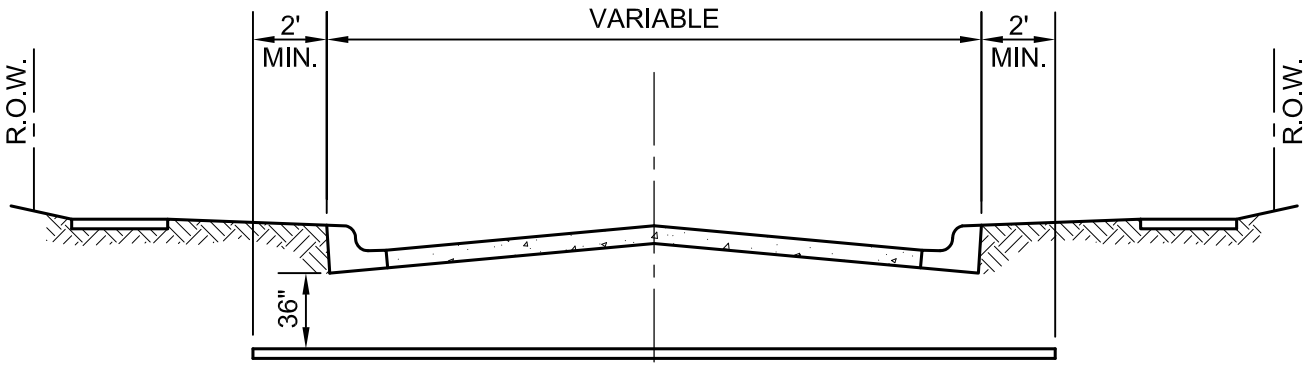
CONTROLLER EQUIPMENT

1. 100 AMPERE MAIN BREAKER, 2 POLE, 240 VOLT, JDB 2100
2. 100 AMPERE CONTACTOR, 2 POLE, SINGLE THROW, ELECTRICALLY OPERATED AND MECHANICALLY HELD REMOTE SWITCH, 120 VOLT, ASCO 2P, 100 AMP, MODEL NUMBER 920210031.
3. EIGHT (8) 35 AMPERE, 1 POLE CIRCUIT BREAKERS, 120 VOLT, "I-LINE".
4. CONTROL BREAKER, 1 POLE, 15 AMPERE, WE GC1015.
5. RELAY, DPT, 120 VOLT, ON-DELAY, MAGNACRAFT W211ACPSOX-7.
6. 15 AMPERE, HOA SWITCH, 120 VOLT, SQUARE D MANUAL RETURN KS43FBH13, NEMA 4X ENCLOSURE.
7. SPST 20 AMPERE SWITCH.
8. INCANDESCENT LIGHT FIXTURE OF THE ENCLOSED GASKETED TYPE, CROUSE HINDS VXHF15GP.
9. 20 AMPERE DUPLEX RECEPTACLE, GFCI.
10. PHOTOCELL TERMINAL BLOCK.
11. THERMOSTAT, GRAINGER 2E552.
12. HEATING STRIP, 150 WATT GRAINGER 2E919
13. SURGE PROTECTOR, SQUARE D SP-11100
14. NEUTRAL BUS BAR, 1/4" X 1" X 12", COLOR CODED WHITE, LABELED "NEUTRAL".
15. GROUND BUS BAR, 1/4" X 1" X 12", COLOR CODED GREEN, LABELED "GROUND".

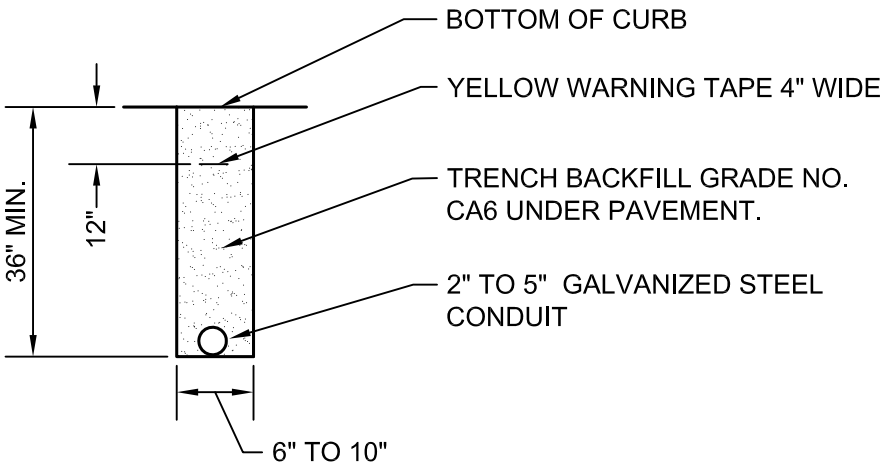
120 VOLT, 60 HERTZ. PHOTO ELECTRIC CELL (D-T-L) UNIT DUCT, 1-1/4", FOR PHOTOCELL CABLE (3/C-#10 USE-2/XLP) IF CONDUIT TO NEAREST POLE IS NOT AVAILABLE

STREET LIGHTING CONTROLLER SCHEMATIC

REVISED: 01/01/2013 | SHEET 1 OF 1



STREET CROSSING

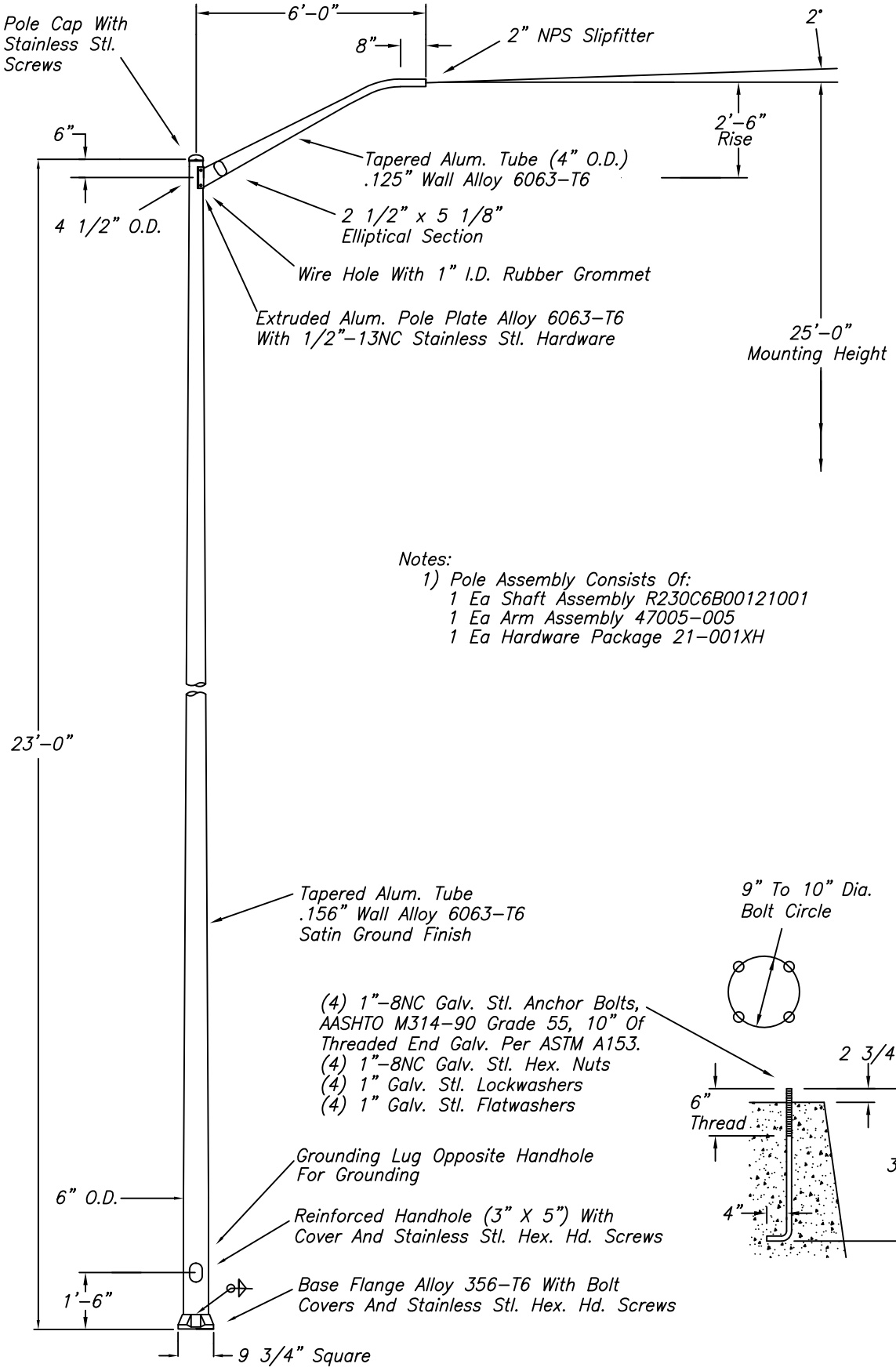


TRENCH SECTION

NOTES:

1. CONDUIT SHALL BE GALVANIZED STEEL CONDUIT.
2. CONDUIT SHALL EXTEND A MINIMUM OF 2' BEYOND BACK OF CURB.
3. CONDUIT SHALL BE A MINIMUM OF 36" BELOW CURB BOTTOM.

	ELECTRIC CONDUIT UNDER PAVEMENT	
	REVISED: 01/01/2013 | SHEET 1 OF 1	



Notes:
1) Pole Assembly Consists Of:
1 Ea Shaft Assembly R230C6B00121001
1 Ea Arm Assembly 47005-005
1 Ea Hardware Package 21-001XH

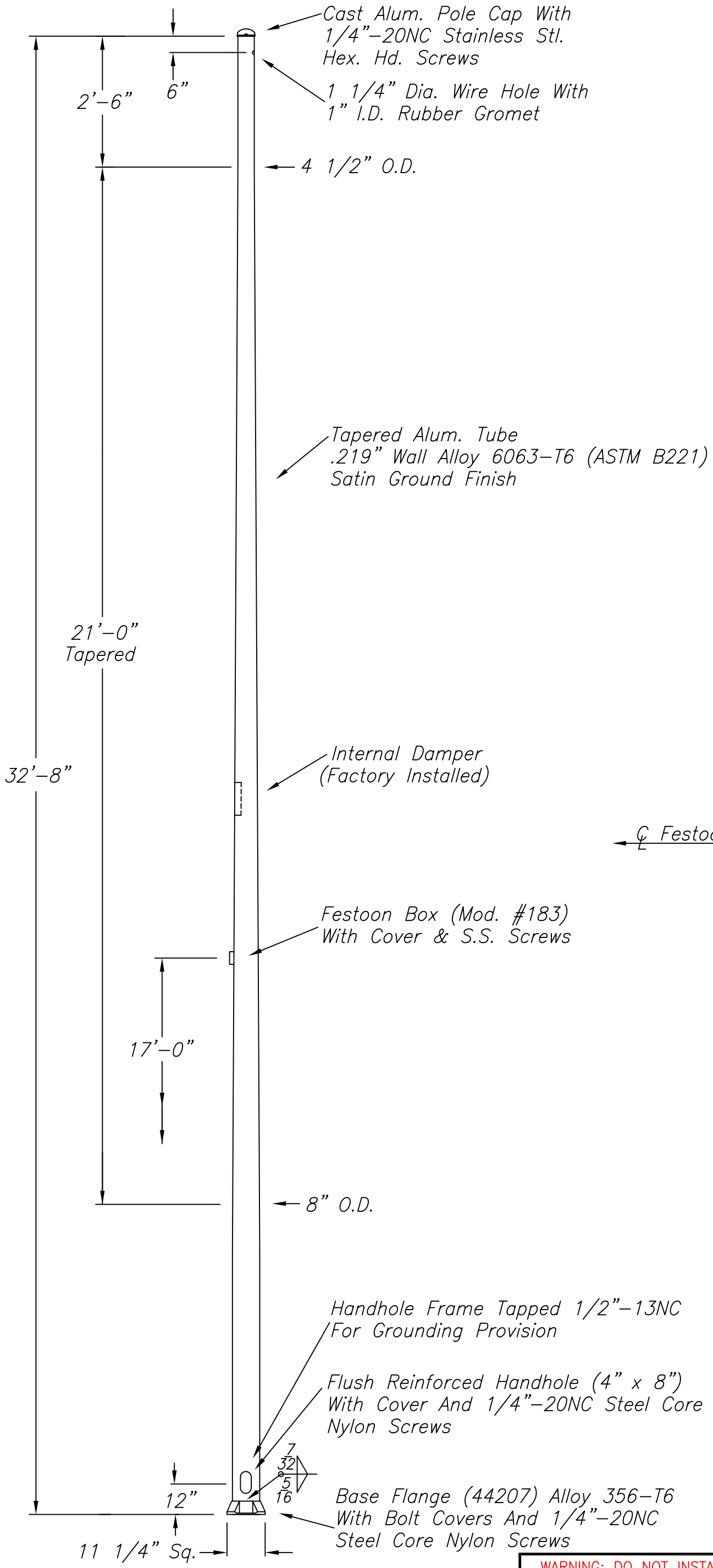
B21-285W3

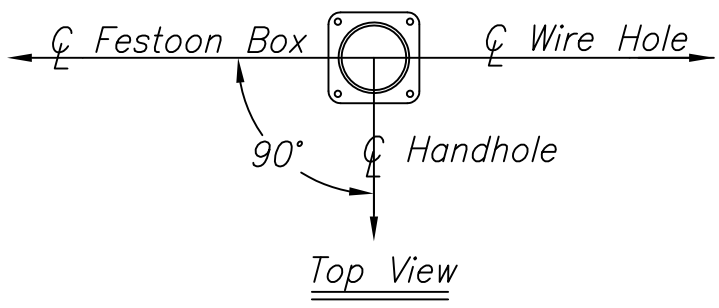
WARNING: DO NOT INSTALL LIGHTING POLES WITHOUT LUMINAIRES

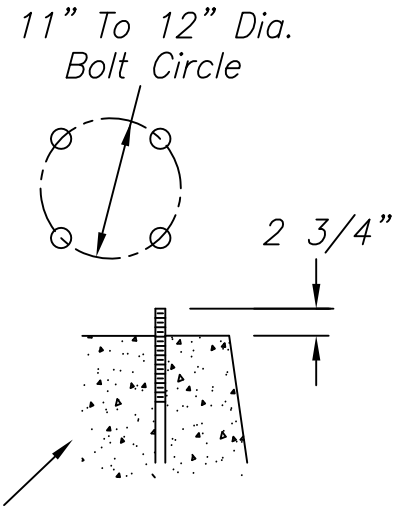
NO.	REVISIONS	DATE

hapco
Abingdon, Va.

TITLE	25'-0" LIGHTING POLE
CUSTOMER	
SCALE 32	DATE 12/09/2008
BY RDG	DWG. NO. B21-285W3
CHK'D	







B80543

WARNING: DO NOT INSTALL LIGHTING POLES WITHOUT LUMINAIRES

NO.	REVISIONS	DATE

hapco

Abingdon, Va.

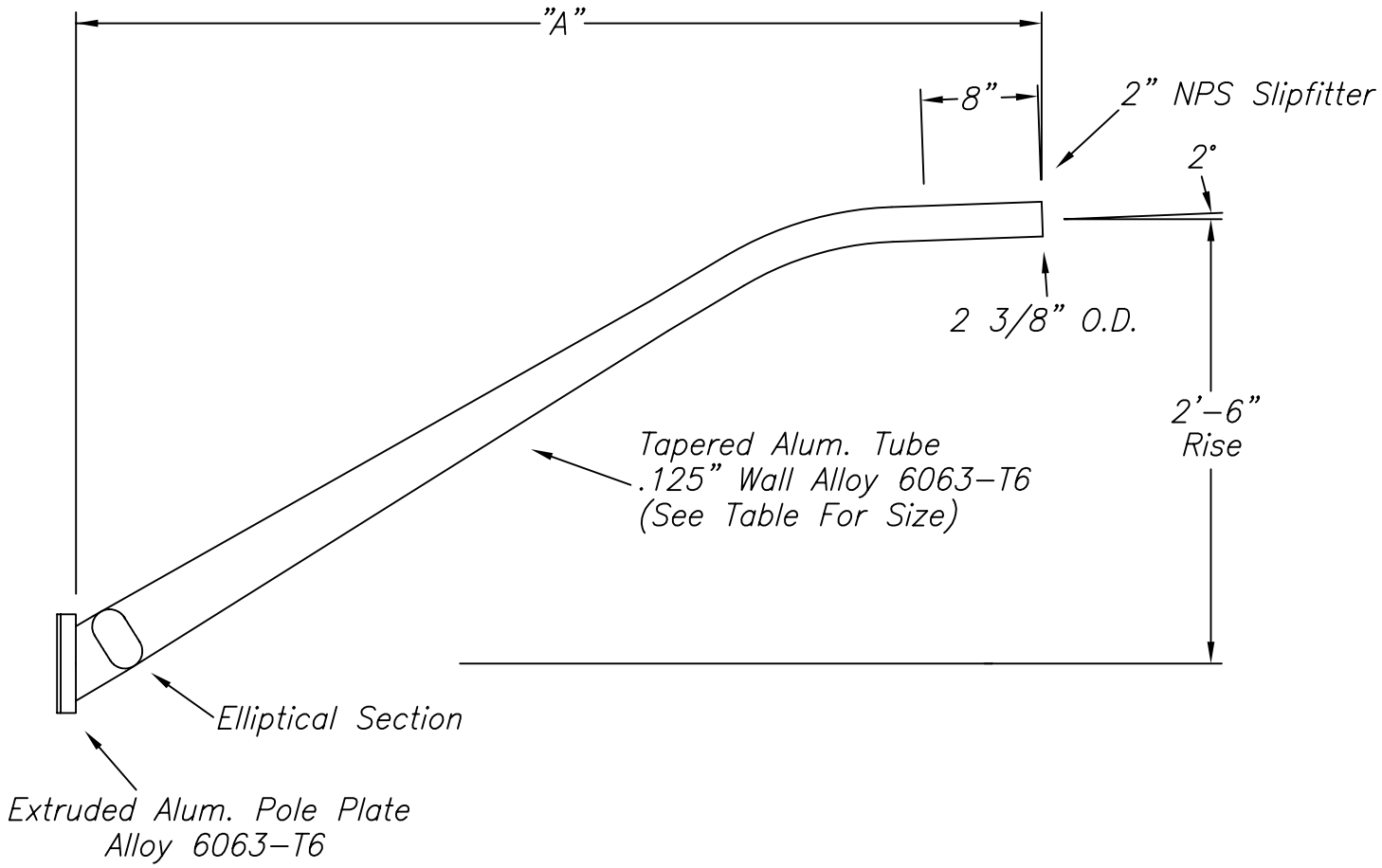
TITLE SHAFT ASSEMBLY

CUSTOMER RIVER GROVE, ILL.

SCALE NTS | DATE 3/7/01

BY LW | DWG. NO. B80543

CHK'D



Item No.	A	Tube Size	Max. Lum. Wt. @ Cg=Length+1 Ft.
50004-001	3'-6"	3 1/2" O.D.	75#
50004-002	5'-6"	4" O.D.	71#
50004-003	7'-6"	4" O.D.	52#
50004-004	9'-6"	5" O.D.	55#

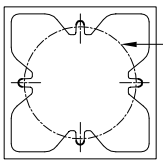
Furnish The Following Stainless Steel Hardware With Each Arm:
(4) 1/2"-13NC x 1 1/2" Long Hex. Hd. Bolts
(4) 1/2"-13NC Hex. Nuts
(4) 1/2" Lockwashers
(1) 1" I.D. Rubber Grommet

NO.	REVISIONS	DATE
5	Redrawn LW	01/02

hapco
Abingdon, Va.

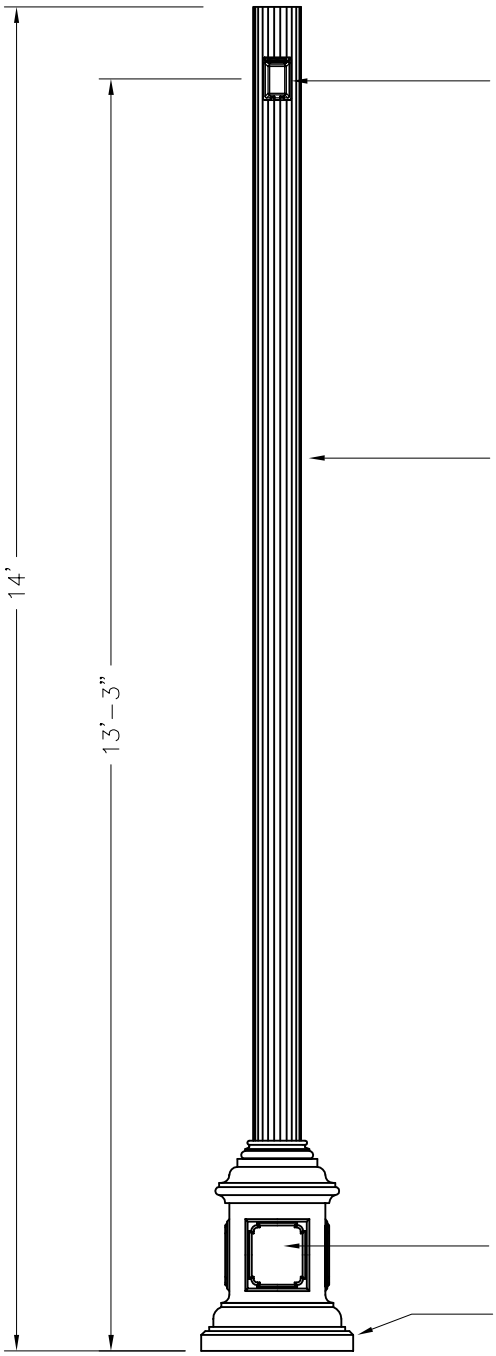
TITLE: TAPERED ARMS (4.5" O.D. Pole)
CUSTOMER:
SCALE: NTS
DATE: 10/11/66
BY: LW
CHK'D:
DWG. NO.: A50004

STREET SIDE



MODIFIED BASE FOR
14" DIA. BOLT CIRCLE FOR 1" DIA.
ANCHOR BOLTS

ACCESS DOOR
GFI(LP)IUC



LOW PROFILE DUPLEX GFI
RECEPTACLE WITH IN USE COVER

SMOOTH, BLACK FINISH

6" DIA. FLUTED POLE
.250 WALL THICKNESS
6061-T6 STRUCTURAL
GRADE ALUMINUM.

POLE WELDED FOR SINGLE
UNIT CONSTRUCTION

POLE SHAFT TO BE SLEEVED
WITH 5", .250 WALL THICKNESS
ALUMINUM POLE

TO BE USED WITH (2) WAY
FINDING SIGNS MOUNTED
SIDE-BY-SIDE BY OTHERS

ACCESS DOOR

19" SQ. BASE, 1" FLOOR THICKNESS
4 ANCHOR BOLTS

REV	REVISIONS	DATE	RVSD
A	ORIGINAL	2-8-18	

DRAWN AMK
SCALE

WOOD DALE, IL

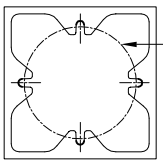
8214FP6-MOD/GFI-LPIUC/BK

SternbergLighting

POLE HEIGHTS HAVE
A TOLERANCE OF
+ OR - 2"

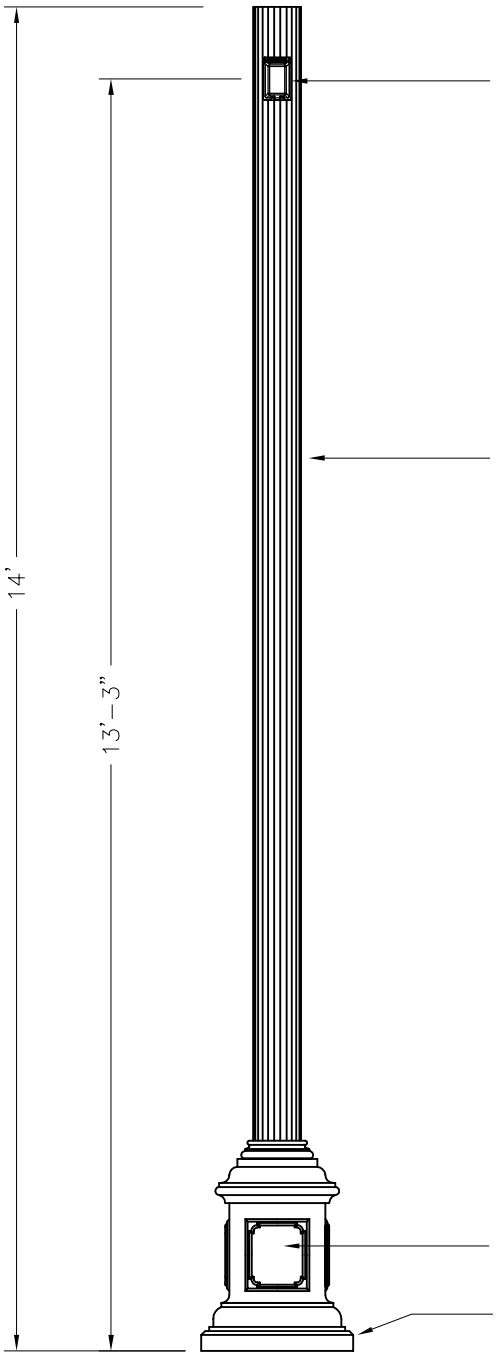
DRAWING NUMBER
SC25639-B

STREET SIDE



MODIFIED BASE FOR
14" DIA. BOLT CIRCLE FOR 1" DIA.
ANCHOR BOLTS

ACCESS DOOR
GFI(LP)IUC



LOW PROFILE DUPLEX GFI
RECEPTACLE WITH IN USE COVER

SWEDISH IRON FINISH

6" DIA. FLUTED POLE
.250 WALL THICKNESS
6061-T6 STRUCTURAL
GRADE ALUMINUM.

POLE WELDED FOR SINGLE
UNIT CONSTRUCTION

POLE SHAFT TO BE SLEEVED
WITH 5", .250 WALL THICKNESS
ALUMINUM POLE

TO BE USED WITH (2) WAY
FINDING SIGNS MOUNTED
SIDE-BY-SIDE BY OTHERS

ACCESS DOOR

19" SQ. BASE, 1" FLOOR THICKNESS
4 ANCHOR BOLTS

REV	REVISIONS	DATE	RVSD
A	ORIGINAL	4-4-16	

DRAWN LMG
SCALE

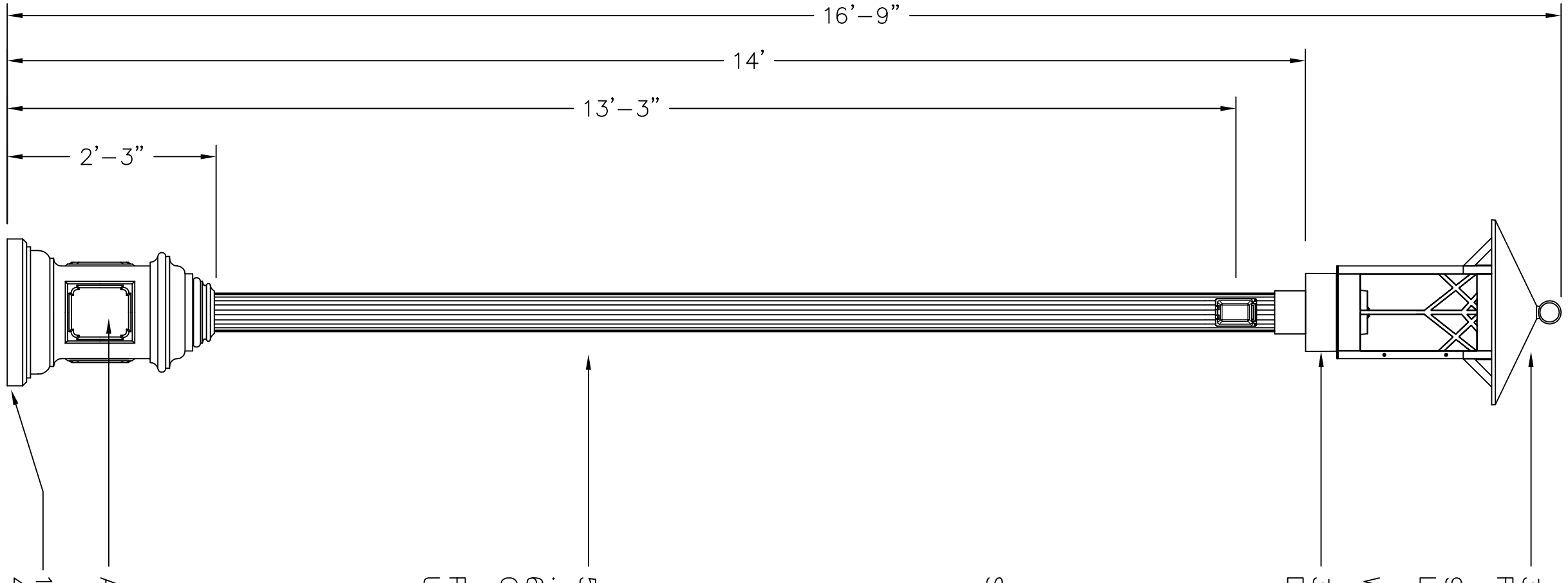
WOOD DALE, IL

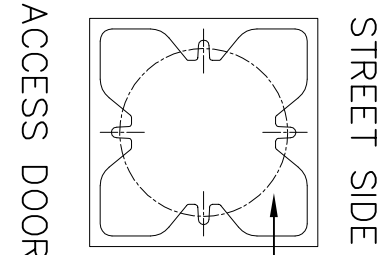
8214FP6-MOD/GFI-LPIUC/SI

SternbergLighting

POLE HEIGHTS HAVE
A TOLERANCE OF
+ OR - 2"

DRAWING NUMBER
SC25639





19" SQR. BASE, 1" FLOOR THICKNESS
4 ANCHOR BOLTS AND 1 GROUND LUG

ACCESS DOOR

5" DIA. FLUTED POLE
.188 WALL THICKNESS
6061–T6 STRUCTURAL
GRADE ALUMINUM

POLE WELDED FOR SINGLE
UNIT CONSTRUCTION

SMOOTH BLACK FINISH

356 ALLOY, CAST ALUMINUM
DRIVER COMPARTMENT

WHITE ACRYLIC LENSES

95 WATT, ROOF MOUNTED
LED ARRAY, 4500K COLOR TEMP

356 ALLOY, CAST ALUMINUM
FIXTURE ROOF AND HOUSING

14" DIA. BOLT CIRCLE FOR 3/4"
DIA. ANCHOR BOLTS

REV	REVISIONS	DATE	RVSD
A	ORIGINAL	2/8/18	

WOOD DALE, IL
ISTHA 4680 – WOOD DALE RD BRIDGE OVER I390

POLE HEIGHTS HAVE A TOLERANCE OF + OR – 2"

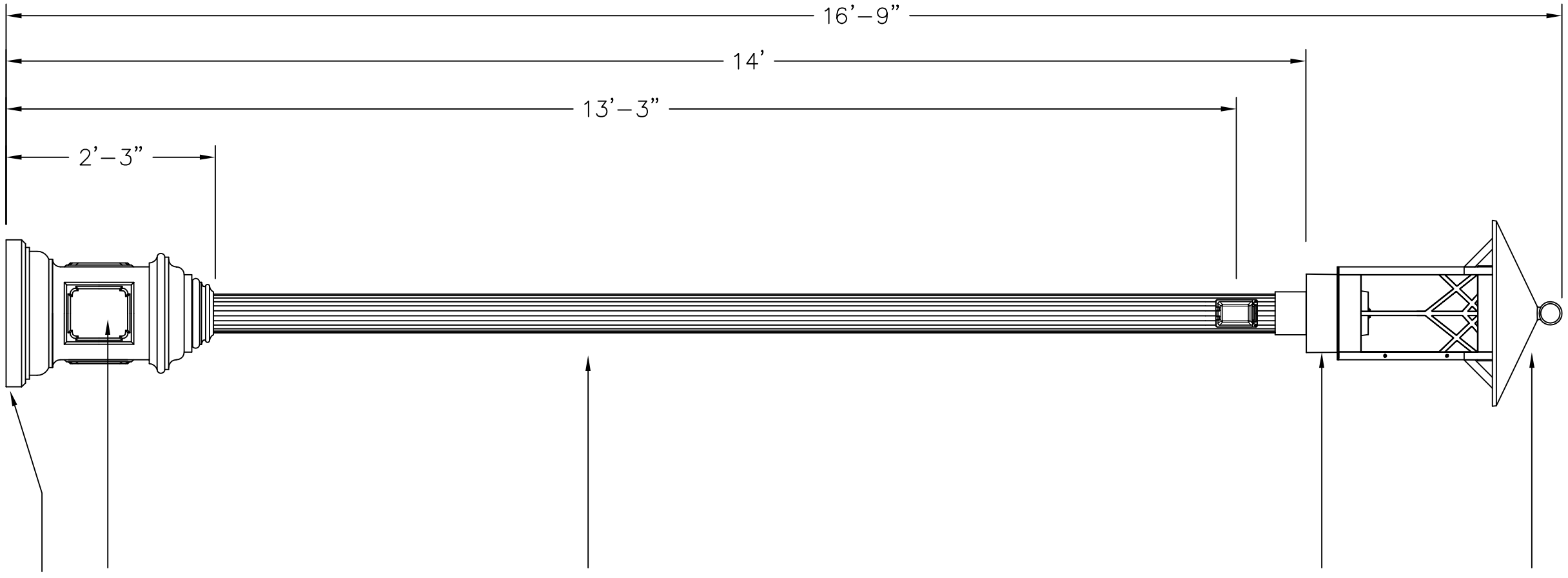
DRAWN AMK

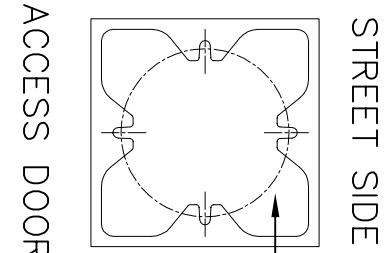
SCALE 3/4"=1'

1230LEDPT/8214FP5/4A1R45T3/ML/GFI–LPIUC/WA/BK
ITEM X8250500

STERNBERG SINCE 1923

DRAWING NUMBER SC24215–B





STREET SIDE

ACCESS DOOR

14" DIA. BOLT CIRCLE FOR 3/4" DIA. ANCHOR BOLTS

356 ALLOY, CAST ALUMINUM FIXTURE ROOF AND HOUSING

95 WATT, ROOF MOUNTED LED ARRAY, 4500K COLOR TEMP

WHITE ACRYLIC LENSES

356 ALLOY, CAST ALUMINUM DRIVER COMPARTMENT

SWEDISH IRON FINISH

POLE WELDED FOR SINGLE UNIT CONSTRUCTION

5" DIA. FLUTED POLE .188 WALL THICKNESS 6061–T6 STRUCTURAL GRADE ALUMINUM

ACCESS DOOR

19" SQR. BASE, 1" FLOOR THICKNESS 4 ANCHOR BOLTS AND 1 GROUND LUG

REV	REVISIONS	DATE	RVSD
A	ORIGINAL	7/22/15	

WOOD DALE, IL
ISTHA 4680 – WOOD DALE RD BRIDGE OVER I390

POLE HEIGHTS HAVE A TOLERANCE OF + OR – 2"

DRAWN SS

SCALE 3/4"=1'

1230LEDPT/8214FP5/4A1R45T3/ML/GFI–LPIUC/WA/SI
ITEM X8250500

STERNBERG

SINCE 1923

DRAWING NUMBER SC24215

Autobahn Series ATBS
Roadway & Security Lighting

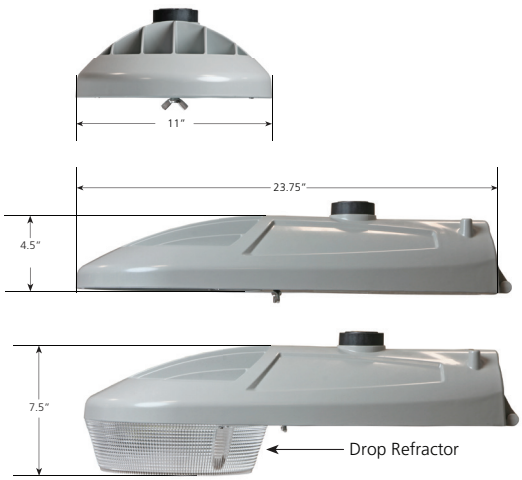
Consistent with LEED® goals & Green Globes™ criteria for light pollution reduction

PRODUCT OVERVIEW

Applications:

Residential streets
Parking lots
General security lighting

DIMENSIONS



Effective Projected Area (EPA) The EPA for the ATBS is 0.3 sq. ft.,
Approx. Wt. = 12 lbs. (5 kg)

Features:

OPTICAL

Same Light: Performance is comparable to 50W – 150W HPS and up to 175W Mercury Vapor roadway and security lighting luminaires.

White Light: Correlated color temperature - standard 4000K, 70 CRI minimum or optional 5000K, 70 CRI minimum.

IP66 rated borosilicate glass optics ensure longevity and minimize dirt depreciation. Unique IP66 rated LED light engines provide 0% uplight and restrict backlight to within sidewalk depth, providing optimal application coverage and optimal pole spacing.

Available distributions are Type II, III, and V roadway distributions. When used with the optional acrylic refractor the unit provides approximately 10% uplight and increased vertical foot-candles

ELECTRICAL

Expected Life: LED light engines are rated >100,000 hours at 25°C, L70. Electronic driver has an expected life of 100,000 hours at a 25°C ambient.

Lower Energy: Saves an expected 40-60% over comparable HID luminaires.

Robust Surge Protection: Three different surge protection options provide a minimum of IEEE/ANSI C62.41 Category C (10kV/5kA) protection.

MECHANICAL

Includes standard AEL lineman-friendly features such as tool-less entry, 3 station terminal block and quick disconnects. Bubble level located inside the electrical compartment for easy leveling at installation.

Rugged die-cast aluminum housing and door are polyester powder-coated for durability and corrosion resistance. Rigorous five-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 8 (per ASTM D1654) after over 5000 hours exposure to salt fog chamber (operated per ASTM B117).

Mast arm mount is adjustable for arms from 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) diameter. The 2 – bolt clamping mechanism provides 3G vibration rating per ANSI C136.

The Wildlife shield is cast into the housing (not a separate piece).

CONTROLS

NEMA 3 pin photocontrol receptacle is standard, with the Acuity designed ANSI standard 5 pin and 7 pin receptacles optionally available.

Premium solid state locking-style photocontrol – PCSS (10 year rated life)
Extreme long life solid state locking-style photocontrol – PCL1 (20 year rated life)

Optional onboard Adjustable Output module allows the light output and input wattage to be modified to meet site specific requirements, and also can allow a single fixture to be flexibly applied in many different applications.

STANDARDS

Rated for -40°C to 40°C ambient
CSA Certified to U.S. and Canadian standards
Complies with ANSI: C136.2, C136.10, C136.14, C136.31, C136.15, C136.37

Note: Specifications subject to change without notice. Actual performance may differ as a result of end-user environment and application.

AEL American Electric Lighting®

Autobahn Series ATBS
Roadway & Security Lighting

ORDERING INFORMATION

Example: ATBS A MVOLT R2

Series

ATBS Autobahn LED Roadway & Security

Performance Packages

A 1,800 lumens
B 2,400 lumens
E 4,000 lumens
F 4,600 lumens
G 5,600 lumens
H 6,300 lumens

Voltage

MVOLT Multi-volt, 120-277V

Optics

R2 Roadway Type II
R3 Roadway Type III
R5 Roadway Type V
D2 Type II, Drop Refractor included
D3 Type III, Drop Refractor included
D5 Type V, Drop Refractor included

Options

Color Temperature (CCT)
(Blank) 4000K CCT, 70 CRI Min. (standard)
5K 5000K CCT, 70 CRI Min.

Paint
Blank Gray (Standard)
BK Black
WH White
BZ Bronze

Surge Protection
Blank Acuity SPD-10kV/5kA with inductive filter (Standard)
MP MOV Pack
IL SPD with Indicator Light

Misc.
HSS House Side Shield
NL NEMA Label
XL Not CSA Certified

Controls
(Blank) 3 Pin NEMA Photocontrol Receptacle
NR[1] No Photocontrol Receptacle
DM 0V-10V Dimmable Driver
P5 5 Pin Photocontrol Receptacle (dimmable driver included)
P7 7 Pin Photocontrol Receptacle (dimmable driver included)
PCSS[1] DTL DSS Photocontrol
PCL1[1] DTL DLL Photocontrol 120-277V
AO Field Adjustable Output
SH Shorting Cap

Install Packages
PKGS DTL DSS Photocontrol
PKGL DTL DLL Photocontrol
Packages ship with selected photocontrol, 24", 1 1/4" diameter arm, 5' of prewire and mounting hardware

Accessories
ATBSREF Drop Refractor for field installation
ATBSHSS House Side Shield for field installation
ATBSLTS Light Trespass Shield for field installation

Notes
1. Not available with Install Packages.

American Electric Lighting®
AEL Headquarters, 3825 Columbus Road, Granville, OH 43023
www.americanelectriclighting.com

Warranty Five-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx
Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Please contact your sales representative for the latest product information.

PERFORMANCE PACKAGE

Performance Package	Distribution	Lumens	LPW	Input Watts
A	R2	1,761	98	18
	R3	1,755	98	
	R5	1,838	102	
	D2	1,685	94	
	D3	1,658	92	
	D5	1,767	98	
B	R2	2,302	96	24
	R3	2,309	96	
	R5	2,411	100	
	D2	2,203	92	
	D3	2,182	91	
	D5	2,318	97	
E	R2	3,962	102	39
	R3	3,979	102	
	R5	4,246	109	
	D2	3,791	97	
	D3	3,760	96	
	D5	4,089	105	
F	R2	4,563	93	49
	R3	4,477	91	
	R5	4,795	98	
	D2	4,366	89	
	D3	4,231	86	
	D5	4,612	94	
G	R2	5,629	88	64
	R3	6,030	85	
	R5	5,837	91	
	D2	5,386	84	
	D3	5,118	80	
	D5	5,590	87	
H	R2	6,249	87	72
	R3	6,321	88	
	R5	6,739	94	
	D2	5,979	83	
	D3	5,973	83	
	D5	6,436	89	

Note: Information shown above is based on nominal system data. Individual fixture performance may vary. Specifications subject to change without notice.

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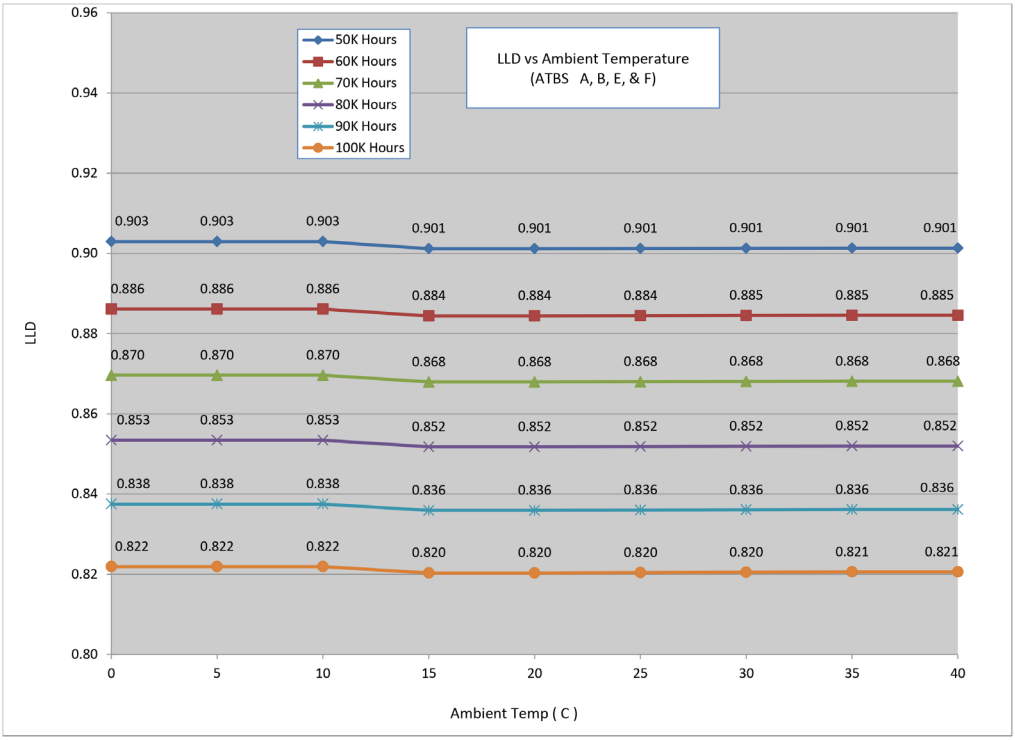
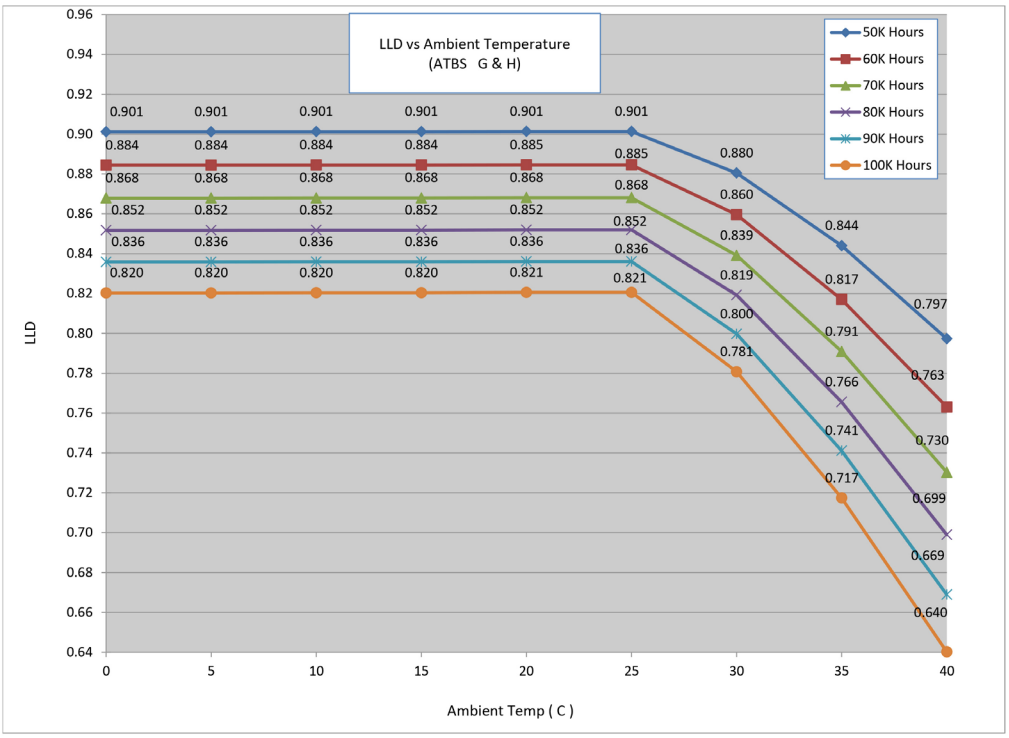
PERFORMANCE PACKAGE



* LLD vs. temperature charts are based on LM-80 chip data and in-situ thermal test testing per IES TM-21



* LLD vs. temperature charts are based on LM-80 chip data and in-situ thermal test testing per IES TM-21

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Specifications subject to change without notice.

Please contact your sales representative for the latest product information.

Autobahn Series ATB0
Roadway Lighting

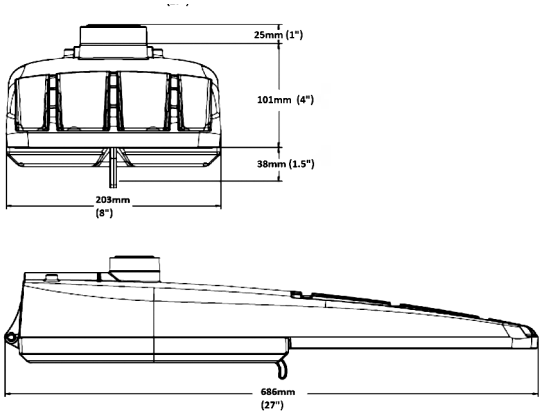
Consistent with LEED® goals & Green Globes™ criteria for light pollution reduction

PRODUCT OVERVIEW

Applications:

- Roadways
- Off ramps
- Residential streets
- Parking lots

DIMENSIONS



Effective Projected Area (EPA): The EPA for the ATB0 is 0.76 sq. ft.
Approx. Wt. = 14 lbs.

STANDARDS

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

Color temperatures of ≤ 3000K must be specified for International Dark-Sky Association certification.

Rated for -40°C to 40°C ambient
CSA Certified to U.S. and Canadian standards
Complies with ANSI: C136.2, C136.10, C136.14, C136.31, C136.15, C136.37

Features:

OPTICAL

Same Light: Performance is comparable to 70-250W HPS roadway luminaires.

White Light: Correlated color temperature - 4000K, 70 CRI minimum, 3000K, 70 CRI minimum or optional 5000K, 70 CRI minimum.

Unique IP66 rated LED light engines provided 0% uplight and restrict backlight to within sidewalk depth, providing optimal application coverage and optimal pole spacing. Available in Type II, III, IV, and V roadway distributions.

ELECTRICAL

Expected Life: LED light engines are rated >100,000 hours at 25°C, L70. Electronic driver has an expected life of 100,000 hours at a 25°C ambient.

Lower Energy: Saves an expected of 40-60% over comparable HID luminaires.

Robust Surge Protection: Three different surge protection options provide a minimum of ANSI C136.2 10kV/5kA protection. 20kV/10kA protection is also available.

MECHANICAL

Includes standard AEL lineman-friendly features such as tool-less entry, 3 station terminal block and quick disconnects. Bubble level located inside the electrical compartment for easily leveling at installation.

Rugged die-cast aluminum housing and door are polyester powder-coated for durability and corrosion resistance. Rigorous five-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 7 (per ASTM D1654) after over 5000 hours exposure to salt fog chamber (operated per ASTM B117).

Mast arm mount is adjustable for arms from 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) diameter. Provides a 3G vibration rating per ANSI C136.31

Wildlife shield is cast into the housing (not a separate piece).

CONTROLS

NEMA 3 pin photocontrol receptacle is standard, with the Acuity designed ANSI standard 7 pin receptacle optionally available.

Premium solid state locking style photocontrol - PCSS (10 year rated life) Extreme long life solid state locking style photocontrol - PCLL (20 year rated life).

Multi-level dimming available to provide scheduled dimming as specified by the customer.

Optional onboard Adjustable Output module allows the light output and input wattage to be modified to meet site specific requirements, and also can allow a single fixture to be flexibly applied in many different applications.

Note: Specifications subject to change without notice. Actual performance may differ as a result of end-user environment and application.

AEL American Electric Lighting

Autobahn Series ATB0
Roadway Lighting

ORDERING INFORMATION

Example: ATB0 30LEDE10 MVOLT R2

Series

ATB0 Autobahn LED Roadway

Performance Packages

10BLEDE70	10B Chips, 700mA Driver
10BLEDE10	10B Chips, 1050mA Driver
10BLEDE15	10B Chips, 1500mA Driver
20BLEDE53	20B Chips, 525mA Driver
20BLEDE70	20B Chips, 700mA Driver
20BLEDE10	20B Chips, 1050mA Driver
20BLEDE13	20B Chips, 1300mA Driver
20BLEDE15	20B Chips, 1500mA Driver
30BLEDE70	30B Chips, 700mA Driver
30BLEDE85	30B Chips, 850mA Driver
30BLEDE10	30B Chips, 1050mA Driver
30BLEDE13	30B Chips, 1300mA Driver
30BLEDE15[1]	30B Chips, 1500mA Driver

Voltage

MVOLT	Multi-volt, 120-277V
347	347V
480	480V

Optics

R2	Roadway Type II
R3	Roadway Type III
R4	Roadway Type IV
R5	Roadway Type V

Options

Color Temperature (CCT)

(Blank)	4000K CCT, 70 CRI Min.
3K	3000K CCT, 70 CRI Min.
5K	5000K CCT, 70 CRI Min.

Paint

(Blank)	Gray (Standard)
BK	Black
BZ	Bronze
DDB	Dark Bronze
GI	Graphite
WH	White

Surge Protection

(Blank)	Standard 10kV/5kA SPD
20	20kV/10KA SPD
MP[1]	MOV Pack
IL[1]	SPD with Indicator Light

Terminal Block

(Blank)	Terminal Block (Standard)
T2	Wired to L1 & L2 Positions

Misc.

BL	External Bubble Level
HS	House-Side Shield
NL	Nema Label
XL	Not CSA Certified
UMR-XX	8" Horizontal Arm for Round Pole, Painted to match Fixture
UMS-XX	8" Horizontal Arm for Square Pole, Painted to match Fixture
UMR-GALV	8" Horizontal Arm for Round Pole, Galvanized
UMS-GALV	8" Horizontal Arm for Square Pole, Galvanized

Controls

(Blank)	3 Pin NEMA Photocontrol Receptacle (Standard)
P7[2]	7 Pin Photocontrol Receptacle (Dimmable Driver Included)
NR	No Photocontrol Receptacle
AO[3]	Field Adjustable Output
DM	0V-10V Dimmable Driver (Controls by others)
ML[4,5]	Multi-Level Dimming
PCSS[1]	Solid State Lighting Photocontrol (120-277V)
PCLL	Solid State Long Life Photocontrol
SH	Shorting Cap

Packaging

(Blank)	Single Unit (Standard)
JP	Job Pack (42/Pallet)

Notes

1 Not available in 347 or 480V.

2 Not available with DM, ML or NR.

3 Not available with DM or ML options. Not available with 10BLED packages.

4 Not available with AO, DM or P7 options.

5 Dimming Schedule and light level information required from the customer in order to configure product. Contact Infrastructure Technical Support to proceed.

AEL American Electric Lighting®
AEL Headquarters, 3825 Columbus Road, Granville, OH 43023
www.americanelectriclighting.com

Warranty Five-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx
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Please contact your sales representative for the latest product information.

PERFORMANCE PACKAGE

Performance Package	Drive Current (mA)	Input Watts	Optic	4000K CCT		LLD @ 25°C		
				Delivered Lumens	Efficacy (LPW)	50k Hours	75k Hours	100k Hours
10B	700	25	R2	2994	120	0.98	0.98	0.97
	1000	37		4293	116	0.98	0.98	0.97
	1500	54		5688	105	0.97	0.97	0.96
	700	25	R3	3009	120	0.98	0.98	0.97
	1000	37		4313	117	0.98	0.98	0.97
	1500	54		5742	106	0.97	0.97	0.96
	700	25	R4	2992	120	0.98	0.98	0.97
	1000	37		4232	114	0.98	0.98	0.97
	1500	54		5653	105	0.97	0.97	0.96
	700	25	R5	3065	123	0.98	0.98	0.97
	1000	37		4422	120	0.98	0.98	0.97
	1500	54		5844	108	0.97	0.97	0.96
20B	525	36	R2	4638	129	0.98	0.98	0.97
	700	48		5956	124	0.98	0.98	0.97
	1000	71		8506	120	0.98	0.98	0.97
	1300	87		9922	114	0.96	0.94	0.92
	1500	99		11038	111	0.95	0.92	0.90
	525	36	R3	4704	131	0.98	0.98	0.97
	700	48		6114	127	0.98	0.98	0.97
	1000	71		8606	121	0.98	0.98	0.97
	1300	87		10065	116	0.96	0.94	0.92
	1500	99		11181	113	0.95	0.92	0.90
	525	36	R4	4676	130	0.98	0.98	0.97
	700	48		6022	125	0.98	0.98	0.97
	1000	72		8569	119	0.98	0.98	0.97
	1300	87		10053	116	0.96	0.94	0.92
	1500	99		11160	113	0.95	0.92	0.90
	525	36	R5	4869	135	0.98	0.98	0.97
	700	48		6287	131	0.98	0.98	0.97
	1000	71		8880	125	0.98	0.98	0.97
	1300	87		10397	120	0.96	0.94	0.92
	1500	99		11593	117	0.95	0.92	0.90
30B	700	70	R2	9174	131	0.98	0.98	0.97
	850	83		10457	126	0.98	0.98	0.97
	1000	105		12414	118	0.96	0.96	0.95
	1300	126		14964	119	0.96	0.94	0.92
	1500	145		16251	112	0.94	0.91	0.89
	700	70	R3	8893	127	0.98	0.98	0.97
	850	83		10825	130	0.98	0.98	0.97
	1000	105		12748	121	0.96	0.96	0.95
	1300	126		14850	118	0.96	0.94	0.92
	1500	145		16193	112	0.94	0.91	0.89
	700	70	R4	8971	128	0.98	0.98	0.97
	850	83		10589	128	0.98	0.98	0.97
	1000	105		12782	122	0.96	0.96	0.95
	1300	126		14889	118	0.96	0.94	0.92
	1500	145		16463	114	0.94	0.91	0.89
	700	70	R5	9329	133	0.98	0.98	0.97
	850	83		11209	135	0.98	0.98	0.97
	1000	105		13296	127	0.96	0.95	0.94
	1300	126		15254	121	0.96	0.94	0.92
	1500	145		16871	116	0.94	0.91	0.89

Note: Information shown above is based on 4000K nominal system data. Individual fixture performance may vary. To calculate 3000K lumen values, multiply the 4000K lumens by .93. Specifications subject to change without notice.

ATB0 LLD Multiplier	15°C	20°C	25°C	30°C	35°C	40°C
	1.02	1.01	1	0.98	0.97	0.95

To calculate the LLD for a temperature other than 25°C, multiply the LLD @ 25°C (shown in the performance package table) by the LLD multiplier for the selected temperature.

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www.americanelectriclighting.com

Warranty Five-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx
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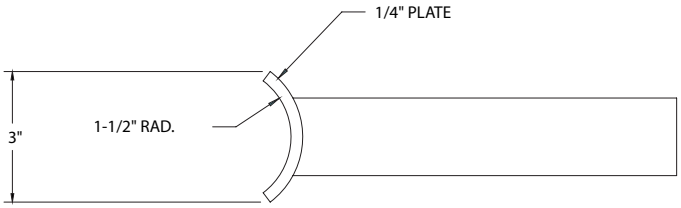
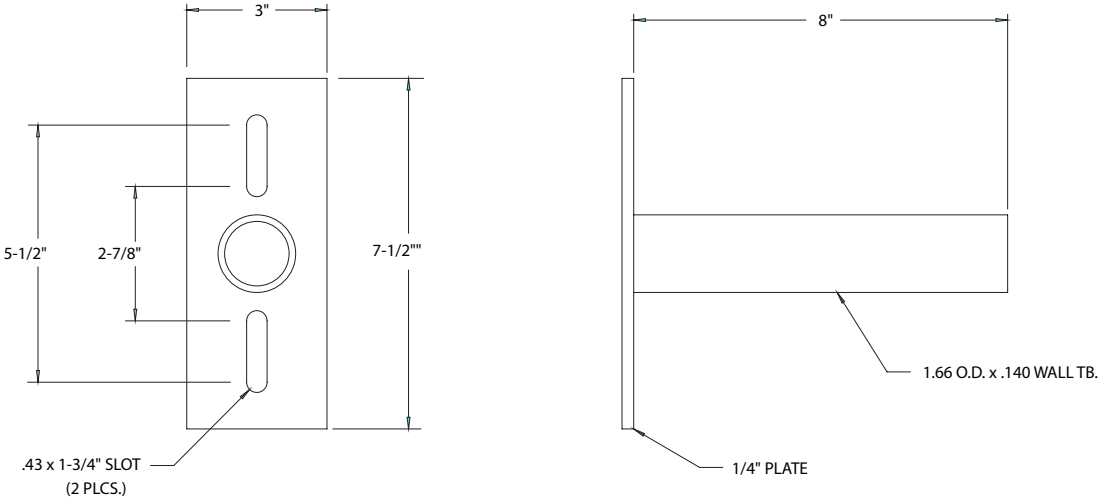
All values are design or typical values, measured under laboratory conditions at 25 °C.
Specifications subject to change without notice.

Please contact your sales representative for the latest product information.

UMR POLE ADAPTOR

RECOMMENDED FOR USE WITH POLES OF 4" DIAMETER OR SMALLER





UMS POLE ADAPTOR

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All values are design or typical values, measured under laboratory conditions at 25 °C.
Specifications subject to change without notice.

Please contact your sales representative for the latest product information.

Autobahn Series ATBM
Roadway

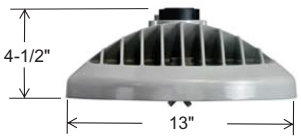
Consistent with LEED® goals & Green Globes™ criteria for light pollution reduction

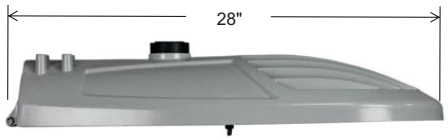
PRODUCT OVERVIEW

Applications:

Residential streets
Parking lots
High speed roadways

DIMENSIONS





Effective Projected Area (EPA)
The EPA for the ATBM is 0.3 sq. ft.,
Approx. Wt. = 21 lbs. (9.5 kg)

STANDARDS

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

Color temperatures of ≤ 3000K must be specified for International Dark-Sky Association certification.

Rated for -40°C to 40°C ambient
CSA Certified to U.S. and Canadian standards
Complies with ANSI: C136.2, C136.10, C136.14, C136.31, C136.15, C136.37

Features:

OPTICAL

Same Light: Performance is comparable to 150W – 250W HPS

White Light: Correlated color temperature - 4000K, 70 CRI minimum, 3000K, 70 CRI minimum or optional 5000K, 70 CRI minimum.

IP66 rated borosilicate glass optics ensure longevity and minimize dirt depreciation. Unique IP66 rated LED light engines provide 0% uplight and restrict backlight to within sidewalk depth, providing optimal application coverage and optimal pole spacing.

Available distributions are Type II, III, IV, & V roadway distributions.

ELECTRICAL

Expected Life: LED light engines are rated >100,000 hours at 25°C, L70.
Electronic driver has an expected life of 100,000 hours at a 25°C ambient.

Lower Energy: Saves an expected 40-60% over comparable HID luminaires.

Robust Surge Protection: Three different surge protection options provide a minimum of ANSI C136.2 10kV/5kA protection. 20kV/10kA surge protection is also available.

MECHANICAL

Includes standard AEL lineman-friendly features such as tool-less entry, 3 station terminal block and quick disconnects. Bubble level located inside the electrical compartment for easy leveling at installation.

Rugged die-cast aluminum housing and door are polyester powder-coated for durability and corrosion resistance. Rigorous five-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 8 (per ASTM D1654) after over 5000 hours exposure to salt fog chamber (operated per ASTM B117).

Mast arm mount is adjustable for arms from 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) diameter. The 2 – bolt and optional 4 bolt clamping mechanism provide 3G vibration rating per ANSI C136.

The Wildlife shield is cast into the housing (not a separate piece).

CONTROLS

NEMA 3 pin photocontrol receptacle is standard, with the Acuity designed ANSI standard 5 pin and 7 pin receptacles optionally available.

Premium solid state locking-style photocontrol – PCSS (10 year rated life) Extreme long life solid state locking-style photocontrol – PCL1 (20 year rated life).

Extreme long life solid state locking-style photocontrol with on demand remote on/off control - PCCC (15 year rated life).

Optional onboard Adjustable Output module allows the light output and input wattage to be modified to meet site specific requirements, and also can allow a single fixture to be flexibly applied in many different applications.

Autobahn Series ATBM
Roadway

ORDERING INFORMATION

Example: ATBM A MVOLT R2

Series	Performance Packages	Voltage	Optics	Mounting
ATBM Autobahn LED Roadway	**A** 7,000 lumens **B** 8,000 lumens **C** 9,000 lumens **D** 11,600 lumens **E** 13,400 lumens **F** 15,700 lumens **G** 16,600 lumens **H** 17,400 lumens	**MVOLT** Multi-volt, 120-277V **347** 347V **480** 480V	**R2** Roadway Type II **R3** Roadway Type III **R4** Roadway Type IV **R5** Roadway Type V	**(Blank)** 2 Bolt Mounting **4B** 4 Bolt Mounting

Options

Color Temperature (CCT)
- **(Blank)** 4000K CCT, 70 CRI Min.
- **3K** 3000K CCT, 70 CRI Min.
- **5K** 5000K CCT, 70 CRI Min.

Paint
- **(Blank)** Gray
- **BK** Black
- **BZ** Bronze
- **DDB** Dark Bronze
- **GI** Graphite
- **WH** White

Surge Protection
- **(Blank)** Acuity SPD
- **20** 20kV/10KA SPD[8]
- **MP** MOV Pack[1]
- **IL** SPD with Indicator Light[1]

Miscellaneous Options
- **HSS** House Side Shield
- **NL** NEMA Label Indicating Wattage
- **XL** Not CSA Certified – No Terminal Block Cover

Control Options
- **(Blank)** 3 Pin NEMA Photocontrol Receptacle
- **P5** 5 Pin Photocontrol Receptacle (dimmable driver included)[2]
- **P7** 7 Pin Photocontrol Receptacle (dimmable driver included)[2]
- **NR** No Photocontrol Receptacle[3]
- **AO** Field Adjustable Output[4]
- **DM** 0-10V Dimmable Driver[5]
- **PCSS** Solid-State Lighting Photocontrol[6]
- **PCLL** Solid-State Long Life Photocontrol
- **PCCC** Solid-State Long Life Photocontrol with remote control on/off[7]
- **SH** Shorting Cap

Packages
- **(Blank)** Standard Pack
- **JP** Job Pack (36/pallet)

Accessories
- **ATBMHSS** House Side Shield
- **ATBMLTS** Light Trespass Shield
- **RKATBMMVOLTSPD** ATBM Acuity SPD Replacement Kit MVOLT
- **RKATBMHVSPD** ATBM Acuity SPD Replacement Kit 347/480V
- **RKATBMMVOLTMP** ATBM MOV Pack Replacement Kit
- **RKATBMMVOLTIL** ATBM IL SPD Replaement Kit

Notes:
1. Not available with G and H performance packages.
2. Dimmable Driver included. Not available with AO, DM or NR.
3. Not available with P5, P7.
4. Not available with DM, P5 or P7.
5. Controls by others. Not available with AO.
6. MVOLT only.
7. Not available with PCSS or PCLL.
8. Not available with G & H packages at 347/480 volts.

American Electric Lighting®
AEL Headquarters, 3825 Columbus Road, Granville, OH 43023
www.americanelectriclighting.com

Warranty Five-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx
Actual performance may differ as a result of end-user environment and application. Specifications subject to change without notice.

Please contact your sales representative for the latest product information.

PERFORMANCE PACKAGE

Performance Package	Distribution	4000 K CCT			LLD @ 25°C		
		Lumens	Input Watts	LPW	50K Hours	75K Hours	100K Hours
A	R2	7,114	60	118	89	84	80
	R3	7,024		117			
	R4	6,958		116			
	R5	7,469		124			
B	R2	8,090	70	115	89	84	80
	R3	8,016		114			
	R4	7,924		113			
	R5	8528		121			
C	R2	9031	81	112	89	84	80
	R3	8,942		111			
	R4	8,827		110			
	R5	9,517		118			
D	R2	11,769	95	124	90	87	84
	R3	11,690		123			
	R4	11,534		121			
	R5	12,388		130			
E	R2	13,601	115	118	90	87	84
	R3	13,416		117			
	R4	13,323		116			
	R5	14,263		124			
F	R2	15,932	133	120	90	86	83
	R3	15,741		118			
	R4	15,476		116			
	R5	16,691		125			
G	R2	17,102	150	114	90	86	83
	R3	16,974		113			
	R4	16,635		111			
	R5	17,938		119			
H	R2	18,085	164	111	90	86	83
	R3	17,929		110			
	R4	17,439		107			
	R5	18,966		116			

Note: Information shown above is based on 4000K nominal system data. Individual fixture performance may vary. Specifications subject to change without notice.

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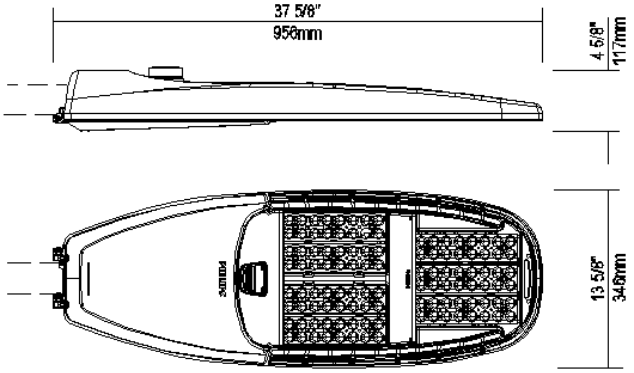
CITY OF WOODDALE GY3 (Reference=L59667-2)



EPA: 0.92 sq ft / weight: 27.3 lb (12.4 kg)
Note: 3D image may not represent color or option selected.
Logos above include link, click to access.

Qty **1** Luminaire **RFL-215W96LED4K-G2-R3M-UNV-DMG-RCD-GY3**

Description of Components:

Housing: Made of a low copper die cast Aluminum alloy (A360), 0.100" (2.5mm) minimum thickness. Fits on a 1.66" (42mm) O.D. (1.25" NPS), 1.9" (48mm) O.D. (1.5" NPS) or 2 3/8" (60mm) O.D. (2" NPS) by 7" (178mm) minimum long tenon. Comes with 2 zinc plated clamp fixed by 4 zinc plated hexagonal bolts 3/8 16 UNC for ease of installation. Provides an easy step adjustment of +/- 5° tilt in 2.5º increments. A quick release, tool less entry, hinged, removable door opens downward to provide access to electronic components and to a terminal block. Door is secured to prevent accidental dropping or disengagement. A clearance of 17" (432mm) at the rear is required in order to remove the door. Complete with a bird guard protecting against birds and similar intruders and an ANSI label to identify wattage and source (both included in box).

Light Engine: Composed of 4 main components: **Heat Sink / LED Module / Optical System / Driver**
Electrical components are RoHS compliant, IP66 sealed light engine.
LEDs tested by ISO 17025-2005 accredited lab in accordance with IESNA LM-80 guidelines in compliance with EPA ENERGY STAR, extrapolations in accordance with IESNA TM-21. Metal core board ensures greater heat transfer and longer lifespan.

Heat Sink: Built in the housing, designed to ensure high efficacy and superior cooling by natural vertical convection air flow pattern always close to LEDs and driver optimising their efficiency and life. Product does not use any cooling device with moving parts (only passive cooling). Wide openings enable natural cleaning and removal of dirt and debris. Entire luminaire is rated for operation in ambient temperature of -40°C / -40°F up to +50°C / +122°F.

LED Module: Composed of 96 high-performance white LEDs. Color temperature as per ANSI/NEMA bin Neutral White, 4000 Kelvin nominal (3985K +/- 275K or 3710K to 4260K), CRI 70 Min. 75 Typical.

Optical System: 0% uplight and U0 per IESNA TM-15.

Driver: High power factor of 90% minimum. Electronic driver, operating range 50/60 Hz. Auto-adjusting universal voltage input from 120 to 277 VAC rated for both application line to line or line to neutral, Class I, THD of 20% max. **Driver comes with dimming compatible 0-10 volts.**

The current supplying the LEDs will be reduced by the driver if the driver experiences internal overheating as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction. Standard built-in driver surge protection of 2.5kV (min).

Driver Options: (DMG) Integrated Feature, Dimming compatible 0-10 volts. For applicable warranty, certification and operation guide see Philips Lumec dimmable luminaire specification document for unapproved device installed by other. To get document, click on this link: Specification document or go on web site on this address: http://www.lumec.com/Lumec3DV2/PdfWebLink/Philips Lumec dimmable luminaire specification document for unapproved device installed by other.pdf

Surge Protector: Integrated Feature, Surge protector tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line-Ground, Line-Neutral and Neutral-Ground, and in accordance with U.S. DOE (Department of Energy) MSSLC (Municipal Solid-State Street Lighting Consortium) model specification for LED roadway luminaires electrical immunity requirements for High Test Level 10kV / 10kA.

Luminaire Options: (RCD) Integrated Feature, Receptacle with 5 pins enabling dimming, can be used with a twist-lock control device or photoelectric cell or a shorting cap. Use of photocell or shorting cap is required to ensure proper illumination.

Luminaire Useful Life: Refer to IES files for energy consumption and delivered lumens for each option. Based on ISTMT in-situ thermal testing in accordance with UL1598 and UL8750, Philips System Reliability Tool. Philips Advance data LM-80/TM-21 data, expected to reach 100,000 + hours with >L70 lumen maintenance @ 25°C. Luminaire Useful Life accounts for LED lumen maintenance AND all of these additional factors including: LED life, driver life, PCB substrate, solder joints, on/off cycles, burning hours and corrosion.

Miscellaneous

Description of Components:

Wiring: The connection of the luminaire is done using a terminal block connector 600V, 85A for use with #2-14 AWG. wires from the primary circuit, located inside the housing. Due to the inrush current that occurs with electronic drivers, recommend using a 10Amp time delay fuse to avoid unwanted fuse blowing (false tripping) that can occur with normal or fast acting fuses.

Hardware: All exposed screws shall be complete with Ceramic primer-seal basecoat to reduce seizing of the parts and offers a high resistance to corrosion. All seals and sealing devices are made and/or lined with EPDM and/or silicone and/or rubber.

Finish: Color to be **medium grey (GY3)** and in accordance with the AAMA 2603 standard. Application of polyester powder coat paint (4 mils/100 microns) with ± 1 mils/24 microns of tolerance. The Thermosetting resins provides a discoloration resistant finish in accordance with the ASTM D2244 standard, as well as luster retention in keeping with the ASTM D523 standard and humidity proof in accordance with the ASTM D2247 standard.

The surface treatment achieves a minimum of 3000 hours for salt spray resistant finish in accordance with testing performed and per ASTM B117 standard.

LED products manufacturing standard: The electronic components sensitive to electrostatic discharge (ESD) such as light emitting diodes (LEDs) are assembled in compliance with IEC61340-5-1 and ANSI/ESD S20.20 standards so as to eliminate ESD events that could decrease the useful life of the product.

Vibration Resistance: The RFL meets the **ANSI C136.31**, American National Standard for Roadway Luminaire Vibration specifications for Bridge/overpass applications (Tested for 3G over 100 000 cycles).

The RFL meets the **California Test 611, Testing durability of mast arm mounted luminaires**, specifications (a 2 000 000 cycles test).

Service Tag: Each individual luminaire is uniquely identifiable, thanks to the Philips Service tag application. With a simple scan of a QR code, placed on the inside of the mast door, you gain instant access to the luminaire configuration, making installation and maintenance operations faster and easier, no matter what stage of the luminaire's lifetime. Just download the APP and register your product right away. For more details visit: philips.com/servicetag

Warranty: Luminaire comes with a warranty of 10 years on product and finish. See http://www.usa.lighting.philips.com/support/support/warranty for details.

Certifications and Compliance: cULus Listed for Canada and USA. Luminaire meets DOE and MSSLC Model Specification for LED Roadway Luminaires. Large RoadFocus luminaires are DesignLights Consortium qualified. Luminaire complies with or exceeds the following ANSI C136 standards: .2, .3, .10, .14, .15, .22, .25, .31, .37, .41.

Web site information details: Click on any specific information details you need: / cULus Certification / Warranty

LED Wattage and Lumen Values: 3000K

Ordering Code	Total LEDs	LED current (mA)	Average system watts (W)	Type R2S			Type R2M			Type R3S			Type R3M		
				delivered lumens	Efficacy (LPW)	BUG rating	delivered lumens	Efficacy (LPW)	BUG rating	delivered lumens	Efficacy (LPW)	BUG rating	delivered lumens	Efficacy (LPW)	BUG rating
RFL-145W64LED3K-G2	64	700	137	16813	122.7	B3-U0-G2	16458	120.1	B3-U0-G3	16181	118.1	B2-U0-G3	16127	117.7	B3-U0-G3
RFL-90W80LED3K-G2	80	350	93	11541	124.5	B2-U0-G2	11297	121.8	B2-U0-G2	11107	119.8	B2-U0-G2	11070	119.4	B2-U0-G2
RFL-135W80LED3K-G2	80	530	136	16601	121.7	B3-U0-G2	16251	119.1	B3-U0-G3	15977	117.1	B2-U0-G3	15924	116.7	B3-U0-G3
RFL-180W80LED3K-G2	80	700	174	21016	120.8	B3-U0-G2	20572	118.2	B3-U0-G3	20226	116.2	B2-U0-G3	20159	115.9	B3-U0-G3
RFL-160W96LED3K-G2	96	530	161	19921	123.9	B3-U0-G2	19501	121.3	B3-U0-G3	19172	119.3	B2-U0-G3	19109	118.9	B3-U0-G3
RFL-215W96LED3K-G2	96	700	207	25219	121.8	B3-U0-G3	24687	119.3	B3-U0-G3	24271	117.3	B2-U0-G4	24190	116.9	B3-U0-G3
RFL-335W96LED3K-G2	96	1050	323	35094	108.7	B4-U0-G4	34354	106.4	B4-U0-G4	33775	104.6	B3-U0-G4	33663	104.2	B4-U0-G4
RFL-190W112LED3K-G2	112	530	188	23241	123.9	B3-U0-G3	22751	121.3	B3-U0-G3	22368	119.3	B3-U0-G4	22294	118.9	B3-U0-G3
RFL-241W112LED3K-G2	112	700	243	29422	121.1	B3-U0-G3	28801	118.5	B3-U0-G3	28316	116.5	B3-U0-G4	28222	116.1	B3-U0-G4
RFL-350W112LED3K-G2	112	950	340	37731	111.1	B4-U0-G4	36935	108.8	B4-U0-G4	36313	107.0	B3-U0-G5	36193	106.6	B4-U0-G4

Ordering Code	Total LEDs	LED current (mA)	Average system watts (W)	Type 4			Type 5		
				delivered lumens	Efficacy (LPW)	BUG rating	delivered lumens	Efficacy (LPW)	BUG rating
RFL-145W64LED3K-G2	64	700	137	16210	118.3	B2-U0-G3	16851	123.0	B4-U0-G2
RFL-90W80LED3K-G2	80	350	93	11127	120.0	B2-U0-G2	11567	124.8	B4-U0-G2
RFL-135W80LED3K-G2	80	530	136	16006	117.3	B2-U0-G3	16639	121.9	B4-U0-G2
RFL-180W80LED3K-G2	80	700	174	20263	116.5	B3-U0-G4	21064	121.1	B5-U0-G3
RFL-160W96LED3K-G2	96	530	161	19207	119.5	B3-U0-G4	19967	124.2	B5-U0-G3
RFL-215W96LED3K-G2	96	700	207	24315	117.5	B3-U0-G4	25277	122.1	B5-U0-G3
RFL-335W96LED3K-G2	96	1050	323	33836	104.8	B3-U0-G5	35175	108.9	B5-U0-G4
RFL-190W112LED3K-G2	112	530	188	22408	119.5	B3-U0-G4	23295	124.2	B5-U0-G3
RFL-241W112LED3K-G2	112	700	243	28368	116.7	B3-U0-G4	29489	121.4	B5-U0-G4
RFL-350W112LED3K-G2	112	950	340	36379	107.2	B3-U0-G5	37818	111.4	B5-U0-G4

Field Adjustable Wattage (FAWS) Multiplier Chart

FAWS Position	Typical Delivered Lumens Multiplier	Typical System wattage
1	0.31	0.28
2	0.53	0.50
3	0.62	0.58
4	0.70	0.67
5	0.78	0.75
6	0.83	0.81
7	0.89	0.87
8	0.92	0.91
9	0.96	0.95
10	1.00	1.00

Note: Typical value accuracy +/- 5%

Actual performance may vary due to installation variables including optics, mounting/ceiling height, dirt depreciation, light loss factor, etc.; highly recommended to confirm performance with a layout - contact Applications : outdoorlighting.applications@philips.com
Note: Some data may be scaled based on tests of similar. But not identical luminaires

PHILIPS

LED Wattage and Lumen Values: 4000K

Ordering Code	Total LEDs	LED current (mA)	Average system watts (W)	Type R2S			Type R2M			Type R3S			Type R3M		
				delivered lumens	Efficacy (LPW)	BUG rating	delivered lumens	Efficacy (LPW)	BUG rating	delivered lumens	Efficacy (LPW)	BUG rating	delivered lumens	Efficacy (LPW)	BUG rating
RFL-145W64LED4K-G2	64	700	137	17820	130.1	B3-U0-G2	17444	127.3	B3-U0-G3	17150	125.2	B2-U0-G3	17093	124.8	B3-U0-G3
RFL-90W80LED4K-G2	80	350	93	12232	131.9	B3-U0-G2	11974	129.1	B2-U0-G2	11772	127.0	B2-U0-G2	11733	126.5	B2-U0-G2
RFL-135W80LED4K-G2	80	530	136	17596	129.0	B3-U0-G2	17224	126.2	B3-U0-G3	16934	124.1	B2-U0-G3	16878	123.7	B3-U0-G3
RFL-180W80LED4K-G2	80	700	174	22275	128.0	B3-U0-G3	21805	125.3	B3-U0-G3	21438	123.2	B3-U0-G4	21367	122.8	B3-U0-G3
RFL-160W96LED4K-G2	96	530	161	21115	131.4	B3-U0-G2	20669	128.6	B3-U0-G3	20321	126.4	B2-U0-G3	20254	126.0	B3-U0-G3
RFL-215W96LED4K-G2	96	700	207	26730	129.1	B3-U0-G3	26166	126.4	B3-U0-G3	25725	124.3	B3-U0-G4	25640	123.9	B3-U0-G3
RFL-335W96LED4K-G2	96	1050	323	37197	115.2	B4-U0-G4	36412	112.7	B4-U0-G4	35799	110.8	B3-U0-G5	35680	110.5	B4-U0-G4
RFL-190W112LED4K-G2	112	530	188	24634	131.3	B3-U0-G3	24114	128.6	B3-U0-G3	23708	126.4	B3-U0-G4	23629	126.0	B3-U0-G3
RFL-241W112LED4K-G2	112	700	243	31185	128.3	B4-U0-G3	30527	125.6	B3-U0-G4	30013	123.5	B3-U0-G4	29913	123.1	B3-U0-G4
RFL-350W112LED4K-G2	112	950	340	39992	117.8	B4-U0-G4	39148	115.3	B4-U0-G4	38489	113.4	B3-U0-G5	38361	113.0	B4-U0-G4

Ordering Code	Total LEDs	LED current (mA)	Average system watts (W)	Type 4			Type 5		
				delivered lumens	Efficacy (LPW)	BUG rating	delivered lumens	Efficacy (LPW)	BUG rating
RFL-145W64LED4K-G2	64	700	137	17181	125.4	B2-U0-G3	17861	130.4	B4-U0-G2
RFL-90W80LED4K-G2	80	350	93	11794	127.2	B2-U0-G2	12260	132.2	B4-U0-G2
RFL-135W80LED4K-G2	80	530	136	16965	124.3	B2-U0-G3	17636	129.2	B4-U0-G2
RFL-180W80LED4K-G2	80	700	174	21477	123.4	B3-U0-G4	22326	128.3	B5-U0-G3
RFL-160W96LED4K-G2	96	530	161	20358	126.7	B3-U0-G4	21163	131.7	B5-U0-G3
RFL-215W96LED4K-G2	96	700	207	25772	124.5	B3-U0-G4	26791	129.4	B5-U0-G3
RFL-335W96LED4K-G2	96	1050	323	35864	111.0	B3-U0-G5	37282	115.4	B5-U0-G4
RFL-190W112LED4K-G2	112	530	188	23751	126.6	B3-U0-G4	24690	131.6	B5-U0-G3
RFL-241W112LED4K-G2	112	700	243	30067	123.7	B3-U0-G5	31256	128.6	B5-U0-G4
RFL-350W112LED4K-G2	112	950	340	38559	113.6	B3-U0-G5	40084	118.1	B5-U0-G4

Field Adjustable Wattage (FAWS) Multiplier Chart

FAWS Position	Typical Delivered Lumens Multiplier	Typical System wattage
1	0.31	0.28
2	0.53	0.50
3	0.62	0.58
4	0.70	0.67
5	0.78	0.75
6	0.83	0.81
7	0.89	0.87
8	0.92	0.91
9	0.96	0.95
10	1.00	1.00

Note: Typical value accuracy +/- 5%

Actual performance may vary due to installation variables including optics, mounting/ceiling height, dirt depreciation, light loss factor, etc.; highly recommended to confirm performance with a layout - contact Applications : outdoorlighting.applications@philips.com
Note: Some data may be scaled based on tests of similar. But not identical luminaires

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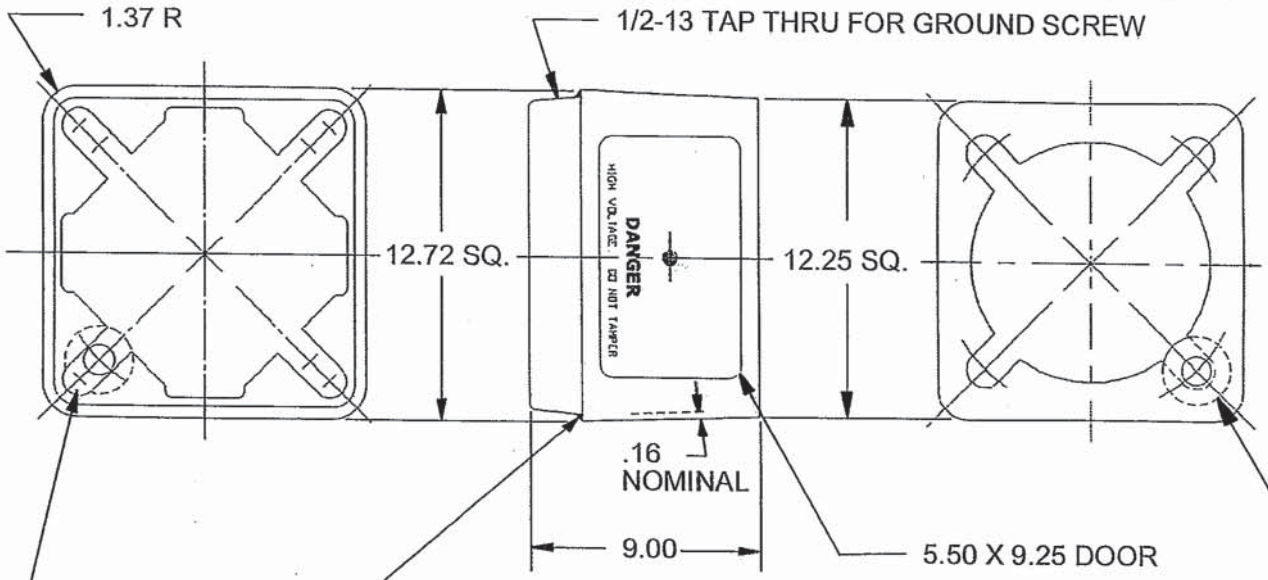


MIG 4043 WIRE 1/4 WITH APPROX. 5" OF WELD ON EACH OF THE (4) INTERNAL CORNERS

BOTTOM BOLT CIRCLE 10" DIA. THRU 12 3/4" DIA. B.C. 4 PLS EQ. SPACED
USE 2 3/4" DIA. X 1/2" TK. STEEL WASHERS

TOP BOLT CIRCLE 10 1/2" DIA. THRU 12" DIA. B.C. 4 PLS. EQ. SPACED
USE 2 3/4" DIA. X 1/2" TK. STEEL WASHERS

DOOR SUPPLIED / BLANK OR LOGO IN ALUMINUM OR NON-METALLIC, INJECTION MOLDED ABS
ST'D: DOOR STRAP # 1041 / USE 1/4-20 X 1" LONG S.S. SCREW / HEAD TYPE CUSTOMER OPTION.
ALL WASHERS TO BE ZINC MECHANICAL COATED PER ASTM 695-85 CLASS 50
356 T-6 ALUMINUM ALLOY / S.S. WHEELABRATED FINISH CHEMICAL AND PHY. CERTS TO BE SUPPLIED WITH EACH SHIPMENT

ADHESIVE BREAKAWAY AND CAUTION LABELS TO APPEAR ON INSIDE WALL OPPOSITE DOOR OPENING

AKRON FOUNDRY COMPANY	
TRANSFORMER BASE	
4-24-06	**TB6-9**

APPROVED BY F.H.W.A. TO 1985 AASHTO

MATERIAL MELTED AND MANUFACTURED IN THE U.S.A. CASTINGS PRODUCED IN THE U.S.A.

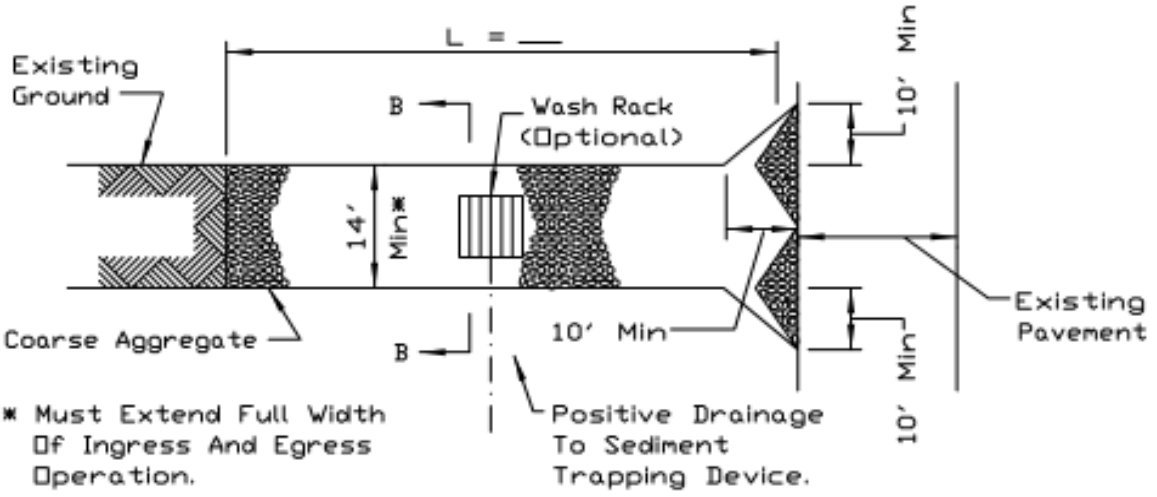
TOP: JOB# 0962 **BOTTOM: JOB# 0805** **DOOR: JOB# 2220** (ALUMINUM) **DOOR JOB# 2464** (NON-METALLIC) **ASS'Y: JOB# 2006**

ORDER "P" AFTER PART NUMBER WHEN A NON-METALLIC DOOR APPLICATION IS REQUIRED

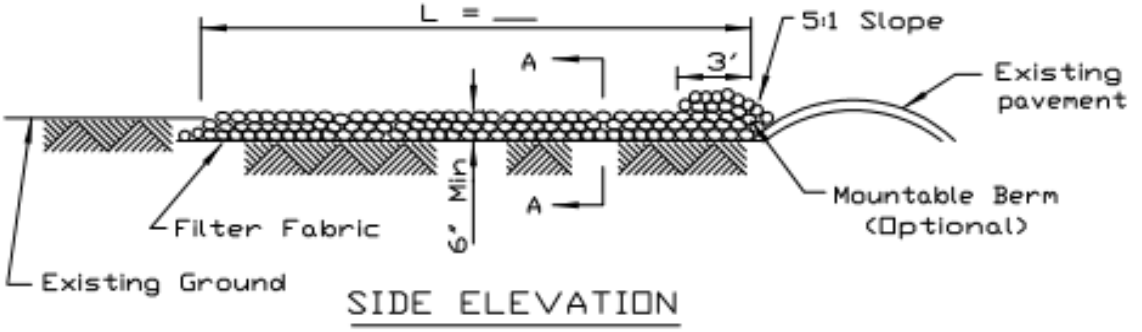
SECTION 700- GRADING, LANDSCAPING & EROSION CONTROL DETAILS

STABILIZED CONSTRUCTION ENTRANCE 1
STABILIZED CONSTRUCTION ENTRANCE 2
DITCH CHECKS
ROCK CHECK DAM
SILT FENCE
INLET PROTECTION
CONCRETE WASHOUT FACILITY
EROSION CONTROL BLANKET INSTALLATION

STABILIZED CONSTRUCTION ENTRANCE PLAN



PLAN VIEW



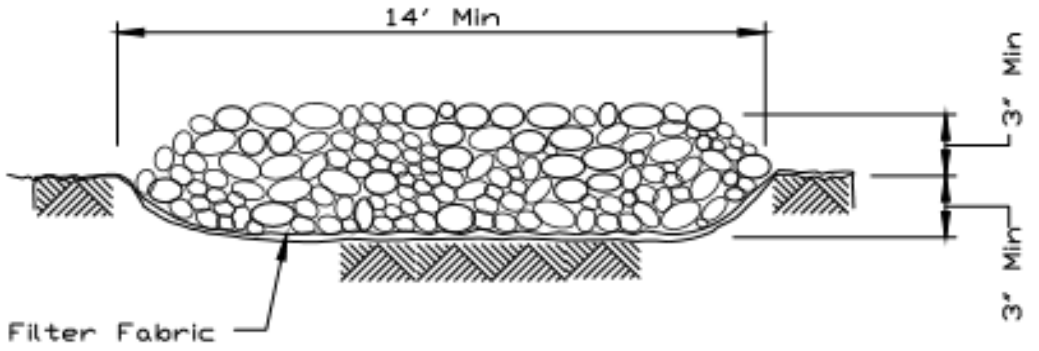
SIDE ELEVATION

NOTES:

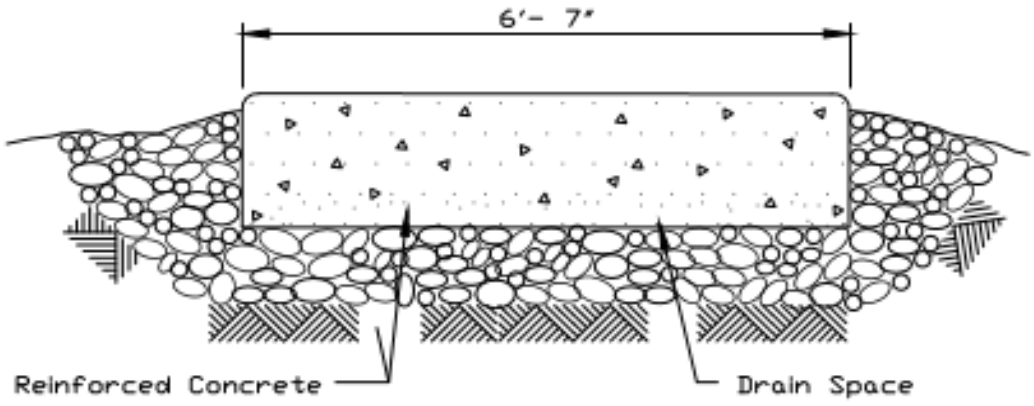
1. Filter fabric shall meet the requirements of material specification 592 GEOTEXTILE, Table I or 2, Class I, II or IV and shall be placed over the cleared area prior to the placing of rock.
2. Rock or reclaimed concrete shall meet one of the following IDOT coarse aggregate gradation, CA-1, CA-2, CA-3 or CA-4 and be placed according to construction specification 25 ROCKFILL using placement Method 1 and Class III compaction.
3. Any drainage facilities required because of washing shall be constructed according to manufacturers specifications.
4. If wash racks are used they shall be installed according to the manufacturer's specifications.

REFERENCE Project _____ Designed _____ Date _____ Checked _____ Date _____ Approved _____ Date _____	NRCS Natural Resources Conservation Service	STANDARD DWG. NO. IL-630 SHEET 1 OF 2 DATE 8-18-94

STABILIZED CONSTRUCTION ENTRANCE PLAN



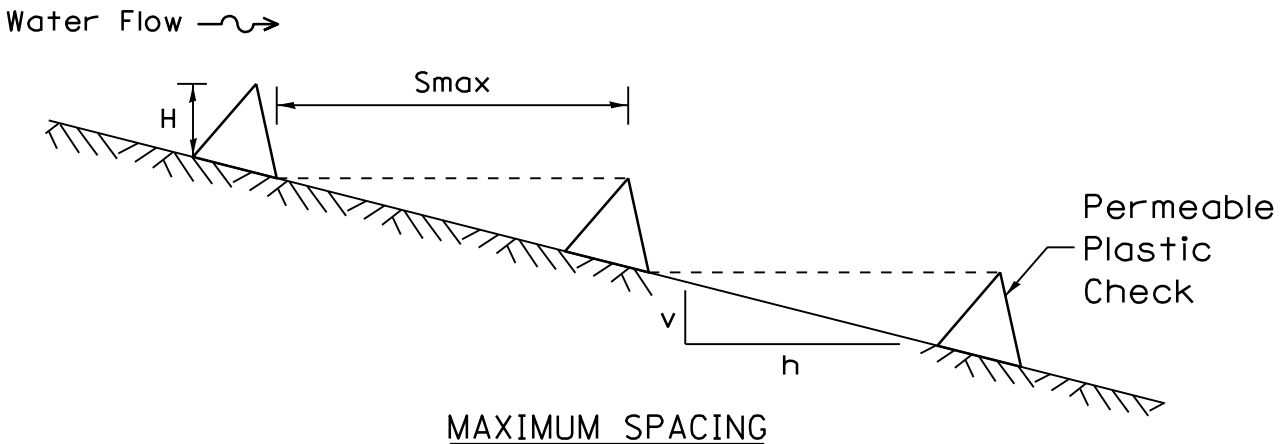
SECTION A-A



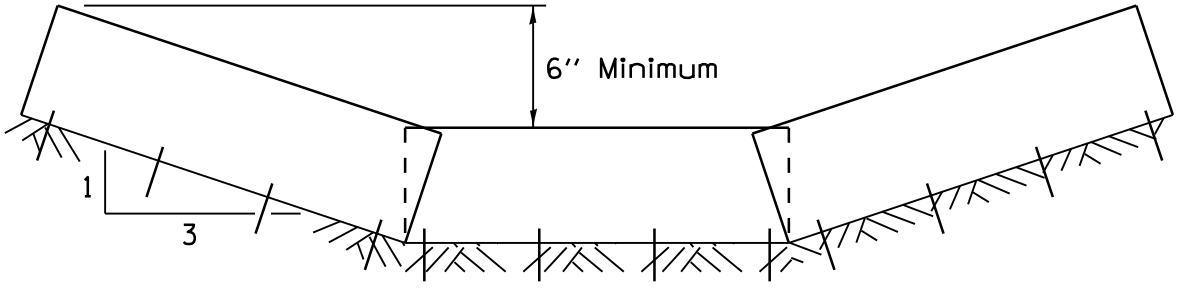
SECTION B-B

REFERENCE Project Designed ____ Date ____ Checked ____ Date ____ Approved ____ Date ____	NRCS Natural Resources Conservation Service	STANDARD DWG. NO. IL-630 SHEET 2 OF 2 DATE 8-18-94

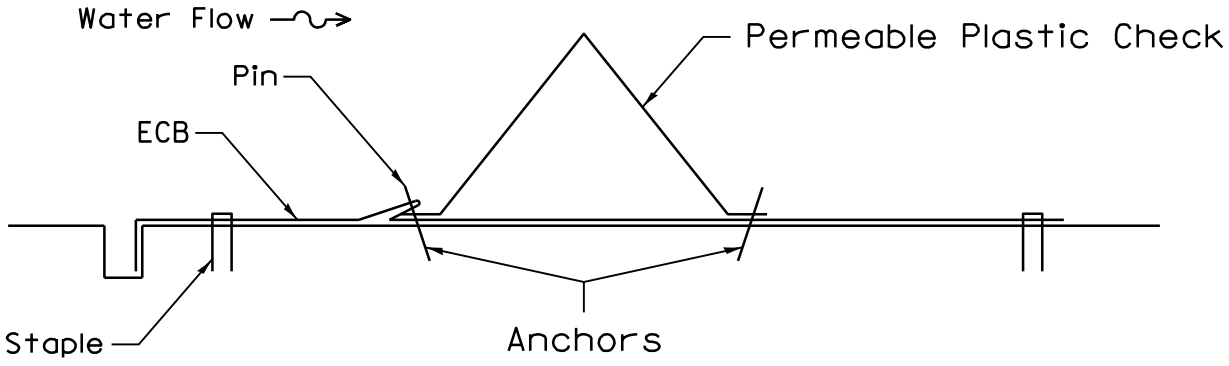
PLASTIC PERMEABLE CHECKS



MAXIMUM SPACING



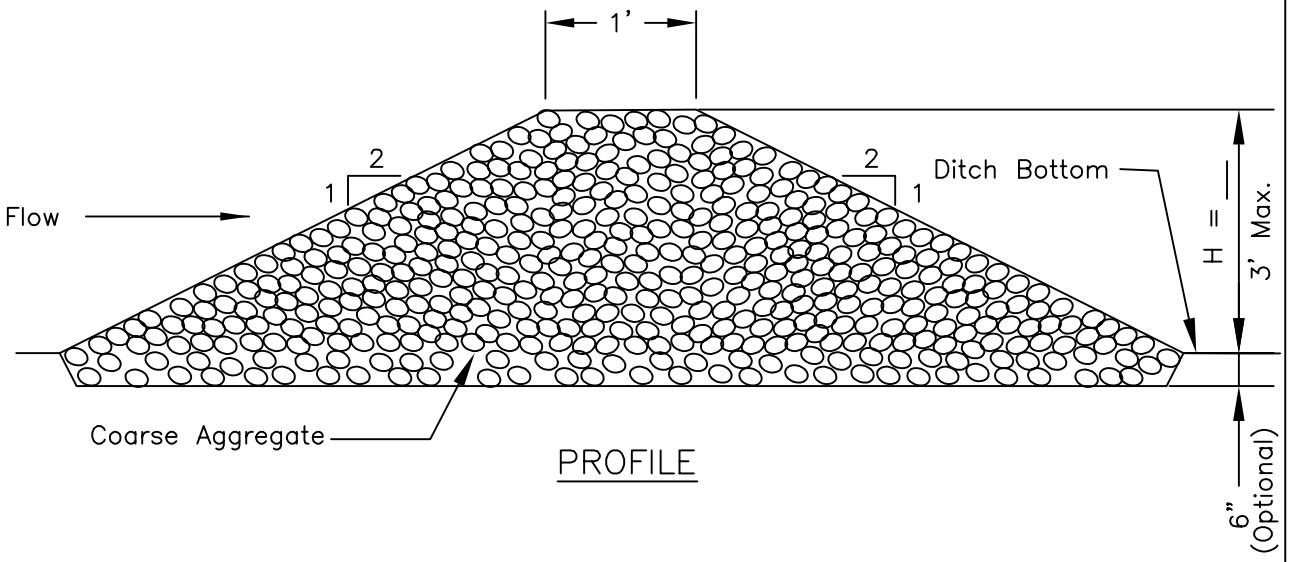
TYPICAL DITCH CROSS SECTION



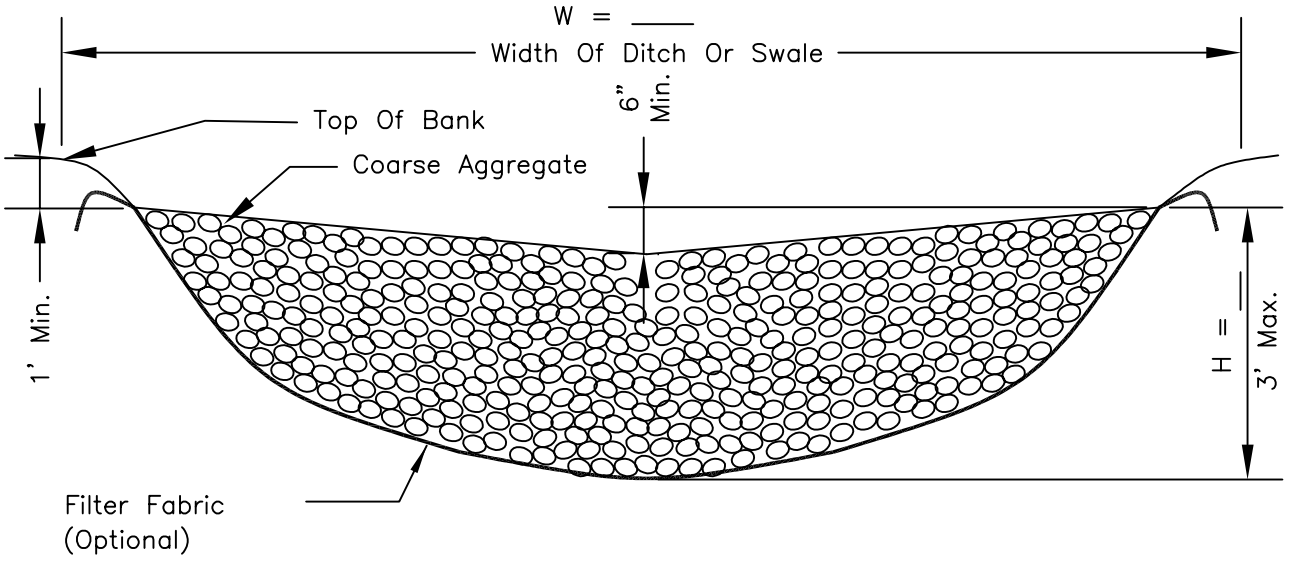
PLASTIC PERMEABLE CHECK CROSS SECTION

REFERENCE				STANDARD DWG. NO.
Project				IUM-514
Designed		Date		SHEET 1 OF 1
Checked		Date		DATE 8-19-11
Approved		Date		

ROCK CHECK DAM - COARSE AGGREGATE



PROFILE



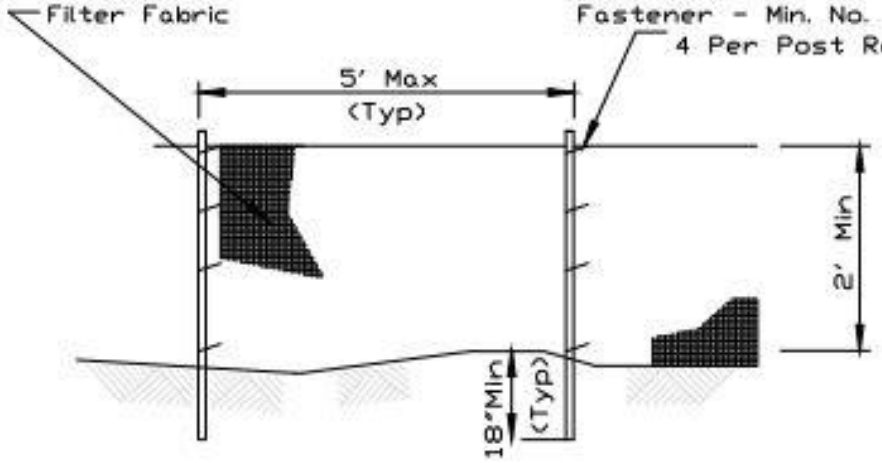
CROSS SECTION

NOTES:

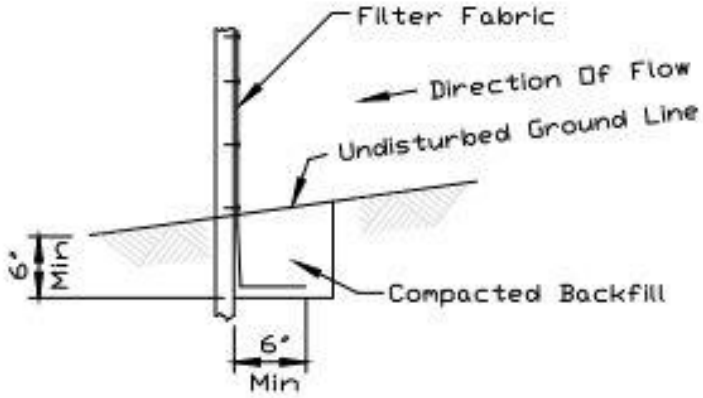
1. Filter fabric shall meet the requirements of material specification 592 GEOTEXTILE, Table 1 or 2, Class I, II, or IV and shall be placed over the cleared area prior to the placing of rock.
2. Coarse aggregate shall meet one of the following IDOT gradations, CA–1, CA–2, CA–3, or CA–4 and be placed according to construction specification 25 ROCKFILL using placement Method 1 and Class III compaction.
3. For added stability, the base of the dam may be keyed 6 inches into the soil.
4. See plans for spacing of dams and H dimensions.
5. Drainage area to each dam shall be less than 2 acres.
6. Use ROCK CHECK DAM–RIPRAP IL–605R for drainage areas of 2 to 10 acres.

REFERENCE					STANDARD DWG. NO.
Project				NRCS	IL-605CA
Designed		Date		Natural Resources Conservation Service	SHEET 1 OF 1
Checked		Date			DATE 1-29-99
Approved		Date			

SILT FENCE PLAN



ELEVATION



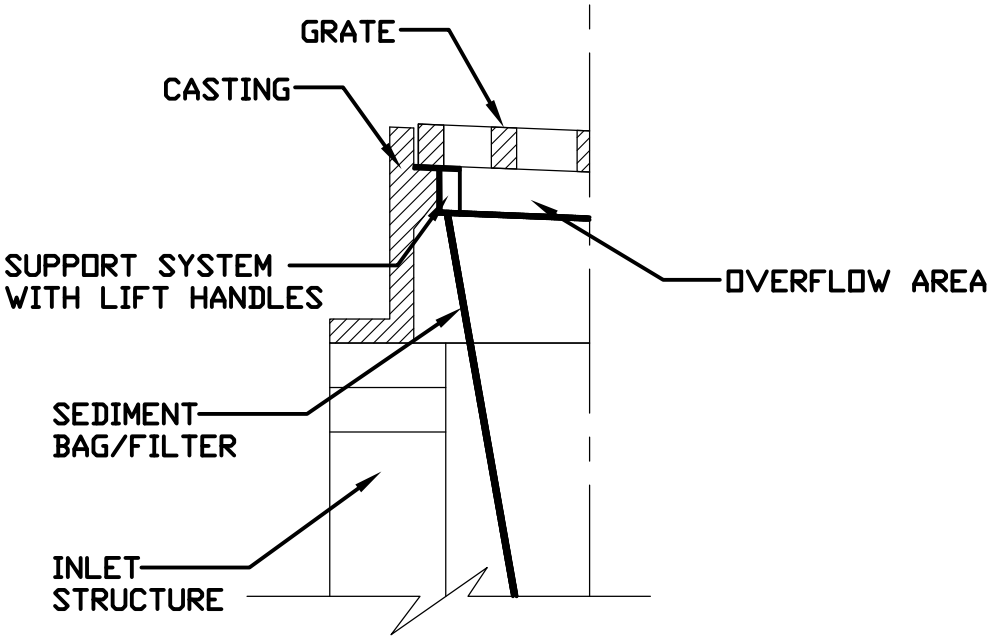
FABRIC ANCHOR DETAIL

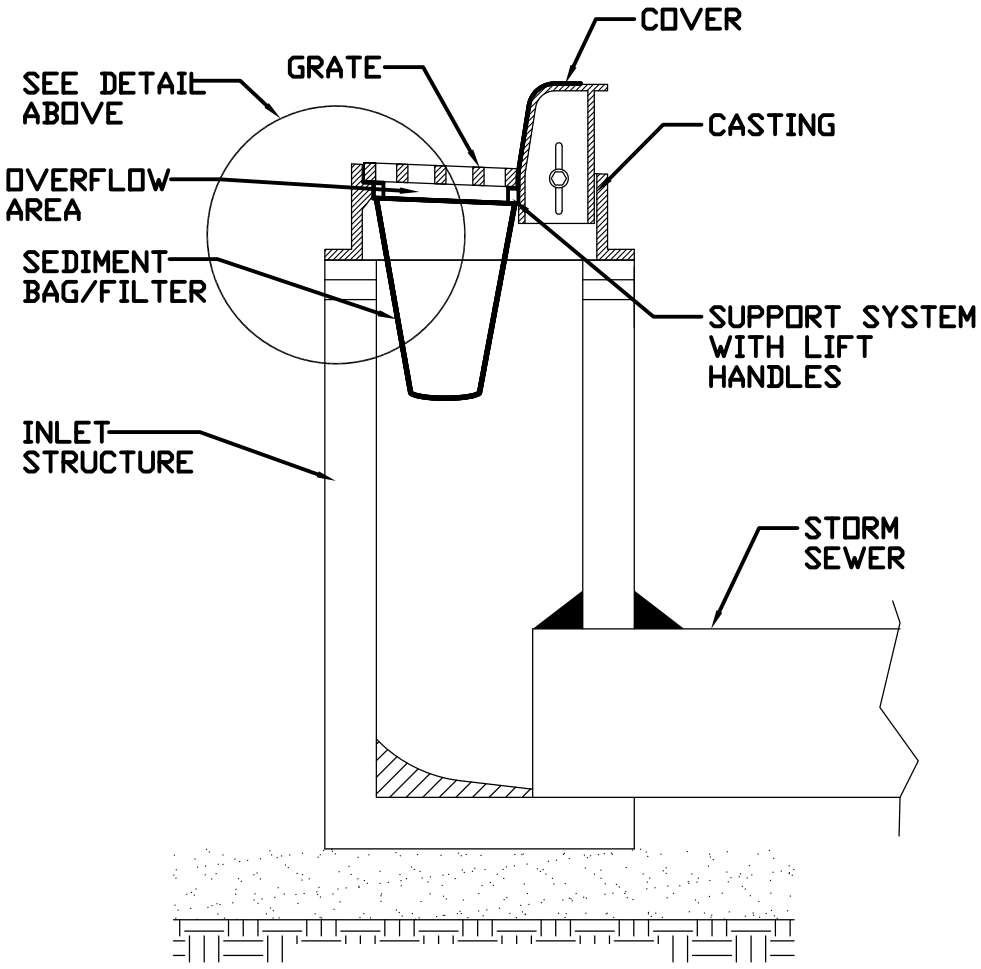
NOTES:

1. Temporary sediment fence shall be installed prior to any grading work in the area to be protected. They shall be maintained throughout the construction period and removed in conjunction with the final grading and site stabilization.
2. Filter fabric shall meet the requirements of material specification 592 Geotextile based upon performance needed.
3. Fence posts shall be either standard steel post or wood post with a minimum cross-sectional area of 2" x 2" nominal size.

REFERENCE		STANDARD DWG. NO.
Project		IUM-620
Designed ____ Date ____		SHEET 1 OF 2
Checked ____ Date ____		DATE 3-16-12
Approved ____ Date ____		

INLET PROTECTION - PAVED AREAS
DROP-IN PROTECTION

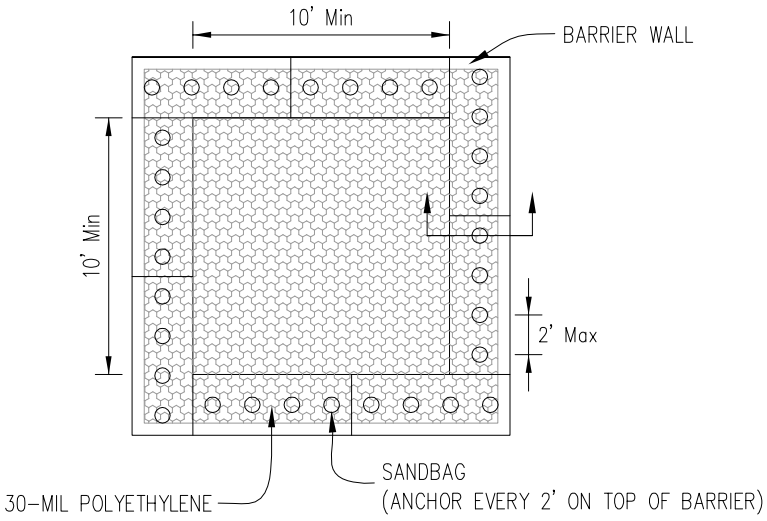




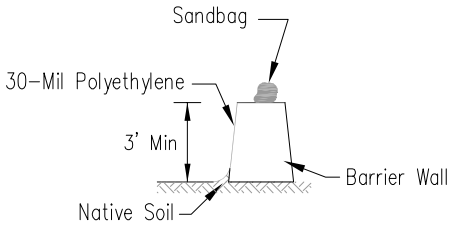
REFERENCE
Project _____
Designed _____ Date _____
Checked _____ Date _____
Approved _____ Date _____

STANDARD DWG. NO.
IUM-561D
SHEET 1 OF 1
DATE 01-11-11

AUTOCAD2006

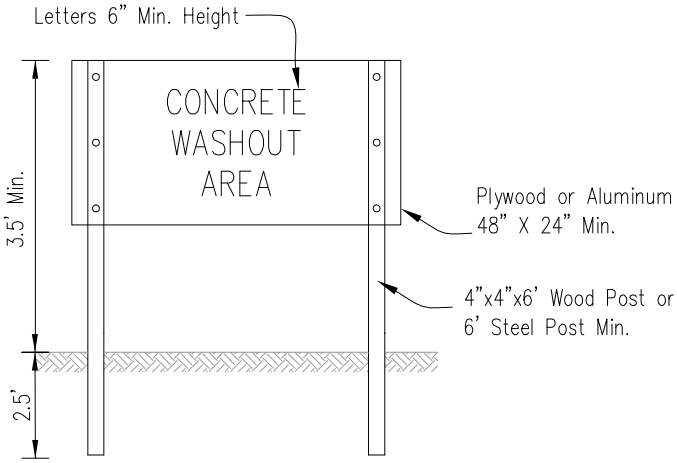


PLAN VIEW



Sandbag Anchor

BARRIER WALL ANCHOR SECTION



SIGN DETAIL

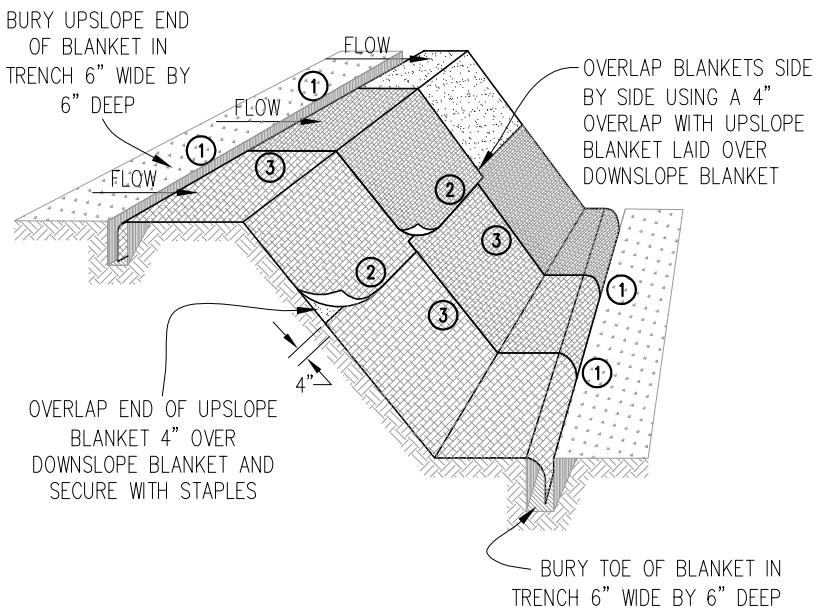
NOTES:

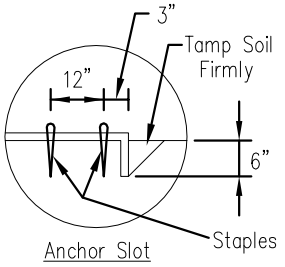
1. Maintaining temporary concrete washout facilities shall include removing and disposing of hardend concrete and/or slurry and returning the faciliities to a functional condition.

2. Facility shall be cleaned or reconstructed in a new area once washout becomes two-thirds full.

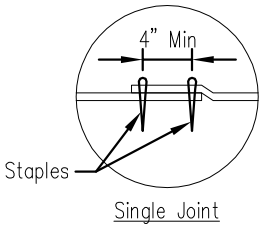
Sheet 3 of 3	Drawing No. IUM-654BW	File No.	TEMPORARY CONCRETE WASHOUT FACILITY – BARRIER WALL	Designed / Drawn B. JOHNSON 6/08 / Checked / Approved — Date

AUTOCAD2006

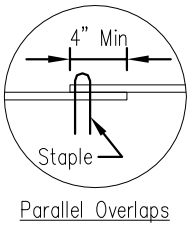




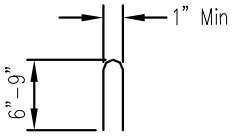
DETAIL 1



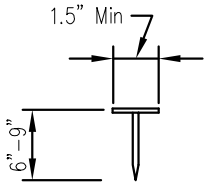
DETAIL 2



DETAIL 3



STAPLE DETAIL



PUSH PIN DETAIL

NOTES:

1. Staples shall be placed in a diamond pattern at 2 per s.y. for stiched blankets. Non-stiched shall use 4 staples per s.y. of material. This equates to 200 staples with stiched blanket and 400 stapels with non-stiched blanket per 100 s.y. of material.

2. Staple or push pin lengths shall be selected based on soil type and conditions. (minimum staple length is 6")

3. Erosion control material shall be placed in contact with the soil over a prepared seedbed.

4. All anchor slots shall be stapled at approximately 12" intervals.

Sheet 1 of 1	Drawing No. IUM-530	File No.	EROSION CONTROL BLANKET INSTALLATION DETAILS	Designed	Date
				Drawn B. JOHNSON	11/08
				Checked	
				Approved	