SPECIFICATIONS AND DETAILS

FOR THE DESIGN AND CONSTRUCTION

OF PUBLIC IMPROVEMENTS

WITHIN THE

VILLAGE OF FOREST PARK, ILLINOIS

Effective January 1, 1998

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FOREWORD

The contents of this Manual have been categorized into three (3) sections. These sections contain the specifications covering the design and construction of public improvements within the Village of Forest Park, the details to be followed for the construction of these improvements, and general requirements that can expedite the procedures to be followed for the construction of these public improvements.

SECTION	CONTENTS
PART 1	The Section pertains to Standard Specifications and Supplemental Specifications. The Standard Specifications are those prepared by other governmental agencies and are generally considered the basic specifications to be followed in the design and construction of any public improvements. These Standard Specifications are mentioned only by reference. The Supplemental Specifications are those specially applicable to the Village of Forest Park. These Supplemental Specifications are described in detail in this Section.
PART 2	The Section contains both Standard Details and Supplemental Details. The Standard Details are those also prepared by other governmental agencies and are generally used as the basic details for the design and construction of public improvements. These Standard Details are mentioned by reference and are available through their respective agencies. The Supplemental Details are those specially applicable to the Village of Forest Park. These Supplemental Details are shown along with their specific features in this Section.
PART 3	The Section is entitled General Requirements. Its major purpose is to list the various governmental agencies, other than the Village of Forest Park, that may have to be considered for applications for permits or for approvals of proposed projects. This Section also contains information that may be helpful in the meeting other miscellaneous requirements set forth by the Village of Forest Park.

CONTENTS

PART 1 - STANDARD AND SUPPLEMENTAL SPECIFICATIONS

STANDARD SPECIFICATIONS

SUPPLEMENTAL SPECIFICATIONS

CONTENTS (continued)

PART 2 - STANDARD AND SUPPLEMENTAL DETAILS

PART 3 - GENERAL REQUIREMENTS

PART 1 - STANDARD AND SUPPLEMENTAL SPECIFICATIONS

STANDARD SPECIFICATIONS

The following Standard Specifications shall be applicable to all construction work that is to be undertaken on public properties, public easements, and private properties located within the Village of Forest Park and over which the Village has jurisdiction. These Standard Specifications are hereby included, by reference, as part of the contents of this Manual, the same as if they were fully written herein.

Supplementing the Standard Specifications are additional specifications contained herewith. They are listed in this PART 1 of the Manual as Supplemental Specifications under their various Divisions of Public Improvements. These additional specifications shall be applicable and shall govern where they are found to be more restrictive than the Standard Specifications.

The applicable Standard Specifications are:

1. The "Standard Specifications for Water and Sewer Main Construction in Illinois", Fifth Edition, dated May 1996, and all revisions thereto. Copies of this document may be obtained from the following agency:

   Illinois Society of Professional Engineers
   612 South Second Street
   Springfield, Illinois 62704

2. The "Standard Specifications for Road and Bridge Construction" prepared by the State of Illinois Department of Transportation and adopted by said Department on January 1, 1997, including all applicable supplemental specifications and revisions. Copies of this document may be obtained from the following agency:

   Illinois Department of Transportation
   2300 South Dirksen Parkway
   Springfield, Illinois 62764

3. The "Manual of Procedures for the Administration of the Sewer Permit Ordinance" of the Metropolitan Water Reclamation District of Greater Chicago, adopted September 3, 1970 and all amendments thereto. Copies of this manual may be obtained from the following agency:

   Metropolitan Water Reclamation District
   of Greater Chicago
   111 East Erie Street
   Chicago, Illinois 60611

4. The "Standard Specifications for Traffic Control Items" prepared By the State of Illinois Department of Transportation and adopted by said Department on November 1, 1994, including all applicable supplemental specifications and revisions. Copies of this document may be obtained from the following agency:

Illinois Department of Transportation
2300 South Dirksen Parkway
Springfield, Illinois 62764

SUPPLEMENTAL SPECIFICATIONS

DIVISION I - SANITARY SEWAGE COLLECTION SYSTEM

(Outline of Contents)

SUPPLEMENTAL SPECIFICATIONS

DIVISION I - SANITARY SEWAGE COLLECTION SYSTEM

The specifications described in this Division pertain to the materials to be used in the construction work relative to the Village of Forest Park sanitary sewage collection system and to the design standards that are to be followed for this construction work. The procedures toward having sanitary sewerage improvements accepted by the Village are also outlined. The construction details for this work are shown in PART 2 of the Manual.

The Village of Forest Park has a combined sewer system that collects both sanitary sewage and storm water runoff. In recent years minor extensions to this system have consisted of separate sanitary sewers and storm sewers.

The Village is located within the boundaries of the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC). The Village's combined sewer system discharges its effluent into diversion chambers that allow "dry weather" flows to discharge directly into MWRDGC interceptor sewers located within the Village's boundaries. During "wet weather" conditions the volume of flow that exceeds the allowable "dry weather" volume of flow entering the interceptor sewers is directed within the diversion chambers into outfall sewers that, in turn, discharge into drop shafts connected to the MWRDGC Deep Tunnel System.

The uses, maintenance, and expansion of the Village's combined sewer system are governed by the ordinances enacted by the MWRDGC. These ordinances prohibit the installation of combined sewer extensions, but do permit proposed separate sanitary sewer and storm sewer extensions to be connected to the existing combined sewer system.

The MWRDGC classifies the Village as having both separate sewered and combined sewered areas. The separate sewered areas consist of all of Concordia Cemetery located north of the Eisenhower Expressway, the section of the Village south of the Eisenhower Expressway and west of Des Plaines Avenue, all cemetery properties south of Roosevelt Road along the east side and west sides of Des Plaines Avenue, and the industrial properties along Industrial Drive. Any proposed developments within these areas are subject to the MWRDGC storm water detention requirements. The entire remaining area of the Village is under a combined sewer classification.

The basic governing regulations to be followed for the construction of sanitary sewers within the Village are fully described in the "The Manual of Procedures for the Administration of the Sewer Permit Ordinance" issued by the MWRDGC. Under certain

conditions, and in special situations, additional rules and regulations set forth by the Illinois Pollution Control Board and the Illinois Environmental Protection Agency may also be applicable.

Where the Supplemental Specifications set forth in this Division are more restrictive than the Standard Specifications, they shall take precedence in governing the construction work relative to the collection of sanitary sewage within the Village.

SECTION 100 - MATERIALS

Subsection 100.01 - Sewer Pipe.

All pipe materials shall conform to the applicable ASTM, ASA, or other National or accepted Standards. Only the following pipe materials (with applicable National Standard designations) and pipe joints (identified by their National Standard designations) are approved for use in the Village:

Pipe Material and Designation	Pipe Joint and Designation
Vitrified Clay Pipe, Extra Strength ASTM C700	Gasket Type ASTM C425
Reinforced Concrete Sewer Pipe (Larger than 12" Diameter) ASTM C76	Recessed O-Ring Gasket Type ASTM C361
Ductile Iron Pipe (minimum thickness, Class 52) ANSI A21.51	Gasket Type ANSI A21.11
Polyvinyl Chloride (PVC) Pipe	
6" to 15" Diameter, SDR 35 ASTM D3034	Gasket Type ASTM D3212
18" to 36" Diameter ASTM F679	Gasket Type ASTM D3212
Acrylonitrile-Butadiene-Styrene (ABS) Pipe, 6" Diameter, SDR 35 ASTM D2751	Solvent-Weld Type ASTM D2751

The Village does not endorse one pipe material over another nor does it offer an opinion regarding the equality or superiority of the performance qualities of any of the pipe materials listed.

Subsection 100.02 - Sewer Pipe Accessories.

The following specifications for sewer pipe accessories are applicable to the various acceptable sewer pipes:

Vitrified Clay Pipe

1. Fittings-
   Fittings such as saddles, elbows, tees, and wyes shall be factory-produced and have joint designs compatible with the joining pipes. Only approved flexible pipe connectors (couplings) shall be used to join sewer pipes made of different materials.

2. Taps-
   Service connections into the pipe shall be made with the use of tapping machines and saddles tightly secured to the pipe. Fabricated wye or tee branches shall be secured in a watertight manner to the wall of the pipe and shall be flush with the inside surface of the pipe.

3. Flexible Connectors-
   Flexible (resilient) connectors between concrete manhole structures and the sewer pipe and all other connectors (couplings) shall conform to ASTM C923 Specifications. The materials used for the connectors shall consist of a synthetic rubber base compound formulated to resist acids, alkalies, solvents, and greases encountered in sanitary sewage and shall contain no reclaimed rubber. The materials used in fabricating the compression bands shall be Type 316 stainless steel and the bolts and nuts shall be Type 305 stainless steel in accordance with ASTM A167 Specifications.

Reinforced Concrete Pipe

1. Fittings-
   Fittings shall be compatible to the strength, joint type, water tightness, and other requirements of the lateral or sewer pipe being joined.

2. Taps-
   Service connections into the pipe shall be made with the use of tapping machines and saddles tightly secured to the pipe. Fabricated wye or tee branches shall be secured to the wall of the pipe in a watertight manner and shall not extend beyond the inside surface of the pipe.

3. Flexible Connectors-
   Flexible (resilient) connectors shall be similar and equal to those specified for vitrified clay pipe.

Ductile Iron Pipe

1. Pipe and Pipe Joints-

   The minimum pipe thickness shall conform to AWWA C150, Class 52, Specifications. The joints shall be of the push-on or mechanical joint types with neoprene or other synthetic rubber gaskets resistant to sanitary sewage.

2. Fittings-

   Fittings such as tees and bends shall be ductile iron or gray iron with mechanical joints. All fittings shall conform to AWWA C110 Specifications and have a minimum working pressure of 250 psi.

3. Service Connections-

   Service connections into the pipe shall be made with tee fittings. Where a connection is to be made into existing ductile iron sewer pipe, a tapping machine shall be used to make the opening into the pipe and a factory-made tee branch shall be secured in a watertight manner to the wall of the pipe and shall be flush with the inside surface of the pipe.

4. Flexible Connectors-

   Flexible (resilient) connectors shall be similar and equal to those specified for vitrified clay pipe.

Polyvinyl Chloride (PVC) Pipe

1. Fittings-

   Fittings such as saddles, elbows, tees, and wyes shall be factory-produced and have joint designs compatible with the joining pipes. Only approved flexible pipe connectors (couplings) shall be used to join sewer pipes made of different materials.

2. Taps-

   Only an approved sewer tapping saddle type system shall be used in making all cut-in connections.

3. Flexible Connectors-

   Flexible (resilient) connectors shall be similar and equal to those specified for vitrified clay pipe.

Acrylonitrile-Butadiene-Styrene (ABS) Pipe

1. Fittings-

   All fittings shall be factory-produced and have joint designs compatible with the joining pipes. Only approved flexible pipe connectors (couplings) shall be used to join sewer pipes made of different materials.

2. Taps-

Having just one (1) size, 6" in diameter, its only outside use would be as a building service line on which taps are not made until the service line is within the building

Subsection 100.03 - Sewer Services.

Sanitary sewer services shall be a minimum of six inches (6") in diameter and shall be connected to lateral or main sewers with manufactured wye or tee fittings. Sewer services shall not discharge directly into manhole structures. Connections to an existing sewer shall be made with a tapping machine and saddle tightly secured to the existing sewer.

Sanitary sewer services connecting to lateral or main sewers having depths greater than eight feet (8') shall begin with the necessary wye or tee fittings followed by riser pipes.

A sanitary sewer service can serve only one (1) building structure.

Subsection 100.04 - Structures.

The standard manhole is the basic structure on a sanitary sewage collection system. Its design is modified in several ways to meet unusual conditions. When sewers of various elevations enter a manhole, "drop manhole assemblies" may have to be included if the differences in sewer elevations exceed two feet (2'). Shallow manholes may require flat slab top sections in lieu of cone sections.

Standard Manholes

Standard manholes shall have a minimum inside diameter of forty-eight inches (48") and shall be constructed of precast concrete units. On new sewer line construction the bottom sections (base slabs) of manholes shall be precast with smooth, well-rounded inverts conforming accurately to the sewer grades and shall include flexible (resilient) connectors as couplings for the connections sewer pipes. Manholes being constructed on existing sewer lines shall have precast bottom slabs inserted under the sewers with the barrel sections resting upon the bottom slabs. Concrete benches shall then be poured and shaped at the bottoms of the barrel sections. After the concrete forming the benches has set, the top halves of the sewer pipes within the manholes shall be removed.

The manhole frames shall be the heavy duty-type (Neenah Foundry R-1712 Series or equal) with self-sealing covers. The covers shall have the words "Sanitary Sewer" imprinted in raised letters. A minimum of two inches (2") and a maximum of six inches (6") of precast concrete adjustment rings shall be installed on a manhole. The adjustment rings shall be securely sealed to the

cone section (or flat slab top section) of the manhole and to the manhole frame using a resilient, flexible, non-hardening, preformed, bituminous mastic material. To assure water tightness, an elastomeric band shall be placed around the outside of the top adjustment ring and the base of the manhole frame and be securely clamped to the top adjustment ring and to the manhole frame.

Where depth restrictions are encountered, a flat slab top section may be substituted for the manhole's cone section.

Drop Manhole Assemblies

Drop manhole assemblies shall be provided at the junction of sewers having a difference in elevations exceeding two feet (2'). The entire drop section shall be cast monolithically in concrete with the manhole barrel and base sections.

Grease Separators

Grease separators shall be precast, reinforced concrete units containing three (3) cell compartments separated by reinforced concrete baffles.

Subsection 100.05 - Lift Stations.

Where it is found necessary for lift stations to be installed to serve sections of the Village's sanitary sewage collection system, the lift stations shall be of the factory-built, prefabricated type and delivered to the site for installation. The necessary force mains shall be ductile iron pipe. The secondary source of electrical power shall be provided by portable trailer-mounted electric generator sets.

SECTION 200 - DESIGN

Subsection 200.01 - Sewer System Design.

If the Village finds it necessary, and in accordance with its preliminary plan for extensions of its sanitary sewage collection system, selected proposed sewer lines shall be extended to the limits of the area to be served to provide connections for future extensions to the sewer system. The locations of these extensions, which may number one or more, shall be determined by the topography of the properties adjacent to the area being improved.

The Design Period for determining the required capacity of any sanitary sewer extension shall be based upon the ultimate full development of the area to be served in accordance with the area's over-all zoning regulations. Averaging four (4) dwellings per acre and 3.5 persons per dwelling, the full development of an acre of property shall be considered to have a population density of fourteen (14) persons per acre.

The Design Basis for lateral or sub-main sanitary sewers shall be the requirement to have the capacity of carrying a per capita flow of 400 gallons of sewage per day and for main, trunk, or outfall sanitary sewers the capacity requirement shall be based upon a per capita flow of 250 gallons of sewage per day.

Using the Design Period and the Design Basis for population density and per capita flow, then adding a safety factor of 50%, a flow rate of 0.013 cubic feet per second per acre shall be used for areas served by lateral or sub-main sewers and a flow rate of 0.008 cubic feet per second per acre shall be used to determine the flow into main, trunk, or outfall sewers.

The minimum size for sanitary sewer lines that are to be accepted as part of the Village's sanitary sewage collection system shall be eight inches (8") in diameter.

Sanitary sewer extensions shall be installed within dedicated public rights-of-way. In a residential street the sewer extension shall be placed within the parkway between the back of curb and the tree line. Where restrictive conditions require that sewer extensions must be installed within easements, the minimum width of the easement shall be fifteen feet (15').

The installation of lift stations and force mains to convey sanitary sewage shall be given favorable consideration only in situations where it can be shown that the cost factors for installing gravity sewers are insurmountable or that the construction depths necessary for the gravity sewers would result in hazard conditions to adjoining properties and excessive sewer maintenance costs to the Village.

Subsection 200.02 - Sewer Pipe.

Sanitary sewer extensions to the Village's sanitary sewage collection system shall have a minimum diameter of eight inches (8").

The minimum velocity of flow within a sewer pipe shall be two (2) feet per second.

All sewer pipe shall be laid upon a bedding of crushed stone having a gradation of CA 11 or CA 13. In addition to the bedding, the sewer pipe shall be encased in crushed stone of the same gradation to a level of not less than one foot (1') above the top of the pipe.

Subsection 200.03 - Manholes.

Manholes shall be constructed at each change in pipe size, at each change in direction of flow, at each change in slope in the pipe, and at each junction with sewers of equal or larger diameters.

On sewer lines having a continuous diameter of twenty-four inches (24") or less, the maximum spacing of manholes shall not exceed three hundred feet (300'). Where the continuous pipe diameters exceed twenty-four inches (24"), the manhole spacing can be increased to a maximum distance of five hundred feet (500').

Manholes shall have eccentric cone sections with the vertical wall of the cone section in line with the manhole's discharge sewer. Steps shall be installed in the vertical wall. If depth restrictions prevent the use of cone sections, flat slab type sections may be used.

The minimum diameter of a manhole shall be forty-eight inches (48"). Larger diameter manholes shall be constructed where large diameter sewers are involved and the structural strength of the barrel sections of the manholes must be maintained.

Manholes located within unpaved areas shall be equipped with frames having self-sealing lids.

Manholes constructed within areas subject to flooding shall be equipped with frames having self-sealing, bolt-down, water-tight lids.

Subsection 200.04 - Lift Stations.

Approval for the installation of a lift station in lieu of constructing gravity flow sewer lines shall be granted only if it can be shown that the costs for constructing the gravity flow sewers would be prohibitive and their maintenance would be a costly future responsibility to the Village.

Lift stations shall be of the dry-well type and contain a minimum of two (2) pumps. Force mains shall be ductile iron pipe having a minimum diameter of four inches (4") and water-pressure tight joints.

All lift stations shall have available, during emergency electrical power outage situations, a second source of electrical power to be provided by a portable electric power generating set. The lift stations' power control cabinets shall be equipped with electrical power transfer connections allowing the generator units to be placed into service immediately upon their arrival at the lift stations.

Subsection 200.05 - Sanitary Sewer Services.

Sanitary sewer services shall have a minimum diameter of six inches (6") and shall be laid at a minimum slope of one per cent (1%).

Sewer services shall not be connected to manholes. Connections shall be made into available lateral sewers through existing "y" or "tee" fittings or by cored openings made into the upper half of the receiving sewer.

SECTION 300 - CONSTRUCTION

Subsection 300.01 - Notifications.

Prior to start of construction, sufficient notice shall be given to JULIE to allow for all known underground utilities within the vicinity of the proposed construction to be located and clearly marked with visible flagging, staking, or painted lines.

The Village Public Works Department shall be notified a minimum of two (2) days prior to the start of construction.

The Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) shall be notified a minimum of two (2) days prior to construction if the proposed project were required to obtain a permit from this agency and the permit had been issued to the Village.

All other governmental agencies from whom permits were necessary in order for the project to be constructed should be given adequate notice of the start of construction in accordance with the conditions outlined in the permits.

Subsection 300.02 - Unrecorded Sewers.

After the start of construction, if any unrecorded sewer line is encountered during the excavation work necessary for the installation of the proposed sewer pipes and structures, the contractor shall immediately notify the Village Public Works Department of this occurrence. The Public Works Department shall determine the existing use of the sewer line and it shall be the contractor's responsibility to comply with the recommendations made by the Department. If an unrecorded sewer is to remain intact, information shall be given to the Village regarding the sewer size, type of pipe, the flow line elevation of the exposed section, and the location of the sewer based upon measurements to identifiable objects.

Subsection 300.03 - Abandonment of Existing Sewers.

Existing sewers to be abandoned shall be plugged in a watertight manner at their upper and lower termini. Rubber gasket-type plugs shall be inserted into the pipe and blocked in place with a wall of brick and mortar. Manholes within these lengths of pipe shall be removed, disposed of, and their voids filled with approved backfill materials after all exposed sewer stubs have been properly sealed.

SECTION 400 - PERMITS, APPROVALS, AND ACCEPTANCES

Subsection 400.01 - Permits.

All proposed sanitary sewage collection projects must comply with the "Manual of Procedures for the Administration of the Sewer Permit Ordinance" of the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC).

The Permit Section of the Division of Water Pollution Control in the Illinois Environmental Protection Agency (IEPA) must be notified of the proposed construction of any sanitary sewage collection projects for which a Sewerage System Permit is to be issued by the MWRDGC. Details for this requirement can be obtained directly from the Division's Permit Section office.

It should be noted that fees are charged by both the MWRDGC and the IEPA for the issuance of their permits.

Any sanitary sewer project that require the issuance of a Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) Sewerage System Permit shall have the Permit's application and its accompanying documents prepared by the project's site engineering consultant. It is preferable by the Village that the Permit be issued prior to the awarding of the construction contract for the project.

Any sanitary sewer project requiring Illinois Department of Transportation Division of Highways or Cook County Highway Department permits shall have the permit applications prepared by the project's site engineering consultant with the actual issuance of the permits taking place after the contractors have been selected for the construction work.

Subsection 400.02 - Approvals.

Sufficient sets of project plans and specifications shall be submitted to the Village to allow the Village Board, the Public Works Department, and the Village Engineer, the opportunity to review these documents and to approve their contents or to comment and recommend revisions to the plans and specifications that would result in their being acceptable to the Village.

During construction, any sanitary sewer installation work shall require periodic observation by the Public Works Department or by the Village Engineer to assure that there is compliance with the project plans and specifications.

Before approval for use and acceptance for maintenance in the future by the Village, all newly installed sanitary sewer extensions shall be televised by the sewer contractor and the video tapes submitted to the Village for viewing and approving or rejecting the sewer installation. The video tapes shall become the property of the Village for filing and record keeping purposes. These steps must

also be followed when the approval of portions of the sanitary sewer extensions is requested.

The final inspection, to obtain the approval by the Village Public Works Department of any sanitary sewer extensions, shall be conducted after the total project work has been completed. If the project work consists only of sanitary sewer extensions, the final inspection shall be conducted after all of the sewers and their appurtenances have been installed and backfilled. If the project work consists of other items of improvements in addition to sanitary sewer extensions, the final inspection shall be conducted after all of the improvements have been completed.

Subsection 400.03 - Acceptances.

After the final inspection by the Village Public Works Department has been conducted and the sanitary sewer improvements are found to be satisfactory, approvals of the work done must also be certified by representatives of governmental agencies from whom permits were obtained prior to the Village's consideration of final acceptance of the project work.

A Request for Final Inspection (RFI) must be submitted to the MWRDGC to obtain that agency's final approval of the sewer installation after which the sanitary sewer improvement can be placed into service. The RFI form must be

certified by the Inspection Engineer whose responsibility it shall be to submit the form to the MWRDGC after it has been certified by the Village.

A minimum of two (2) sets of "Record Drawings" shall be submitted to the Village prior to the Village's final acceptance of the project work. The "Record Drawings" shall clearly show the locations of all sanitary sewer improvements that were installed on the project and the drawings shall be certified as being correct by the Inspection Engineer (whose certification is shown on the MWRDGC Sewer System Permit) or his successor. The certifier shall be an Illinois Registered Professional Engineer.

Final waivers of liens shall be submitted to the Village for all work performed on the project prior to the Village's final acceptance of the project improvements.

All improvements shall carry a one (1) year guarantee. Assurance of this guarantee shall be in the form of a cash deposit, line of credit, money in escrow, or a guarantee bond.

SECTION 500 - MAINTENANCE

Subsection 500.01 - By the Village.

The Village shall maintain those portions of the sanitary sewage collection system lying within dedicated street rights-of-way and easements located within the Village boundaries and the system's outfall sewers that extend to connections with MWRDGC interceptor sewers located beyond the Village's boundaries. The Village shall maintain only those portions of individual sanitary sewer services that are located within the dedicated street rights-of-way or within easement lines.

Subsection 500.02 - By Others.

The lengths of sanitary sewer services extending beyond the limits of street rights-of-way and easement lines and are located on privately-owned properties shall be maintained by the parties being served by said services.

The responsibility for the maintenance and operation of lift stations shall be determined through agreements entered into between the Village and the parties served by the lift station. This agreement shall be reached prior to the Village's approval for the installation of the lift station.

SUPPLEMENTAL SPECIFICATIONS

DIVISION II - STORM WATER COLLECTION SYSTEM

(Outline of Contents)

SUPPLEMENTAL SPECIFICATIONS

DIVISION II - STORM WATER COLLECTION SYSTEM

The Specifications described in this Division pertain to the materials to be used in the construction work relative to the Village of Forest Park storm water collection system and to the design standards that are to be followed for this construction work. The procedures toward having storm water drainage improvements accepted by the Village are also outlined. The construction details for this work are shown in PART 2 of the Manual.

The Village of Forest Park has a combined sewer system that collects both sanitary sewage and storm water runoff. In recent years minor extensions to this system have consisted of separate sanitary sewers and storm sewers. There are also small areas within the Village that have storm water drainage systems that discharge directly into the Des Plaines River and have no connections to the combined sewer system.

The Village is located within the boundaries of the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC). The Village's combined sewer system discharges its effluent into MWRDGC diversion chambers that allow "dry weather" flows to discharge directly into MWRDGC interceptor sewers located within the Village's boundaries. During "wet weather" conditions the volume of flow that exceeds the allowable "dry weather" volume of flow entering the interceptor sewers is directed within the diversion chambers into outfall sewers that, in turn, discharge into drop shafts connected to the MWRDGC Deep Tunnel System. While these outfall sewers can discharge into the Deep Tunnel System, they must continue to keep in service and maintain their original outfall section that discharges into the Des Plaines River.

The uses, maintenance, and expansion of the Village's combined sewer system are governed by the ordinances enacted by the MWRDGC. These ordinances prohibit the installation of combined sewer extensions, but do permit proposed separate sanitary sewer and storm sewer extensions to be connected to the existing combined sewer system.

The MWRDGC classifies the Village as having both separate sewered and combined sewered areas. The separate sewered areas consist of all of Concordia Cemetery located north of the Eisenhower Expressway, the section of the Village south of the Eisenhower Expressway and west of Des Plaines Avenue, all cemetery properties south of Roosevelt Road along the east side and west sides of Des Plaines Avenue, and the industrial properties along Industrial Drive. Any proposed developments within these areas are subject tot he MWRDGC storm water detention requirements. The entire remaining area of the Village is under a combined sewer classification. The

MWRDGC has no storm water detention requirements for areas within a combined sewer classification. However, the Village reserves the right to require storm water detention to be provided on the sites of property developments when it is found that the capacities of the existing combined sewer system to which storm sewer connections are to be made are not adequate to receive the additional storm water runoff.

The Village of Forest Park is within the watershed area of the Des Plaines River. The plans for any developments proposed within the floodway or flood plain areas of the Des Plaines River must be reviewed and receive approval by the Illinois Division of Water Resources.

Where the Supplemental Specifications set forth in this Division are more restrictive than the Standard Specifications, they shall take precedence in governing the construction work relative to storm water collection within the Village.

SECTION 100 - MATERIALS

Subsection 100.01 - Sewer Pipe.

All pipe materials shall conform to the applicable ASTM, ASA, and other National or accepted Standards. Only the following pipe materials (with applicable National Standard designations) and pipe joints (identified by their National Standard designations) are approved for use in the Village:

Pipe Material and Designation	Pipe Joint and Designation
Concrete Sewer Pipe (Less than 12" Diameter) ASTM C14	Recessed O-Ring Gasket Type ASTM C443
Reinforced Concrete Sewer Pipe (12" Diameter and larger) ASTM C76	Recessed O-Ring Gasket Type ASTM C443
~~Vitrified Clay Pipe, Extra Strength~~ ~~ASTM C700~~	Gasket Type ASTM C425
Polyvinyl Chloride (PVC) Pipe 6" to 15" Diameter, SDR 35 ASTM D3034 18" to 27" Diameter, f/DY=46 ASTM F679	Gasket Type ASTM D2855 ASTM D3212 Gasket Type ASTM D2855 ASTM D3212
Ductile Iron Pipe (min. Class 52) ANSI A21.51	Gasket Type ANSI A21.11

The Village does not endorse one pipe material over another nor does it offer an opinion regarding the equality or superiority of the performance qualities of any of the pipe materials listed.

Subsection 100.02 - Sewer Pipe Accessories.

The following specifications for sewer pipe accessories are applicable to the various acceptable sewer pipes:

Fittings

Only approved flexible pipe connectors (couplings) shall be used to join sewer pipes made of different materials. Fittings shall be factory-produced and have joint designs compatible with the joining pipes.

Taps

Service connections into a sewer pipe shall be made with the use of a tapping machine and a saddle tightly secured to the pipe. The fabricated wye or tee branch connected to a sewer pipe shall be secured in a tight manner to the wall of the pipe and shall be flush with the inside surface of the pipe.

Subsection 100.03 - Sewer Services.

All building downspouts and discharge piping from sump pumps receiving ground water from foundation drain tile shall be connected directly into a storm sewer system. Open discharge onto the ground or toward a drainage swale is not permitted. These storm sewer services (the underground piping from the downspouts and the sump pump discharges to the storm sewer system) shall be a minimum of six inches (6") in diameter and shall be vitrified clay pipe or polyvinyl chloride (PVC) pipe. Fittings shall be used at horizontal and vertical changes in direction.

Connections into the storm sewer system shall be made at existing structures or directly into the storm sewer. Direct connections shall be made with the use of tapping machines and saddles tightly secured to the storm sewers. The fabricated wye or tee branches shall be inserted into these openings, set flush with the inside wall of the pipe, and secured tightly to the outside wall of the pipe.

Subsection 100.04 - Structures.

Manholes

Manholes shall be constructed of materials similar to those used for the construction of sanitary sewer manholes except that the precast bottom sections with flexible connectors shall be optional. The bottom slabs may be precast one-

piece or sectional units with a poured-in place concrete bench encasing the bottom half of the main sewer pipe installed through the manhole.

The manhole frames shall be the heavy duty type (Neenah Foundry R-1712 Series or equal) with covers imprinted with raised letters spelling the words "Storm Sewer".

A minimum of two inches (2") and a maximum of six inches (6") of precast concrete adjustment rings shall be installed on a manhole. The adjustment rings shall be securely sealed to the cone section (or flat slab top section) of the manhole and to the manhole frame using a resilient, flexible, non-hardening, preformed, bituminous mastic material.

Where depth restrictions are encountered, a flat slab top section may be substituted for the manhole's cone section.

Catch Basins

Catch basins shall have a minimum inside diameter of forty-eight inches (48") and shall be constructed of precast concrete units. The depth of the sump section shall be a minimum of eighteen inches (18") and a maximum of thirty inches (30"). Where conditions are restrictive, the minimum inside diameter may be reduced to thirty-six inches (36") and the sump depth may be reduced to a minimum of twelve inches (12").

The catch basin frames shall be the heavy duty type (Neenah Foundry R-2015 Series or equal) with standard flat grates (Neenah Foundry Type 4 "D" or equal). Catch basins located within pervious drainage course easements may have Village-approved lighter weight frames or one-piece grates.

Adjustment ring requirements and flat slab top sections allowances are similar to those for the standard manholes.

Catch basins connecting directly to combined sewers shall contain trap units similar to the Neenah Foundry R-3701 Series.

Inlets

Inlets shall have an inside diameter of twenty-four inches (24") and the entire structure shall be a single precast concrete unit. The standard inlet has no sump. When the precast concrete unit contains a sump volume, the inlet is generally referred to as a "Type C Catch Basin".

Adjustment ring requirements and frames and grates shall be similar to those for the catch basin structures.

Headwalls

Headwall structures shall be factory-made precast reinforced concrete end sections or poured-in place reinforced concrete structures.

Restrictors

Restrictors installed within storm sewers to reduce the volume of discharge shall consist of ductile iron pipe or PVC pipe and have lengths of twelve inches (12") minimum to twenty-four inches (24") maximum.

Poured-in place concrete shall be used to seal the storm sewer and maintain the restrictor in its designed position.

SECTION 200 - DESIGN

Subsection 200.01 - Sewer System Design.

If the Village finds it to be necessary, the storm sewer system shall be extended to the limits of the area being served. The locations of these extensions, which may number one or more, shall be determined by the topography of the properties adjacent to the area being improved. The required pipe size of these storm sewers extensions shall be determined by the Village.

Calculations shall be provided to verify the available capacity in the receiving sewer system or drainage outlet. The Rational Method shall be used to size the sewer system to have the capacity for conveying the rainfall of a 10-year storm.

Where parkways are available, the sewer placement shall be along a line within the parkway and at an average distance of ten feet (10') from the right-of-way line or within the parkway and at an average distance of four feet (4') back of the curb line. The objective is to have the middle area of the parkway available for tree plantings. If the sewer placement must be within the street pavement, the sewer should be located along the center line of the pavement.

Subsection 200.02 - Storm Water Detention.

Detention basins should be of the "dry basin storage" type having a minimum bottom flow line slope of 1%. Under special conditions "wet basin storage" and "underground storage" are acceptable designs. "Wet basin storage" must include aeration facilities, a watertight underwater surface, and a rock landscaped shoreline. "Underground storage" may consist of pipe containment or structural reinforced concrete boxes.

Water storage on paved parking areas shall have a maximum depth of ten inches (10").

The maximum allowable bypass flow through detention basins shall be based upon a rainfalls having 5-year frequencies.

Discharge from a detention basin shall be controlled by a restrictor having a minimum diameter of three inches (3") and located outside of the basin in a structure whose rim elevation is above the high water level of the basin.

Subsection 200.03 - Sewer Pipe.

Storm sewer system pipes shall have a minimum diameter of eight inches (8"). However, six inch (6") diameter pipes will be allowed for use in extending roof downspouts and sump pump discharge lines to connections with the storm sewer system. The "open discharge" or "above-ground discharge" of roof downspouts and sump pump discharge lines shall not be permitted.

The minimum flow velocity of all sewers shall be two feet per second (2 fps).

All sewer pipe shall be laid upon a bedding of crushed stone of CA-11 or CA-13 gradation. In addition to the bedding, the sewer pipe shall be encased in crushed stone of the same gradation to a level of not less than two inches (2") over the top of the pipe.

Subsection 200.04 - Manholes.

Manholes shall be constructed at each change in pipe size, at each change in direction of flow, at each change in slope in the pipe, and at each junction with sewer laterals.

On sewer lines having pipe diameters of twenty-four inches (24") or less, the maximum spacing of manholes shall not exceed three hundred feet (300'). Where the pipe diameters exceed twenty-four inches (24") the manhole spacing can be increased to a maximum distance of five hundred feet (500').

Standard manholes having a four foot (4') diameter shall be constructed over sewer lines having a diameter of twenty-four inches (24") or less. Sewer lines of larger diameters shall have manholes five feet (5') in diameter or shall be of a special Village-approved design.

Manholes shall have eccentric cone sections. If the depth of the manhole prohibits the use of a cone section, it is permissible to use a flat slab type section in lieu of the cone section.

Subsection 200.05 - Catch Basins.

Storm water runoff must discharge into a catch basin prior to entering manholes that are located on a combined sewer system.

Catch basins connecting directly to manholes on a combined sewer system shall have trap units installed over the discharge pipe for the catch basin.

Catch basins shall be connected directly to manholes with the use of sewer pipe having an inside diameter of eight inches (8") or greater.

Where catch basins are to be connected to storm sewers having diameters greater than twenty-four inches (24"), the construction of connection manholes may be omitted provided acceptable tap-in connections are made at the storm sewers.

Catch basins shall have eccentric cone sections. In restrictive situations, flat slab type sections may be used in lieu of cone sections.

In locations where space is found to be limited or there is a conflict with existing underground utilities, the inside diameter of the catch basin maybe reduced to three feet (3') and its sump depth reduced to a minimum of one foot (1').

Subsection 200.06 - Inlets.

The installation of inlets to receive storm water runoff shall be limited to locations where only surface water runoff can enter the structure. Standard inlets shall not be used to receive storm water runoff from other drainage structures.

Inlets shall discharge into catch basins or other specially designed inlets (commonly referred to as "Type C Catch Basins") which contain sump sections.

Inlets may be connected directly to storm sewers having diameters greater than twenty-four inches (24") provided acceptable tap-in connections are made into the storm sewers.

SECTION 300 - CONSTRUCTION

Subsection 300.01 - Notifications.

Notifications of the start of construction shall be similar and equal to those required for sanitary sewer construction projects. See Division I (Subsection 300.01).

Subsection 300.02 - Unrecorded Sewers.

The procedures to be followed if unrecorded sewers or drain tile are encountered during the course of construction shall be similar and equal to those procedures required during sanitary sewer construction. See Division I (Subsection 300.02).

Subsection 300.03 - Abandonment of Existing Sewers.

The procedures to be followed, if existing sewers or drain tile are encountered and the decision is made that they can be abandoned, shall be similar and equal to those procedures required during sanitary sewer construction. See Division I (Subsection 300.03).

SECTION 400 - PERMITS, APPROVALS, AND ACCEPTANCES

Subsection 400.01 - Permits.

Fully-executed permits that must be obtained from various governmental agencies should be on file and copies available to the Village prior to the start of construction. Governmental agencies that may be involved in the issuance of permits are:

Metropolitan Water Reclamation District of Greater Chicago (MWRDGC)
Illinois Department of Transportation-Division of Water Resources
Illinois Department of Transportation-Division of Highways
Cook County Highway Department

Subsection 400.02 - Approvals.

The approval procedures regarding approvals of all storm water collection system improvements shall be similar and equal to the procedures outlined for sanitary sewage collection system improvements. See Division I (Subsection 400.02).

Subsection 400.03 - Acceptances.

Consideration for acceptance of the total installation and the acceptance for maintenance by the Village of any section of the total installation shall be made only after final approval of the installed work has been given by the Village.

Approvals of the work performed must also be certified by represent-atives of governmental agencies from who permits were obtained prior to the final acceptance of the work by the Village.

A minimum of two (2) sets of "Record Drawings" shall be submitted to the Village prior to the Village's final acceptance of the total project work. The "Record Drawings" shall clearly show the locations of all storm sewer improvements that were installed on the project and the drawings shall be certified as being correct by an Illinois Registered Professional Engineer.

Final waivers of liens shall be submitted to the Village for all work performed prior to the Village's final acceptance of the total project improvements.

All improvements shall carry a one (1) year guarantee. Assurance of this guarantee shall be in the form of a cash deposit, line of credit, money in escrow, or a guarantee bond.

SECTION 500 - MAINTENANCE

Subsection 500.01 - By the Village.

The Village shall provide maintenance only toward those portions of its storm water collection system that receive storm water runoff collected by drainage structures within street rights-of-way and convey this collected water to its "open discharge" locations. "Open discharge" locations include detention and retention ponds, creeks or streams, and other designated permanent drainage courses.

Subsection 500.02 - By Others

Detention and retention ponds and their outlet pipes shall be maintained by the developers of the projects that required the construction of the ponds or by the designated parties accepting this responsibility through written agreements with the developers.

Storm sewer services installed solely for the purpose of receiving and conveying drain tile sump pump discharges and roof downspout water underground to receiving storm sewers shall be maintained for their full lengths by the owners of the properties being benefited by the sewer services.

Storm sewers receiving only discharges from sewer service lines and rear yard drainage structures shall be maintained by the parties receiving the benefits of these sewers.

SUPPLEMENTAL SPECIFICATIONS

DIVISION III - WATER DISTRIBUTION SYSTEM

(Outline of Contents)

SUPPLEMENTAL SPECIFICATIONS

DIVISION III - WATER DISTRIBUTION SYSTEM

The specifications described in this Division pertain to the materials to be used in the construction work relative to the Village of Forest Park water distribution system and to the design standards that are to be followed for this construction work. General construction requirements are specified and the procedures for having the improvements accepted by the Village are outlined in detail. The construction details for this work are shown in PART 2 of the Manual.

The Village of Forest Park obtains its allocation of Lake Michigan water through a metered connection with the City of Chicago water system at the intersection of Austin Avenue and Jackson Boulevard in the Village of Oak Park. From this metered connection the Village has a 24" water transmission main extending westward in Jackson Boulevard to Hannah Avenue and Des Plaines Avenue where the water supply is then discharged into underground reservoirs. The water is then chlorinated and pumped into the water distribution system.

Emergency cross-connections are in service between the water systems of the Village and the Villages of Oak Park and Maywood.

All water uses within the Village of Forest Park must obtain their necessary water supply from connections made to the Village's public water distribution system. Village ordinances prohibit the drilling of private wells to obtain ground water for any purpose. Existing private wells found to be obtaining ground water for any type of private or public usage shall be taken out of service and properly "capped" by a State-licensed plumbing contractor qualified to perform such work. The "capping" of a private water well shall be done in accordance with the requirements of the Division of Public Water Supplies of the Illinois Environmental Protection Agency.

Where the Supplemental Specifications set forth in this Division are more restrictive than the Standard Specifications, they shall take precedence in governing the construction work relative to the water distribution system owned and operated by the Village.

SECTION 100 - MATERIALS

Subsection 100.01 - Water Main Pipe.

All water main pipe materials shall conform to the applicable ASTM, ASA, and other National or accepted Standards. Only the following pipe materials (with

their applicable National Standard designations) and pipe joints (identified by their National Standard designations) are approved for use in the Village:

Pipe Material and Designation	Pipe Joint and Designation
Ductile Iron Pipe (minimum thickness, Class 52) ANSI A21.51	Gasket Type ANSI A21.11
Polyvinyl Chloride (PVC) Pipe 8" to 12" in Diameter ASTM D1784 and AWWA C900	Gasket Type ASTM D3139

Ductile Iron Pipe is the preferable pipe material for water main extensions to the Village's water distribution system. Water main extensions of this pipe material shall be protectively-wrapped in a polyethylene encasement upon installation. The polyethylene material and the installation procedures shall be in accordance with ANSI/AWWA-C105/A21.5 Specifications.

Where soil borings indicate that corrosive soil conditions may be present, consideration will be given to the use of Polyvinyl Chloride (PVC) Pipe for water main extensions.

Where soil borings indicate the presence of soils contaminated with gasoline or other petroleum products, ductile iron pipe joints shall be fitted with gaskets fabricated from the petroleum-resistant material identified by the trade name of "VITON".

Subsection 100.02 - Water Main Pipe Accessories.

The following specifications for water main pipe accessories are applicable to the various acceptable water main pipes:

Ductile Iron Pipe

The acceptable accessories for use with ductile iron pipe are as follows:

1. Fittings and Special Castings-
   All pipe fittings and special castings shall be ductile iron conforming with ANSI A21.10 (AWWA C110) and ANSI A21.11 (AWWA C111) Specifications and shall meet the minimum requirements of Class 150 Cast Iron Pipe. All fittings shall have mechanical joints.

2. Joints Restraints-
   Mechanical joint retainer glands, similar and equal to Clow Corporation

F-1058 Retainer Gland, shall be used on mechanical joint fittings, In lieu of retainer glands, at certain critical fittings the Village may require the use of joint restraint types similar and equal to the "Field Lok" gaskets, "MJR" pipe restraints, or "Megalug" joint restraints.

3. Pressure Cut-In Connections-

Mechanical joint tapping valves, similar and equal to Clow Corporation F-5093 or F-6114, and tapping sleeves, similar and equal to Clow Corporation F-5205, shall be used in making pressure cut-in connections to existing water mains.

Polyvinyl Chloride (PVC) Pipe

All water main pipe accessories shall be similar and equal to those specified for use with ductile iron pipe and specially adapted for use with PVC pipe.

Subsection 100.03 - Valves.

All valves shall be similar and equal to the Mueller Super-Seal resilient wedge valve as manufactured by Mueller Co. The bonnet bolts and nuts and the stuffing box bolts and nuts shall be stainless steel.

Subsection 100.04 - Fire Hydrants.

All fire hydrants shall be the "Pacer" Model WB-67, manufactured by Waterous Company, St. Paul, Minnesota. The fire hydrants shall be of the "breakaway" design and shall have a five and one-quarter inch (5-1/4") main valve opening, a four and one-half inch (4-1/2") pumper nozzle, and two (2) two and one-half inch (2-1/2")hose nozzles. The pumper and hose nozzles shall have National Standard Threads. The flanged inlet connection shall be six inches (6") in diameter and shall include an auxiliary valve accessible through a valve box similar and equal to the three (3) piece, 5 1/4" shaft, East Jordan Iron Works valve box. The fire hydrant opening direction shall be to the left, the size of the operating nut shall be one and one-half inches (1-1/2"), the fire hydrant packing shall be the "O-ring" type, and the fire hydrant shall be painted a yellow color.

Subsection 100.05 - Water Services.

A typical residential water service shall consist of a 1" copper pipe, Type K, conforming to ASTM B-88 and ASTM B-251, beginning at a 1" corporation stop (Mueller H-15010) reinforced with a Bronze double-strap service saddle (Mueller BR2B Series) at the tap into the water main. The 1" copper pipe shall then extend to the designated location of a curb valve (Mueller H-15154) accessible through a curb box (Mueller H-10316) with the word "WATER" cast into the lid.

All water services 2" or smaller in diameter shall comply with the above specifications for a typical 1" residential water service with only the size of the water service varying.

Proposed materials for water services larger than 2" in diameter shall be reviewed and their approval considered upon individual submissions.

Subsection 100.06 - Backflow Preventers.

Backflow prevention devices shall be installed on all water services. The backflow preventer device shall be installed on the water service at a location that is on the customer's side of the water meter. All commercial and industrial water service connections shall have backflow prevention devices of the reduced-pressure type, similar and equal to the Cla-Val Model RP-1 Reduced Pressure Backflow Preventer. Residential water services shall be equipped with the dual check valve type backflow preventer.

Subsection 100.07 - Sprinkler System Connections.

Water services that support sprinkler systems shall contain "detector-check" devices in addition to the necessary backflow prevention devices. The location of the sprinkler system connection to the water service, whether the sprinkler system is exposed to weather conditions, and the type of sprinkler system (wet, dry, anti-freeze, etc.) shall be the governing factors for determination for the type of backflow prevention device that is to be installed on the feed line to the sprinkler system.

Subsection 100.08 - Structures.

Valve Vaults

All valves on water main extensions shall be housed within valve vaults. Valves having diameters of 10" or less in size shall be placed within valve vaults having a minimum inside diameter of forty-eight inches (48"). Valves having diameters of 12" or greater in size shall be placed within valve vaults having a minimum inside diameter of sixty inches (60"). The valve vaults shall be constructed of precast concrete units and shall have offset cone sections. Where depth restrictions are encountered, a flat slab top section may be substituted for the offset cone section. The valve vault frames shall be the heavy duty type (Neenah Foundry R-1712 Series or equal). The lids shall have the word "WATER" imprinted in raised letters. A minimum of two inches (2")and a maximum of six inches (6") of precast concrete adjustment rings shall be used in setting frames to their proper elevations.

Openings shall be cast into the lower barrel section to allow the water main to pass through the vault. The openings shall be large enough so that no part of the barrel section rests directly upon the water main or its fittings. The void between the water main and the barrel shall be sealed with bricks and cement mortar and a coat of mortar, one-half inch (1/2") thick, shall be applied on the inside and outside of the brick and mortar patch.

Meter Vaults

Where water meters must be located underground, they shall be housed within vault structures similar and equal to valve vaults, but with the additional item of a sump being included in the bottom of the vault.

If the water meter piping, including any by-pass fittings, is too extensive to be contained within a typical valve vault structure, the meter vault shall then be specially designed for its necessary purpose, constructed of reinforced precast or cast-in-place concrete, and its shop drawings submitted to the Village for review and approval.

Backflow Preventer Housing

Where situations require that a backflow preventer assembly must be installed in a ground-level location and exposed to weather conditions, the assembly shall be housed within a prefabricated structure that is insulated and heated to prevent freezing temperatures occurring within the structure. The structure shall be made of sheet aluminum, anchored onto a reinforced concrete slab, and accessible through security-locked openings.

The structure shall be equipped with a warning alarm light mounted on the outside of the structure to indicate any failures in the performance of the heating system.

SECTION 200 - DESIGN

Subsection 200.01 - Water Main System Design.

Where parkways are available in street rights-of-way, water main placement shall be along a line within the parkway and at an average distance of ten feet (10') from the right-of-way line or within the parkway and at an average distance of four feet (4') back of the curb line. Where water mains are to be placed within easements, the width of the permanent easement shall be a minimum of ten feet (10').

Water main extensions to the Village's water system shall have a minimum size of eight inches (8") in diameter. No water main shall be non-circulating ("dead-

ended") unless there is an anticipated extension of the water main within a period of no longer than one (1) year.

If the Village finds it to be necessary, a proposed addition to the water system shall have selected water mains extended to the limits of the area proposed to be served. The locations of these extensions, which may number one or more, shall be determined by the anticipated use of the properties adjacent to the area being developed.

Water mains shall be installed at a minimum depth of five feet (5') below finished grade ground level and shall be laid upon a crushed stone cushion having a minimum thickness of three inches (3").

The water main system shall be adequately secured to resist movements at fittings and hydrant locations. Precast concrete blocking placed against undisturbed trench walls and/or steel tie-rods shall be used to provide resistance to thrust forces in the water system.

A hydrostatic pressure test of 150 psi shall be applied to all water main extensions to be connected to the Village water system.

Subsection 200.02 - Valves.

Valves shall be installed on water mains at intervals not exceeding one thousand feet (1,000'). Valves shall also be installed at junctions of water mains in a manner that will allow any section of water main to be isolated by the closing of no more than three (3) valves.

In determining the actual locations for valves, areas to be avoided are pavements, driveways, sidewalks, drainage courses, areas subject to flooding, and areas of heavy traffic volume.

Subsection 200.03 - Fire Hydrants.

Fire hydrants shall be installed on water mains at intervals that do not exceed two hundred and fifty feet (250'). This interval distance may be exceeded to a maximum of fifty feet (50') if connections are available to larger-sized water mains.

The depth of bury of the fire hydrant shall be five feet and six inches (5'-6"). The centers of the hose nozzles shall range from 18" to 24" above the ground surface at the fire hydrant and shall be free of any obstructions within a radius of four feet (4').

Fire hydrants to be installed in street parkways shall be placed a minimum of four feet (4') to a maximum of eight feet (8') back of the curb line. The locations of fire hydrants should be strategically selected to avoid traffic hazards and yet allow for connections to be made to fire department equipment through the use of suction hoses no longer than ten feet (10') in length.

Subsection 200.04 - Water Services.

Water service taps, 2" or smaller in diameter, shall be made at an upward angle of forty-five degrees (45%) from the water main. Larger diameter water services shall be tapped at the horizontal position of the water main. Along a street right-

of-way, the preferred location for the curb valve (buffalo box) shall be on a line eight feet (8') within the right-of-way. Where water service connections are to be made in easements or other restricted areas, the curb valve location will be determined on an individual basis.

Water services shall be laid at a depth of five feet (5') below finished ground level. Water services having to cross existing pavements shall be installed by the augering methods.

Subsection 200.05 - Valve Vaults.

Valve vaults shall be installed over all valves located on the water mains providing the distribution of water throughout the water system. Valves having a diameter of 10" or less shall be housed in valve vaults having an inside diameters of forty-eight inches (48"). All valves larger than 12" in diameter shall be housed in valve vaults having inside diameters of sixty inches (60").

Subsection 200.06 - Meter Vaults.

All water meters located underground shall be housed within meter vaults. Meter vaults may be similar to valve vaults provided a sump is installed within the vault and all metering equipment can be accessible within the vault. Meters with extensive by-pass piping may require special precast or cast-in-place concrete vaults having sufficient interior height and width to allow working room. These larger vaults shall include such accessories as sump and sump pump facilities, electric power, lockable roof entrance hatches, and access steps.

Subsection 200.07 - Backflow Preventer Housing.

Backflow prevention devices shall be installed on water service lines at locations that are on the customers' sides of the water meters.

Backflow prevention devices should be located within buildings that are to be served by the water services. A Backflow prevention device must be installed in an above-floor elevation to allow for an open discharge of the relief water from the device. This, in turn, requires that drainage facilities must be installed to receive relief water. The space where the device is located must also be protected from freezing temperature conditions.

In situations where the devices must be placed outside of buildings and exposed to weather conditions, the devices shall be installed above the ground and housed within a secured, temperature-controlled structure anchored to a reinforced concrete floor slab sloped toward an open outside discharge and visible warning lights to indicate power failures within the structure.

SECTION 300 - CONSTRUCTION

Subsection 300.01 - Notifications.

Prior to start of construction, sufficient notice shall be given to JULIE to allow for all known underground utilities within the vicinity of the proposed construction to be located and clearly marked with visible flagging, staking, or painted lines.

The Village Public Works Department shall be notified a minimum of two (2) days prior to the start of construction.

All other governmental agencies from whom permits were necessary in order for the project to be constructed should be given adequate notice of the start of construction in accordance with the conditions outlined in the permits.

Water customers that may be affected in any manner during the start and progress of the construction shall be given sufficient advance notice of any disruption that may take place during construction.

Subsection 300.02 - Unsuitable Soil Conditions.

Unsuitable soil conditions encountered during construction shall be brought to the attention of the Village in sufficient time to allow for the review and approval of changes in construction materials.

Where soil conditions are encountered that indicate the presence of gasoline or other petroleum products, procedures set forth by the Illinois Environmental Protection Agency for cleanup operations shall be adhered to and followed by the contractor performing the underground work. Water main pipes and fittings laid within contaminated soils shall have their joints sealed with gaskets made of materials resistant to permeation and deterioration caused by the contaminating products in the soils.

SECTION 400 - PERMITS, APPROVALS, AND ACCEPTANCES

Subsection 400.01 - Permits.

Water main extensions to the Village's water distribution system require that an application for permission to install such extensions be submitted to the Illinois Division of Public Water Supplies. The application should be prepared and submitted to the Division by the project's site engineering consultant. Plans and specifications should meet the approval of the Division and the necessary permit issued for the work prior to the start of any of the water main extension construction work.

Other governmental agencies or non-governmental parties from which permits may be required are as follows:

Illinois Department of Transportation-Division of Highways
Illinois Department of Transportation-Division of Water Resources
Cook County Highway Department
Various Railroads

Subsection 400.02 - Approvals.

Sufficient sets of project plans and specifications shall be submitted to the Village to allow the Village Board, the Public Works Department, and the Village Engineer the opportunity to review these documents and to approve their contents or to comment and recommend revisions that would result in the plans and specifications being acceptable to the Village.

During construction, any water main extension installation work shall require periodic observation by the Public Works Department or by the Village Engineer to assure the Village that there is compliance with the project's plans and specifications.

The final inspection for the approval by the Village Public Works Department of any water main extension work shall be conducted after the total project work has been completed. If the project work consists only of water main extensions, the final inspection shall be conducted after all of the water main work has been completed, the water mains pressure-tested and chlorinated, and the water main extensions are ready to be placed into service. If the project work consists of other phases of improvements in addition the water main extensions, the final inspection shall be conducted after all of the improvements have been completed.

Subsection 400.03 - Acceptances.

The procedures regarding acceptance of all water main extensions shall be similar and equal to the procedures outlined for sanitary sewerage system improvements. See Division I (Subsection 400.03)

SECTION 500 - MAINTENANCE

Subsection 500.01 - By the Village.

The Village shall maintain those portions of the water main system necessary to provide a supply of potable water for fire protection purposes throughout the Village and to make available a supply of potable water at each individual public or private water service connection.

The Village shall maintain only the portion of an individual public or private water service that extends from the connection at the Village's water main to the curb box ("buffalo box") that is generally located within the street right-of-way or within a dedicated easement.

The Village shall maintain only the portion of an individual public or private fire protection water line that extends from the connection at the Village's water main to the location of the shut-off valve installed for Village's use on the water line and generally located within the street right-of-way or within a dedicated easement.

Subsection 500.02 - By Others.

The portions of individual public or private water services extending from the curb boxes ("buffalo boxes") to the sources using the supply of water shall be maintained by the parties being served by the said services.

The portions of individual public or private fire protection water lines that extend from their shut-off valves to the sources of use shall be maintained by the parties being served by the said fire protection water lines.

SUPPLEMENTAL SPECIFICATIONS

DIVISION IV - STREET AND ALLEY PAVEMENT SYSTEMS

(Outline of Contents)

SUPPLEMENTAL SPECIFICATIONS

DIVISION IV - STREET AND ALLEY PAVEMENT SYSTEMS

The specifications described in this Division pertain to the materials to be used in the construction of all street and alley pavements within the Village of Forest Park and to the design standards that are to be followed for this construction work. General construction requirements are specified and the procedures for having the improvements accepted by the Village are outlined in detail. The construction details for this work are shown in PART 2 of the Manual.

These specifications are not applicable to the designated Illinois Division of Highway routes and Cook County Highway Department routes that are within the boundaries of the Village of Forest Park.

Where the Supplemental Specifications set forth in this Division are more restrictive than the Standard Specifications, they shall take precedence in governing the work performed in the construction of proposed street and alley pavements within the Village.

All street pavements to be constructed shall have concrete curbs and gutters and base courses consisting of concrete, crushed stone or gravel, or bituminous aggregate mixtures. The surfaces of the pavements shall consist of bituminous concrete mixtures, except for pavements having concrete bases in which cases the bituminous concrete mixtures may be omitted. Inlets and catch basins connected to storm sewer extensions shall be installed where necessary to receive the storm water runoff from the new pavements. Soil borings shall determine the scope of subbase course requirements.

All alley pavements shall be constructed of concrete and shall have drainage structures installed where necessary to receive the storm water runoff from the pavements. The concrete pavement shall be laid upon a subbase course consisting of crushed stone or gravel coarse aggregate of specific gradations.

SECTION 100 - MATERIALS

Subsection 100.01 - Street Pavements.

Subbase Course

Subbase course materials shall consist of coarse aggregate defined as crushed gravel or crushed stone having Gradations of CA-6, CA-10, CA-12, or CA-19.

Base Course

Base course materials shall be Portland cement concrete, crushed stone or gravel having Gradations of CA-6 or CA-10, or bituminous aggregate mixtures.

Surface Courses

Street pavements having non-rigid base courses such as crushed stone or bituminous aggregate mixtures shall have surfaces consisting of bituminous concrete mixtures. Where pavement base courses are constructed of concrete, the bituminous concrete mixtures may be omitted and the surfaces of the concrete base courses textured and treated to be the traveling surfaces.

Bituminous Materials (Prime Coat)

All base courses shall receive an application of bituminous material (prime coat) immediately prior to the laying of the bituminous concrete surface courses. The bituminous material shall be rapid curing liquid asphalts. The application of the bituminous material is an optional item that may be omitted under certain governing conditions and upon approval by the Village Engineer.

Combination Curb and Gutter

All combination curb and gutter shall be constructed of Portland cement concrete.

Expansion Joints

Street pavements having concrete base courses shall have bituminous premoulded inorganic fiber expansion joints.

Pavement Striping

All designations of pavement striping shall made with extruded type (Type E) thermoplastic pavement marking materials.

Subsection 100.02 - Alley Pavements.

Subbase Course

All alley pavements shall be constructed with a subbase course of coarse aggregate to provide a firm support for the proposed concrete pavement. The subbase course shall have a minimum thickness of three inches (3") and shall consist of crushed gravel or crushed stone coarse aggregate having Gradations of CA 6, CA 10, CA 12, or CA 19.

Pavement

All alley pavements shall be constructed of Portland cement concrete reinforced with welded wire fabric.

Welded Wire Fabric

Welded wire fabric shall be in compliance with ASTM Designation: A185-85 Standard Specifications for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.

Expansion Joints

Expansion joints shall be bituminous premoulded inorganic fiber joints, treated wood boards, or redwood boards.

Subsection 100.03 - General.

Portland Cement Concrete

All concrete shall be a six-bag (6-bag) mixture of Portland cement concrete. The proportions of cement, fine aggregate, course aggregate, and water shall be approved by the Village Engineer.

The workable, plastic mixture of concrete shall have a compressive strength of not less than three thousand five hundred pounds per square inch (3500 psi) and a modulus of rupture of not less than six hundred fifty pounds per square inch (650 psi) at the age of fourteen (14) days when tested by standard methods.

Use of water-reducing and accelerating-set admixtures will not be permitted. The mixture shall contain no more water than is necessary to produce concrete which is workable and plastic. The slump of the concrete shall not be less than two inches nor more than five inches (5").

Concrete transported in truck mixers shall be delivered to the site of work in a plastic and workable condition, satisfactory for placement in the work without the addition of water or water and cement prior to discharging. Delivery and discharge shall be made within sixty (60) minutes after the addition of the cement to the mixing water and aggregates. The producer of ready-mixed concrete shall furnish proof of compliance with the above requirements as to time with each delivery of concrete in the form of a ticket stamped by an approve time clock. Each truck, upon its arrival at the job site, shall have its time ticket submitted to the Village Engineer or his representative. Acceptance of the concrete for use on the work site shall be determined by the Village Engineer, or his representative, at that time.

A qualified materials inspection laboratory shall be retained to perform tests to determine the compressive strength of the Portland cement concrete used for all construction work.

Reinforcing in Concrete Base Courses

Street pavements constructed with concrete base courses shall have these base courses reinforced with welded wire fabric to provide additional strength and support necessary to withstand the anticipated traffic loading and volume, which shall be taken into consideration in calculating and designing the spacing and wire thickness of the welded wire fabric.

SECTION 200 - DESIGN

Subsection 200.01 - Street Pavements.

To establish the thicknesses of the various layers of materials that will constitute the pavements, borings shall be taken at sufficient intervals to determine the soil conditions where the proposed pavements are to be constructed.

The minimum width of street pavements shall be twenty-seven feet (27') as measured from back-of-curb to back-of-curb.

The crowns of street pavements shall be designed in a manner that will provide minimum slopes of three percent (3%) from the center lines to the edges of the pavements.

All street pavements designed to have concrete base courses must also include having subbase courses as cushions for the concrete base courses. The minimum thicknesses of these subbase courses shall be three inches (3").

All bituminous aggregate mixture base courses shall include a subbase course having a minimum thickness of three inches (3").

Where subbase courses must be constructed, their widths shall extend for one foot (1') beyond the back-of-curb lines.

The minimum thicknesses of the various courses of materials composing a street pavement shall be as follows:

Bituminous Concrete Surface Course -
One and one-half inches (1-1/2")
Bituminous Concrete Binder Course -
One and one-half inches (1-1/2")

Concrete Pavement or Base Course -
Nine inches (9")
Bituminous Aggregate Mixture Base Course -
Six inches (6")
Crushed Stone Base Course -
Ten inches (10")
Subbase Course -
Three inches (3")

All street pavements shall have curb and gutter similar and equal to the IDOT Standard designated as Combination Concrete Curb and Gutter, Type B-6.12 (Modified). The minimum thickness of the gutter flag shall be ten inches (10"). The gutter flags shall be widened at each drainage structure to include the entire surface area of the frame.

The curb and gutter returns at intersections shall have a minimum radius of twenty feet (20') as measured to the back-of-curb. At alley returns the radius can be reduced to a minimum of ten feet (10').

Concrete pavements shall have expansion joints at minimum intervals of sixty feet (60') and contraction joints saw-cut at intervals not to exceed twenty feet (20').

Subsection 200.02 - Alley Pavements.

To determine the sufficient thickness for the subbase course upon which an alley pavement is to be constructed, soil borings shall be taken at sufficient intervals along the proposed center line of the alley to determine the bearing capacity of the soils. A subbase course shall be constructed for all proposed alley pavements and the minimum thickness of the subbase course shall be three inches (3").

The width of an alley pavement shall be dependent upon the width of the alley right-of-way. To avoid disturbing survey markers, fences, utility poles, and other installations generally located along right-of-way lines, the width of the alley pavement shall be two feet (2') less than the width of the alley right-of-way and the pavement shall be centered within the right-of-way.

The concrete pavement shall have a minimum thickness of eight inches (8") and shall be reinforced with welded wire fabric placed two inches (2") below the finished surface of the pavement.

The welded wire fabric shall have a fabric Style Designation of 6x6 4/4 and shall be in flat sheets.

The surface of the concrete pavement shall have a transverse slope from its outer edges toward its center line and a longitudinal slope along it center line.

Transverse expansion joints shall be spaced at intervals not exceeding sixty feet (60') and shall consist of 1"x 8" treated wood boards containing No. 6 reinforcing bars, 18" in length, spaced at 12" centers. Contraction joints, saw-cut to a depth of five inches (5"), shall be spaced at twenty-foot (20') intervals between the expansion joints. A longitudinal contraction joint, saw-cut to a depth of five inches (5"), shall be made along the center line of the pavement. All saw-cutting of contraction joints shall be made within a six (6) to eighteen (18) hour period following the placing of the concrete.

The surface of the pavement shall have a broom finish and a protective coating and shall be covered, protected, and allowed to cure for a period of no less than seven (7) days before allowing vehicles to travel on the pavement.

SECTION 300 - CONSTRUCTION

The notification procedures prior to the start of construction shall be similar to those required for underground improvements.

Situations of encountering any unsuitable soil conditions shall be brought to the attention of the Village Engineer and discussions held to determine any necessary revisions to the construction plans.

Subsection 300.01 - Street Pavements.

Concrete Pavements

Subbase courses shall be given final shaping and rolling, to obtain proper compaction, immediately prior to the placement of the reinforcing fabrics.

The subbase course surface shall be sprinkled with water to reach an optimum moisture content immediately prior to the placement of the concrete.

Flexible Base Pavements

The subgrade for a pavement shall be proof-rolled prior to the construction of the pavement's base course or its subbase course.

Concrete Combination Curb and Gutter

Face boards shall be used for the forming of the curb portion except when the curb and gutter is being constructed by the machine method.

Expansion joints shall be placed at intervals not exceeding fifty feet (50') on straight runs of curb and gutter, at the start and end of any street or alley returns, and at a three foot (3') distance in both directions from the center of a gutter drainage structure.

Contraction joints shall be created using steel plates or saw-cut separations. The steel plates shall be removed as the concrete is being broomed to its final finish. Saw-cut separations to a depth of one-half (½) the thickness of the concrete at the sawing point shall be made within a period not longer than twenty-four (24) hours after the placement of the concrete.

All concrete work that is not properly protected from adverse weather conditions or vandalism and has become defective or defaced shall be removed and replaced to the satisfaction of the Village.

Bituminous Concrete Surface Course

The surface course on any newly constructed pavement shall not be laid until all construction work and preceding paving work has been completed for the project that is to be served by the new pavement. Under certain acceptable conditions, final landscaping work can be performed after the surface course has been laid.

Subsection 300.02 - Alley Pavements.

The subgrade shall be proof-rolled prior to the placement of the subbase course materials.

The surface of the subbase course shall be sprinkled with water to reach an optimum moisture content immediately prior to the placement of the concrete.

Expansion and Contraction Joints

Expansion joints shall be placed at intervals not exceeding sixty feet (60') and contraction joints shall be saw-cut to a depth of not less than five inches (5") and at intervals not exceeding twenty feet (20'). The saw-cutting of the contraction joints shall be done within a period of six (6) to eighteen (18) hours after the placement of the concrete.

Meeting Existing Elevations of Structures

The transverse slope of the alley pavement may be modified where necessary to assist in making satisfactory accesses to existing structures such as garage floors, garage aprons, and sidewalks.

Protection of Existing Fencing and Survey Markers

Existing fencing, survey markers (iron pipes at lot corners), sidewalks, and other private improvements that are along the right-of-way lines of an alley shall not be disturbed during the construction of the alley pavement. Where such disturbance is made, unless replacement is included in the project's work, the contractor, at his own expense, must restore the disturbed features to the satisfaction of their owner.

SECTION 400 - PERMITS, APPROVALS, AND ACCEPTANCES

Final inspection and approval by the Village prior to any acceptance of a newly constructed street or alley pavement shall be given consideration only after all work on the construction of the pavement has been completed.

A one (1) year period during which the work performed is guaranteed shall begin after all pavement work and related contracted work is completed and written notice is given by the Village of its approval and acceptance.

SECTION 500 - MAINTENANCE

Unless an agreement has been entered into between the Village and a developer of a project and it is clearly stated that streets and/or alleys within the project are to be privately maintained, the maintenance of all newly constructed street and alley pavements within dedicated rights-of-way shall become the responsibility of the Village once the written notice of their approval and acceptance has been given by the Village. Accepting the responsibility for maintenance does not void the one (1) year guarantee period during which any defects in the construction of the pavements shall be corrected by the developer's contractor.

The maintenance of street and alley pavements shall include, but not be limited to, the sweeping and cleaning of the pavements, cleaning of storm sewers and drainage structures, and the plowing and removing of snow.

SUPPLEMENTAL SPECIFICATIONS

DIVISION V - SIDEWALK AND PARKWAY IMPROVEMENTS

(Outline of Contents)

SECTION 400 - PERMITS, APPROVALS, AND ACCEPTANCES

SECTION 500 - MAINTENANCE

SUPPLEMENTAL SPECIFICATIONS

DIVISION V - SIDEWALK AND PARKWAY IMPROVEMENTS

The specifications described in this Division apply to materials to be used in the construction of sidewalks and miscellaneous parkway improvements that are to be made within dedicated rights-of-way and easements and to the design standards that are to be followed for this type of construction work. Construction requirements and procedures are specified and the steps required for having the improvements approved and accepted by the Village are also described.

Where the Supplemental Specifications set forth in this Division are more restrictive than the Standard Specifications, they shall take precedence in governing the construction work relative to these improvements.

All public sidewalks, driveway aprons, and service walks constructed within dedicated street rights-of-way and easements shall be constructed of concrete.

The minimum landscaping of all unimproved parkways within street rights-of-way shall consist of grass surfaces.

SECTION 100 - MATERIALS

Subsection 100.01 - Concrete.

All concrete shall be a six-bag (6-bag) mixture of Portland cement concrete. The specifications for the concrete shall be similar and equal to the specifications outlined for concrete pavements. See Division IV (Subsection 100.03)

Subsection 100.02 - Welded Wire Fabric.

Where reinforcing is specified in concrete slabs, the reinforcing shall be welded wire fabric meeting the ASTM Designation: A185-85 Standard Specifications for Steel Welded Wire Fabric, Plain, for Concrete.

Subsection 100.03 - Trees.

The trees to be planted within public parkways shall be of the deciduous shade tree category.

Subsection 100.04 - Grass Sod.

Kentucky Blue or Merion Blue grass sod shall be used for sodding. All sodding shall be placed upon a surface of pulverized, fine-raked topsoil.

Subsection 100.05 - Topsoil.

Topsoil shall be good quality weed-free "black" dirt, pulverized to allow for hand-spreading and fine-raking.

Subsection 100.06 - Expansion Joints

Expansion joints shall be of bituminous premoulded inorganic fiber material or, in designated approved locations, the use of treated wood or redwood boards is acceptable.

SECTION 200 - DESIGN

Subsection 200.01 - Sidewalks.

Public sidewalks to be constructed within street rights-of-way shall be placed at a one foot (1') offset from the right-of-way lines. The sidewalks shall have a minimum width of five feet (5') and shall be constructed over a subbase of crushed stone having a minimum thickness of two inches (2"). The thickness of the concrete shall be five inches (5") except at driveway locations where the thickness shall be increased to seven inches (7"). At these driveway locations the concrete shall be reinforced with welded wire fabric, Style 6x6 6/6.

Subsection 200.02 - Driveway Aprons.

Driveway aprons shall be constructed of concrete having a minimum thickness of seven inches (7") and shall be laid upon a cushion of compacted crushed stone having a minimum thickness of two inches (2"). The concrete shall be reinforced with a welded wire fabric, Style 6x6 6/6, laid in flat sheets.

The minimum width of a driveway apron shall ten feet (10') at the right-of-way line and shall increase in width to an additional minimum of two feet (2') along each edge of the apron at the curb line.

Subsection 200.03 - Trees.

Trees shall be planted along the center line of the parkway width and at intervals of not less than thirty-five feet (35') or greater than sixty feet (60'). Tree diameters shall be a minimum of two inches (2") as measured at a height of four feet (4') above ground level.

The tree roots shall be balled in sufficient size to encompass all the fibrous feeding roots necessary to insure successful recovery and continued growth of the tree. The tree shall be moved with a compact natural ball of earth firmly wrapped in burlap so that upon delivery to the planting site the soil in the ball is still firm and compact about the small feeding roots.

Subsection 200.04 - Parkway Sodding.

Grass sod shall be in strips six feet (6') in length and eighteen inches (18") in width. In placing grass sod the rows shall be in tight contact and laid in a manner that will place the ends of each strip of sod in a staggered position with those in adjoining rows.

Subsection 200.05 - General.

Where applicable, the specifications referring to parkway improvements shall also govern improvements to be made within easements.

SECTION 300 - CONSTRUCTION

Subsection 300.01 - Sidewalks.

Expansion joints shall be placed at intervals of one hundred feet (100') and the surface of the concrete scored at intervals of five feet (5').

Forms shall be used to contain the concrete placed for the sidewalks. The forms shall be metal forms having a minimum height of five inches (5") or wood boards having a minimum thickness of two inches (2") and a minimum height of six inches (6"). The forms shall be held securely in place with stakes or steel pins spaced at intervals not greater than four feet (4') in length.

The surface of the concrete shall have a soft-broom finish and shall receive a protective coating consisting of a boiled linseed oil mixture.

Subsection 300.02 - Driveway Aprons.

Forms shall be used in the construction of the driveway aprons. The forms shall have a minimum thickness of two inches (2") and a minimum height of eight inches (8") and shall be held securely in place with stakes spaced at intervals not exceeding four feet (4') in length.

An expansion joint for the driveway apron shall be placed along the back of the curb. The expansion joint shall be a minimum of 3/4" in thickness and shall extend for the full depth and width of the driveway apron. Contraction joints shall be scored in the driveway apron as directed by the Village Engineer.

Subsection 300.03 - Tree Planting.

Trees shall remain balled and wrapped in burlap when placed into the tree pit. The excavated tree pit shall measure one foot (1') larger than the tree ball on all

sides and bottoms. A good quality of top soil shall be placed and carefully tamped into the tree pit to encase the tree ball.

Subsection 300.04 - Sodding Procedures.

Sod shall be placed only when air temperatures are less than 90 degrees (F). All sod delivered to the job site shall be kept in a moist condition until it is placed and shall be protected from exposure to sun, wind, and freezing temperatures. Sod cut and stored for more than forty-eight (48) hours shall not be used without the approval of the Village Engineer.

Within eight (8) hours after sod has been placed, water shall be applied in sufficient amounts to insure a healthy growth. All watering shall be done with a spray application. A minimum of seven (7) waterings shall be applied at intervals necessary to protect the sod and encourage its growth.

SECTION 400 - PERMITS, APPROVALS, AND ACCEPTANCES

Any sidewalk or parkway improvements proposed within the rights-of-way of State or County highways will require that plan approval and permits first be obtained from those agencies.

Final inspection and approval by the Village prior to any acceptance of the improvements made under this Division shall be given consideration only after all work on the proposed project has been completed.

SECTION 500 - MAINTENANCE

Unless an agreement has been entered into between the Village and a developer of a project and it is clearly stated who is to be responsible for the maintenance of the sidewalk and parkway improvements, once written notice is given that the Village has inspected and approved these improvements, the Village's maintenance responsibilities shall be limited just to the yearly care and upkeep of the trees planted in the parkways and the sidewalks paralleling the rights-of-way lines and easement lines and designated as public sidewalks. The maintenance of driveway aprons, private service and curb sidewalks, grass-covered areas, and miscellaneous landscaping in the parkways shall be the responsibility of the property owners abutting the parkways.

SUPPLEMENTAL SPECIFICATIONS

DIVISION VI - STREET LIGHTING SYSTEM

(Outline of Contents)

SECTION 300 - CONSTRUCTION

Subsection 300.01 - Wiring Installation

Subsection 300.02 - Control Centers

Subsection 300.03 - Light Standards (Complete)

Subsection 300.04 - Miscellaneous Items

SECTION 400 - PERMITS, APPROVALS, AND ACCEPTANCES

Subsection 400.01 - Permits

Subsection 400.02 - Approvals

Subsection 400.03 - Acceptances

SECTION 500 - MAINTENANCE

Subsection 500.01 - By the Village

Subsection 500.02 - By Others

SUPPLEMENTAL SPECIFICATIONS

DIVISION VI - STREET LIGHTING SYSTEM

The specifications described in this Division apply to the materials to be used in the installation of new street lighting circuits and any street lighting extensions that are to be added to the Village's existing system of street lighting and the design standards that are to be followed for these installations. Also covered in this Division are the construction requirements and procedures that must be followed for having private street lighting improvements approved by the Village.

Where the Supplemental Specifications set forth in this Division are more restrictive than the Standard Specifications, they shall take precedence in governing the design, materials used, and construction of the improvements.

Construction details for certain street lighting system items are shown in PART 2 of this manual.

SECTION 100 - MATERIALS

Subsection 100.01 - Control Centers.

The control center for serving a system of street lights having one (1) or more circuits shall be contained within a metal cabinet pad-mounted upon a concrete foundation. The concrete foundation shall consist of poured-in-place Portland cement concrete. The cabinet shall be fabricated using aluminum metal and the cabinet's interior mounting panels shall be fabricated with insulated steel sheets.

Subsection 100.02 - Wiring.

All circuit wiring (electric cables) shall be seven (7) strand, single conductor, 600 volt, soft drawn, uncoated copper wire with an Underwriters' Laboratories listing of Type RHH/RHW/USE. The wiring insulation shall incorporate cross-linked polyethylene (XLP) and shall meet or exceed the requirements of Insulated Cable Engineers Association (ICEA) Publication S-66-524, otherwise referenced as NEMA Standard Publication No. WC 7-1976(1982), and shall be color-coded.

Subsection 100.03 - Handholes.

Handholes shall be constructed of poured-in-place Portland cement concrete and shall have cast iron frames with hinged lids, similar and equal to Neenah Foundry Company Catalog No. R-6660-HH. Wall sleeves (openings) shall be provided in the walls of the handholes to allow for the entries of conduits. Hooks shall be inserted into the walls to support the loops of slack cables.

Subsection 100.04 - Conduits.

All circuit wiring shall be housed within ducts made of plastic and intended for underground use. The ducts shall be made of high density polyethylene which shall meet the requirements of ASTM Designation D 1248, Type III Class C, and the requirements listed in Table 2-1 of NEMA Standard Publication No. TC-7. The manufacture of the ducts shall conform to the requirements of NEMA Standard Publication No. TC-7 and ASTM Designation D 3485.

Where ducts containing circuit wiring must be installed across and under improved areas such as paved streets, driveways, or alleys, the ducts shall be contained within rigid steel conduits. The conduits shall meet Federal Specifications WWC-581, ANSI Standard C80.1, and the requirements of NEC Article 346-15. The conduits shall be manufactured in accordance with Underwriters' Laboratories Standard 6 and shall be UL listed and labeled. Threaded-type, hot-dipped galvanized couplings and fittings used with the rigid steel conduits shall meet ANSI Standard C80.4.

Subsection 100.05 - Light Standard Foundations.

The foundations shall be made of poured-in-place Portland cement concrete reinforced with vertical reinforcing bars and spiral tie bars.

Subsection 100.06 - Light Standards.

Light standards to be installed along street rights-of-way shall be similar and equal to the light standards presently in place on the Village's over-all street lighting system.

Shop drawings showing the material composition for light standards for lighting systems that are to be privately-owned and are to be installed to serve private roadways shall be submitted to the Village for its review and approval.

Subsection 100.07 - Bracket Arms.

Bracket arms for lighting standards being installed along street rights-of-way shall be similar and equal to the bracket arms currently available for replacement on the Village's over-all street lighting system.

For privately-owned roadway lighting systems, the bracket arms shall be compatible with the manufacturer's recommendations for use with the proposed light standards.

Subsection 100.08 - Luminaires.

Luminaires for light standards to be installed along street rights-of-way shall be similar and equal to the luminaire styles in existence on light standards on the light standards on the Village's over-all street lighting system. The luminaires shall be equipped for the use of High Pressure Sodium lamps.

For privately-owned roadway lighting systems, the luminaires shall be compatible with the manufacturer's recommendations for luminating the designated areas.

SECTION 200 - DESIGN

Subsection 200.01 - System Design.

Preliminary plans for the installation of a street lighting improvement shall be submitted to the Village for approval prior to further detailed designing of the system being undertaken.

All lighting circuits shall have their electrical cables installed underground and contained within plastic ducts. The standard locations for the duct runs shall be within the street parkways along a line two feet (2') behind the curbs. The light standards shall be placed uniformly along a line within a corridor not less than three feet (3') nor more than five feet (5') back of curbs. Control centers shall be located within street parkways in non-hazardous areas adjacent to the public sidewalks.

The basic system design, and preferable by the Village, is a parallel lighting system having alternate light standards on separate circuits and a maximum of ten (10) light standards per circuit. The electrical power shall be 120/240 Volt. Lighting shall be provided by high pressure sodium lamps. The on-off lighting sequences of the various lighting circuits shall be controlled by a time switch having a 24-hour astronomical dial. This unit shall be installed within the control center cabinet.

The degree of illumination and the light distribution patterns shall meet the minimum standards set forth by the Illuminating Engineering Society (I.E.S.). The maximum spacing between light standards shall not exceed one hundred fifty feet (150') for parallel lighting circuits.

Subsection 200.02 - Control Centers.

The metal cabinets housing the control center equipment shall have sufficient compartments with adequate spaces to mount the equipment and the metering devices to be furnished by the utility company (Commonwealth Edison Co.). The cabinet shall have two (2) lockable doors, one (1) to access the equipment-mounting panel and one (1) to serve the utility company's metering equipment.

Shop drawings of the proposed cabinet must be submitted to the Village for its review and approval before any authorization is to be made for the fabrication and installation of the cabinet.

A grounding rod, ten feet (10') in length, shall be installed at the control center and connected to the bare ground wires within the cabinet.

Subsection 200.03 - Wiring.

The service pole shall be equipped in accordance with the public utility company's requirements. The wiring from the service pole to the control center shall be installed underground.

The use of handholes shall be minimized and cable splicing shall be made within light standards, when conditions are satisfactory and the number of cables are at a minimum.

All wiring, including the bare ground wires, shall be contained within ducts installed at a minimum depth of thirty inches (30"). Crossings under street pavements, driveway aprons, and other wide areas of paved improvements shall have the wiring ducts contained within galvanized steel pipe.

The bare ground wires shall be spliced within the light standards to grounding rods installed at each of the light standard foundations.

Subsection 200.04 - Light Standard Foundations.

Light standard foundations shall be twenty-four inches (24") in diameter with a minimum depth of five feet (5'). Greater foundation depths shall be determined from the type of soil found at the location of the light standards.

The tops of the foundations shall be one and one-half inches (1 1/2") above the finish grades at the light standard locations. Cylinder forms shall be used to contain the top twenty-four inches (24") of the foundations and the tops of the foundations shall be troweled to have beveled edges.

Grounding rods, ten feet (10') in length, shall be installed at all foundations and connected to the bare ground wires within the light standards.

Subsection 200.05 - Light Standards (Complete).

Light standards shall be foundation-mounted with their base plates and anchor bolt accessories all set above grade. The base covers, manufactured at the factory, shall be included as added accessories to the light standards.

Shop drawings showing the details of the light standards must be submitted to the Village for review and approval prior to the installation of the light standards.

Subsection 200.06 - Luminaires.

Shop drawings of the luminaires and bracket arms together with the light distribution charts shall be submitted to the Village for its review and approval prior to the completion of the project's plans.

SECTION 300 - CONSTRUCTION

Subsection 300.01 - Wiring Installation.

Continuous runs of ducts containing the electrical cables and bare ground wires shall be installed underground from the service poles to the interiors of the control centers, from the control centers to the interiors of handholes or light standards, and between the interiors of adjoining light standards.

The underground installations of the duct runs can be performed by open-trenching methods or by directional boring.

Cable splicing shall be made only within the control center cabinets, handholes, and bases of the light standards.

Subsection 300.02 - Control Centers.

The surface of the concrete foundation pad supporting the cabinet shall be a minimum of three inches (3") above grade. Encased within the concrete foundation shall be the necessary galvanized steel conduit sweeps (plus two (2) additional) allowing the cable ducts to access into the base of the cabinet.

Subsection 300.03 - Light Standards (Complete).

The light standards shall remain protectively-wrapped until after they have been installed in place, plumbed, fully-equipped, and the lighting system ready to be placed into service. Any damage to a light standard during its installation shall make it subject to rejection by the Village and replacement at the contractor's expense.

Subsection 300.04 - Miscellaneous Items.

Any revisions to the accepted and approved project plans for the installation of street lighting improvements that are requested or found necessary during construction of the improvements must be submitted to the Village and its approval obtained prior to the revisions being made.

SECTION 400 - PERMITS, APPROVALS, AND ACCEPTANCES

Subsection 400.01 - Permits.

Obtaining the electrical power necessary for the operation of street lighting improvements requires the informal permission of the public utility company for a connection to be made to its power supply system. The utility company can designate its nearest available power pole at which a connection to its system can be made or, at the owner's expense, it will bring available electrical power to a service pole more conveniently located to serve the street lighting system.

Where street lighting circuits must enter or cross State or County highway rights-of-way, permits to do so must be obtained from these agencies.

Subsection 400.02 - Approvals.

In addition to the utility company reviewing and approving the electrical equipment to be installed on its service pole, preliminary and final plan approvals must be obtained from the Village.

Prior to the street lighting system being placed into service, the public utility company shall be notified and requested to inspect the service pole installation and, if it is found to be proper and in accordance with the utility company's requirements, the electrical power metering equipment can then be installed by the utility company.

Subsection 400.03 - Acceptances.

Upon notification that the installation of a street lighting system has been completed and the service installation approved by the public utility company, the project shall be inspected by the Village and, if found acceptable, the lighting system shall be placed into service. The system shall remain in operation for a period of not less than thirty (30) days during which time it can be determined if there are defects in the system that must be corrected. If the system is found to be operating satisfactorily, the Village shall then accept the installation of the system and assume the system's necessary maintenance.

Where a street lighting system is to remain privately owned and operated, the same procedure shall be followed for the acceptance of the system except that the maintenance of the system shall be the responsibility of others and not of the Village.

SECTION 500 - MAINTENANCE

Subsection 500.01 - By the Village.

The Village shall accept the responsibility for the maintenance of newly installed street lighting systems that have been constructed in accordance with the Village's requirements for street lighting and have been designated to be Village-maintained prior to their design and installation.

Subsection 500.02 - By Others.

Where street lighting systems have been installed as totally independent systems serving planned-unit developments or isolated subdivisions and the Village's requirements for light standards and luminaires have been waived, the systems, through prior agreements and understandings between the developers and the Village, shall be maintained by others.

SUPPLEMENTAL SPECIFICATIONS

DIVISION VII - MISCELLANEOUS PUBLIC IMPROVEMENTS

(Outline of Contents)

SUPPLEMENTAL SPECIFICATIONS

DIVISION VII - MISCELLANEOUS PUBLIC IMPROVEMENTS

SECTION 100 - PARKING FACILITIES

This section shall be applicable to ground level parking facilities. Any proposed multi-story parking facility shall have its design in accordance with the requirements of the Standard Specifications and its plans and specifications must be submitted to the Village for review and approval.

Subsection 100.01 - Design.

All parking facilities shall be constructed with pavements having hard surfaces composed of bituminous concrete or Portland cement concrete. Base courses for the bituminous concrete-surfaced pavements shall consist of crushed stone aggregate, bituminous aggregate mixtures, or Portland cement concrete. Pavements having Portland cement concrete bases courses shall be include subbase courses of crushed stone or gravel having minimum thicknesses of three inches (3").

The material requirements for parking facilities' pavements shall be equal to those specified in Division IV - Street and Alley Pavements with the minimum thicknesses of the various courses of the materials composing the pavements being as follows:

Bituminous Concrete Surface Course -
One and one-half inches (1-1/2")
Bituminous Concrete Binder Course -
One and one-half inches (1-1/2")
Portland cement concrete Pavement or Base Course -
Seven inches (7")
Bituminous Aggregate Mixture Base Course -
Five inches (5")
Crushed Stone Aggregate Base Course -
Eight inches (8")
Subbase Course (where required) -
Three inches (3")

Surface drainage from parking facilities shall be controlled in a manner that will prevent overflows onto adjoining properties. Parking facilities covering less that one thousand five hundred square feet (1500 sq.ft.) may have their surface drainage discharge across public sidewalks onto public street rights-of-way.

Parking facilities that cover less that two thousand five hundred square feet (2500 sq.ft.) may have their surface drainage discharge onto public alley rights-of-way. Parking facilities having areas exceeding these limitations shall have their surface drainage contained within their paved areas and removed by means of drainage structures and storm sewers.

Drainage structures within a parking facilities shall serve a maximum area of ten thousand square feet (10,000 sq.ft.) per structure. Where parking area pavements are to be used for storm water detention, the maximum depth of the storm water in the detention area shall not exceed ten inches (10").

For parking facilities designed to have barrier curbs in lieu of wheel stops in parking spaces, the overhang areas of the vehicles shall be considered as included in the square foot area measurements of the parking spaces.

Night time area lighting of parking facilities is not required but strongly recommended for parking facilities containing more than forty (40) parking spaces or if constructed in remote or questionably secure areas.

Subsection 100.02 - Construction.

Concrete pavements in parking facilities shall have a 0.50% or greater slope toward drainage structures or off-site discharge of surface water. For bituminous concrete-surfaced pavements, the slope shall be 1.00% or greater.

Concrete barrier curbs around the perimeter of a parking facility are recommended in lieu of wheel stops.

All structures located within concrete pavements shall be "boxed out" within four-foot (4') square areas.

SECTION 200 - BRIDGES

Subsection 200.01 - Design.

The plans and specifications for all bridge structures to be constructed within the Village shall be prepared under the supervision of a structural engineer having a State of Illinois Professional Engineers registration. The plans shall bear his seal and signature. The Village shall review the plans and specifications and approve these documents prior to start of construction.

Subsection 200.02 - Construction.

Prior to the start of construction of any bridge structure, in addition the obtaining the approval of the plans and specifications from the Village, where applicable, permits shall be obtained from governing agencies such as the Illinois Department of Transportation, U.S. Corps of Engineers, and the Metropolitan Water Reclamation District.

SUPPLEMENTAL SPECIFICATIONS

DIVISION VIII - MISCELLANEOUS SPECIFICATIONS FOR UNDERGROUND IMPROVEMENTS

(Outline of Contents)

SUPPLEMENTAL SPECIFICATIONS

DIVISION VIII - MISCELLANEOUS SPECIFICATIONS FOR UNDERGROUND IMPROVEMENTS

The specifications described in this Division are miscellaneous additional specifications that are relative to the various underground improvements classified in separate Sections of this Division.

SECTION 100 - SANITARY SEWAGE COLLECTION SYSTEM

Installing a new sewer at the allowable minimum slope shall be avoided when existing or proposed topography provides sufficient grade to allow the new sewer to be laid at a greater slope.

The Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) Manual of Procedures for the administration of its Sewer Permit Ordinance prohibits the installation of gravity sewers to serve below grade facilities. Considering this restriction, the design of lateral sewers should be carefully calculated to avoid unnecessary excessive depths and the flow lines of sewer services at the building lines should not require depths in the excess of five feet (5') below the top of the building foundation walls.

Where precast reinforced concrete base sections are not available for manholes being constructed on new sewer extensions (ductile iron pipe excepted), the sewer shall be laid through the manhole location, the manhole then constructed, the concrete bench poured in place, and the top half of the sewer within the manhole then removed after the concrete bench has sufficiently set. Where the sewer is to be ductile iron pipe, the pipe shall end at the interior of the manhole wall and the concrete bench shaped to meet the form of the lower half of the sewer.

When a manhole is to be constructed over an existing sewer, the sewer shall not be disturbed until after the concrete bench has sufficiently set, at which time the top half of the existing sewer within the manhole can be removed.

The cone sections on manholes shall be one (1) unit precast sections. Cone sections fabricated on-site with concrete cone blocks are not acceptable.

All sewers entering a manhole at flow line elevations above the manhole bench shall terminate flush with the interior wall of the manhole.

No sewer shall enter or exit a manhole at an elevation within the cone section of the manhole. Where such a situation is encountered, the manhole shall be constructed having a flat slab top in lieu of a cone section.

Sewer service tap-in connections to existing sewers shall be machine-made, and Village-approved, factory-manufactured sewer pipe saddles installed on the existing sewer.

Sewer stubs installed for future use shall be plugged in a watertight manner using the combination of an expandable rubber-type interior plug protected and reinforced with the standard sewer pipe cap.

Inspection manholes (as required by the MWRDGC) shall receive only the sanitary flow from the building (or buildings) for which the inspection manhole is designated to serve.

During construction, the alinement and the grades at which proposed sewer lines are to be installed shall be established by laser-guided equipment or set by line-and-grade stakes spaced at intervals not exceeding fifty feet (50').

All sewer piping installed in trenches shall be bedded and encased with crushed stone. The crushed stone to be used for bedding and encasing purposes shall be Gradation CA-11 or Gradation CA-13 crushed stone. Trenches located within non-pavement areas that are further than two feet (2') from paved areas shall have their remaining voids backfilled with selected earth materials to be placed and compacted atop the crushed stone encasement. Trenches located under paved areas or within two feet (2') of paved areas shall have their remaining voids backfilled with crushed stone, Gradation CA-6, properly compacted to its maximum density.

Grease separators shall be installed on the outside of all restaurants and "fast food" establishments. The separators shall be located at convenient sites allowing access for inspection and cleaning. Where "food preparation" establishments have "dumpster" locations on their sites, the pavement slabs on which the "dumpsters" are placed shall have drainage structures with outlet pipes discharging into the grease separators to allow for the washing of spilled wastes and the proper disposal of these wastes. The drainage structures shall have sealed-type covers that can be opened during the washing operations.

SECTION 200 - STORM WATER COLLECTION SYSTEM

In the construction of manholes on new sewer extensions, the sewer shall be laid atop the precast concrete floor of the manhole, the manhole then constructed, the concrete bench poured in place, and the top half of the sewer within the manhole then removed after the concrete bench had sufficiently set. Where a manhole is to be constructed over an existing storm sewer, the sewer shall remain in place until

the concrete bench has been poured and set, at which time the top half of the existing sewer within the manhole shall be removed.

During the construction of a storm water collection system, the storm water drainage structures having open lids shall have the lids sealed in a manner that will prevent excavation, paving, and other construction materials from entering the structures and their outlet sewer pipes. Prior to the approval by the Village of the installation of any storm water drainage facilities, all sewers and structures must be free and clean of construction materials and all other debris.

The connection sewer serving an inlet and sewers entering or existing from catch basins shall terminate flush with the interior walls of the structures. All sewers entering a manhole at elevations above the manhole bench shall terminate flush with the interior wall of the manhole.

No sewer shall enter or exit a catch basin or manhole at an elevation within the cone section of the structure. When such a situation is encountered, the structure shall be constructed having a flat slab top in lieu of a cone section.

Sewer service tap-in connections to existing sewers shall be have their openings cored by machine-methods and Village-approved, factory-manufactured sewer pipe saddles installed on the existing sewer.

All sewer piping installed in trenches shall be bedded and encased with crushed stone. The crushed stone to be used for bedding and encasing purposes shall be Gradation CA-11 or Gradation CA-13 crushed stone. Trenches located within non-pavement areas that are further than two feet (2') from paved areas shall have their remaining voids backfilled with selected earth materials to be placed and compacted atop the crushed stone encasement. Trenches located under paved areas or within two feet (2') of paved areas shall have their remaining voids backfilled with crushed stone, Gradation CA-6, properly compacted to its maximum density.

SECTION 300 - WATER DISTRIBUTION SYSTEM

Existing water services that are to be abandoned shall be exposed and sealed shut at their tap-in locations on the water mains. The water service to be abandoned shall be located at the water main, its corporation stop removed, and the tap-in opening sealed watertight with a split repair sleeve.

Valve vaults to be abandoned shall have the valve removed, the water main plugged at both ends, the cone section (or flat slab top) removed, and the vault filled with trench backfill material.

Water mains to be abandoned shall be plugged with brick and mortar at all open ends.

Off-setting of existing water mains due to conflict with proposed sewers shall be considered only as a last resort. The design of proposed sewer lines shall take into consideration the depths of existing water mains to avoid the need for any disturbances to the water mains.

All water mains installed in trenches shall be bedded and encased with crushed stone. The crushed stone to be used for bedding and encasing purposes shall be Gradation CA-11 or Gradation CA-13 crushed stone. Trenches located within non-pavement areas that are further than two feet (2') from paved areas shall have their remaining voids backfilled with selected earth materials to be placed and compacted atop the crushed stone encasement. Trenches located under paved areas or within two feet (2') of paved areas shall have their remaining voids backfilled with crushed stone, Gradation CA-6, properly compacted to its maximum density.

SECTION 400 - INVENTORY OF BENCH MARKS

All existing and proposed elevations shown on project plans and referred to in specifications shall be based upon the United States Geological Survey (USCG) Datum. Bench mark elevations to be used for proposed projects shall be selected from the approved listing of official bench mark elevations shown in the Inventory of Bench Marks as follows:

INVENTORY OF BENCH MARKS
for the
VILLAGE OF FOREST PARK

BM Number	Description and Location	USGS Elevation
1.	Brass disk set in west abutment of bridge on Roosevelt Road over Des Plaines River	622.72
2.	Chiseled square in concrete foundation for traffic signal on northeast corner of First Avenue and Roosevelt Road	623.34
3.	North-northeasterly bonnet bolt on fire hydrant at southwest corner of Jackson Boulevard and Lathrop Avenue	625.95
4.	North-northeasterly bonnet bolt on fire hydrant at northeast corner of Jackson Boulevard and Beloit Avenue	623.60
5.	Chiseled square in north section of west concrete abutment of bridge on Roosevelt Road over Des Plaines River	622.91
6.	Southwest flange bolt on fire hydrant at southwest corner of 15th Street and Circle Avenue	621.98
7.	Northwest bonnet bolt on fire hydrant at northwest corner of Lexington Street and Beloit Avenue	622.99
8.	Northeast flange bolt on fire hydrant at northeast corner of Yuba Street and Des Plaines Avenue	624.05

(continued inventory of Bench Marks)

9.	Northeast bonnet bolt on fire hydrant at southeast corner of Brown and Lathrop Avenues	632.23
10.	Northeast bonnet bolt on fire hydrant at southeast corner of Randolph Street and Elgin Avenue	623.28
11.	North-northwest bonnet bolt on fire hydrant at southeast corner of Circle and Marengo Avenues	628.98
12.	North-northwest bonnet bolt on fire hydrant at northwest corner of Randolph Street and Belvidere Avenue	625.21
13.	Southwest bonnet bolt on fire hydrant at northwest corner of Harvard Street and Ferdinand Avenue	622.42
14.	Northeast bonnet bolt on fire hydrant at southwest corner of Harvard Street and Marengo Avenue	621.14
15.	North-northwest bonnet bolt on fire hydrant located 50' northwest of the greenhouse at the Woodlawn Cemetery Cermak Road entrance	621.21
16.	Rim of storm water manhole in center of pavement opposite 7747 Van Buren Avenue	626.52
17.	"X" cut in southwest bonnet bolt on fire hydrant at the southwest corner of Harlem Avenue and Harrison Street	622.43

Note: All Bench Mark elevations shall be verified by ties to two (2) different listed Bench Mark elevations.

SECTION 500 - GENERAL

Existing public improvements disturbed or that must be replaced due to the construction of any underground improvements shall be replaced in a manner that will meet the Specifications and Details contained in this Manual.

SUPPLEMENTAL SPECIFICATIONS

DIVISION IX - MISCELLANEOUS SPECIFICATIONS FOR GROUND LEVEL IMPROVEMENTS

(Outline of Contents)

SUPPLEMENTAL SPECIFICATIONS

DIVISION IX - MISCELLANEOUS SPECIFICATIONS FOR GROUND LEVEL IMPROVEMENTS

The specifications described in this Division are miscellaneous additional specifications that are relative to the various ground level improvements classified in separate Sections in this Division.

SECTION 100 - STREET AND ALLEY PAVEMENT IMPROVEMENTS

Subsection 100.01 - Street Pavements.

On all street improvement projects, weather forecasts anticipating favorable weather conditions for a period of not less than five (5) days shall be the determining factors for the laying of bituminous concrete surface courses after Fifteenth Day (15th) of November. Favorable weather conditions for the laying of bituminous concrete surface courses are those described in the Standard Specifications in Section 406 of the "Standard Specifications for Road and Bridge Construction".

All underground structures located within concrete pavements shall have their access openings "boxed out" within separated square slabs isolated with expansion joint materials and having minimum side dimensions of four feet (4') in length.

Subsection 100.02 - Alley Pavements.

To channel and expedite the surface runoff from an alley pavement, a "trough" shall be formed along the longitudinal center line of the alley pavement. This "trough" may be formed in the following three alternative manners: scored with a specially-shaped steel mandrel capable of creating a three-quarter inch (3/4") wide and deep groove along the center line, or saw-cut to the same dimensions with a wheel-mounted rotary concrete saw, or formed by an added unit attached to the concrete screed that is used to shape the latitudinal slopes of the alley pavement. Whichever method is to be used must also be approved by the Village Engineer.

The differences in the elevations of the outer edges and the center line of the alley pavement shall not be less than one inch (1") nor greater than six inches (6") where the slope of the alley pavement's width must be varied to accommodate existing garage floors or other permanent structures served by the alley.

The surface of the concrete alley pavement shall be given a "soft broom" finish in a manner that will not obstruct the shape of the "trough" formed along the center line of the pavement.

SECTION 200 - SIDEWALK AND PARKWAY IMPROVEMENTS

Subsection 200.01 - Sidewalk Improvements.

All public sidewalks shall have a minimum width of five feet (5").

Wood forms used for sidewalk construction shall have a minimum width equal to the thickness of the concrete sidewalk being constructed and shall be held securely in place with wood stakes or iron pins spaced at intervals no greater than four feet (4')in length.

Subsection 200.02 - Parkway Improvements.

Privately-constructed curb walks shall have a maximum width of two feet (2') and shall be constructed of concrete. Privately-constructed service walks (those walks leading from the public sidewalk to the street curb) shall have a maximum width of four feet (4') and shall also be constructed of concrete. Both curb walks and service walks shall be constructed in accordance with the specifications as detailed in this Manual for the construction of Public Sidewalks.

SECTION 300 - STREET LIGHTING SYSTEM

No miscellaneous specifications.

SECTION 400 - MISCELLANEOUS PUBLIC IMPROVEMENTS

No miscellaneous specifications.

SECTION 500 - INVENTORY OF BENCH MARKS

All existing and proposed elevations shown on project plans and referred to in specifications shall be based upon the United States Geological Survey (USGS) Datum. Bench mark elevations to be used for proposed projects shall be selected from the Inventory of Bench Marks listed in Section 400 of Division VIII in this Manual.

SECTION 600 - GENERAL

Existing public improvements disturbed or that must be replaced due to the construction of any ground level improvements shall be replaced in a manner that will meet the Specifications and Details contained in this Manual.

PART 2 - STANDARD AND SUPPLEMENTAL DETAILS

STANDARD DETAILS

The following Standard Details shall be applicable to all construction work that is to be undertaken on public properties, public easements, and private properties located within the Village of Forest Park and over which the Village has jurisdiction.

These Standard Details are hereby included as part of the contents of this Manual, entitled "Specifications and Details for the Design and Construction of Public Improvements with the Village of Forest Park, Illinois", by reference, the same as if they were fully displayed in this PART 2 of the Manual.

Supplementing the Standard Details are additional details contained herewith in this Manual. They are shown in this PART 2 as Supplemental Details and are categorized under their various Divisions of Public Improvements. These additional details shall be applicable and shall govern where they are found to be more specific than the Standard Details.

Applicable Standard Details are shown in the following publications:

1. The "Standard Specifications for Water and Sewer Main Construction in Illinois", Fifth Edition, dated May 1996, and all revisions thereto. See Division V, entitled "Standard Drawings", in this publication.

   Copies of this publication may be obtained from the following agency:

   Illinois Society of Professional Engineers
   612 South Second Street
   Springfield, Illinois 62704

2. The "Highway Standards" Book No. 560 as prepared by the Bureau of Design of the Division of Highways of the State of Illinois Department of Transportation.

   Copies of the standards in this book may be obtained from the following agency:

   Illinois Department of Transportation
   2300 South Dirksen Parkway
   Springfield, Illinois 62764

SUPPLEMENTAL DETAILS

DIVISION X - SANITARY SEWER SYSTEM

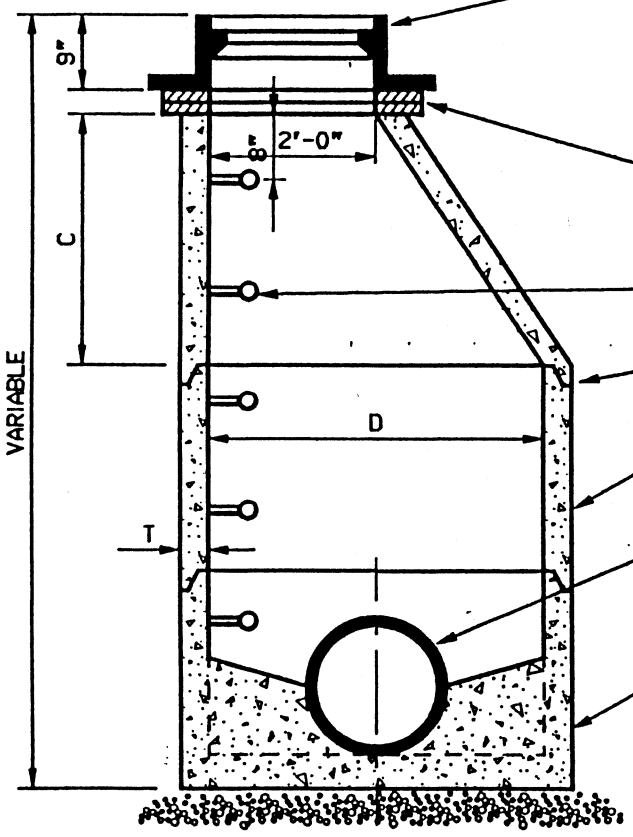
The major portion of the sanitary sewage collection system serving the Village of Forest Park is a combined sewer system. All references in this Division X to sanitary sewer systems is also applicable to combined sewer systems.

Included with the sanitary sewer system details are samples of the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) Sewerage System Permit form and the MWRDGC General Notes which must be shown on all project plans.

Projects within the jurisdictional boundaries of the MWRDGC are not required to apply for the Illinois Environmental Protection Agency (IEPA) Permit by submitting the formal IEPA application documents, WPC-PS-1 (Form WPC 150 Rev. 5/92) and Schedules A and B (Form WPC 151 Rev. 5/91). However, the IEPA does require that it be made aware of the proposed improvement and that the IEPA Fee Schedule be followed.

The details shown in this Division are as follows:

DRAWING NUMBER	DETAIL
1.	Manhole, Type A
2.	Manhole, Type B
3.	Drop Manhole Section
4.	Sewer Service Connection
5.	Tap-In Connection
6.	Sewer Service Replacement
7.	Sewer Trench Detail
8.	Grease Separator
9.	MWRDGC General Notes
	MWRDGC Sewerage System Permit
	MWRDGC Sewer Area Classification Map



CAST IRON MANHOLE FRAME & SELF-SEALING LID, WITH O-RING GASKET & RECESSED PICK HOLES, NEENAH FOUNDRY NO. R-1712 OR EQUAL. WEIGHT (FRAME & LID) 540#, WITH WORD "SANITARY" CAST INTO LID

MINIMUM OF 2" AND MAXIMUM OF 6" OF PRECAST CONCRETE ADJUSTMENT RINGS WITH EXTERNAL CRETEX CHIMNEY SEAL

STEPS 16" O.C., M.A. INDUSTRIES, INC. PS-1 PF OR EQUAL

KEYED JOINT WITH O-RING OR MASTIC SEAL

PRECAST REINFORCED CONCRETE SECTIONS FABRICATED IN ACCORDANCE WITH A.S.T.M. DESIG. C-478

FLEXIBLE SEWER PIPE COUPLING (AT SEWER PIPE OPENING)

PRECAST REINFORCED CONCRETE BASE SECTION, INCLUDING PLATFORM, TROUGH, & COUPLING COMPONENTS, FABRICATED IN COMPLIANCE WITH A.S.T.M. DESIG. C-478, WITH 4" TRENCH BACKFILL MATERIAL AS CUSHION

DIMENSIONS		
D	C	T(MIN.)
4'-0"	2'-6"	4"
5'-0"	3'-9"	5"

GENERAL NOTES:

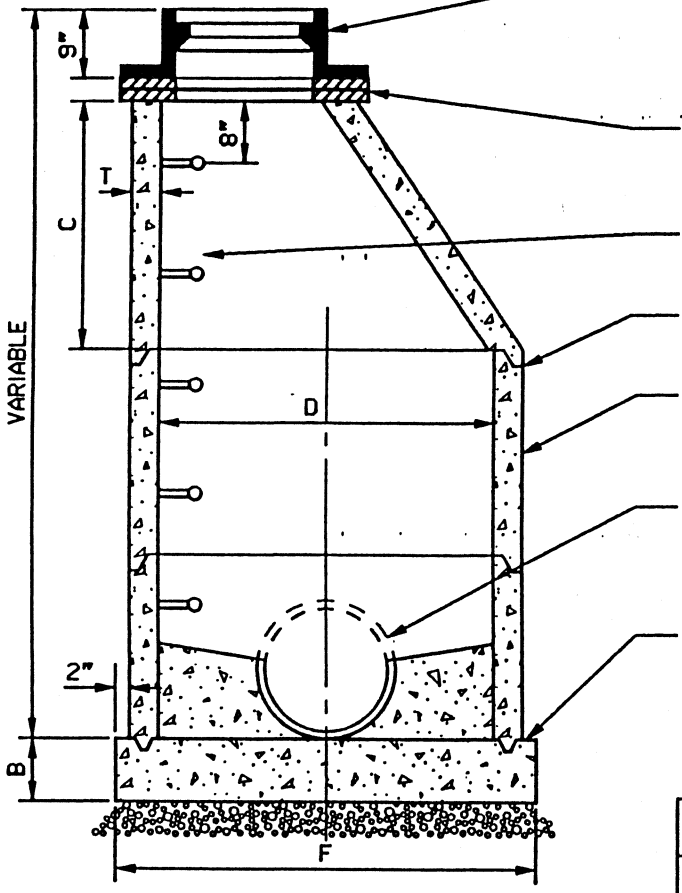
1. DIMENSION "C" FOR PRECAST SECTION MAY VARY ± 6".
2. CONE SECTIONS SHALL BE OFFSET TYPE.
3. PRECAST REINFORCED CONCRETE FLAT SLAB TOPS (IDOT STANDARD 2354-1) SHALL BE USED IN LIEU OF CONE SECTIONS WHEN MANHOLE DEPTHS ARE LESS THAN SIX FEET (6').
4. STEPS SHALL BE INSTALLED ALONG DOWNSTREAM SIDE OF MANHOLE WALL.

EDWIN HANCOCK ENGINEERING COMPANY
By: O.C.
Date: 2/20/1996
Revised:

MANHOLE, TYPE A

DIVISION X DRAWING NO. 1

VILLAGE OF FOREST PARK
SANITARY SEWER SYSTEM
SUPPLEMENTAL DETAILS



CAST IRON MANHOLE FRAME & SELF-SEALING LID, WITH O-RING GASKET & RECESSED PICK HOLES, NEENAH FOUNDRY NO. R-1712 OR EQUAL. WEIGHT (FRAME & LID) 540#, WITH WORD "SANITARY" CAST INTO LID

MINIMUM OF 2" AND MAXIMUM OF 6" OF PRECAST CONCRETE ADJUSTMENT RINGS WITH EXTERNAL CRETEX CHIMNEY SEAL

STEPS 16" O.C., M.A. INDUSTRIES, INC. PS-1 PF OR EQUAL

KEYED JOINT WITH O-RING OR MASTIC SEAL

PRECAST REINFORCED CONCRETE SECTIONS FABRICATED IN ACCORDANCE WITH A.S.T.M. DESIG. C-478

REMOVE TOP HALF OF PIPE THROUGH MANHOLE, POUR CONCRETE BENCH AROUND LOWER HALF AND SLOPE UPWARDS 3" TO SIDES

PRECAST REINFORCED CONCRETE FLOOR FABRICATED IN ACCORDANCE WITH A.S.T.M. DESIG. C-478, WITH 4" TRENCH BACKFILL MATERIAL AS CUSHION

DIMENSIONS				
D	C	T(MIN.)	B	F
4'-0"	2'-6"	4"	6"	5'-0"
5'-0"	3'-9"	5"	8"	6'-2"

GENERAL NOTES:

1. DIMENSION "C" FOR PRECAST SECTION MAY VARY ± 6".
2. CONE SECTIONS SHALL BE OFFSET TYPE.
3. PRECAST REINFORCED CONCRETE FLAT SLAB TOPS (IDOT STANDARD 2354-1) SHALL BE USED IN LIEU OF CONE SECTIONS WHEN MANHOLE DEPTHS ARE LESS THAN SIX FEET (6').
4. STEPS SHALL BE INSTALLED ALONG DOWNSTREAM SIDE OF MANHOLE WALL.

EDWIN HANCOCK ENGINEERING COMPANY

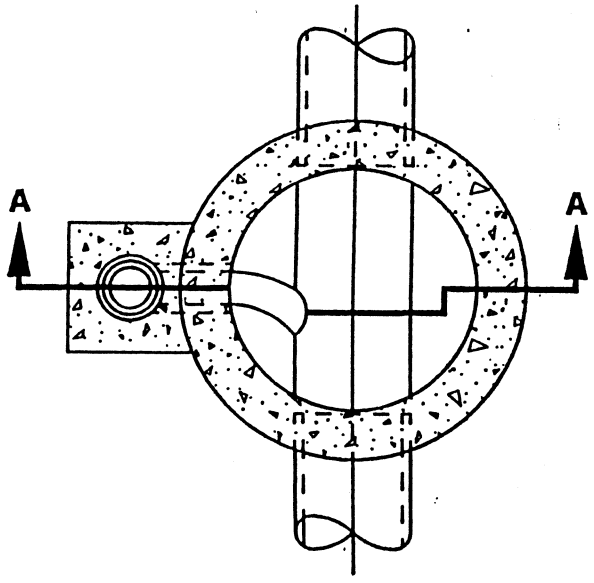
By: O.C.
Date: 2/20/1996
Revised:

MANHOLE, TYPE B

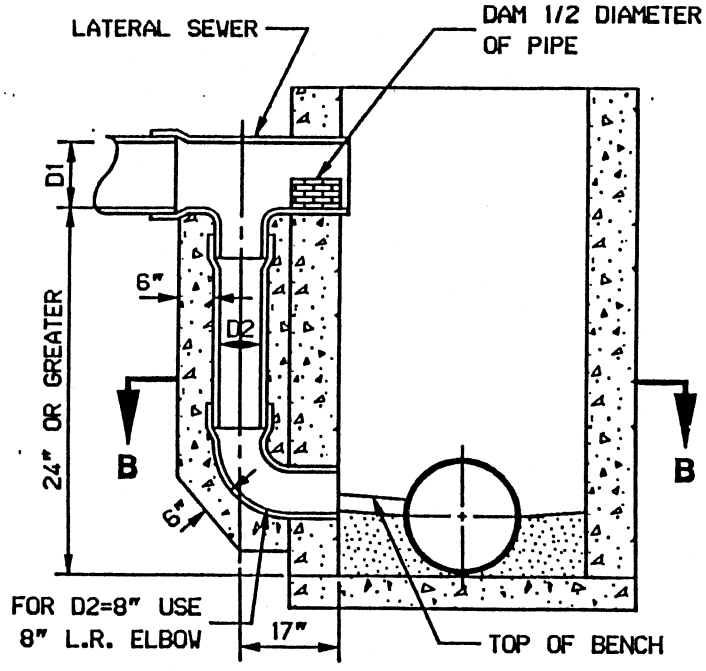
DIVISION X DRAWING NO. 2

VILLAGE OF FOREST PARK

SANITARY SEWER SYSTEM SUPPLEMENTAL DETAILS



SECTION B-B



SECTION A-A

D1	6	8	10	12	15	18	21	24	INCHES
D2	8	8	8	8	10	12	15	18	INCHES

GENERAL NOTES:

1. DETAILS AND MATERIAL FOR DROP MANHOLE SAME AS FOR MANHOLE TYPE A OR B EXCEPT FOR LATERAL SEWER CONNECTION AS SHOWN.

2. ELBOW TO BE PLACED WITH CROWN ON LEVEL WITH CROWN OF OUTLET SEWER.

EDWIN HANCOCK ENGINEERING COMPANY

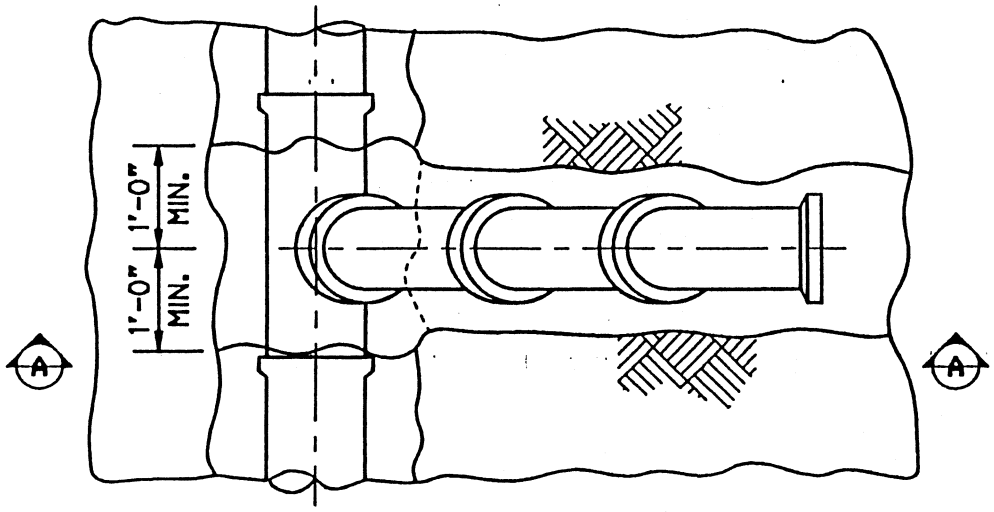
By: O.C.
Date: 2/20/1998
Revised:

DROP MANHOLE SECTION

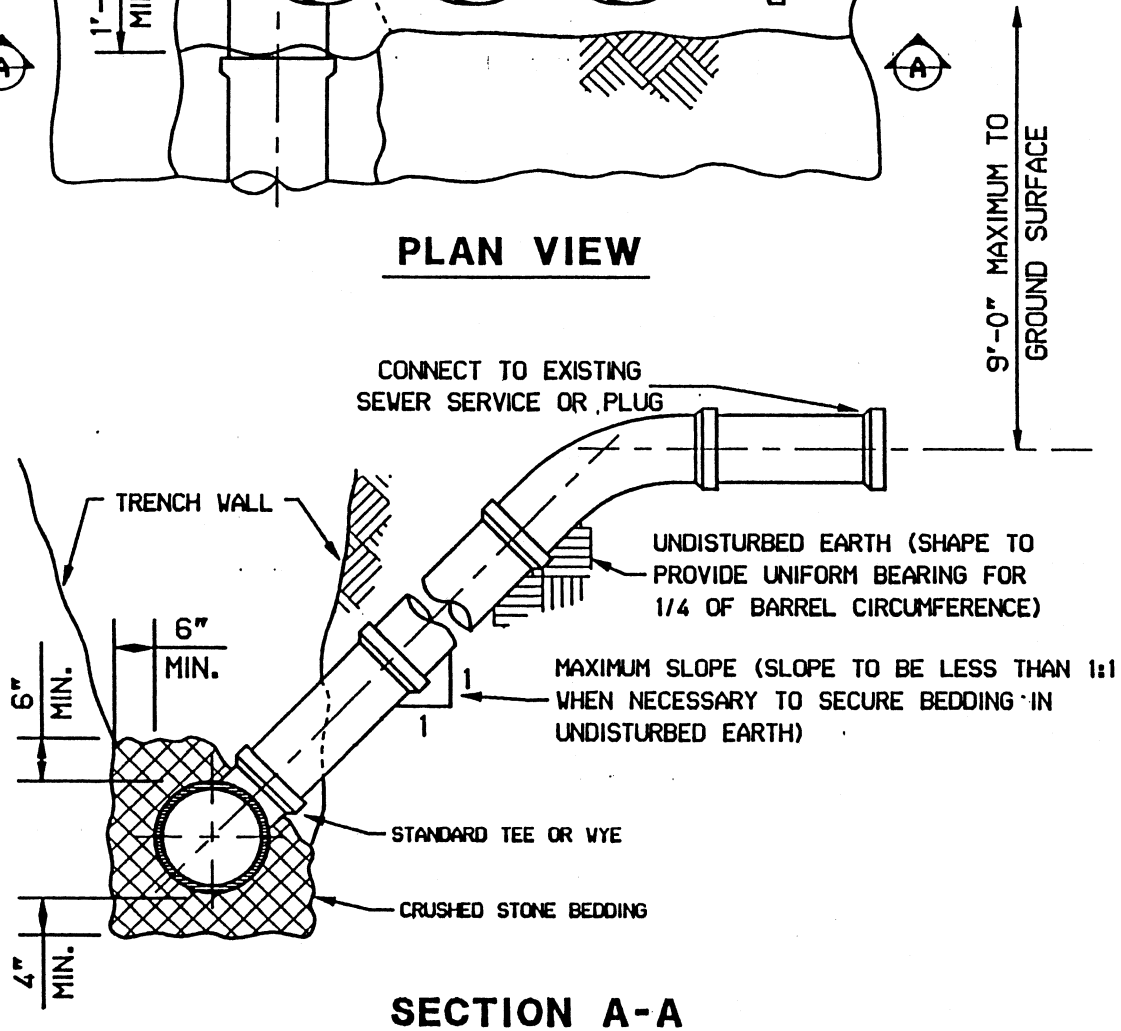
DIVISION X DRAWING NO. 3

VILLAGE OF FOREST PARK

SANITARY SEWER SYSTEM SUPPLEMENTAL DETAILS



PLAN VIEW

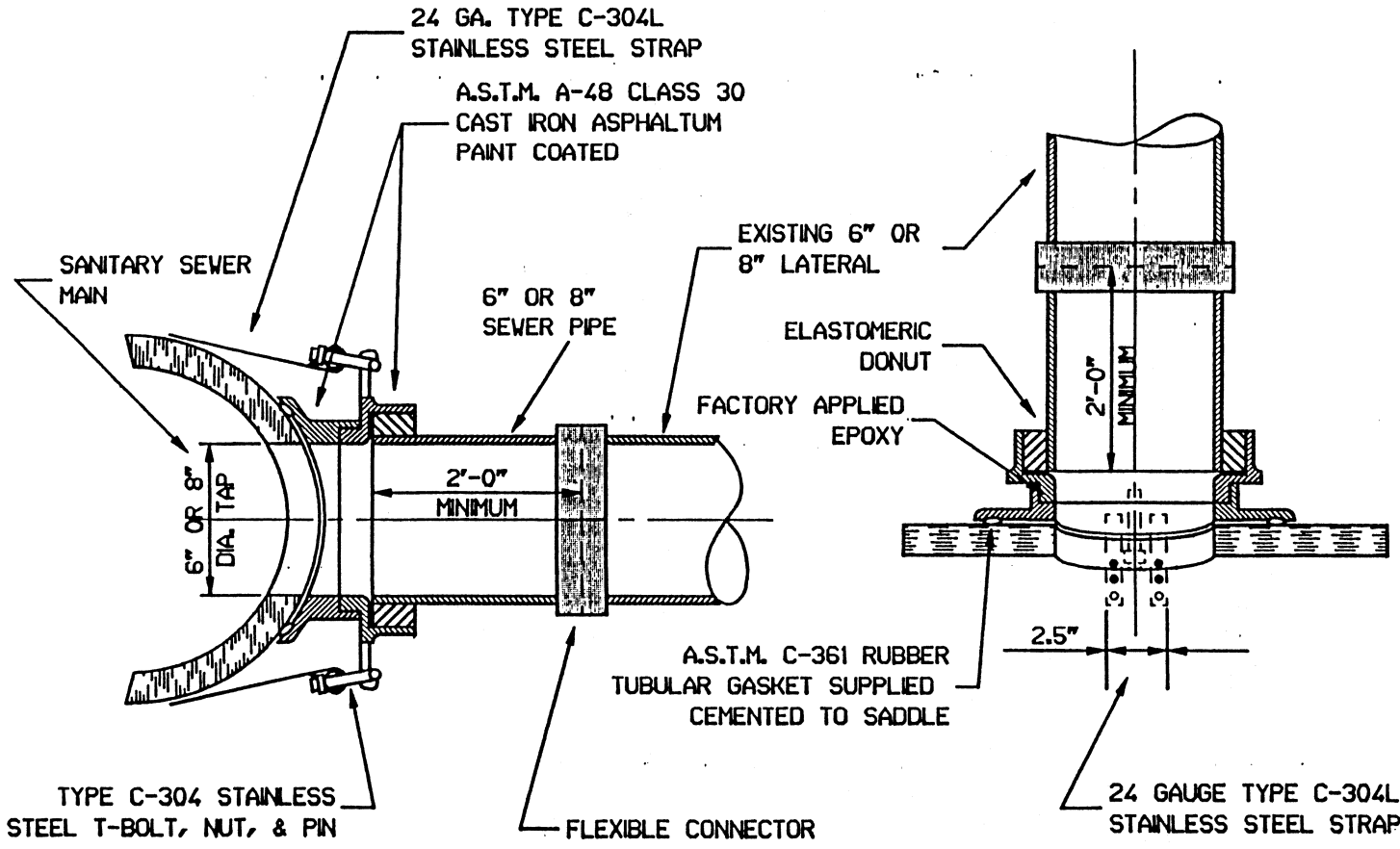


SECTION A-A

GENERAL NOTES:

1. TEE RISERS TO BE CONSTRUCTED WHERE SEWER DEPTH EXCEEDS 12'-0".
2. FLOW LINE DEPTH OF SEWER SERVICE AT BUILDING LINE TO BE DETERMINED FROM GROUND FLOOR ELEVATION OF BUILDING.

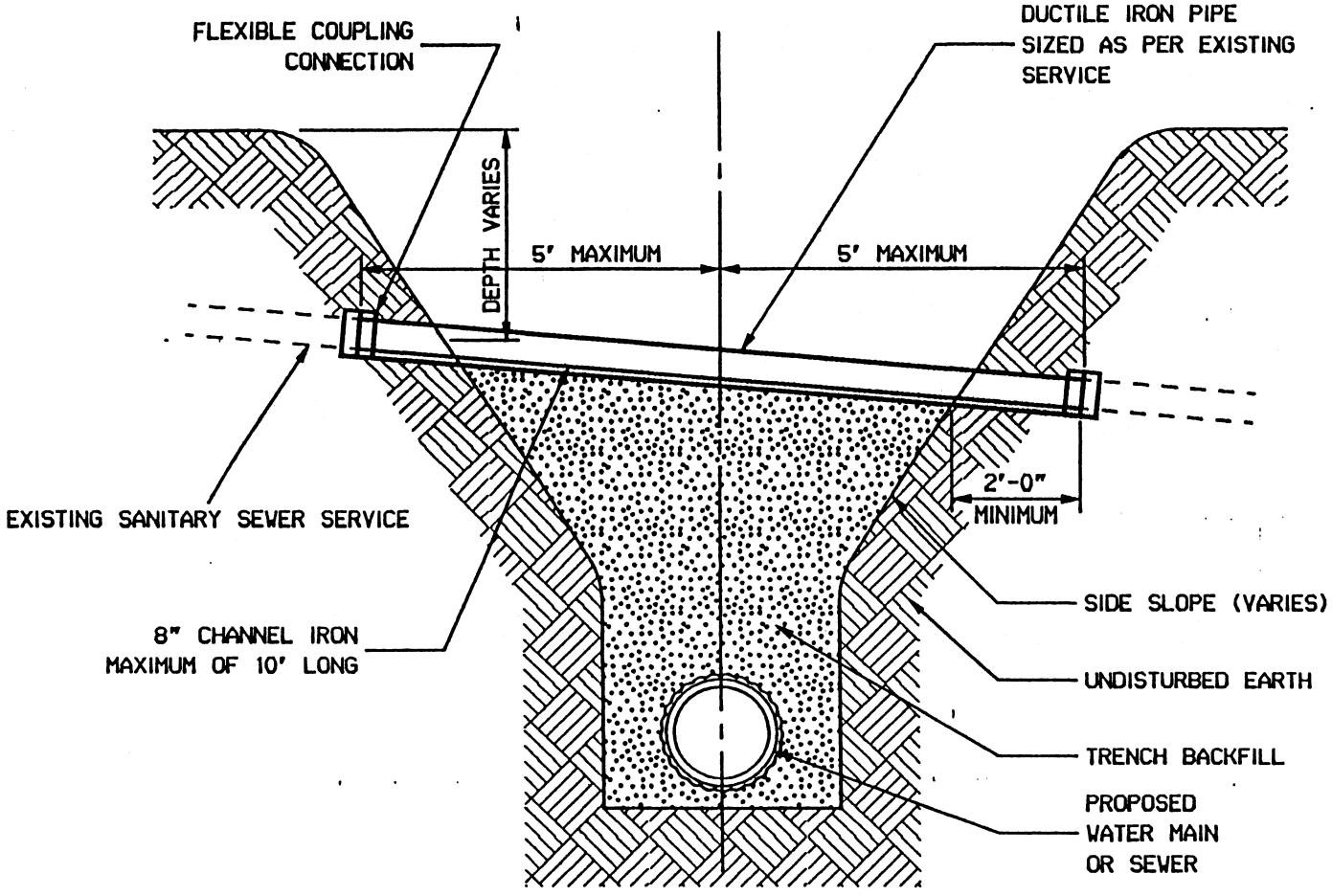
EDWIN HANCOCK ENGINEERING COMPANY By: O.C. Date: 2/20/1996 Revised:	SEWER SERVICE CONNECTION DIVISION X DRAWING NO. 4	VILLAGE OF FOREST PARK SANITARY SEWER SYSTEM SUPPLEMENTAL DETAILS



GENERAL NOTES:

1. TAP-IN SADDLES SHALL BE FACTORY MANUFACTURED AND SHOP DRAWINGS SUBMITTED FOR APPROVAL BY THE VILLAGE.
2. CONNECTION INSTALLATION MUST BE APPROVED BY THE VILLAGE PRIOR TO BACKFILLING.
3. CONNECTION TO BE MADE AT 45°(±) ANGLE.

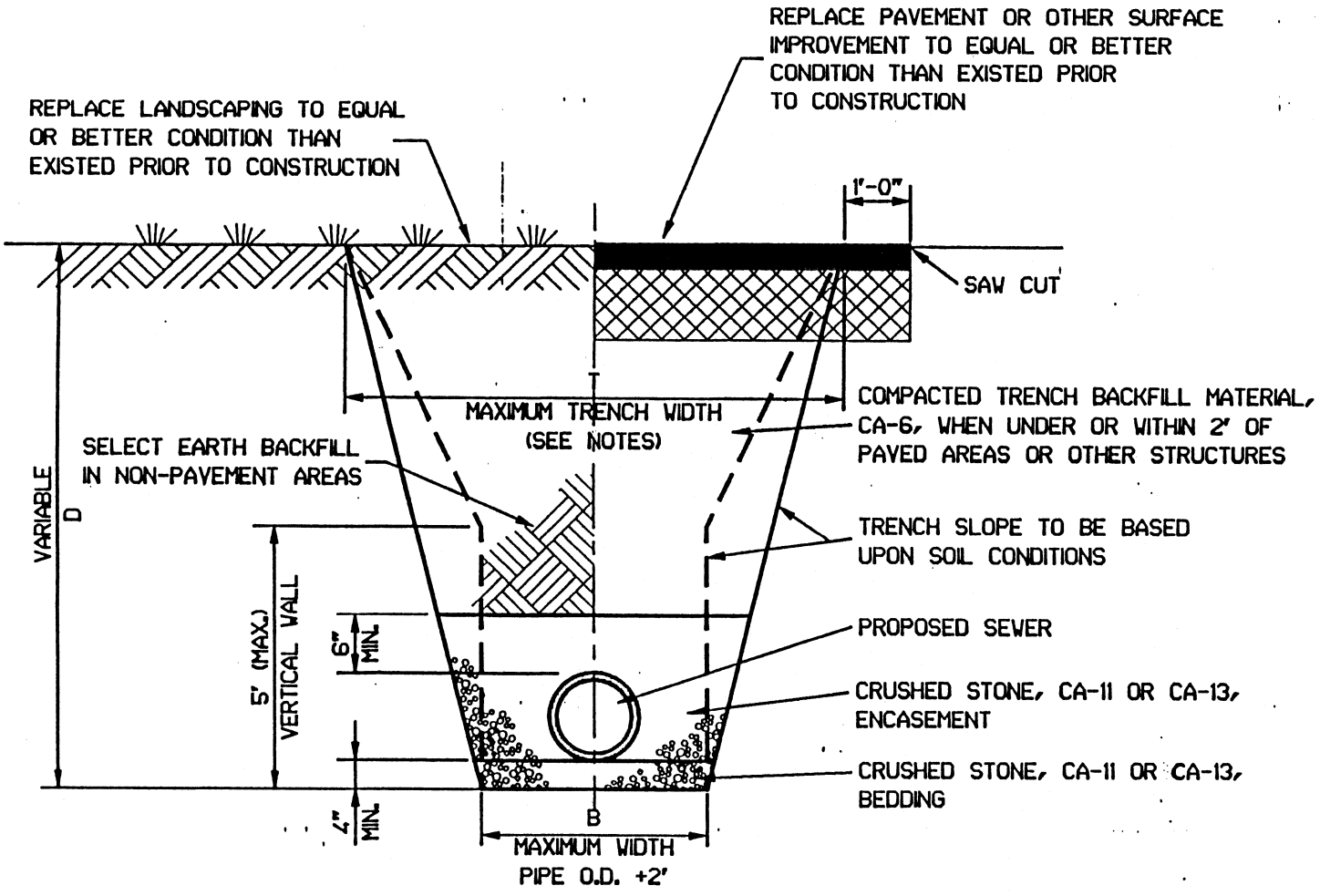
EDWIN HANCOCK ENGINEERING COMPANY By: O.C. Date: 2/20/1998 Revised:	**TAP-IN CONNECTION** DIVISION X DRAWING NO. 5	**VILLAGE OF FOREST PARK** **SANITARY SEWER SYSTEM SUPPLEMENTAL DETAILS**



GENERAL NOTES:

1. DUCTILE IRON PIPE TO BE CONTINUOUS (NO JOINTS).
2. FLEXIBLE COUPLINGS SHALL MEET ASTM C923 SPECS.

EDWIN HANCOCK ENGINEERING COMPANY By: O.C. Date: 2/20/1998 Revised:	**SEWER SERVICE REPLACEMENT** DIVISION X DRAWING NO. 6	**VILLAGE OF FOREST PARK** **SANITARY SEWER SYSTEM SUPPLEMENTAL DETAILS**



GENERAL NOTES:

1. OSHA REQUIREMENTS SHALL BE FOLLOWED FOR ALL TRENCH EXCAVATION.
2. BACKFILL MATERIALS TO BE COMPACTED TO OBTAIN MAXIMUM DENSITY (MINIMUM TO BE 95% DRY DENSITY).
3. MAXIMUM WIDTH OF BOTTOM OF TRENCH TO BE TWO FEET (2') PLUS OUTSIDE DIAMETER (O.D.) OF PIPE.
4. MAXIMUM WIDTH OF TOP OF TRENCH TO BE BASED UPON SOIL CONDITIONS. CONTRACTOR SHALL USE TRENCH SHORING BOARDS OR "BOX" TO KEEP TRENCH WIDTH AT ALLOWABLE SAFE MINIMUM.

MAXIMUM TRENCH AREA FOR TRENCH BACKFILL MATERIAL PAYMENT		
D (DEPTH)	B (BOTTOM)	T (TOP)
5' OR LESS	PIPE O.D. +2'	PIPE O.D. +2'
OVER 5'	PIPE O.D. +2'	PIPE O.D. +4'

EDWIN HANCOCK ENGINEERING COMPANY

By: O.C.

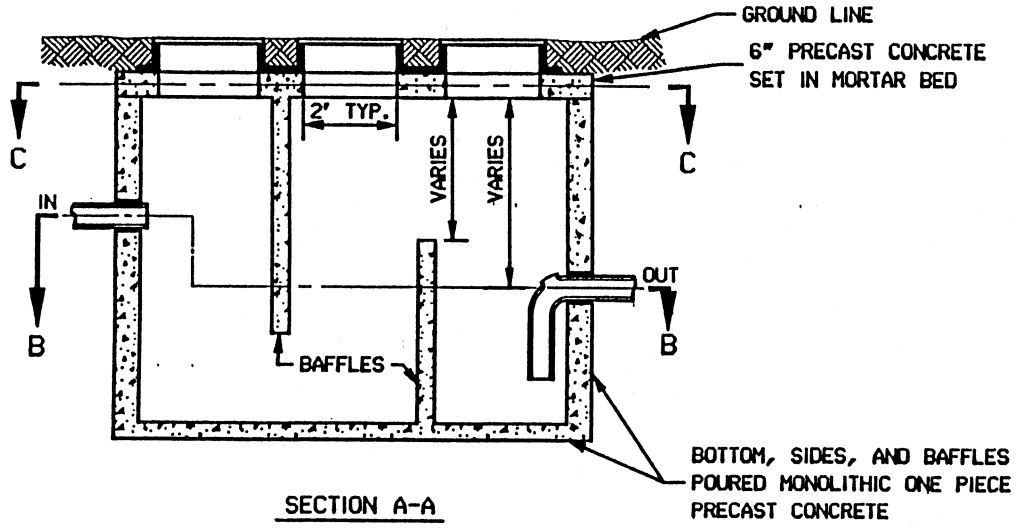
Date: 2/20/1996

SEWER TRENCH DETAIL

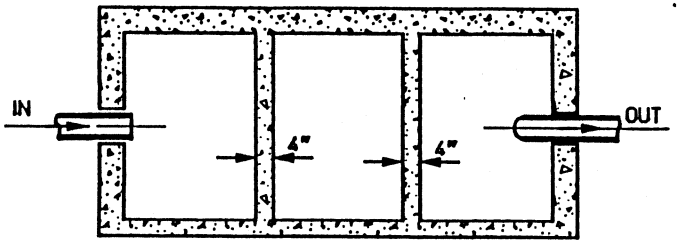
DIVISION X DRAWING NO. 7

VILLAGE OF FOREST PARK

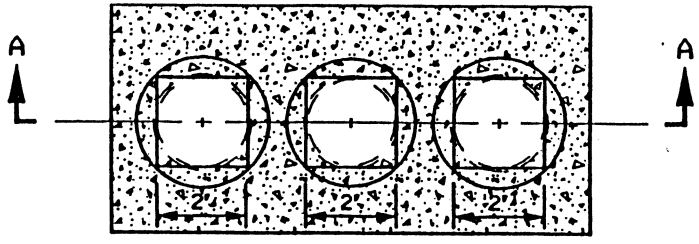
SANITARY SEWER SYSTEM SUPPLEMENTAL DETAILS



SECTION A-A



SECTION B-B



PLAN & SECTION C-C

GENERAL NOTES:

1. MANHOLE FRAMES TO BE NEENAH R-1712 WITH SELF-SEALING LID.

2. MINIMUM WET STORAGE CAPACITY SHALL BE 900 GALLONS.

EDWIN HANCOCK ENGINEERING COMPANY By: O.C. Date: 2/20/1996 Revised:	**GREASE SEPARATOR** DIVISION X DRAWING NO. 8	**VILLAGE OF FOREST PARK** **SANITARY SEWER SYSTEM SUPPLEMENTAL DETAILS**

MWRDGC GENERAL NOTES

1. THE MWRD SEWER PERMIT SECTION MUST BE NOTIFIED AT LEAST TWO (2) WORKING DAYS PRIOR TO THE COMMENCEMENT OF WORK. (CALL 1-708-222-4055).
2. THE EDWIN HANCOCK ENGINEERING COMPANY IS TO BE NOTIFIED AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION (CALL 1-708-865-0300).
3. ALL SEWER CONSTRUCTION SHALL CONFORM WITH THE APPROVED PERMIT PLANS UNLESS THE MWRD HAS APPROVED REVISIONS.
4. BY ADDING 000.00 TO ANY ELEVATION ON THE PLANS WILL GIVE THE EQUIVALENT U.S.G.S. ELEVATION. (U.S.G.S. DATUM IS 000.00 FEET BELOW PROJECT PLAN DATUM.)
5. ALL FLOOR DRAINS SHALL DISCHARGE TO THE SANITARY SEWER.
6. ALL DOWNSPOUTS AND FOOTING DRAINS SHALL DISCHARGE INTO THE STORM WATER DRAINAGE SYSTEM.
7. ALL PVC TRUSS SANITARY SEWER PIPE AND JOINTS SHALL CONFORM TO ASTM D-2680.
8. ALL PVC SANITARY SEWER PIPE JOINTS SHALL CONFORM TO ASTM D-2855, SOLVENT CEMENT, OR ASTM D-3212, GASKET, AND THE PIPE SHALL CONFORM TO ASTM D-3034.
9. ALL VITRIFIED CLAY TILE SANITARY SEWER PIPE JOINTS SHALL CONFORM TO ASTM C-425 SPECIFICATIONS AND THE PIPE SHALL CONFORM TO ASTM C-700 SPECIFICATIONS.
10. ALL DUCTILE IRON SANITARY SEWER PIPE JOINTS SHALL CONFORM TO ANSI A21.11 SPECIFICATIONS AND THE PIPE SHALL CONFORM TO ANSI A21.51 SPECIFICATIONS.
11. ALL CAST IRON SANITARY SEWER PIPE JOINTS SHALL CONFORM TO ANSI A21.11 SPECIFICATIONS AND THE PIPE SHALL CONFORM TO ANSI A21.6 SPECIFICATIONS.
12. ALL CONCRETE SANITARY SEWER PIPE JOINTS SHALL CONFORM TO ASTM C-443 SPECIFICATIONS AND THE PIPE SHALL CONFORM TO ASTM C-76 SPECIFICATIONS.
13. ALL ABS TRUSS SANITARY SEWER PIPE AND JOINTS SHALL CONFORM TO ASTM D-2680.
14. ALL ABS SOLID WALL SANITARY SEWER PIPE AND JOINTS SHALL CONFORM TO ASTM D-2751.
15. SANITARY SEWER CONSTRUCTION AND ALL SEWER CONSTRUCTION IN COMBINED SEWER AREAS REQUIRE STONE BEDDING 1/4" TO 1" IN SIZE, WITH A MINIMUM THICKNESS EQUAL TO 1/4TH THE OUTSIDE DIAMETER OF THE SEWER PIPE, BUT NOT LESS THAN 4 INCHES (CA-11 OR CA-13). THIS BEDDING MATERIAL SHALL EXTEND 2 INCHES ABOVE THE TOP OF PIPE WHEN USING PVC PIPE.
16. "BAND SEAL" OR SIMILAR COUPLINGS SHALL BE USED IN THE CONNECTION OF SEWER PIPE OF DISSIMILAR MATERIALS.
17. ALL EXISTING SEPTIC TANKS SHALL BE ABANDONED. ABANDONED TANKS SHALL EITHER BE FILLED WITH DIRT OR REMOVED.
18. OVERHEAD PLUMBING IS REQUIRED FOR ALL NEW BUILDINGS HAVING FLOOR SLABS BELOW GROUND LEVEL.
19. WHEN CONNECTING TO AN EXISTING SEWER MAIN BY MEANS OTHER THAN AN EXISTING WYE, TEE, OR AN EXISTING MANHOLE, ONE OF THE FOLLOWING METHODS SHALL BE USED:
    1) INSTALLATION OF A MANHOLE.
    2) CIRCULAR SAW-CUT OF SEWER MAIN BY PROPER TOOLS (SHEWER-TAP MACHINE OR SIMILAR), AND PROPER INSTALLATION OF HUB WYE SADDLE OR HUB TEE SADDLE, IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
    3) REMOVE AN ENTIRE SECTION OF PIPE AND REPLACE WITH A WYE OR TEE BRANCH SECTION. PIPE SECTION SHALL BE REMOVED BY BREAKING ONLY THE TOP OF ONE BELL. AFTER THE WYE OR TEE BRANCH IS INSERTED, CONCRETE SHALL BE PLACED OVER THE BROKEN AREA TO A MINIMUM THICKNESS OF 4" AND TO A DIMENSION OF 8" IN ALL DIRECTIONS.
    4) USING PIPE CUTTER, NEATLY AND ACCURATELY CUT OUT DESIRED LENGTH OF PIPE FOR INSERTION OF PROPER FITTING. USE "BAND SEAL" COUPLINGS, OR SIMILAR COUPLINGS, AND SHEAR RINGS AND CLAMPS TO FASTEN THE INSERTED FITTING AND HOLD IT FIRMLY IN PLACE. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR THE INSTALLATION.
20. WATER MAINS SHALL BE LOCATED AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED SANITARY OR STORM SEWER. WATER MAINS MAY BE LOCATED CLOSER THAN 10 FEET WHEN LOCAL CONDITIONS PREVENT A LATERAL SEPARATION OF 10 FEET AND THE WATER MAIN IS LAID IN A SEPARATE TRENCH OR IN THE SAME TRENCH WITH A VERTICAL SEPARATION OF 18 INCHES OR MORE FROM THE TOP OF THE SANITARY OR STORM SEWER TO THE BOTTOM OF THE WATER MAIN. WHEN THE CONDITIONS LISTED ABOVE CAN NOT BE MET, BOTH THE WATER MAIN AND SANITARY OR STORM SEWER PIPE MUST BE CONSTRUCTED TO MEET WATER MAIN STANDARDS.
21. WHENEVER A WATER MAIN CROSSES ABOVE A SANITARY OR STORM SEWER, THE MINIMUM VERTICAL DISTANCE FROM THE TOP OF THE SANITARY OR STORM SEWER TO THE BOTTOM OF THE WATER MAIN SHALL BE 18 INCHES. IF THIS VERTICAL SEPARATION CAN NOT BE MET , OR IF THE WATER MAIN CROSSES UNDER THE SANITARY OR STORM SEWER THEN EITHER
    1) THE SANITARY OR STORM SEWER SHALL BE DESIGNED AND CONSTRUCTED TO WATER MAIN STANDARDS.
    2) THE WATER MAIN OR SANITARY OR STORM SEWER LINE MAY BE ENCASED IN A WATERTIGHT CASING PIPE WHICH EXTENDS 10 FEET ON BOTH SIDES OF THE CROSSING MEASURED PERPENDICULAR TO THE WATER MAIN.
22. ALL CONSTUCTION SHALL BE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR SEWER AND WATER MAIN CONSTRUCTION IN ILLINOIS".
23. ALL SANITARY SEWER SERVICE STUBS TO BE PLUGGED WITH VITRIFIED CLAY PLUGS.
24. MAXIMUM ALLOWABLE RATE OF INFILTRATION SHALL NOT EXCEED 100 GALLONS PER 24 HOURS PER MILE PER INCH DIAMETER OF PIPE.

SEWERAGE SYSTEM PERMIT

METROPOLITAN WATER RECLAMATION DISTRICT
OF GREATER CHICAGO
100 EAST ERIE, CHICAGO, ILLINOIS
312-751-5600

MWRDGC Permit No. _____

INSTRUCTIONS FOR COMPLETING PERMIT FORM: Submit four typed copies of permit application (eight pages) and any required schedules listed below; do not leave any blank spaces; use "X" for checking applicable information. Also submit four copies of location map and plans. Submit two copies of specifications, if specifications are not part of the plan sheets. Address all correspondence to the Local Sewer Systems Section; for any inquiries or assistance, telephone (312)751-3260.

NAME AND LOCATION:

Name of project (as shown on plans): _____

Location of Project (street address or with respect to two major streets): _____

Municipality (Township, if unincorporated) _____

Section _____, Township _____ N, Range _____ E.

Is project in MWRDGC combined sewer area Yes ☐ No ☐

DOCUMENTS BEING SUBMITTED:

- ☐ Basic Information (Required in all cases) ..... Schedule A .....(Page 4 of 8)
- ☐ Sewer Summary (Required in all cases) ..... Schedule B.....(Page 5 of 8)
- ☒ Sewer Connections (Required in all cases) ..... Schedule C.....(page 6 of 8)
- ☐ Detention Facilities ..... Schedule D.....(2 pages)
- ☐ Lift Station and/or Force Main ..... Schedule E.....(1 page)
- ☒ Characteristics of Waste Discharges ..... Schedule F.....(1 page)
- ☐ Treatment or Pre-treatment Facilities ..... Schedule G.....(2 pages)
- ☐ Certification Relative to Compliance with Art. 4-1, 6-2d, and 6-3b ..... Schedule H.....(1 page)
- ☐ Affidavit Relative to Compliance with Art. 4-1, 6-2d, and 6-3b ..... Schedule J.....(1 page)
- ☐ Affidavit of Disclosure of Property Interest ..... Schedule K.....(2 pages)
- ☐ Notice of Requirements for Storm Water Detention ..... Schedule L.....(2 pages)
- ☐ Current Survey of Property Interests ..... Exhibit A

OTHER DOCUMENTS: Indicate title, number of pages and originator: _____

_____

NOTE: ATTACH FEE PAYMENT VOUCHER AND PAYMENT IF APPLICABLE

MWRDGC USE ONLY
Application received on: _____ Permit issued on: _____

GENERAL CONDITIONS OF THE PERMIT

1. Adequacy of Design. The schedules, plans, specifications and all other data and documents submitted for this permit are made a part hereof. The responsibility for the adequacy of the design shall rest solely with the Design Engineer and the issuing of this permit shall not relieve him of that responsibility. The issuance of this permit shall not be construed as approval of the concept or construction details of the proposed facilities and shall not absolve the Permittee, Co-Permittee or Design Engineer of their respective responsibilities.

2. Joint Construction and Operation Permits. Unless otherwise stated by the Special Conditions, the issuance of this permit shall be a joint construction and operation permit provided all General, Standard and Special Conditions are complied with.

3. Allowable Discharges. Discharges into the sanitary sewer system constructed under this permit shall consist of sanitary sewage only. Unless otherwise stated by the Special Conditions, there shall be no discharge of industrial wastes under this permit. Storm waters shall not be permitted to enter the sanitary sewer system. Without limiting the general prohibition of the previous sentence, roof and footing drains shall not be connected to the sanitary sewer system.

4. Construction Inspection. All sewer construction shall be inspected and approved by a Registered Professional Engineer acting on behalf of the Permittee or the owner of the project, or by a duly authorized and competent representative of the Professional Engineer. No sewer trenches shall be backfilled except as authorized by the Inspection Engineer after having inspected and approved the sewer installation.

5. Maintenance. The sewer connections, lines, systems or facilities constructed hereunder or serving the facilities constructed hereunder shall be properly maintained and operated at all times in accordance with all applicable requirements. It is understood that the responsibility for maintenance shall run as a joint and several obligation against the property served, the owner and/or the operator of the facilities, and said responsibility shall not be discharged nor in any way affected by change of ownership of said property.

MWRDGC STANDARD CONDITIONS

6. Indemnification. The Permittee shall be solely responsible for and shall defend, indemnify and save harmless the Metropolitan Water Reclamation District of Greater Chicago (hereinafter MWRDGC) from and against any and all claims, costs, damages, or expenses the MWRDGC may suffer, incur, sustain or become liable for on account of any injury to, or death of, any person or persons, or any damage to, or destruction of, any real or personal property that may be caused by the construction, use, state of repair; operation and maintenance of the proposed facilities, arising out of or in consequence of the issuance of this permit. Without limiting the generality of the preceding sentence, the provisions of this paragraph shall extend to indemnify and save harmless the MWRDGC from any claims or damages arising out of or in connection with the termination or revocation of this permit.

7. Construction by MWRDGC. Permittee understands and acknowledges that the MWRDGC has the right and power to construct and extend sewer service facilities and render such services within the area to be served by the project for which this permit is issued, and that by the MWRDGC constructing and extending such sewer service facilities and rendering such services, the facilities constructed by the Permittee under this permit may decrease in value, become useless or of no value whatsoever, the Permittee may also sustain a loss of business, income and profits.

Therefore, by accepting this permit and acting thereon, the Permittee, for itself, its successors and assigns, does remise, release and forever discharge the MWRDGC of any and all claims whatsoever which Permittee may now have or hereafter aquire and which Permittee's successors and assigns hereafter can, shall, or may have against the MWRDGC for all losses and damages, either direct or indirect, claimed to have been incurred by reason of the construction or extension at any time hereafter by the MWRDGC of sewer service facilities in the service area contemplated by this permit, the rendering of such services, which MWRDGC facilities and services decrease the value of the facilities constructed by the Permittee under this permit, make same useless or of no value whatsoever, including but not limited to, any and all damages arising under Illinois Revised Statutes, Chapter 42, Section 339; the taking of private property for public use without due compensation; the interference with the contracts of Permittee; the interference with Permittee's use and enjoyment of its land; and the decrease in value of Permittee's land.

8. Third Parties. This permit does not grant the right or authority to the Permittee: (a) to construct or encroach upon any lands of the MWRDGC or of any other parties, (b) to construct outside of the territorial boundaries of the MWRDGC, (c) to construct or encroach upon the territorial boundaries of any units of local government within the MWRDGC, (d) to connect to or discharge into or be served by (directly or indirectly) any sewer or sewer system owned or operated by third parties.

9. Costs. It is expressly stipulated and clearly understood that the sewerage system or facilities for which the permit is issued shall be constructed, operated and maintained at no cost to the MWRDGC.

10. Other Construction. The MWRDGC reserves the right, privilege and authority to permit others to reconstruct, change, alter and replace all sewers and appurtenances thereto at the point of connection of any sewerage system to an MWRDGC interceptor and/or in public right-of-ways of MWRDGC easements, and to introduce additional sewage flow through this connection into the intercepting sewer of said MWRDGC.

11. Change of Use. This permit shall be incorporated in the Building and Occupancy Permit for the building or buildings served under this permit. The owner or occupant of any building served under this permit shall not cause, or permit, a change of use of the building to a use other than that indicated in this permit without first having obtained a written permission from the General Superintendent of the MWRDGC.

12. Interceptors Overloading. The MWRDGC hereby serves notice that its interceptors may flow full and may surcharge, and flooding of the proposed system may occur. The Permittee agrees that the proposed systems shall be constructed, operated and maintained at the sole risk of the Permittee.

13. Non-Transferability. This permit may not be assigned or transferred without the written consent of the General Superintendent of the MWRDGC.

14. Termination. It is understood and agreed that in the event the Permittee shall default in or fail to perform and carry out any of the covenants, conditions and provisions of this permit and such default or violation shall continue for sixty (60) days after receipt or notice thereof in writing given by the General Superintendent of the MWRDGC, then it shall be lawful for the MWRDGC at or after the expiration of said sixty (60) days to declare said permit terminated. The Permittee agrees that immediately upon receipt of written notice of such termination it will stop all operations, discontinue any discharges and disconnect the sewerage system or facilities constructed under this permit. If the Permittee fails to do so, the MWRDGC shall have the right to disconnect said system. The Permittee hereby agrees to pay for any costs incurred by the MWRDGC for said disconnection. The various rights and remedies of the MWRDGC contained in this permit shall be construed as cumulative, and no one of them shall be construed as exclusive of any one or more of the others or exclusive of any other rights or remedies allowed by applicable rules, regulations, ordinances and laws. An election by the MWRDGC to enforce any one or more of its rights or remedies shall not be construed as a waiver of the rights of the MWRDGC to pursue any other rights or remedies provided under the terms and provisions of this permit or under any applicable rules, regulations, ordinances or laws.

15. Expiration. This permit shall expire if construction has not started within one (1) year from the date of issue. Construction under an expired permit is deemed construction without a permit. All construction under this permit shall be completed within two (2years) after start of construction. If conditions so warrant, an extension may be granted. For publicly financed projects (e.g. special assessments) the one (1) year period indicated will be considered from the date of final court action.

16. Revocation. In issuing this permit, the MWRDGC has relied upon the statements and representations made by the Permittee or his agent. Any incorrect statements or representations shall be cause for revocation of this permit, and all the rights of the Permittee hereunder shall immediately become null and void.

17. Advance Notice. Prior to commencement of construction under this permit, the Permittee shall give the MWRDGC an advance notice of at least two working days. When advance notice is given, the Permittee shall provide the permit number, municipality and location.

18. Compliance with Plans and Specifications. All construction shall be in accordance with the plans and specifications submitted for this permit and made a part hereof. No changes in, or deviation from the plans and specifications which affect capacity, maintenance, design requirements, service area or permit requirements shall be permitted unless revised plans shall have been submitted to, and approved by the MWRDGC. The permit together with a set of the plans and specifications (revised plans and specifications, if any) shall be kept on the job site at all times during construction until final inspection and approval by the MWRDGC.

19. Testing and Approval. All construction under this permit shall be subject to inspection, testing and approval by the MWRDGC. All testing shall be made, or caused to be made, by the Permittee at no cost to the the MWRDGC and in the presence of the MWRDGC representative. Upon satisfactory completion of construction, the Permittee and the owner shall submit, or cause to be submitted, a completion certificate and request for approval on the form prescribed by the MWRDGC. No sewer or other facilities shall be put in service until all the conditions of the permit have been satisfactorily met.

20. Record Drawings. Within sixty (60) days after final inspection and approval by the MWRDGC, the Permittee shall furnish, or cause to be furnished to the MWRDGC, a set of Record drawings, or a statement that the project was constructed in accordance with the original plans and specifications.

21. Compliance with Rules and Regulations. The Permittee hereby expressly assumes all responsibilities for meeting the requirements of all applicable rules, regulations, ordinances and laws of Local, State and Federal authorities. Issuance of this permit shall not constitute a waiver of any applicable requirements.

SCHEDULE A
BASIC INFORMATION

MWRDGC Permit No. ☐

1. NAME OF PROJECT _____
(as shown on plans)

2. APPURTENANCES (check all applicable items)

☐ Siphon ☐ Drop Manholes

☐ Stream Crossing ☐ Direct Connections to MWRDGC

3. RECEIVING SANITARY SEWER SYSTEM

A. System that project will connect to is:

☐ Existing ☐ Proposed/Under Construction—>MWRDGC Permit # _____

B. List owners of all sewers from project to MWRDGC interceptor _____

_____

4. EXISTING LIFT STATION

☐ No ☐ Yes—> Receiving system includes existing lift station

If Yes, indicate location _____

5. FLOOD PLAIN

Is any part of the project area in a flood plain?

☐ No ☐ Yes—> Percentage of area in flood plain _____ %

Flood crest elevation _____ Ft.

Identify any manholes in flood plain: _____

6. SIZE OF PROJECT

A. What is the size of this project? _____ acres

B. Total contiguous ownership, **including project** _____ acres

C. Existing impervious area within project _____ acres

D. New impervious area created within project _____ acres

7. DETENTION

A. Is detention provided under this permit?

☐ No ☐ Yes —> Detention required by: ☐ MWRDGC ☐ Other

B. Is project in the service area of existing detention reservoir?

☐ No ☐ Yes ——> MWRDGC Permit No. _____

SCHEDULE B
SEWER SUMMARY

MWRDGC Permit No. ____

COMPLETE IN ALL CASES

PROJECT NAME _____
(as shown on the plans)

1. **Sewer Summary,** including all building service sewers, stubs and risers:
   Include all sewers in combined sewer area
   Include all sanitary sewers in separate sewered area

Pipe Size in.							
Total length ft.							
Min. slope used -%							
Pipe Material *							
Total manholes							
Total cleanouts							

* Pipe material and joint specifications must be shown on plans. See Manual of Procedures for acceptable specifications.

2. **NATURE OF PROJECT** (Check all that apply)

- ☐ Project is publicly financed
- ☐ Sewer system serving a subdivision
- ☐ Off-site trunk sewer to serve subdivision
- ☐ Sewer extension to serve future development
- ☐ Storm sewers in combined sewer area
- ☐ Service connections to serve buildings (Schedule C)
- ☐ Other _____

3. **SEWER EXTENSIONS**
   If any part of the proposed project is designed to service future connections (not included in Schedule C), check yes below and submit service area map and estimate of population equivalent to be served.

☐ NO ☐ YES ——> ☐ Service area map

☐ P.E. estimate submitted

SCHEDULE C
SEWER CONNECTIONS

MWRDGC Permit No. _____

(FILL OUT ALL SECTIONS THAT APPLY)

1) BUILDING CONNECTION DATA

A) RESIDENTIAL BUILDINGS

☐ Single Family Total dwelling units * _____

Number of sewer connections * _____ PE** _____

☐ Multi Family Total dwelling units * _____

Number of sewer connections * _____ PE** _____

B) COMMERCIAL & RECREATIONAL BUILDINGS

☐ Number of sewer connections * _____ PE** _____

C) INDUSTRIAL BUILDINGS

☐ Number of sewer connections * _____ PE** _____

* Each sanitary line exiting a building is a connection
** Population Equivalent

2) BUILDING USE - (Check all that apply)

A) COMMERCIAL & RECREATIONAL

☐ Food preparation or processing (install grease separator)

☐ Auto service (install triple basin)

☐ Auto wash (install mud basin)

☐ Swimming pool (provide pool plans)

☐ Other _____

B) INDUSTRIAL BUILDINGS

☐ Sewer connections will receive domestic sewage only

☐ Industrial waste is produced

NOTE: If industrial waste is produced, submit Schedules F & G and plumbing plans along with flow diagram for pretreatment system.

ENGINEERING CERTIFICATIONS

MWRDGC Permit No. _____

CERTIFICATE BY DESIGN ENGINEER: I hereby certify that the project described herein has been designed in accordance with the requirements set forth in this application and all applicable ordinances, rules, regulations, Local, State and Federal Laws, and design criteria of the issuing authority; that the storm drainage and sanitary sewer system designed for this project are proper and adequate; that, where the design involves one or more connections to an existing local sewer system, the capacity of said system has been examined and the system is found to be adequate to transport the wastewater that will be added through the proposed sewer without violating any provisions of the Illinois Environmental Protection Act or the rules and regulations thereunder.

Comments, if any: _____

Engineering Firm: _____ Telephone:( ) _____

Address: _____ City: _____ Zip: _____

P.E. SEAL

Signature _____ Date: _____
(Name and Title)

CERTIFICATE BY MUNICIPAL OR SYSTEM ENGINEER: The application and the drawings, together with other data being submitted with this application, have been examined by me and are found to be in compliance with all applicable requirements. The manner of drainage is satisfactory and proper. The existing local sewer system to which the project discharges has been examined and the system is found to be adequate to transport the wastewater that will be added through the proposed sewer without violating any provisions of the Illinois Environmental Protection Act or the rules and regulations thereunder.

Comments, if any: _____

Owner of Local Sewer System: _____

Municipal Engineer: _____ Telephone: ( ) _____

Address: _____ City: _____ Zip: _____

P.E. SEAL

Signature _____ Date: _____
(Name and Title)

CERTIFICATE BY INSPECTION ENGINEER: I hereby certify that construction of the project will be in substantial compliance with the data and the plans submitted with this application; that approval will be obtained from the issuing authority prior to making any changes that would affect capacity, maintenance, design requirements, service area or the permit requirements; that a set of RECORD drawings, signed and sealed by the undersigned Engineer will be furnished to the MWRDGC within sixty (60) days after testing and approval by the District of the completed work.

Engineering Firm: _____ Telephone: ( ) _____

Address: _____ City: _____ Zip: _____

P.E. SEAL

Signature _____ Date: _____
(Name and Title)

SPECIAL CONDITIONS:

MWRDGC Permit No. _____

This permit is issued subject to the MWRDGC's General Conditions, Standard Conditions and the following Special Conditions:

☐ NONE ☐ SEE ATTACHED SHEET

If permit is granted:

☐ Please return two copies of the permit to the Permittee ; or

☐ Please mail one copy to Permittee and one copy to the person designated below:

Name _____

Address _____

CERTIFICATE BY APPLICANTS: We have read and thoroughly understand the conditions and requirements of this permit application, and agree to conform to the permit conditions and other applicable requirements of the MWRDGC. It is understood that construction hereunder, after the permit is granted, shall constitute acceptance by the applicants of any Special Conditions that may be placed hereon by the MWRDGC. It is further understood that this application shall not constitute a permit until it is approved, signed and returned by the Chief Engineer of the MWRDGC.

Title to permit premises is held in a land trust: Yes ☐ No ☐

If yes, Co-Permittee shall be beneficiary with Power of Direction.

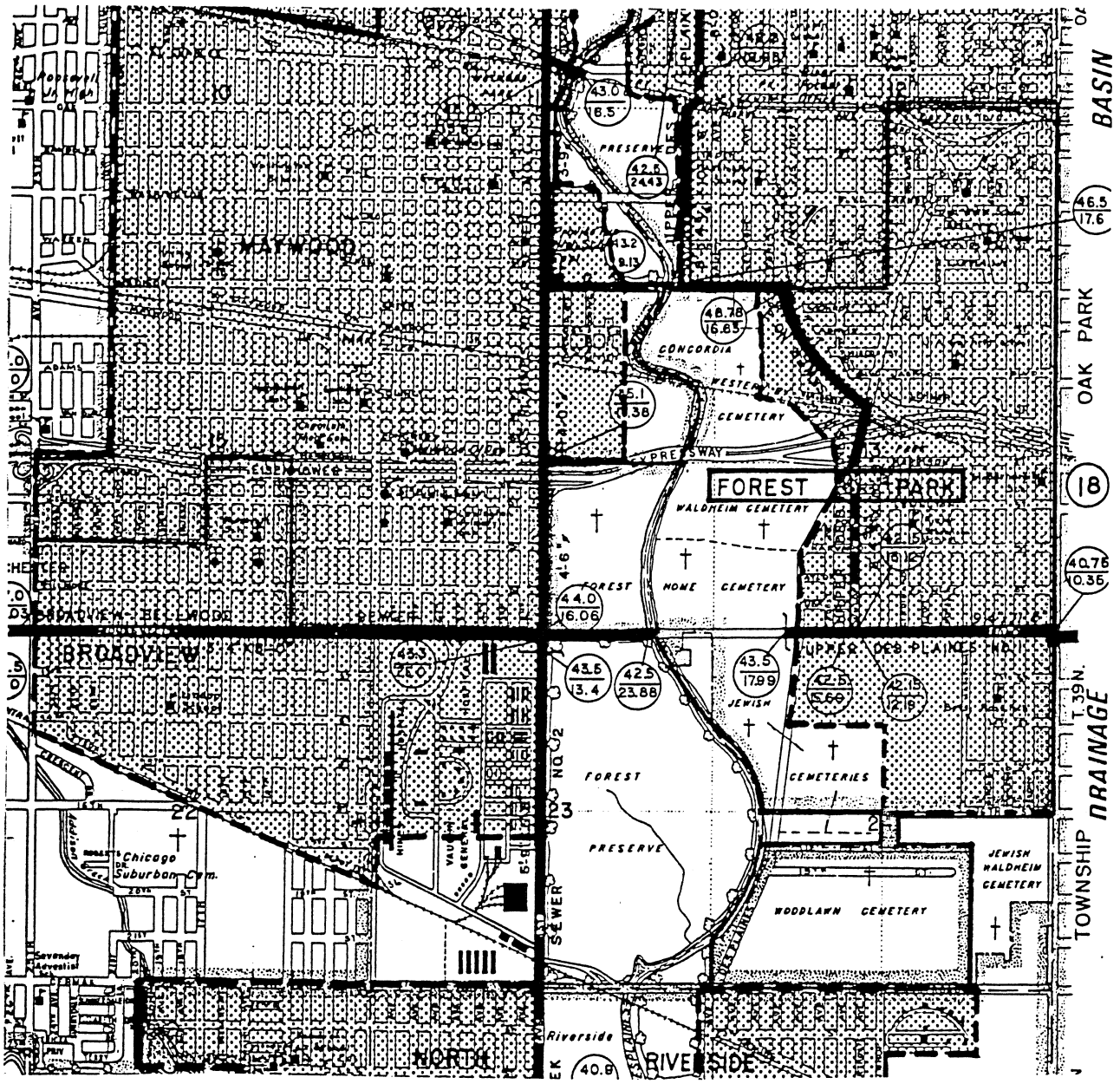
PERMITTEE	CO-PERMITTEE (Co-Permittee is Property Owner)
Municipality _____	Owner _____
Address _____	Address _____
_____ Zip _____	_____ Zip _____
Signature _____	Signature _____
Name _____ (Type or Print)	Name _____ (Type or Print)
Title _____	Title _____
Date _____ Phone _____	Date _____ Phone _____

REVIEW AND APPROVAL BY THE MWRDGC

Reviewed by: _____ Date _____
(Local Sewer Systems)

Approved for issue:

Date of Issue _____ By: _____
For the Chief Engineer



LEGEND

Latest MWRDGC Map Revision
March 1982

Combined Sewer Area

Separate Sewer Area

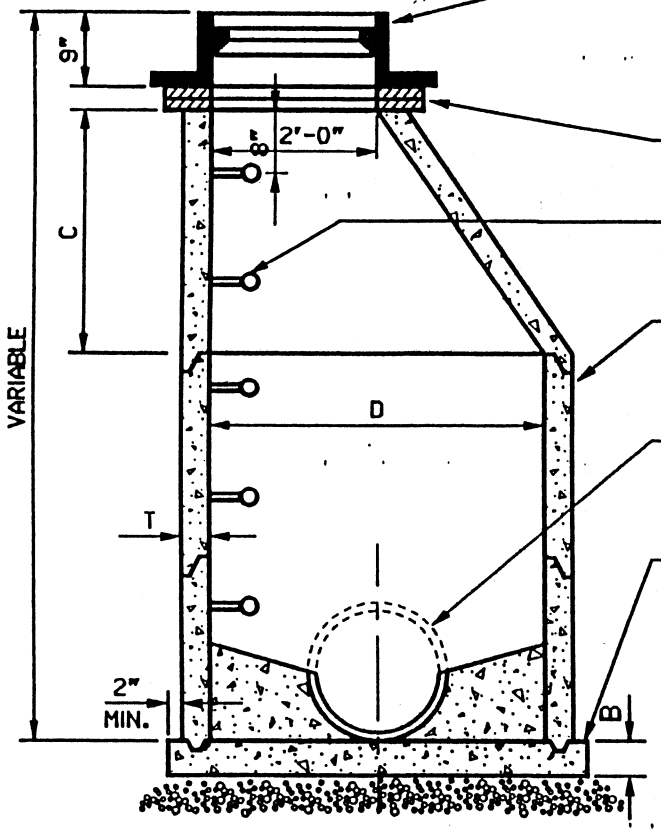
MWRDGC SEWER AREA CLASSIFICATION MAP
for
VILLAGE OF FOREST PARK

SUPPLEMENTAL DETAILS

DIVISION XI - STORM SEWER SYSTEM

The details shown in this Division are as follows:

DRAWING NUMBER	DETAIL
1.	Storm Sewer Manhole
2.	Catch Basin, Type A
3.	Catch Basin, Type C
4.	Inlet, Type A
5.	Typical Trench Detail
6.	Grating for Concrete Flared End Section



CAST IRON MANHOLE FRAME & LID, NEENAH FOUNDRY NO. R-1712 OR EQUAL. WEIGHT (FRAME & LID) 540#, WITH WORD "STORM" CAST INTO LID.

MINIMUM OF 2" AND MAXIMUM OF 6" OF PRECAST CONCRETE ADJUSTMENT RINGS

STEPS 16" O.C., M.A. INDUSTRIES, INC. PS-1 PF OR EQUAL

PRECAST REINFORCED CONCRETE SECTIONS FABRICATED IN ACCORDANCE WITH A.S.T.M. DESIG. C-478

REMOVE TOP HALF OF PIPE THROUGH MANHOLE, POUR CONCRETE BENCH AROUND LOWER HALF & SLOPE UPWARDS 3" TO SIDES

PRECAST REINFORCED CONCRETE SLAB FABRICATED IN ACCORDANCE WITH A.S.T.M. DESIG. C-478, WITH 4" TRENCH BACKFILL MATERIAL AS CUSHION

DIMENSIONS			
D	C	T(MIN.)	B
3'-0"	1'-3"	3"	6"
4'-0"	2'-6"	4"	6"
5'-0"	3'-9"	5"	8"

GENERAL NOTES:

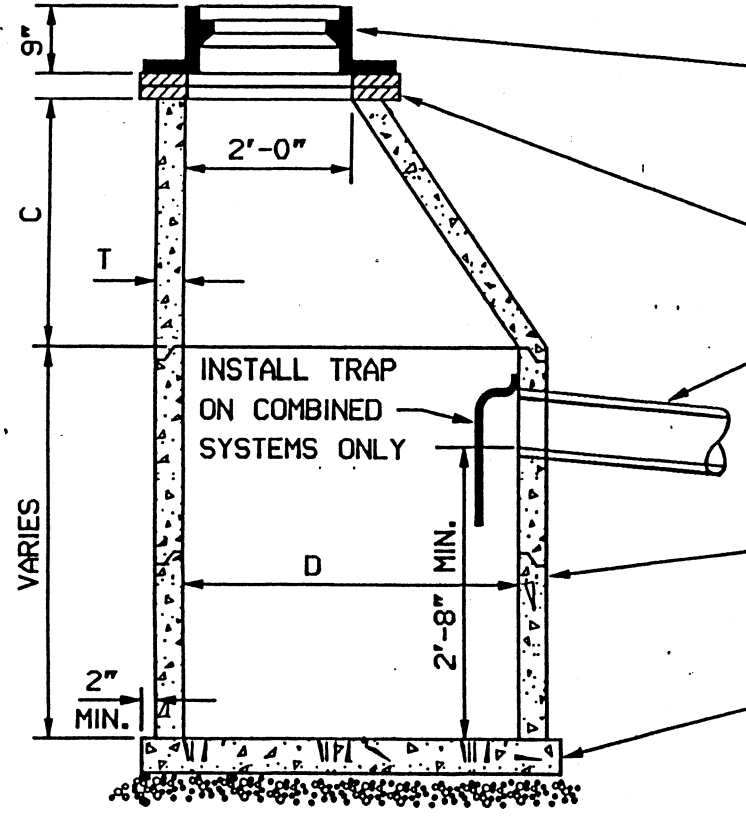
1. DIMENSION "C" FOR PRECAST SECTION MAY VARY ± 6".
2. CONE SECTIONS SHALL BE OFFSET TYPE.
3. PRECAST REINFORCED CONCRETE FLAT SLAB TOPS (IDOT STANDARD 2354-1) SHALL BE USED IN LIEU OF CONE SECTIONS WHEN MANHOLE DEPTHS ARE LESS THAN SIX FEET (6').
4. STEPS SHALL BE INSTALLED ALONG DOWNSTREAM SIDE OF MANHOLE WALL.

EDWIN HANCOCK ENGINEERING COMPANY
By: O.C.
Date: 2/20/1996
Revised:

STORM SEWER MANHOLE

DIVISION XI DRAWING NO. 1

VILLAGE OF FOREST PARK
STORM SEWER SYSTEM
SUPPLEMENTAL DETAILS



CAST IRON CATCH BASIN FRAME & GRATE, NEENAH FOUNDRY NO. R-2505 OR EQUAL. WEIGHT (FRAME & GRATE) 515#.

MINIMUM OF 2" AND MAXIMUM OF 6" OF PRECAST CONCRETE ADJUSTMENT RINGS

OUTLET PIPE (SIZE AND DEPTH VARIES)

PRECAST REINFORCED CONCRETE SECTIONS FABRICATED IN ACCORDANCE WITH A.S.T.M. DESIG. C-478

6" THICK PRECAST REINFORCED CONCRETE SLAB, WITH 4" TRENCH BACKFILL MATERIAL CUSHION

DIMENSIONS		
D	C	T(MIN.)
3'-0"	1'-3"	3"
4'-0"	2'-6"	4"

GENERAL NOTES:

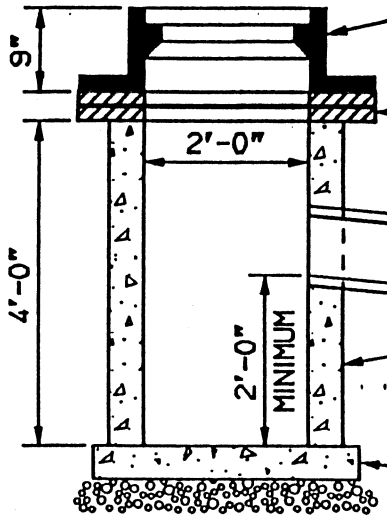
1. DIMENSION "C" FOR PRECAST SECTION MAY VARY ± 6".
2. CONE SECTIONS SHALL BE OFFSET TYPE.
3. PRECAST REINFORCED CONCRETE FLAT SLAB TOPS (IDOT STANDARD 2354-1) SHALL BE USED IN LIEU OF CONE SECTIONS WHEN CATCH BASIN DEPTHS ARE LESS THAN SIX FEET (6').
4. CATCH BASIN TRAPS TO BE NEENAH FOUNDRY NO. R-3701 OR EQUAL.
5. GRATE SHALL BE NEENAH FOUNDRY TYPE A OR EQUAL.

EDWIN HANCOCK ENGINEERING COMPANY
By: O.C.
Date: 2/20/1998
Revised:

CATCH BASIN, TYPE A

DIVISION XI DRAWING NO. 2

VILLAGE OF FOREST PARK
STORM SEWER SYSTEM
SUPPLEMENTAL DETAILS



CAST IRON CATCH BASIN FRAME AND GRATE, NEENAH FOUNDRY NO. R-2505 OR EQUAL WEIGHT 515# (FRAME AND GRATE)

MINIMUM 2" AND MAXIMUM OF 6" OF PRECAST REINFORCED CONCRETE GRADE RINGS

OUTLET PIPE (SIZE VARIES)

3" THICK PRECAST REINFORCED CONCRETE SECTION FABRICATED IN ACCORDANCE WITH A.S.T.M. DESIG. C-478

4" THICK PRECAST REINFORCED CONCRETE SLAB FABRICATED IN ACCORDANCE WITH A.S.T.M. DESIG. C-478, WITH 4" TRENCH BACKFILL MATERIAL AS CUSHION

GENERAL NOTES:

1. GRATE SHALL BE NEENAH FOUNDRY TYPE A OR EQUAL.
2. STRUCTURE MAY RECEIVE ONE (1) INLET PIPE ONLY.

EDWIN HANCOCK ENGINEERING COMPANY

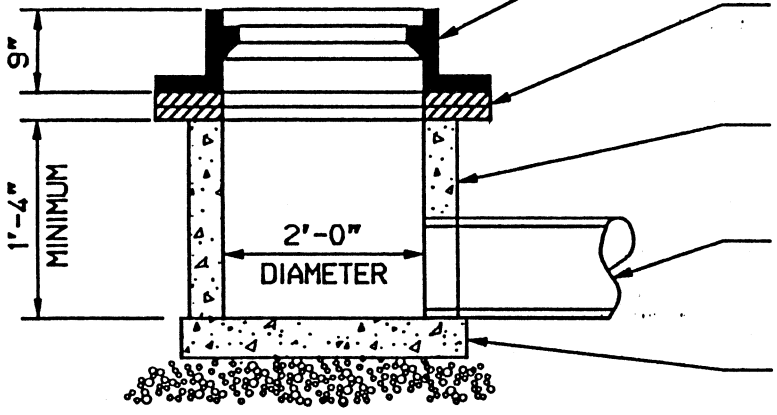
By: O.C.
Date: 2/20/1996
Revised:

CATCH BASIN, TYPE C

DIVISION XI DRAWING NO. 3

VILLAGE OF FOREST PARK

STORM SEWER SYSTEM SUPPLEMENTAL DETAILS



CAST IRON CATCH BASIN FRAME & GRATE, NEENAH FOUNDRY NO. R-2505 OR EQUAL. WEIGHT (FRAME & GRATE) 515#

MINIMUM OF 2" AND MAXIMUM OF 6" OF PRECAST CONCRETE ADJUSTMENT RINGS

3" THICK PRECAST REINFORCED CONCRETE SECTION FABRICATED IN ACCORDANCE WITH A.S.T.M. DESIG. C-478

OUTLET PIPE

4" THICK PRECAST REINFORCED CONCRETE SLAB FABRICATED IN ACCORDANCE WITH A.S.T.M. DESIG. C-478, WITH 4" TRENCH BACKFILL MATERIAL AS CUSHION

GENERAL NOTES:

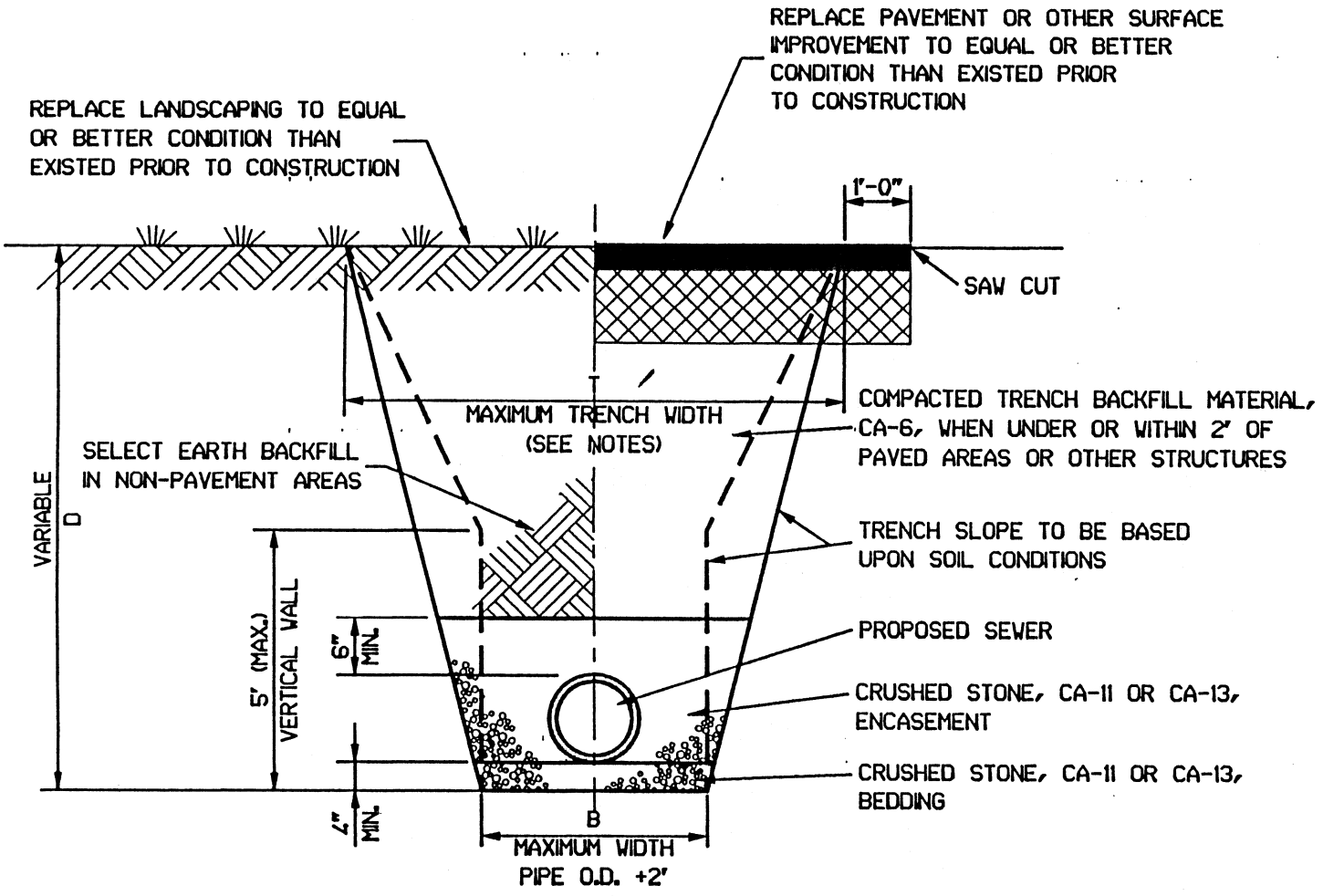
1. GRATE SHALL BE NEENAH FOUNDRY TYPE A OR EQUAL.
2. STRUCTURE SHALL HAVE NO INLET PIPE.

EDWIN HANCOCK ENGINEERING COMPANY
By: O.C.
Date: 2/20/1996
Revised:

INLET, TYPE A

DIVISION XI DRAWING NO. 4

VILLAGE OF FOREST PARK
STORM SEWER SYSTEM
SUPPLEMENTAL DETAILS



GENERAL NOTES:

1. OSHA REQUIREMENTS SHALL BE FOLLOWED FOR ALL TRENCH EXCAVATION.
2. BACKFILL MATERIALS TO BE COMPACTED TO OBTAIN MAXIMUM DENSITY (MINIMUM TO BE 95% DRY DENSITY).
3. MAXIMUM WIDTH OF BOTTOM OF TRENCH TO BE TWO FEET (2') PLUS OUTSIDE DIAMETER (O.D.) OF PIPE.
4. MAXIMUM WIDTH OF TOP OF TRENCH TO BE BASED UPON SOIL CONDITIONS. CONTRACTOR SHALL USE TRENCH SHORING BOARDS OR "BOX" TO KEEP TRENCH WIDTH AT ALLOWABLE SAFE MINIMUM.

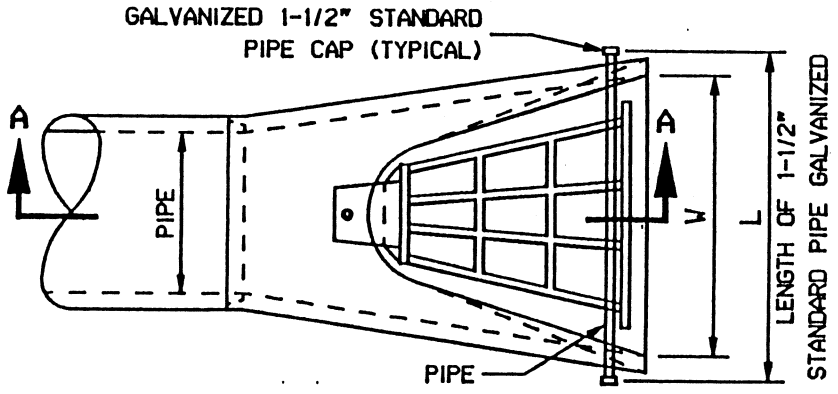
MAXIMUM TRENCH AREA FOR TRENCH BACKFILL MATERIAL PAYMENT		
D (DEPTH)	B (BOTTOM)	T (TOP)
5' OR LESS	PIPE O.D. +2'	PIPE O.D. +2'
OVER 5'	PIPE O.D. +2'	PIPE O.D. +4'

EDWIN HANCOCK ENGINEERING COMPANY
By: O.C.
Date: 2/20/1996
Revised:

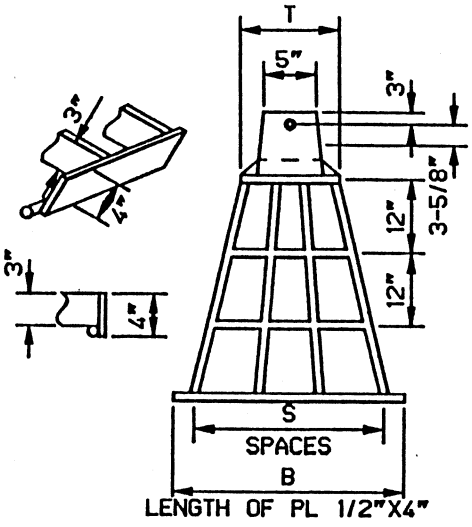
TYPICAL TRENCH DETAIL

DIVISION XI DRAWING NO. 5

VILLAGE OF FOREST PARK
STORM SEWER SYSTEM
SUPPLEMENTAL DETAILS



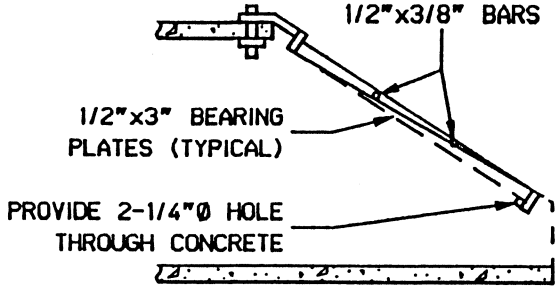
TOP VIEW



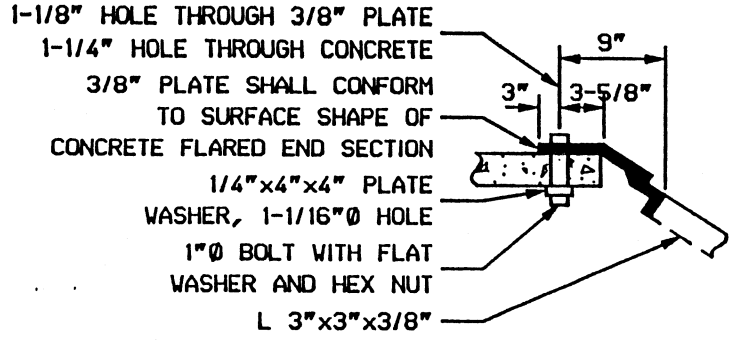
GRATING DETAIL

GENERAL NOTES:

1. GRATING TO BE INSTALLED ON FLARED END SECTIONS FOR STORM SEWERS, 24", 30", AND 36" IN DIAMETER.
2. ADDITIONAL DETAILS ARE SHOWN ON IDOT STANDARD 2364-3.



SECTION A-A



CONNECTION DETAIL

DIMENSIONS					
PIPE	W	L	B	T	S
24"	4'-0"	4'-10"	3'-6"	1'-5"	4@9"
30"	5'-0"	5'-10"	4'-6"	1'-7"	5@9"
36"	6'-0"	7'-0"	5'-4"	1'-9"	6@9"

EDWIN HANCOCK ENGINEERING COMPANY
By: O.C.
Date: 2/20/1996
Revised:

GRATING FOR CONCRETE
FLARED END SECTION DETAIL
DIVISION XI DRAWING NO. 6

VILLAGE OF FOREST PARK
STORM SEWER SYSTEM
SUPPLEMENTAL DETAILS

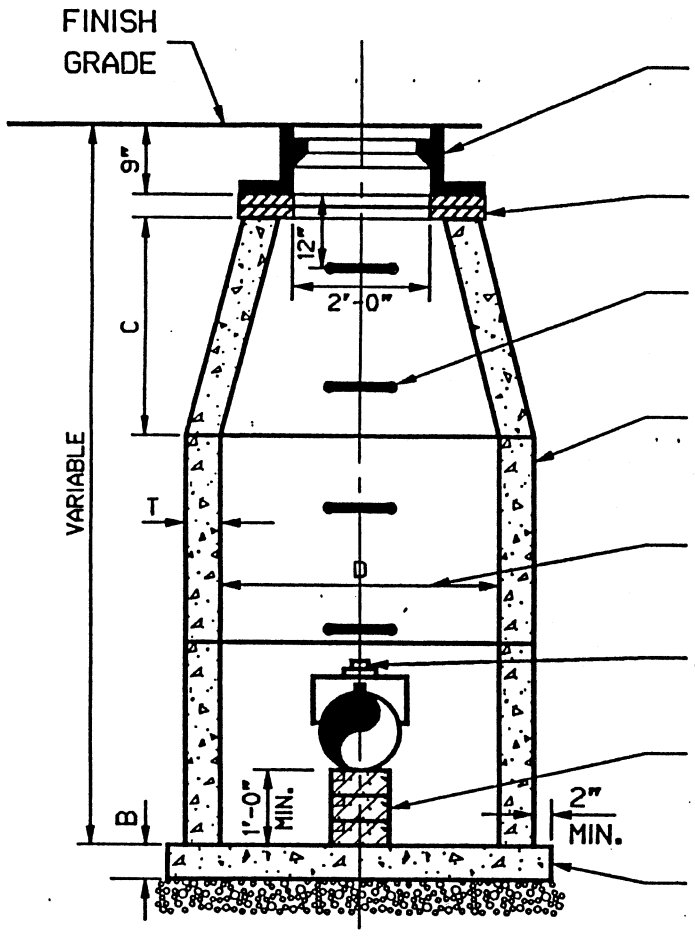
SUPPLEMENTAL DETAILS

DIVISION XII - WATER MAIN SYSTEM

Included with the water main system details is the Application for Construction Permit along with its Schedules A and B that must be submitted to the Division of Public Water Supplies of the Illinois Environmental Protection Agency for any extensions or other type improvements that are to be made to a public water supply system.

The details shown in this Division are as follows:

DRAWING NUMBER	DETAIL
1.	Valve Vault
2.	Pressure Connection Vault
3.	Fire Hydrant
4.	Fire Hydrant Information
5.	Valve Box
6.	Water Service
7.	Thrust Block
8.	Trench Detail
	Application for Construction Permit (IEPA)
	Schedule A
	Schedule B



CAST IRON MANHOLE FRAME & LID, NEENAH FOUNDRY NO. R-1712 OR EQUAL. WEIGHT (FRAME & LID) 540#, WITH WORD "WATER" CAST INTO LID

MINIMUM OF 2" AND MAXIMUM OF 6" OF CONCRETE ADJUSTMENT RINGS

STEPS 16" O.C., M.A. INDUSTRIES, INC. PS-1 PF OR EQUAL

PRECAST REINFORCED CONCRETE SECTIONS FABRICATED IN ACCORDANCE WITH A.S.T.M. DESIG. C-478.

VALVE VAULT DIAMETER SHALL BE 48" FOR 8" AND SMALLER VALVES AND 60" FOR 10" AND LARGER VALVES

ONE 3/4" OR 1" CORPORATION STOP, MUELLER H-15000 OR EQUAL, ON BOTH SIDES OF VALVE WITHIN VAULT; 2 PER VAULT

CONCRETE BLOCK SUPPORT

PRECAST REINFORCED CONCRETE SLAB FABRICATED IN ACCORDANCE WITH A.S.T.M. DESIG. C-478, WITH 4" TRENCH BACKFILL MATERIAL AS CUSHION

GENERAL NOTES:

1. DIMENSION "C" FOR PRECAST SECTION MAY VARY ± 6".
2. CONE SECTIONS SHALL BE OFFSET TYPE.
3. PRECAST REINFORCED CONCRETE FLAT SLAB TOPS (IDOT STANDARD 2354-1) MAY BE USED IN LIEU OF CONE SECTIONS.
4. CENTER OF FRAME TO BE DIRECTLY OVER VALVE UNIT.

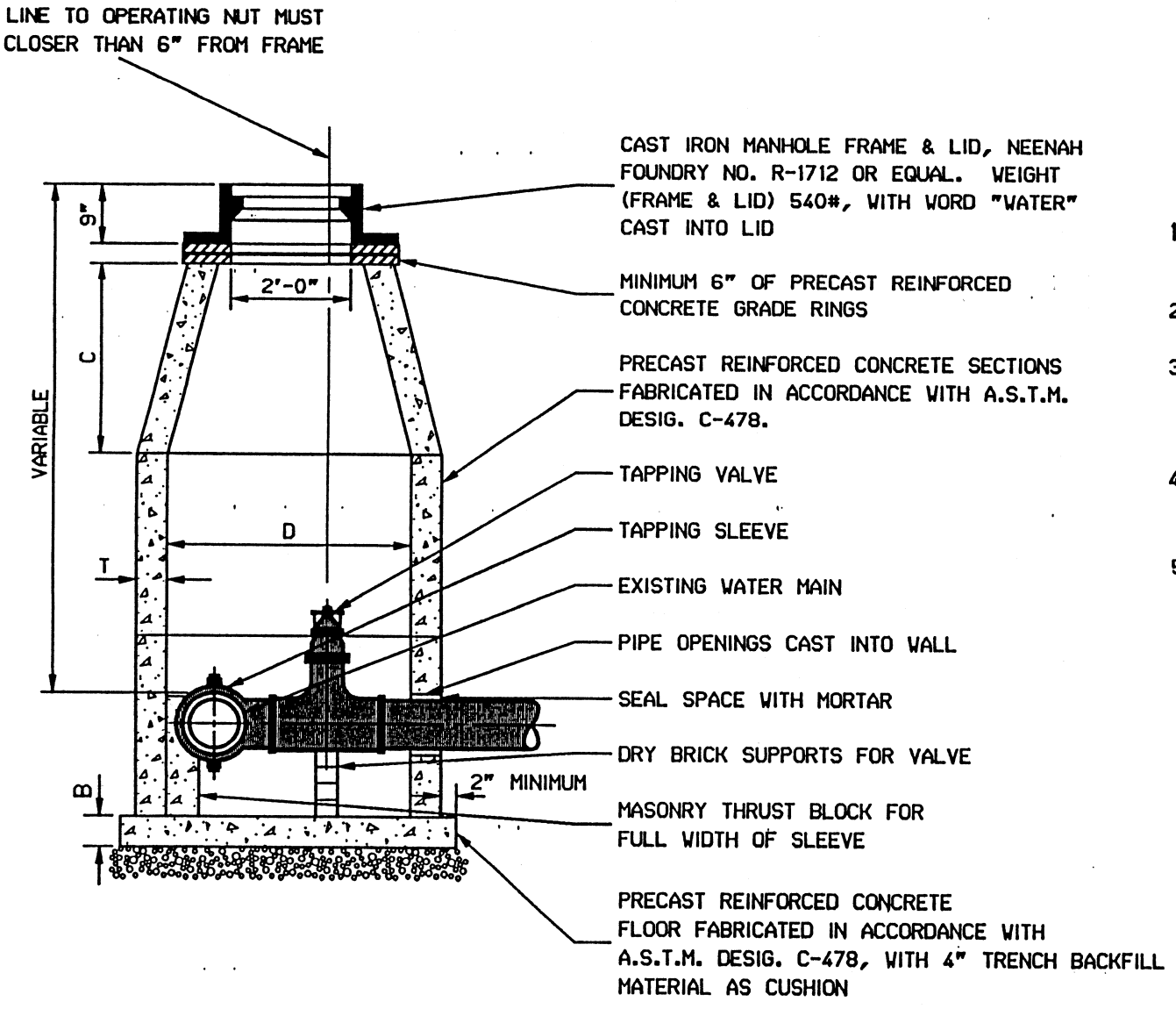
DIMENSIONS			
D	C	T(MIN.)	B
4'-0"	2'-6"	4"	6"
5'-0"	3'-9"	5"	8"

EDWIN HANCOCK ENGINEERING COMPANY
By: O.C.
Date: 2/20/1996
Revised:

VALVE VAULT DETAIL

DIVISION XII DRAWING NO. 1

VILLAGE OF FOREST PARK
WATER MAIN SYSTEM
SUPPLEMENTAL DETAILS



GENERAL NOTES:

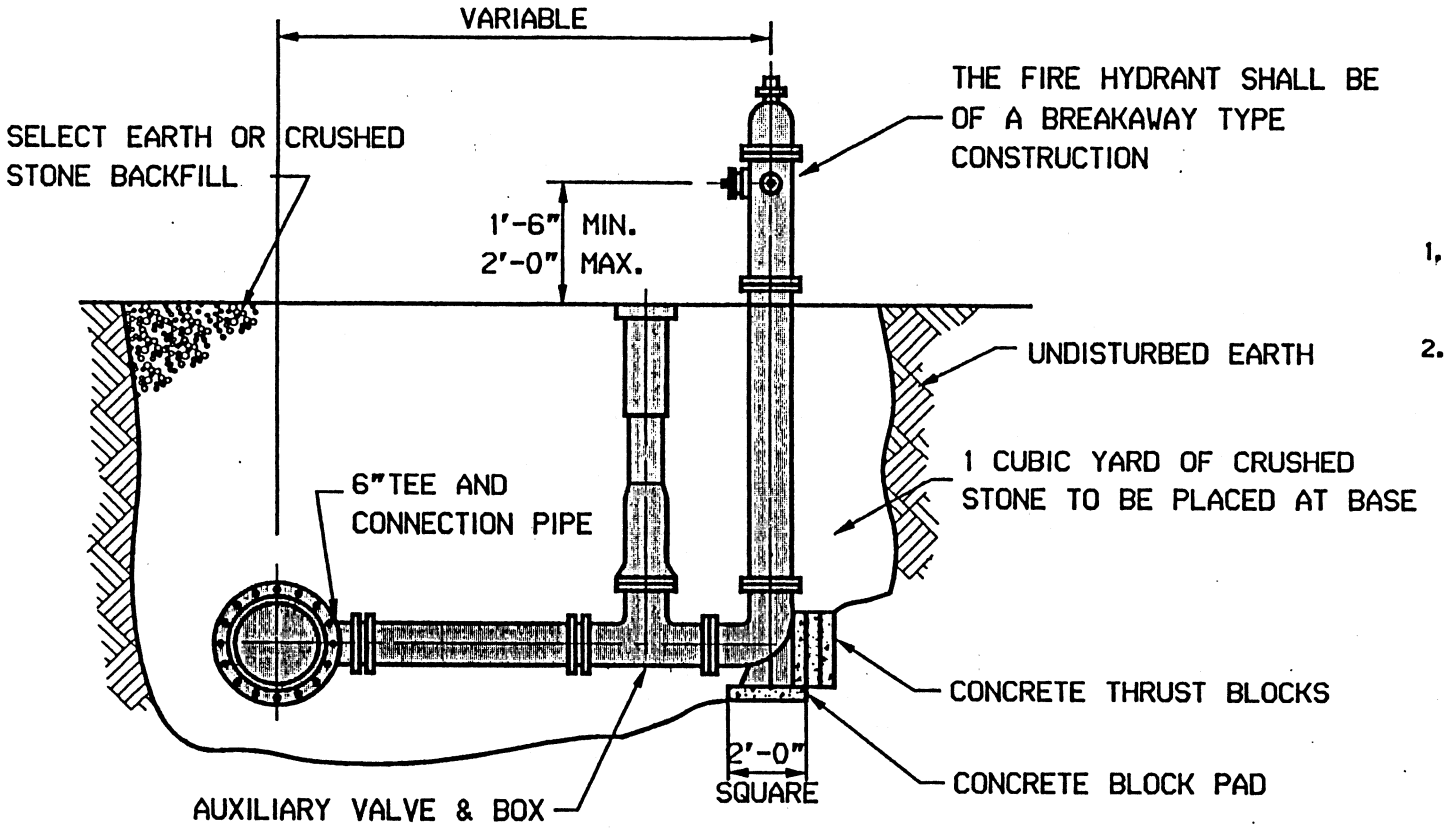
1. DIMENSION "C" FOR PRECAST SECTION MAY VARY ± 6".
2. CONE SECTIONS SHALL BE OFFSET TYPE.
3. PRECAST REINFORCED CONCRETE FLAT SLAB TOPS (IDOT STANDARD 2354-1) MAY BE USED IN LIEU OF CONE SECTIONS.
4. DIAMETER OF VAULT SHALL BE BASED UPON THE SIZE OF THE CONNECTION.
5. ALL FITTINGS SHALL BE REMOVABLE FROM WITHIN VAULT.

DIMENSIONS			
D	C	T(MIN.)	B
4'-0"	2'-6"	4"	6"
5'-0"	3'-9"	5"	8"

EDWIN HANCOCK ENGINEERING COMPANY
By: O.C.
Date: 2/20/1996
Revised:

PRESSURE CONNECTION VAULT DETAIL
DIVISION XII DRAWING NO. 2

VILLAGE OF FOREST PARK
WATER MAIN SYSTEM SUPPLEMENTAL DETAILS



GENERAL NOTES:

1. SEE DRAWING NO.4 FOR DETAILED HYDRANT INFORMATION.
2. HYDRANT TEES MAY BE USED IN RESTRICTED LOCATIONS.

EDWIN HANCOCK ENGINEERING COMPANY By: O.C. Date: 2/20/1998 Revised:	**FIRE HYDRANT DETAIL** DIVISION XII DRAWING NO. 3	**VILLAGE OF FOREST PARK** **WATER MAIN SYSTEM SUPPLEMENTAL DETAILS**

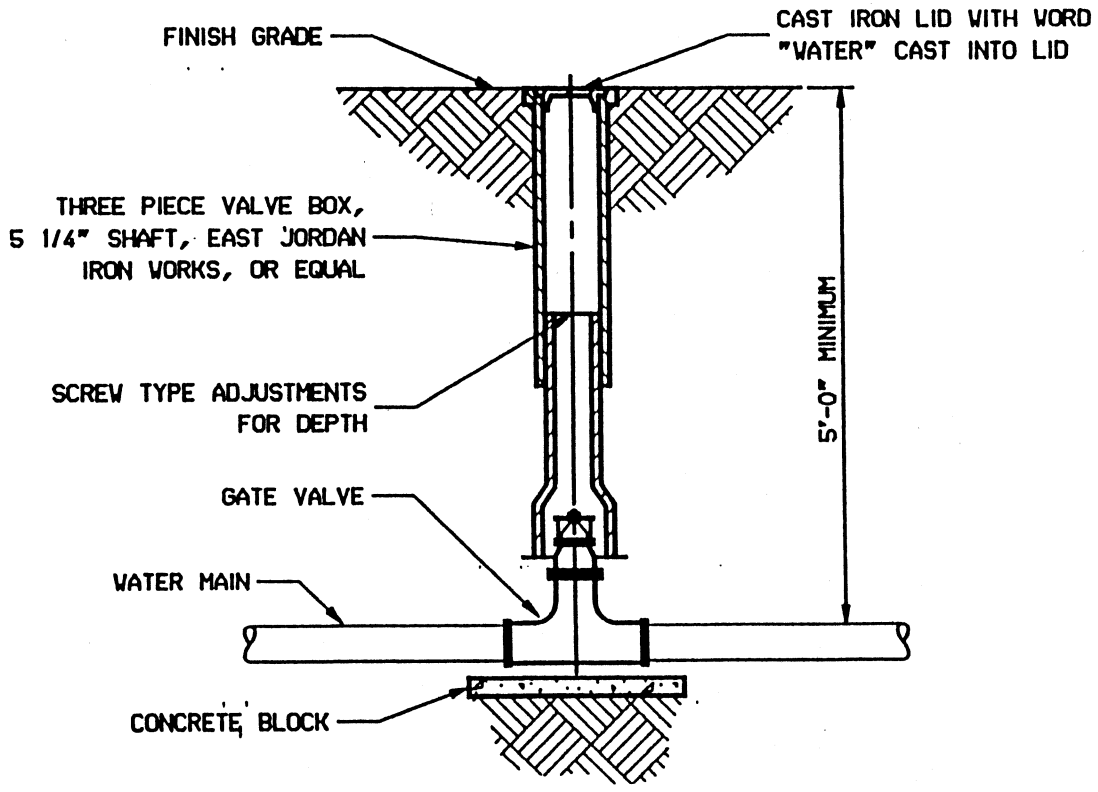
VILLAGE OF FOREST PARK WATER DEPARTMENT

HYDRANT MANUFACTURER	WATEROUS PACER WB-67	
CONSTRUCTION	BREAKAWAY	
MAIN VALVE OPENING	5 1/4"	
NUMBER OF 2 1/2" HOSE NOZZLES	TWO	
SIZE OF PUMPER NOZZLE	4"	
TYPE OF INLET CONNECTION	FLANGED WITH AUXILIARY VALVE	
SIZE OF INLET CONNECTION	6"	
DEPTH OF BURY	5'-6"	
DIRECTION OF OPENING	LEFT	
SIZE OF OPERATING NUT	1 1/2"	
HOSE AND PUMPER THREAD	NATIONAL STANDARD	
COLOR	YELLOW	
PACKING	CONVENTIONAL	

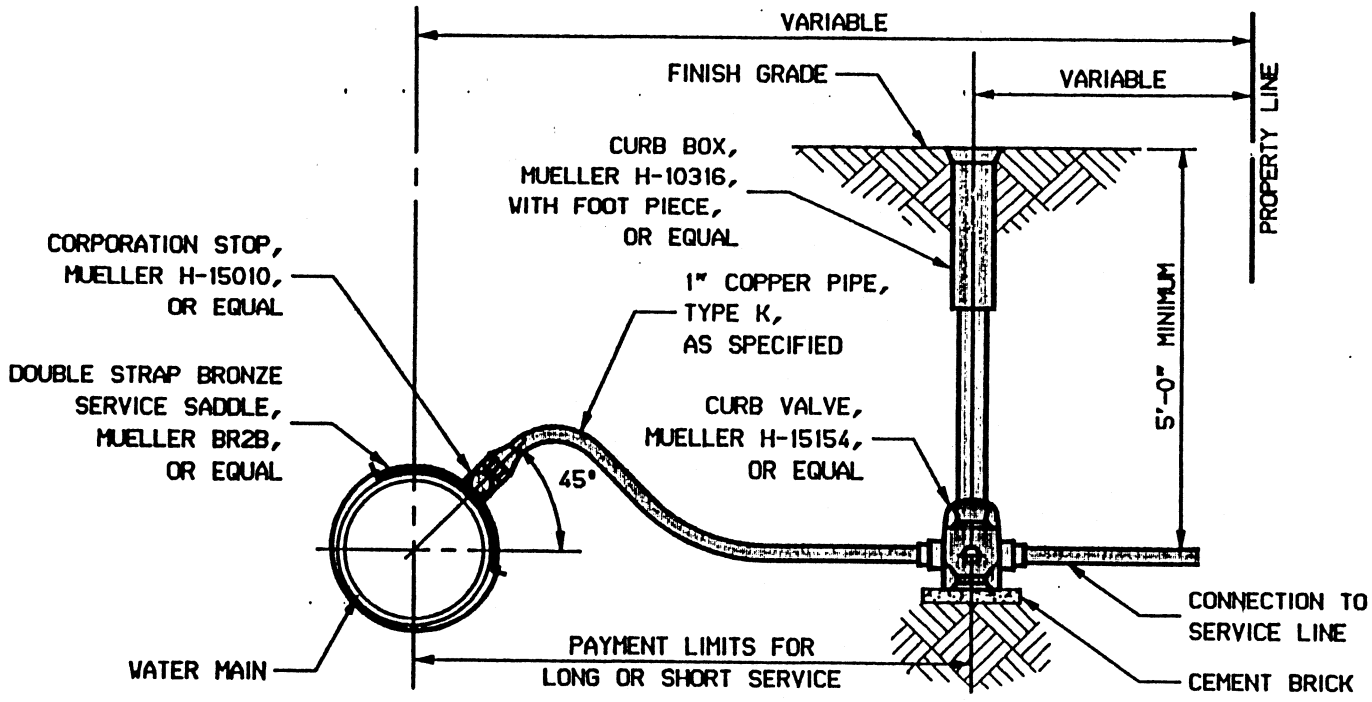
EDWIN HANCOCK ENGINEERING COMPANY
By: O.C.
Date: 2/20/1996
Revised:

FIRE HYDRANT INFORMATION
DIVISION XII DRAWING NO. 4

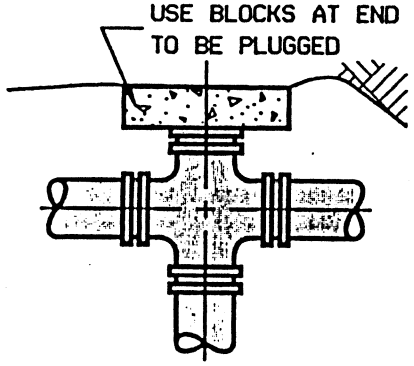
VILLAGE OF FOREST PARK
WATER MAIN SYSTEM
SUPPLEMENTAL DETAILS



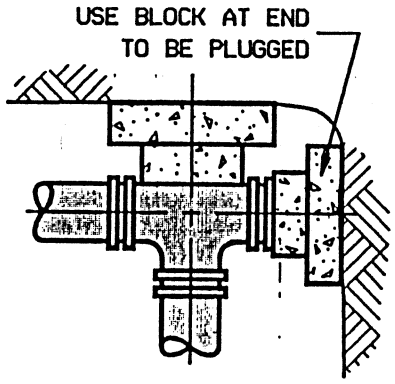
EDWIN HANCOCK ENGINEERING COMPANY By: O.C. Date: 2/20/1998 Revised:	**VALVE BOX DETAIL** DIVISION XII DRAWING NO. 5	**VILLAGE OF FOREST PARK** **WATER MAIN SYSTEM SUPPLEMENTAL DETAILS**



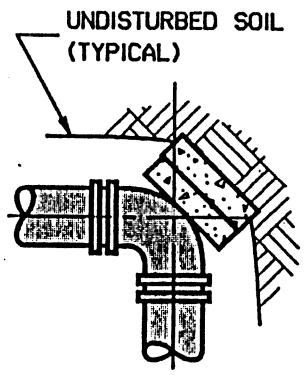
EDWIN HANCOCK ENGINEERING COMPANY By: O.C. Date: 2/20/1998 Revised:	**WATER SERVICE DETAIL** DIVISION XII DRAWING NO. 6	**VILLAGE OF FOREST PARK** **WATER MAIN SYSTEM SUPPLEMENTAL DETAILS**



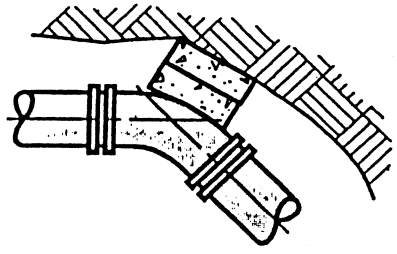
CROSS



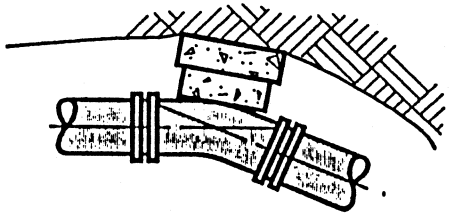
TEE



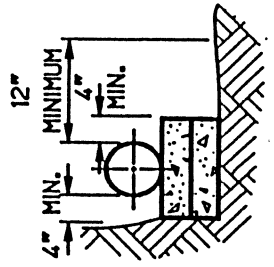
1/4 BEND(90°)



1/8 BEND(45°)



1/16 BEND(22-1/2°)

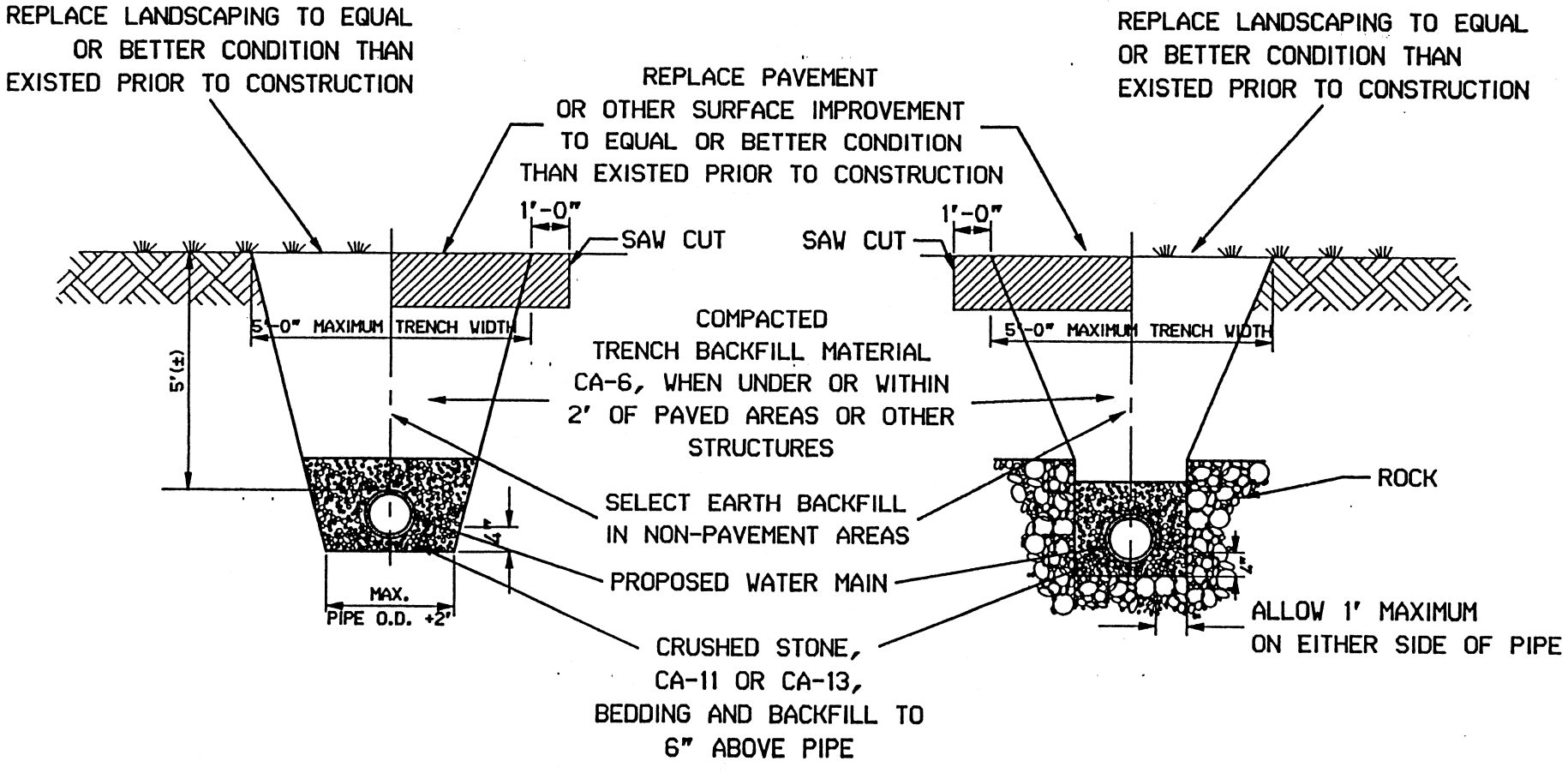


SECTIONAL VIEW

GENERAL NOTES:

1. THRUST BLOCKS TO BE USED AT 1/16 (22-1/2°) OR GREATER BENDS AND AT ALL ENDS TO BE PLUGGED.
2. THRUST BLOCKS TO BE CONCRETE BLOCKS PLACED AGAINST FIRM, UNDISTURBED SOIL.

EDWIN HANCOCK ENGINEERING COMPANY By: O.C. Date: 2/20/1996 Revised:	THRUST BLOCK DETAIL DIVISION XII DRAWING NO. 7	VILLAGE OF FOREST PARK WATER MAIN SYSTEM SUPPLEMENTAL DETAILS



ABOVE BEDROCK

WITHIN BEDROCK

GENERAL NOTES:

1. OSHA REQUIREMENTS SHALL BE FOLLOWED FOR ALL TRENCH EXCAVATION.
2. BACKFILL MATERIALS TO BE COMPACTED TO OBTAIN MAXIMUM DENSITY (MINIMUM TO BE 95% DRY DENSITY).

EDWIN HANCOCK ENGINEERING COMPANY By: D.C. Date: 2/20/1996 Revised:	TRENCH DETAIL DIVISION XII DRAWING NO. 8	VILLAGE OF FOREST PARK WATER MAIN SYSTEM SUPPLEMENTAL DETAILS

DIVISION OF PUBLIC WATER SUPPLIES
PERMIT SECTION
2200 CHURCHILL ROAD
POST OFFICE BOX 19276
SPRINGFIELD, ILLINOIS 62794-9276

APPLICATION FOR CONSTRUCTION PERMIT

1. Name of Public Water Supply _____

2. Municipality or Township _____ County _____

3. Location of Project _____

4. Title of Plans _____

   Number of Construction Drawings _____

5. Documents being submitted:
   ___ Construction Permit Application
   ___ Construction Drawings
   ___ Schedule A (Cost Estimate)
   ___ Specifications
   ___ Schedule B (Water Main Construction)
   ___ Engineer's Design Summary
   ___ Schedule C-I (Well Drilling Only)
   ___ Permit Fee (Water Main Only)
   ___ Schedule C-II (Well Completion)

6. Scope of Project: _____

_____

_____

7. ILLINOIS COMMERCE COMMISSION CERTIFICATION (For privately owned water companies)

_____

7.1 Has application been made to the Illinois Commerce Commission for a Certificate of Public Convenience and Necessity? ___Yes ___No

8. New Public Water Supplies: Where the developer intends to relinquish ownership of a new public water supply to the homeowners served by that public water supply, he must submit to the Agency a copy of the Protection Covenants for effecting the transfer. Those covenants must be approved by the ICC and should accompany this application.

9.0 Infringement on Existing Public Water Supplies: _____

9.1 Will any part of this project be located within the boundaries of an area served by another public water supply? ___Yes ___No

9.2 If yes, name of that water supply _____

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 1 2, Section 1039 Disclosure of this information is required under that Section Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

IL 532 0146
PWS 43 REV. 10-30

9.3 Describe that portion of the project within the boundaries of the other public water supply

_____

10.0 CERTIFICATION _____

10.1 Certificate by Design Engineer

I hereby certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief such information is true, complete and accurate.

ENGINEER _____
(Name) (Registration Number)

FIRM _____ TELEPHONE _____

ADDRESS _____

SIGNATURE _____ DATE _____

10.2 Certificate by Applicant(s)

Commencing January 1, 1990, Section 16.1 of the Environmental Protection Act (Ill. Rev. Stat. 1987, Ch. 111 1/2, par. 1016.1, as amended by P.A. 86-670) requires the Agency to collect a fee for certain applications for the installation or extension of water mains. There are no permit fees for other improvement to public water supply systems and only certain water main projects will be affected.

In accordance with the Act effective January 1, 1990, I/We hereby agree to pay the approporiate fee for this Permit to install or extend Watermain. Except for the conditions listed below in 10.3 the following fee schedule shall apply:

Fee	Length of Watermain
_____ $ 0	200 feet or less
_____ $120	Greater than 200 feet, but not more than 1000 feet
_____ $360	Greater than 1000 feet, but not more than 5000 feet
_____ $600	greater than 5000 feet

Please check the appropriate fee; make check or money order payable to: "Treasurer, State of Illinois" and submit along with this application. Any fee remitted to the Agency shall not be refunded at any time or for any reason, either in whole or in part.

I/We hereby certify that I/We have read and thoroughly understand the conditions and requirements of this submittal. I/we hereby agree to conform with the Standard Conditions and with any Special Conditions made part of this Construction Permit. All such Conditions shall be as authorized by the Environmental protection Act and the Rules adopted by the Pollution Control Board under authority granted by the Act.

NAME OF APPLICANT FOR PERMIT TO CONSTRUCT _____

ADDRESS _____
(Street, City, State & Zip Code)

SIGNATURE _____ DATE _____

TITLE _____

Please note that Chapter 148 of the Ill Revised Statutes Section 72 requires that a trust disclosure statement be provided when a trustee of a land trust makes application to the State of Illinois for any permit.

10.3 The Water Main Permit fee does not apply to:

a) Any Department, Agency or Unit of State Government.

b) Any unit of Local Government where all of the following conditions are met;

1) The cost of the installation or extension is paid wholly from monies of the unit of local government, state grants or loans, federal grants or loans, or any combination thereof.

2) The unit of local government is not given monies, reimbursed or paid, either in whole or in part, by another person (except for State grants or loans or federal grants or loans; and

3) I/we _____
(unit of local government & signature of authorized official)

hereby certify that subsections 10.3(b)(1) and 10.3(b)(2) have been met.

10.4 Agreement to Furnish Water (This section must be completed if applicable)

The _____
(City, Town, Village, Water Company or Water Authority)

has agreed to furnish water to the area in which water main extensions are proposed by

_____
(Developer)

according to plans title "_____"

prepared by _____
(Engineering Firm)

The undersigned acknowledges the public water supply's responsibility for examining the plans and specifications to determine that the proposed extensions meet local laws, regulations, and ordinances.

Date: _____ By: _____
(Signature of Authorized Public Water Supply Official) (Title)

10.5 Certification by Owner(s) of Completed Public Water Supply Improvement(s)

I/We hereby certify that I/We have read and thoroughly understand the conditions and requirements of this submittal. I/We hereby agree to accept ownership of the project upon satisfactory completion.

_____
NAME OF OWNER OF COMPLETED PROJECT

_____
(STREET, CITY, STATE & ZIP CODE)

_____
SIGNATURE DATE

_____
TITLE

10.6 AUTHORITY TO SIGN APPLICATION

10.6.1 Applications signed by a person other than a responsible municipal official, corporation officer, or owner, must be accompanied by evidence of authority to sign the application, unless documentation of such authority is on file with the Division of Public Water Supplies.

10.6.2 Evidence of authority to sign the application on file with this Division: ____Yes ____No

IEPA - DIVISION OF PUBLIC WATER SUPPLIES - PERMIT SECTION
SCHEDULE A - ENGINEER'S COST ESTIMATE

Requests by various agencies and State and Federal representatives for information on the cost of water works improvements have been numerous. Therefore, we feel there is a need for obtaining and compiling this information. We would appreciate your cooperation by supplying us with this data with each set of plans and specifications. Please submit the cost data with each of your projects sent in for approval.

1. Name of Public Water Supply _____

2. Name of Project _____

3. SOURCE
   - A. Stream intake, impoundment. $_____
   - B. Well (wells). $_____
   - C. Others. $_____

   TOTAL $_____

4. TREATMENT
   - A. Aeration facilities and detention basins. $_____
   - B. High service pumps. $_____
   - C. Filtration and/or ion exchange softening. $_____
   - D. Mixing and settling basins and/or flocculation equipment. $_____
   - E. Chlorination and fluoridation equipment. $_____
   - F. Recarbonation, chemical feeders, chemical handling equipment. $_____
   - G. Lab, buildings and miscellaneous. $_____

   TOTAL $_____

5. WASTE DISPOSAL FACILITIES
   - A. Pumps and piping. $_____
   - B. Holding structures. $_____
   - C. Treatment unit. $_____
   - D. Other. $_____

   TOTAL $_____

6. STORAGE
   - A. Ground level tanks. $_____
   - B. Elevated tank (tanks). $_____
   - C. Pressure tanks. $_____

   TOTAL $_____

7. DISTRIBUTION SYSTEM
   - A. Feeder mains, booster pumps and stations. $_____
   - B. Water main extensions. $_____
   - C. Complete distribution. $_____

   TOTAL $_____

8. TOTAL PROJECT COST $_____

This Agency is authorized to request this information under Illinois Revised Statutes, 1981, Chapter 111½, Section 1039. Disclosure of this information is voluntary. This form has been approved by the Forms Management Center.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF PUBLIC WATER SUPPLIES
PERMIT SECTION - 2200 CHURCHILL ROAD
POST OFFICE BOX 19276
SPRINGFIELD, ILLINOIS 62794-9276

SCHEDULE B - WATER MAIN CONSTRUCTION

1. Name of Public Water Supply _____

2. Name of Project _____

3. Water Main will be constructed in accordance with: (check one)

   A. Standard Specifications for Water and Sewer Main Construction in Illinois (1986 Edition) _____

   B. Engineer's Approved Specifications on file with this Agency _____

   C. Public Water Supply's Approved Specifications on file with this Agency _____

   D. Specifications submitted with the plan documents _____

4. Existing population served by present supply _____

5. Population to be served by water main extension _____

6. Average daily pumpage from water works (annual basis) _____gal

7. Maximum day pumpage from water works _____gal

8. Capacity of water works _____mgd

9. Capacity of raw water source _____mgd

10. Capacity of existing line(s) at point(s) of connection(s) _____mgd

11. Capacity of proposed water main extension or system _____mgd

12. Normal expected operating pressure on proposed water main extension _____psi

13. Minimum expected operating pressure on proposed water main extension _____psi

14. Pressure at point of connection at present maximum demand _____psi

15. Calculated pressure at point of connection under maximum demand conditions after installation of water main _____psi

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111½, Section 1039. Disclosure of this information is requried under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

16. Water mains to be installed must be listed below:

Pipe Size (inches)						
Total Length (feet)						

17. General material specifications and type of joints _____

_____

18. Depth of cover _____

19. Disinfection:

A. Chemical used _____

B. Initial disinfectant concentration _____ ppm

C. Final disinfectant concentration _____ ppm

D. Retention time _____ hours

E. Provisions must be made for collection of water samples to be collected for bacteriological analysis on two consecutive days taken at 24 hour intervals.

20. Sewer and Water Separation:

A. Minimum horizontal and vertical separation requirements of this Agency to be followed _____ Yes _____ No

B. If "No", explain provisions for protection of water main _____

_____

_____

21. List all deviations from this Agency's design criteria & state justification for deviations _____

_____

_____

_____

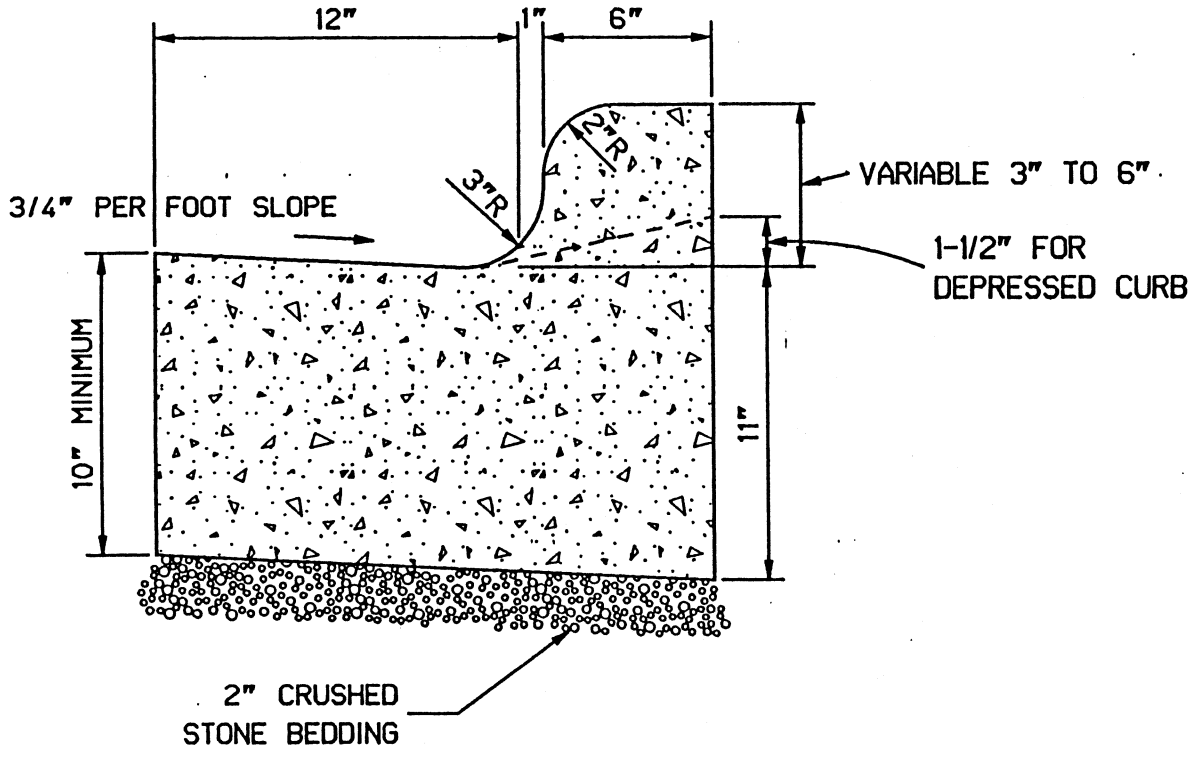
_____

SUPPLEMENTAL DETAILS

DIVISION XIII - STREET AND ALLEY PAVEMENTS

The details shown in this Division are as follows:

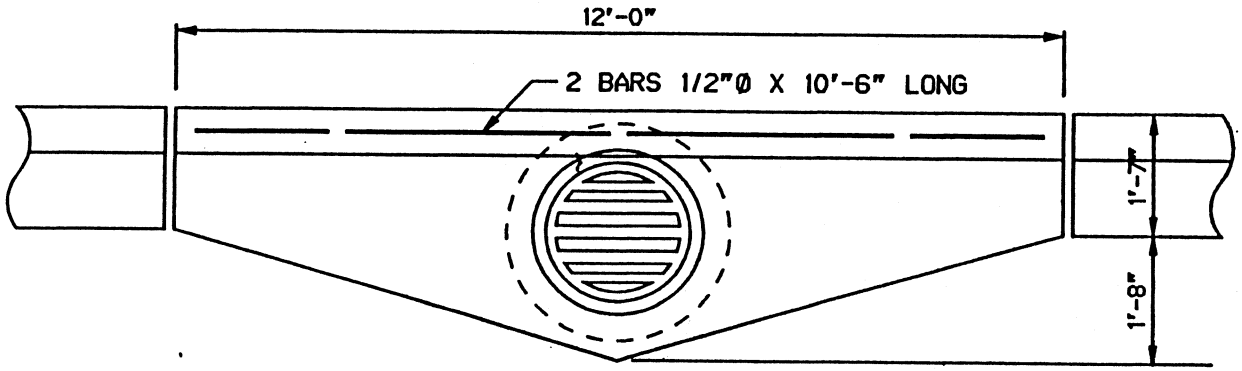
DRAWING NUMBER	DETAIL
1.	Concrete Curb and Gutter, Type B-6.12 (Modified)
2.	Gutter Detail at Drainage Structure
3.	Barrier Curb
4.	Butt Joint Detail (Typical)
5.	Butt Joint Detail (For Brick Pavements)
6.	Alley Pavement Cross Section (Typical)
7.	Alley Return

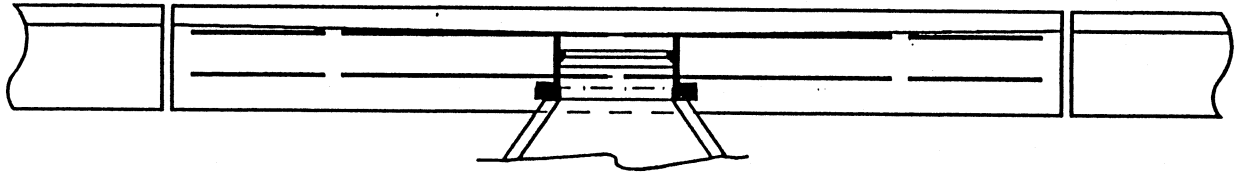


GENERAL NOTES:

1. WHEN FORMS ARE USED FOR CONSTRUCTION, FACE BOARDS MUST BE INCLUDED FOR CURB PORTION.
2. TOP OF CURB TO BE IMPRINTED WITH "W" AT WATER SERVICE LOCATIONS.
3. THE DESIGNATION "B-6.12" SPECIFIES THE CURB TO BE 6" IN HEIGHT AND THE GUTTER 12" IN WIDTH.
4. "(MODIFIED)" INDICATES THAT CURB HEIGHT MAY VARY.
5. GUTTER WIDTHS, OTHER THAN 12", SHALL BE SPECIFIED IN THE DESIGNATION.

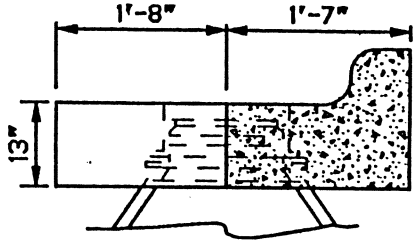
EDWIN HANCOCK ENGINEERING COMPANY By: O.C. Date: 2/20/1996 Revised:	**CONCRETE CURB & GUTTER TY. B-6.12 (MODIFIED)** DIVISION XIII DRAWING NO. 1	**VILLAGE OF FOREST PARK** **STREET AND ALLEY PAVEMENTS SUPPLEMENTAL DETAILS**



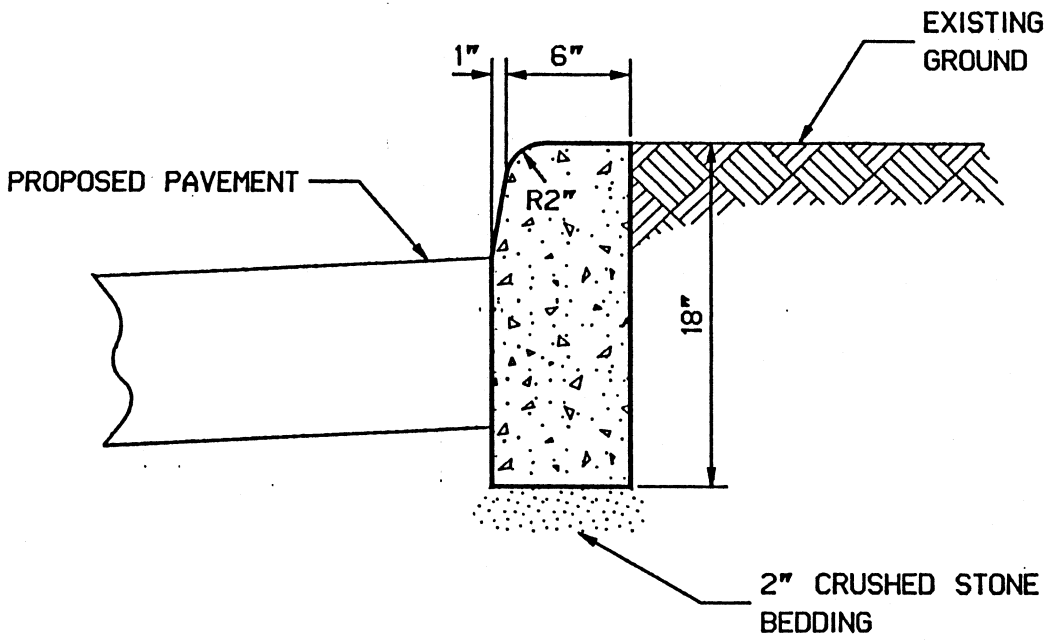


GENERAL NOTES:

1. EXPANSION JOINT MATERIAL TO BE 3/4" IN THICKNESS.
2. SLOPE OF GUTTER TO FOLLOW CROWN OF PAVEMENT.



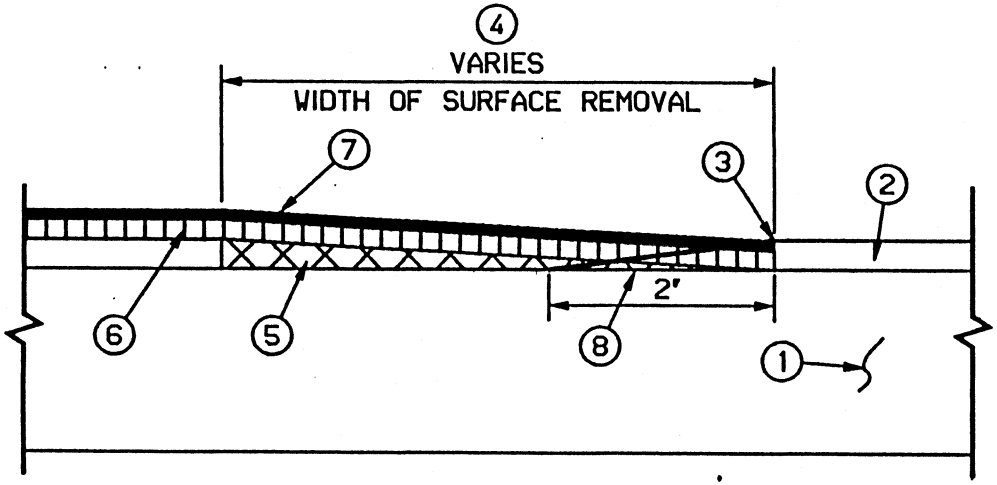
EDWIN HANCOCK ENGINEERING COMPANY By: O.C. Date: 2/20/1998 Revised:	GUTTER DETAIL AT DRAINAGE STRUCTURE DIVISION XIII DRAWING NO. 2	VILLAGE OF FOREST PARK STREET AND ALLEY PAVEMENTS SUPPLEMENTAL DETAILS



GENERAL NOTES:

1. EXPANSION JOINTS TO BE PLACED AT 50' INTERVALS AND AT ALL CHANGES OF DIRECTION.
2. BACKFILLING OF BACK AND FRONT OF CURB TO BE DONE SIMULTANEOUSLY.

EDWIN HANCOCK ENGINEERING COMPANY By: O.C. Date: 2/20/1996 Revised:	**BARRIER CURB DETAIL** DIVISION XIII DRAWING NO. 3	VILLAGE OF FOREST PARK STREET AND ALLEY PAVEMENTS SUPPLEMENTAL DETAILS



(1) EXISTING BASE COURSE

(2) EXISTING BITUMINOUS CONCRETE SURFACE COURSE

(3) SAW-CUT JOINT

(4) EXISTING SURFACE COURSE TO BE REMOVED

(5) LEVELING BINDER CUSHION

(6) PROPOSED BITUMINOUS CONCRETE BINDER COURSE

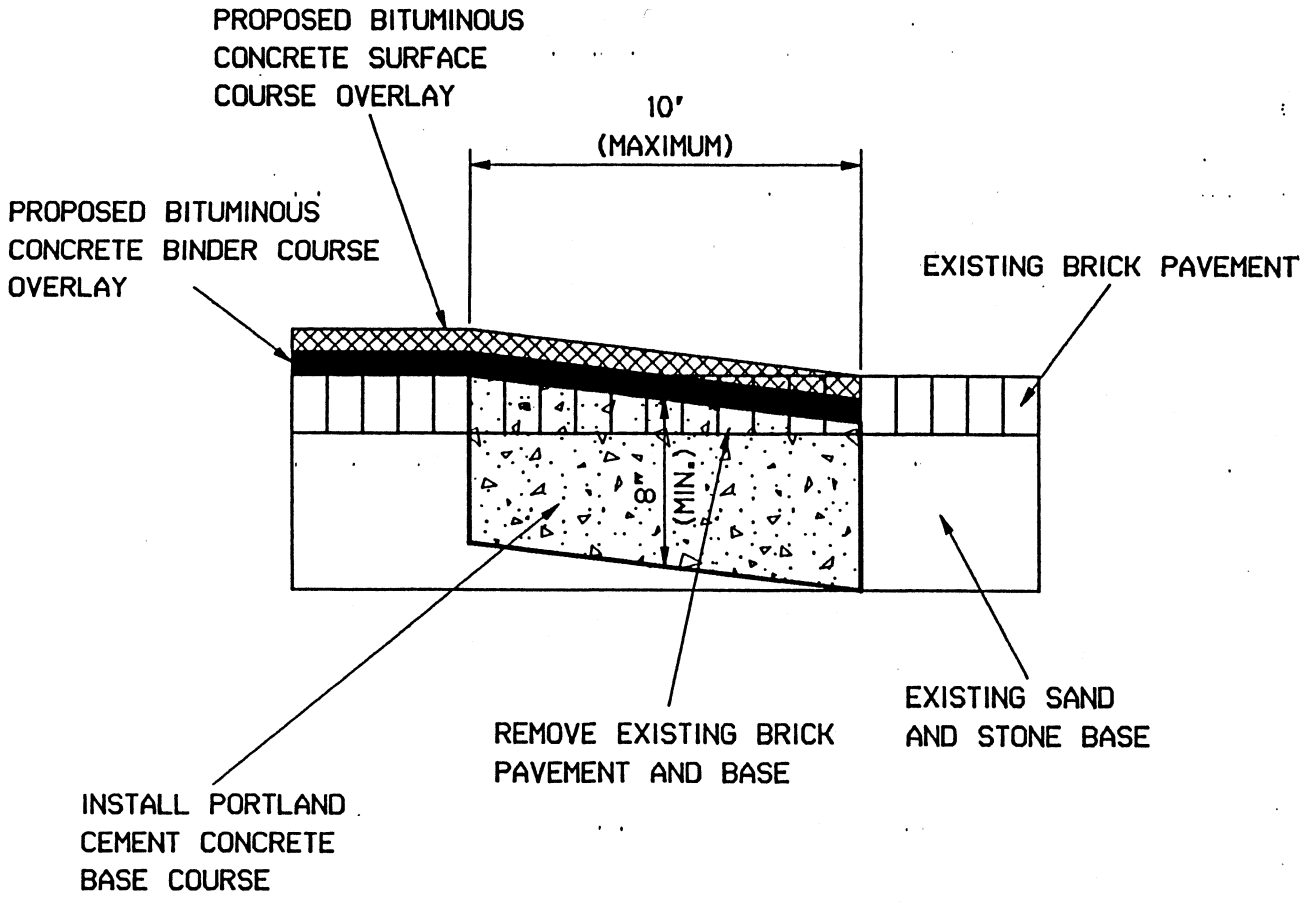
(7) PROPOSED BITUMINOUS CONCRETE SURFACE COURSE

(8) TEMPORARY BITUMINOUS FILLER

GENERAL NOTES:

1. TEMPORARY BITUMINOUS FILLER TO BE PLACED IMMEDIATELY UPON COMPLETION OF SAW-CUTTING AND REMOVAL WORK.
2. TEMPORARY BITUMINOUS FILLER MATERIAL TO BE REMOVED JUST PRIOR TO CONSTRUCTION OF BUTT JOINT SURFACING.

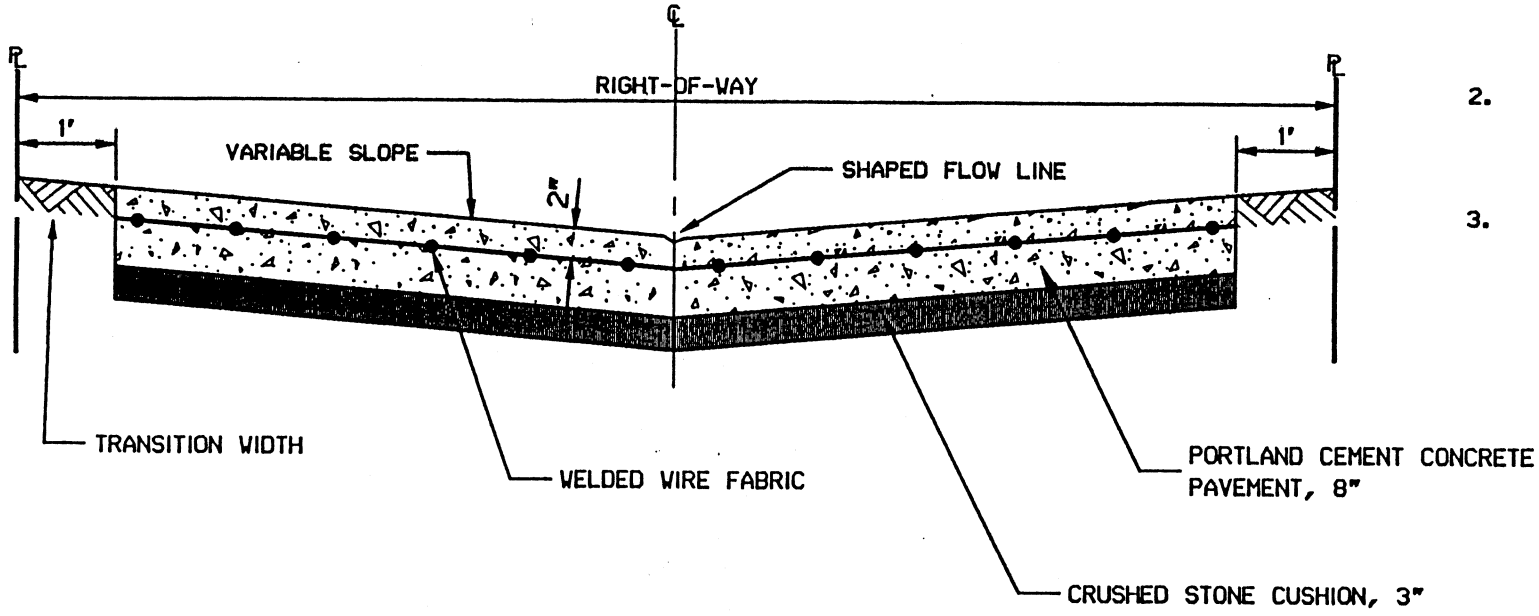
EDWIN HANCOCK ENGINEERING COMPANY By: O.C. Date: 2/20/1996 Revised:	**BUTT JOINT DETAIL (TYPICAL)** DIVISION XIII DRAWING NO. 4	**VILLAGE OF FOREST PARK** **STREET AND ALLEY PAVEMENTS SUPPLEMENTAL DETAILS**



GENERAL NOTES:

1. EXISTING BRICK ALINEMENT TO BE PROTECTED AND HELD IN PLACE UNTIL PLACEMENT OF CONCRETE BASE COURSE IS COMPLETED.
2. BUTT JOINT CONSTRUCTION SHALL BE UNDERTAKEN JUST PRIOR TO PAVEMENT OVERLAY WORK. THE TIME INTERVAL SHALL BE HELD TO A MINIMUM.

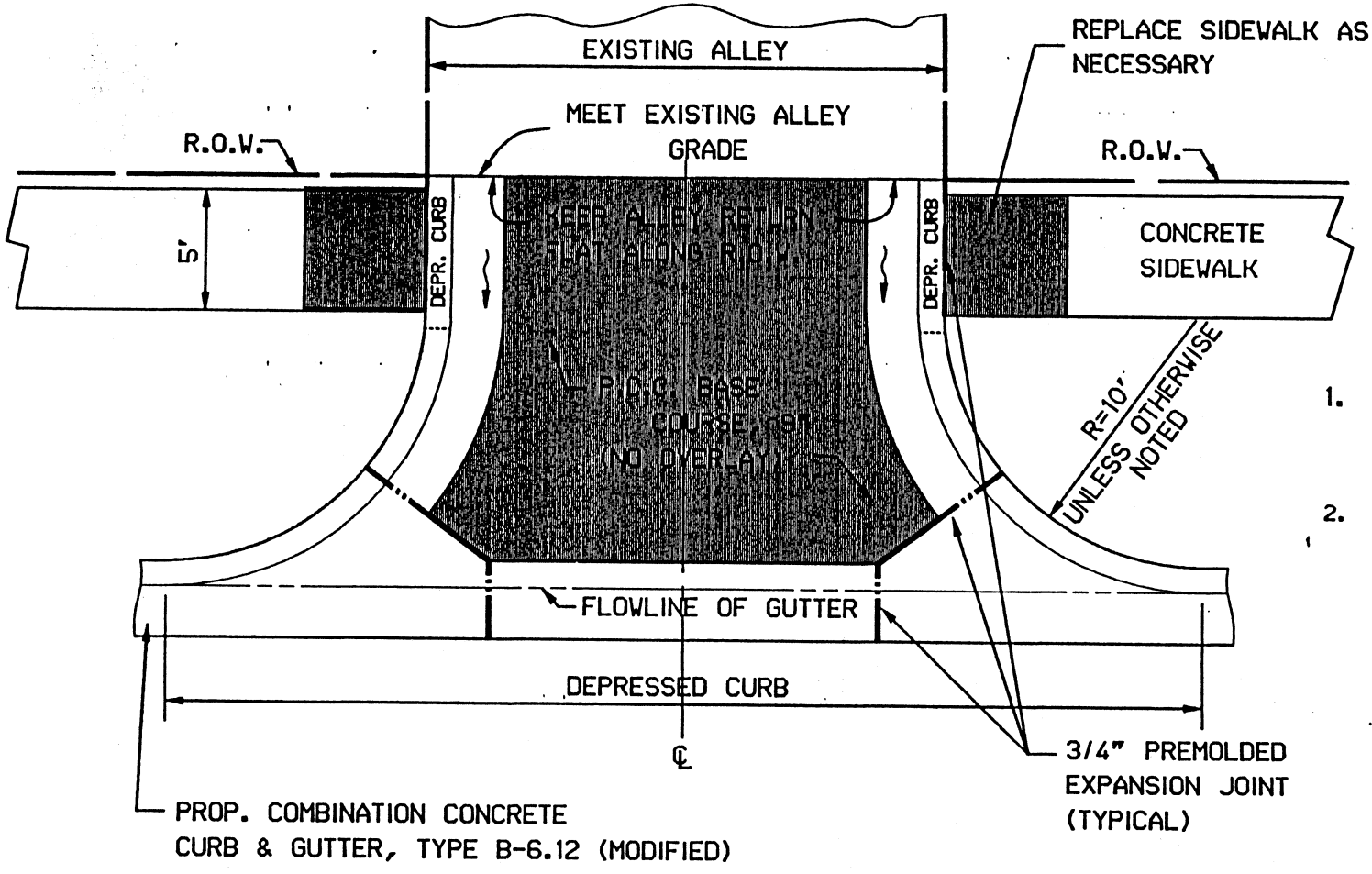
EDWIN HANCOCK ENGINEERING COMPANY By: O.C. Date: 2/20/1996 Revised:	**BUTT JOINT DETAIL** **(FOR BRICK PAVEMENTS)** DIVISION XIII DRAWING NO. 5	**VILLAGE OF FOREST PARK** **STREET AND ALLEY PAVEMENTS** **SUPPLEMENTAL DETAILS**



GENERAL NOTES:

1. SAW-CUT CONTRACTION JOINTS AT INTERVALS EQUAL TO PAVEMENT WIDTH.
2. EXPANSION JOINTS (WITH DOWEL BARS) AT INTERVALS EQUAL TO THREE (3) PAVEMENT WIDTHS.
3. ALL STRUCTURES IN PAVEMENT TO BE BOXED OUT IN (4'X4') SQUARES.

EDWIN HANCOCK ENGINEERING COMPANY By: O.C. Date: 2/20/1996 Revised:	ALLEY PAVEMENT CROSS SECTION (TYPICAL) DIVISION XIII DRAWING NO. 6	VILLAGE OF FOREST PARK STREET AND ALLEY PAVEMENTS SUPPLEMENTAL DETAILS



GENERAL NOTES:

1. BACK-TO-BACK OF CURBS DISTANCE AT R.O.W. LINE TO EQUAL WIDTH OF ALLEY R.O.W.

2. CURB AND GUTTER SHALL BE CONSTRUCTED INITIALLY FOLLOWED BY THE CONSTUCTION OF THE P.C.C. BASE COURSE.

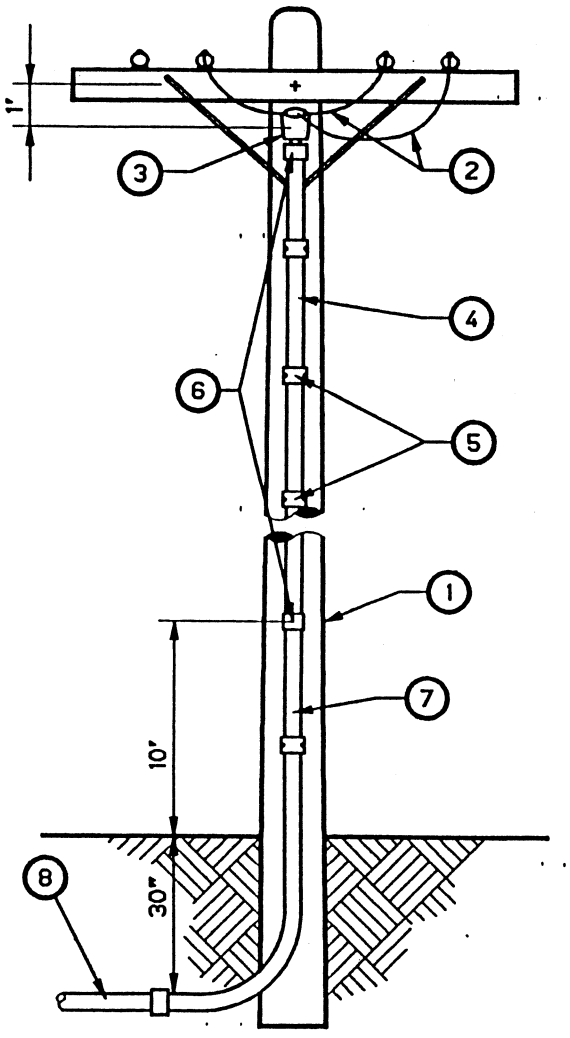
EDWIN HANCOCK ENGINEERING COMPANY By: O.C. Date: 2/20/1996 Revised:	**ALLEY RETURN DETAIL** DIVISION XIII DRAWING NO. 7	**VILLAGE OF FOREST PARK** **STREET AND ALLEY PAVEMENTS SUPPLEMENTAL DETAILS**

SUPPLEMENTAL DETAILS

DIVISION XIV - STREET LIGHTING SYSTEM

The details shown in this Division are as follows:

DRAWING NUMBER	DETAIL
1.	Service Connection
2.	Control Center Cabinet and Foundation
3.	Typical Trench Cross Section
4.	Electrical Handhole
5.	Foundation
6.	Wiring Diagram (Base of Light Standard)

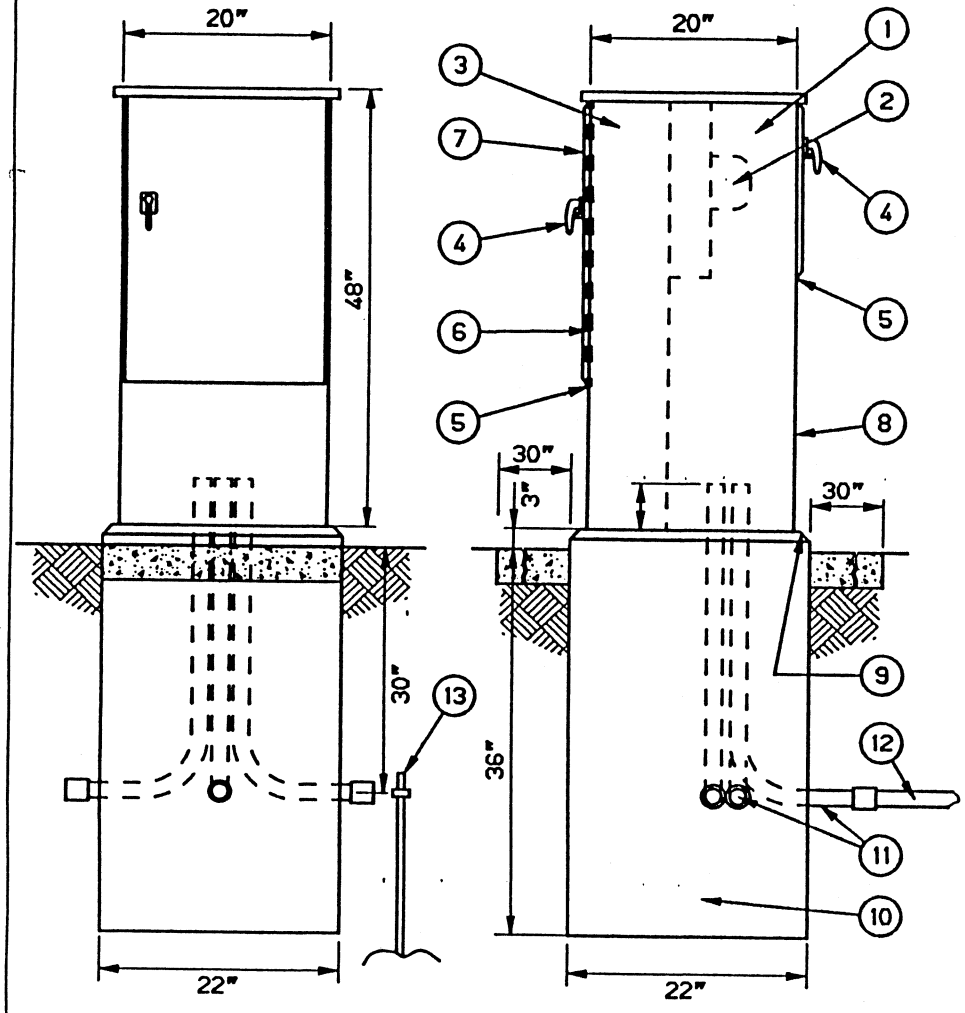


1. COMMONWEALTH EDISON COMPANY UTILITY POLE
2. CABLE TO EXTEND BEYOND SERVICE HEAD FOR CONNECTION TO UTILITY COMPANY SERVICE
3. SERVICE HEAD
4. NON-METALLIC CONDUIT, 2" DIA.
5. CONDUIT CLAMPS AT 5' MINIMUM INTERVALS
6. CONNECTOR FOR METALLIC TO NON-METALLIC CONDUIT, 2" DIA.
7. GALVANIZED STEEL CONDUIT, 2" DIA., INCLUDING BEND
8. GALVANIZED STEEL CONDUIT, 2" DIA., TO CONTROL CENTER

GENERAL NOTES:

1. UTILITY COMPANY MAY REQUIRE MAIN DISCONNECT SWITCH MOUNTED ON SERVICE POLE.
2. UTILITY COMPANY SHALL DESIGNATE AVAILABLE SERVICE POLE.

EDWIN HANCOCK ENGINEERING COMPANY By: O.C. Date: 2/20/1996 Revised:	**SERVICE CONNECTION** DIVISION XIV DRAWING NO. 1	**VILLAGE OF FOREST PARK** **STREET LIGHTING SYSTEM SUPPLEMENTAL DETAILS**

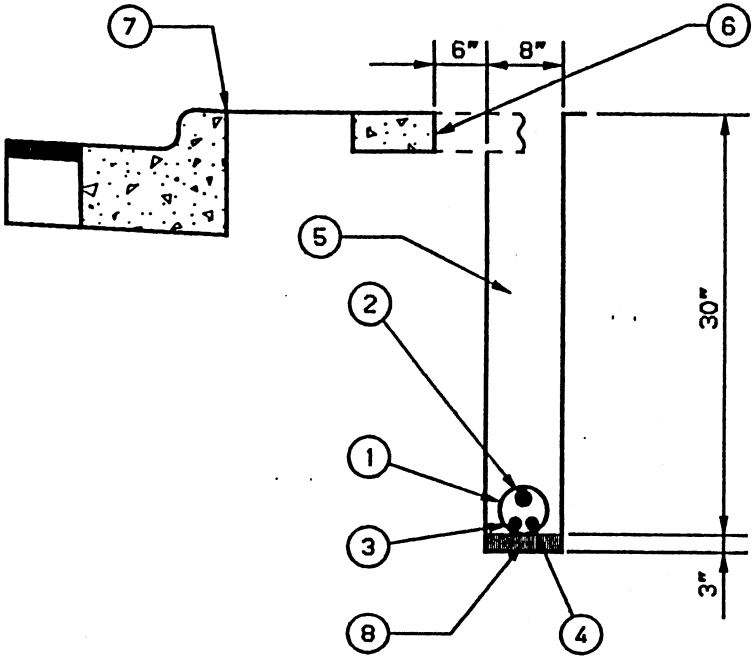


1. METERING SIDE OF CABINET
2. RINGLESS TYPE METER SOCKET, SUPPLIED BY OTHERS
3. CONTROL CENTER SIDE OF CABINET
4. "V"-HANDLE LATCH & SHOOT BOLTS
5. RUBBER GASKET BETWEEN DOOR & BOX FLANGE
6. STAINLESS STEEL PIANO HINGE
7. FORMED DOOR
8. CONTROL CENTER BOX TO BE CONSTRUCTED OF 1/8" THICK SHEET ALUMINUM
9. 1" CHAMFER
10. POURED IN PLACE CLASS X CONCRETE FOUNDATION
11. GALVANIZED STEEL CONDUITS 2" DIA., TWO MORE THAN NECESSARY
12. GALVANIZED STEEL CONDUITS 2" DIA., TO SERVICE POLE
13. GROUND ROD CONNECTED TO GROUND WIRE WITH EXOTHERMIC WELD

GENERAL NOTES:

1. SHOP DRAWINGS TO BE APPROVED PRIOR TO FABRICATION OF CABINET.
2. CONCRETE PAD, 5" THICK AND 30" WIDE TO BE INSTALLED ALONG FOUNDATION WIDTH AT EACH DOOR OPENING.

EDWIN HANCOCK ENGINEERING COMPANY By: O.C. Date: 2/20/1996 Revised:	CONTROL CENTER CABINET & FOUNDATION DETAIL DIVISION XIV DRAWING NO. 2	VILLAGE OF FOREST PARK STREET LIGHTING SYSTEM SUPPLEMENTAL DETAILS

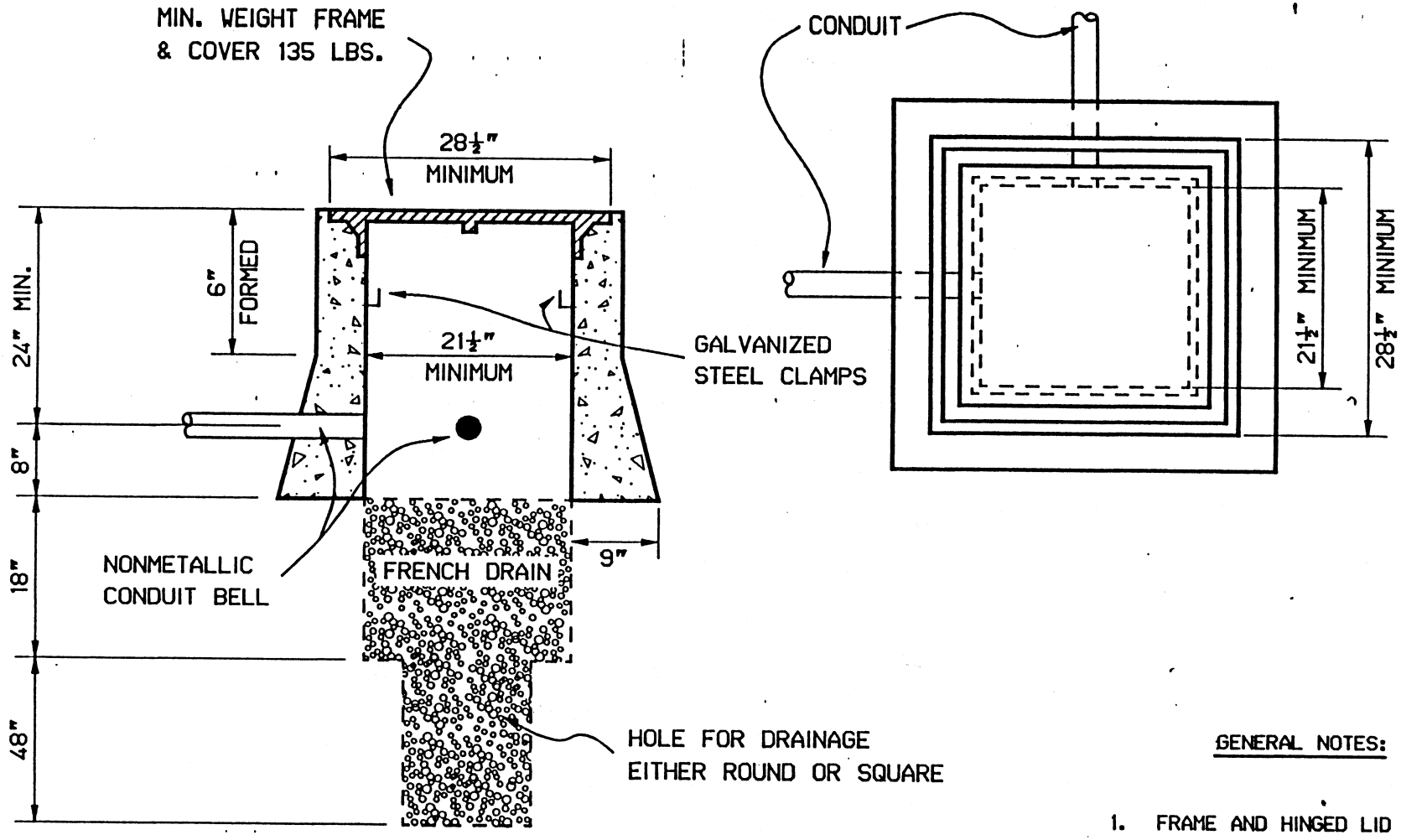


1. UNIT DUCT AS PER SPECIFICATIONS
2. GROUND WIRE AS PER SPECIFICATIONS
3. PHASE WIRE AS PER SPECIFICATIONS
4. NEUTRAL WIRE AS PER SPECIFICATIONS
5. CABLE TRENCHES UNDER SIDEWALKS OR PAVEMENT SHALL BE BACKFILLED WITH CRUSHED STONE SCREENINGS
6. WHERE NECESSARY SAW CUT EXISTING SIDEWALKS OR PAVEMENT 6" WIDER THAN TRENCH WIDTH
7. EXISTING BACK OF CURB OR EDGE OF PAVEMENT
8. WHERE ROCK IS ENCOUNTERED EXCAVATE TRENCH 3" DEEPER AND CONSTRUCT A 3" THICK CRUSHED STONE CUSHION

GENERAL NOTES:

1. DIRECTIONAL BORING MAY BE USED IN LIEU OF TRENCHING.
2. MAXIMUM TRENCH WIDTH FOR ANY PAYMENT ITEMS SHALL BE 8".

EDWIN HANCOCK ENGINEERING COMPANY By: O.C. Date: 2/20/1996 Revised:	TYPICAL TRENCH CROSS SECTION DIVISION XIV DRAWING NO. 3	VILLAGE OF FOREST PARK STREET LIGHTING SYSTEM SUPPLEMENTAL DETAILS

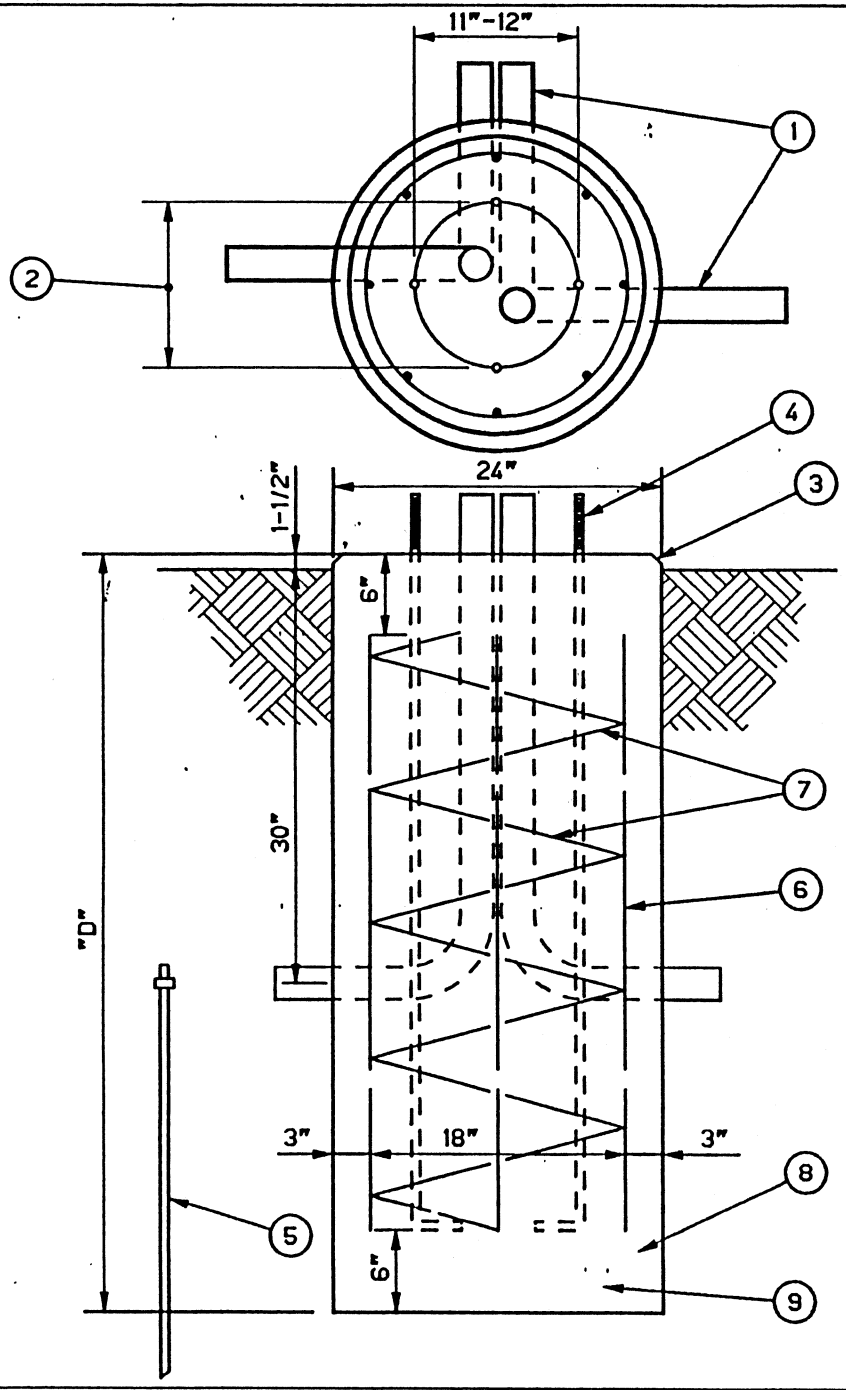


GENERAL NOTES:

1. FRAME AND HINGED LID TO BE NEENAH FOUNDRY NO. R-6660-HH OR EQUAL.

2. HANDHOLE LOCATIONS TO BE AT SUMMIT POINTS.

EDWIN HANCOCK ENGINEERING COMPANY By: O.C. Date: 2/20/1996 Revised:	**ELECTRICAL HANDHOLE** DIVISION XIV DRAWING NO. 4	VILLAGE OF FOREST PARK STREET LIGHTING SYSTEM SUPPLEMENTAL DETAILS



FOUNDATION DESIGN CHART			
TYPE OF SOIL	DESIGN DEPTH OF FOUNDATION	REINFORCEMENT IN FOUNDATION	
	"D"	VERT. BARS	SPIRAL
SOFT CLAY	11'-0"	8-#6 X 10'-0"	#4 X 157'
MEDIUM CLAY	9'-0"	8-#6 X 8'-0"	#4 X 110'
STIFF CLAY	7'-6"	8-#6 X 6'-6"	#4 X 78'
LOOSE SAND	9'-6"	8-#6 X 8'-6"	#4 X 102'
MEDIUM SAND	9'-3"	8-#5 X 8'-3"	#4 X 88'
DENSE SAND	8'-0"	8-#5 X 7'-0"	#4 X 78'
ROCK OR SOLIDIFIED SLAG	5'-0"	NONE	NONE

(1) DUAL 2-1/2" DIA. P.V.C. ELBOW RACEWAYS. EITHER PARALLEL OR OPPOSITE EACH OTHER AS SHOWN ON PLAN SHEETS.

(2) MANUFACTURER TO FURNISH TEMPLATE DRAWING FOR SETTING OF ANCHOR BOLTS.

(3) 1" CHAMFER

(4) 4-1" X 72" STEEL ANCHOR BOLTS, TOP 10" THREADED AND GALVANIZED.

(5) 5/8" X 10' GROUND ROD CONNECTED TO GROUND WIRE WITH EXOTHERMIC WELD AT LOCATIONS NOTED ON PLAN SHEETS.

(6) 8 REINFORCING BARS EQUALLY SPACED ALONG AN 18" DIA. CIRCLE, FOR SIZE, SEE FOUNDATION DESIGN CHART.

(7) #4 SPIRAL TIE BARS WITH 6" PITCH

(8) CLASS X CONCRETE

(9) FOUNDATION LOCATIONS AS SHOWN ON PLAN SHEETS.

(10) EXISTING UNDERGROUND CONDUIT

(11) CORRUGATED STEEL CASING PIPE, AS PER SPECIFICATIONS. CASING PIPE DIAMETER TO BE A MINIMUM OF TWICE THE DIAMETER OF THE EXISTING UNDERGROUND CONDUIT AND 10' LONG

EDWIN HANCOCK ENGINEERING COMPANY

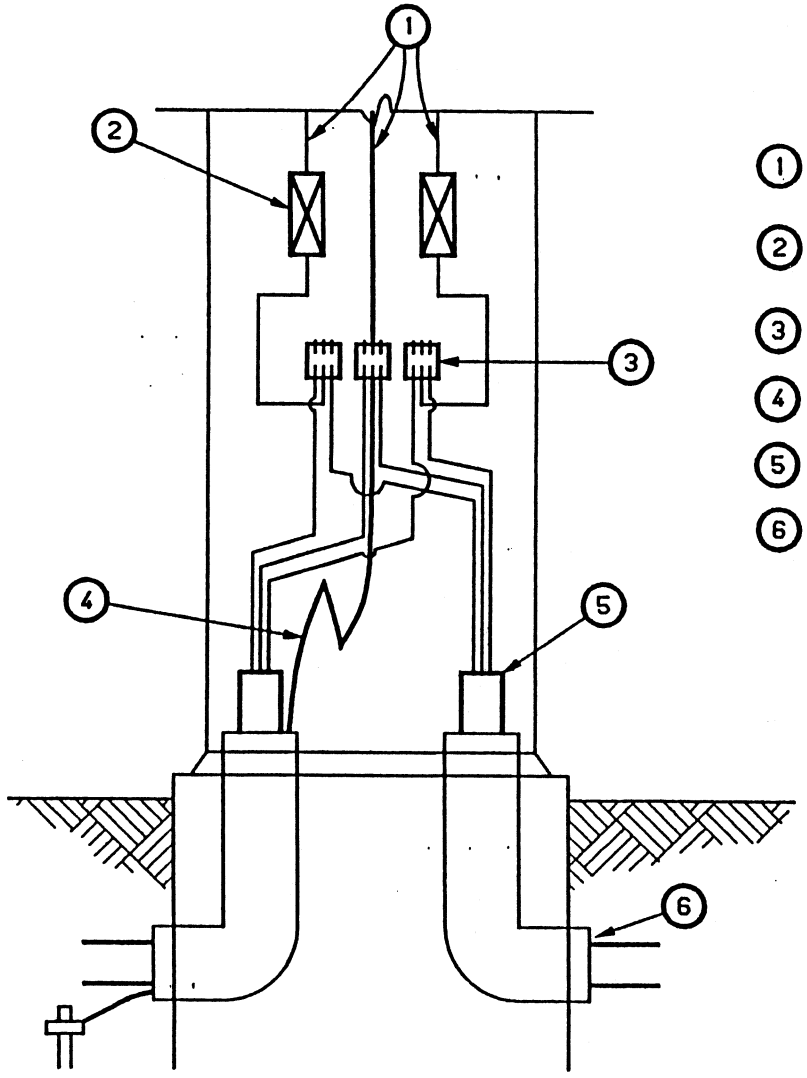
By: O.C.
Date: 2/20/1996
Revised:

FOUNDATION DETAIL

DIVISION XIV DRAWING NO. 5

VILLAGE OF FOREST PARK

STREET LIGHTING SYSTEM SUPPLEMENTAL DETAILS



1. NO. 10 WIRE
2. CONNECTOR A W/FUSE-HOLDER AND INSULATING BOOTS
3. MULTIPLE COMPRESSION FITTINGS
4. NO. 8 GROUND WIRE TO GROUND ROD
5. UNIT DUCT WITH CABLES
6. 2-1/2" P.V.C. CONDUIT BEND

EDWIN HANCOCK ENGINEERING COMPANY By: O.C. Date: 2/20/1996 Revised:	**WIRING DIAGRAM** **(BASE OF LIGHT STANDARD)** DIVISION XIV DRAWING NO. 6	**VILLAGE OF FOREST PARK** **STREET LIGHTING SYSTEM** **SUPPLEMENTAL DETAILS**

SUPPLEMENTAL DETAILS

DIVISION XV - MISCELLANEOUS IMPROVEMENTS

The details shown in this Division are as follows:

DRAWING NUMBER	DETAIL
none	none

PART 3 - GENERAL REQUIREMENTS

PROJECT PLANS AND SPECIFICATIONS

Project plans for all proposed improvements shall include plan sheets showing the existing topography and elevations within and adjacent to the areas to be improved.

Project plans for all proposed underground improvements shall have plan sheets showing both the plan views and the profile views of the proposed improvements for which depths of bury and percentages of slopes are critical design items. Examples of such improvements would be sewer installations and water main installations.

Project plans for all proposed ground level improvements shall have plan sheets showing both the plan views and the profile views of the proposed improvements for which percentages of slopes are critical design items. Examples of such improvements would be street pavement construction and alley pavement construction.

Specifications shall clearly define the parties to be responsible for the setting of proposed lines and grades and for observing the proposed work as it is being performed to assure it is in compliance with the project's plans and specifications.

PERMITS

Private and public improvements may be required to obtain permits from various governmental agencies in addition to the meeting all requirements set forth by the Village.

For sanitary sewer, combined sewer, and storm sewer improvements, in most situations it will be necessary to apply for a permit from the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC). In addition to applying for the MWRDGC Permit, when this permit has been issued, the Illinois Environmental Protection Agency (IEPA) must also be informed of the issuance of this permit and the Fee Schedule established by the IEPA must be met. Permits for sewer projects are outside the boundaries of the MWRDGC must be applied for and obtained from the Illinois Environmental Protection Agency (IEPA).

Project involving extensions to a public water supply system must obtain permits from the Division of Public Water Supplies of the Illinois Environmental Protection Agency.

Any proposed improvements that must enter the rights-of-way of the State of Illinois Division of Highways must apply for a permit from the Illinois Department of Transportation (IDOT).

Any proposed improvements that must enter the rights-of-way of the Cook County Highway Department (CCHD) must apply for a permit from this agency.

Projects which include the demolition of buildings (residential, commercial, or industrial) within the Village of Forest Park must apply for and obtain the necessary permits from the Cook County Department of Environmental Control.

Addresses and telephone numbers of the Permit Sections of these above-mentioned agencies are as follows:

Metropolitan Water Reclamation District of Greater Chicago
Local Sewer Systems Section
111 East Erie Street - 6th Floor
Chicago, Illinois 60611 Telephone No. (312) 751-3260

Illinois Environmental Protection Agency
Division of Public Water Supplies or Division of Water Pollution Control
Permit Section
1021 N. Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276 Telephone No. (217) 782-1724

Illinois Department of Transportation
Division of Highways/District 1
Bureau of Design - Utilities
201 West Center Court
Schaumburg, Illinois 60196-1096 Telephone No. (847) 705-4258

Cook County Department of Highways
Attn: B. Vyas, Permits Engineer
69 West Washington Street, 21st Floor
Chicago, Illinois 60602-1369 Telephone No. (312) 603-7756

Cook County Department of Environmental Control
Charles F. Lagges, Director
Maybrook Civic Center
1500 South Maybrook Drive
Maywood, Illinois 60153-2486 Telephone No. (708) 865-6165

SUBMITTALS

Sufficient copies of all permit applications must prepared so that, in addition to the number of copies requested by the respective governmental agency, one (1) copy of the application can be retained by the Village for its files. Any other documents, including any project plans, that are to accompany the submittal of the permit application, should be in sufficient number to allow one (1) set to remain with the Village.