VILLAGE OF ITASCA

DEVELOPMENT STANDARDS & SPECIFICATIONS

APPROVED: JULY 12, 2022

ORDINANCE # 2023-22

Table of Contents

PREAMBLE
AN ORDINANCE HEREBY ESTABLISHING DEVELOPMENT STANDARDS AND SPECIFICATIONS FOR THE DEVELOPMENT OF PROPERTY WITHIN THE CORPORATE LIMITS OF THE VILLAGE OF ITASCA: PROVIDING STANDARDS, PROCEDURES FOR CONSTRUCTION, DESIGN AND INSTALIATION STANDARDS FOR IMPROVEMENTS WITHIN THE VILLAGE OF ITASCA, DUPAGE COUNTY, ILLINOIS AND IMPOSING PENALTIES FOR THE VIOLATION OF THESE DEVELOPMENT STANDARDS.
THE VILLAGE OF ITASCA, ILLINOIS, ORDAINS:

SECTION 1.00 – TITLE

This Ordinance shall be known and may be designated as the "Development Standards and Specifications for the Village of Itasca," Illinois.

SECTION 2.00 – PURPOSE

The Development Standards and Specifications for the development and improvement of property within the corporate limits of the Village of Itasca.
The regulations are established with reasonable consideration of the character of the Village with a view toward conserving the value of buildings upon the land and providing the best possible environment for human habitation. It is intended that these regulations shall facilitate the enforcement of the provisions and development standards contained in the Building Codes, Zoning Ordinance, the Official Comprehensive Plan, and the Subdivision Regulations.

SECTION 3.00 – JURISDICTION

The Development Standards and Specifications of the Village of Itasca, Illinois shall apply to all new and previously recorded subdivisions of land and all land improvements, as defined herein, located within the Village and entirely or in part within the unincorporated area within one and one-half (1-1/2) miles from the corporate limits of the Village, in accordance with Chapter 24 of Illinois Revised Statutes. The subdivision plans and plats, including planned developments, proposed improvements to be installed, and all procedures relating thereto, shall in all respects be in full compliance with the regulations herein.

SECTION 4.00 - GENERAL PROVISIONS

4.00.A. Public Improvements:

The public improvement requirements, development standards, and specifications contained herein are adopted as the minimum required standards and specifications for public improvements of the Village. When public improvements are required by application for subdivision, no such improvements may be made until the plats for the subdivision and also the plans for improvements thereto have been approved by the Village Board. The Building Commissioner is designated as the enforcing officer of the public improvement requirements, standards and specifications contained herein. When public improvements are made other than as part of a subdivision, no such improvements may be made until the plans are approved by the Village Engineer. If any improvements are being constructed in violation of regulatory

contained herein, it shall be the responsibility of the Building Commissioner, or his designee, to stop such construction until there is full compliance with said regulations.

4.00.B. Improvements in Special Flood Hazard Areas, Wetlands and Buffers

No improvements shall be approved for any use in any area which is determined, after investigation by the Village Engineer, to be located within areas of special flood hazard until the subdivider has complied with Section 6.05 of these Development Standards, the DuPage County Stormwater and Flood Plain Ordinance, and all other applicable. regulations and requirements.

4.00.C. Enforcement, Penalties for Violation:

4.00.C.1. Enforcement:

The Building Commissioner shall be the enforcing officer of the Development Standards, except for those portions designated for enforcement by the Village Engineer.

4.00.C.2. Violation and Penalties:

4.00.C.2.a. Any person who violates, disobeys, omits, neglects or refuses to comply with or resists the enforcement of the Development Standards shall be guilty of a misdemeanor and shall upon conviction be fined not less than fifty dollars ($50.00) nor more than five hundred dollars ($500.00) for each offense. A separate offense shall be deemed committed for each day such violation exists.

4.00.C.2.b. The owner or occupant of any land, building, structure or any part thereof, or any architect, builder, contractor, agent or other person who commits, participates in, assists in or maintains such violation may each be found guilty of a separate offense and suffer the penalties herein provided.

4.00.C.2.c. Nothing contained herein shall be construed to prevent the Village from taking such other lawful action as is necessary or appropriate to prevent or remedy any violation.

4.00.D. Effect on Existing Building Permits and Zoning Certificates:

Nothing in these Development Standards shall be deemed to require any change in the plans, construction or designated use of any land or structure in the event that:

4.00.D.1. Final plat or plan approval for such subdivision or development was lawfully issued prior to the effective date of the Development Standards, or the effective date of any amendment thereof; and

4.00.D.2. Such approval has not by its own terms expired prior to such effective date; and

4.00.D.3. Such approval was issued on the basis of an application showing complete plans for proposed construction; and

4.00.D.4. There has been a substantial expenditure or incurrence of substantial obligations by the applicant in reliance on such approval; and

4.00.D.5. Such expenditure or incurrence of obligations were made prior to published or actual notice of the Development Standards; and

4.00.D.6. Construction pursuant to such approval is complete prior to the expiration of such approval.

4.00.E. Scope of Development Regulations:

All developments, redevelopments and improvements shall be constructed in accordance with the standards set forth in the Development Standards. No person shall commence or cause to be commenced any development within the corporate limits of the Village unless a development plan which is in compliance with these Standards has been approved by the Village Board.

4.00.F. Permits:

4.00.F.1. No building permit shall be issued for the construction of any building, structure or improvement on any parcel if the parcel is not a properly created lot of record, nor until a final subdivision plat and/or development plan, made necessary by the Development Standards of the Ordinance, shall have been approved and recorded in the office of the Recorder of Deeds of the County.

4.00.F.2. No construction above foundation can occur until a suitable access road is in place able to carry fire department vehicles and emergency vehicles. Also, fire hydrants shall be installed and live; i.e., the water mains shall be in and tested.

4.00.G. Certificates of Occupancy:

4.00.G.1. No final certificate of occupancy shall be granted for the use of any building or structure on a lot subject to the Development Standards until:

4.00.G.1.a. Required sanitary sewer and water service has been installed and made ready for servicing the parcel; and

4.00.G.1.b. Sidewalks, parkway trees, and sod or seeding are completed for the parcel by the developer; and, if a subdivision;

4.00.G.1.c. Lots in a subdivision rough graded;

4.00.G.1.d. Stormwater management facilities installed; and

4.00.G.1.e. Roadways and/or fire lanes providing access to the lot and subdivision have been paved with the binder course of asphalt, as set out herein:

4.00.G.2. No certificate of occupancy shall be issued for any structure or building unless the Building Commissioner and/or Village Engineer certify that the public and private improvements required by the Development Standards for the parcel have been installed in conformity with approved plans and specifications. In the event that weather conditions prevent completion of all improvements, a cash escrow payment equal to 110% of the amount of all incomplete improvements shall be filed with the Village to ensure that improvements will be completed within thirty (30) days of the onset of the next building season. The filing of this cash escrow and written guarantee shall allow for the issuance of a temporary certificate of occupancy, and in no other instance unless otherwise approved by the Village Board.

4.00.H. Completion of Public Improvements:

All public improvements within a subdivision shall be completed within two (2) years of the start of construction or when seventy-five (75) percent of the lots in the subdivision are completed (see Section 4.00.G.1, a.-e. above), whichever occurs first unless otherwise provided for in these Development Standards.

4.00.I. Modifications:

Upon finding that severe hardship, caused by conditions uniquely attributable to the land under consideration, would be imposed upon an applicant by compliance with these regulations and upon a finding that there are alternate feasible means of fulfilling the purpose and spirit of the regulations to protect the public health, safety and welfare, the Plan Commission may recommend and the Village Board may grant modifications from the regulations of the Development Standards.

4.01 – INTERPRETATION

4.01.A. Minimum Standards Established:

In their interpretation and application, the provisions of the Development Standards shall be held to be the minimum requirements for the promotion of the public health, safety, and general welfare.

4.01.B. Higher Standards Govern:

Where the conditions imposed by any provisions of the Development Standards upon the development or improvement of land are either more restrictive or less restrictive than comparable conditions imposed by any other provisions of the Development Standards or any other applicable law, ordinance, resolution, rule or regulation of any kind, the regulations which are more restrictive and impose higher standards or requirements shall govern.

4.01.C. Easements or Covenants Not Abrogated:

The Development Standards are not intended to abrogate any easement, covenant, or any other private agreement, provided that where the regulations of the Development Standards are more restrictive or impose higher standards or regulations that such easement, covenant, or other private agreement, the requirements of the Development Standards shall govern.

4.02 – SEPARABILITY

It is hereby declared to be the intention of the Village Board that the several provisions of the Development Standards be separable in accordance with the following:

4.02.A. Separability of Parts:

If any court of competent jurisdiction shall adjudge invalid the application of any provision of the Development Standards to be invalid, such judgement shall not affect any other provision of these Development Standards not specifically included in said judgement.

4.02.B. Separability of Application:

If any court of competent jurisdiction shall adjudge invalid the application of any provision of the Development Standards to a particular subdivision of land, such judgment shall not affect the application of said provision to any other subdivision of land, not specifically included in said judgement.

SECTION 5.00 - RULES AND DEFINITIONS

In the interpretation of the Development Standards, the rules and definitions contained in this Section shall be observed and applied, except when the context clearly indicates otherwise.

5.01 - RULES

The language set forth in the text of these Development. Standards shall be interpreted in accordance with the following rules of construction:

5.01.A. Words used.in the present tense shall include the future, the words used in the singular number shall include the plural number, and the plural the singular.

5.01.B. The word "shall" is mandatory and not discretionary.

5.01.C. The word "may" is permissive.

5.01.D. The word "lot" shall include the words "plot", "piece", and "parcel."

5.01.E. The phrase "used for" shall include the phrases "arranged for", "designed for", "intended for", "maintained for", and "occupied for."

5.01.F. The word "person" includes an individual, partnership, firm, corporation, association, or other legal entity.

5.01.G. In the case of any difference of meaning or implication between the text to the Development Standards and any caption or illustration, the text shall control.

5.01.H. Terms not herein defined shall have the meaning customarily assigned to them in the Itasca Zoning Ordinance as amended.

5.02 – DEFINITIONS

ALLEY	The right-of-way which affords secondary means of access to properties abutting upon a street.
APPLICANT	The owner or contract purchaser of land proposed to be subdivided or his legal representative.
APRON	An extension of a driveway lying between the public sidewalk (or the right-of-way line if there is no sidewalk and the curb and gutters of a street. The maintenance responsibility for this facility normally being with the owner of the driveway so extended.
BASE FLOOD	The flood having a one percent probability of being equaled or exceeded in a given year. It is also known as the 1% chance or 100-year flood. It has been adopted by the NFIP as the basis for mapping, insurance rating, and regulating new construction.
BASE FLOOD ELEVATION (B.F.E.)	The height of the base flood in relations to the North American Vertical Datum of 1988, or latest datum adopted by DuPage County.
BENCHMARK	A permanent or semi-permanent physical mark of known elevation reference to a recognized datum.
BLOCK	A block is a tract of land bounded by street rights-of-way, or by a combination of street rights-of-way and public parks,

	cemeteries, railroad and utility rights-of-way, bulkhead lines or shorelines of waterways, or corporate boundary lines.
BOND	Any form of security approved as to form by the Village Attorney including a surety bond, letter of credit, collateral or instrument of credit in an amount or form accepted by the Village Board.
BORINGS, SOIL	Examination and analysis of the subsoil conditions of a specific parcel of land by drilling.
BUILDING	A building Is any structure, with a permanent roof, separated on all sides from adjacent open space by exterior or party walls, built for support, shelter, or enclosure of persons, animals, chattels, or moveable property or any kind, and which is permanently affixed to the land acting as a subordinate station for the distribution of electric current of other utilities.
BUILDING OFFICIAL	The Building Official of the Village or duly authorized representative.
BUILDING PERMIT	A permit issued by the Village for the construction, erection, or alteration of a building or structure.
COMPREHENSIVE PLAN	A comprehensive plan is a plan for the Village including graphic and written proposals indicating the general locations recommended for the streets, parks, schools, public buildings, land use areas, and all physical developments of the Village, including any unit or part of such plan separately adopted and any amendment to such plan and parts thereof, recommended by the Plan Commission and adopted by the Village Board.
CORES , PAVEMENT	Samples of the completed surface and/or sub-surface of a finished pavement obtained by removing a core by drilling.
COVENANTS	Covenants are contracts entered into between private parties and constitute a restriction on the use of all private property within a subdivision for the benefit of property owners; and to provide mutual protection against undesirable aspects of development which would tend to impair stability of values.
CROSSWALK	A public right-of-way located across a block to provide pedestrian access to adjacent streets or alleys.
CUL-DE-SAC	A minor street of short length, having one end open to traffic and being permanently terminated at the other end by a vehicular turn-around.

CURB	The permanent edge of a paved surface designed to separate the vehicular travel way from the parkway.
DATUM PLANE	A reference point from which elevations are measured. The datum plan is a mean sea level as established by the United States Geological Survey (U.S.G.S.)
DETENTION BASIN	A covered or uncovered reservoir designed to hold an excessive accumulation of stormwater runoff so as to reduce peak flow in a stormwater drainage system.
DETENTION (DRY STORAGE)	The temporary on-site storage of stormwater runoff, which does not include any permanent water surface.
DEVELOPMENT	Any activity, excavation or fill, alteration, removal of vegetation, subdivision, change in land use, or practice, undertaken by private or public entities that affects the discharge of stormwater; or any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials in flood plain, flood way, wetland, waters or buffer areas. The term "development" does not include maintenance.
DEVELOPMENT PLAN	The documentation, both written and diagrammatic, which sets forth the improvements proposed for any given lot or tract.
DRAINAGE SWALE	A drainage ditch of shallow depth with small side slopes.
EASEMENT	An easement is an authorization or grant by a property owner for the use by another and for a specific purpose, of any designated part of his property.
ELEVATIONS	The vertical distance measured from a point on the ground to the datum plane.
EXCAVATION	Excavating shall mean any substantial changing of the grade or subgrade of a tract of land by cutting, scraping, grading, trenching, digging, filling in, or otherwise reshaping the natural contour of the ground. The following shall not be construed as excavating: 1. Any cutting, grading, trenching, digging, or backfilling of any foundation of a building approved for construction. 2. Any cutting, grading, trenching, digging or backfilling for any sewer or water system which has been approved for construction or reconstruction.

3. Top dressing in an area of existing homes, when such top dressing does not change the drainage patterns.

EXISTING GRADE	The vertical location of the existing ground surface prior to excavation or filling.
FILL	Any act by which earth, sand, gravel, rock or other material is deposited, placed, replaced, pushed, dumped, pulled, transported or moved to a new location and shall include the conditions resulting therefrom.
FLOOD PLAIN	The area adjacent to the including a body of water with ground surface elevations at or below a specified flood elevation.
FLOOD PROTECTION ELEVATION (FPE)	The base flood elevation plus two (2) feet of freeboard.
FLOODWAY	The channel and that portion of the flood plain adjacent to a stream or watercourse that is needed to convey the base flood without cumulatively increasing the water surface elevation more than 0.1 feet.
GRADE	The slope of land, road, street, or other public way expressed in percent.
GRADIENT OR PERCENT OF GRADE	The vertical rise in feet per one hundred (100) feet of horizonal distance. (A one (1) percent grade is a rise of one (1) foot in one hundred (100) feet, for example.)
IMPROVEMENTS	Grading, street surfacing, curbs, gutters, sidewalks, water mains, fire hydrants, sanitary sewers, storm sewers, culverts, trees, bushes, landscaping and other additions or modifications to the natural state of the land which increase its value, utility or habitability in accordance with the provisions of these Development Standards.

A. **Private Improvement:** Any installed or constructed facility for which the responsibility of maintenance and ownership will be retained by the owner or a homeowner association.
B. **Private Common Improvements:** Any installed or constructed facility for which the responsibility of maintenance and ownership will be retained by the homeowner or an association. This includes amenities such as, swimming pools, tennis courts, parks, etc.
C. **Public Improvement:** Any facility for which the Village or other units of government may ultimately assume the responsibility for maintenance and

operation or which is constructed for general public use or benefit.

LOT	A tract, plot, or portion of a subdivision or other parcel of land intended as a unit for the purposed, whether immediate or future of transfer of ownership or for the building development.
LOT, CORNER	A lot situated at the intersection of two (2) or more streets, where the interior angel of such intersection coterminous with the right-of-way lines of such streets does not exceed one hundred thirty-five (135) degrees.
LOT, INTERIOR	Any lot other than a corner lot.
LOT, THROUGH	A lot having frontage on two (2) parallel or approximately parallel streets and which is not a corner lot. On a through lot, both street lines shall be deemed front lines.
LOT OF RECORD	A lot which is part of a subdivision, the plat of which has been recorded in the Office of the Recorder of Deeds of the County; or a parcel of land, the deed to which was recorded in the Office of said Recorder of Deeds pursuant to the Illinois Compiled Statutes Chapter 109 (Plats Act), paragraph I(b).
OFFICIAL MAP	The map showing the streets, highways and parks therefore laid out, adopted and established by law and any amendments or additions thereto resulting from the Village Board action or the approval of subdivision plants. (See chapter 24, Section 11-12-5 of the Illinois Revised Statutes.
OWNER	Any individual, firm, association, partnership, corporation, trust, or any other legal entity having sufficient propriety interest in the land sought to be subdivided to commence and maintain proceedings to subdivide the same under these Development Standards.
PARCEL	A continuous area or acreage of land which can be described as provided for in the Plats Act. (Chapter 109, Illinois Compiled Statutes as amended.)
PARKWAY	The part of the public street right-of-way not occupied by the street pavement and located between the back of the curb and the sidewalk as well as the diving strip of a roadway.
PAVEMENT	Road excavation, aprons, base course, binder course, surface course, curb and gutter, sidewalk, streetlights and related appurtenances, excluding those in parking lots, as required in these Development Standards.

PEDESTRIAN WAY	A right-of-way or easement across or within a block for use by pedestrian traffic; and shall include but not be limited to, sidewalks and crosswalks.
PERSON	Any individual, partnership, co-partnership, firm, school district, company, corporation, association, joint stock company, trust, estate, unit of local government, special taxing district, public utility, political subdivision, state agency, or any other legal entity, or owner, or any legal representative, agent or assign thereof.
PLAN COMMISSION	The words “Plan Commission” as used herein, refer to the Plan Commission of the Village of Itasca, Illinois.
PLANNED DEVELOPMENT	A parcel of an or contiguous parcels of land of a size sufficient to create its own character controlled by a single landowner or by a group of landowners in common agreement as to control, to be developed as a single entity; the character of which is compatible with adjacent parcels, and the intent of the zoning district or districts in which it is located; the developer or developers may be granted relief from specific land use regulations and design standards, and may be granted variation(s) in return for assurances of an overall quality of development, including any specific features which will be of exceptional benefit to the community as a whole and which would not otherwise be required by the Zoning Ordinance. The area of a Planned Development shall remain under one ownership or unified control unless safeguards are provided that, in the opinion of the Plan Commission, will provide for the continuation of the original Planned Development concept and as modified from time to time by the Plan Commission and approved by the Village Board.
PLAT	A plan, map or chart of a subdivision or land. A. **Preliminary Plat:** A map showing all requisite details of a proposed subdivision submitted to an approving authority for purposes of preliminary consideration, prepared in conformance with the Plats Act and the Subdivision Regulations. B. **Final Plat:** A map of all or part of a subdivision providing substantial conformance to the Preliminary Plat of a subdivision prepared in conformance with the requirements of the Plats Act and the Subdivision Regulations for the recording by the County Recorder.
PLATS ACT	Chapter 109 of the Illinois Compiled Statutes, as amended.

RESUBDIVISION	The relocation of property boundaries, or the re-allocation of property in a plat of record. The dissolution of property lines not accompanied by the relocation of new property lines shall not constitute resubdivision.
RETENTION BASIN	A wet bottom stormwater storage area that is designed to be maintained with a free water surface or pond. Also known as a site runoff storage facility.
ROADWAY OR ROAD	Whenever the words, "road" or "roadway" are used in these Development Standards, it shall be deemed the paved area existing on the street right-of-way and not the street right- of-way width and shall· include all curb and gutter facilities.
SETBACK LINE	A line parallel to the street right-of-way line at a distance from it, required by the front yard requirements of the Itasca Zoning Ordinance.
SIDEWALK	That portion of the street or crosswalk way, paved or otherwise surfaced, intended for pedestrian use only.
SITE	A lot or parcel of land, or a contiguous combination thereof, where grading work is performed as a single unified operation.
SITE PLAN	A map or diagram of a parcel or lot depicting the boundaries of the property and the location of all existing and proposed buildings and site improvements, including parking and landscaping; with approximate dimensions indicated.
SOIL TESTING	Determination and analysis of the subsoil conditions of a specific land area by use of soil borings.
SPECIAL FLOOD HAZARD AREA (SFHA)	An area having special flood, mudslide or mudflow, or flood-related erosion hazards, and which area is shown on a FEMA Flood Hazard Boundary Map or Flood Insurance Rate Map as Zone A, AO, A1-30, AE, A99, AH, VO, V1-30, VE, V, M, or E.
STREET	A street is a primary means of vehicular access to abutting properties, whether designated as a street, avenue, highway, road, boulevard, lane, throughway, or however otherwise designated, except driveways to buildings, whether in public or private ownership.
STREET, COLLECTOR	A street penetrating neighborhoods which collects traffic from minor streets in the neighborhoods and channel it into the arterial systems. A minor amount of through-traffic may be carried on and carries local traffic movements within

	residential neighborhoods and commercial and industrial areas.
STREET, FRONTAGE ROAD	A minor street which is parallel and adjacent to arterial streets and which provides access to abutting properties and protection to local traffic from fast, through moving traffic on arterial streets.
STREET, ARTERIAL	An arterial street is a major or minor street of greater continuity which is intended to serve as a large volume traffic-way for both immediate area and regions beyond, and may be designated on the Village's Comprehensive Plan, as amended, as a principal or minor arterial, parkway, tollway, freeway, expressway, or equivalent term to identify those streets comprising the basic structure of the street plan.
STREET, LOCAL	Streets not classified in a higher system, providing direct access to abutting land and access to the higher systems. They offer the lowest level of mobility and have limited continuity to discourage through-traffic.
STREET, PRIVATE	An undedicated street, generally within a Planned Development which is privately owned or maintained or an easement of access benefiting a dominant tenant.
STREET, PUBLIC	Any arterial, collector, or local street which is shown on the subdivision plat and is or is to be dedicated to public use.
RIGHT-OF-WAY	A general term denoting land, property, or interest therein, acquired for or used as a roadway or pedestrian way or other public use.
STREET WIDTH	The shortest distance between lines of lots delineating the public street.
SUBDIVIDER	The person or persons responsible for preparing and recording the plats of the subdivision and for carrying out all appropriate requirements including responsibility for public improvements installation relating thereto as outlined in the Development Standards.
SUBDIVISION	A Planned Development is, for the purposes of these Development Standards, a subdivision whether or not it is divided into two (2) or more parts. A subdivision is also the division of land into two (2) or more lots or parcels, any of which is less than five (5) acres, for the purpose, whether immediate or future, of transfer of ownership or building. development, including all public streets, ways for public service facilities, parks, playgrounds, school

grounds, or other public grounds, and all the tracts, parcels, lots or blocks, and numbering of all such lots, blocks or parcels by progressive numbers, giving their precise dimensions. The term subdivision includes resubdivision and, where it is appropriate to the context, relates to the process of subdividing or to the land subdivided, provided however, the following shall not be considered a subdivision but shall be in conformance with the requirements of the Development Standards, where applicable.

1. The division of subdivision of land into parcels or tracts of five (5) acres or more in size which does not involve any new streets or easements of access.
2. The division of lots or blocks of less than one (1) acre in any recorded subdivision which does not involve any new streets or easements of access.
3. The sale or exchange of parcels of land between owners of adjoining and continuous land.
4. The conveyance of parcels of land or interest therein for use as a right-of-way for railroads or other public utility facilities and other pipelines which does not involve any new streets or easements of access.
5. The conveyance of land owned by a railroad or other public utility which does not involve any new streets or easements of access.
6. The conveyance of land for highway or other public purposes or grants or conveyances relating to the dedication of land for public use or instruments relating to the vacating of land impressed with a public use.
7. Conveyances made to correct descriptions in prior conveyances.
8. The sale of exchange of parcels or tracts of land following the division into no more than two (2) parts of a particular parcel or tract of land existing in July 17, 1959 and not involving any new streets or easements of access.
9. The sale of a single lot of less than five (5) acres from a larger tract when a survey is made by a registered surveyor, provided, that this exemption shall not apply to the sale of any subsequent lots from the same larger tract of land, as determined by the dimensions and configuration of the larger tract on October 1, 1973, and provided also that this exemption does not invalidate any local requirements applicable to the subdivision of land. (See Chapter 109, Plats Act, Illinois Revised Statutes.)

SUBSTANTIAL IMPROVEMENT	Any reconstruction, rehabilitation, addition, or improvement of a structure taking place during a ten-year period, in which the cumulative percentage of improvements equals or exceeds fifty (50) percent of the market value of the structure before the improvement or repair is started. Substantial improvement is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the building. This term includes structures that have incurred repetitive loss or substantial damage, regardless of the actual work done. The term does not, however, include either (1) any project for improvement of a structure to comply with existing state or local health, sanitary, or safety code specifications which are solely necessary to assure safe living conditions, or (2) any alteration of a "historic structure" listed on the national register of historic places or the Illinois register of historic places, provided that the alteration will not preclude the structure's continued designation as a historic structure.
THOROUGHFARE	A street with a high degree of continuity and serving as an arterial traffic-way between the various districts of Itasca and its environs.
VILLAGE	The Village of Itasca, Illinois
VILLAGE BOARD	The Village Board of Trustees of the Village of Itasca, Illinois
VILLAGE ENGINEER	The designated Engineer of the Village of Itasca, Illinois or the duly authorized representative.
WATER LEVEL, NORMAL	The design elevation of the water surface to be contained at all times within a detention basin, retention basin, or site runoff storage facility (terms used interchangeably).
WATER LEVEL, HIGH	The maximum depth of water designed to be contained within a detention basin, retention basin, or site runoff storage facility (terms used interchangeably). during periods of peak stormwater runoff resulting from a 100-year storm event.
ZONING ORDINANCE	The Itasca, Illinois Zoning Ordinance, as amended.

SECTION 6.00 - CONSTRUCTION. DESIGN, AND INSTALLATION STANDARDS FOR IMPROVEMENTS

6.01 - IMPROVEMENTS SUMMARY

Any subdivision approved under the Development Standards, any development subject to the Development Standards, and any development intending to construct improvements which are addressed in the Development Standards, shall comply with the required improvement stated in the Development Standards. Subdividers and developers shall construct all public improvements to specifications and cause the completed improvements to be dedicated to the Village or appropriate agency or unit of government. All private improvements shall be completed as required and approved by the Village. Private improvements shall remain under the ownership of the developer and shall be continuously maintained.

6.02 - SITE DEVELOPMENT, GRADING, EROSION. SEDIMENTATION, AND DUST CONTROL

6.02.A. Site Development Plans:

Site Development Plans shall include the following information:

6.02.A.1. A vicinity map, in sufficient detail to enable easy location in the field of the site for which plat and/or permit approval is sought, and including the boundary line and approximately acreage of the site, and a legend and scale.

6.02.A.2. A plan of the site showing:

6.02.A.2.a. Existing topography of the site and adjacent land within approximately one hundred (100) feet of the boundaries, drawn at no greater than one (1) foot contour intervals and clearly portraying the conformation and drainage pattern of the area.

6.02.A.2.b. The location of existing buildings, structures, utilities, water bodies, flood plains, drainage facilities, vegetative cover, paved areas and other significant- natural or man-made features on the site and adjacent land within approximately one hundred (100) feet of the boundary.

6.02.A.2.c. A general description of the predominant soil types on the site, their location and their limitations for the proposed use.

6.02.A.2.d. Proposed use of the site, including present development and planned utilization; areas of excavation, grading and filling; proposed contours finished grades and street profiles; provisions for storm drainage; including the control of accelerated runoff, with a drainage area map

and computations; types of and locations of utilities; and areas and acreages proposed to be paved, covered, sodded or seeded, vegetative stabilized or left undisturbed.

6.02.A.2.e. The proposed phasing of development of the site, including stripping and clearing, rough grading and construction, and final grading and landscaping. Phasing shall identify the expected date on which clearing will begin, the estimated duration of exposure of cleared areas; and the sequence of clearing, installation of temporary sediment control measures, installation of storm drainage, paving streets and parking areas, and establishment of permanent vegetative cover. Include a schedule on the soil erosion and sedimentation control plan.

6.02.B. Lot Grading:

6.02.B.1. All developments shall provide lot grading in conformance with the Village Building Code and these Development Standards.

6.02.B.2. Except for approved stormwater management facilities, grading of all lots within the Village shall be accomplished in such a manner as to prevent ponding in excess of twelve (12) inches in the event of a complete failure of the storm sewer system, parking lots shall be graded such that no ponding in excess of six (6) inches occurs in the event of a complete failure of the storm sewer.

6.02.B.3. Grading shall be completed on each lot such that overland water flow is directed away from all sides of the foundation. Unless otherwise approved by the Building Official or Village Engineer all grades on a lot shall be minimum of two (2) percent and a maximum of ten (10) percent. If steeper slopes are approved, sodding, retaining walls or other special treatments may be required to protect the slopes.

6.02.B.4. Finished driveway grades on all lots, as measured from the grade at the property line to the finished garage floor shall be a minimum of two (2)percent and a maximum of eight (8) percent.

6.02.B.5. Grading plans shall be submitted for all developments. The grading plan shall indicate existing grades within one hundred (100) feet of the development Prior to final approval and acceptance of public improvements an "as built grading plan shall be submitted and sealed by a professional engineer or registered land surveyor. In cases where individual lot grading is not complete; at the time of final acceptance or where public improvements are not required grading plans for the lots shall

be submitted and approved prior to building permits being issued and the "as built" grading plans shall be submitted prior to final occupancy permits being issued.

6.02.C. Erosion and Sedimentation Control:

6.02.C.1. Except as provided herein, no plat of subdivision or development plan shall be approved unless the plat or plan and accompanying materials indicate that measures to be taken to control erosion and sedimentation will be adequate, to assure that sediment is not transported from the site by a temporary increase in runoff from any storm event and that the following principles will be applicable to all development activities in the area to be subdivided:

6.02.C.1.a. Development shall be related to the topography and soils of the site so as to create the least potential for erosion. Areas of steep slopes where high cuts and fills may be required should be avoided wherever possible, and natural contours should be followed as closely as possible.

6.02.C.1.b. Natural vegetation shall be retained and protected wherever possible. Areas immediately adjacent to natural watercourses, lakes, ponds, and wetlands should be left undisturbed wherever possible. Soil disturbance shall be conducted in a manner that minimizes erosion. Areas of the Development Site that will not be graded shall be protected from construction traffic or other land disturbance activities.

6.02.C.1.c. The smallest practical area of land shall be exposed for the shortest practical time during development.

6.02.C.1.d. Sediment basins, debris basins, desilting basins, or silt traps or filters shall be installed and maintained to remove sediment from runoff waters for any land undergoing development. Basins shall be sized in accordance with DuPage County Stormwater and Flood Plain Ordinance.

6.02.C.1.e. The selection of erosion and sedimentation control measures shall be based on analysis of existing site conditions and intended use of site and duration of control measures including the susceptibility of the existing soils to erosion, existing native and mature vegetation, existing natural or established drainage ways, the natural contours of the land, development phasing, emphasis primarily on erosion control, secondarily on sediment control and winter shut down.

6.02.C.1.f. In the design of erosion control facilities and practices, aesthetics and the requirements of continuing maintenance shall be considered. However, permanent erosion control measures will be required for projects greater than 12 months in duration.

6.02.C.1.g. Provision shall be made to accommodate the increased run-off caused by changed soil and surface conditions during and after development. Channels and adjoining properties shall be protected from erosion and sedimentation. Where concentrated flow leaves a Development site, effective energy dissipation shall be placed onsite at discharge locations.

Drainageways should be designed so that their final gradients and the resultant velocities of discharges will not create additional erosion, and should be protected against erosion and sedimentation during development. ·

6.02.C.1.h. Permanent vegetation and structures shall be installed as soon as practical during development.

6.02.C.1.i. All temporary erosion control measures shall be removed within 30 days after final stabilization is achieved. Trapped sediment and other disturbed soils resulting from temporary measures shall be properly disposed of prior to permanent stabilization.

Permanent or temporary stabilization must be applied within 15 calendar days of end of active disturbance.

6.02.C.2. All developments, whether public or private, shall include a plan for soil erosion and sedimentation control in accordance with the DuPage County Stormwater and Flood Plain Ordinance, the Illinois Urban Manual, and IDOT Standard Specifications for Road and Bridge Construction, and the provisions set forth herein.

6.02.C.2.a. Erosion and sediment control due to runoff, equipment leaving and entering a construction site, wind, etc., is required for all construction in the Village of Itasca. Site engineering plans for projects shall therefore contain an erosion control plan. The plan shall conform to the provisions of the DuPage County Stormwater and Flood Plain Ordinance and as set forth herein.

6.02.C.2.b. Steep slopes or extreme cuts and fills are to be avoided whenever possible. As much natural vegetation as possible shall be retained especially next to lakes, creeks, or other natural water sources.

6.02.C.2.c. The erosion control plan shall indicate the location of soil stockpiles and specify seed materials to be used on those stockpiles. Seeding shall be required for all soil stockpiles that remain on site longer than two weeks. Soil stockpiles shall not be located in a drainage way, floodplain, or designated buffer, unless otherwise approved by Village Engineer and County Director. Stockpiles to remain in place for more than three days shall be provide with soil erosion and sedimentation control measures.

6.02.C.2.d. Erosion control measures shall be used which include but are not limited to sediment basins, diversion channels, stone haul roads at all stabilized construction entrances and pavement cleaning operations, silt fences, , and any other measures necessary or as directed by the Village Engineer. The use of straw bales as filter barrier, inlet protection or ditch check is strictly prohibited. Ditch checks shall be constructed using non-erodible materials or prefabricated devices. Standard details from the Illinois Urban Manual for all selected measures shall be included on the erosion control plans.

. Inlet protection filters are required in or around inlet structures, catch basins and manholes.

Drainage areas 1 acre to 5 acres in area shall, at a minimum be protected by a sediment trap or equivalent control measure at a point downslope of the disturbed area. Drainage areas greater than 5 acres shall, at a minimum, be protected by a Sedimentation Basin per the DuPage County Stormwater and Flood Plain Ordinance.

6.02.C.2.f. Seeding mixtures and rates, types of sod, method of seedbed preparation: expected seeding dates, type and rate of lime and fertilizer application, and kind and quality of mulching for both temporary and permanent vegetative control measures. Seed mixtures should be selected according to site conditions, planned use, and duration of use as well as the date of seeding.

Following all site construction, but immediately prior to topsoil placement, the subgrade should be scarified to a depth of four inches (4) inches by disking or harrowing to permit the bonding of the topsoil and the subsoil. Topsoil should be spread at a compacted minimum depth of six (6) inches. Erosion control blanket shall be installed on all slopes 8:1 or steeper.

6.02.C.2.g. An erosion control guarantee shall be placed with the Village as required by the DuPage County Stormwater and Flood Plain Ordinance, but in no case shall it be less than one thousand five hundred (1,500) dollars per acre of site construction. This amount shall be included in the engineer's estimate for all site improvements. If a project consists solely of a grading permit or if earth work commences prior to final project approval, a separate cash deposit will be required in the amount specified above.

6.02.C.2.h. Provisions for maintenance of control facilities, including easements and estimates of the cost of maintenance.

6.02.C.2.i. At the completion of any project, storm sewer, gutters, etc., will be inspected by the Village to determine any cleaning or flushing of trapped sediment which may be required due to erosion. The responsibility for any remedial work lies with the site developer.

6.02.C.2.j. Identification of the person(s) or entity which will have legal responsibility for maintenance of erosion control structures and measure after development is completed.

6.02.C.2.k. These submissions shall be prepared in accordance with the standards and requirements contained in the Illinois Urban Manual, which standards and requirements are hereby incorporated into the Development Standards.

6.02.C.2.l. Provide a temporary concrete facility either portable or non-portable (above or below grade) in accordance with Illinois Urban Manual.

6.02.C.2.m.

6.02.D. Dust Control:

The developer and contractors shall use a water wagon or other acceptable means on the project site to control dust. All streets used by the developer, contractors or suppliers in or adjacent to the development shall be kept free of debris, dirt, dust, and mud. Streets shall be left in a clean condition at the end of each day's work. Developers and contractors who fail to keep streets clean shall be responsible for expenses incurred by the Village as provided in the Village Building Code.

6.03 – RIGHT-OF-WAY DEVELOPMENT AND SUBDIVISION STANDARDS

Subdivisions and developments within the Village shall be designed and constructed in accordance with the following standards.

6.03.A Public Right-Of-Way:

The standards set forth in these Development Standards shall be the minimum standards for streets, roads, and intersections. The arrangement, character, extent, width, grade and location of all streets shall conform to these Development Standards and the Comprehensive Plan as adopted by the Village Board. They shall be considered in their relation to existing and planned streets, to topographic conditions, to public convenience and safety, and in their appropriate relation to proposed uses, and arterial streets, in all cases, shall be dedicated to public use. All public streets shall be completely improved to the full width of the right of way. All street improvements shall be extended to the boundaries of the subdivision or development.

6.03.A.1. General Street Layout and Design:

6.03.A.1.a. The arrangement of streets shall either:

(1) Provide for the continuation of existing streets in surrounding area; or

(2) Conform to a plan for the adjacent area adapted to meet a particular situation where topographical or other conditions make continuance or conformance to existing streets impracticable.

6.03.A.1.b. Local streets shall be so designed to discourage through traffic.

6.03.A.1.c. Where a parcel abuts or contains an existing arterial or collector street, as shown on the Comprehensive Plan, Zoning Map or Official Map, the Plan Commission may recommend and the Village Board may require frontage roads, double frontage lots with screen planting contained in a nonaccess reservation not less than ten (10) feet wide along the rear property line, or such other treatment as may be necessary for adequate protection of residential properties and to separate and local traffic.

6.03.A.1.d. When any parcel or part of a parcel is adjacent to only one side of an existing right-of-way, which is less than the required width by the Development Standards or the Official Map, the applicant shall dedicate additional right of way to meet the specifications of these Development Standards.

6.03.A.1.e. Half streets are not permitted.

6.03.A.1.f. Where adjoining areas are not subdivided, the arrangement of streets in new subdivisions shall be extended to the boundary line of the tract to make provision for the future projection of streets into adjacent areas.

6.03.A.2. Right-Of-Way Widths:

All public streets shall be designed and developed in accordance with the standards set forth in this Section, Table VI-I Minimum Standards for Street Design.

TABLE VI-I
MINIMUM STANDARDS FOR STREET DESIGN

Street	Right-of-Way Width	Pavement Width to Edge of Pavement	Street Width to Back of Curb	Radius of Horizontal Curves	Maximum Gradient	Minimum Gradient
Arterials	100'	54'	57'	400'	5%	0.6%
Collector And Industrial[1]	80'	36'	39'	300'	5%	0.6%
Local and Cul-De-Sac[2,3]	66'	27'	30'	150'	7%	0.6%

1. Width of collector may be reduced for reconstruction from rural to urban cross section in developed areas where existing right of way is less than required, or if approved by IDOT for federally funded projects.
2. For streets being reconstructed from rural to urban cross section in developed areas, pavement width to be 25' edge to edge of pavement and 28' back to back of curb, or match adjacent existing urbanized roadway widths.
3. Rolled curbs may be permitted on cul-de-sac bulbs

6.03.A.3. Intersections and Offsets:

6.03.A.3.a. Streets shall intersect at ninety (90) degrees whenever possible. No two (2) streets shall intersect at an angle less than seventy-five (75) degrees. An oblique street should be curved approaching an intersection and should be at right angles for a minimum of one hundred (100) feet therefrom.

6.03.A.3.b. No more than two (2) streets shall intersect at any one point.

6.03.A.3.c. Proposed intersections along one side of an existing street shall, whenever practicable, coincide with any existing intersections on the opposite side of such street. Street or driveway jogs with centerline offsets of less than one hundred fifty (150) feet shall not be permitted and jogs with center-line offsets of less than two hundred twenty-five (225) feet between local and collector or arterial streets shall be discouraged, except where the intersected street or

driveway has separate dual drives without median breaks at either intersection.

6.03.A.3.d. Intersections shall have a minimum curb radius of twenty-five (25) feet for local streets, thirty (30) feet for collector streets, and forty (40) feet for arterials.

6.03.A.3.e. Provisions shall be made for vehicular and pedestrian access to residential property abutting an arterial street either by providing: (a) a frontage road, or (b) by backing lots to the thoroughfare and providing access by a collector, local, or cul-de-sac street one (1) lot depth removed and with a no-access strip easement not less than ten (10) feet wide along the rear lot line. These standards are established for the purpose of providing protection for the residential properties and to provide for traffic safety and the efficient use of the major street for its intended function of accommodating through traffic.

6.03.A.3.f. When an existing or proposed lot's only access is from an arterial street, the intersection of a proposed driveway with the arterial street may require the installation of acceleration/deceleration lanes along the arterial street to provide for vehicular safety.

6.03.A.3.g. A clear line of sight shall be provided at all intersections. (See Section 6.03.B..7.)

6.03.A.4. <u>Frontage Roads</u>:

6.03.A.4.a. Frontage roads may be required to provide access to adjacent land and adequate vehicular safety when property to be developed is adjacent to an arterial. Whenever a frontage road is to be dedicated to public use, it shall conform with the requirements of the Development Standards regarding right of way and improvement specifications.

6.03.A.4.b. Frontage roads shall be approximately parallel to the arterial.

6.03.A.4.c. Where possible, a minimum distance of seven hundred fifty (750) feet shall be required between points of ingress and egress to the arterial.

6.03.A.5. <u>Cul-de-sacs</u>:

Cul-de-sacs may be permitted in subdivisions where land availability, site planning, or traffic control purposes determine a through street is not practicable.

6.03.A.5.a. The maximum length of a cul-de-sac shall be five hundred (500) feet as measured from its origin with the right of way of the intersecting street through the center point of the bulb to the end of the right of way.

6.03.A.5.b. The bulb of a cul-de-sac shall have a minimum right of way of one hundred twenty (120) feet in diameter or, if offset, one hundred ten (110) feet in diameter.

6.03.A.5.c. The bulb of a cul-de-sac shall have a minimum pavement diameter of ninety (90) feet.

6.03.A.5.d. A maximum of five (5) lots shall have frontage on the bulb of a cul-de-sac.

6.03.A.6. State or County Approvals:

Any construction within or changes to rights-of-way under the jurisdiction of the State of Illinois, county, or township shall require the approval of that jurisdiction in addition to Village approval before any construction is allowed to begin.

6.03.A.7. Street Names:

6.03.A.7.a. Streets that are extensions of, or in alignment with, existing streets shall bear the name of the existing street. All new street names shall be approved by the Village Board.

6.03.A.7.b. The developer shall place street signs at the intersection of any two (2) streets to identify all streets. Signs and poles shall be of a type, dimension, color, height, and location as required by the Village.

6.03.A.8. Pavement Design and Specifications:

6.03.A.8.a. General:

The arrangement, character, extent, width, grade and location of all streets to be dedicated to the public, all parking lots and all private streets shall be compatible and complimentary to existing and planned streets, to reasonable circulation of traffic within any development and adjoining lands, to topographical conditions, to runoff of storm water, to public convenience and safety, and in their relations to the proposed uses of the area to be served. All traffic intersections and confluences must encourage safe and efficient traffic flow.

At its discretion, the Village of Itasca may require the developer or his engineer to submit pavement core samples

and soil samples of existing roadways together with a soil report prepared by a soils professional engineer to document the structural adequacy of the existing pavement for the proposed use. The report shall be submitted for review and approval by Village Staff.

The use of all geotextile products shall be approved by the Village staff. Such products shall be utilized in accordance with the manufacturer's recommendations and IDOT Special Provisions with regard to the intended application and installation procedure and shall be supported by a written recommendation from the developer's soils engineer.

6.03.A.8.b. <u>Design References</u>:

All pavements shall be designed in accordance with one (1) or more of the following references as they apply:

(1) Bureau of Design and Environmental Manual, Illinois Department of Transportation, latest edition.

(2) Bureau of Local Roads and Streets Manual Illinois Department of Transportation, latest edition.

(3) Standard Specifications for Road and Bridge Construction, Illinois Department of Transportation, latest edition.

(4) Supplemental Specifications and Recurring Special Provisions, latest editions and updates (IDOT)

(5) Design Manual, latest edition (IDOT)

(6) Construction Manual, latest edition (IDOT)

(7) Soils Manual, latest edition (IDOT)

(8) Highway Standards, latest edition (IDOT)

(9) Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices, latest edition

(10) Traffic Control Devices Handbook, latest edition, (FHWA)

(11) Procedures and Standards for Urban Soil Erosion and Sedimentation Control, latest edition

(12) Manual of Instructions for Concrete Proportioning and Testing, latest edition (IDOT)

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

(14) A.S.T.M. Specifications, latest edition

(15) A.A.S.H.T.O. Standards, latest edition

(16) Recommended Practices for Subdivision Streets (I.T.E.)

(17) Illinois Accessibility Code, current legislation

(18) American Disability Act (ADA), current legislation

(19) Public Rights-of-Way Accessibility Guidelines (PROWAG), latest edition

(20) ITE Geometric Standards

(21) IDOT Motor Fuel Tax requirements

(22) The Village Development Standards.

6.03.A.8.c. <u>Pavement Design:</u>

(1) All pavement shall be designed in accordance with the previously referenced specifications and manuals. Concrete pavement will not be allowed for Village roads. The design thickness shall be dependent on the soil support value – Illinois Bearing Ratio (IBR) – and the projected traffic factor; however, in no case, shall the structural numbers or total section thickness be less than those shown in Table VI-2. A copy of all design assumptions and computations (i.e. design speed, traffic generation, design vehicles, soil data) shall be submitted with the final engineering plans.

(2) <u>Mix Design and Gradation:</u> Bituminous concrete base course, bituminous concrete binder course and bituminous concrete surface course shall meet the mix design and gradation for the State of Illinois specifications for Bituminous Aggregate Mixture, Bituminous Concrete Binder Course Class 1 modified, and Bituminous Concrete Surface Course Class 1 modified, respectively. All mix designs shall be submitted for approval by the Village Staff. The surface course on all roadway construction and

pavement widening shall be comprised of only virgin materials; the use of recycled materials is not allowed in the surface course.

(3) Flexible Pavement Design: The design of the flexible pavement sections shall be based upon the existing soil conditions and projected traffic volumes. The minimum structural number for arterial roadways shall be determined by projected traffic counts and actual soil conditions. Although minimum structural numbers are specified, the design engineer shall prepare a roadway design which meets the pavement life criteria. This may, under some conditions, necessitate a pavement structural value higher than the required minimum. All pavement designs must be supported by design calculations which are to be submitted together with the final engineering plans. Arbitrary sections are not permissible. All flexible pavement designs are to be supported by design calculations prepared by a qualified registered professional engineer and must specify the intended materials and construction methods. The flexible pavement shall be based on the minimum structural design number for the type of street in question. The soil support IBR values selected for use by the design engineer shall represent a minimum value for the soil to be used. Copies of the test for IBR values for each material used shall be submitted to the Village Engineer.

(4) Subgrade: A soils report, prepared by a qualified soils engineer, shall be prepared describing the subsurface and surface materials for the site and shall be submitted together with the final engineering plans. If on-site borrow pits are to be utilized by the contractor, then the locations shall be shown on the plans and are subject to approval by the Village staff. At least one (1) Standard Density Test (performed in accordance with AASHTO T99) shall be taken in each fill section, with a minimum distance between tests of three hundred (300) feet. One (1) Standard Proctor Test shall be taken from each different source of borrowed material, if required by the Village staff. The Proctor and density tests must be submitted for review and approval by the Village Staff. Upon approval of these tests, the subgrade must be approved prior to placing any type of curb and gutter or base material.

All subgrade material shall have a minimum Illinois Bearing Ratio (IBR) of 3.0. Subgrade material

having an IBR of less than 3.0 shall be removed and replaced with select suitable fill. The soil support IBR values selected for use by the designer shall represent a minimum value for the soil to be used. All subgrades shall be designed and constructed such that positive drainage is maintained and the construction site is free of standing water. Methods of grading or underdrains shall be implemented to the satisfaction of the Village Staff.

(5) Structural requirements for the various pavement sections shall be as indicated in Table VI-2. Allowable pavement construction materials and strength requirements shall be as indicated in Table VI-3.

TABLE VI-2
STRUCTURAL REQUIREMENTS

	Minimum Structural Number	Minimum Section Thickness		
		Surface	Binder	Base
Arterial Streets	4.50	2”	3”	9” BAM / 4” Agg Sub Base, Type B (CA-6)
Collector Streets Within Residential Districts	3.90	1.5”	2.5” or 6”	6” BAM / 4” Agg. Sub-Base, Type B (CA-6) or 12” Agg. Sub-Base, Type B (CA-6)
Collector Streets in All Other Districts	4.45	2”	2.5”	7” BAM / 4” Agg. Sub-Base, Type B (CA-6)
Cul-De-Sacs and Local Streets Within Residential Districts	3.40	1.5”	2.25”	6” BAM / 4” Agg. Sub-Base, Type B (CA-6) or 12” Agg.Base (CA-6) / 4” Agg. Sub-Base, Type B (CA-6)
Cul-De-Sacs and Local Streets In All Other Districts	3.50	1.5”	2.5”	6” BAM / 4” Agg. Sub-Base, Type B (CA-6) Or 12” Agg.Base (CA-6) / 4” Agg. Sub-Base, Type B (CA-6)

TABLE VI-3
ALLOWABLE PAVEMENT CONSTRUCTION MATERIALS

Structural Materials	Strength Requirements			
	*M.S.	Coefficients	I.B.R	P.S.I
Bituminous Surface				
Class I – Surface	1700	0.4		
Class I – Binder	1700	0.33		
Base Course:				
Aggregate, Type B Crushed (100%)		0.13	80	
Aggregate, Type A Crushed (100%)		0.13	80	
Bituminous Aggregate Mixture	1700	0.28	900-1900	
Portland Cement Concrete (new)				3500**

*Marshall Stability
**28-day Design Compressive Strength w/Welded Wire Fabric Reinforcing

6.03.A.8.d. Grades:

Minimum gradient on new streets shall be six-tenths percent (0.60%). Maximum gradients on new streets and minimum and maximum gradients on new driveways shall be:

Local streets – seven (7) percent maximum

All other streets – five (5) percent maximum

Residential Driveway –two (2) percent minimum, eight (8) percent maximum

All Other Driveways – two (2) percent minimum, eight (8) percent maximum

When intersecting an IDOT street, allow eight (8) percent maximum. When reconstructing existing streets and driveways which have gradients which exceed those values shown, design consideration shall be made to bring those gradients within the values shown. In no case shall gradients in excess of the values shown be allowed to deviate further.

6.03.A.8.e. <u>Vertical Curves</u>:

All changes in street grades shall be connected by vertical curves of a minimum length, in feet, as prescribed below:

(1) Local street – 100 feet, but not less than 30 feet for each percent difference in grade on a crest and 40 feet for each percent difference in grade on a sag.
(2) Collector – 300 feet but not less than 65 feet for each percent difference in grade.

If the difference in street grade does not exceed one and one-half percent, no vertical curve is necessary. If the average running speed is projected to exceed 40 miles per hour, vertical curves in excess of those specified above may be established by determination of the Village Engineer.

6.03.A.8.f. <u>Horizontal Curves</u>:

All horizontal curves shall have a minimum radius, measured at the centerline of the street. Local street minimum radius shall be 150 feet and all other street minimum shall be 300 feet. Minimum one hundred (100) foot tangents shall be introduced between reverse curves on all streets.

6.03.A.8.g. <u>Curb and Gutter</u>:

(1) Combination curb and gutter type B-6.12 shall be constructed on both sides of all streets except that in turnarounds of residential cul-de-sacs a mountable curb and gutter type M-4.12may be allowed when approved by the Village Engineer. Depressed curbs shall be provided at all driveways, regardless of curb type. Intersection sidewalk crossings shall be ramped for the disabled in accordance with ADA and PROWAG. IDOT standard details for curb ramps shall be included on engineering plans. Curb shall not be constructed integral with concrete pavements.

(2) Two (2) number four (4) reinforcing bars shall be placed continuously between expansion joints. Expansion joints shall be doweled and spaced at no more than forty-five (45) feet on center and at tangent points of all radii. Control joints shall be provided within 24 hours and spaced at no more than fifteen (15) feet on center and shall consist of a saw cut minimum of one and one-half (1 ½)

inches deep. Joints shall be sealed after cleaned and dried with an approved sealant.

(3) The contractor shall protect the curb and gutter in the public right-of-way. The Village staff shall have the sole authority in determining if the curb and gutter has been damaged. Upon request of the Village staff, the contractor shall remove the damaged sections of curb and gutter, no less than five (5) feet in length, and replace with the new curb and gutter. New curb and gutter section is to be doweled in place with two (2) dowels on each end of the replacement section. Each dowel will be a 5/8-inch diameter by eighteen (18)- inch long, coated smooth dowel bar fitted with a nine (9)-inch long, greased end in sleeves, punched stop cap that will provide one (1) inch of expansion, placed at mid-depth.

(4) Utility Identification: When newly poured curbs are installed, the contractor shall use a Village-approved stamp to indent the wet concrete with an "S" to identify the location of each sanitary sewer stub and indent the wet concrete with a "W" to identify the location of each water valve or water service. The letters shall be indented at the top of the curb and shall be one and one-half (1 1/2) inches to two (2) inches in width, embedded at least three-eighths (3/8) inch deep. If the developer and/or the contractor fail to indent the curbs as outlined above, the Village may require that identification medallions or other symbols as approved by the Village staff be affixed to the curb.

(5) Sub-Base: A uniform four (4) inch thick compacted aggregate sub-base, CA-6 gradation, extending a minimum of twelve (12) inches beyond the back of curb, is required for all roadways. In cases where the base course extends below the bottom of the gutter flag, the sub-base shall be constructed full-depth to the subgrade. Furthermore, this sub-base is considered as a structural aspect of the pavement section.

(6) Admixtures: No admixtures, other than air entrainment agents in accordance with ASTM-C-33, shall be used in the concrete without prior written approval of the Village Staff. Admixtures shall meet all applicable AASHTO and ASTM

standards and requirements. The use of calcium chloride is not allowed.

(7) Protective treatment: All concrete curb, gutter, sidewalk and other concrete pavements in the Village of Itasca shall be constructed in accordance with the protective treatment requirements of Standard Specifications for Road and Bridge Construction, latest edition. When membrane curing compounds are utilized, they shall also be of a type which provides a protective seal which is satisfactory to the Village. All membrane products should be applied in accordance with the manufacturer's recommendations.

6.03.A.8.h. <u>Pavement Construction</u>:

(1) All pavements shall be constructed in accordance with the Standard Specifications for Road and Bridge Construction, Illinois Department of Transportation, latest edition, except as provided herein, and the Village Development Standards.

(2) Not less than one (1) modified proctor density test performed in accordance the AASHTO T99, shall be taken on each type of material used for embankment or encountered in the subgrade.

(3) Density tests on embankment and subgrade materials shall be performed by a qualified and approved soils engineer in accordance with AASHTO T191 or by other methods approved by the Village Engineer. The density tests shall be taken at maximum fifty 950) foot spacings. Embankments and subgrade shall be compacted to no less than nineth0five 995) percent of the standard laboratory density. Copies of all density tests results shall be submitted to the Village Engineer.

(4) Upon completion of the compaction of the embankment and subgrade a roll test with a fully loaded single rear axle six (6) wheel truck shall be done at the direction of the Village Engineer prior to placing any type of curb and gutter or base material.

(5) Density tests on base course and surface course materials shall be performed by a qualified and approves soils and materials engineer by methods approved by the Village Engineer. The density test shall be taken at maximum one hundred (100) foot

spacings. Copies of all density test results shall be submitted to the Village Engineer. Upon completion of the base course a roll test with a fully loaded single rear axle six (6) wheel truck shall be done at the direction of the Village Engineer.

(6) Class I Binder Course shall be constructed upon approval by the Village Engineer of the base course construction.

(7) Construction of the Class I Surface Course shall be delayed for one winter season after construction of the Binder Course unless otherwise directed by the Village Engineer.

(8) The developer and contractor shall submit to the Village, at the pre-construction meeting, a construction schedule which outlines the various elements of work and the projected completion time of each element. Work shall be performed in accordance with the specifications at all times. Roadway construction shall be permitted between April 15 and November 15, weather permitting. Any work to be performed before April 15 or past November 15 shall be expressly authorized in writing by the Villager Staff prior to proceeding with the work. This authorization will in no manner void the obligation of the developer and contractor to adhere to the specifications or guarantee the work performed.

(9) Thermoplastic pavement markings and preformed thermoplastic pavement markings shall be installed in accordance with the Standard Specifications for Road and Bridge Construction.

6.03.A.8.i. <u>Materials Testing</u>:

During the construction of any public roadways and parking lots within the corporate limits of the Village of Itasca, test results and/or verification of materials and workmanship shall be provided to the Village. Failure to provide the applicable test reports will impede adjustments to bonds, letters of credit, the execution of further work, and acceptance of the improvements or the issuance of certificates of occupancy. The materials testing consultant and laboratory shall meet the general requirements of the ASTM-E-329 "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete, Steel and Bituminous Materials used in Construction." The materials

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

The right is reserved by both the owner's project engineer and the Village to order additional testing. The cost of both the initial testing and any additional testing shall be paid for by the project owner. The contractor reserves the right to contract the services of an equally qualified independent testing laboratory, at their expense, to perform additional inspections, sampling and testing when the initial tests indicate that the work is not in accordance with the contract document and specifications. The Village shall have the final authority regarding the acceptability of the work.

6.03.A.8.j. <u>Driveways and Parking Areas</u>:

(1) Driveways for single family residential buildings shall be a minimum of nine (9) feet in width for one (1) car garages and minimum of eighteen (18) feet in width for two (2) car garages as measured at the right-of-way line. All driveways shall extend to the curb or edge of pavement and shall be flared three (3) feet wider on each side at the curb.

The maximum width of driveways when measured at the property line in residential areas shall not exceed twenty-four (24) feet, (A recommendation from the Plan Commission and approval from the Village Board are required for more than one (1) driveway per lot.

Where necessary to remove and replace driveways, driveways shall be restored to a condition equal in appearance and quality to the condition prior to construction. For new construction, patches within aprons are not acceptable unless approved by the Village.

All concrete driveways shall be cured in accordance with the Standard Specifications for Road and

Bridge Construction, Illinois Department of Transportation, latest edition.

All concrete driveways and parking areas shall be air entrained, Class SI six (6) bag Portland cement with an air entrainment of 5-8%, 28-day compressive strength of 3500 psi, verified by cylinder testing and be reinforced with a minimum 6x6x10x10 welded wire fabric reinforcing throughout.

(2) **Driveways and parking areas for residential uses** shall be constructed of:

Minimum six (6) inch PC concrete, Class SI with 6x6x10x10 WWF throughout with minimum four (4) inch compacted aggregate base course, or

Minimum three (3) inch Class I bituminous surface with minimum six (6) inch compacted aggregate base course.

(3) **Light commercial and industrial driveways and parking areas** shall have a width equal to the approved driveway width at the property line. The driveway approach shall have a minimum fifteen (15) feet radius return at the street and shall be constructed of:

Minimum six (6) inch reinforced concrete with a minimum six (6) inch compacted aggregate base course, or,

Minimum two and one-quarter (2-1/4) inch Class I bituminous surface and one and one-half (1-1/2) inch bituminous binder with a minimum twelve (12) inch compacted aggregate base course.

(4) **Heavy commercial and industrial driveways and parking areas** or when, in the opinion of the Building Official, the driveway and parking area will be required to support heavy loads shall have a width equal to the approved width at the property line. The driveway approach shall have a minimum fifteen (15) foot radius return be increased to thirty-five (35) feet to prevent damage to the parkway. The driveway shall be constructed of:

Minimum six (6) inch reinforced concrete with a minimum ten (10) inch compacted aggregate base course, or

(5) Minimum one and one-half (1-1/2) inch Class I bituminous surface and two and one-quarter (2-1/4) inch bituminous binder with either a minimum fourteen (14) inch compacted aggregate base course Any open **off-street loading berths, loading areas or areas intended to be used for dumpsters** over two (2) cubic yards capacity, the parking of semi-trailers without tractor attached or other heavy concentrated loads, shall be constructed of:

Minimum eight (8) inch reinforced concrete with a minimum four (4) inches compacted aggregate base course or two (2)inches surface and two and one-quarter (2-1/4) inches binder with a minimum of fourteen (14) inches compacted aggregate base course.

6.03.A.9. Sidewalks:

6.03.A.9.a. General:

Sidewalks shall be provided within all developments. Sidewalks shall be constructed along both sides of all streets unless otherwise approved by the Village Board and shall be five (5) feet in width. Sidewalk widths of four (4) feet and four and one-half (4-1/2) feet are allowed when matching existing sidewalks or when otherwise approved by the Village Board. Sidewalks shall be located within public right of way one (1) foot from the right-of-way lane, unless otherwise approved.

6.03.A.9.b. Construction:

(1) Sidewalks shall confirm to the requirements of the article for Portland Cement Concrete Sidewalk in the Standard Specifications for Road and Bridge Construction, Illinois Department of Transportation, latest edition, except as provided herein, and the Village Development Standards.

(2) Sidewalks shall be a minimum of five (5) inches thick plain concrete except at driveways where the thickness shall equal that of concrete driveways (min. 6” thickness) with 6x6x10x10 WWF and, where such sidewalk shall run through all driveways.

(3) Three (3) number five (5) reinforcing bars ten (10) feet long shall be placed in the sidewalk at all new trench crossing locations.

(4) Control joints shall be placed at five (5) foot spacings and appropriate expansion joints shall be provided at fifty (50) foot spacings.

(5) Sidewalks shall be placed on a minimum four (4) inch well-compacted crushed stone base course, except where reconstructing existing sidewalks, sufficient well compacted crushed stone shall be added to level the base course, but in no case, shall its thickness be less than two (2) inches.

(6) Reinforcing shall be provided at driveways to match driveway requirements.

(7) Curb ramps and detectable warnings shall be provided in accordance with the appropriate section of the Standard Specifications for Road and Bridge Construction, Illinois Department of Transportation, latest edition. Linear and radial detectable warning tiles shall be installed in compliance with IDOT, ADA, PROWAG, and Illinois Accessibility Code requirements. The detectable warning plate(s) shall be as manufactured by ADA Solutions, Inc. or approved equal, Dark Grey in color and meet the Village of Itasca's Standards.

(8) Backfilling and Restoration**:** The sub-base material shall be laterally supported by a sufficient amount of initial backfill material to prevent movement of the sub-base during placement of the concrete and/or removal of the form work. As soon as possible, but not later than 7 days after the placement of the concrete, the sidewalk and parkway shall be backfilled to the required elevation with suitable embankment material and topsoil. The embankment material shall be compacted until firm, and the topsoil neatly graded.

(9) Protective Treatment: All public sidewalks in the Village of Itasca shall be placed and cured in accordance with the requirements of the Standard Specifications for Road and Bridge Construction, Illinois Department of Transportation, latest edition. When membrane curing compounds are utilized they shall also be of a type which provides a protective seal which is satisfactory to the Village

Engineer. All membrane products should be applied in accordance with the manufacturer's recommendations.

6.03.A.10. Bike Paths & Multi-Use Paths:

Whenever constructed within the Village, bike and multi-use paths shall conform to the following standards:

6.03.A.10.a. Bike and multi-use paths shall be a minimum of eight (8) feet in width to provide for two-way traffic.

6.03.A.10.b. The minimum construction of any bike or multi-use path shall consist of a six (6) inch type B aggregate base course with a two (2) inch bituminous surface course.

6.03.A.10.c Bike and Multi-use paths shall have removable posts placed at all locations necessary to prevent vehicular traffic from entering the paths.

6.03.A.10.d. Construction of any bike or multi-use path shall conform to the Standard Specifications for Road and Bridge Construction, Illinois Department of Transportation, latest edition, except as provided herein, and the Development Standards.

6.03.A.10.e Bike and multi-use paths and lanes shall be appropriately marked and striped, unless otherwise approved by the Village.

6.03.A.11. Burial of Overhead Utilities:

All existing overhead utility lines must be buried underground upon development of an undeveloped parcel. All costs associated with said burying shall be borne by the developer. All proposed utility lines must be similarly buried underground with the proposed development. No overhead utilities will be allowed in proposed developments.

6.03.A.12. Franchise Utilities:

Franchise utilities shall meet the following requirements:

1. All Village utilities that cross proposed utility route or are parallel and close to the proposed utility route shall be shown.
2. Lengths and type of construction for each segment of the proposed improvements (i.e. open cut, directional boring, overhead) shall be identified.
3. Location information (i.e. offset from back of curb, sidewalk, building, or other physical feature) shall be provided.

4. All franchise utilities shall have five (5) feet separation from Village utilities.
5. All floodplain or wetlands in the vicinity of the project shall be shown.
6. All backfill, full depth pavement patch and landscape restoration to occur within 14 days.
7. All trenches under and within two (2) feet of pavement shall be backfilled with controlled low strength material (CLSM) to the bottom of existing pavement.
8. HMA pavement restoration shall match the existing pavement cross section, but in no case shall be less than five (5) inches (min. 3" binder course and 2" surface course). The surface course width shall be the entire width of the traffic lane. Surface grinding may be required.
9. PCC pavement restoration shall match the thickness of the existing pavement cross section. Tie bars (No. 6) shall be drilled into existing pavement at 24-inch spacing.
10. All easements and right of way shall be indicated on the plans.
11. All requirements of the DuPage County Countywide Stormwater and Flood Plain Ordinance and applicable portions of Section 6.05 of the Development Standards shall be met.
12. Erosion control shall be in accordance with the DuPage County Countywide Stormwater and Flood Plain Ordinance and section 6.02.C. of the Development Standards.
13. Contractor is required to contact the Village 24 hours prior to patching for inspection.
14. A preconstruction meeting is required prior to commencement of work.
15. Contractor shall notify, knock on doors of property owners to give notification of work to be performed (min. 14 day advance notice and on the day of work)

6.03.B. Private Improvements:

All construction on private property in a subdivision or development shall conform to the requirements stated herein. No private improvements may be considered for future acceptance by the Village unless constructed in accordance with Section 6.03.

6.03.B.1.a. All parking lots shall be designed in conformance with:

(1) Transportation and Traffic Engineering Handbook - Institute of Transportation Engineers, latest edition.

(2) The Zoning Ordinance.

(3) These Development Standards.

6.03.B.1.b. Parking areas shall be designed and constructed in accordance with Section 6.03.A.8. of these Development Standards

6.03.B.1.c. Combination concrete curb and gutter type B-6.12 shall be constructed around the perimeter of all parking lots and around all islands within parking lots.

6.03.B.1.d. Striping of the pavement surface to define each parking stall is required except for single family dwellings and such striping shall be a minimum of four (4) inches wide for the length of the stall. All areas designed as fire lanes and/or "No Parking" shall be painted with yellow stripes. (See Section 12.00 on the Zoning Ordinance).

6.03.B.1.e. Any location within parking lots intended for storage of trash containers exceeding 2.0 cubic yards capacity shall be constructed of concrete rather than bituminous surface as provided in Section 6.03.A.8.j. and shall be enclosed with an approved screen or enclosure.

6.03.B.2. Driveways:

6.03.B.2.a. Design: All driveway designs shall be consistent with the projected traffic volume, type of traffic, and type of roadway, and shall be subject to the review and approval of the Village. All driveways shall meet the minimum standards of Section 12.00 of the Zoning Ordinance and these Development Standards. Driveway design shall be based upon a maximum of twelve (12) feet per lane. Any driveway designed for three (3) or more lanes shall be striped or divided; as approved by the Building Official or Village Engineer.

6.03.B.2.b. Distance and Number: Driveway access to arterials shall be kept to a minimum. Whenever possible adjacent uses shall share common driveway access to arterials. The minimum distance between driveways on arterials shall be three hundred (300) feet, unless otherwise permitted upon review by the Building Official and/or Village Engineer and other units of government when applicable.

6.03.B.2.c. Construction: Driveways within a site shall be constructed to the minimum specifications as provided in section 6.03.A.8.j. Driveways with high volumes of truck traffic or other heavy loads shall be increased appropriately.

6.03.B.3. Private Streets:

All streets which serve as access or frontage to subdivided lots shall be dedicated to the public unless specific approval is granted by the Village Board. When any private streets are approved by the Village Board in accordance with the requirements of Section 9.01 of the Subdivision Ordinance and are constructed, the following construction specifications shall apply:

6.03.B.3.a. Design: Private streets shall conform to the requirements for public streets as stated in Section 6.03, regarding general layout, design, intersections and offsets.

6.03.B.3.b. Construction: Private streets shall conform to the requirements for public streets as provided in Section 6.03.A.8. regarding pavement design and specifications.

6.03.B.4. Sidewalks:

Sidewalks shall be constructed where pedestrian and vehicular traffic may conflict on private streets and where necessary to provide access from parking areas to buildings. Sidewalks shall have a minimum clear width of five (5) feet and shall conform to the requirements for public sidewalks as provided in Section 6.03.A.9.

6.03.B.5. Bike Paths and Multi-Use Paths:

6.03.B.5.a. Whenever constructed, bike and multi-use paths shall comply with the requirements provided in Section 6.03.A.10.

6.03.B.5.b. If slopes adjacent to a pedestrian way, bike path, multi-use path, route or lane exceed 3:1 slope, an engineered fence or handrail is required.

6.03.B.6. Easements:

Easements shall be required for any development in order to provide for placement of public utilities, protection of residential uses, continuity of waterways, flow and storage of stormwater runoff, and pedestrian access. Easements shall be located whenever necessary to ensure these objectives and shall be subject to use, design, and location conditions stated in Section 6.03.C.4. Easements of the Development Standards.

6.03.B.7. Sight Distance:

No improvements shall be placed, nor plant materials allowed to grow within an intersection sight triangle so as to obstruct or limit the sight distance of motorists. Such a triangle shall have legs of twenty-five (25) feet along the rights-of-way line when two (2) streets intersect and ten (10) feet along the right-of-way line and the driveway edge when a street and a driveway intersect. The maximum height of any obstruction shall be three (3) feet within the sight triangle, unless otherwise permitted by Zoning Ordinance.

Intersection sight distance for intersections along arterial, collector, or industrial roadways shall be in accordance with the Bureau of Design and Environment Manual, Illinois Department of Transportation, latest edition.

6.03.C. Subdivision Standards:

The design and layout of lots within any subdivision shall conform to the requirements stated in these Development Standards.

6.03.C.1. Blocks:

The length, width, and shape of blocks shall be determined by the proposed uses, the zoning requirements of the Village, topography, and convenient access, circulation, control and safety of vehicular and pedestrian traffic.

6.03.C.1.a. The maximum length of a block in a residential subdivision shall not exceed one thousand five hundred (1,500) feet.

6.03.C.1.b. The width of any block shall be sufficient for two (2) tiers of lots unless such block abuts an arterial street, water course, railroad right of way, shopping center, or major public facility, or such other use as approved by the Village Board.

6.03.C.1.c. Pedestrian crosswalks may be required, in a minimum ten (10) foot easement, through the center of blocks which exceed eight hundred (800) feet in length or where necessary to provide access to arterial streets, shopping centers, or public facilities.

6.03.C.2. Lots:

The size, width, depth, and shape of lots shall be appropriate for the location and type of development and use proposed and shall conform to the regulations set forth in the Zoning Ordinance and the Development Standards.

6.03.C.2.a. Through lots shall be avoided except where essential to provide separation or residential development from arterial streets. Access to the arterial from single-family residential lots shall be prohibited by deed restriction and a no-access easement. A planting screen with a minimum height of four (4) feet shall be provided along all lot lines abutting the arterial street except at corners to allow for vision clearance.

6.03.C.2.b. Whenever possible, on all corner lots abutting an arterial street, access shall be prohibited to the arterial street.

6.03.C.2.c. Lots abutting a water course, drainage way, channel or stream shall have a minimum width or depth required to provide an adequate building site.

6.03.C.2.d. All lots shall have frontage on a public street.

6.03.C.2.e. The minimum depth of any residential lot hereafter created shall not be less than one hundred twenty (120) feet for residential uses and two hundred (200) feet for commercial and industrial uses. Any residential lot which backs to an arterial street, railroad right-of-way, or shopping center shall have an additional twenty (20) feet in depth to accommodate the required no-access screen planting and easement at the rear of the lot.

6.03.C.2.f. The depth to width ratio shall not exceed two and one-half (2 ½) to one (1) for all lots.

6.03.C.2.g. Side lot lines shall be substantially perpendicular to the right-of-way; however, lots on a cul-de-sac shall have side lot lines radial to the center of the cul-de-sac.

6.03.C.3. Setback Lines:

6.03.C.3.a. Required setbacks shall be indicated on all plats of subdivision in accordance with the Zoning Ordinance.

6.03.C.3.b. For all corner lots, the minimum building setback on the side street side shall be not less than the front yard required or as otherwise provided in the Zoning Ordinance.

6.03.C.4. Easements:

6.03.C.4.a. There shall be a dedicated easement with a minimum width of twenty (20) feet at the rear of all lots, or ten (10) feet each lot if on adjacent rear lot lines, and a minimum of ten (10) feet in width along side lot lines or a minimum of five (5) feet wide on each lot if on adjacent side yards to provide continuity for public utilities and/or drainage as determined by the Village Engineer and in accordance with the Subdivision Ordinance. In addition, due provision shall be made for extension to adjacent property.

6.03.C.4.b. All utility easements shall be approved by the public utility companies, cable television franchises, and the Village Board and shall be so indicated on any final plat.

6.03.C.4.c. Easements for pedestrian access shall be a minimum of ten (10) feet in width.

6.03.C.4.d. Where a subdivision is traversed by a water course, drainage way, channel or stream, a drainage easement shall be provided, conforming to the dimensions of such water course and additional width as necessary for access and maintenance as required by the Village Engineer.

6.03.C.4.e. An easement a minimum of (10) feet in width shall be provided, measured from the established shoreline of all bodies of water, and where necessary a minimum ten (10) foot wide access easement to a public roadway.

6.03.C.4.f. No building, structure, or other permanent obstruction shall be constructed upon any easement.

6.04 - SANITARY SEWER SYSTEM

Except as otherwise provided herein, no residential, commercial or industrial subdivision or development including single lots shall be approved unless it is served by sanitary sewers connected to the Village sewerage system.

6.04.A. General:

6.04.A.1. In the case of any buildings, residential, commercial or industrial, constructed prior to the adoption of the Development Standards and served by a septic system, the following shall apply:

Any building located within the Village, the property line of which building: is located within two hundred (200) feet of a sanitary sewer main line, shall have its sanitary sewer facilities connected to the said sanitary sewer main line. Any parcel and/ or building located outside the Village shall be required to annex into the Village prior to connecting onto the Village sewerage system, and any and all expenses incurred to extend said sewer system would be totally at the property owner's expense.

6.04.A.2. Before commencing the sewer layout, the developer shall confer with the Village Engineer to determine the required size and grades for any trunk sewers traversing the subdivision or lot to fit the Village's available capacities of offsite downstream existing facilities with the estimated increment of flow caused by the subdivision, proposed development, and any future offsite development. Construction required to accommodate said increment shall be submitted as part of engineering plans. Sanitary sewers shall be extended to the far edge of the development and at other locations indicated by the Village Engineer.

6.04.A.3. All sanitary sewers shall be extended to the property line and shall be constructed within public rights-of-way or within approved easements dedicated for public utilities.

6.04A.4. All attached and detached single family dwelling units shall be served by separate sanitary sewers to be directly connected to the Village sewerage system and not to be of common service.

6.04A.5. All village owned and/or maintained sanitary sewer main shall be centered in a minimum fifteen (15) foot wide easement. The private sewer service from the main to any required monitoring manhole and the monitoring manhole shall be within the easement.

6.04.B. Design:

6.04.B.1. Sewer Mains:

Sewer mains shall be designed according to these Development Standards, Part 370 of the Illinois Administrative Code of the Recommended Standards for Sewerage Works, the Village Plumbing Code; and all other applicable regulations and requirements.

6.04.B.2. Sewer Design Flows:

6.04.B.2.a. Design flows for all residential developments shall be based upon full development of the service area within the population served, estimated as follows:

(1)

Type of Dwelling Unit	Number of Persons
Studio	1
1 Bedroom	2
2 Bedroom	3
3 Bedroom	4
4 Bedroom	5

(2) For undeveloped residential areas where the details of future developments are not known, design population per acre may be estimated, based on generally accepted engineering principles and standards approved by the Village Engineer.

6.04.B.2.b. Design flows for nonresidential developments shall be based on full development of service area including any process water requirements with the maximum daily per capita design flow estimated based on generally accepted engineering principles and standards approved by the Village Engineer.

Such flow estimate shall not relieve the owner or developer of the responsibility of providing adequate sanitary sewer capacity to meet any and all future requirements within the development.

6.04.B.2.c. The design of maximum sewage flow and capacity shall be based on estimated populations for all proposed developments and the ratio of peak flow to daily average flow equation as found in the *Illinois Recommended Standards for Sewage Works.*

6.04.B.3. Sewer Design Hydraulics:

6.04.B.3.a. Sanitary gravity sewers shall be designed to provide design flow capacity, without surcharging, using Manning's formula:

$$Q = A \times \frac{1.486}{n} \times (R)^{2/3} \times (S)^{1/2}$$

Where Q = design flow in units of cubic feet per second
A = area in units of square feet
R = hydraulic radius in units of feet
S = slope in units of feet per foot
n = roughness coefficient = 0.013

6.04.B.3.b. Design mean velocity, flowing full, shall not be less than (2) feet per second or greater than ten (10) feet per second.

6.04.B.3.c. Sewers which will flow less than one-half (1/2) full at design maximum flow shall have a slope to provide a velocity not less than two (2) feet per second at the design maximum flow.

6.04.B.3.d. Design flow shall include total allowable infiltration at any point based on one hundred (100) gallons per day per inch diameter per mile of sewer pipe.

6.04.B.4. Minimum Sewer Size:

6.04.B.3.a. Minimum sanitary sewer size shall be eight (8) inch diameter.

6.04.B.3.b. Minimum building sanitary service sewer size shall be six (6) inch diameter.

6.04.B.5. Alignment:

Sewer shall be laid straight in both horizontal and vertical planes between manholes, unless otherwise approved by the Village Engineer.

6.04.B.6. Sewer Size Changes:

Sanitary sewer of different diameter shall join only at manholes. The invert elevations shall be adjusted to maintain a uniform energy gradient by matching the 0.8 depth points of different diameters.

6.04.B.7. Sanitary Sewer Manholes:

Manholes shall be provided at the following:

6.04.B.7.a. Manhole Locations:

Manholes shall be provided at the following:

(1) Termination of existing and future lines
(2) Changes in direction, horizontal or vertical

(3) Changes in shape or pipe size
(4) Junctions with other sewers
(5) For inspection and sampling where required by the Building Commissioner and/or Village Engineer

Manhole spacing shall be a maximum of 300 feet for all sewer 8" and larger.

6.04.B.7.b. Drop Manholes:

A drop manhole shall be provided for any manhole with a. pipe having a difference in invert elevation of more than twenty-four (24) inches above the invert of the sewer leaving the manhole.

6.04.B.7.c. Manhole Diameters:

(1) Manholes for sanitary sewers twenty-four (24) inches or less in diameter shall have a minimum inside diameter of forty-eight (48) inches.
(2) Manholes for sanitary sewers twenty-seven (27) inches or larger in diameter shall have a minimum inside diameter of sixty (60) inches.

6.04.B.7.d. Monitoring Manhole:

A monitoring manhole must be provided for industrial and commercial development sewer connections. Each 60-inch manhole shall be situated on the user's premises and be easily accessible to authorized representatives of the Village twenty-four (24) hours per day, seven (7) days per week and shall be located within dedicated easements (minimum 15 feet wide). The sampling manhole shall be located on the sewer connection pipe at a point where there are no changes in grade or alignment for at least 15 pipe diameters upstream and downstream from the manhole. The grade (slope) of the pipe shall not exceed 1% (1 foot per 100 feet) through the manhole and for a distance of 15 pipe diameters upstream and downstream from the manhole.

6.04.B.8. Lift Stations:

Whenever possible, sanitary sewerage facilities shall be designed so as to avoid the necessity of providing lift station**6.04.B.8.a.** If a lift station is part of the engineering design, it shall be shown in plan elevation. Specifications, calculations, and details for said lift station

shall be submitted with engineering plans. Lift stations shall be of the wet well type, and shall conform in all respects to the standards established by the Village Engineer and the State of Illinois Environmental Protection Agency.

6.04.B.8.b. A separate source of power shall be furnished to each lift station. This shall be from another electrical source or provided by a separately powered engine. The engine, enclosure and mounting shall be subject to approval by the Village Engineer. For any Village maintained lift station, a remote alarm shall be installed and maintained to the Village master alarm panel to indicate failure at the lift station.

6.04 C. Allowable Materials:

6.04.C.1. Sewer Pipe:

6.04.C.1.a. Reinforced Concrete Sewer Pipe – RCP conforming to the requirements of A.S.T.M. C-76.

6.04.C.1.b.. Ductile Iron Main - conforming to the requirements of AWWA C-104

6.04.C.1.c. PVC Pipe - shall conform to the requirements of A.S.T.M. D-2241 or D-3034 SDR (26) as a minimum.

6.04.C.2. Force Main:

6.04.C.2.a. Ductile Iron Pipe - conforming to A.W.W.A. Specification C-151 – Class 52. (With prior approval of Public Works)

6.04.C.2.b.. P.V.C. Pipe - conforming to A. W.W.A. Specification C-900 SDR-18. All PVC force main shall have a trace wire.

6.04.C.2.c. Trace wire shall be #10 AWG Copper Clad Steel wire with blue 45 mil HDPE insulation, rated for direct burial use, Part #1045B-EHS, as Manufactured by Copperhead Industries, LLC or approved equal. Wire shall be installed along the top of the PVC pipe and held in place with plastic ties or tape at not more than 5-foot spacing. Connections to existing trace wire and connections between one spool of trace wire to another and similar connections shall be made using a direct bury wire nut. Connections of trace wires at tees, crosses and at locations where the trace wire will be brought to the surface shall be made using a direct bury lug. There shall also be a sufficient length of wire to reach the top of the Valve Box, Valve Vault, or lift station.

The wire shall be installed in a manner as to ensure that it is one continuous run with no interruptions.

6.04.C.3. Pipe Joints:

6.04.C.3.a.
6.04.C.3.b. Reinforced concrete pipe - A.S.T.M. C-443.
6.04.C.3.c. Ductile iron pipe - A.N.S.I. A-21.11 (A.W.W.A. C- 104).
6.04.C.3.d. P.V.C. thick walled pipe - A.S.T.M. D-3212
6.04.C.3.e.

6.04.C.4. Pipe Sleeves for Auger or Tunnel Installation:

6.04.C.4.a. Steel Sleeves - shall be a minimum three eighths (3/8) inches thick, of the diameter specified, with a continuous, circular one-half (1/2) inch bead weld and shall meet the requirements of A.S.T.M. A-120.
6.04.C.4.b.

6.04.C.5. Manholes:

6.04.C.5.a. Precast reinforced concrete - A.S.T.M. C-478 and A.S.T.M. C-443.

6.04.C.5.b. Adjustment:

No more than three (3) high-density polyethylene adjusting rings (Ladtech or approved equal) with a twelve (12) inch maximum height adjustment.

6.04.C.5.c. Pipe and Frame Seals:

All pipe connection openings shall be precast with resilient rubber, watertight, pipe-to-manhole sleeves Kor-N-Seal or approved equal.

6.04.C.5.d. External Chimney Seals:

All manholes shall have an external chimney seal provided in accordance with Cretex Specialty Products or approved equal.

6.04.C.5.e. Bottom Sections:

All bottom sections shall be monolithically precast including bases and invert flowlines.

6.04.C.5.f. All manhole frames and adjusting rings shall be securely sealed to the cone section or top barrel section of the manhole using resilient , flexible, non-hardening, preformed, Butyl Mastic (Rub R Nek, EZ Stick, or equal as approved by the Village. This mastic shall be applied in such a manner that no surface water or ground water inflow can enter the manhole through gaps between the top barrel section or cone section and the first adjusting ring, between adjusting rings, or between the last adjusting ring and the manhole frame. Up to twelve (12) inches of adjusting rings may be installed on a given manhole. No more than one (1) two-inch (2") adjusting ring, and no more than three (3) adjusting rings in total shall be used. A continuous layer of non-hardening, preformed bituminous mastic material (Rub R Nek, E Z Stick or equal, as approved by the Village shall be applied to each manhole barrel, cone and top section to provide a watertight seal.

6.04.C.5.g. A non-shrink hydraulic cement or Portland cement mixture shall be used on all manhole interior joints. No mortar shall be applied above the cone section or flat top. Manhole steps are to be polyethylene coated steel. Manhole steps on maximum sixteen inch (16") center shall be furnished with each manhole, securely anchored in place, true to vertical alignment. Rubber boots/seals shall be used where the pipe enters the manhole. The connection shall be dressed up inside and outside of the manhole with hydraulic non-shrink cement. Hydraulic cement, mortar, and concrete shall be of strength and water tightness quality per ASTM standards.

6.04.C.5.h **Drop Assemblies:**
Drop manhole assemblies shall be provided at the junction of sanitary sewers where the difference in pipe inverts is two (2) feet or more (inclusive). The drop assembly shall have filleted inverts. Drops are to be made outside of the structure unless approved by the Village. Drop structures shall be concrete encased, and constructed in accordance with the Itasca Standard Detail SANITARY 2.

6.04.C.5.i. **Inspection of Manholes:**
All manholes shall be thoroughly cleaned of dirt and debris and all visible leakage eliminated before final inspection and acceptance.

6.04.C.6. Castings:

6.04.C.6.a. Manhole frame and cover - Neenah No. R-1712 or approved equal, with self-sealing lid, embossed "Sanitary" and "Itasca."

6.04.C.6.b. Manhole steps shall be constructed of polypropylene coated steel.

6.04.C.6.c. Recessed pick holes that do not create openings in the cover shall be required.

6.04.C.6.d. Frames and covers for manholes located within floodplain and inundation areas shall be watertight, lock-type covers - Neenah No. R-1916 or approved equal.

6.04.D. Construction Requirements:

6.04.D.1. **Specifications:**
All sanitary sewers shall be constructed in accordance with the provisions of Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition and these Development Standards.

6.04.D.2. **Approval and Permits:**
Construction of sanitary sewers and/or sewer service shall not commence until engineering plans and specifications have been approved by the Village Engineer and permits for construction of the sewers have been issued by the Village and the Illinois Environmental Protection Agency.

6.04.D.3. **Excavation and Foundation:**

6.04.D.3.a. The trench shall be excavated so that the flow line of the finished sewer shall be at the depth and grade shown on the approved plans. The trench for the pipe shall be excavated at least twelve (12) inches wider than the external diameter of the pipe. The width of the trench shall not exceed the external diameter of the pipe by more than eighteen (18) inches at the top of the pipe.

If the excavation has been made deeper than necessary, the foundation shall be brought to proper grade by the addition of well-compacted bedding material. Where a firm foundation is not encountered at the grade established, due to soft, spongy or other unsuitable soil, (unless other special construction methods are called for on the plans or in the special provisions), all such unsuitable soil under the pipe and for the width of the trench shall be removed and replaced with well-compacted bedding material that conforms to gradation CA-11 of the Illinois Standard Specifications.

6.04.D.3.b. Bedding, other than concrete embedment, shall consist of gravel, crushed gravel, or crushed stone one-fourth (1/4) inch to three-fourths (3/4) inch in size. At a minimum, the material shall conform to the requirements of the Standard

Specifications for Road and Bridge Construction, Illinois Department of Transportation, latest edition, or ASTM C-33. The gradation shall conform to gradation CA-7, of the Illinois Standard Specifications The pipe shall be laid so that it will be uniformly supported and
the entire length of the pipe barrel will have full bearing. No blocking of any kind shall be used to adjust the pipe to grade except when used with embedment concrete. Bedding shall be required for all sewer and force-main construction, and shall be a minimum thickness of 12 inches compacted in layers not exceeding 8 inches (loose measure).

Where required by external loading or soil conditions, concrete bedding shall be substituted for granular bedding.

6.04.D.4. <u>Pipe Laying</u>:

6.04.D.4.a. Sanitary sewer pipe shall be handled in a manner that will prevent damage. Damaged or defective material on the job site shall be rejected and replaced to the satisfaction of the Village. Methods of construction conducive to the damage of sewer pipe shall be corrected when called to the attention of the contractor. All pipe fittings shall be examined by the contractor above grade before placement in the trench.

6.04.D.4.b. Sanitary sewer pipe shall be laid true to line and grade as set forth in the Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition. Dirt and other foreign material shall be prevented from entering the pipe or pipe joint during handling or laying operations. Any pipe or fitting that has been installed with dirt or foreign material in it shall be cleaned and re-inspected. At times when pipe laying is not in progress, and at the end of each working day, the open end of the pipe shall be closed with a water tight plug to ensure absolute cleanliness inside the pipe. The Village may request mechanical cleaning (jet flushing) and/or televising if necessary to ensure clean, acceptable pipes, at the contractor's expense. During the design of the system, an effort shall be made to specify a pipe gradient slightly greater than the allowable minimum to afford a factor of safety during construction.

6.04.D.5. <u>Service Connections:</u>

6.04.D.5.a. Connections to the sewer main shall be done by means of a wye fitting installed in the main.

6.04.D.5.b. When the sewer mains are deeper than ten (10) feet, risers shall be installed at connections such that service pipe shall be no more than ten (10) feet deep.

6.04.D.5.c. Unused wye fittings shall have socket ends sealed by watertight rubber or plastic stoppers suitably fastened or braced to prevent dislodging by back pressure from the main line.

6.04.D.5.d. Connections to existing sewer mains shall be made by installing a new wye fitting with non-shear mission coupling or by use of a circular sawcut by proper tools ("sewer tap" machine or similar) and installation of a wye saddle with stainless steel straps in accordance with manufacturer's recommendations. All such connections shall be done in the presence of the Village Inspector.

6.04.D.5.e. **Cleanouts:**

Minimum 6-inch diameter cleanouts shall be installed on each service connection line with a watertight cap at grade in the landscaped areas and a frame and cover in paved areas. Only allowed to place cleanouts in paved area with explicit approval of Village Engineer.

6.04.D.5.f. **Construction Records:**

The contractor shall keep a record of the location of all sewer services by measurement to the nearest downstream manhole. Two copies of such records shall be provided at the completion of the work and shall be noted on record drawings. One copy shall be submitted to the Village Engineer and one copy shall be submitted to the Building Department.

6.04.D.5.g **Utility Identification:**

A wood stake two (2) inch by four (4) inch by six (6) foot with not less than the top two (2) feet painted green shall be installed next to each sanitary sewer manhole, clean-out, and at the end of each sewer stub (termination at the end of the line). The stake shall be maintained in an upright position until Village acceptance of the utility structures. Upon acceptance the contractor is to remove the stakes.

When newly poured curbs are installed the contractor shall use a Village approved stamp to indent the wet concrete with an "S" to identity the location of each sanitary sewer stub. The letter "S" shall be indented at the top of the curb,

one and one-half (1 1/2) inches to two (2) inches in height and width at a depth of three-eighths (3/8) inch deep. If the developer and/or the contractor fail to indent the curbs as outlined above, the Village may then require that identification medallions or other symbols as approved by the Village, be affixed to the curb.

6.04.D.6. <u>Sewer Depth</u>:

Sanitary sewers shall be constructed sufficiently deep so as to prevent freezing. For the purposes of this specification, a depth of not less than five (5) feet to the sewer invert shall be required unless otherwise approved by the Village Engineer or Building r. Official. In addition, they shall be sufficiently deep to provide an outfall for all sanitary sewage within the ultimate service area, both existing and future, assuming all present and future basement floor drains and sanitary fixtures below finished grade to be connected to sump pumps discharging to the sanitary sewers.

6.04.D.7. <u>Backfilling</u>:

6.04.D.7.a. Backfilling shall not be done until installation of the sewer has been inspected and approved by the Village Inspector.

6.04.D.7.b. Backfill bedding to one (1) foot above the top of the pipe shall be done with material conforming to bedding material or CA-7 specifications placed in eight (8)-inch lifts compacted to ninety-five (95) percent maximum density (Modified Proctor)

6.04.D.7.c. Select granular backfill shall be required in all locations where the sanitary sewer trench is under or within two (2) feet of existing or proposed public or private pavements, curb, gutter, curb and gutter, paths, sidewalks, and driveways. The select granular trench backfill shall be placed in lifts not exceeding eight (8) inches and shall be mechanically compacted to not less than ninety-five (95) percent of the standard laboratory density.

6.04.D.7.d. Excavations for sewers not beneath or within two (2) feet of existing or proposed paved areas shall be backfilled from one (1) foot above the sewer with material excavated from the trench, unless such material is determined to be unsuitable by the Village Inspector. The material shall be free from clods and rocks and shall be placed in eight (8) inch lifts and compacted.

<u>6.04.E. Inspection and Testing:</u>

Maximum allowable infiltration/exfiltration allowed under these Development Standards shall be one hundred/one hundred (100/100) gallons per inch of diameter of the sewer

per mile per twenty four (24) hours at any time for any section of the system. The joints shall be tight and visible leakage in the joints, or leakage in excess of that specified above, shall be repaired at the contractor's expense by means approved by the Village Engineer.

6.04.E.1. **T.V. Testing:**

Upon completion of construction and prior to acceptance of the sewer system and again prior to expiration of the maintenance guarantee, the sewers system shall be inspected through use of standard T.V. equipment. The T.V. inspection shall be done by the contractor and witnessed by the Village Inspector. All deficiencies noted during the T.V. inspection shall be repaired by the contractor at his expense by means approved by the Village Engineer.

The televising of the installed pipe shall not occur sooner than thirty (30) days after completion of the installation of the section being tested. All lines shall be cleaned of debris and flushed clean as necessary. Debris shall not be flushed into a sanitary sewer.

6.04.E.2. Infiltration/Exfiltration Testing:

6.04.E.2.a. Prior to Village approval of the sanitary sewer system and before any connections are made, the system shall have passed infiltration/exfiltration tests conducted by the contractor and witnessed by the Village Inspector.

6.04.E.2.b. Testing and inspection of sanitary sewers for acceptability shall be conducted by exfiltration of air under pressure, infiltration of water, or exfiltration of water. All sanitary sewers shall be tested for acceptability by these methods or a combination thereof. Unless otherwise authorized, the contractor shall arrange to commence the test within 15 days after the sewer has been installed or 15 days after notification by the engineer, whichever date is later. The contractor may at his option divide the sanitary sewer into sections of more convenient length for testing. If the sanitary sewer or section tested does not pass the test it shall be repaired and the test repeated until a satisfactory test is obtained.

All wyes, tees, risers and service stubs shall be plugged with flexible jointed caps, or acceptable alternate, securely fastened to withstand the internal test pressure. Such plugs or caps shall be readily removable.
All testing shall be witnessed by the Village Engineer or other designated Village Inspector.

(1) Exfiltration Method Procedures: The section of sewer to be tested shall have been trench

backfilled and cleared. The section of sewer to be tested shall be sealed by inserting inflatable rubber bags in the pipes or by other means approved by the engineer, and then water shall be introduced into a manhole until the section is completely filled. The contractor shall fill the pipe to the test level prior to the time of exfiltration testing to permit normal absorption into the pipe walls as recommended by the manufacturer.

Throughout the test period of at least one (1) hour, the water level in the upper manhole shall be maintained at least twenty-four (24) inches (600 mm) above the crown of the upper end of the pipe or at least twenty-four (24) inches (600 mm) above the ground water table, whichever is higher. The length of pipe tested shall be limited so that the pressure on the centerline of the lower end of the section tested shall not exceed six (6) feet (1.80 m) of water column. Exfiltration leakage shall not exceed 100 gallons per inch of pipe diameter per mile per day of sewer pipe, including manholes in the test section. Where the pipe fails to meet or exceed the minimum test requirements, the contractor shall remedy the failure to the satisfaction of the engineer, Village, or owner and retest.

(2) Infiltration Method Procedures: The section of sewer to be tested shall have been trench backfilled and cleared. The tests shall be conducted by inducing infiltration conditions by jetting the sewer trench for a sufficient length of time to ensure that the water level in the trench is a minimum of twenty-four (24) inches (600 mm) over the crown of the sewer pipe at the upper end of the pipe. The test must be performed before existing sewers are connected and before sewage flow is allowed in the sewers. Infiltration flow shall be measured by a 90 degrees V notch weir with free fall discharge or other means acceptable to the engineer. Infiltration leakage shall not exceed 100 gallons per inch of pipe diameter per mile per day (18.5 liters per millimeter of pipe diameter per kilometer per day) of sewer pipe, including manholes in the test section. Where the pipe fails to meet or exceed the minimum test requirements, the contractor shall remedy the failure to the satisfaction of the engineer, Village, or owner

and retest.

(3) Air Testing Method Procedures: The section of sewer to be tested shall have been trench backfilled and cleared. Pneumatic plugs (having a sealing length equal to or greater than the diameter of the pipe to be tested) placed in both ends of the pipe to be tested shall be inflated to twenty-five (25) psig (170 kPag). The sealed sewer pipe shall then be pressurized to four (4) psig (27.5 kPag) above the average back pressure of groundwater over the sewer pipe and the air pressure allowed to stabilize for at least two minutes.

After the stabilization period the line shall be pressurized to 3.5 psig (24 kPag) and the time in minutes measured for pressure to drop to 2.5 psig (17 kPag). If groundwater is present, the air pressure within shall be increased to 3.5 psig (24 kPag) above the level of the ground water and the drop of one (1) pound psig (7 kPag) of air pressure measured in minutes.

Air testing techniques shall be in accordance with the ASTM F 1417 (plastic), ASTM C 828 (clay), ASTM C 924 (concrete), or latest standard practice for testing sewer lines by low-pressure air test method for the appropriate pipe material for which no ASTM air testing standard exists.
Air leakage test results shall not be less than the time per inch of pipe diameter per length of sewer pipe as specified in the appropriate testing standards for each pipe material or the manufacturer's recommended limits, whichever is more stringent.
Where the pipe fails to meet or exceed the minimum test requirements, the contractor shall remedy the failure to the satisfaction of the engineer, Village, or owner and retest.

6.04.E.3. <u>Deflection Testing:</u>

All sanitary sewer constructed of flexible pipe materials shall be tested for deflection. The deflection testing of the installed pipe shall not occur sooner than thirty (30) days after completion of the installation of the section being tested. The engineer reserves the right to require preliminary deflection testing of sections he may designate.

The pipeline shall be tested for excess deflecting by pulling a "go - no go" mandrel through the pipeline from manhole to manhole. The mandrel

should be sized as specified in the Special Provisions. A "deflectometer" may also be used to check and record deflections. Wherever possible and practical, the testing shall initiate at the downstream lines and proceed towards the upstream lines. Where deflection is found to be in excess of allowable testing limits, the contractor shall excavate to the point of excess deflection and carefully compact around the point where excess deflection was found. The line shall then be retested for deflection. However, should after the initial testing the deflected pipe fail to return to the original size (inside diameter), the line shall be replaced. Deflection limits for flexible pipe materials shall not exceed the manufacturer's recommended deflection limits or a maximum of 5.0% of the internal diameter of the pipe, whichever is more stringent.

6.04.F. Sanitary Sewer Services:

Sanitary sewer services shall be constructed in accordance with the specifications in the Village Building Code and as provided herein.

6.04.F.1. Description:

A sanitary sewer service line, for the purposes of these Development Standards, is defined as a sewer pipe designed to receive flow from a single building, extending from the sewer main or lateral to the building.

6.04.F.2. Minimum Diameter/Material:

Minimum diameter of sanitary sewer service lines is six (6) inches. If the service line is larger than six (6) inch diameter, a manhole shall be constructed at the point of its connection with the sewer main or lateral. Allowable service material is as shown in Section 6.04.C.

6.04.F.3. Design Standards:

Capacity requirements and design details described in Sections 6.04.B. through D. for sanitary sewers shall apply to sanitary sewer service lines, except the minimum slope shall be one-eighth (1/8) inch per foot (one-fourth (1/4) inch per foot for pipe less than 3" diameter).

6.04.F.4. Plugs:

In those instances when the service line is not immediately connected to the building to be served, it shall be tightly plugged, using a manufactured plug held firmly in place.

6.04.F.5. Sanitary Sewer Service Line Connections:

When sanitary sewer service lines are constructed as part of the same project as the sewer main or lateral, they shall be connected to the sewer main or lateral using a wye.

Where a sanitary sewer service line is to connect to an existing sewer main or lateral, or where specific approval has been granted by the Village Engineer for the construction of a service line after the completion of the sewer main or lateral, the connection shall be made by one of the methods detailed below or as provided in Section 6.04.D.5.:

6.04.F.5.a. Installation of a manhole.

6.04.F.5.b. Circular saw cut of sewer main by proper tools, and proper installation of a hub wye saddle or a hub tee saddle, in accordance with manufacturer's recommendations.

6.04.F.5.c. Using pipe cutter, neatly and accurately cut out desired length of pipe for insertion of proper fittings. Use "Band-Seal" couplings, or similar stainless steel couplings; and shear rings and clamps to fasten the inserted fitting and hold it firmly in place. Follow manufacturer's recommendations for the installation. Cement joints are prohibited.

6.04.G. Records - As-Built Drawings:

For all projects involving extensions to sanitary sewer mains there shall be submitted two (2) copies of reproducible mylar drawings - maximum size two (2) feet by three (3) feet - of the "as-built" plans showing the actual locations and grades of sewers and manholes and the locations of the service connection to the main and terminus of the service. One copy shall be submitted to the Village Engineer and one copy shall be submitted to the Building Department.

6.04.H. Ownership of Sanitary Sewer System:

6.04.H.1. All right, title and interest in and to the sanitary sewers to be accepted by the Village shall vest in the Village.

6.04.H.2. Ownership and maintenance of the sanitary sewer laterals from the building to the sanitary sewer connection, including connection and any inspection manhole, shall be the responsibility of the property owner.

6.05 - STORMWATER MANAGEMENT

6.05.A. General:

A properly designed stormwater management system is required for all developments and shall conform to the DuPage County Countywide Stormwater Management Plan and the provisions of the DuPage County Stormwater and Flood Plain Ordinance and as provided herein. The provisions of the DuPage County Stormwater and Flood Plain Ordinance as amended herein shall be deemed as additional requirements to the minimum Development Standards, the Subdivision Ordinance, and all other ordinances of the Village.

All developments, whether public or private shall include provisions for the construction of storm sewers and appurtenances. The storm sewer system shall be separate and independent of the sanitary sewer system.

6.05.B. Design:

6.05.B.1. Design Runoff Rates:

Minor stormwater management systems, (storm sewers, swales and ditches) shall convey flows from storm runoff based on calculations using the rational method using the formula Q = c x i x A, where:

Q = runoff flow in cubic feet per second
c = runoff coefficient, characteristic of the tributary area in dimensionless units
i = average rainfall intensity in inches per hour
A = tributary drainage area in acres

6.05.B.2. Drainage Area:

The drainage area, in acres, used for design shall be the entire water tributary to the point in the storm sewer system under consideration. It shall include any tributary area that may be outside the development.

6.05.B.3. Rainfall Intensity:

6.05.B.3.a. The average rainfall intensity used for design shall be selected from rainfall-intensity curves as specified per the DuPage County Stormwater and Flood Plain Ordinance.

6.05.B.3.b. The rainfall intensity for design of storm sewers or minor swales and ditches shall be based on a 24-hour duration storm with a 10-year recurrence interval.

6.05.B.3.c. The rainfall intensity for design of storm sewers in combination with streams and channels shall be based on a 24-hour duration storm with a 100-year recurrence interval.

6.05.B.3.d. The elapsed duration time used to select the rainfall intensity shall be equal to the time of concentration defined as the time (in minutes) for the flow from the most remote point of the drainage area to reach the point under consideration.

6.05.B.3.e. For storm sewer design the maximum time of concentration to a storm sewer inlet shall be fifteen (15) minutes, unless otherwise justified by calculations for a specific upstream flow path and approved by the Village Engineer.

6.05.B.4. Runoff Coefficients:

The runoff coefficient is the ratio of runoff to rainfall and shall assume saturated conditions.

Runoff coefficient, "C" shall be a minimum of:

impervious areas = 0.95
pervious areas = 0.50

Runoff coefficients for undeveloped areas outside of the limits of the proposed development shall be a minimum C = 0.60.

6.05.B.5. Stream and Channel Hydraulics:

6.05.B.5.a. Streams and channels shall be designed to provided design flow capacity based on Manning's formula:

$$Q = A * \frac{(1.486)}{n} * (R)^{2/3} * (S)^{1/2}$$

Where Q = Quantity of flow in cubic feet per second
A = Area of the conduit in square feet
n = Roughness coefficient of the conduit-dimensionless
R = Hydraulic radius = area divided by wetted perimeter
S = Slope in feet per foot

6.05.B.5.b. Roughness Coefficients:

(1)	Concrete pipe	n=0.013
(2)	Channel-sodded	n=0.020
(3)	Streams-clean	n=0.030
(4)	Stream-obstructed	n=0.150
(5)	PVC Pipe	n=0.013

6.05.B.5.c. Velocities: Design velocities shall be:

(1) Storm sewers minimum 3 f.p.s.; maximum 10 f.p.s.

(2) Channels and streams
lined - minimum 2 f.p.s., maximum 10 f.p.s.
unlined - minimum 2 f.p.s., maximum 5 f.p.s.

6.05.B.6.Storm Sewers:

6.05.B.6.a. Storm sewers shall be designed such that the 10-year hydraulic grade line shall is contained within the pipe.

6.05.B.6.b.. Minimum storm sewer size shall be twelve (12) inches. Smaller sizes, minimum of 6-inches may be used for roof drains and underdrains with approval of the Village Engineer.

6.05.B.6.c. Storm sewers shall be laid straight in both horizontal and vertical planes between structures unless otherwise approved in writing by the Village Engineer.

6.05.B.6.d. Storm sewers of differing diameters shall join at structures only.

6.05.B.6.e. In areas where curb and gutter and storm sewers are approved, storm structures shall be installed so that each storm inlet shall drain a maximum street gutter length of three hundred (300) feet. Where the storm structure is located at a low point, additional storm structures may be required by the Village Engineer. No more than two (2) storm structures shall be interconnected. Storm structures shall be so located that storm water runoff will not pond greater than the top of the street curbs. Depressed street crowns to facilitate drainage will not be permitted. Adjustable back curb inlets are not permitted.

Inlet capacity calculations shall be provided for all 100-year storm sewer and those 10-year storm sewer structures conveying 1.0 acre or more. At no time shall ponding exceed six (6) inches in public roadways, nine (9) inches in private roadways or parking lots, or twelve (12) inches in grassed areas (unless part of an area designed to detain water per site runoff storage or post-construction best management practice requirements of the DuPage County Stormwater and Flood Plain Ordinance).

6.05.B.6.f. Manholes shall be provided at:

(1) Changes in direction-horizontal or vertical
(2) Changes in shape or size of pipe
(3) Junction of pipes
(4) Maximum spacing four hundred (400) feet for sewers forty-two (42) inches in diameter and smaller; five hundred (500) feet for sewers forty-eight (48) inches in diameter and larger.

6.05.B.6.g Pipe cover shall be a minimum of 2 feet.

6.05.B.6.h. If a storm sewer is designed with a constantly submerged outfall or is utilized as the major drainage system, i.e. conveying the 100-year storm, the sewer shall be designed using the hydraulic gradient with a maximum upstream

allowable water level elevation at the top of the street curb while utilizing a tail water elevation at the downstream end as the 10-year water surface elevation or crown of the pipe, whichever is more restrictive.

6.05.B.6.i. Storm sewer shall be located a minimum of 10' from any building.

6.05.B.7.Culverts:

Culverts shall meet the following minimum standards:

6.05.B.7.a. Minimum pipe diameter of twelve (12) inches.

6.05.B.7.b.. Corrugated metal pipe (CMP) shall be hot-dipped galvanized steel or aluminum steel conforming to AASTO M36. Provide 16 gauge CMP for pipe diameter twenty-one (21) inches and smaller. Provide 12 gauge CMP for pipe diameters twenty-four (24) inches and larger.

6.05.B.7.c.. Reinforced concrete pipe (RCP) shall conform to ASTM C76, minimum Class III.

6.05.B.7.d.. Culvert slope and invert elevations shall match the ditch slope and invert elevations.

6.05.B.7.e.. Minimum cover at driveways shall be six inches (6") when in public right-of-way.

6.05.B.8. Swales and Ditches:

Manmade swales and ditches shall meet the following minimum standards. Ditches and culverts may be used in lieu of storm sewers if curbs and gutters are not required. Ditches shall meet the following minimum standards:

6.05.B.8.a. Minimum longitudinal grade of two percent (2.0%).

6.05.B.8.b. Maximum longitudinal grade of ten percent (10%).

6.05.B.8.c. Minimum depth of twenty-four (24) inches below the shoulder of the street.

6.05.B.8.d. Swale cross sections shall be trapezoidal with 2' minimum bottom. Maximum bank slope of 4:1 under normal conditions.

6.05.B.8.e. The bottom and banks of ditches with grades between 4 and 8 percent shall be sodded and equipped with permanent ditch checks.

6.05.B.9. Emergency Overflow Routes:

All storm sewer and swale systems shall be designed with an overflow route such that in the event of a complete storm system failure, storm water runoff will be directed overland to the stormwater management facility or downstream receiving water in a manner to minimize property damage due to flooding. Whenever practicable, all areas of the property must be provided an emergency overland flow path that will pass the entire calculated 100-year flow at an elevation at least 1 foot below the lowest foundation grades in the vicinity of the flow path (1' minimum freeboard), even when 100-year storm sewer is provided, regardless of the size of the drainage area. Emergency overland flow paths shall be provided in drainage easements, which cannot be obstructed.

6.05.B.10.Flood Plains:

6.05.B.10.a. All construction in flood plains shall conform to the DuPage County Stormwater and Flood Plain Ordinance. Some requirements that differ from that ordinance are noted below.

6.05.B.10.b. Within the Village of Itasca, the flood protection elevation (FPE) is the base flood elevation (BFE) plus two feet of freeboard.

6.05.B.10.c. Within the boundary of the regulatory flood plain and in areas outside the boundary of the regulatory flood plain, all usable space in new buildings, or added to existing buildings, shall either be elevated, flood proofed, or otherwise protected such that the lowest entry shall be at least two feet above the nearest base flood elevation to prevent the entry of surface stormwater. Floodproofing devices shall be operational without human intervention. If electricity is required for protection against flood damage, there shall be a backup power source which will activate without human intervention. Floodproofing measures shall be certified by a professional engineer.

6.05.B.10.d. All usable space in new buildings or added to existing buildings adjacent to a major stormwater system, site runoff storage facility overflow path or site runoff storage facility, shall be elevated, flood proofed, or otherwise protected to at least two feet above the design high water elevation of the facility or overflow path to prevent the entry of surface stormwater.

6.05.B.10.e. FEMA technical bulletin 10-01, titled "Ensuring That Structures Built On Fill In Or Near Special Flood Hazard Areas Are Reasonably Safe From Flooding" and dated May 2001, shall be followed for all structures or additions to

structures constructed with a lowest floor below the FPE or less than two feet above the design elevation of a stormwater facility high water or overflow path, for structures or additions to structures built on a site elevated by fill so that the ground surface is above the BFE, and where a letter of map change based on fill has been issued by FEMA to remove the site from the floodplain.

6.05.B.10.f. FEMA technical bulletin 10-01, titled "Ensuring That Structures Built On Fill In Or Near Special Flood Hazard Areas Are Reasonably Safe From Flooding" and dated May 2001, and as amended herein, shall be followed for all structures or additions to structures constructed with a lowest floor below the FPE or less than two feet above the design elevation of a stormwater facility high water or overflow path; for structures or additions to structures built outside the floodplain whose lowest floor, including basement, is less than the FPE; or for structures or additions to structures located within fifty feet of the high water line of a major stormwater facility, site runoff storage facility or overflow path, and whose lowest floor, including basement, is less than the FPE, as determined in the as-built or approved engineering plans for the development, or section 15-73. In these cases, technical bulletin 10-01 shall be amended as follows:

1. Page 15, paragraph 3: Change to "The setback is the distance from the edge of the SFHA to the nearest wall of the basement. The minimum allowable setback distance is 20 feet in the front or rear yard and 10 feet in the side yard".

2. Page 15, paragraph 4: Change to "The ground around the building must be compacted fill; the fill material - or soil of similar classification and degree of permeability - must extend horizontally at least five feet around the foundation, from the bottom of the aggregate layer beneath the basement floor to one foot below the finished grade."

6.05.B.10.g. For new buildings required to comply with section 6.05 B.8.e. above, the spot survey must include the elevation of the top of the footing.

6.05.B.10.h. New construction or substantial improvements of all structures within a Special Flood Hazard Area (SFHA) shall have the lowest floor elevated to at least the flood protection elevation (FPE) and that the fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access or storage in an area other than a basement and which are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement

must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria: A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided. The bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters. Adequate drainage shall be provided.

6.05.B.10.i. Manufactured homes that are placed or substantially improved within the SFHA on sites (i) outside of a manufactured home park or subdivision, (ii) in a new manufactured home park or subdivision, (iii) in an expansion to an existing manufactured home park or subdivision, or (iv) an existing manufactured home park or subdivision on which a manufactured home has incurred substantial damage be elevated on a permanent foundation such that the lowest floor of the manufactured homes to at least the FPE, be securely anchored to an adequately anchored foundation system to resist floatation, collapse and lateral movement in accordance with the rules and regulations for the Illinois mobile home tie-down act issued pursuant to 77 Illinois Administrative Code 870, provide adequate access and drainage and if pilings are used for elevation, applicable design and construction standards for pilings shall be met.

6.05.B.10.j. New structures other than buildings shall either be elevated to at least the FPE or designed for protection against physical flood damages. Structures that are flood proofed shall be anchored to prevent flotation, collapse, or lateral movement of the structure; use flood resistant materials below the FPE; locate electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities above the FPE; and provide adequate drainage. Floodproofing devices shall be operational without human intervention. If electricity is required for protection against flood damage, then there must be a backup power source that will activate without human intervention. The floodproofing shall be certified by a Professional Engineer.

6.05.B.11. Site Runoff Storage Facilities (Detention/Retention Basins)

6.05.B.11.a. Maximum slopes in any instance shall be limited to 3:1.

6.05.B.11.b. No site runoff storage facility shall have retaining wall or building structure along more than 50% of the pond

perimeter.

6.05.B.11.c. Interlocking solid concrete block retaining walls may be allowed for stormwater storage facilities provided they are less than two feet in height or otherwise provided with a proper railing or protection in accordance with the building code of the village. All other design and construction standards shall be approved by the Village Engineer. Retaining walls three (3) feet in height and greater in any site work application must be designed and certified by a licensed Structural Engineer registered in the State of Illinois.

6.05.B.11.d. Dry-bottom storage facilities shall have a minimum bottom ground slope of two percent (2%) regardless if an underdrain system is provided.

6.05.B.11.e. In all retention basins, minimum depth from normal water level to bottom of side slopes shall be four feet. To enhance aquatic life and provide better water quality management, a minimum of twenty five percent (25%) of the pond area shall be a minimum of ten feet deep. Suitable means, satisfactory to the Village, shall be provided to prevent water from becoming stagnant. Where it is determined that basin soils are too permeable to hold water, the soil shall be sealed by a suitable method such as a clay blanket or with bentonite. Sealings shall not be unduly detrimental to natural ground water recharge.

6.05.B.11.f. Storm water storage areas shall be permitted underground subject to the following:

(1) Storm water storage areas shall be constructed of concrete pipe, concrete boxes, concrete vaults or approved equal as determined by the village engineer. All other design and construction standards shall be approved by the Village Engineer;

(2) A storm water management and facilities maintenance agreement shall be entered into with the property owner to ensure that the underground stormwater facility is properly maintained. Maintenance of the facility is the responsibility of the owner of the land on which the storm water facilities are constructed unless the responsibility is assigned to an entity acceptable to the Village of Itasca; and

(3) In order to ensure that the storm water facility is functioning and operating appropriately, inspection of the underground storm water storage area will be required every three years or more often if determined to be necessary by the Village Engineer or Stormwater Administrator. The inspection shall be performed at the expense of the property owner, by a qualified inspector. The inspector shall be a licensed Professional Engineer in the state of Illinois and specializing in the practice of civil engineering, or other qualified professional as approved by the village engineer or Stormwater Administrator. A written copy of the inspection report shall be submitted to the Village of Itasca Community Development Department. Written notification will be sent to the property owner if corrective maintenance is necessary or required as a result of these field observations.

(4) Pumping for stormwater facilities may be permitted if traditional gravity outfalls cannot be utilized

6.05.C. Allowable Materials:

6.05.C.1. Sewer Pipe:

6.05.C.1.a. Reinforced concrete pipe conforming to ASTM C76 minimum Class III with O-ring joints conforming to ASTM C443. All storm structure connections shall be concrete sewer pipe, ASTM C14 for extra-strength pipe.

6.05.C.1.b. Polyvinyl Chloride Pipe (PVC), SDR 26 or (PVC SDR 35 if > 5' burry depth) in accordance with ASTM D-3034 with bell and spigot joints conforming to ASTM D-3212 having rubber gaskets in accordance with ASTM F-477.

6.05.C.1.c. Ductile iron pipe, Class 52 conforming to ANSI Specifications A21.51 or AWWA C151. All ductile iron fittings shall conform to the latest ANSI A21.10 and AWWA C110. The ductile iron pipe and fittings shall be cement lined in accordance with ANSI Specifications A21.4 and AWWA Specification C104. The pipe shall be provided with Rubber Gasket Joints that shall be in compliance with ANSI A21.11 and AWWA C111.

Alternate storm sewer materials may be allowed upon review and approval of the Village Engineer and the Director of Public Works..

6.05.C.2. Manholes, catch basins and inlets

6.05.C.2.a. Manholes, catch basins and inlets shall be precast reinforced concrete conforming to A.S.T.M. C-478, and in accordance to the Village standard Detail.

6.05.C.2.b. Joints between manhole, catch basin, and inlet sections shall be filled with preformed bitumastic joint filler of sufficient size to completely seal.

6.05.C.2.c. Adjusting rings shall be high density polyethylene (Ladtech or approved equal).

6.05.C.2.d. A non-shrink hydraulic cement or Portland cement mixture shall be used on all manhole interior joints. No mortar shall be applied above the cone section or flat top. Manhole steps are to be polyethylene coated steel. Manhole steps on maximum sixteen inch (16") center shall be furnished with each manhole, securely anchored in place, true to vertical alignment.

6.05.C.2.e. Rubber boots/seals shall be used where the pipe enters the manhole for pipes 12-inch diameter or less. The connection shall be dressed up inside and outside of the manhole with hydraulic non-shrink cement. Hydraulic cement, mortar, and concrete shall be of strength and water tightness quality per ASTM standards.

6.05.C.2.f. Steps shall be polypropylene coated, with a steel core.

6.05.C.3. Castings:

6.05.C.3.a. Inlet and catch basin frames and grates in paved areas shall be Neenah R-2504, or approved equal.

6.05.C.3.b. Inlet and catch basin frames and grates in grassed areas shall be Neenah R-4340-B, or approved equal.

6.05.C.3.c. Manhole frames and grates shall be Neenah R-1712 or approved equal, embossed "storm" and "Itasca." Manholes in areas of inundation shall have waterproof bolt down frames and covers, Neenah R-1916-C or EJIW 1022-3PT or approved equal.

6.05.C.4. Trench Backfill**:** Bedding and select granular backfill for storm sewers shall conform to the "Standard Specifications for Road and Bridge Construction," Illinois Department of Transportation, latest edition, and shall conform to gradation CA-7 for bedding to springline of the pipe for ridgid pipe and 12” above the pipe for flexible pipe; and CA-6 from the

springline for ridgid pipe and top of initial backfill 12” above the pipe for flexible pipe to pavement subgrade.

6.05.C.4.a. Select granular backfill shall be required in all locations where the storm sewer trench is under or within two (2) feet of existing or proposed public or private pavements, curb, gutter, curb and gutter, paths, sidewalks, and driveways. The select granular trench backfill shall be placed in lifts not exceeding eight (8) inches and shall be mechanically compacted to not less than ninety-five (95) percent of the standard laboratory density.

6.05.C.4.b. Excavations for sewers not beneath or within two (2) feet of existing or proposed paved areas shall be backfilled from the springline for ridgid pipe or top of initial backfill one (1) foot above the sewer for flexible pipe, with material excavated from the trench, unless such material is determined to be unsuitable by the Village Inspector. The material shall be free from clods and rocks and shall be placed in eight (8) inch lifts and compacted.6.05.D. Construction:

6.05.D.1. Storm sewers shall be constructed in accordance with the "Standard Specifications for Road and Bridge Construction" Illinois Department of Transportation, Standard Specifications for Water and Sewer Main Construction in Illinois, the pipe manufacturer's recommendations, and these Development Standards.

6.05.D.2. Trenches for storm sewers located under or within two (2) feet of a paved area shall be backfilled, in maximum lifts of 8-inches. with select granular backfill conforming to gradation CA-6 and compacted by mechanical means to ninety-five (95) percent standard laboratory density.

6.05.D.3. Adjusting rings for manholes, catch basins, and inlets shall be limited to a maximum of three (3) rings and maximum height of twelve (12) inches.

6.05.D.4. When adjusting rings are required on structures, all frames and rings shall be securely sealed to cone/top barrel section and all manhole barrel, cone and top sections shall be securely sealed using resilient, flexible, non-hardening preformed butyl mastic (Rub R Nek, EX Stik) such that no water can infiltrate gaps. Additionally, all interior joint and penetrations shall have a non-shrink hydraulic cement mixture used on all joints and gaps. No mortar shall be applied above the cone section or flat top.

6.05.D.5. Lifting holes in structure sections and sewer pipe shall be plugged with appropriate sized concrete lift plugs and coated with bituminous material.

6.05.D.6. End Sections: All end sections with an opening greater than 12-inches in diameter shall be covered with a grate whose openings are 3-inches horizontal by 8-inches vertical and which is rakeable. All flared end

sections shall have an additional 3-inch collar of hydraulic cement around the connection pipe.

6.05.D.7 Connections: All pipe connection openings 12" or less shall be precast with resilient rubber, watertight, pipe-to-manhole sleeves Kor-N-Seal or approved equal. All pipe sections to storm sewer shall be shaped inside and outside to the storm structure, with additional non-shrink hydraulic cement to provide a three-inch collar around the pipe. (See standard details STORM 1,2,3 &4, etc.)

6.05.D.8. Cleaning: Prior to acceptance, the storm sewer shall be televised, cleaned, and operational to the satisfaction of the Village Staff.

6.05.E. Inspection and Testing:

6.05.E.1. All sewers and appurtenances shall be cleaned prior to inspection and testing.

6.05.E.2. Upon completion of construction and prior to acceptance of the storm sewer and again prior to expiration of the maintenance guarantee, the storm sewers shall be inspected through use of standard T.V. equipment. (Refer to Section 6.04.E.1.)

6.05.F. Sump Pump Discharge:

6.05.F.1. Sump pump shall discharge overland via piped outlet or bubbler, or shall be connected to the storm sewer system.

6.05.F.2 Drainage shall be directed away from adjacent structures. When the sump pump line is not directly connected to the storm drainage system, it shall not discharge any closer than ten (10) feet from the lot line – 20 feet is preferred.

6.05.F.3 Sump pump discharges shall be provided with an air gap upon leaving the house or structure prior to discharging via a bubbler, at grade, or connecting to the Village's storm sewer system.

6.05.F.4 If the sump pump discharges at grade, a splash block shall be provided at the point of discharge.

6.05.F.5 Sump pump discharges shall not be directed across a public sidewalk.

6.05.G. Downspout Discharge:

6.05.G.1. Downspouts shall discharge overland via piped outlet or bubbler, or shall be connected to the storm sewer system.

6.05.G.2 Drainage shall be directed away from adjacent structures and parallel to side property lines. When the downspouts are not directly connected to

the storm drainage system, it shall not discharge any closer than ten (10) feet from the lot line – 20 feet is preferred.

6.05.G.3 Downspouts connected to the storm sewer shall be provided with an air gap prior to discharging via a bubbler or connecting to the Village's storm sewer system.

6.05.G.4 If the downspouts discharge at grade, a splash block shall be provided at the point of discharge.

6.05.G.5 Downspout discharges shall not be directed across a public sidewalk.

6.05.G.5 Calculations shall be provided for downspout sizing and the receiving storm sewer to verify capacity of the downspouts and storm sewer system.

6.05.H. Records - As-Built Drawings:

For all projects, there shall be submitted an electronic PDF copy and two (2) hard copy drawings - maximum size two (2) feet by three (3) feet - of the "as-built" plans showing the actual locations and grades of storm sewer, manholes, catch basins, etc. with rim and invert elevations and pipe size and slope. As-built grades at the same locations as shown on the proposed plans shall also be provided, including detention ponds, BMPs, etc. One copy shall be submitted to the Village Engineer and one copy shall be submitted to the Building Department.

6.06 - WATER DISTRIBUTION SYSTEM

Except as otherwise provided herein, no residential, commercial or industrial subdivision or development including single lots shall be approved unless it is served by water piping connected to the Village's water distribution system and shall include provisions for a system complete with valves, fire hydrants, and other appurtenances as required herein.

The standards and specifications found in this chapter are for materials and construction of water mains within the Village of Itasca, Illinois. Specific references made herein for manufactured materials such as pipe, hydrants, valves and fittings refer to designations for American Water Works Association (AWWA) or to the American National Standard Institute (ANSI). Nothing herein shall constitute or imply an endorsement by the Village of Itasca of any one material over another. These specifications cover pipe fittings and items normally used for water distribution systems. Special considerations will be covered in the plans and special provisions. Water distribution systems shall be constructed in accordance with Standard Specifications for Water and Sewer Main Construction in Illinois, latest edition. All water supply system improvements are subject to the requirements of the Illinois Environmental Protection Agency (IEPA). No construction shall commence prior to IEPA permit approval.

6.06.A. General:

6.06.A.1. In the case of any buildings, residential, commercial or industrial, constructed prior to the adoption of the Development Standards and served by a private well, the following shall apply:

Any building located within the Village, the property line of which building is located within two hundred (200) feet of a water distribution line, shall have its water piping system connected to the said water distribution line. Any parcel and/or building located outside the Village shall be required to annex into the Village prior to connecting onto the Village water· distribution system, and any and all expenses incurred to extend said water distribution system would be totally at the property owner's expense.

6.06.A.2. Before commencing the water distribution system layout, the developer shall confer with the Village Engineer to determine the required size for any water distribution lines traversing the subdivision or lot to fit the Village's available capacities of off-site downstream existing facilities with the estimated increment of flow caused by the subdivision, proposed development and any future offsite development. Construction required to accommodate said increments shall be submitted as part of engineering plans. Water distribution piping shall be extended to the far edge of the development and at other locations indicated by the Village Engineer.

6.06.A.3. All water distribution system piping shall be extended to the property line and shall be constructed within public rights-of-way or within approved easements dedicated for public utilities.

6.06.A.4. All attached and detached single family dwelling units shall be served directly by separate water piping connected to the Village's water distribution system and not to be of common service.

6.06.A.5. The water distribution system shall be designed in accordance with the grading schedule for Municipal Fire Protection, Insurance Services Office recommended fire flows, Illinois E.P.A. Division of Public Water Supply Technical Policy statements, and these Development Standards.

6.06.B. Design:

6.06.B.1. A complete water distribution system shall be designed to serve the entire development. The water mains shall be of adequate size to supply the required domestic consumption and fire flow demands throughout the system. Water main systems shall be looped to provide continuous flow whenever possible. No dead end fire hydrants are allowed. The design engineer shall submit calculations showing flows in the system at various locations are adequate for domestic consumption and fire flow demand with a required minimum twenty (20) psi residual pressure.

6.06.B.2. Design Flows-Domestic and Fire Protection:

For purposes of water main design, maximum daily flows shall be based on the following:

	Location or Type	Domestic	Fire Flow
a.	Residential		
	1. Single-Family Detached	100 gpcd	1500 gpm
	2. Single-Family Attached (Townhome) with approved fire wall	100 gpcd	2000 gpm
	3. Multi-Family	100 gpcd	3000 gpm
b.	Office	50 gpcd	3000 gpm
c.	Commercial	60 gal/ employee/shift	6000 gpm
d.	Industrial	75 gal/ person/shift	6000 gpm

Flow shall be calculated using "C" factor of one hundred (100), ignoring fittings, and with a minimum residual pressure of twenty (20) psi.

6.06.B.3.Pipe Size:

The minimum water main pipe size shall be eight (8) inches diameter. At all locations in commercial and industrial developments, a minimum diameter of twelve (12) inches is required for water mains.

6.06.B.4.Fire Hydrants:

6.06.B.4.a. Hydrants shall be installed at all street intersections and at maximum three hundred (300) foot spacing along the lengths of streets.

6.06.B.4.b. When a building to be occupied will be set back two hundred fifty (250) feet or more from a street or is located more than three hundred (300) feet from a hydrant, additional hydrants shall be installed such that one (1) hydrant shall be located at the entrance to the building, and hydrants shall be provided around the perimeter of the building at maximum three hundred (300) feet spacing measured along access roads. Such perimeter hydrants shall be installed not more than one hundred fifty (150) feet from the building. There shall be at least one hydrant within 100 feet of a building's fire department connection.

6.06.B.4.c. Fire hydrant spacing plans shall be submitted to the Village Engineer, the appropriate Fire Protection District, and Building Department for review and approval and the fire protection district for their review and comment.

6.06.B.4.d. Fire hydrants shall not be located closer than fifty (50) feet from transformers, other hazardous electrical equipment or other hazards created by use of the fire hydrant or water.

6.06.B.4.e. All fire hydrants shall be supplied by a looped water system, comprised of a minimum eight (8) inch diameter water main. No dead end fire hydrants are allowed.

6.06.B.5. <u>Valves and Vaults</u>:

6.06.B.5.a. Valves shall be located on water mains so as to be able to isolate section of main from the entire system with minimum disruption of service.

6.06.B.5.b. Valves shall be installed so that not over eight hundred (800) feet of water main, with services, will be shut off at any time. Transmission lines with no service connections shall have valves located so that not over twelve hundred (1200) feet of main will be shut off at any time.

Valves on water mains servicing single family residential areas shall be installed so that no more than eight hundred (800) feet of water main and/or no more than twenty (20) units shall be affected when shutting off a section of main. Valves shall be installed within Village R.O.W. at either end of a water main that is constructed inside rear yard easements.

6.06.B.5.c. Valves shall be located so that it will require no more than three (3) valves to be closed to isolate a section of water main.

6.06.B.5.d. Valve vaults are required on all valves two and one-half (2 1/2) inches or larger. Valve vaults shall be forty-eight (48) inch inside diameter for valves eight (8) inch and smaller, sixty (60) inch inside diameter or larger for 10-inch through 16 inch diameter water main, and seventy-two (72) inch inside diameter or larger for 20-inch diameter water main.

Pressure connections for four (4) inch and six (6) inch valves shall be in forty-eight (48) inch inside diameter vaults and pressure connections for eight (8) inch through sixteen (16) inch shall be in sixty (60) inch inside diameter vaults. Pressure connections twenty (20) inch or greater shall be in a seventy-two (72) inch inside diameter vault.

Cones shall be eccentric when possible. In all cases, the valve nut shall be centered on the opening of the cone and valve vault lid.

6.06.B.6. Restrained Joints at Fittings:

At all fittings greater than 11 1/4 degrees, the fitting shall be restrained to the pipe. For all pipe greater than 12-inch in diameter, restrained joint pipe shall be provided for any change of direction in accordance with DIPRA thrust restraint design. Joints shall be restrained with Mega-Lugs or approved equal. Fittings shall be blocked against the trench wall using precast concrete blocks.

6.06.B.7. Depth of Water Mains:

All water mains shall be constructed at a depth of six (6) feet from final grade to the top of the water main unless otherwise approved by the Village Inspector.

6.06.B.8. Separation of Water Mains and Sewers:

Separation and protection of water mains from sewers shall comply with the Illinois E.P.A. Standard Specifications for Water and Sewer Construction in Illinois, latest edition, and the Illinois Plumbing Code, latest edition.

6.06.B.9. Service Connections:

6.06.B.9.a. All water service lines shall be designed with a diameter necessary to provide adequate domestic and fire flow use capacity.

6.06.B.9.b. Water service lines servicing single family residences shall be a minimum of one (1) inch diameter.

6.06.C. Allowable Materials:

6.06.C.1. Water Main Pipe:

6.06.C.1.a. All water pipe shall be ductile iron pipe conforming to AWWA specification C-151 (ANSI A21.51). Pipe shall include zinc-based coating per ISO 8179-1.

6.06.C.1.b. Pipe shall have a minimum thickness Class 52 conforming to AWWA specification C-150 (ANSI A21.50).

6.06.C.1.c. All pipe shall have a minimum laying length of eighteen (18) feet.

6.06.C.1.d. Pipe joints shall be push-on joints or mechanical joints conforming to AWWA C-111 (ANSI 21.11).

6.06.C.1.e. All pipe shall be cement-mortar lined in accordance with AWWA C-104 (ANSI A21.4).

6.06.C.1.f. All pipe must include polyethylene encasement in accordance with AWWA C-105 (ANSI 21.5), Method B and ASTM A674. Wrap shall be V-Bio Enhanced Polywrap or approved equal.

6.06.C.1.f. Alternate pipe materials may be allowed upon review and recommendation of the Village Engineer and upon approval of the Public Works Director.

6.06.C.2. <u>Water Main Fittings</u>:

6.06.C.2.a. All water main fittings shall be ductile iron fittings conforming to AWWA specification C-110 (ANSI 21.10).

6.06.C.2.b. Fittings shall be cement-lined in accordance with AWWA C-104 (ANSI A21.4).

6.06.C.2.c. Alternate fitting materials may be allowed upon review and approval of the Village Engineer.

6.06.C.3. <u>Valves</u>:

6.06.C.3.a. Valves twelve (12) inches and smaller shall be iron body, bronze mounted double disc, parallel seat, non-rising stem gate valves modified wedge disc resilient seat type conforming to AWWA C-515~ Valves shall open counter-clockwise, with non-rising stem packing with 2-inch square operating nut. Valves shall be Mueller A-2362 or American Flow Control AFC 2500-1.

6.06.C.3.b. Provide 304 stainless steel trim and nuts, bolts and washers to assemble flanged joints.

6.06.C.3.c. Valves larger than twelve (12) inches shall be ductile-iron body, rubber sealed, tight closure butterfly valves conforming to AWWA C-504. Valves shall be Class 150 B and shall open counter-clockwise, worm gear operated, and be operated by a two (2) inch square nut. Valves shall be Pratt-Groundhog Butterfly, or approved equal. Other valves may be allowed upon review and approval of the Director of Public Works and Village Engineer.

6.06.C.3.d. Each valve shall be tested at the factory for performance and operation prior to painting and shall be subjected to the following hydrostatic pressure tests:

(1) Each three (3) inch to twelve (12) inch valve, inclusive, shall be subjected to hydrostatic pressure

test under pressures of both three hundred (300) psi and one hundred seventy-five (175) psi.

(2) Each fourteen (14) inch to forty-eight (48) inch butterfly valve shall be subjected to test pressures per AWWA C 504.

(3) Each sixteen (16) inch to forty-eight (48) inch valve, inclusive, shall be subjected to test pressures of three hundred (300) psi and one hundred fifty (150) psi.

These tests shall be conducted in accordance with provisions of AWWA standards. Tests for special valves shall be made as provided for in the Special Provisions.

6.06.C.3.e. All valves shall not be more than two (2) years old from the date of installation.

6.06.C.4. <u>Valve Vaults</u>:

6.06.C.4.a. Valve vaults shall consist of precast reinforced concrete sections meeting ASTM C-478 and ASTM C-443 standards.

6.06.C.4.b. Adjusting rings shall be high-density polyethylene (Ladtech or approved equal).

6.06.C.4.c. Vault steps shall be polypropylene coated steel.

6.06.C.4.d. Frame and grates for valve vaults shall be Neenah R-1712 or approved equal, embossed 'Water" and "Itasca" and have recessed pickhole that does not create an opening in the manhole cover.

6.06.C.5. <u>Fire Hydrants</u>:

6.06.C.5.a. Hydrants shall be dry barrel type and shall conform to AWWA C-502.

6.06.C.5.b. Hydrants shall be compression type with a 5-1/4 inch minimum size main valve assembly, O-ring seals, two 2-1/2 inch hose nozzles, and a 4-1/2 inch pumper nozzle with National Standard threads, a National Standard operating nut, and an above ground break flange.

6.06.C.5.c. Hydrants shall be provided with a 6-inch resilient seat type gate valve with valve boxes and cover marked with the word 'WATER."

6.06.C.5.d. Hydrants shall be painted red or as otherwise directed by the Village Engineer.

6.06.C.5.e. Hydrants shall be American Flow Control 5-1/4" Waterous Pacer or .. . Other hydrants may be allowed upon review and approval of the Director of Public Works and Village Engineer.

6.06.C.5.f. Before the hydrant is painted at the factory, it shall be subjected to an internal hydrostatic pressure test of 300 pounds per square inch with the hydrant valve in a closed position and again with the hydrant valve in an open position.

6.06.C.5.g. All iron parts of the hydrant, both inside and outside, shall be thoroughly cleaned and thereafter painted with one coat of paint of a durable composition, and one additional coat of red paint.

6.06.C.5.h. Each fire hydrant shall be equipped with a 3/8-inch diameter white laminar matric fiberglass marker with four 6-inch red and four 6-inch white highly reflective tape strips, five feet (5') in length, top mounted by RoDon Hydra Finder.

6.06.C.5.i. All fire hydrants shall not be more than two (2) years old from the date of installation.

6.06.C.6. **Service Connections:**

6.06.C.6.a. All water service lines two (2) inches in diameter or smaller shall be constructed of Type K copper with compression fittings. Service lines three inches and larger shall be ductile iron conforming to allowable water main material specifications.

6.06.C.6.b. Service connection to **ductile iron water main** shall be a direct tap for services two (2) inches in diameter or less.

Service connections to non-ductile iron water main for services two (2) inches in diameter or less than shall be made with a fabricated lug tapped outlet all stainless steel sleeve (Cascade CSC2).

Corporation stops shall be ball style (McDonald 747018Q or Mueller H-15000) or approved equals.

Service connections to the water main for services three (3) inches or larger shall be made with a ductile iron fitting conforming to water main fitting specifications.

6.06.C.6.c. Each service two (2) inches in diameter or less shall have a ball style curb stop (McDonald 76104Q or Mueller H-15150) and a curb box, Minneapolis Pattern McDonald 5614 or Mueller H-10302. Services three (3) inches and larger shall have gate valves conforming to water main gate valve specifications.

6.06.C.7. Bedding and Trench Backfill:

Aggregate bedding and trench backfill shall conform to the requirements of the "Standard Specifications for Road and Bridge Construction" State of Illinois, latest edition. Aggregate for bedding and initial backfill to 12-inches above the pipe shall be CA-7, and trench backfill shall be gradation CA-6. In no case shall tunnel rock be allowed.

6.06.C.8. Polyethylene Encasement

Polyethylene wrap shall be U.S. Pipe V-Bio enhanced polywrap, min. 8 mil. thickness (0.008 in), meeting the requirement of ANSI/AWWA C103/A21.5 and AWWA C105, ASTM A674 and IOS 8180, or approved equal.

6.06.D. Construction:

6.06.D.1. Water Mains:

Water mains and appurtenances shall be installed in conformance 'With AWWA C-600, the material manufacturer's recommendations, the standard specifications for Water and Sewer Main Construction in Illinois, latest edition, and the Development Standards.

6.06.D.2. Trench Backfill:

6.06.D.2.a. The trench, unless otherwise specified, shall have a flat bottom conforming to the grade to which the pipe is laid. The pipe shall be laid on sound aggregate bedding, CA-7 gradation, no less than six (6) inches in depth, true to grade, and shall have a firm bearing for the full length of pipe. Bedding shall be extended to a minimum of twelve (12) inches above the pipe.

6.06.D.2.b. Select granular backfill shall be required in all locations where the water main trench is under or within two (2) feet of existing or proposed public or private pavements, curb, gutter, curb and gutter, paths, sidewalks, and driveways. The select granular trench backfill shall be placed in lifts not exceeding eight (8) inches and shall be mechanically compacted to not less than ninety-five (95) percent of the standard laboratory density.

6.06.D.2.c. Excavations for water main not beneath or within two (2) feet of existing or proposed paved areas shall be backfilled from one (1) foot above the water main with material excavated from the trench, unless such material is determined to be unsuitable by the Village Inspector. The material shall be free from clods and rocks and shall be placed in eight (8) inch lifts and compacted.

6.06.D.3. Water System Connections:

All connections to the existing water system shall be made under full water service pressure unless otherwise approved by the Building Commissioner.

6.06.D.4. Fire Hydrants:

6.06.D.4.a. Fire hydrants shall have a minimum of one (1) cubic yard of one quarter (1/4) to three quarters (3/4) inch of washed river stone placed at the base of the hydrant to provide drainage at the barrel. A layer of polywrap shall be placed over the wash stone to maintain separation of backfill.

6.06.D.4.b. Auxiliary valves shall be connected to hydrants. The minimum distance between auxiliary valve and hydrant shall be thirty (30) inches.

6.06.D.4.c. The center of the hydrant's pumper nozzle shall be not less than eighteen (18) inches nor more than twenty-six (26) inches above finished ground elevation. Hydrants in street rights of way shall be placed not less than three (3) feet nor more than eight (8) feet from the back of curb. Hydrants shall be a minimum of forty-eight (48) inches from any tree, pole or other obstruction.

6.06.D.5. Service Connections:

6.06.D.5.a. Water service lines shall have a minimum cover of six (6) feet.

6.06.D.5.b. Curb stops and curb boxes shall be located in public rights-of-way. Such curb stops and boxes shall not be located in any paved areas unless approved by the Building Official.

6.06.D.5.c. Water services or water main shall not be installed through sewer manholes.

6.06.D.6. Utility Identification:

A wood stake two (2) inch by four (4) inch by six (6) foot with not less than the top two (2) feet painted blue shall be installed next to blue shall be

installed next to each vault, buffalo box, and valve box for protection of that appurtenance. The stake shall be maintained in an upright position until Village acceptance of the utility structures. Upon acceptance the contractor is to remove the stakes.

When newly poured curbs are installed the contractor shall use a Village approved stamp to indent the wet concrete with a "W" to identity the location of each sanitary sewer stub. The letter "W" shall be indented at the top of the curb, one and one-half (1 1/2) inches to two (2) inches in height and width at a depth of three-eighths (3/8) inch deep. If the developer and/or the contractor fail to indent the curbs as outlined above, the Village may then require that identification medallions or other symbols as approved by the Village, be affixed to the curb.

6.06.E. Testing:

As part of the construction of development improvement, all water mains shall be tested as described in this Section. The Building Department shall be notified of the time of the test a minimum of twenty-four (24) hours prior to the test. All tests shall be performed in the presence of the Village Inspector.

6.06.E.2. Hydrostatic Pressure Test:

The newly laid water mains or any valved sections of it shall be subject to a hydrostatic pressure test of no less than one-hundred and fifty (150) pounds per square inch (psi) or fifty (50) pounds per square inch (psi) above normal working pressure when working pressure exceeds one-hundred and fifty (150) pounds per square inch (psi). Duration of each pressure test shall be for a period of not less than four (4) hours. A Village representative shall be present to witness the testing.

Each valved section of pipe shall be slowly filled with water and the specified test pressure shall be applied by means of a pump connected to the pipe in a satisfactory manner. The pump pipe connection and all necessary apparatus, including gauges and meters, shall be furnished by the Contractor. Pressure testing of water main shall include hydrants by pressure testing against the internal valve of hydrant. Before applying the specified test pressure, all air shall be expelled from the pipe. To accomplish this, taps shall be made, if necessary, at points of highest elevation and afterwards tightly plugged. All exposed pipes, fittings, valves, hydrants, and joints shall be carefully examined during the open trench test. All joints showing visible leaks shall be repaired until tight. Any cracked or defective pipes, fittings, valves, or hydrants discovered in consequence of this pressure test shall be removed and replaced by the Contractor with sound material and the test shall be repeated until satisfactory to the Village. At no instance shall "Bell Joint Clamps" be permitted to repair leaks at push-on joints.

6.06.E.3. **Leakage Test:**

A metered leakage test shall be conducted after the pressure test has been satisfactorily completed. Duration of each leakage test shall be a minimum of 24 hours in additional to the hydrostatic pressure test period.

During the test, water lines shall be subjected to the normal water pressure of the Village water system. Maximum allowable leakage shall be in accordance with the allowable leakage specified in the Standard Specifications for Sewer and Water Construction in Illinois, latest edition. The leakage must be recorded by a meter approved by the Village Public Works Department.

Should any test of pipe disclose leakage greater than the maximum allowable amount, the defective joint or joints shall be located and repaired and the 24-hour metered leakage test repeated until the leakage is within the specified allowance. All visible leaks are to be repaired regardless of the allowance used for testing.

6.06.F. Flushing of Water Mains:

Sections of pipe to be disinfected shall first be flushed to remove any solids or contaminated material that may have become lodged in the pipe. A hydrant shall be installed near the end of the main. A two and one-half (2 1/2) inch hydrant opening will, under normal pressure, provide the necessary velocity in pipe sizes up to and including twelve (12) inches. All taps required by the Contractor for temporary or permanent release of air space and/or chlorination or flushing purposes, shall be provided by the contractor as part of the construction of water mains. When completed, the contractor shall remove the copper tubing and the corporation stop shall be placed at the "off" position.

6.06.G. Disinfection:

6.06.G.1. The preferred point of application of the chlorinating agent shall be at the beginning of the pipeline extension of any valved section of it and through a corporation stop in the top of the newly laid pipe. The injector for delivering the sodium hypochlorite into the pipe should be supplied from a tap on the pressure side of the gate valve controlling the flow into the pipeline extension.

6.06.G.2. After all mains have been satisfactorily tested, the contractor shall disinfect the main in accordance with AWWA Standard C-651. A chlorine concentration during disinfection shall be maintained at a minimum fifty (50) mg/1 available chlorine. The chlorinated water shall be retained in the main for a period of at least twenty-four (24) hours. At the end of the twenty-four (24) hour period, the treated water shall contain no less than twenty-five (25) mg/1 chlorine throughout the main.

6.06.G.3. After the disinfection period, the water shall be flushed from the main until the chlorine concentration in the water leaving the main is no higher than that generally prevailing in the system or less than one (1) mg/1. After flushing, the contractor shall take a minimum of two (2) samples to be bacteriologically tested to show the absence of coliform organisms. The number of samples may be increased as determined by the inspector. A second series of samples shall be collected no less than twenty-four (24) hours after the first set of samples has been collected. The individual sets of samples will be bacteriologically tested by an independent laboratory approved by the State.

6.06.G.4 If either, or both sets, of samples do not pass the bacteriological examination, the contractor shall re-disinfect the main in accordance with the procedures until such time that satisfactory samples are collected.

6.06.H. Water Main Protection:

Water main and services shall be protected from contamination from sanitary and storm sewers. Design and construction shall follow the vertical and horizontal separation requirements of the Illinois Environmental Protection Agency spelled out the Standard Specifications for Sewer and Water Construction in Illinois, latest edition.

6.06.I. Records - As-Built Drawings:

For all projects involving extensions to water mains there shall be submitted an electronic PDF copy and two (2) hard copy drawings - maximum size two (2) feet by three (3) feet - of the "as-built" plans showing the actual locations and grades of water main, hydrants, valves and service connections and B-Box. One copy shall be submitted to the Village Engineer and one copy shall be submitted to the Building Department.

6.06.J. Ownership of Water System:

6.06.J.1. All right, title and interest in and to the water main to be accepted by the Village shall vest in the Village.

6.06.J.2. Ownership and maintenance of the water service lines from the building to the water main, including the connection, B-Box or valve, shall be owned and maintained by the property owner. The Village reserves the right to modify the service line in the event of construction of a public improvement within the Village right of way.

6.07 – NEIGHBORHOOD LIGHTING IMPROVEMENTS

6.07.A. General:

All development shall include the design and construction of street lighting facilities for the illumination of all roadways, public or private, which lie in or border the development and all parking lots within the development. Street lighting to be

accepted by the Village shall be constructed within the public right of way or in easements dedicated to the Village or as otherwise approved by the Village Board.

6.07.B. Specifications:

Streetlights and appurtenances shall be designed and installed according to: The American National Standard Practice for Roadway Lighting, current edition, Publication ANSI/IES RP-8, approved by the American National Standards Institute, published by Illuminating Engineering Society of North America, current edition, hereinafter referred to as “RP-8”;The National Electric Code, current edition; Illinois Department of Transportation Standard Specifications for Roads and Bridges, current edition; and these Development Standards and all other applicable codes and ordinances of the Village.

6.07.C.: Public Street Lighting Systems:

6.07.C.1. Local Streets in Residential, Commercial and Industrial Districts:

For Residential Areas, Poles shall be located at all intersections and spaced at a distance not exceeding three hundred (300) feet from one another for midblock locations.

For Commercial and Industrial Areas, poles shall be located at all intersections and spaced per calculations performed in accordance with RP-8. The developer shall consult with the Village Engineer to assist with determining roadway and area classifications. Poles shall also be located at the ends of cul-de-sacs and at curves in roadway as required by the Village Engineer.

Poles shall be set in the parkway a minimum of two (2) feet from the back of curb. Where the distance between the sidewalk and the curb is such that this location is impractical or where the sidewalk adjacent to the curb, the Village Engineer shall review and approve alternate locations for the pole.

Unless otherwise directed by the Village Engineer, the direction of the support arm shall be at right angles to the centerlines of the intersecting streets at a four (4) legged intersection. At 'T' intersections, a pole shall be provided on the centerline extended of the terminating street at the top of the "T" with support arm extending toward the center of the intersection. Between intersections, mast arms shall be orientated at right angles to the centerline. In cul-de-sacs, lights shall be placed in the center median or if no center median is to be constructed, at the end of the cul-de-sac along the centerline extended.

Poles shall be located a minimum of 20 feet from existing or proposed parkway trees, where possible. If poles must me closer than 20 feet from a tree, the tree shall be trimmed as necessary to allow for proper light distribution.

6.07.C.2. Arterials and Collector Streets:

Poles shall be spaced per calculations performed in accordance with RP-8. Intersection lighting shall be designed to meet the intersection lighting design criteria established in RP-8. The developer shall consult with the Village Engineer to assist with determining roadway and area classifications.

Poles shall be located a minimum of 20 feet from existing or proposed parkway trees, where possible. If poles must me closer than 20 feet from a tree, the tree shall be trimmed as necessary to allow for proper light distribution.

6.07.C.3. Lighting Calculation Requirements for Arterials and Collector Streets

Lighting design calculations shall be performed with lighting software such as AGi32 produced by Lighting Analysts, Inc. All calculations shall consider an R3 pavement type and a light depreciation factor of 0.7.

Straight line calculations shall be performed using the luminance method and shall include veiling luminance calculations per RP-8. The calculation submittals shall include all typical pavement width and lane configurations.
Intersection calculations shall use the actual project CADD geometry to produce calculation printouts in accordance with RP-8.

Electrical calculations shall be provided that verify main breaker, circuit breaker, and wire sizing. Wire size shall be verified by providing voltage drop calculations showing that voltage drop from the controller to the last pole in each circuit is less than 5%.

6.07.C.4. Light Pole Requirements:

All poles shall be round tapered seamless poles fabricated from aluminum alloy 6063 - T6. Poles shall be provided with bolt down anchor bases and handholes. Anchor bases and handhole frames shall be manufactured from aluminum alloy 356 - T6.

Bracket arms shall be tapered elliptical arms manufactured from aluminum alloy 6063-T6. Bracket arm shall taper to two and three-eighths (2-3/8) inches at luminaire end.

Poles shall be certified by the manufacturer to support loads in accordance with “LRFD Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals”, latest edition. Light poles shall be designed for applicable ADT, risk category “typical” and fatigue category 1, natural wind gusts only.

In residential areas, the lighting standards shall have bolt down bases and shall be constructed of spun aluminum with a twenty (20) foot mounting height. The

light poles shall be as shown in the ITASCA STANDARD DETAIL drawings – TYPICAL POLE INSTALLATION IN RESIDENTIAL AREAS.

In OR and ROC zoned districts, fixtures shall match existing and shall be approved by the Community Development Director and/or the Village Engineer.

In commercial or business areas, the lighting standards shall have bolt down bases and shall be constructed of spun aluminum with a thirty (30) foot mounting height. The light poles shall be as shown in the ITASCA STANDARD DETAIL drawings – TYPICAL POLE INSTALLATION IN COMMERCIAL AREAS.

In cases where bronze finish is desired, the finish shall be anodized duranotic dark bronze finish on spun aluminum. Painted steel poles will not be allowed for bronze finish. Alternate poles and mounting height shall be approved by the Community Development Director and/or Village Engineer. In the Historic District and in planned developments, the fixtures shall match existing and be approved by the Community Development Director and/or Village Engineer.

Commercial, Industrial, Collector & Arterials:
Poles shall be manufactured by P & K Pole Products, Inc.
Commercial Area (30' MH): Model No. RTA8M30AAS18 with black anodized finish, and pole base cover, all in accordance with the Village detail.

Residential Areas (Non-Historic District)
Residential Area (20'MH): The entire assembly shall be factory black powercoat. Pre-approved manufactures are as follows:

- Sternberg Lighting, Model No. 9702ARTS/RC with CAS4 arm, or approved equal

The Village Engineer may require breakaway bases for high ADT roadways.

Ornamental or non-standard lighting shall require prior approval by Community Development, Public Works and/or Village Board.

Pole types for existing business park / downtown areas shall be as follows:

Spring Lake Park – 28' round bronze aluminum 7-inch diameter at base, RTA pole Model No. RTA7L30AA by P & K Pole Products, Inc.

Hamilton Lakes Park – 28' x 5" square bronze fiberglass pole, 11-inch base. Model No. AR30-61S5BB01 by Shakespear Co (Valmont Composite Structures)

Downtown Areas – 10' or 12' Antique poles, SCP Central Park, black cast iron Model No. SCI-B-S by Sentry Electric, LLC

Small wireless providers shall comply with Title V (Public Works), §57.10, regarding stealth, concealment, and design standards. All new and

replacement light poles, including installations by wireless providers, shall conform to the following additional design standards.

1. If there are existing light poles in the area, the new light poles shall be of similar design, material, and color as the existing poles within the immediate area, unless otherwise directed by the Village.
2. If there are no existing light poles in the area, the new light poles shall be colored black. In addition, the poles shall be anodized if there are no decorative components required based on the location. The pole shall be painted if decorative components are required based on the location. Poles shall conform to the Village standard light pole details for residential and/or commercial areas based on the location of the pole.

6.07.C.5. <u>Luminaires:</u>

All proposed luminaires shall have LED light sources.

For Residential Areas, luminaire wattage and lumen output shall be as shown in the ITASCA STANDARD DETAIL drawings – TYPICAL POLE INSTALLATION IN RESIDENTIAL AREAS. Lumens shall be in the range of 5000 to 6000. Pre-approved luminaires are as follows:

- GE Evolve ERL Series with dimmable driver, black.

For Commercial, Industrial, and Private site lighting, and lighting along collector and arterial streets, the luminaire wattage, lumen output, distribution type, and other variables shall be as determined by the photometric calculations.

Pre-approved luminaires are as follows:

- GE Evolve ERL Series with dimmable driver, black.

In all cases the luminaire shall meet the following:

1. BUG rating:
   - Backlight less than or equal to 3
   - Uplight shall be zero
   - Glare less than or equal to 2
2. Include an ANSI 7 pin photocell receptacle for future wireless controls and monitoring
3. Enhanced surge protection 10kV / 5kA
4. Minimum 5-year manufacturer's warranty
5. Minimum 3G vibration rating
6. Operating temperature range -40 ℃ to +50 ℃
7. Minimum 100,000 hours lifetime at L70
8. Contain no liquids or moving parts
9. Dimmable Driver
10. UL or ETL listing
11. Minimum ingress rating IP65

Luminaires for existing business park / downtown areas shall be as follows:

Spring Lake Park: Topaz Model No. F-ARL/150/50K/S3

Hamilton Lakes Park: Topaz Model No. F-ARL/150/50K/S3

Downtown Area South (Usher Park & Old and New Village Hall:
Sentry Electric, LLC Model No. SCP-NB-LEDV29B-0.7A-830-DR-KHT5SQ-IP66-BLANK-BK

Downtown Area North (Walnut Street, Orchard Street & Train Station):
American Nail Plate Lighting Model No. LA 73
Bollards - Sentry Model No. SCI-B-BOL

6.07.C.6. <u>Wire and Cable</u>:

All wire and cable installed under this Section from the power source to the lighting standards shall be contained in continuous coilable 1¼ inch minimum diameter unit duct manufactured from high density smooth wall polyethylene electrical plastic duct. Direct burial of all wire and cable under this Section is prohibited.

All wire and cable installed under this Section shall be heat and moisture resistant, Type XHHW, and be suitable for use at seventy-five (75 C [167 F]) degrees and shall have insulation rated at 600V.

The hot and neutral wires shall be a minimum of No. 6 AWG as verified by voltage drop calculations. The insulated ground wire may be one size smaller than the hot wires but shall be no smaller than No. 8 AWG.

All wire shall be subject to an insulation test to ground after installation. The minimum acceptable resistance to ground shall be two hundred fifty thousand (250,000) ohms. Any section of wiring failing to pass the minimum insulation test for any reason or showing an obvious short circuit shall be rejected. All wire, cable and unit duct to be furnished shall be buried not less than thirty (30) inches below finished grade. All circuits shall be tested in the presence of the Village Electrical Inspector.

All runs shall be continuous without splice in cable or unit duct from pole handhole to pole handhole or to control cabinet. Underground cable or duct splices will not be allowed.

Cable slack shall be provided such that there is a minimum of three (3) feet of slack at the base of all light standards.

Adequate slack shall be provided such that the service connection can be made without splices other than at the power source. In the case of aerial service, rigid steel conduit for service pole riser including insulated bushing shall be provided for a service pole riser.

When passing under travelled surfaces such as roadways and non-residential driveways, the unit duct shall be placed in rigid galvanized steel conduit not less than two (2) inches in diameter.

6.07.C.7. Lighting Controller Requirements:

The lighting controller shall be a cabinet-type traffic control enclosure complete with concrete foundation, work pad, and wiring for the control of roadway lighting. The controller shall be metered.

The cabinet door shall have a stainless steel name plate of the dimensions and engraving indicating the owner of the cabinet as the Village of Itasca.

Finish shall be polyester powder paint applied electrostatically to a minimum thickness of 2 mils. The color shall be green, RAL 6005.

All feeders, branch circuits, and auxiliary and control circuits shall have overcurrent protection. The overcurrent protection shall be by means of circuit breakers.

Contactors shall be electrically operated, mechanically held. The contactor shall have an in-line drive operating mechanism. Ampere rating of contactors shall be not less than required for the duty shown and shall otherwise be rated as indicated.

Separate ground and neutral bus bars shall be provided. The bars shall be copper and mounted on the equipment panel. The heads of connector screws shall be painted white for neutral bar connectors and green for ground bar connectors.

All power and control wiring shall be stranded copper.

All switches, controls and the like shall be identified both as to function and position.

All conduit entrances into the lighting controller shall be sealed with a pliable waterproof material.

6.07.D. Private Site Lighting Systems:

6.07.D.1. Residential, Commercial and Industrial Districts:

Site lighting shall be designed in accordance with IES RP-20-14 “Lighting for Parking Facilities” and IES RP-33-14 “Lighting for Exterior Environments”

Poles shall be oriented toward the interior of the site where possible.

Horizontal illuminance shall not exceed 0.5 footcandles at any point along an adjacent property line. In the case of public Right-of-Way as an adjacent property, the spill light shall not exceed 0.0 footcandles at the property line on the other side of the Right-of-Way.

6.07.D.2 Lighting Calculation Requirements

For Commercial and Industrial areas and along collector and arterial streets, calculations shall be in accordance with IES RP-20-14 “Lighting for Parking Facilities” and IES RP-33-14 “Lighting for Exterior Environments”, as applicable.

Lighting design calculations shall be performed with lighting software such as AGi32 produced by Lighting Analysts, Inc. All calculations shall consider an R3 pavement type and a light depreciation factor of 0.7.

Calculation printouts shall include the following:

- Be plotted to scale not larger than 1” = 50’
- Include a luminaire location summary with coordinates, mounting heights, orientation, and tilt, as a minimum.
- Include a calculation table with average, minimum, and maximum illuminance values in footcandles for each grid. Table shall also include the ratios average:minimum, and maximum:minimum for each grid.
- Include a luminaire table with all information such as wattage, lumen output, distribution type, and BUG rating.

Catalog cuts of the proposed lighting equipment shall be submitted for review. All equipment options such as luminaire wattage, lumen output, distribution type, and other variables shall be clearly marked.

Calculations shall use the actual project CADD geometry to produce calculation printouts. The photometric files for the proposed luminaires shall be made available to the Village for review.

Parking area calculations shall use grids created in the paved travelled areas only.

Open space areas that will not have vehicular travel shall use grids created per RP-33-14.

Separate, linear, calculation lines shall be used to verify horizontal illuminance at the adjacent property lines. The property lines and the calculation lines shall be clearly identified and labelled.

6.07.D.3. Residential, Commercial and Industrial Districts:

Light poles shall not exceed the following effective mounting height as measured from ground level to the light center of the luminaire: Residential - 20 feet; Commercial and Industrial - 30 feet.

6.08 – LANDSCAPING– ITASCA

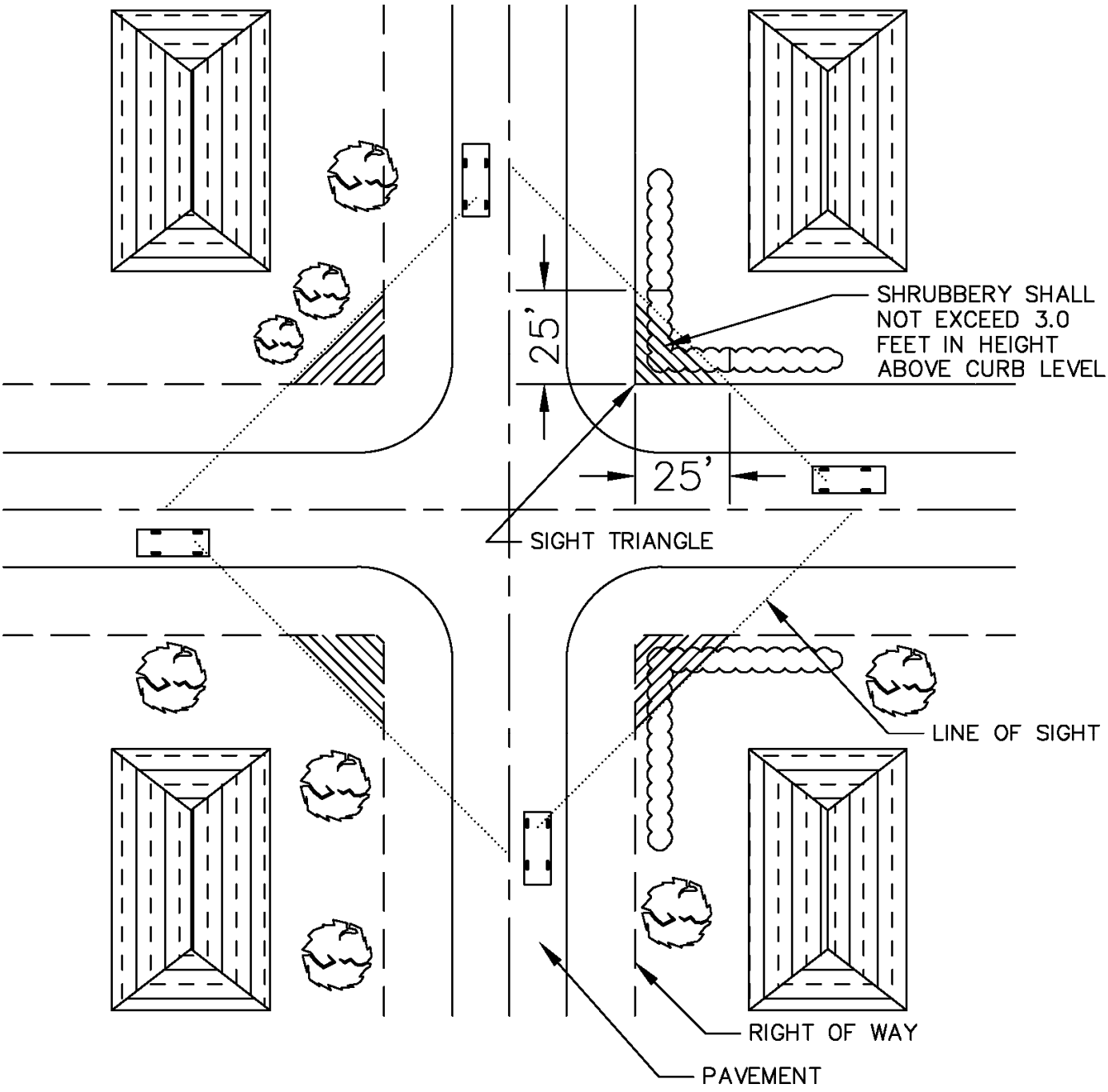
Any development or subdivision subject to the requirements of the Development Standards shall provide landscaping within the development and on public rights of way adjacent to or within such development. Landscaping required by these Development Standards shall be a condition to the issuance of a final Certificate of Occupancy for any improvements built on the subject property.

6.08.A.Public Property Landscaping:

6.08.A.1. Requirements for Parkway Trees:

6.08.A.1.a. Parkway trees are required in all residential subdivisions where overhead public utilities do not exist. Such trees shall be planted in the parkways not less than (4) feet from any sidewalk or curb, except as otherwise provided below, and shall be spaced not less than forty (40) feet apart, provided that at street corners trees shall be located not less than twenty-five (25) feet from the intersection of street right-of-way lines. In no case shall there be less than one (1) parkway tree per lot, except that there shall be not less than two (2) parkway trees on corner lots, (one [1] tree on each frontage). Trees shall be located outside of the required sight triangle **per Figure 1 below.** Trees shall also be located at least twenty (20) feet from streetlight poles, and to the extent practical, five (5) feet from underground utility lines and ten (10) feet from utility structures.

6.08.A.1.b. Parkway trees that are 6-inch in diameter or greater (measured at a point 4.5 feet above the highest ground level at the base of the tree) that are removed due to development within the Village right of way shall be replaced as part of the proposed improvements. The number of required replacement trees shall equal the total number of inch diameter of trees removed. Should trees not be able to be planted within the right of way of the project limits, the Village may designate an alternate location on other Village owned property to receive the replacement trees. Example: A 10” diameter tree that is removed would require (5) 2-inch diameter trees (10” total) to be planted.



LINE OF SIGHT EXHIBIT

FIGURE 1

6.08.A.1.c. In all business districts, parkway trees shall be provided and shall be spaced not more than one hundred fifty (150) feet apart. In all industrial districts, parkway trees shall only be required when the subject property adjoins or fronts property in a residential district and in such cases parkway trees shall be spaced not more than one hundred fifty (150) feet apart.

6.08.A.1.d. The following forms and species of trees are prohibited in the parkways or medians or where such trees will injure sewers or drains of the Village.

6.08.A.1.d.(1) Prohibited Plant Forms:

(a) **Multiple Stem Forms** - those forms containing more than one (1) stem.

(b) **Espaliers or Topiary** - forms achieved through trimming or pruning which are distorted or contrary to the natural shape of the species.

(c) **Flowering Shrubs** - those shrubs which typically grow taller than (3) feet.

(d) **Topped or Dehorned Trees** - trees with most or all of the crown removed.

6.08.A.1.d.(2) Prohibited Plant (Trees) Species:

Botanic Name	Common Name
Acer negundo	Box Elder
A. saccharinum	Silver Maple
Ailanthus altissima	Tree of Heaven
Betula spp.	Birch
Catalpa speciose	Catalpa
Eleagnus spp.	Russian Olive
Gingko biloba (female)	Female Gingko
Macluna pomifera	Osage Orange
Malus pumila	Apple
Morus spp.	Mulberry
Populus spp.	Cottonwood, Poplar, Aspen
Prunus spp.	Cherry, Plum
Salix spp.	Willow
Coniferales ord.	Coniferous Order
Ulmus spp.	Elm – (Unless Dutch Elm Resistant)

6.08.A.1.e. A different species of trees shall be planted in each block as part of the final plan submitted. The species of trees will

be designated for each block and shall be approved by the Community Development Director and Village Forester. The list of approved tree species can be obtained from the Department of Public Works.

6.08.A.1.f. Parkway trees shall be balled and burlapped and shall have a minimum trunk diameter of two and one-half (2 ½) inches (measured at six (6) inches above the root ball). They shall be grown in a nursery within a 100-mile radius of Itasca and shall have been transplanted twice, the last transplanting being not less than (4) years prior to parkway planting. All trees shall be tagged and identified as to species (botanic and common name), size and place of origin. Such tags shall not be removed by the developer prior to inspection by the Village inspector.

6.08.A.1.g. All trees (original or replacement) shall have a minimum of 75% of the crown alive after one year, as determined by the Village Forester. Those trees not meeting the requirement shall be replaced at the beginning of the next succeeding planting season, at no cost to the Village of Itasca.

6.08.A.1.h. The planting of parkway trees as required by these Development Standards shall be a condition to the issuance of a final Certificate of Occupancy for the building constructed in the subject zoning lot and shall not be required prior to such time.

6.08.A.1.i. If deemed necessary by the Village Forester and Community Development Director, the parkway tree requirements may be satisfied if an equivalent number of trees of the same size or larger are planted in the front yards of all adjoining lots.

6.08.A.1.j. Should completion of the development extend beyond a one (1) year period, the applicant shall be required to post additional funds to cover any increase in cost to plant the remaining trees.

6.08.A.1.k. **Tree Planting by the Village:**

If the applicant wishes to have the Village plant required trees, the applicant shall, prior to final plat or development plan approval, post with the Village Clerk as cash deposit or treasurer's or cashier's check payable to the Village in an amount equal to the number of trees required to be planted in the public parkway pursuant to this Section multiplied by the amount charged by the Village to cover the cost of such trees, and any and all work connected with

the guaranteed planting of such trees as such amount is established from time to time by resolution of the corporate authorities of the Village. The Village shall use such funds to plant trees in the parkway.

6.08.A.1.l. **Prevention of Injury to Trees in the Public Right-of-Way:**

In the erection, alteration or repair of any building or structure, or the construction, installation, alteration or repair of any street, driveway, sidewalk, or utility, trees in the right-of-way or on any Village-owned or maintained property shall be protected from damage or removal unless otherwise authorized by a permit issued by the Public Works Department. Suitable protection shall include a six (6) foot high temporary chain link construction fence secured to metal posts driven into the ground which are spaced no further than ten (10) feet apart. Tree crowns and trunks shall not suffer any branch or bark loss. Roots shall be protected from compaction, storage of materials, severing, regrading of the parkway or excavation within the Critical Root Zone. It shall be unlawful for any entity or person to sever roots, compact the soil, regrade the parkway or excavate within the Critical Root Zone of any tree in any right-of-way of any street without a valid permit during the erection, alteration or repair of any building or structure, or the construction, installation, alteration or repair of any street, driveway, sidewalk or utility. The Critical Root Zone is defined as the minimum volume of roots necessary for maintenance of tree health and stability, and shall be a rectangle around the tree trunk with the minimum dimensions listed in the table below:

Tree diameter 4.5 feet above ground	Width from street to property (minimum-curb to sidewalk)	Length along street (minimum)	Depth
0 - 12.0 inches	10 feet	10 feet	4 feet
12.1 - 24.0 inches	10 feet	20 feet	4 feet
24.1 or more inches	10 feet	30 feet	4 feet

Whenever possible, the entire parkway shall be fenced except where access has been permitted. Any factors that would cause any deviations from the table above shall be noted on the permit issued for work in the area and shall be approved by the Village Forester before the work begins or the permit is issued. In addition to any fines that may be assessed for violation of this section, the person shall pay to the Village a sum equal to the value or partial value of the tree lost as a result of the violation. The value or partial value of the tree lost shall be as determined by the Village Forester using the most current edition of the

Guide for Plant Appraisal prepared by the Council of Tree and Landscape Appraisers, and edited, published and copyrighted by the International Society of Arboriculture. Various factors used in the tree value calculations for northern Illinois shall be obtained from the most current edition of the Species Ratings and Appraisal Factors for Illinois prepared by the Illinois Arborist Association.

6.08.A.2. Areas to be Graded and Sodded:

6.08.A.2.a. All unpaved areas within the dedicated right-of-way shall be graded and sodded in an approved manner. Restoration work shall be performed to the satisfaction of the Village Inspector.

6.08.A.2.b. All parkways shall be graded smooth and topped with at least six (6) inches of black dirt after compacting and removal of stumps, trees that cannot be saved, boulders and such. Such areas shall be sodded.

6.08.A.2.c. Upon recommendation of the Village Inspector, the Village Board may require additional sodding of a lot to prevent soil erosion and blockage of drainage system.

6.08.B. Private Property Landscaping:

6.08.B.1. Protection of Existing Trees:

Trees and surface vegetation provide a natural means of sedimentation and erosion control, as well as adding an aesthetic feature to the local landscape.

6.08.B.1.a. Existing Tree Plan:

(1) When determining the location of improvements within a subdivision and the location of buildings or structures on lots, the developer shall make every reasonable effort to save healthy specimen trees having a diameter of five (5) inches or greater (measured at four-and-a-half (4.5) feet above ground level.) Specimen trees that are to be removed should be replaced with an equivalent on the proposed landscape plan:

(a) Deciduous trees shall be replaced with new trees at a rate of one inch (1”) in caliper of replacement tree to each one inch (1”) in caliper of removed tree. In the event of a fraction of an inch, if the fraction is less than one half inch (1/2”), it may be disregarded. If

the fraction is one half inch (1/2”) or greater, it shall be counted as one inch (1”).
All replacement deciduous trees shall have a minimum caliper of two and one-half inches (2.5”) in diameter, as measured at diameter breast height (DBH) above the ground**.** Any combination of tree sizes equaling two and one half inches (2.5”) in diameter or larger, may be used for tree replacement; i.e., One (1) twenty four inch (24”) tree equals two (2) six inch (6”) and four (4) three inch (3”) tree replacements or eight (8) three inch (3”) replacements.

(b) Evergreen trees shall be replaced with new trees at a rate of one (1) vertical foot for each one vertical foot of removed tree. All replacement evergreen trees shall be a minimum height of six vertical feet (6’). Any combination of tree sizes six feet (6’) in height or greater may be used as tree replacements.

(2) Nothing in this Section shall be interpreted to require the developer to develop his property at a lesser density or intensity than allowed by the Zoning Ordinance or elsewhere in these Development Standards.

(3) The developer shall submit an existing tree plan certifying the location, size and species using botanic and common names of all healthy trees having a diameter of five (5) inches or greater (measured at four-and-a-half (4.5) feet above ground level) for areas within twenty-five (25) feet of any proposed improvement. For remaining areas covered by the preliminary plan, only the general locations of the trees are required. The developer shall indicate on such plan which trees he proposes to save in accordance with this Section. The trees to be saved in accordance with this Section shall be agreed upon as part of the preliminary plan approval.

In addition, the developer shall submit:

(a) A proposed grading plan for the site indicating the location, size and species using botanic and common names of the trees to be saved.
(b) A plan establishing the methods to be used for preserving the trees that are to be saved. Such plan shall include the following provisions:

(1) All grading and construction equipment shall be forbidden from encroaching within the tree's drip line;

(2) Crushed limestone or other materials detrimental to the tree shall not be dumped within the tree's drip line or at any higher location where drainage toward the tree could affect the health of the tree; and

(3) Installation of plastic safety fencing at the periphery of the tree's drip line shall be required.

6.08.B.1.b. The developer's proposed methodology for saving existing trees shall be reviewed by the Plan Commission or Community Development Director. If, in the opinion of the reviewer, the developer has not taken the necessary precautions in preserving such existing trees, a site development permit will not be issued until such time as the developer satisfactorily amends his plans for the preservation of such existing trees.

In the event that a tree designated on the approved existing tree plan for saving such healthy trees shall be destroyed or razed by the developer during the construction process, the developer shall replace such tree with a quantity of trees of an approved species having an equivalent diameter not less than the tree so destroyed or razed. The replacement tree(s) shall be installed in the approximate location of the tree so destroyed or razed.

6.08.B.2. **Restoration/Installation of Grassy Areas:**

All grassy areas shall be graded smooth and topped with at least (6) inches of black dirt after compaction and removal of stumps, trees that cannot be saved, boulders and such. Sodding or native vegetation must be used to stabilize drainage swales, but other areas may be seeded. Seeded areas with slopes of 12% or greater shall have erosion control blanket installed.

86.01.B.3. **Landscape Plan:**

Any development or subdivision, subject to the provisions of these Development Standards shall provide a landscape plan to be reviewed by the Plan Commission or Building Commissioner and approved by the Village Board where appropriate. Said landscape plan shall include existing and proposed plantings, including species, spacing, quantities, maintenance requirements, size of areas to be seeded and sodded, and locations and specifications of other materials. Said landscape plan shall address all requirements of these Development Standards, the Building Code, and the Zoning Ordinance.

6.08.B.4. **Required Maintenance:**

All landscaping on private property that is part of an approved subdivision or development plan shall be properly maintained in a vigorous growing condition. Any landscaping which had been permitted to deteriorate shall be replaced.

6.08.C. Completion and Inspection:

All landscaping on private or public right-of-way that is part of an approved subdivision or development plans shall be subject to inspection and approval of by the Village prior to the issuance of a final Certificate of Occupancy. Any required landscaping which cannot be installed prior to a final Certificate of Occupancy because of planting season limitations, shall provide a cash escrow guarantee to the Village to ensure completion of all landscaping. Such landscaping shall be completed at the next succeeding planting season.

6.08.C.1. Each tree shall be planted plumb slightly lower than where it stood in the nursery in relation to finished grade. Backfill shall be properly fertilized with organic fertilizer in accordance with standards specified by the nursery supplying the trees and shall be thoroughly watered when the hole is two-thirds (2/3) full of topsoil.

6.08.C.2. After watering, the filling shall be completed and the soil thoroughly tamped. After planting, a three (3) inch mulch of well-rotted manure or peat shall be applied over the disturbed ground and a shallow watering basin provided around the tree.

6.08C.3. Root balls should be covered with untreated natural brown burlap and natural fiber (sisal) twine to allow for decomposition. The root flare should be visible above the root ball. The top of the root ball should be a minimum of one inch above final grade and no more than two inches.

6.08.C.4. All planting shall be done during the proper season. No planting shall be done in frozen soil or during unfavorable weather conditions.

6.08.C.5 Staking should only be done with approval of the Village Forester or if straightening is needed one year after planting. Each tree shall be staked with two (2) inch square stake eight (8) feet long. The stake shall be driven plumb two and one-half (2 ½) feet into the ground adjacent to the tree, tied at top and bottom with a figure eight hitch consisting of number fourteen (14) wire encased in a section of rubber hose. The Village Inspector may specify other acceptable methods of staking.

6.08.C.6. Tree pits shall be round, not less than six (6) inches wider than the diameter of the root spread, shall have vertical sides, and shall not be less than twenty-four (24) inches below finished grade or as required.

6.09 - BENCH MARKS AND MARKERS

6.09.A. Bench Marks:

Bench marks shall be placed uniformly throughout the limits of the real estate contemplated for subdivision or resubdivision in both a north and south direction as well as an east and west direction. A bench mark my fall outside the limits of the real estate contemplated for subdivision or resubdivision so long as it is within two hundred feet of the limits of the real estate to be subdivided or resubdivided. The spacing of the bench marks shall not exceed one half mile at any point throughout the subdivision or resubdivision.

6.09.A.1. A minimum of two such bench marks shall be set in each subdivision and resubdivision.

6.09.A.2. The bench mark shall be of concrete, not less than six (6) inches in diameter and sixty (60) inches in depth with a center #4 vertical steel reinforcing rod cast in place. In lieu of a bench mark described above, a bench mark may be set in a substantial structure such as a bridge abutment or building foundation where the footing of the structure meets or exceeds sixty (60) inches in depth. Other forms of bench marks may be set with the prior approval of the Village Engineer.

6.09.A.3. A brass disc shall be cast in place on top of each such bench mark.

6.09.A.4. The developer shall provide the Village Engineer with the documented elevation of each such bench mark associated with a currently accepted datum published by the National Geodetic Survey (NGS). The elevation or the orthometric height of the bench mark should be achieved utilizing prudent land surveying methodologies, under the direction of an Illinois Licensed Professional Land Surveyor, including, but not limited to, differential leveling from a known and accepted NGS bench mark, trigonometric leveling from a known and accepted NGS bench mark, GPS/GNSS observations coordinated through a reliable virtual reference network, GPS/GNSS observations from a known and accepted NGS bench mark, or as a solution obtained using static GPS/GNSS data submitted to the NGS Online Positioning User Service (OPUS) with no less than 2 hours of data collected for each benchmark at two independent times for verification of the results.

6.09.A.5. Each bench mark shall be set flush with the finished grade where possible to do so.

6.09.B. Monuments:

In accordance with Illinois Compiled Statutes Chapter 765 Section 205 (the Plat Act), and all subsequent revisions thereto, at least two of the monuments placed for the boundary of a plat of subdivision or plat of resubdivision must be of stone or reinforced concrete of a size no smaller than five (5) inches in diameter or four (4) inches square

and having a length of no less than twenty-four (24) inches, shall be set at the extremities of the platted property. Additionally, steel rods not less than one (1) inch in diameter shall be set at all block corners, block angle points and points of curvature. Steel pipes not less than one (1) inch in diameter and having a minimum wall thickness of one eighth (1/8) inch or solid steel rods not less than one-half (1/2) inch in diameter shall be set on all other lot corners and lot angle points. All steel pipes and steel rods shall be no less than twenty-four (24) inches in length.

6.09.C. Monument Verification:

The developer shall expose and verify the existence of all required steel pipes and steel rods after the completion of all construction and prior to final acceptance by the Village Board. The developer shall replace in kind any steel pipes or steel rods found to be missing.

6.10 - REPAIR AND/OR REPLACEMENT OF UTILITIES UPON RESUBDIVISION

Prior to approval for resubdivision, the developer shall arrange with the Building Department and/or Village Engineer for an inspection of all existing utilities including, but not limited to sanitary and storm sewers, water mains and all related appurtenances, and streetlights and shall include any required fees for such inspections.

These utilities shall meet or exceed the standards as stated in these Development Standards for the existing and/or proposed extension of utility needs on site as well as off site.

6.11 - MAINTENANCE OF REQUIRED UTILITIES

All utilities including, but not limited to sanitary and storm sewers, water mains and all related apparatus, and streetlights, which are an extension of the public utilities, but are located on private property, shall be maintained in good repair and working order so that they function safely and effectively without threat to health and safety.

Any repairs shall be made by and at the expense of the owner of the property. The Village may, in case of an emergency, repair any defect and if this is done the cost of such repair work shall be repaid to the Village by the owner of the property.

SECTION 7.00 CONSTRUCTION IMPROVEMENT APPROVAL/ VILLAGE APPROVAL OF COMPLETED IMPROVEMENTS

7.01 - APPROVAL OF DESIGN IMPROVEMENTS

7.01.A. Required Drawings and Documentation:

Where an applicant or owner proposes · a development within the corporate limit of the Village, the applicant/owner shall submit the necessary documentation with a final plat of subdivision or development plan (in both hard paper copies and electronic PDF format as follows:

7.01.A.1. **<u>Support Documentation</u>:**

The following documents are required at the time engineering plans are submitted to the Village for review and approval. **Electronic copies shall also be submitted:**

7.01.A.1.a. Five (5) sets of engineering drawings.

7.01.A.1.b. Five (5) sets of specifications.

7.01.A.1.c. Five (5) copies of the plat of survey.

7.01.A.1.d. I.E.P.A. sewer permit applications, where required.

7.01.A.1.e. I.E.P.A. water main construction permit applications.

7.01.A.1.f. Two (2) copies of the storm sewer calculations.

7.01.A.1.g. Two (2) copies of the storm sewer drainage map.

7.01.A.1.h. Two (2) copies of the required stormwater submittal meeting the requirements of the DuPage County Stormwater and Flood Plain Ordinance.

7.01.A.1.i. Two (2) copies of the hydraulic gradient profiles of the storm sewer design, if the design is based on a hydraulic gradient.

7.01.A.1.j. Five (5) copies of the engineer's opinion of probable construction cost, separated to show costs for public and private improvements separately.

7.01.A.1.k. Two (2) copies of the water main calculations for consumption and fire flow demand when the design is less than the minimum design required by the Development Standards.

7.01.A.1.l. Two (2) copies of the pavement thickness design calculations.

7.01.A.1.m. One (1) copy of the County and State Highway Department permit applications.

7.01.A.1.n. Completed building and electrical permit applications.

7.01.A.1.o. Completed DuPage County Stormwater Certification Application, if applicable.

7.01.A.2. **Engineering Drawings:**

The engineering drawings submitted shall include the following information:

7.01.A.2.a. Cover sheet with location map.

7.01.A.2.b. General plan layout of the project indicating all improvements.

7.01.A.2.c. Detailed plan and profile sheets of all improvements.

7.01.A.2.d. Summary of all quantities.

7.01.A.2.e. Blocks and lot grading plans including locations and species of existing trees as required in Section 6.08 and a schedule for erosion and sedimentation control.

7.01.A.2.f. General detail sheet showing:

(1) Pavement cross section.

(2) Curb, gutter and sidewalk details.

(3) Cross section of stormwater management facilities, including sedimentation basins and PCBMP.

(4) Streetlights.

(5) Manholes, vaults, inlets and castings.

(6) Hydrants.

(7) Typical trench cross sections for sanitary sewers, storm sewers and water mains.

(8) Erosion and sediment control measures.

7.01.A.3. **Engineering Approval:**

Upon approval of engineering drawings, seven (7) sets of final drawings shall be submitted to the Building Department. The drawings shall be stamped by the Village "approved plans" and one set shall be returned to the developer; one set shall be stamped "job copy" and shall be kept on the job site at all times. The additional copies shall be distributed by the Building Department.

7.01.B. Preconstruction Meeting:

Prior to commencing the construction and installation of any improvement contemplated herein to be constructed or installed, the Developer's contractors shall meet with the Village Engineer, Building Commissioner and the Superintendent of Public Works at the Village Hall to review the inspection methods and procedures outlined herein for each construction and installation.

7.02 - CONSTRUCTION INSPECTION PROCEDURES

7.02.A. Inspections:

All improvements constructed under the terms of these Development Standards shall be subject to inspections by the Village Engineer, Building Department or the duly authorized representative. The applicant shall give not less than forty-eight (48) hours notification to the Building Department and Village Engineer prior to the performance of any of the following work:

7.02.A.1. The construction of any roadway or street.

7.02.A.2. The surfacing of any roadway or street.

7.02.A.3. The installation of any curbing or gutters.

7.02.A.4. The construction of any sidewalks.

7.02.A.5. The grading or backfilling of any open trench or excavation in which any utility facilities, including but not limited to, water lines, sewer lines, and electrical cables have been installed.

7.02.A.6. The construction of any driveways.

7.02.A.7. The construction of any parking lot.

7.02.A.8 The installation of erosion and sediment control measures.

7.02.A.9. The excavation or installation of any stormwater management facilities.

7.02.B. Procedures:

After the forty-eight (48) hour notice period specified in subsection A of this Section, the Village Engineer and/ or Building Department may conduct an on-site inspection to determine that the work complies with the engineering drawings.

7.02.B.1. If, in the opinion of the Inspector, such work does not comply with the final drawings, he shall have the authority to order that all such work shall be terminated until such time as necessary steps are taken by the developer to correct any defects or deficiencies.

7.02.B.2. After the required corrections have been completed, the applicant shall again notify the Village Engineer and/or Building Department as provided in subsection A of this Section.

7.03 - FINAL INSPECTION PROCEDURES

Upon completion of all improvements within the area covered by the preliminary and final subdivision plat or development plan, the applicant shall notify the Village Engineer and/or Building Department in writing, who shall thereupon authorize a final inspection of all improvements so installed.

7.03.A. The applicant shall prepare three (3) full-size sets of as-built record drawings and three (3) sets reduced to an overall size of eleven (11) inches by seventeen (17) inches; these drawings shall be submitted to the Building Department. Record drawings shall also be submitted in electronic PDF format. Record drawings shall show the location of all water mains, storm sewers, sanitary sewers, roadways, street lights, sidewalks, rim and invert elevations of all manholes, catch basins, inlets, sanitary manholes, length and grade of pipe, as-installed material specifications, as-built grading of drainage swales and stormwater management facilities, and an as-built grading plan. The record drawings shall accompany any request for final inspection of improvements.

The following statement shall be included on the Record Drawings:

I, _____, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF ILLINOIS, DO HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THAT THESE RECORD DRAWINGS PERTAINING TO THE GRADING, WATER MAIN, SANITARY SEWER, STORM SEWER, VOLUME CONTROL BASINS, STORMWATER DETENTION (LIST OTHER IMPROVEMENTS AS NEEDED) HAVE BEEN COMPLETED IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED ENGINEERING/GRADING PLANS, AND THAT ANY DEVIATIONS FROM THE PROPSOSED GRADING PLAN AS CONSTRUCTED ARE MINOR AND WILL NOT ADVERSELY AFFECT THE FUNCTIONING OF THE PROPOSED GRADING, UTILITIES, AND DRAINAGE SYSTEM.

7.03.B. If such final inspection indicates that there are any defects or deficiencies in any such improvement as installed, or if there are any deviations in such improvements, as installed, from the final engineering drawings; which defects will, in the opinion of the Village Engineer adversely affect the performance, suitability, or desirability of said improvements, the Village Engineer shall notify the applicant in writing of such defects, deficiencies, or deviations and the applicant shall, at his sole cost and expense, correct such defects or deviations within two (2) months of the date of notification.

7.03.C. When such defects, deficiencies or deviations have been corrected, the applicant shall notify the Village Engineer in writing that the improvements are ready for final inspection.

7.03.D. Refer to the fees for final inspection of all improvements.

7.04 - CERTIFICATION BY VILLAGE ENGINEER

If a final inspection indicates that all improvements as installed contain no defects, deficiencies, or deviations, the Village Engineer shall certify to the President and Village Board, within ten (10) days from the completion of such inspection, that all improvements have been installed in conformity with the engineering drawings accompanying the final subdivision plat or development plan.

7.05 - ACCEPTANCE OF IMPROVEMENTS BY VILLAGE

7.05.A. Upon receipt of the certification by the Village Engineer that a public improvement has been installed in conformity with approved plans and specifications, the Village Board shall adopt a motion formally accepting said public improvement.

7.05.A.1. In the event said public improvement is to be dedicated to the Village, the motion shall formally accept said public improvement, at which time it shall become the property of the Village.

7.05.A.2. All such public improvements shall remain the property of the developer who shall have full and complete obligation for repair and maintenance thereof, until the adoption of such motion by the Village Board formally accepting said public improvement. No action of a board, commission, group, officer, agent, or employee of the Village or approval of any plat or plan shall imply acceptance of public improvements until the adoption by the Village Board.

7.05.A.3. Notwithstanding the above, the applicant shall fully guarantee such improvements for three (3) years after acceptance by the Village Board in accordance with Section 8.06 of these Development Standards.

SECTION 8.00 - REVIEW FEES, DEVELOPMENT FEES, PUBLIC AND PRIVATE IMPROVEMENT, CONNECTION FEES, RECAPTURE AGREEMENTS

8.01 - SUBDIVISION PLAT AND DEVELOPMENT PLAN REVIEW FEES

Refer to the Fee Schedule for review fees for the following:
- Preliminary Plat
- Final Plat
- Resubdivision which consolidates existing lots
- Vacation Plat
- Multiple Family Site Plan
- Commercial/Industrial Site Plan
- Planning Development Review
- Appeal
- Other as noted in the Fee Schedule, Zoning Ordinance, or Subdivision Regulations

An estimated amount for all applicable fees for plat or development plan review shall be deposited with the Village by the developer upon filing of plat or plan under review.

8.02 - LAND DEVELOPMENT PERMIT FEE

The developer shall be responsible for a land development fee levied against the development to cover the cost of reviewing engineering plans and construction inspections.
This fee shall be at seven and one-half (7-1/2) percent of the cost of total improvements for the development, less the costs of mass grading and buildings. Two and one-half (2-1/2) percent of this fee, but in no case less than $1,500, shall be applied to engineering plan review costs and five (5) percent to construction inspections costs.

No building permits shall be issued for any phase of a development until such time as the aforementioned fees are on deposit with the Village.

8.03 - CURB CUT PERMIT FEE

A lump sum fee shall be levied for cutting the curb and gutter on dedicated Village streets. (Refer to Fee Schedule.)

8.04 - T.V. INSPECTIONS OF SEWERS

Where additional inspections are required, the cost of the T.V. inspection shall be borne by the developer and shall be based on a charge for each lineal foot of sewer. Televising should be performed utilizing NASCO coding with proper sanitary numbers provided by the Utility Superintendent. A digital storage device shall be provided to the Village for review. (Refer to Fee Schedule).

8.05 - STREET OPENING PERMIT FEE

A lump sum fee shall be levied for opening a dedicated street, sidewalk, parkway, or alley for the purpose of making connection to sewer, water, gas and electric lines. (Refer to Fee Schedule).

8.06 - PUBLIC IMPROVEMENT GUARANTEES

Upon approval of the detailed engineering plans by the Village Engineer and prior to the commencement of any construction, a developer shall supply the following guarantees to the Village:

8.06.A. Improvement Completion Guarantees:

8.06.A.1. Letter of Credit:

8.06.A.1.a. An irrevocable, commercial letter of credit (or other form of surety), shall be provided in a form acceptable to the Village containing all. the provisions contained in the attached sample with an approved financial institution.

8.06.A.1.b. At the Village's option, in the event that current or pending public improvements make the completion of a specific development's public improvements unfeasible, a covenant can be executed and recorded or registered, as appropriate,

to ensure the completion of the improvements. Said covenant shall provide for the filing of a lien against the property in the event of nonperformance and shall be in a form acceptable to the Village.

8.06.A.2. Amount of Guarantee:

8.06.a.2.a. The amount of a completion guarantee shall be the total cost for estimated construction, engineering, surveying and fees for all land improvements required by ordinance plus ten (10) percent of such total for contingencies, as approved by the Village Engineer.

8.06.A.2.b. For Developers or contractors that have previously defaulted on public improvements, the Letter of credit shall be 110% of the total cost for estimated construction, engineering, surveying and fees for all land improvements required by ordinance.

8.06.A.3. Time Limit:

Each letter of credit shall be issued for a period of two (2) years and shall state that all improvements are to be completed within two (2) years of the issuance of such letter of credit, unless performance security is required for a longer period due to DuPage County Stormwater and Flood Plain Ordinance or other permit requirements. In the event that all of the improvements to be constructed have not been completed within sixty (60) days of expiration of the subdivision or development letter of credit, then the Village shall take all necessary steps for redemption of the letter of credit and completion of improvements; or at the Village's option, allowing for the extension of the expiration date of the letter of credit for not less than one year or replacement of the letter of credit.

8.06.A.4. Letter of Credit Reduction:

Periodic reductions in the amount of the letter of credit can be requested by the developer when so requested in writing to the Village. The application shall contain itemized statements by the contractor, approved by the developer's project engineer along with copies of all contractors' waivers of lien totaling the amount requested for the reduction. In all cases, the amount of construction guarantee funds remaining after such a reduction shall always equal 110% of the estimated cost to construct the uncompleted work, plus the 15% contingency for the completed work as determined by the Village Engineer.
The reduction shall also follow any requirements of the specific letter of credit.

8.06.A.5. Replacement Letter of Credit:

The Village Engineer shall determine the engineering news-record construction cost index at the time of issuance of the original letter of credit

and at a time approximately within sixty (60) days of expiration of the original letter of credit. For these index values an average yearly increase in the construction cost over the duration of the letter of credit will be determined. The amount of the replaced subdivision or development letter of credit shall be increased from its face value (taken sixty (60) days prior to expiration) by two (2) times the average yearly increase in construction cost. In the event that the security has not been replaced within thirty (30) days of expiration, the letter of credit shall be presented by the Village for redemption and no further permits or Certificates of Occupancy will be issued within the development. The requirements for subdivision or development improvement guarantees set forth herein shall apply to all types of developments, regardless of use or ownership.

8.06.B. Maintenance Guarantee:

A maintenance guarantee consisting of ten (10) percent of the letter of credit posted under subsection A hereof shall be retained by or held to the credit of the Village and shall be held as a deposit in cash escrow after the final completion of the improvements covered under these Development Standards. Such deposit shall be held by the Village for a period of three (3) years after the final acceptance of such improvements for the purpose of:

8.06.B.1. Guaranteeing against and securing the correction of any defect in material or workmanship furnished for such improvements, latent in character, and not discernible at the time of all inspection or acceptance by the Village.

8.06.B.2. Guaranteeing against and securing the correction of any damage to such improvements by reason of settling of the ground, base or foundation thereof.

Such maintenance guarantee shall also provide that, as such defects develop, the guarantee may be applied by the Village for any amounts incurred to correct such defects should the developer or his contractor fail to do so within thirty (30) days notice of such defects, and that the balance of such deposit, if any, held at the end of such three (3) year period shall be returned by the Village to the depositor and, if a cash deposit, without interest.

8.06.C. Construction Nuisance Abatement Guarantee:

Applicant shall also deposit cash with the Village in an amount equal to five (5 percent of the improvement completion guarantee required under subsection 8.06.A. above which may be used from time to time to abate nuisances caused by applicant during construction, provided that no such expenditure shall be made until four (4) hours after the Village Engineer or Building Department has served verbal demand upon applicant to abate such nuisance. The balance of said deposit, if any, remaining after completion of the development shall be returned to the depositor without interest.

8.07 - PRIVATE IMPROVEMENT GUARANTEES

All private improvements installed within the Village shall be guaranteed, in terms c adequacy and proper installation, by the developer for a period of one (1) year after installation and final approval.

8.08 - CONNECTION FEES

Where the public water system or the public sewer system facilities are to be used by said development, the developer shall pay fee(s) for the connections to said public water system and public sewer system in addition to building any extensions of said systems, which fee(s) shall be as follows:

8.08.A. For connecting to the existing water mains as aforesaid, or any extensions thereof, the fee required in the Fee Schedule shall be charged.

8.08.B. For connecting to the existing sewer trunk lines and sewer system as aforesaid, or any extensions thereof, the fee required in the Fee Schedule shall be charged.

8.08.C. The amount to be paid shall be paid at the time when any development plan or subdivision plat is approved by the Village, provided, however, that if said development or subdivision is already approved and accepted by the Village Board, then said amount shall be paid prior to the making of the respective connection to the existing Village water system, or existing Village sewer system or any extensions of said respective systems on granting of permits for construction.

8.08.D. The amount due and payable shall not affect or diminish the liability of any person or applicant to pay for inspection, license, permit or service fees which are or may become due to the Village by reason of any law or ordinance heretofore or hereafter adopted by the Village Board, but the amount so due shall be considered to be a charge for the privilege of using the existing sewer and water systems installed throughout the Village towards the cost of which the applicant or the land to be served has not made any contributions.

8.09 - RECAPTURE AGREEMENTS

In addition to the foregoing, the Village Board may adopt ordinances providing for the recapture of costs expended by a developer for public improvements. Said ordinances, commonly known as "recapture agreements" are intended to compensate a developer or property owner who has installed a public improvement of a size and character greater than that required to serve the original development in order that future developments may utilize these facilities. Such ordinances, when adopted, shall provide for a fair and equal distribution of the additional costs of said improvements beyond that otherwise borne by the developer and shall further provide for the payment of subsequent developers of their fair and proportionate share of the cost of said improvements upon connection to said improvements.

The recapture payments provided by such ordinances shall be paid to the Village for the use and benefit of the original developer or designated successor. Said ordinance shall further provide for a reasonable rate of interest as determined by the Village Board. Said interest shall accrue from and after the effective date of the recapture ordinance.

8.10 - VILLAGE DONATION

8.10.A. Residential Development:

Any residential development or subdivision shall be required to pay fees to the Village on the basis of the type of dwelling unit in the development in addition to other fees described herein and in the Zoning Ordinance, Subdivision Regulations, and other regulations. Such payment shall assist the Village and other units of government, where applicable, in serving the immediate and future needs of the residents of the development and to ensure adequate provision of public services to persons who are expected to reside within the subdivision or development.

Fees shall be paid to the Village based upon the type of dwelling unit within the development as indicated in the Subdivision Regulations.\

Such Village donation shall be due and payable in full prior to commencement of any construction within the development or subdivision.

SECTION 9.00 - SUBDIVISIONS LOCATED OUTSIDE VILLAGE LIMITS

9.01 - SUBDIVISIONS LOCATED OUTSIDE VILLAGE LIMITS

Where a proposed subdivision is located outside the Village boundaries, but within the planning jurisdiction (one and one-half [1½] miles) of the Village and has not been incorporated into any other municipality, the subdivider shall meet all the requirements of these Development Standards.

No subdivision or title division of the property located outside of the Village boundaries but within the planning jurisdiction of the Village, as determined by the official comprehensive plan and the authority granted by State statute, shall be recorded, registered, or otherwise approved, without the approval of the Village; as such approval is set forth in these Development Standards and other regulations and ordinances.

SECTION 10.00 – ADMINISTRATION

10.01 – VALIDITY

See Section 4.02.

10.02 – APPEALS

Any person or corporation may appeal within sixty (60) days to the Village Board any final action taken by the Plan Commission. The Village Board shall act as a Board of Appeals and shall hear and decide appeals from and review any final order, requirement, decision or determination made by the Plan Commission, under the Development Standards and Specifications. The concurring vote of the majority of Trustees present shall be necessary to reverse any final order of the Plan Commission under this Ordinance.

10.03 – REPEAL

All ordinances or parts of ordinances in conflict with the provisions of this Ordinance are, to the extent that such conflict exists, hereby repealed.

10.04 – AMENDMENTS

For the purpose of promoting the health, safety, and general welfare, the Village Board may from time to time amend the regulations imposed by this Ordinance. the Plan Commission may consider proposed amendments and make recommendations thereon to the Village Board.

10.05 - VIOLATIONS AND PENALTIES

See Section 4.00.C.2.

10.06 – FEES

See Fee Schedule.

10.07 – ADOPTION

This Ordinance shall be in full force and effect from and after its passage, approval, and publication as required by law.

10.08 – PUBLICATIONS

This Ordinance shall be published in book, or pamphlet form as provided by the Illinois Municipal Code.

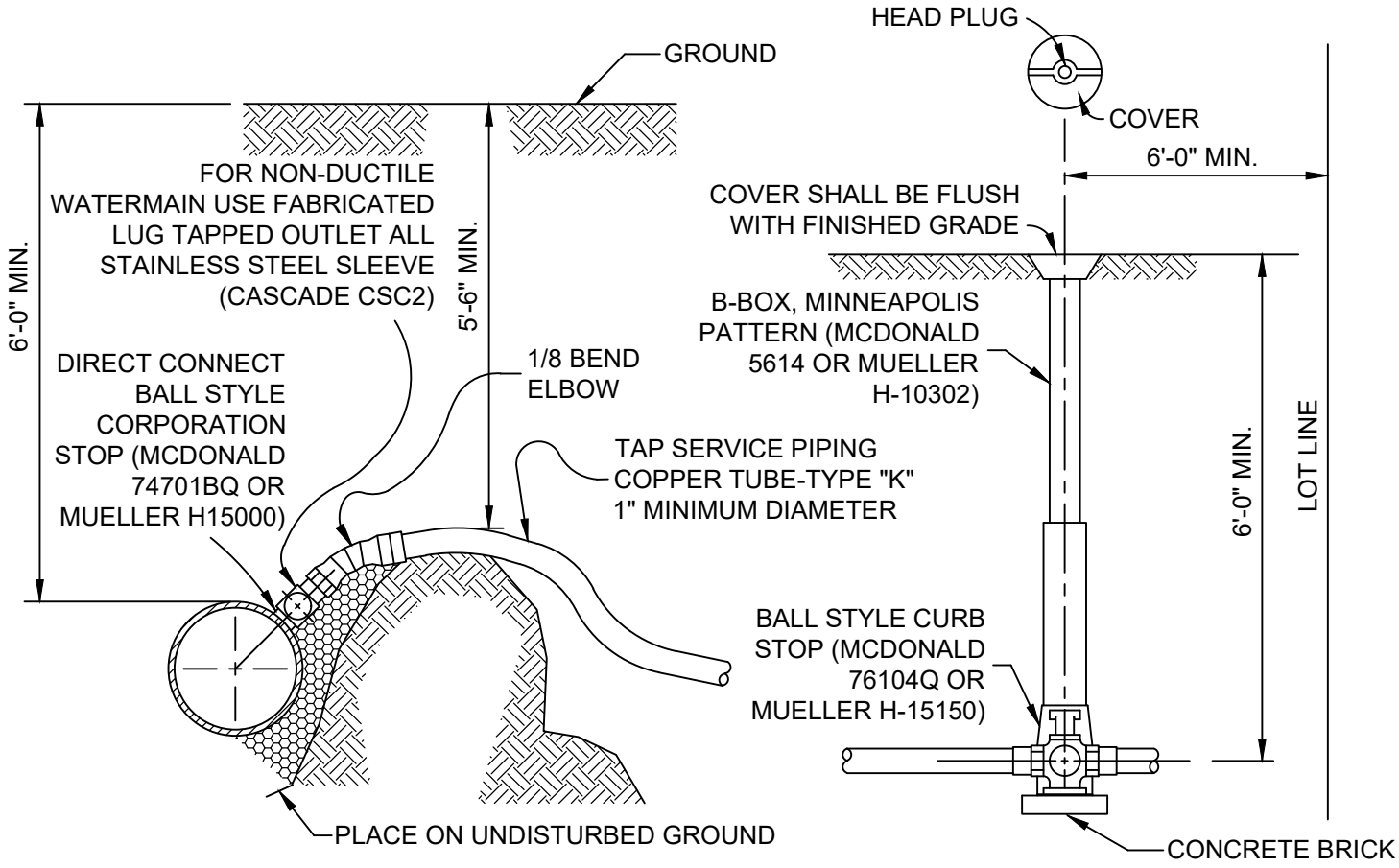
10.09 – EFFECT

This Ordinance shall be in full force and effect upon its approval, passage and publication according to law.

Passed by the President and Board of Trustees of the Village of Itasca, Cook and DuPage Counties, Illinois.

VILLAGE OF ITASCA

STANDARD DETAILS



GENERAL NOTES:

1. WATER SERVICE LINE SHALL BE TYPE K COPPER MANUFACTURED IN ACCORDANCE WITH ASTM B88 AND B251 OR APPROVED EQUAL.

2. FABRICATED LUG TAPPED OUTLET ALL STAINLESS STEEL SLEEVE (CASCADE CSC2) IF NON-DUCTILE IRON WATER MAIN.

3. BALL STYLE CORPORATION STOP (MCDONALD 74701BQ OR MUELLER H15000).

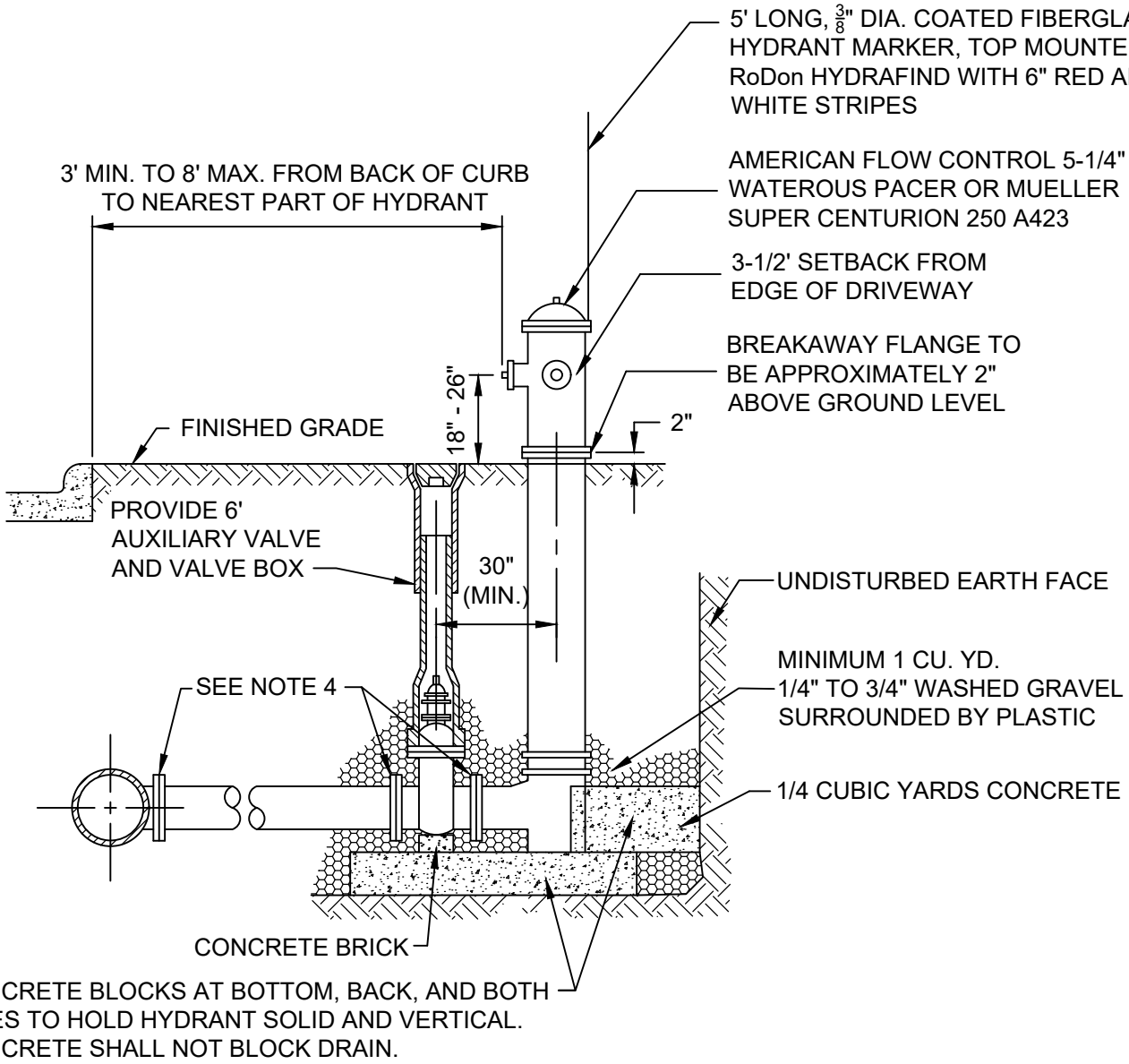
4. SERVICE LINES LESS THAN 1" IN DIAMETER SHALL HAVE A MUELLER DOUBLE STRAP ALL STAINLESS STEEL SERVICE SADDLE OR APPROVED EQUAL.

5. B-BOX SHALL BE MUELLER H-10302 OR APPROVED EQUAL.

6. CORPORATION STOPS SHALL BE INSTALLED A MINIMUM OF 18" FROM BELL SECTIONS AND/OR PIPE FITTINGS. MULTIPLE INSTALLATIONS SHALL BE STAGGERED AROUND THE MAIN BY 90 DEGREES AND SEPARATED BY 18".

SERVICE PIPE	CORP. STOP	CURB STOP	SERVICE BOX
1"	1"	1"	2 1/2"
1 1/4"	1 1/4"	1 1/4"	3"
1 1/2"	1 1/4" x 1 1/2"	1 1/2"	3"
2"	1 1/2" x 2"	2"	3"

REV.:	REV.:	WATER SERVICE INSTALLATION	VILLAGE OF ITASCA
REV.:	REV.: 6-9-2022		WATER 1
DRAWN BY: REL	DATE: 2-1-2021		



GENERAL NOTES:

1. MAXIMUM BARREL EXTENSIONS ARE 18 INCHES AND SHALL BE WATEROUS EXTENSION FOR WATEROUS HYDRANTS.

2. ALL HYDRANTS ARE TO BE SUPPLIED WITH A 6" FLANGED AND MECHANICAL JOINT AUXILIARY VALVE THAT CONFORMS TO AWWA C515. THE GATE VALVE STEM AND WEDGE NUT SHALL CONFORM WITH SECTION 4.4.5.1 OF AWWA 515. ALL TRIM BOLTS ARE TO BE STAINLESS STEEL.

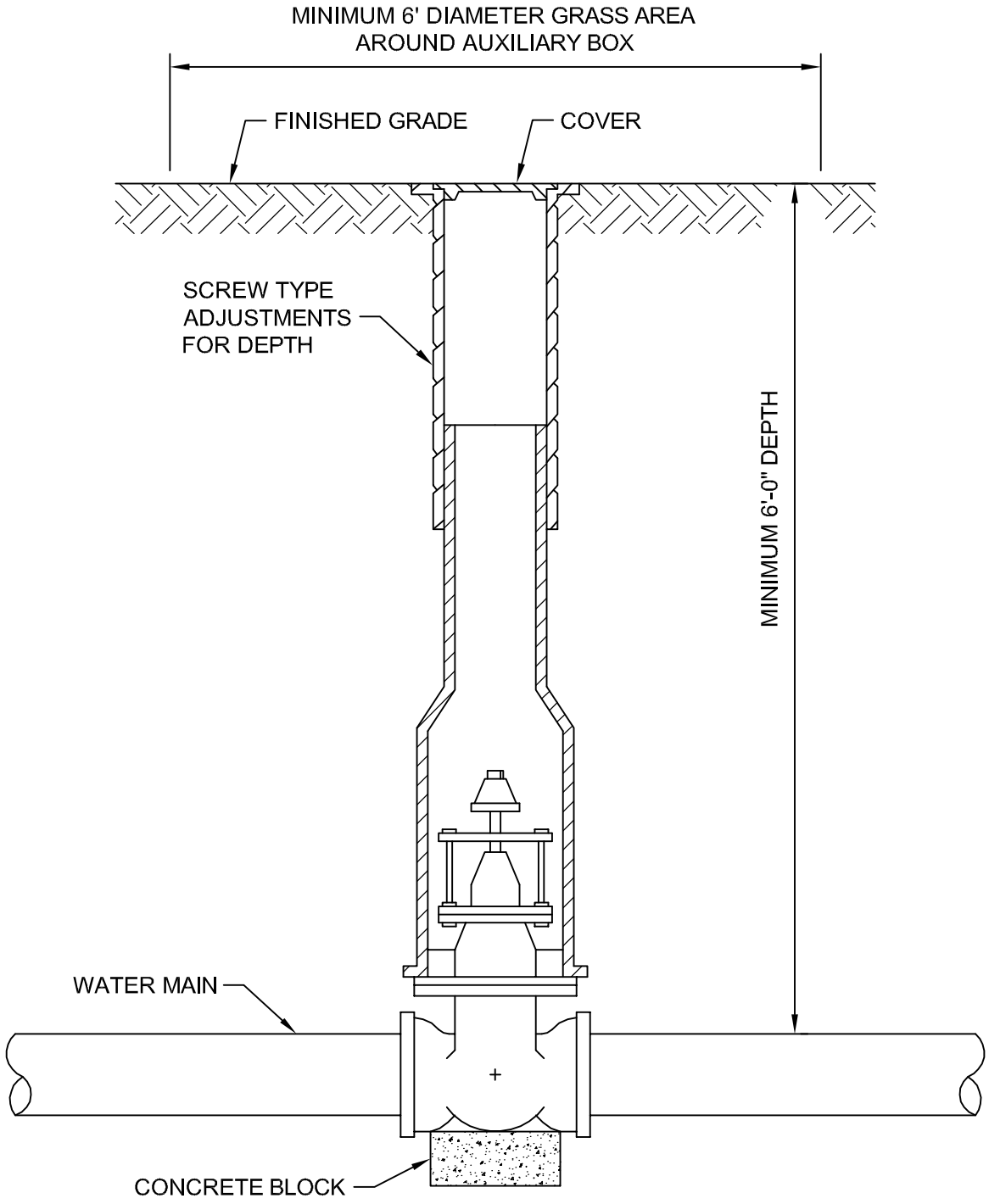
3. THE HYDRANT WILL EXCEED ALL THE REQUIREMENTS OF AWWA C502.

4. RESTRAINED JOINTS ARE REQUIRED THROUGHOUT THE FIRE HYDRANT ASSEMBLY.

5. HYDRANTS SHALL BE A MINIMUM OF 48 INCHES FROM ANY TREE, POLE OR OTHER OBSTRUCTION.

6. HYDRANTS SHALL NOT BE MORE THAN 2-YEARS OLD FROM THE DATE OF INSTALLATION.

REV.:	REV.:	FIRE HYDRANT INSTALLATION	VILLAGE OF ITASCA
REV.:	REV.: 10-21-2021		WATER 2
DRAWN BY: REL	DATE: 2-1-2021		



GENERAL NOTES:

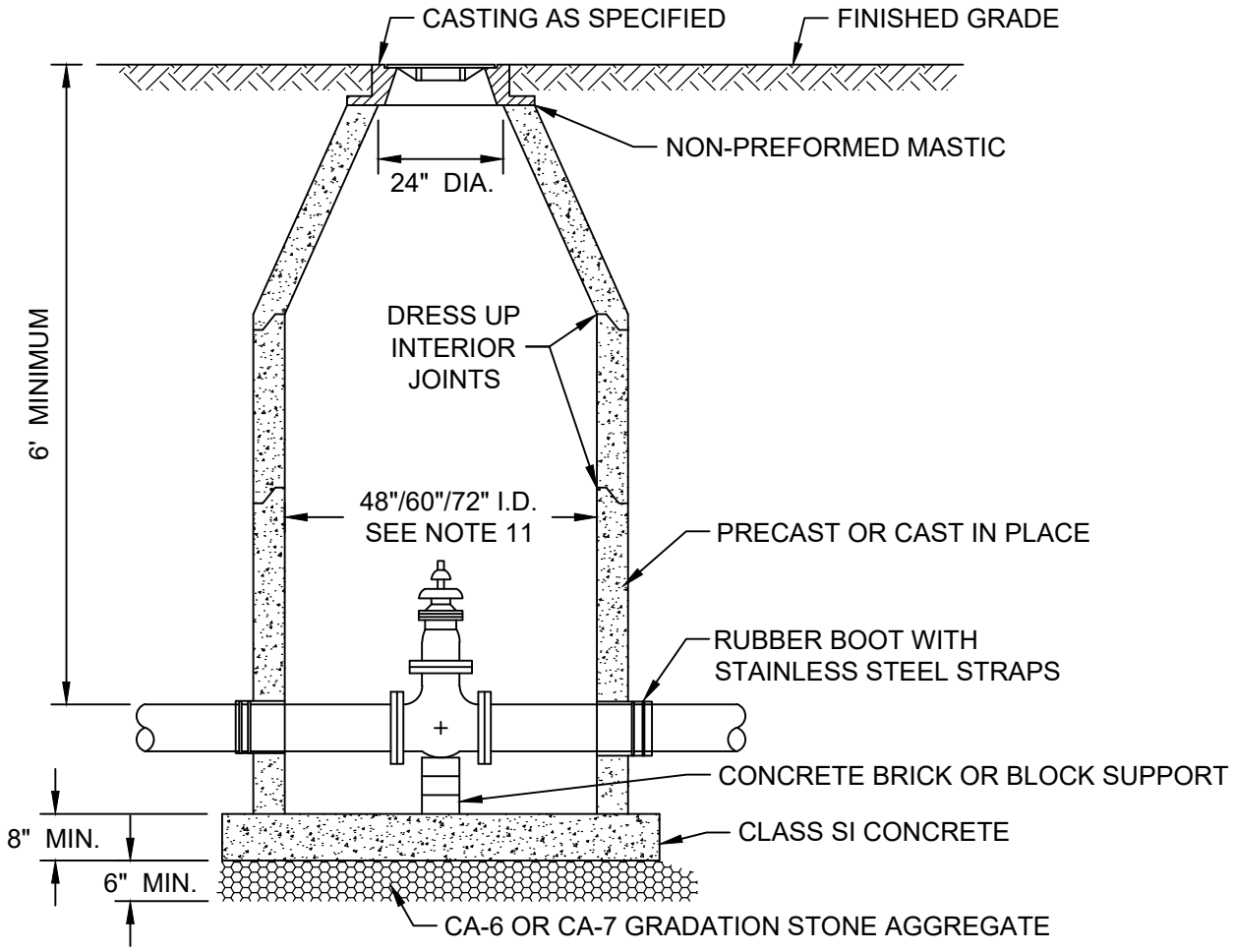
1. ALL VALVES 2-1/2" OR LARGER SHALL BE PLACED IN A VALVE VAULT, UNLESS APPROVED BY THE VILLAGE ENGINEER.

2. VALVES SHALL BE MUELLER A-2362 OR AMERICAN FLOW CONTROL 2500-1, DOUBLE DISC PARALLEL SEAT NON-RISING STEM GATE VALVE.

3. VALVES REQUIRE RESTRAINED JOINTS (MEGA LUG OR APPROVED EQUAL).

4. VALVES SHALL NOT BE MORE THAN 2-YEARS OLD FROM THE DATE OF INSTALLATION.

REV.:	REV.:	VALVE BOX INSTALLATION	VILLAGE OF ITASCA
REV.:	REV.:		WATER 3
DRAWN BY: REL	DATE: 2-1-2021		

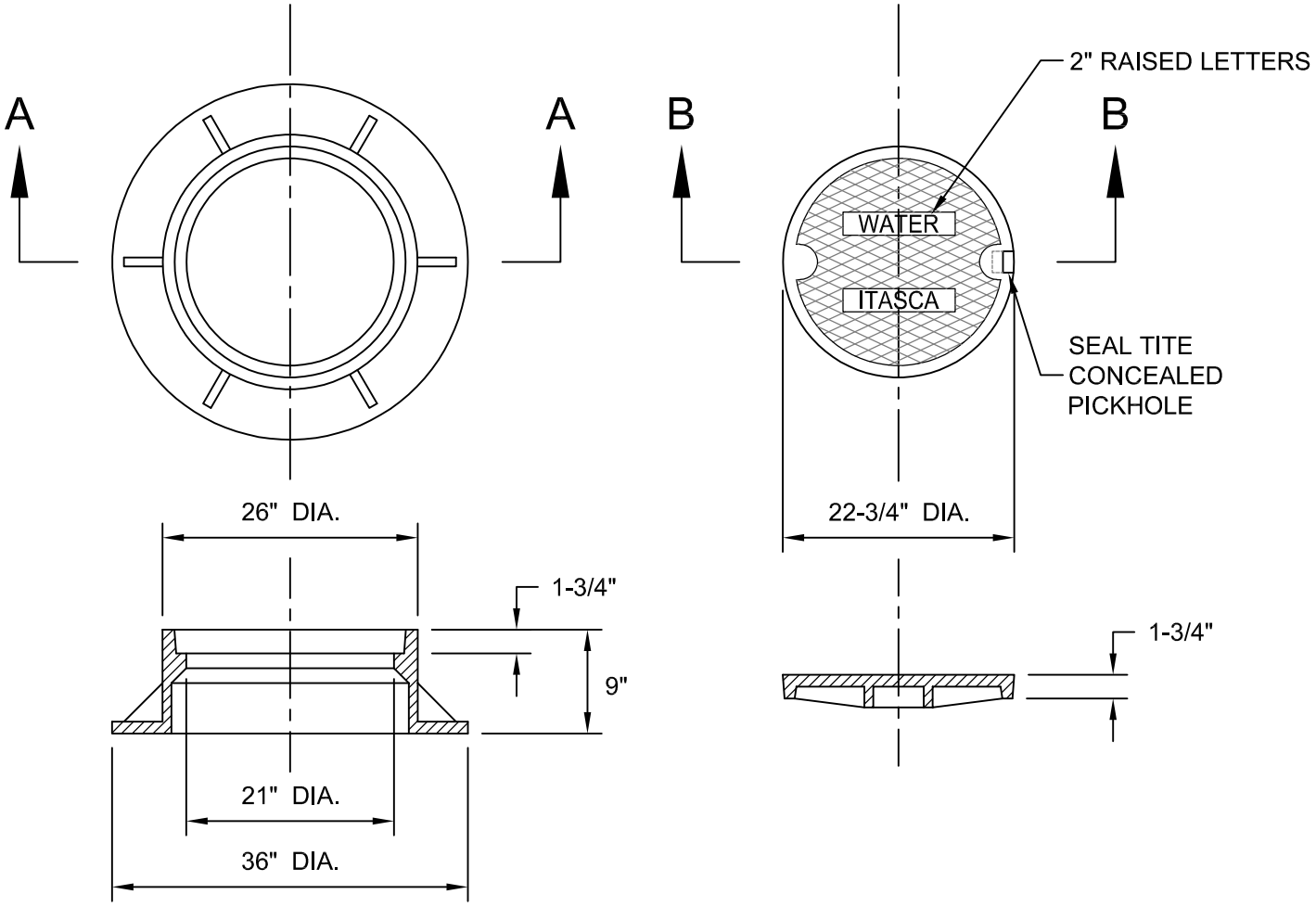


GENERAL NOTES:

1. PROVIDE PRECAST REINFORCED CONCRETE BARREL AND RISER SECTION. CONCRETE BLOCK CONSTRUCTION IS NOT PERMITTED.
2. PROVIDE SELECT GRANULAR BACKFILL AROUND MANHOLE TD SUBGRADE ELEVATION IN PAVED AREAS. MATERIAL SHALL MEET THE REQUIREMENTS OF IDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION COARSE AGGREGATE CA-6 GRADATION, OR AS OTHERWISE DIRECTED BY THE VILLAGE ENGINEER.
3. WHEN THE FRAME DOES NOT MEET PROPOSED ELEVATION, A MAXIMUM OF THREE HEAVY-DUTY POLYETHYLENE ADJUSTING RINGS (LADTECH OR APPROVED EQUAL) MAY BE USED TO A MAXIMUM HEIGHT OF 12 INCHES.
4. EPOXY-COATED CAST IRON STEPS SHALL BE INSTALLED.
5. WHEN MANHOLE DEPTH IS OVER 12 FEET, THE THICKNESS OF THE BASE SHALL BE A MINIMUM OF 10 INCHES. WHEN MANHOLE DEPTH IS LESS THAN 12 FEET, THE THICKNESS SHALL BE A MINIMUM OF 8 INCHES.
6. DRESS UP INTERIOR JOINTS WITH THE HYDRAULIC CEMENT. MORTAR SHALL NOT BE USED TO DRESS UP ADJUSTING RINGS AND/OR FRAME.
7. VALVE VAULTS IN LANDSCAPED AREAS SHALL BE CONSTRUCTED WITH A CHIMNEY SEAL SYSTEM (CRETEX OR APPROVED EQUAL).
8. ALL VALVE VAULT CASTINGS, ADJUSTING RINGS, AND MANHOLE SECTION SHALL BE SET IN BUTYL ROPE (RUB-R-NEK OR EZ STICK OR APPROVED EQUAL). EACH MANHOLE CONE AND BARREL SECTION JOINT SHALL ALSO BE EXTERNALLY SEALED WITH A 6" WIDE SEALING BAND OF RUBBER AND MASTIC (MACWRAP OR APPROVED EQUAL). THE BAND SHALL HAVE AN OUTER LAYER OF RUBBER OR POLYETHYLENE WITH AN UNDER LAYER OF RUBBERIZED MASTIC MEETING THE REQUIREMENTS OF ASTM C-877-02 (STANDARD SPECIFICATION FOR EXTERNAL SEALING BANDS FOR CONCRETE PIPE, MANHOLES, AND PRECAST BOX SECTIONS).
9. VALVE VAULTS (EXCEPT FOR THOSE USED WITH PRESSURE CONNECTIONS) SHALL BE PROVIDED WITH A FLEXIBLE RUBBER WATERTIGHT CONNECTOR FOR PIPES, CONFORMING TO ASTM C-923 (STANDARD SPECIFICATIONS FOR RESILIENT CONNECTIONS BETWEEN REINFORCED CONCRETE MANHOLE STRUCTURES AND PIPES).
10. VAULTS SHALL HAVE AN ECCENTRIC CONE SECTION. VALVES MUST ALIGN WITH THE CENTER OF THE VAULT OPENING.
11. VAULTS WITH WATER MAIN 4 TO 8 INCHES IN DIAMETER SHALL BE 4 FEET IN DIAMETER. VAULTS WITH WATER MAIN 10 TO 18 INCHES IN DIAMETER SHALL BE 5 FEET IN DIAMETER. VAULTS WITH WATER MAIN 20 INCHES OR GREATER IN DIAMETER SHALL BE 6 FEET IN DIAMETER.

REV.:	REV.:	WATER TIGHT VALVE VAULT INSTALLATION	VILLAGE OF ITASCA
REV.:	REV.: 6-9-2022		WATER 4
DRAWN BY: REL	DATE: 2-1-2021		

SEAL TITE LIDS



SECTION A-A

CAST FRAME

SECTION B-B

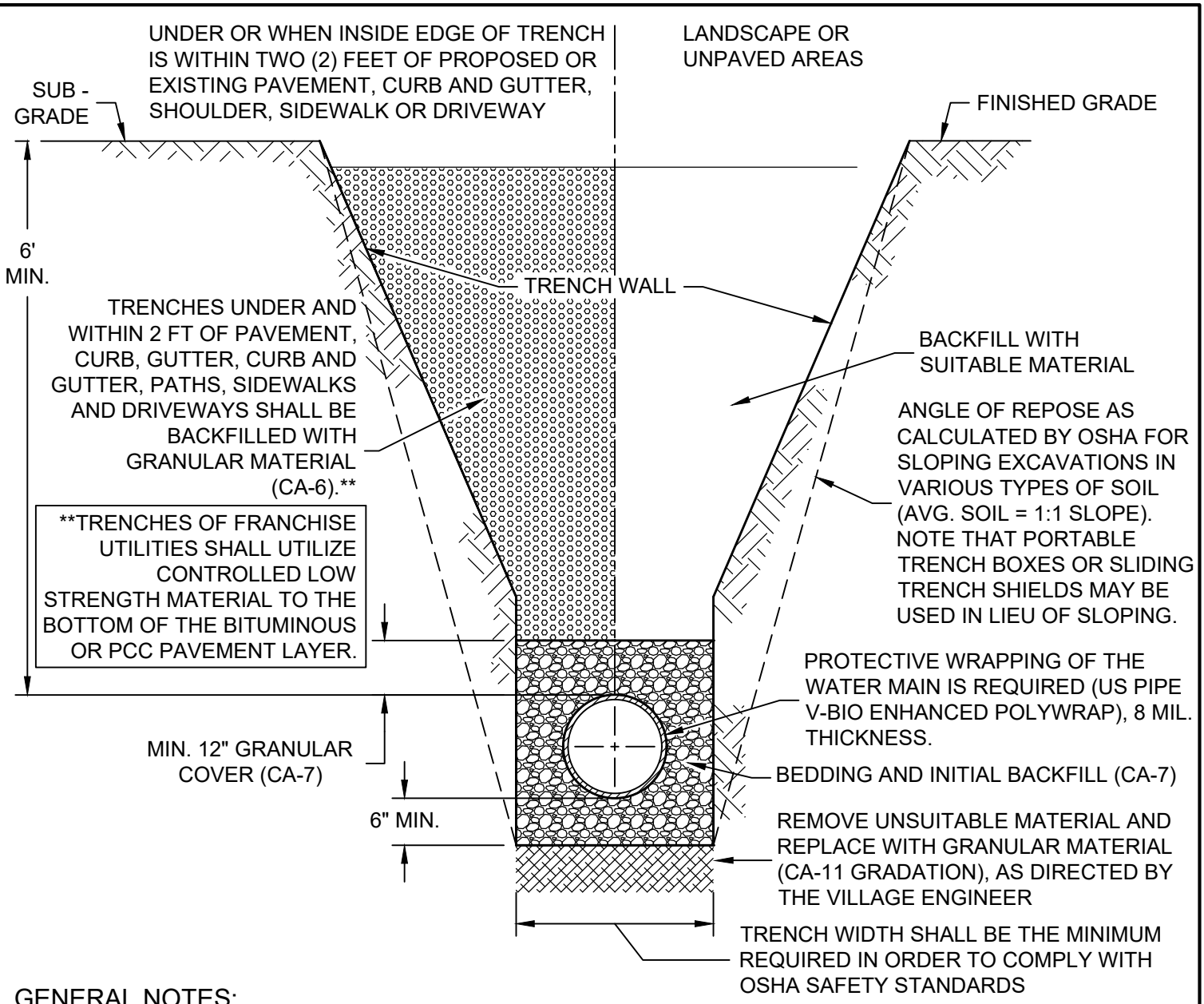
CAST CLOSED LID

(SEAL TITE CONCEALED PICKHOLE)

GENERAL NOTES:

1. DUCTILE IRON CASTING SHALL BE TESTED IN ACCORDANCE WITH FEDERAL SPECIFICATIONS.
2. ALL FRAMES AND COVERS SHALL HAVE A MACHINED HORIZONTAL AND VERTICAL BEARING SURFACES. PICKHOLES IN THE COVER SHALL NOT BE OPEN.
3. THE MANHOLE COVERS SHALL HAVE RAISED LETTERS "WATER" AND "ITASCA".
4. DIMENSIONS FOR CASTINGS ARE COMPARABLE TO NEENAH FOUNDRY R-1712 FURNISHED WITH TYPE F CLOSED PICKHOLES OR APPROVED EQUAL.
5. WATERPROOF, BOLT DOWN FRAME AND COVER SHALL BE USED IN ANY LOCATION SUBJECT TO INUNDATION. (NEENAH FOUNDRY R-1712 WITH TYPE F CLOSED PICKHOLES, EAST JORDAN IRON WORKS 1022 OR APPROVED EQUAL). LIDS SHALL BE WATERTIGHT OR SELF-SEALING WITH A FACTORY INSTALLED GASKET.

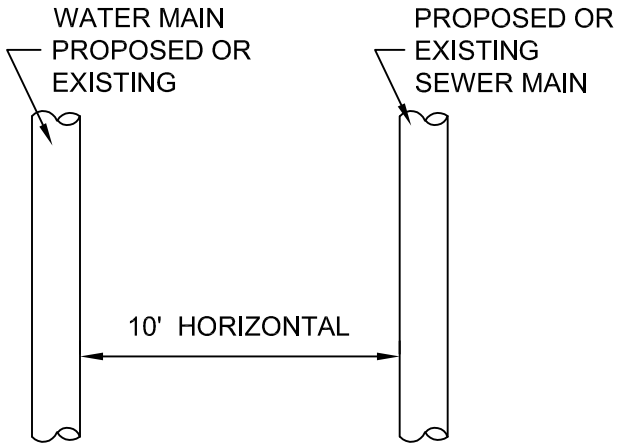
REV.:	REV.:	VALVE VAULT FRAME AND COVER	VILLAGE OF ITASCA
REV.:	REV.:		WATER 5
DRAWN BY: REL	DATE: 3-14-2018		



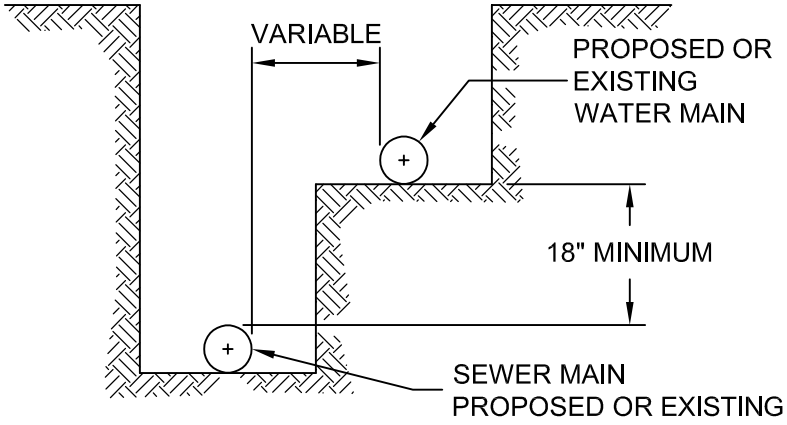
GENERAL NOTES:

1. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE GOVERNING REGULATIONS, INCLUDING BUT NOT LIMITED TO OSHA SAFETY STANDARDS.
2. ALL BACKFILL MATERIAL UP TO A HEIGHT OF 12 INCHES ABOVE THE PIPE SHALL BE CAREFULLY DEPOSITED IN UNIFORM LAYERS NOT EXCEEDING 8 INCHES THICK (LOOSE MEASURE). THE MATERIAL IN EACH LAYER SHALL BE FIRMLY COMPACTED BY RAMMING OR TAMPING WITH TOOLS APPROVED BY THE VILLAGE ENGINEER IN SUCH A MANNER AS NOT TO DISTURB OR DAMAGE THE PIPE. THE BACKFILLING ABOVE THIS HEIGHT SHALL BE DONE AS NOTED BELOW.
3. GRANULAR BACKFILL MATERIAL SHALL BE PLACED AND COMPACTED AS SPECIFIED IN NOTE 2, ABOVE. THE USE OF JETTING SHALL NOT BE ALLOWED UNLESS AUTHORIZED IN WRITING BY THE VILLAGE ENGINEER. IT SHALL BE THE DESIGN ENGINEER OR CONTRACTOR'S RESPONSIBILITY TO PROVIDE APPROPRIATE JUSTIFICATION AND DOCUMENTATION (SOIL INVESTIGATION REPORTS, ETC.) TO THE VILLAGE ENGINEER WITH THE REQUEST FOR APPROVAL OF JETTING. NO RECYCLED CONCRETE SHALL BE ALLOWED.
4. BACKFILL MATERIAL CONSISTING OF SUITABLE EXCAVATED MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING EIGHT (8) INCHES THICK (LOOSE MEASURE) AND EACH LAYER SHALL BE COMPACTED BY RAMMING OR TAMPING TO ACHIEVE THE REQUIRED COMPACTION. JETTING OF THIS MATERIAL MAY BE PERMITTED WHEN AUTHORIZED IN WRITING BY THE VILLAGE ENGINEER. IT SHALL BE THE DESIGN ENGINEER OR THE CONTRACTOR'S RESPONSIBILITY TO SUBMIT APPROPRIATE JUSTIFICATION AND DOCUMENTATION (SOIL INVESTIGATION REPORTS, ETC.) TO THE VILLAGE ENGINEER WITH THE REQUEST FOR APPROVAL OF JETTING.
5. GRANULAR MATERIALS FOR BACKFILL SHALL BE GRAVEL OR STONE MEETING THE REQUIREMENTS OF THE IDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF THE GRADATION SPECIFIED. NO RECYCLED CONCRETE SHALL BE ALLOWED.

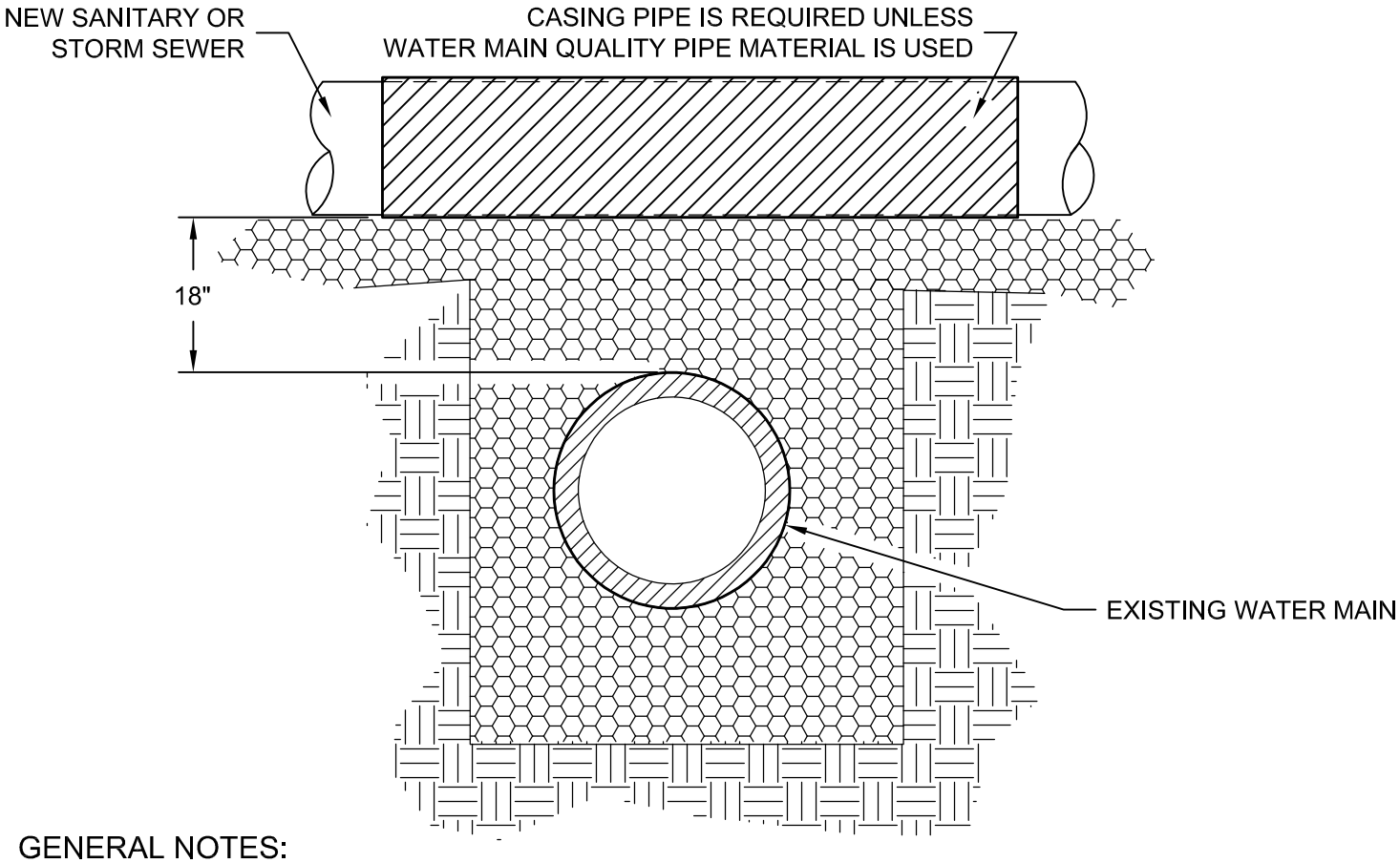
REV.:	REV.:	WATER MAIN TRENCH SECTION	VILLAGE OF ITASCA
REV.:	REV.: 6-9-2022		WATER 6
DRAWN BY: REL	DATE: 2-1-2021		



HORIZONTAL SEPARATION



VERTICAL SEPARATION



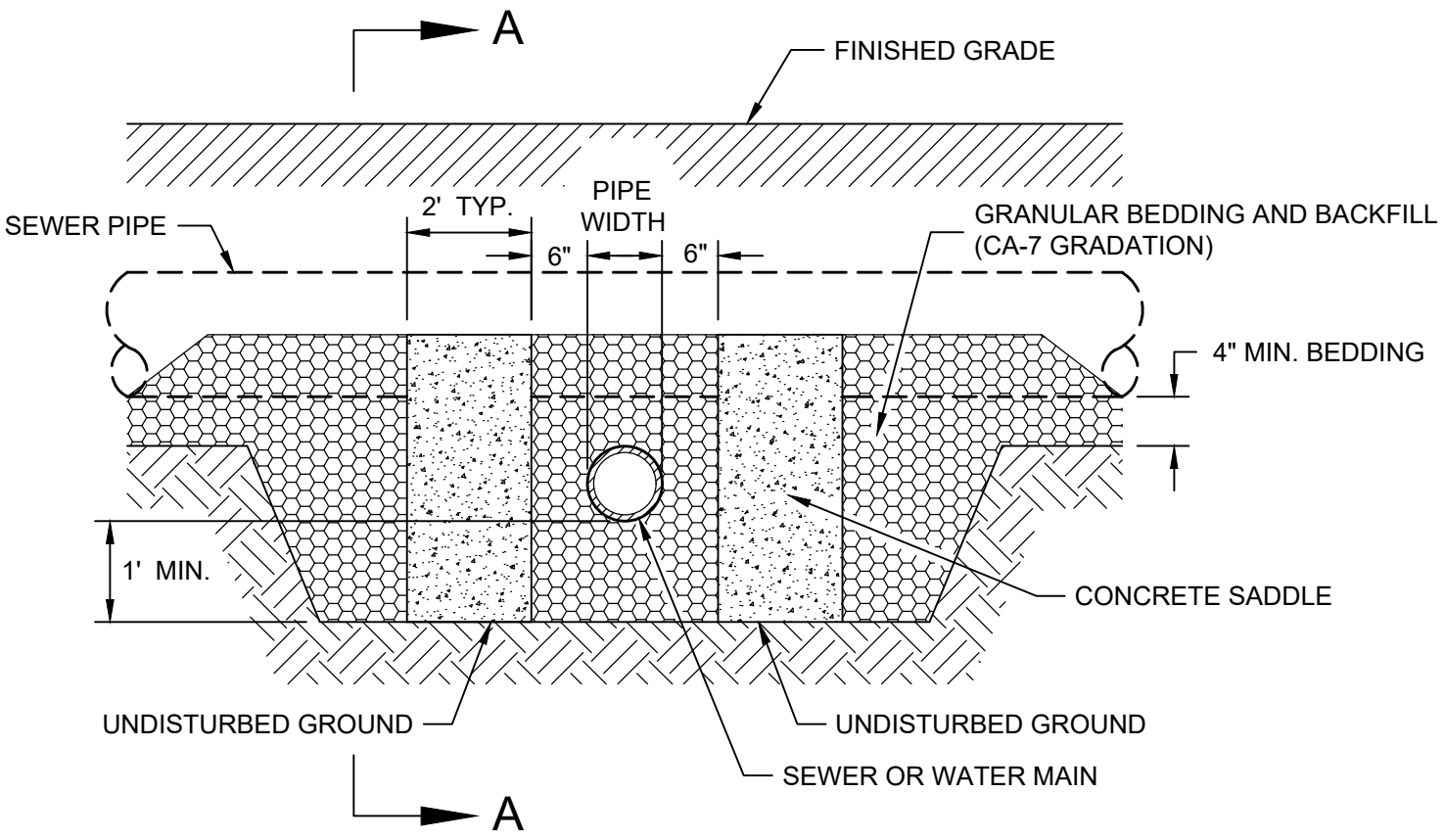
GENERAL NOTES:

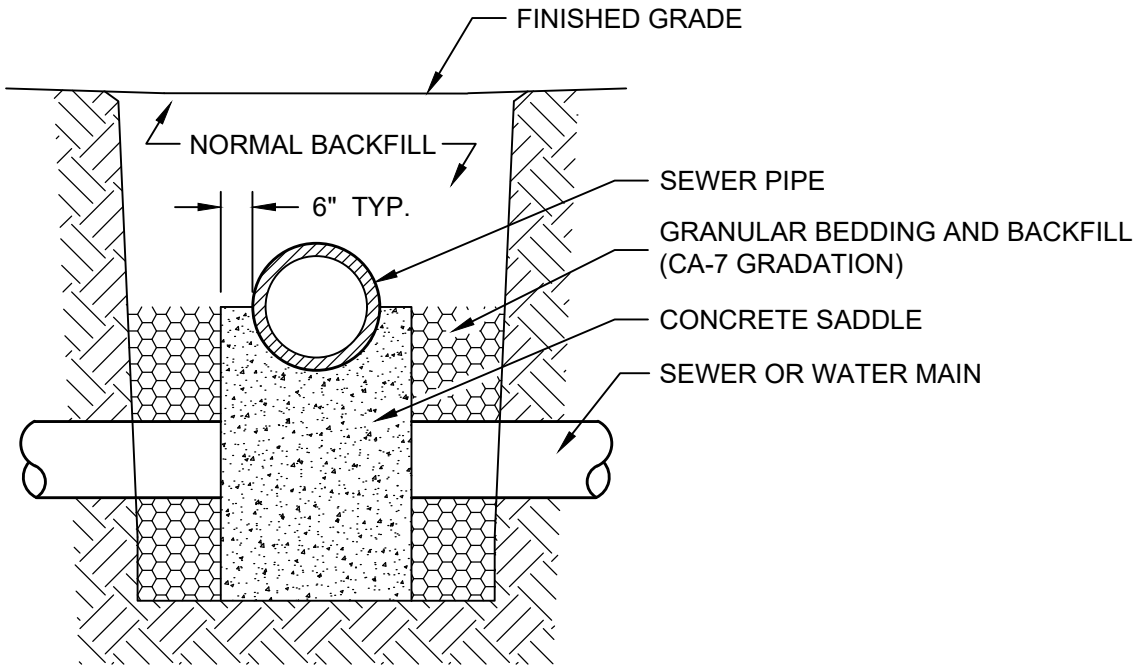
1. WHEN THE MINIMUM 10 FEET HORIZONTAL SEPARATION CANNOT BE ACHIEVED, AN 18 INCH VERTICAL SEPARATION MAY BE PERMITTED. THE VERTICAL SEPARATION SHALL BE MAINTAINED FOR ALL PORTIONS OF THE WATER MAIN THAT ARE WITHIN 10 HORIZONTAL FEET OF ANY SEWER OR DRAIN.

2. WHEN THE WATER MAIN MUST PASS UNDER A SEWER OR DRAIN, BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF SLIP-ON OR MECHANICAL JOINT DUCTILE IRON PIPE, PRE-STRESSED CONCRETE PIPE, OR PVC PIPE MEETING WATER MAIN STANDARDS, OR NEW PIPE MUST BE ENCASED. (SEE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS).

3. WHEN THE WATER MAIN CROSSES UNDER A SEWER GREATER THAN 24 INCH IN DIAMETER, OR WHEN DIRECTED BY THE ENGINEER, THE SEWER SHALL BE SUPPORTED TO PREVENT SETTLING AND BREAKING OF THE WATER MAIN. REFER TO THE VILLAGE OF ITASCA "CONCRETE SADDLE SUPPORT" DETAIL.

REV.:	REV.:	WATER AND SEWER SEPARATION	VILLAGE OF ITASCA
REV.:	REV.:		WATER 7
DRAWN BY: REL	DATE: 3-14-2018		



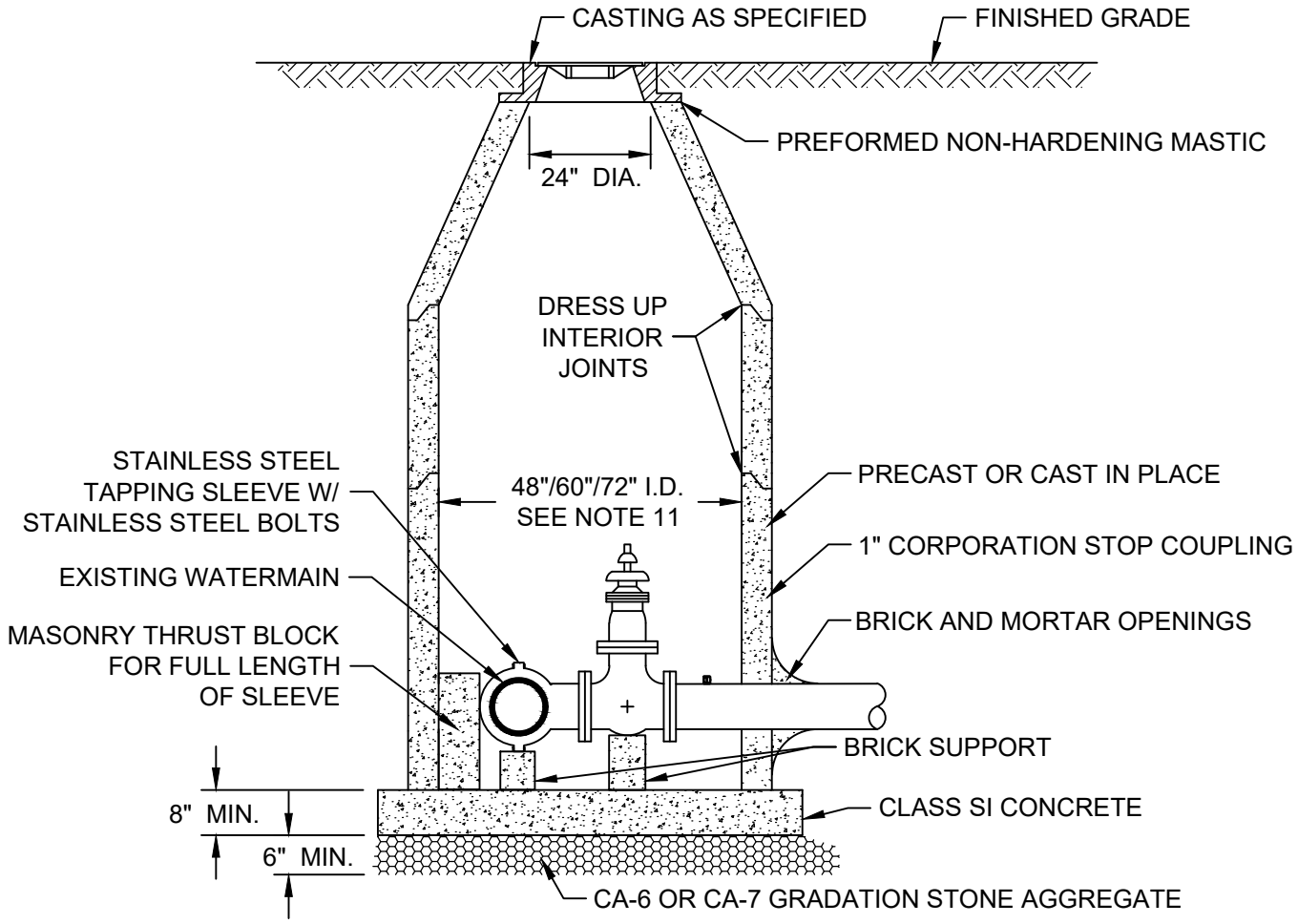


SECTION A-A

GENERAL NOTES:

1. CONCRETE SADDLE SUPPORT TO BE PROVIDED WHERE SEPARATION IS LESS THAN 18 INCHES OR AS DIRECTED BY THE VILLAGE ENGINEER OR RESIDENT ENGINEER IN THE FIELD.

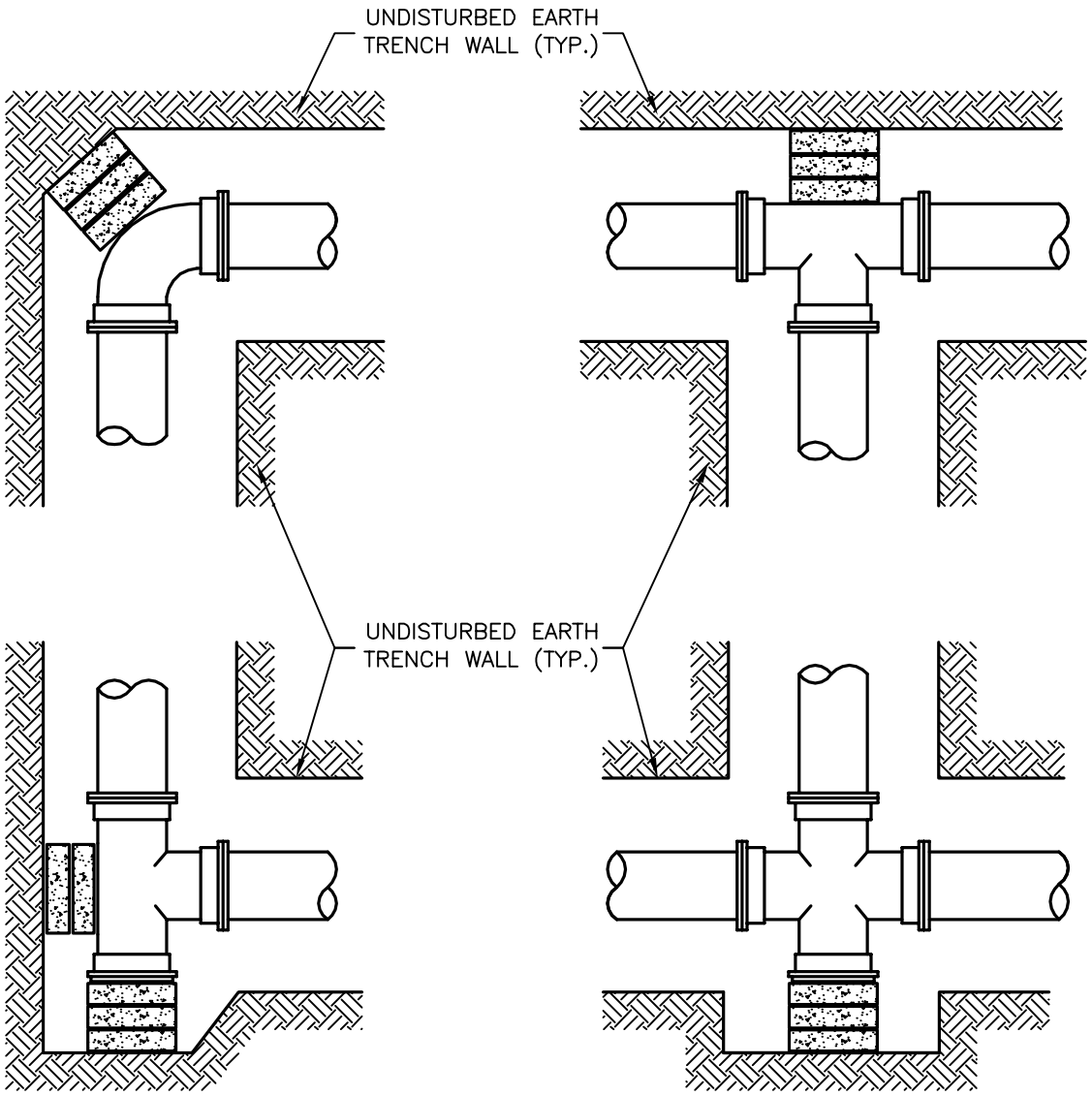
REV.:	REV.:	CONCRETE SADDLE SUPPORT	VILLAGE OF ITASCA
REV.:	REV.: 6-9-2022		WATER 8
DRAWN BY: REL	DATE: 3-14-2018		



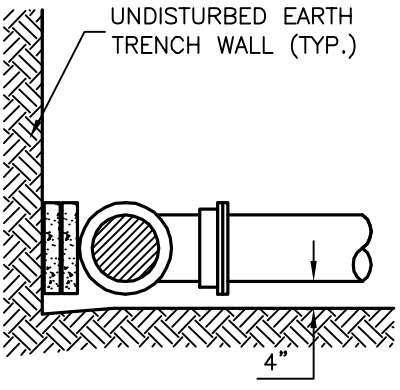
GENERAL NOTES:

1. PROVIDE PRECAST REINFORCED CONCRETE BARREL AND RISER SECTION. CONCRETE BLOCK CONSTRUCTION IS NOT PERMITTED.
2. PROVIDE SELECT GRANULAR BACKFILL AROUND MANHOLE TD SUBGRADE ELEVATION IN PAVED AREAS. MATERIAL SHALL MEET THE REQUIREMENTS OF IDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION COARSE AGGREGATE CA-6 GRADATION, OR AS OTHERWISE DIRECTED BY THE VILLAGE ENGINEER.
3. WHEN THE FRAME DOES NOT MEET PROPOSED ELEVATION, A MAXIMUM OF THREE HEAVY-DUTY POLYETHYLENE ADJUSTING RINGS (LADTECH OR APPROVED EQUAL) MAY BE USED TO A MAXIMUM HEIGHT OF 12 INCHES.
4. EPOXY-COATED CAST IRON STEPS SHALL BE INSTALLED.
5. WHEN MANHOLE DEPTH IS OVER 12 FEET, THE THICKNESS OF THE BASE SHALL BE A MINIMUM OF 10 INCHES. WHEN MANHOLE DEPTH IS LESS THAN 12 FEET, THE THICKNESS SHALL BE A MINIMUM OF 8 INCHES.
6. DRESS UP INTERIOR JOINTS WITH THE HYDRAULIC CEMENT. MORTAR SHALL NOT BE USED TO DRESS UP ADJUSTING RINGS AND/OR FRAME.
7. VALVE VAULTS IN LANDSCAPED AREAS SHALL BE CONSTRUCTED WITH A CHIMNEY SEAL SYSTEM (CRETEX OR APPROVED EQUAL).
8. ALL VALVE VAULT CASTINGS, ADJUSTING RINGS, AND MANHOLE SECTION SHALL BE SET IN BUTYL ROPE (RUB-R-NEK OR EZ STICK OR APPROVED EQUAL). EACH MANHOLE CONE AND BARREL SECTION JOINT SHALL ALSO BE EXTERNALLY SEALED WITH A 6" WIDE SEALING BAND OF RUBBER AND MASTIC (MACWRAP OR APPROVED EQUAL). THE BAND SHALL HAVE AN OUTER LAYER OF RUBBER OR POLYETHYLENE WITH AN UNDER LAYER OF RUBBERIZED MASTIC MEETING THE REQUIREMENTS OF ASTM C-877-02 (STANDARD SPECIFICATION FOR EXTERNAL SEALING BANDS FOR CONCRETE PIPE, MANHOLES, AND PRECAST BOX SECTIONS).
9. VALVE VAULTS (EXCEPT FOR THOSE USED WITH PRESSURE CONNECTIONS) SHALL BE PROVIDED WITH A FLEXIBLE RUBBER WATERTIGHT CONNECTOR FOR PIPES, CONFORMING TO ASTM C-923 (STANDARD SPECIFICATIONS FOR RESILIENT CONNECTIONS BETWEEN REINFORCED CONCRETE MANHOLE STRUCTURES AND PIPES).
10. VAULTS SHALL HAVE AN ECCENTRIC CONE SECTION WHEN POSSIBLE. VALVES MUST ALIGN WITH THE CENTER OF THE VAULT OPENING.
11. VAULTS WITH WATER MAIN 4 TO 8 INCHES IN DIAMETER SHALL BE 4 FEET IN DIAMETER. VAULTS WITH WATER MAIN 10 TO 18 INCHES IN DIAMETER SHALL BE 5 FEET IN DIAMETER. VAULTS WITH WATER MAIN 20 INCHES OR GREATER IN DIAMETER SHALL BE 6 FEET IN DIAMETER.

REV.:	REV.:	TYPICAL PRESSURE CONNECTION IN VAULT	VILLAGE OF ITASCA
REV.:	REV.: 6-9-2022		WATER 9
DRAWN BY: REL	DATE: 2-1-2021		



PLANS

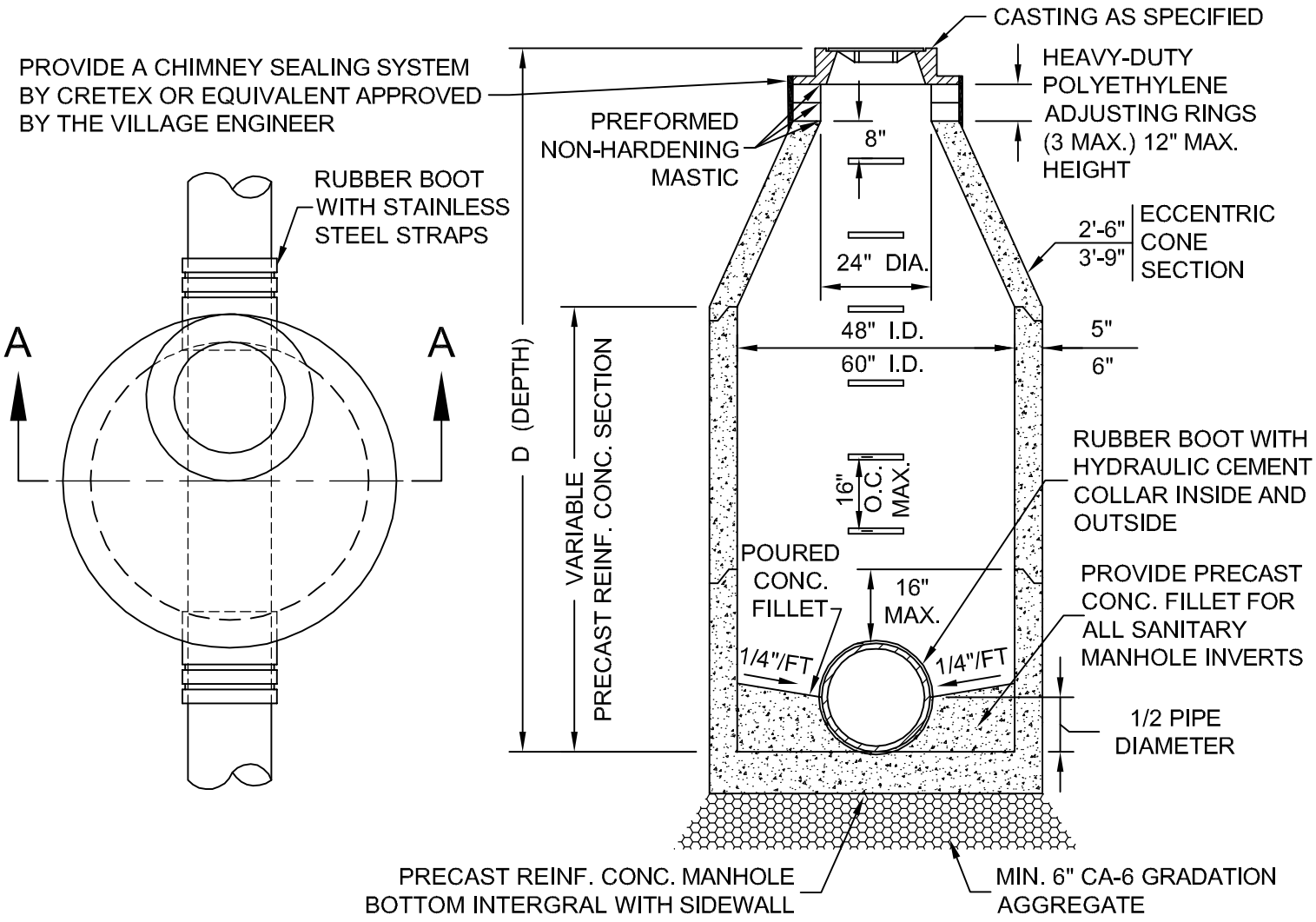


SECTION

GENERAL NOTES:

1. PIPE THRUST RESTRAINT SYSTEM IS USED TO PREVENT MOVEMENT OF LINES UNDER PRESSURE BENDS, TEES, CAPS, VALVES, HYDRANTS, AND AT POINTS SPECIFIED BY THE VILLAGE ENGINEER. CONCRETE BLOCKS SHALL BE PLACED BETWEEN SOLID GROUND AND FITTINGS. FITTINGS WILL BE ACCESSIBLE FOR REPAIRS. CONCRETE BLOCKS AND THRUST RESTRAINT SHALL BE PLACED AT BENDS OF 11-1/4 DEGREES OR MORE.

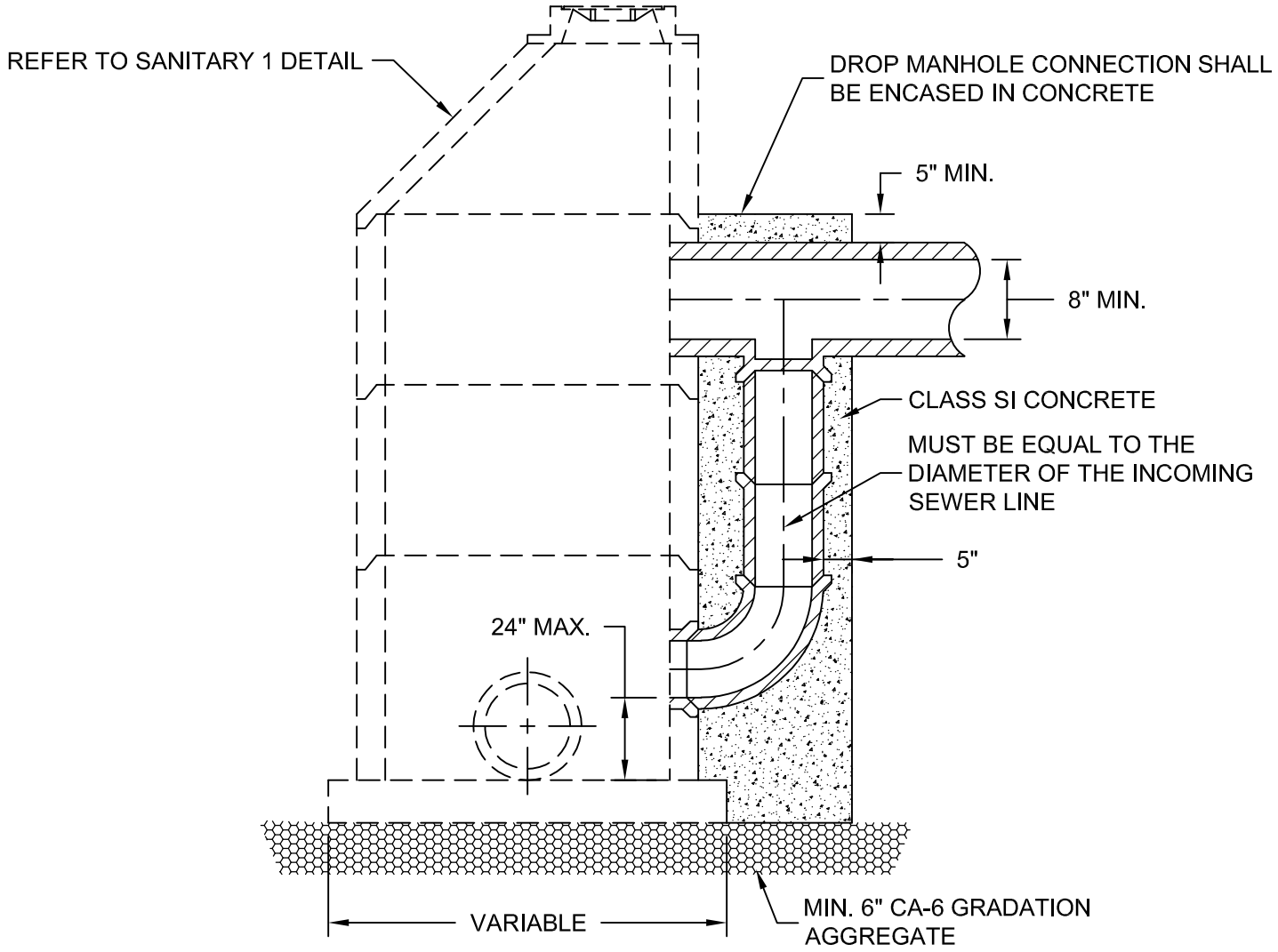
REV.:	REV.:	CONCRETE BLOCK INSTALLATION	VILLAGE OF ITASCA
REV.:	REV.:		WATER 10
DRAWN BY: REL	DATE: 2-9-2021		



GENERAL NOTES:

1. PROVIDE PRECAST REINFORCED CONCRETE BARREL AND RISER SECTION. CONCRETE BLOCK CONSTRUCTION IS NOT PERMITTED.
2. PROVIDE SELECT GRANULAR BACKFILL AROUND MANHOLE TD SUBGRADE ELEVATION IN PAVED AREAS. MATERIAL SHALL MEET THE REQUIREMENTS OF IDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION COARSE AGGREGATE CA-6 GRADATION, OR AS OTHERWISE DIRECTED BY THE VILLAGE ENGINEER.
3. WHEN THE FRAME DOES NOT MEET PROPOSED ELEVATION, A MAXIMUM OF THREE HEAVY-DUTY POLYETHYLENE ADJUSTING RINGS (LADTECH OR APPROVED EQUAL) MAY BE USED TO A MAXIMUM HEIGHT OF 12 INCHES.
4. ONLY PLASTIC POLYMER STEPS WITH STEEL CORE SHALL BE USED.
5. WHEN MANHOLE DEPTH IS OVER 12 FEET, THE THICKNESS OF THE BASE SHALL BE A MINIMUM OF 10 INCHES. WHEN MANHOLE DEPTH IS LESS THAN 12 FEET, THE THICKNESS SHALL BE A MINIMUM OF 8 INCHES.
6. DRESS UP INTERIOR JOINTS WITH THE HYDRAULIC CEMENT. MORTAR SHALL NOT BE USED TO DRESS UP ADJUSTING RINGS AND/OR FRAME.
7. SANITARY MANHOLES SHALL BE CONSTRUCTED WITH A CHIMNEY SEAL SYSTEM (CRETEX OR APPROVED EQUAL).
8. ALL SANITARY MANHOLE CASTINGS, ADJUSTING RINGS, AND MANHOLE SECTION SHALL BE SET IN BUTYL ROPE (RUB-R-NEK OR EZ STICK OR APPROVED EQUAL). EACH MANHOLE CONE AND BARREL SECTION JOINT SHALL ALSO BE EXTERNALLY SEALED WITH A 6" WIDE SEALING BAND OF RUBBER AND MASTIC (MACWRAP OR APPROVED EQUAL). THE BAND SHALL HAVE AN OUTER LAYER OF RUBBER OR POLYETHYLENE WITH AN UNDER LAYER OF RUBBERIZED MASTIC MEETING THE REQUIREMENTS OF ASTM C-877-02 (STANDARD SPECIFICATION FOR EXTERNAL SEALING BANDS FOR CONCRETE PIPE, MANHOLES, AND PRECAST BOX SECTIONS).
9. PIPE CONNECTION TO NEW AND EXISTING MANHOLES THROUGH OPENINGS (CAST OR CORE-DRILLED) SHALL BE PROVIDED WITH A FLEXIBLE RUBBER WATERTIGHT CONNECTOR CONFORMING TO ASTM C-923 (STANDARD SPECIFICATIONS FOR RESILIENT CONNECTIONS BETWEEN REINFORCED CONCRETE MANHOLE STRUCTURES AND PIPES). KOR-N-SEAL OR APPROVED EQUAL, WITH 3" HYDRAULIC CEMENT COLLAR INSIDE AND OUTSIDE.

REV.:	REV.:	SANITARY MANHOLE	VILLAGE OF ITASCA
REV.:	REV.:		
DRAWN BY: REL	DATE: 2-9-2021		SANITARY 1



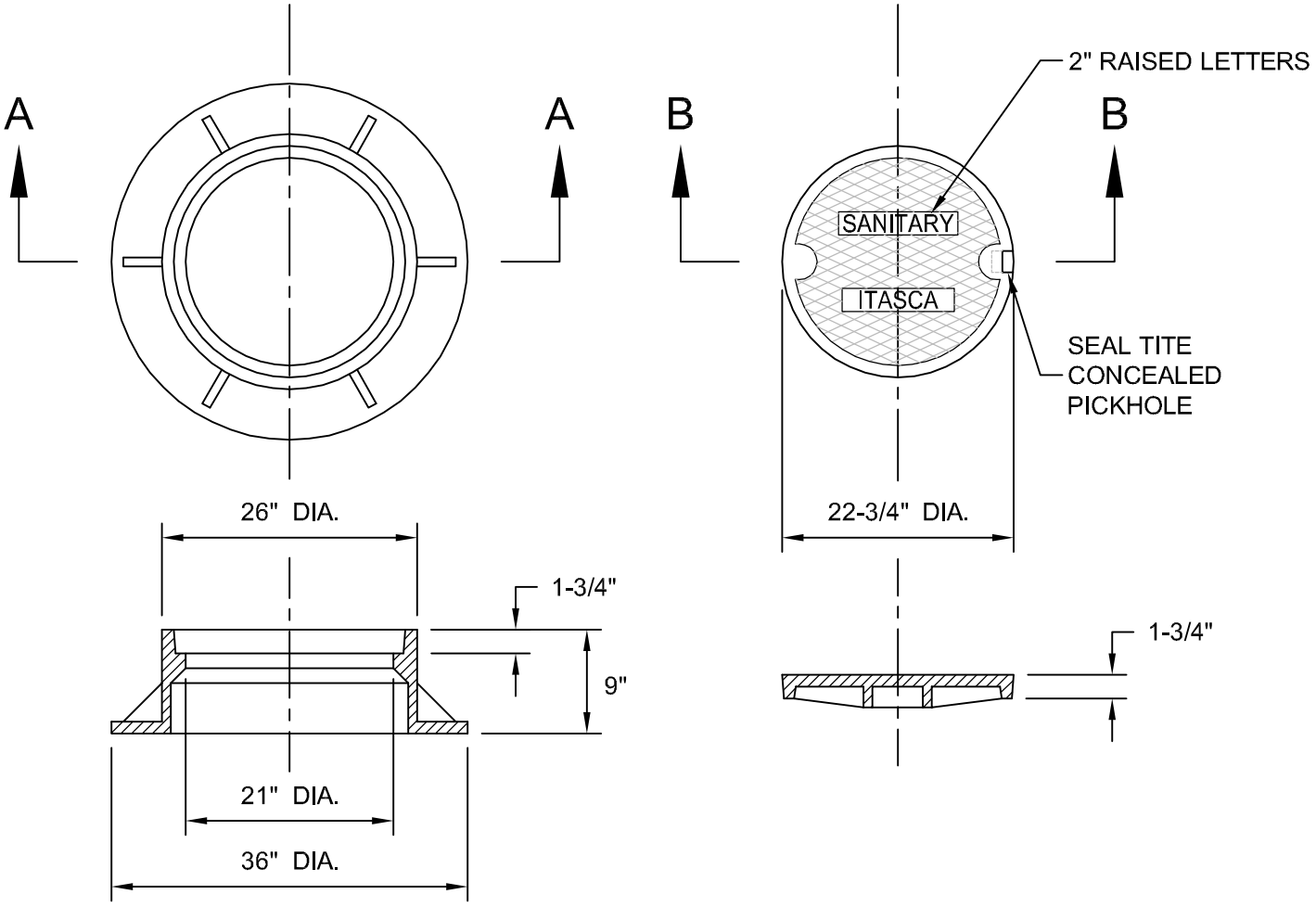
GENERAL NOTES:

1. DROP CONNECTION SHALL BE REQUIRED WHEN THE DIFFERENCE IN ELEVATION OF INVERTS OF TWO (2) INTERSECTING CONDUITS IS GREATER THAN 24 INCHES.

2. DROP CONNECTION SHALL BE ENCASED IN CONCRETE.

REV.:	REV.:	DROP CONNECTION TO SANITARY MANHOLE	VILLAGE OF ITASCA
REV.:	REV.:		SANITARY 2
DRAWN BY: REL	DATE: 3-14-2018		

SEAL TITE LIDS



SECTION A-A

CAST FRAME

SECTION B-B

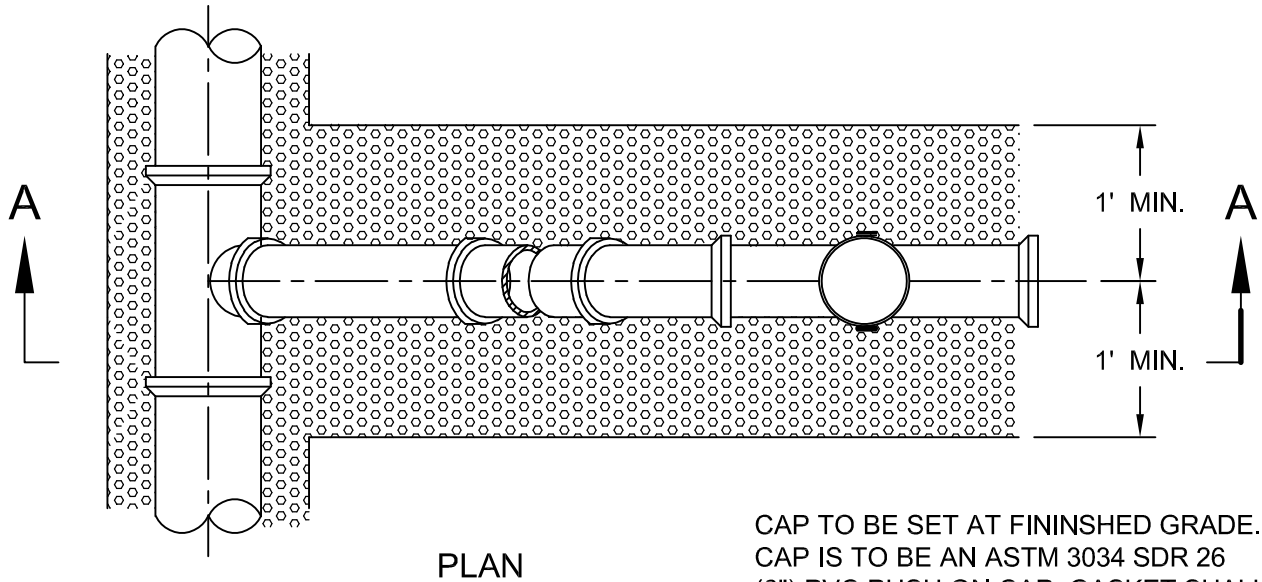
CAST CLOSED LID

(SEAL TITE CONCEALED PICKHOLE)

GENERAL NOTES:

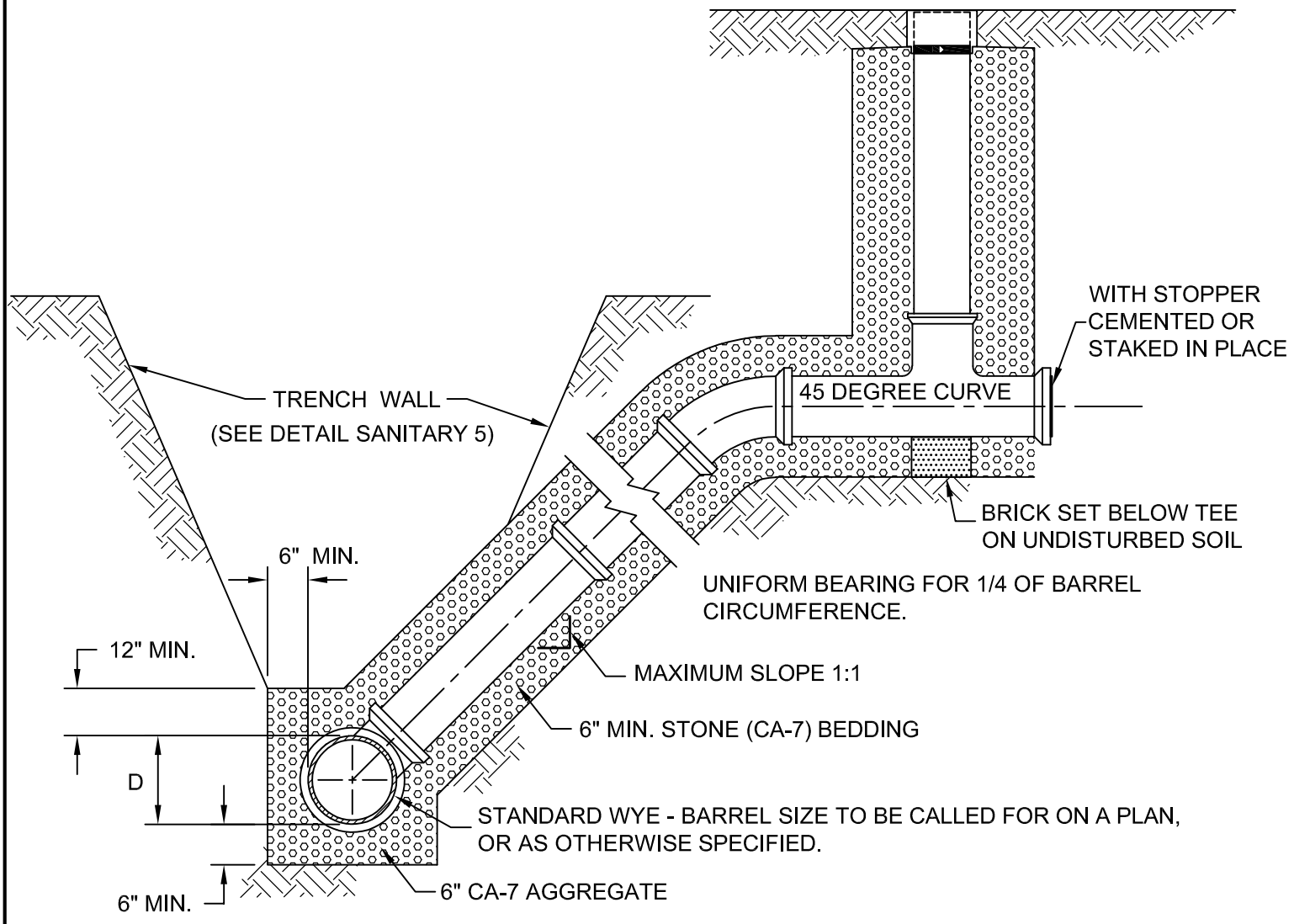
1. DUCTILE IRON CASTING SHALL BE TESTED IN ACCORDANCE WITH FEDERAL SPECIFICATIONS.
2. ALL FRAMES AND COVERS SHALL HAVE A MACHINED HORIZONTAL AND VERTICAL BEARING SURFACES. PICKHOLES IN THE COVER SHALL NOT BE OPEN.
3. THE MANHOLE COVERS SHALL HAVE RAISED LETTERS "SANITARY" AND "ITASCA".
4. DIMENSIONS FOR CASTINGS ARE COMPARABLE TO NEENAH FOUNDRY R-1712 FURNISHED WITH TYPE F CLOSED PICKHOLES OR APPROVED EQUAL.
5. WATERPROOF, BOLT DOWN FRAME AND COVER SHALL BE USED IN ANY LOCATION SUBJECT TO INUNDATION. (NEENAH FOUNDRY R-1916 WITH TYPE F CLOSED PICKHOLES, EAST JORDAN IRON WORKS 1022 OR APPROVED EQUAL). LIDS SHALL BE WATERTIGHT OR SELF-SEALING WITH A FACTORY INSTALLED GASKET.

REV.:	REV.:	SANITARY MANHOLE FRAME AND COVER	VILLAGE OF ITASCA
REV.:	REV.:		SANITARY 3
DRAWN BY: REL	DATE: 2-9-2021		



PLAN

CAP TO BE SET AT FININSHED GRADE. CAP IS TO BE AN ASTM 3034 SDR 26 (6") PVC PUSH ON CAP. GASKET SHALL BE REMOVED FROM CAP.



SECTION A-A

(SEE DETAIL SANITARY 4B FOR NOTES)

REV.:	REV.:	SANITARY RISER W / CLEANOUT SERVICE LATERAL	VILLAGE OF ITASCA
REV.:	REV.:		SANITARY 4A
DRAWN BY: REL	DATE: 3-14-2018		

GENERAL NOTES:

1. THE OPEN ENDS SHALL BE PROTECTED FROM DEBRIS ENTERING THE LATERAL.

2. MAXIMUM SLOPE SHALL BE LESS THAN 1 TO 1 WHEN IT IS NECESSARY TO SECURE BEDDING IN UNDISTURBED EARTH.

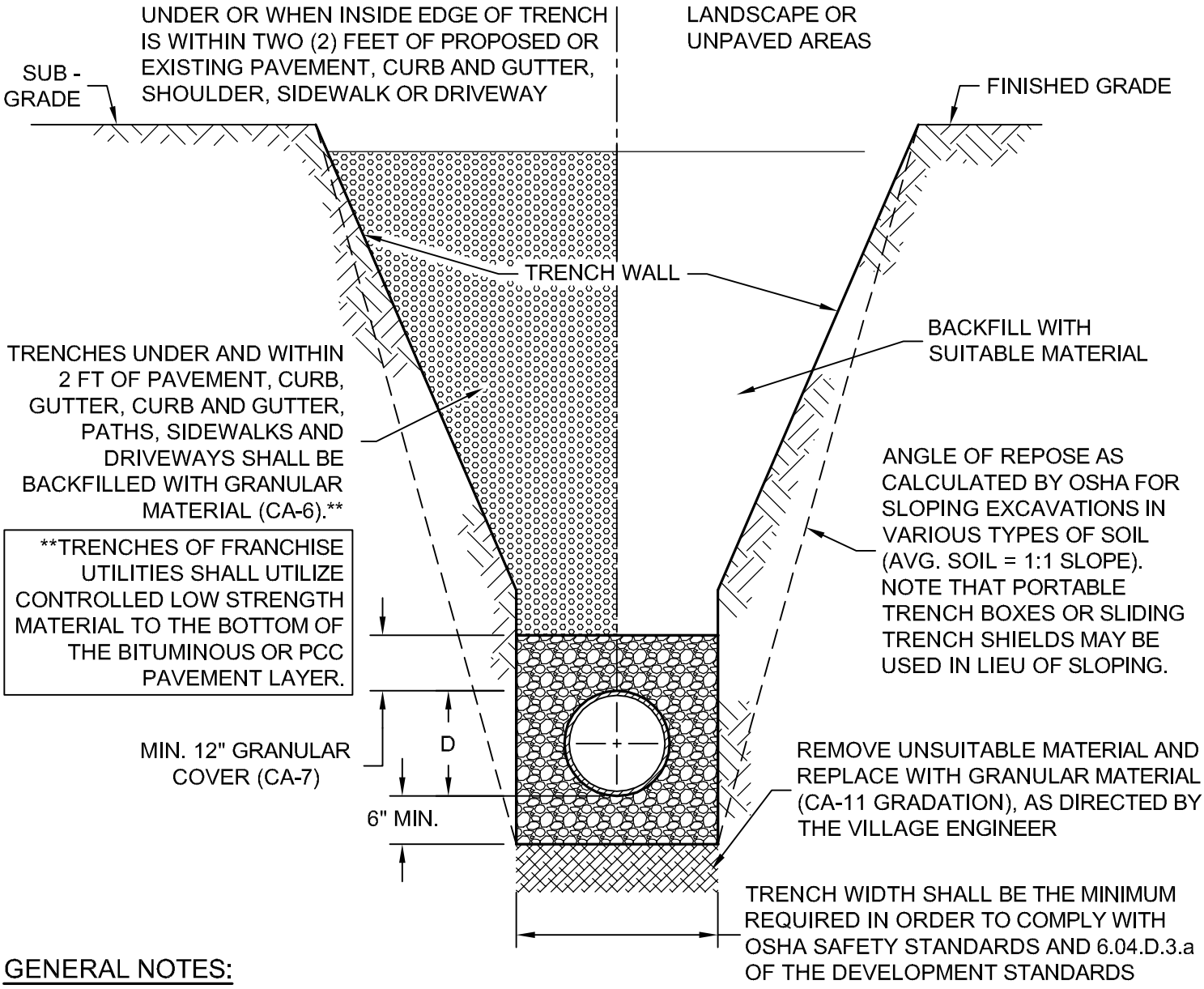
3. WHEN SERVICE CONNECTION REQUIRES CONNECTING TO AN EXISTING MAIN, A SEWER SADDLE SHALL BE USED. BANDS AND BOLTS SHALL BE STAINLESS STEEL.

4. SERVICE TEE AND CLEAN OUT RISER SHALL BE PVC (SDR26/ASTM D2241). FOR CLEAN OUTS LOCATED WITHIN LANDSCAPED AREAS, THE CONTRACTOR SHALL USE P1215 DWV BUSHING AND G106 CAP MANUFACTURED BY PLASTIC TRENDS, INC (ASTM 3034). GASKET SHALL BE REMOVED FROM CAP.

5. CLEAN OUTS SHALL NOT BE LOCATED IN DRIVEWAY APRONS OR SIDEWALK UNLESS APPROVED BY THE VILLAGE ENGINEER. IF ALLOWED, THE CONTRACTOR SHALL USE SCHEDULE 40 DWV FIPT HUB ADAPTER AND THE RAISED MIPT PLUG (ASTM D 2665 OR ASTM D 1785) AND AN EAST JORDAN FRAME (2885) AND LID (2975). EQUIVALENT FITTINGS FROM OTHER MANUFACTURES ARE ACCEPTABLE AT THE DISCRETION OF THE VILLAGE ENGINEER. WRITTEN ACCEPTANCE MUST BE OBTAINED FROM THE ENGINEER PRIOR TO THE EQUIVALENT MATERIALS BEING APPROVED. GEOMETRIC STANDARDS CANNOT BE VARIED.

(SEE DETAIL SANITARY 4A FOR DETAILS)

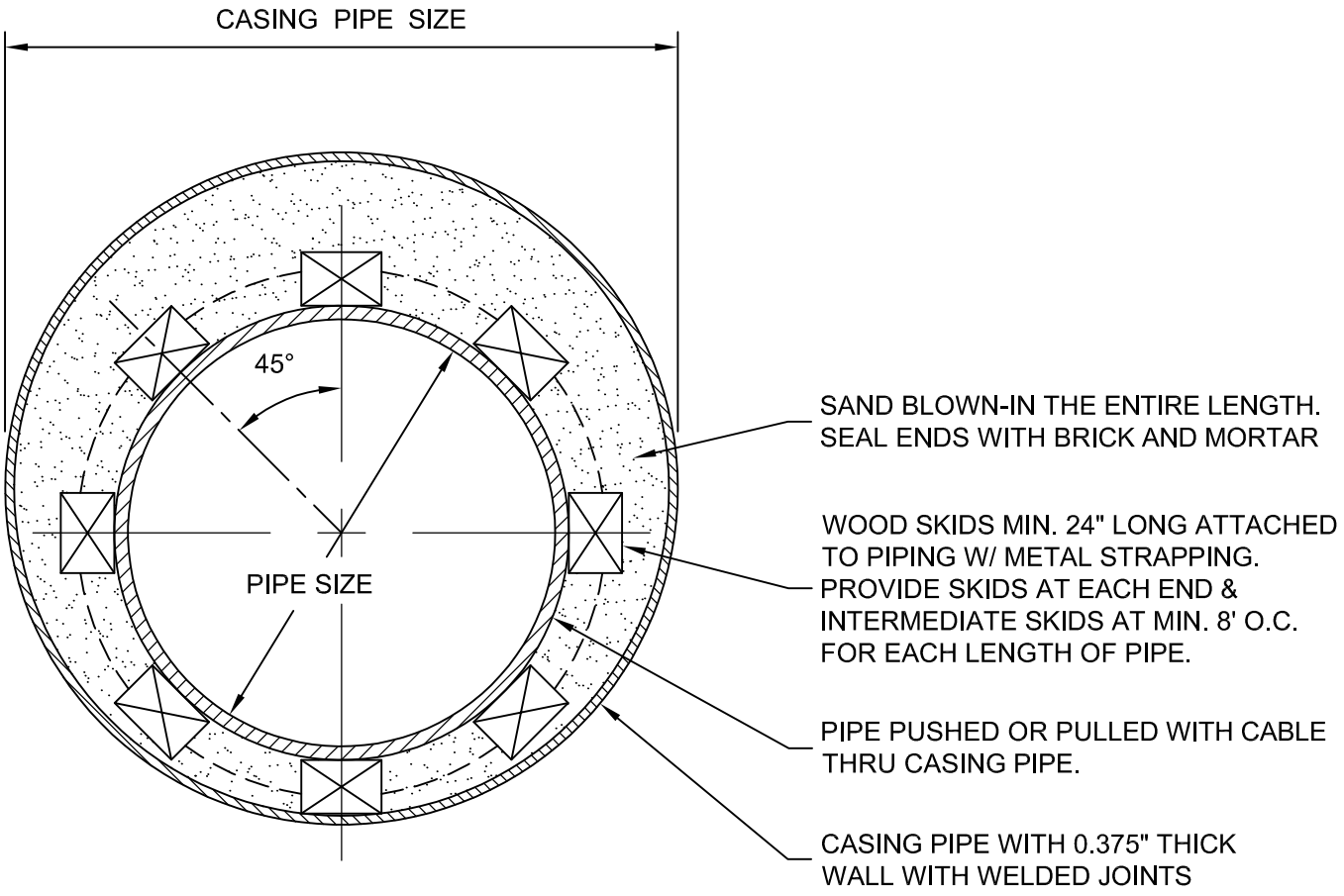
REV.:	REV.:	SANITARY RISER W / CLEANOUT SERVICE LATERAL	VILLAGE OF ITASCA
REV.:	REV.:		SANITARY 4B
DRAWN BY: REL	DATE: 3-14-2018		



GENERAL NOTES:

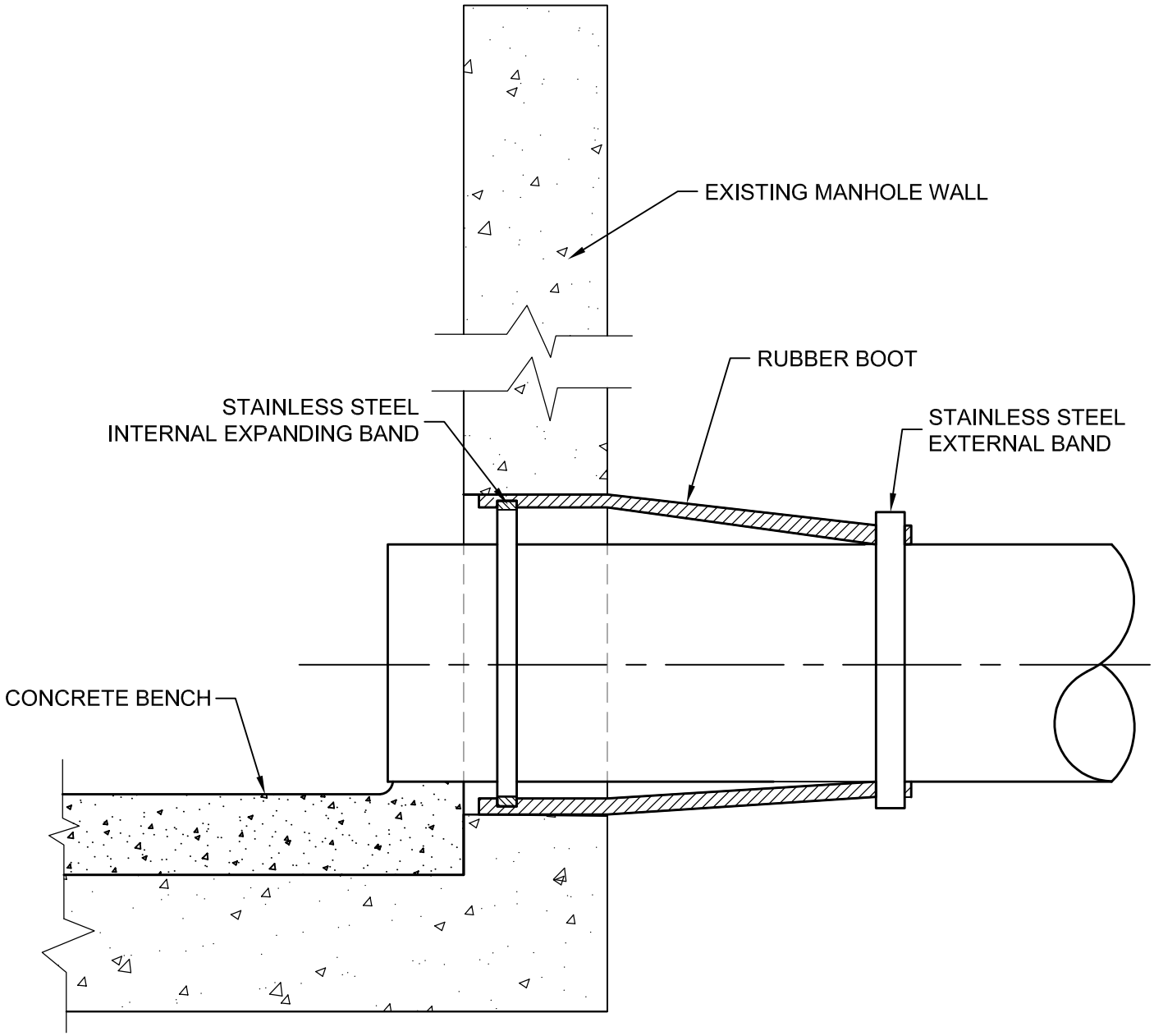
1. CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN A SAFE MANNER AT ALL TIMES AND SHALL COMPLY WITH ALL APPLICABLE GOVERNING REGULATIONS, INCLUDING BUT NOT LIMITED TO OSHA SAFETY STANDARDS.
2. ALL BACKFILL MATERIAL UP TO A HEIGHT OF 12 INCHES ABOVE THE PIPE SHALL BE CAREFULLY DEPOSITED IN UNIFORM LAYERS NOT EXCEEDING 8 INCHES THICK (LOOSE MEASURE). THE MATERIAL IN EACH LAYER SHALL BE FIRMLY COMPACTED BY RAMMING OR TAMPING WITH TOOLS APPROVED BY THE VILLAGE ENGINEER IN GRANULAR MATERIAL FOR BACKFILL AND BEDDING SHALL BE GRAVEL, CRUSHED GRAVEL OR STONE MEETING THE SUCH A MANNER AS NOT TO DISTURB OR INJURE THE PIPE. THE BACKFILLING ABOVE THIS HEIGHT SHALL BE DONE AS NOTED BELOW.
3. GRANULAR BACKFILL MATERIAL SHALL BE PLACED AND COMPACTED AS SPECIFIED IN NOTE 2, ABOVE. THE USE OF JETTING SHALL NOT BE ALLOWED UNLESS AUTHORIZED IN WRITING BY THE VILLAGE ENGINEER. IT SHALL BE THE DESIGN ENGINEER OR CONTRACTOR'S RESPONSIBILITY TO PROVIDE APPROPRIATE JUSTIFICATION AND DOCUMENTATION (SOIL INVESTIGATION REPORTS, ETC.) TO THE VILLAGE ENGINEER WITH THE REQUEST FOR APPROVAL OF JETTING.
4. BACKFILL MATERIAL CONSISTING OF SUITABLE EXCAVATED MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING EIGHT (8) INCHES THICK (LOOSE MEASURE) AND EACH LAYER SHALL BE COMPACTED BY RAMMING OR TAMPING TO ACHIEVE THE REQUIRED COMPACTION. JETTING OF THIS MATERIAL MAY BE PERMITTED WHEN AUTHORIZED IN WRITING BY THE VILLAGE ENGINEER. IT SHALL BE THE DESIGN ENGINEER OR THE CONTRACTOR'S RESPONSIBILITY TO SUBMIT APPROPRIATE JUSTIFICATION AND DOCUMENTATION (SOIL INVESTIGATION REPORTS, ETC.) TO THE VILLAGE ENGINEER WITH THE REQUEST FOR APPROVAL OF JETTING.
5. GRANULAR MATERIAL FOR BACKFILL AND BEDDING SHALL BE GRAVEL, CRUSHED GRAVEL OR STONE MEETING THE REQUIREMENTS OF THE IDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" FOR COARSE AGGREGATE, OF THE GRADATION SPECIFIED. NO RECYCLED CONCRETE SHALL BE ALLOWED.

REV.:	REV.:	SANITARY SEWER TRENCH SECTION	VILLAGE OF ITASCA
REV.:	REV.:		
DRAWN BY: REL	DATE: 2-9-2021		SANITARY 5



CASING PIPE DETAILS

REV.:	REV.:	CASING DETAIL	VILLAGE OF ITASCA
REV.:	REV.:		SANITARY 6
DRAWN BY: REL	DATE: 3-14-2018		



GENERAL NOTES:

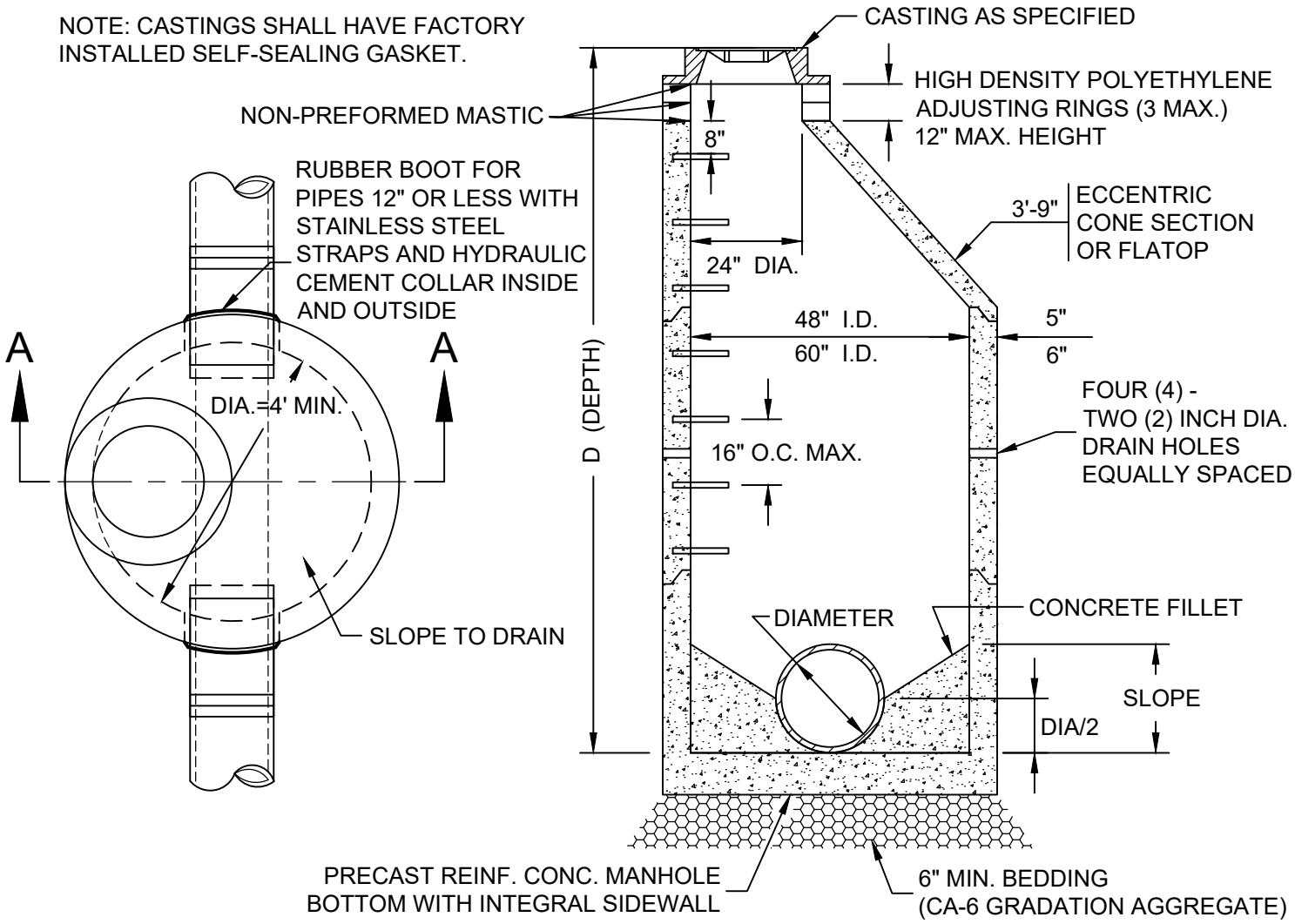
1. CORE-DRILL CIRCULAR OPENING IN MANHOLE WALL OF DIAMETER TO FIT THE REQUIRED BOOT SIZE.

2. KOR-N-SEAL FLEXIBLE RUBBER BOOT (MANUFACTURED BY NATIONAL POLLUTION CONTROL SYSTEMS, INC.) OR APPROVED EQUAL SHALL BE USED FOR WATERTIGHT CONNECTION.

3. CUT, SHAPE AND SLOPE NEW INVERT CHANNEL IN THE EXISTING CONCRETE BENCH FOR SMOOTH FLOW FROM NEW SANITARY SEWER CONNECTION.

4. CLEAN EXISTING MANHOLE OF ANY DIRT, CONCRETE OR DEBRIS WHICH MAY ACCUMULATE DURING THE CONSTRUCTION PROCESS.

REV.:	REV.:	CORING BOOT	VILLAGE OF ITASCA
REV.:	REV.:		SANITARY 7
DRAWN BY: REL	DATE: 3-14-2018		



PLAN

SECTION A-A

GENERAL NOTES:

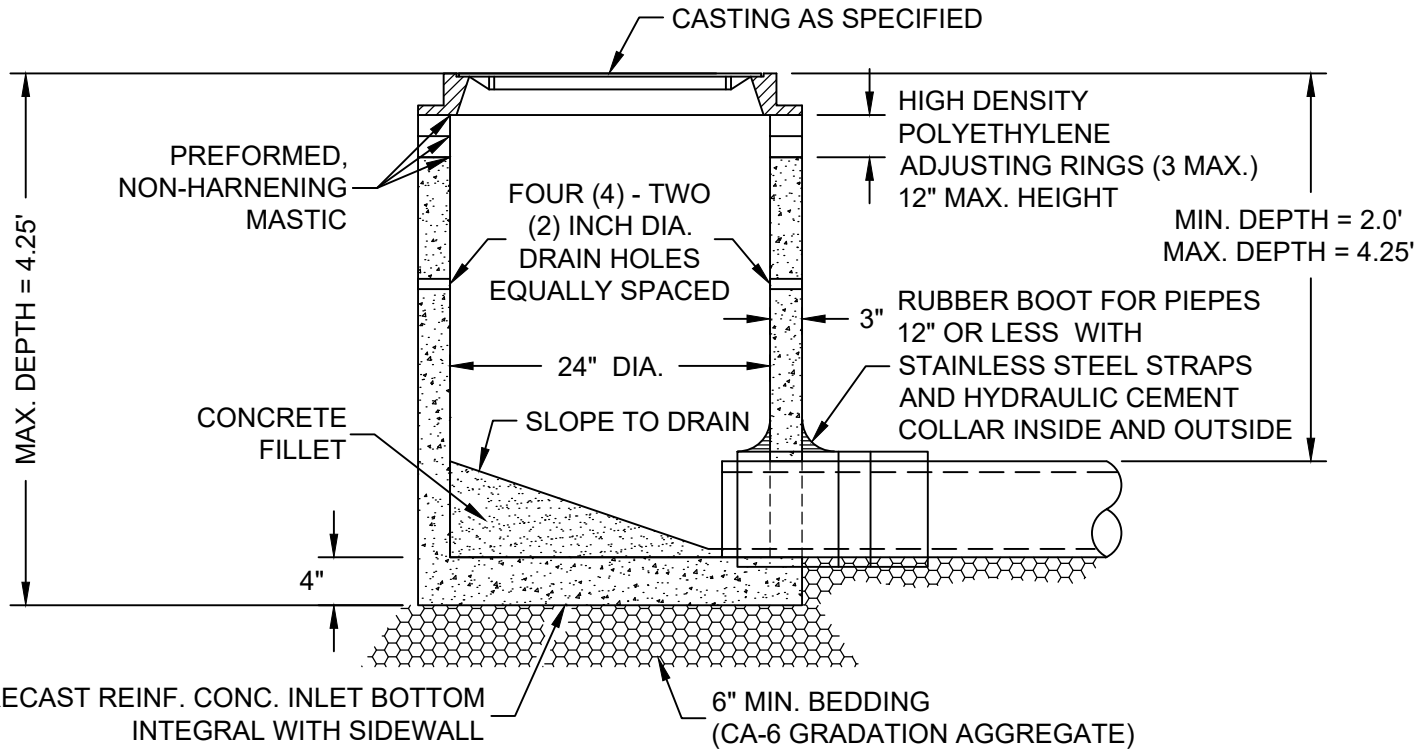
1. PROVIDE PRECAST REINFORCED CONCRETE BARREL AND RISER SECTIONS. CONCRETE BLOCK CONSTRUCTION IS NOT PERMITTED.
2. PROVIDE GRANULAR BACKFILL AROUND MANHOLE TO SUBGRADE ELEVATION IN PAVED AREAS. MATERIAL SHALL MEET THE REQUIREMENTS OF IDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" FOR COARSE AGGREGATE (CA-6 GRADATION.)
3. APPLY A CONTINUOUS LAYER OF NON-HARDENING PREFORMED BITUMINOUS MASTIC MATERIAL (RUB-R-NEK OR EZ STICK) TO EACH JOINT BELOW THE BOTTOM OF CONE OR FLATTOP TO PREVENT INFLOW.
4. WHEN THE FRAME DOES NOT MEET PROPOSED ELEVATION, A MAXIMUM OF THREE ADJUSTING RINGS MAY BE USED TO A MAXIMUM HEIGHT OF 12 INCHES. EACH RING AND THE FRAME SHALL BE SET IN A BED OF NON-PREFORMED MASTIC.
5. WITHIN NON-PAVED AREAS MORTAR SHALL ONLY BE USED TO DRESS UP ADJUSTING RINGS AND/OR FRAME ON THE EXTERIOR OF THE STRUCTURE. MORTAR IS NOT PERMITTED ON THE INSIDE OF THE RINGS AND/OR FRAME.
6. ONLY PLASTIC POLYMER STEPS WITH STEEL CORE SHALL BE USED.
7. WHEN MANHOLE DEPTH IS OVER 12 FEET, THE THICKNESS OF THE PRECAST, REINFORCED CONCRETE BASE SHALL BE A MINIMUM OF 10 INCHES. WHEN MANHOLE DEPTH IS LESS THAN 12 FEET, THE THICKNESS SHALL BE A MINIMUM OF 8 INCHES.
8. DRESS UP INTERIOR JOINTS OF PRECAST MANHOLE AND OPENINGS AROUND PIPES WITH HYDRAULIC CEMENT.
9. IN PAVED AREAS, DRAIN HOLES/WEEP HOLES SHALL BE COVERED WITH FILTER FABRIC. FILTER FABRIC SHALL BE SECURED TO THE OUTSIDE OF STRUCTURE PRIOR TO BACKFILL.
10. IN GRASSED AREAS, DRAIN HOLES/WEEP HOLES SHALL BE PLUGGED WITH HYDRAULIC CEMENT.
11. CHIMNEY SEALS SHALL BE REQUIRED UNLESS THE MANHOLE IS ADJUSTED TO FINAL GRADE IN ACCORDANCE WITH VILLAGE DETAIL STORM 7 - CASTING ADJUSTMENTS FOR STRUCTURES IN PAVED AREAS.

REV.:	REV.:
REV.:	REV.:
DRAWN BY: REL	DATE: 2-9-2021

MANHOLE TYPE A

VILLAGE OF ITASCA

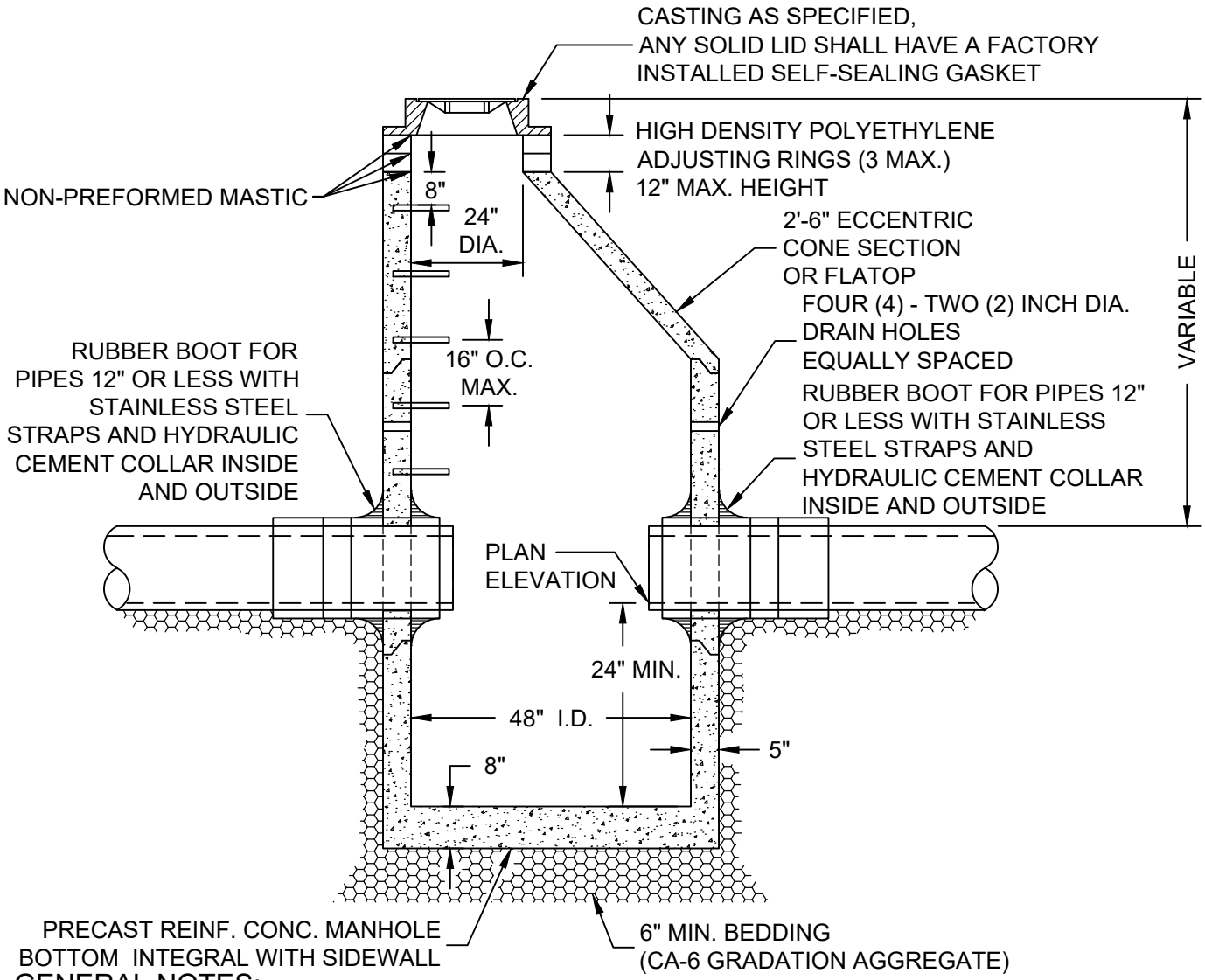
STORM 1



GENERAL NOTES:

1. PROVIDE PRECAST REINFORCED CONCRETE BARREL AND RISER SECTION. CONCRETE BLOCK CONSTRUCTION IS NOT PERMITTED.
2. PROVIDE GRANULAR BACKFILL AROUND INLET TO SUBGRADE ELEVATION IN PAVED AREAS. MATERIAL SHALL MEET THE REQUIREMENTS OF IDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" FOR COARSE AGGREGATE (CA-6 GRADATION.)
3. WHEN THE FRAME DOES NO MEET PROPOSED ELEVATION, A MAXIMUM OF THREE HIGH-DENSITY POLYETHYLENE ADJUSTING RINGS SHALL BE USED FOR FINAL ADJUSTMENT TO A MAXIMUM HEIGHT OF 12 INCHES. THE RING(S) AND FRAME SHALL BE SET IN A BED OF PREFORMED NON-HARDENING MASTIC (RUB-R-NEK, EZ STICK OR APPROVED EQUAL).
4. MORTAR SHALL NOT BE USED TO DRESS UP ADJUSTING RINGS AND/OR FRAME.
5. IN PAVED AREAS, DRAIN HOLES/WEEP HOLES SHALL BE COVERED WITH FILTER FABRIC. FILTER FABRIC SHALL BE SECURED TO THE OUTSIDE OF STRUCTURE PRIOR TO BACKFILL.
6. IN GRASSED AREAS, DRAIN HOLES/WEEP HOLES SHALL BE PLUGGED WITH HYDRAULIC CEMENT.
7. IF AN IDOT TYPE 8 GRATE CASTING IS CALLED OUT, NO MASTIC SHALL BE ALLOWED BETWEEN THE FRAME AND THE TOP RING OR STRUCTURE. A MINIMUM OF ONE HIGH DENSITY POLYETHYLENE RING 1/4" THICKNESS SHALL BE PLACED BETWEEN THE FRAME AND THE TOP RING OR STRUCTURE (EAST JORDAN INFRA-RISER c 24.0 / 36.0 F 0.25 OR APPROVED EQUAL). ALL EXCESS MATERIAL EXTENDING BEYOND THE EDGE OF THE GRATE SHALL BE TRIMMED FLUSH.
8. PIPE CONNECTION TO NEW AND EXISTING MANHOLES THROUGHT OPENINGS (CAST OR CORE-DRILLED) SHALL BE PROVIDED WITH A FLEXIBLE RUBBER WATERTIGHT CONNECTOR CONFROMING TO ASTM C-923 (STANDARD SPECIFICATIONS FOR RESILIENT CONNECTIONS BETWEEN REINFORCED CONCRETE MANHOLE STRUCTURES AND PIPES FOR PIPES 12" OR LESS). KOR-N-SEAL OR APPROVED EQUAL, WITH 3" HYDRAULIC CEMENT COLLAR INSIDE AND OUTSIDE.

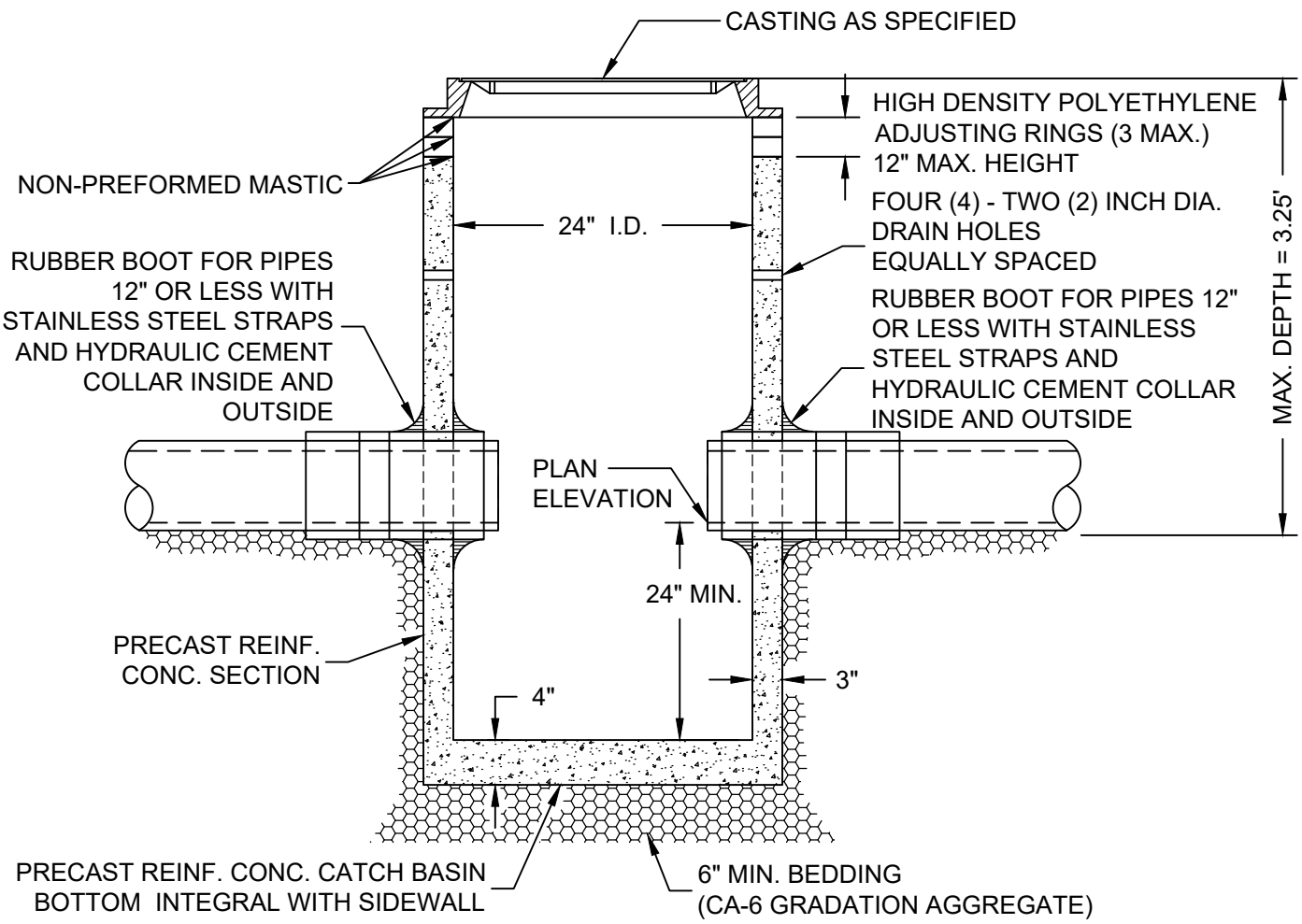
REV.:	REV.:	INLET TYPE A	VILLAGE OF ITASCA
REV.:	REV.:		STORM 2
DRAWN BY: REL	DATE: 2-9-2021		



GENERAL NOTES:

1. PROVIDE PRECAST REINFORCED CONCRETE BARREL AND RISER SECTIONS. CONCRETE BLOCK CONSTRUCTION IS NOT PERMITTED.
2. PROVIDE GRANULAR BACKFILL AROUND CATCH BASIN TO SUBGRADE ELEVATION IN PAVED AREAS. MATERIAL SHALL MEET THE REQUIREMENTS OF IDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" FOR COARSE AGGREGATE (CA-6 GRADATION.)
3. APPLY A CONTINUOUS LAYER OF NON-HARDENING PREFORMED BITUMINOUS MASTIC MATERIAL (RUB-R-NEK OR EZ STICK) TO EACH JOINT BELOW THE BOTTOM OF CONE OR FLATTOP TO PREVENT INFLOW.
4. WHEN THE FRAME DOES NOT MEET PROPOSED ELEVATION, A MINIMUM OF TWO HIGH-DENSITY POLYETHYLENE ADJUSTING RINGS SHALL BE USED FOR FINAL ADJUSTMENT. A MAXIMUM OF THREE ADJUSTING RINGS MAY BE USED TO A MAXIMUM HEIGHT OF 12 INCHES. EACH RING AND THE FRAME SHALL BE SET IN A BED OF NON-PREFORMED MASTIC.
5. WITHIN NON-PAVED AREAS MORTAR SHALL ONLY BE USED TO DRESS UP ADJUSTING RINGS AND/OR FRAME ON THE EXTERIOR OF THE STRUCTURE. MORTAR IS NOT PERMITTED ON THE INSIDE OF THE RINGS AND/OR FRAME.
6. ONLY PLASTIC POLYMER STEPS WITH STEEL CORE SHALL BE USED.
7. WHEN CATCH BASIN DEPTH IS OVER 12 FEET, THE THICKNESS OF THE PRECAST, REINFORCED CONCRETE BASE SHALL BE A MINIMUM OF 10 INCHES. WHEN CATCH BASIN DEPTH IS LESS THAN 12 FEET, THE THICKNESS SHALL BE A MINIMUM OF 8 INCHES.
8. PIPE CONNECTION TO NEW AND EXISTING MANHOLES THROUGHT OPENINGS (CAST OR CORE-DRILLED) SHALL BE PROVIDED WITH A FLEXIBLE RUBBER WATERTIGHT CONNECTOR CONFROMING TO ASTM C-923 (STANDARD SPECIFICATIONS FOR RESILIENT CONNECTIONS BETWEEN REINFORCED CONCRETE MANHOLE STRUCTURES AND PIPES FOR PIPES 12" OR LESS). KOR-N-SEAL OR APPROVED EQUAL, WITH 3" HYDRAULIC CEMENT COLLAR INSIDE AND OUTSIDE.
9. IN PAVED AREAS, DRAIN HOLES/WEEP HOLES SHALL BE COVERED WITH FILTER FABRIC. FILTER FABRIC SHALL BE SECURED TO THE OUTSIDE OF STRUCTURE PRIOR TO BACKFILL.
10. IN GRASSED AREAS, DRAIN HOLES/WEEP HOLES SHALL BE PLUGGED WITH HYDRAULIC CEMENT.

REV.:	REV.:	CATCH BASIN TYPE A	VILLAGE OF ITASCA
REV.:	REV.:		STORM 3
DRAWN BY: REL	DATE: 2-9-2021		



GENERAL NOTES:

1. PROVIDE PRECAST REINFORCED CONCRETE BARREL AND RISER SECTIONS. CONCRETE BLOCK CONSTRUCTION IS NOT PERMITTED.

2. PROVIDE GRANULAR BACKFILL AROUND CATCH BASIN TO SUBGRADE ELEVATION IN PAVED AREAS. MATERIAL SHALL MEET THE REQUIREMENTS OF IDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" FOR COARSE AGGREGATE (CA-6 GRADATION.)

3. WHEN THE FRAME DOES NOT MEET PROPOSED ELEVATION, A MAXIMUM OF THREE HIGH-DENSITY POLYETHYLENE ADJUSTING RINGS SHALL BE USED FOR FINAL ADJUSTMENT TO A MAXIMUM HEIGHT OF 12 INCHES. EACH RING AND THE FRAME SHALL BE SET IN A BED OF NON-PREFORMED MASTIC.

4. WITHIN NON-PAVED AREAS, MORTAR SHALL ONLY BE USED TO DRESS UP ADJUSTING RINGS AND/OR FRAME ON THE EXTERIOR OF THE STRUCTURE. MORTAR IS NOT PERMITTED ON THE INSIDE OF THE RINGS AND/OR FRAME.

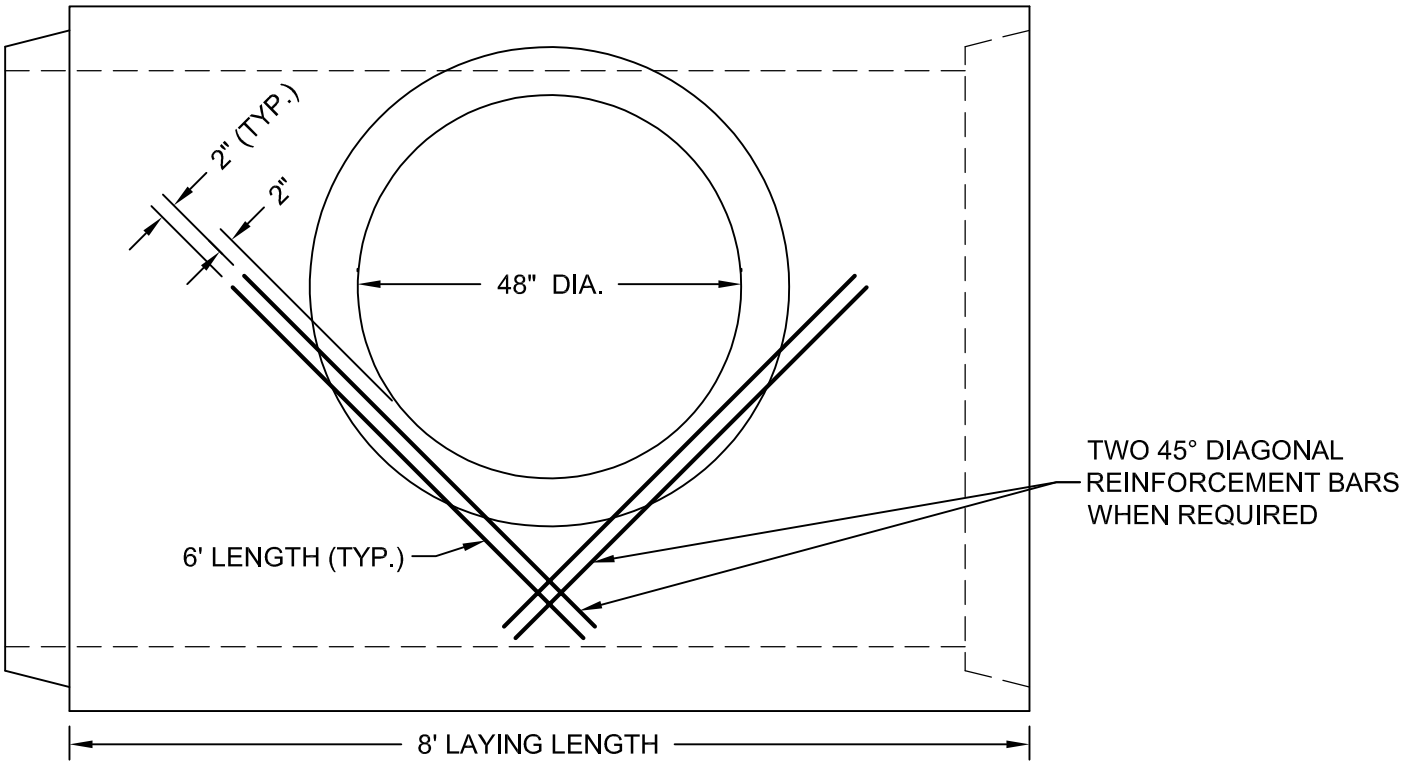
5. PIPE CONNECTION TO NEW AND EXISTING MANHOLES THROUGHT OPENINGS (CAST OR CORE-DRILLED) SHALL BE PROVIDED WITH A FLEXIBLE RUBBER WATERTIGHT CONNECTOR CONFROMING TO ASTM C-923 (STANDARD SPECIFICATIONS FOR RESILIENT CONNECTIONS BETWEEN REINFORCED CONCRETE MANHOLE STRUCTURES AND PIPES FOR PIPES 12" OR LESS). KOR-N-SEAL OR APPROVED EQUAL, WITH 3" HYDRAULIC CEMENT COLLAR INSIDE AND OUTSIDE.

6. IN PAVED AREAS, DRAIN HOLES/WEEP HOLES SHALL BE COVERED WITH FILTER FABRIC. FILTER FABRIC SHALL BE SECURED TO THE OUTSIDE OF STRUCTURE PRIOR TO BACKFILL.

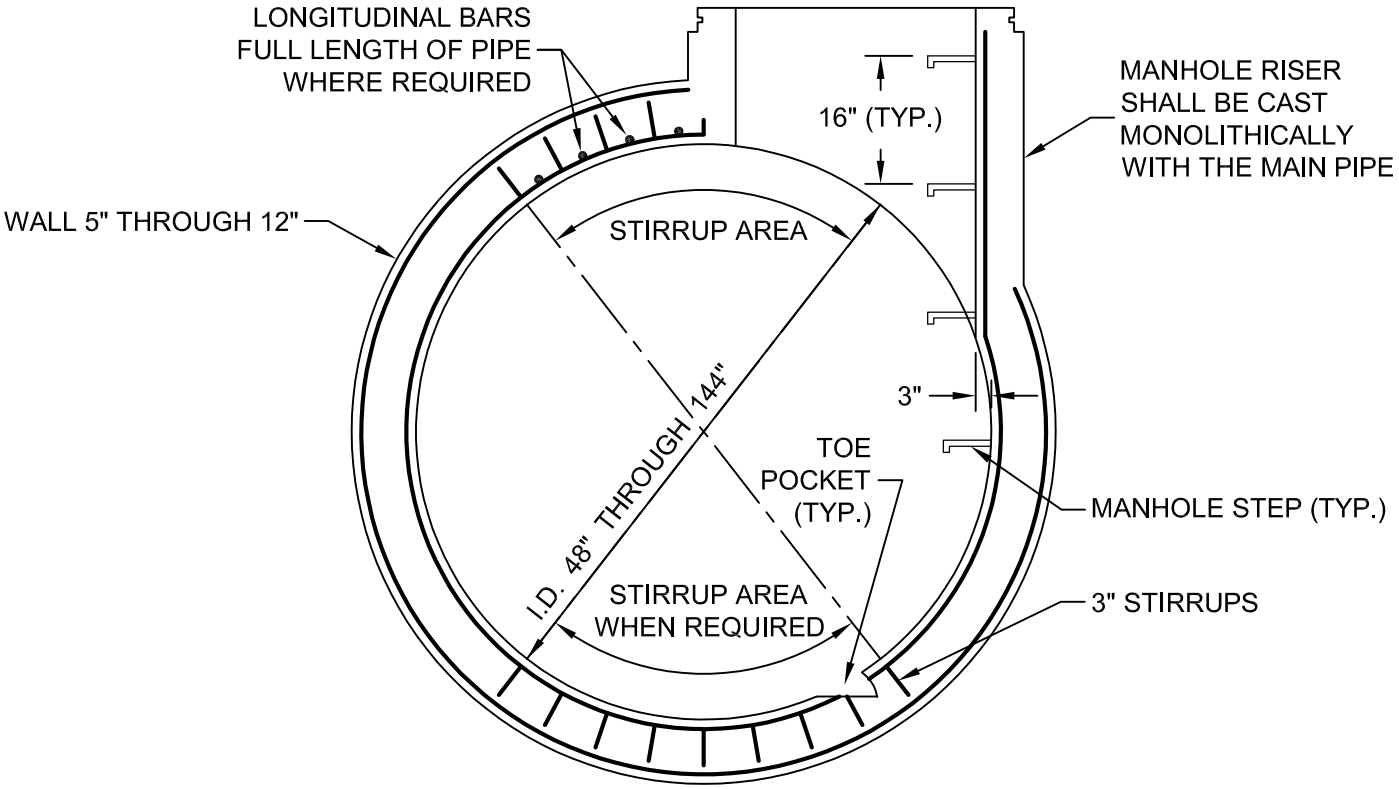
7. IN GRASSED AREAS, DRAIN HOLES/WEEP HOLES SHALL BE PLUGGED WITH HYDRAULIC CEMENT.

REV.:	REV.:	CATCH BASIN TYPE C	VILLAGE OF ITASCA
REV.:	REV.:		STORM 4
DRAWN BY: REL	DATE: 2-9-2021		

NOTE: CASTINGS SHALL HAVE
FACTORY INSTALLED O-RING GASKET



PLAN



SECTION A-A

REV.:	REV.:	PRECAST TEE MANHOLE	VILLAGE OF ITASCA
REV.:	REV.:		STORM 5A
DRAWN BY: REL	DATE: 3-14-2018		

GENERAL NOTES:

1. PROVIDE GRANULAR BACKFILL AROUND MANHOLE TO SUBGRADE ELEVATION IN PAVED AREAS. MATERIAL SHALL MEET THE REQUIREMENTS OF THE IDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" FOR COARSE AGGREGATE (CA-6 GRADATION.)

2. APPLY A CONTINUOUS LAYER OF NON-HARDENING, PREFORMED BITUMINOUS MASTIC MATERIAL (RUB-R-NEK OR EZ STICK) TO EACH JOINT BELOW THE BOTTOM OF CONE OR FLATTOP TO PREVENT INFLOW.

3. WHEN THE FRAME DOES NOT MEET PROPOSED ELEVATION, A MAXIMUM OF THREE HIGH-DENSITY POLYETHYLENE ADJUSTING RINGS SHALL BE USED FOR FINAL ADJUSTMENT TO A MAXIMUM HEIGHT OF 12 INCHES. THE RING(S) AND FRAME SHALL BE SET IN A BED OF NON-HARDENING BUCKET MASTIC.

4. MORTAR SHALL NOT BE USED TO DRESS UP ADJUSTING RINGS AND/OR FRAME.

5. ONLY PLASTIC POLYMER STEPS WITH STEEL CORE SHALL BE USED.

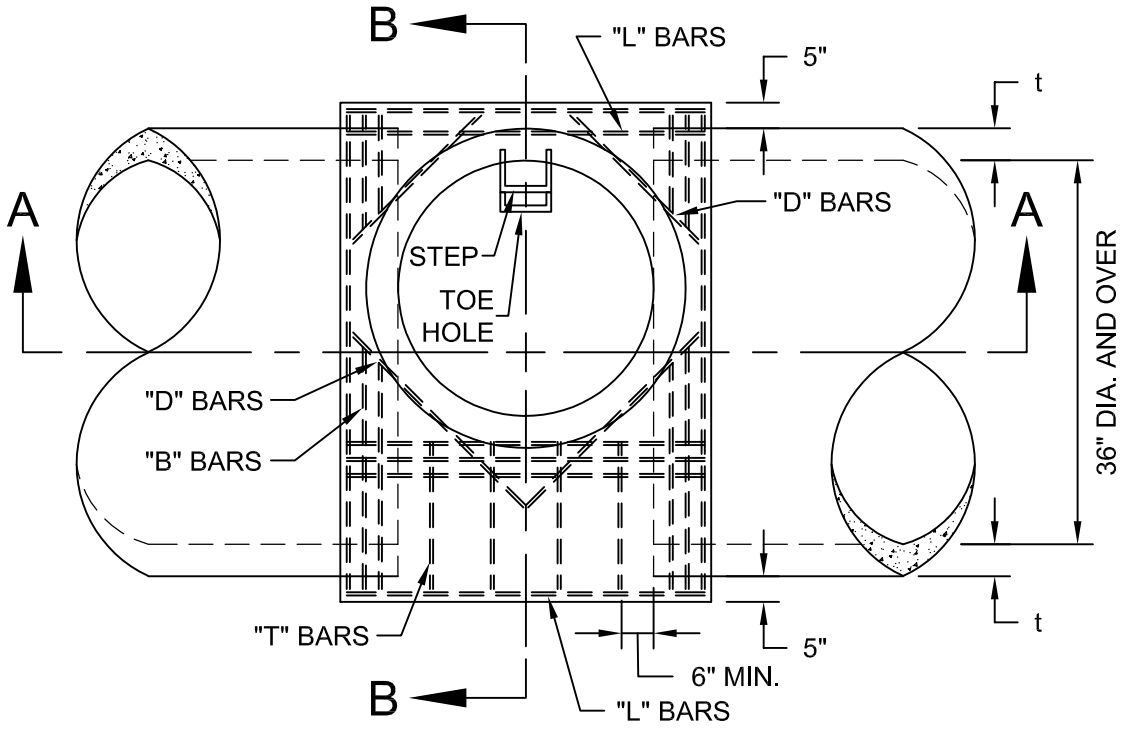
6. DRESS UP INTERIOR JOINTS OF PRECAST MANHOLE WITH HYDRAULIC CEMENT.

7. BEDDING BENEATH THE MANHOLE SHALL BE A MINIMUM OF SIX INCHES THICK AND SHALL MEET THE REQUIREMENTS FOR GRANULAR BACKFILL (CA-6 GRADATION).

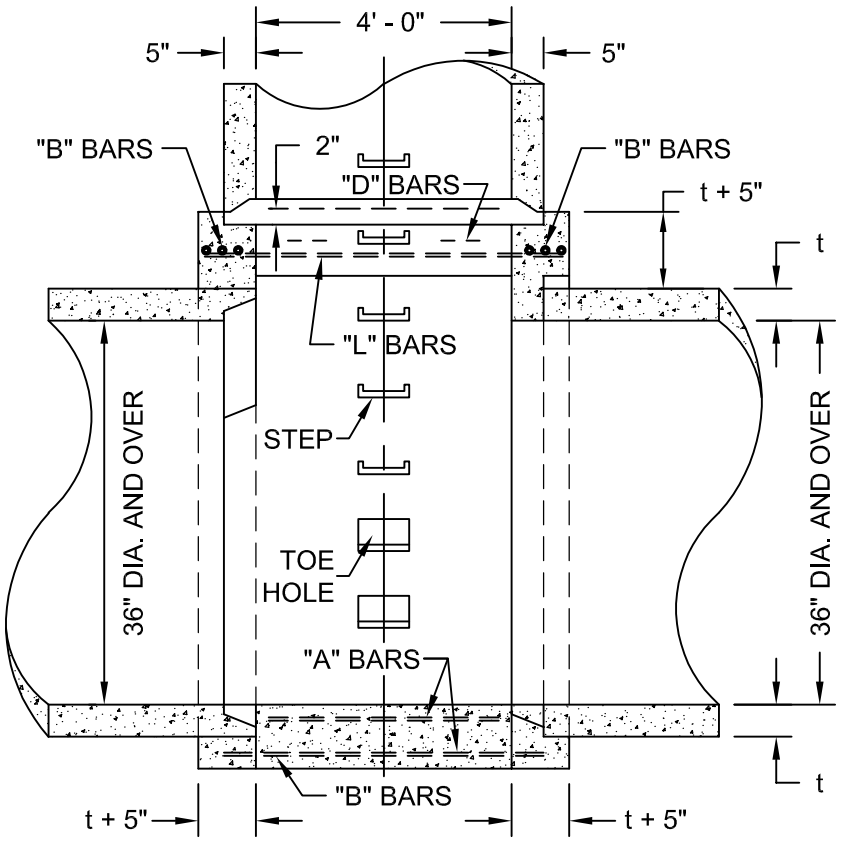
8. WHEN A PRECAST TEE MANHOLE IS SPECIFIED, A SHOP DRAWING FOR THE STRUCTURE SHALL BE SUBMITTED TO THE VILLAGE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION OF THE STRUCTURE. THE SHOP DRAWING SHALL BE PREPARED, SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF ILLINOIS. PRIOR TO SUBMITTAL TO THE VILLAGE, THE DESIGN ENGINEER SHALL REVIEW AND APPROVE THE SHOP DRAWING. APPROVAL BY THE DESIGN ENGINEER SHALL BE CLEARLY NOTED ON THE SHOP DRAWING.

9. CHIMNEY SEALS SHALL BE REQUIRED UNLESS THE MANHOLE IS ADJUSTED TO FINAL GRADE IN ACCORDANCE WITH VILLAGE DETAIL STORM 7 - CASTING ADJUSTMENTS FOR STRUCTURES IN PAVED AREAS.

REV.:	REV.:	PRECAST TEE MANHOLE GENERAL NOTES	VILLAGE OF ITASCA
REV.:	REV.:		STORM 5B
DRAWN BY: REL	DATE: 3-14-2018		



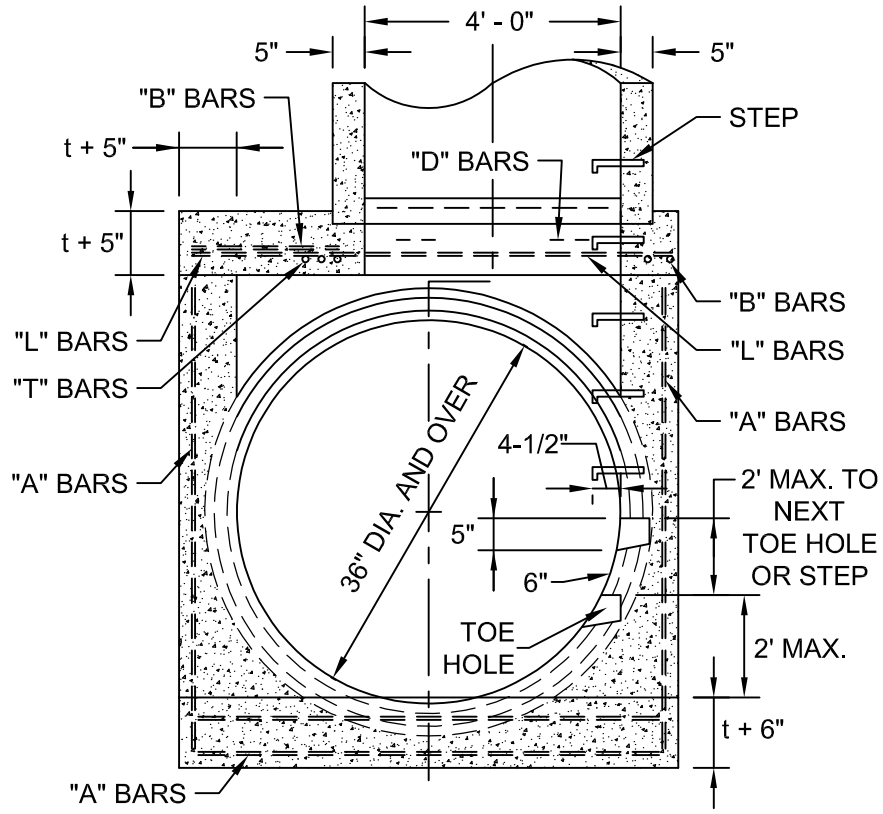
PLAN



" t " REPRESENTS WALL THICKNESS OF PIPE

SECTION A-A

REV.:	REV.:	CONNECTION BOX FOR PRECAST MANHOLE	VILLAGE OF ITASCA
REV.:	REV.:		STORM 6A
DRAWN BY: REL	DATE: 3-14-2018		



" t " REPRESENTS WALL THICKNESS OF PIPE

SECTION B-B

GENERAL NOTES:

1. CONCRETE FOR THE MANHOLE BASE AND CONNECTION BOX SHALL BE CLASS "SI OR PC".

2. REINFORCEMENT STEEL SHALL CONFORM TO STANDARD SPECIFICATIONS ASTM-3670 FOR STRUCTURAL STEEL. BENDS, HOOKS, AND SPLICES SHALL BE IN ACCORDANCE WITH ACI STANDARD 318.

3. PRECAST RISER RING AND CONE SHALL HAVE A MINIMUM CIRCULAR REINFORCEMENT OF 0.18 SQ. IN. PER FOOT.

4. CONNECTION BOXES FOR SEWERS 36" AND OVER IN DAIMETER SHALL HAVE AT LEAST THE MINIMUM SHOWN AND AS SPECIFIED BELOW:
   "A" BARS AT 12" C/C IN BOTH DIRECTIONS
   "B" BARS AT 3" C/C IN BOTH DIRECTIONS
   "A", "B", AND "L" BAR SIZES:
   - 5/8" DIA. FOR 36" TO 60" SEWERS
   - 3/4" DIA. FOR 66" TO 78" SEWERS
   - 7/8" DIA. FOR 84" TO 96" SEWERS

   "T" BARS: 5/8" DIA. AND AT 12" C/C
   "D" BARS: 5/8" DIA.

5. REINFORCING BARS SHALL HAVE A MINIMUM COVER OF 2" FROM THE EDGE OF THE STRUCTURE.

6. ADJUSTING RINGS SHALL BE HIGH DENSITY POLYETHYLENE, MAXIMUM 3 RINGS AND MAXIMUM 12 INCH THICK.

(GENERAL NOTES CONTINUED ON NEXT PAGE)

REV.:	REV.:	CONNECTION BOX FOR PRECAST MANHOLE	VILLAGE OF ITASCA
REV.:	REV.:		STORM 6B
DRAWN BY: REL	DATE: 3-14-2018		

GENERAL NOTES: (CONT.)

7. WHEN A CONNECTION BOX FOR PRECAST MANHOLE IS SPECIFIED, A SHOP DRAWING SHALL BE SUBMITTED TO THE VILLAGE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION OF THE STRUCTURE. THE SHOP DRAWING SHALL BE PREPARED, SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF ILLINOIS. THE DESIGN ENGINEER SHALL REVIEW AND APPROVE THE SHOP DRAWING PRIOR TO SUBMITTAL TO THE VILLAGE (APPROVAL BY THE DESIGN ENGINEER SHALL BE CLEARLY NOTED ON THE SHOP DRAWING).

8. BEDDING BENEATH THE MANHOLE SHALL BE A MINIMUM OF SIX INCHES THICK AND SHALL MEET THE REQUIREMENTS FOR GRANULAR BACKFILL (CA-6 GRADATION).

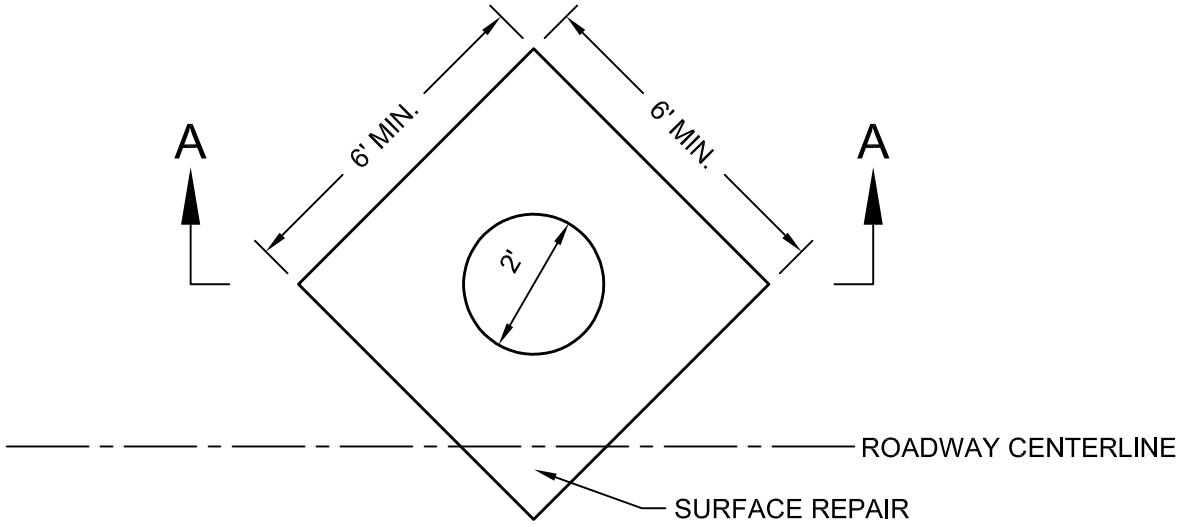
9. PROVIDE GRANULAR BACKFILL AROUND MANHOLE TO SUBGRADE ELEVATION IN PAVED AREAS. MATERIAL SHALL MEET THE REQUIREMENTS OF THE IDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" FOR COARSE AGGREGATE (CA-6 GRADATION).

10. APPLY A CONTINUOUS LAYER OF PREFORMED, NON-HARDENING BITUMINOUS MASTIC MATERIAL (RUB-R-NEK, EZ STICK OR APPROVED EQUAL) TO EACH JOINT TO PREVENT INFLOW.

11. WHEN THE FRAME DOES NOT MEET PROPOSED ELEVATION, A MAXIMUM OF THREE HIGH-DENSITY POLYETHYLENE ADJUSTING RINGS SHALL BE USED FOR FINAL ADJUSTMENTS TO A MAXIMUM HEIGHT OF 12 INCHES. THE RING(S) AND FRAME SHALL BE SET ON A BED OF NON-HARDENING BUCKET MASTIC.

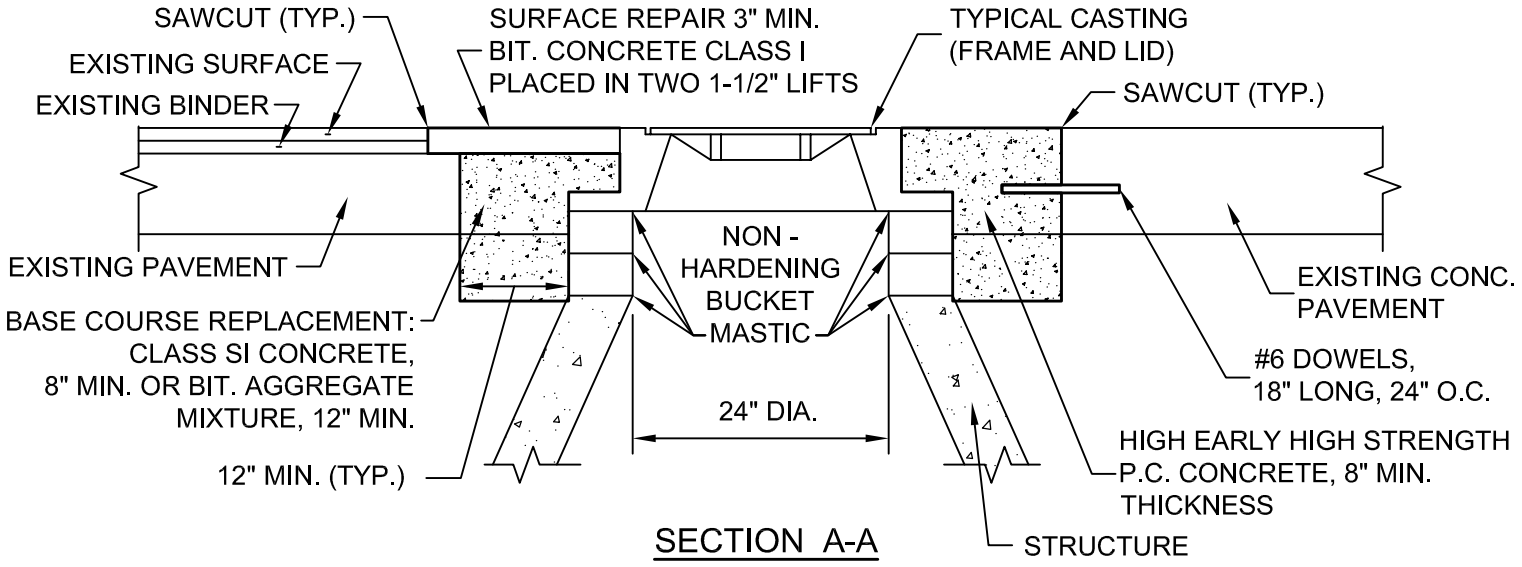
12. DRESS UP INTERIOR JOINTS OF PRECAST MANHOLE WITH HYDRAULIC CEMENT. HOWEVER, ADJUSTING RINGS AND FRAME SHALL NOT BE DRESSED UP.

REV.:	REV.:	CONNECTION BOX FOR PRECAST MANHOLE	VILLAGE OF ITASCA
REV.:	REV.:		STORM 6C
DRAWN BY: REL	DATE: 3-14-2018		



PLAN

ADJUSTMENTS IN BITUMINOUS PAVEMENT | ADJUSTMENTS IN CONCRETE PAVEMENT

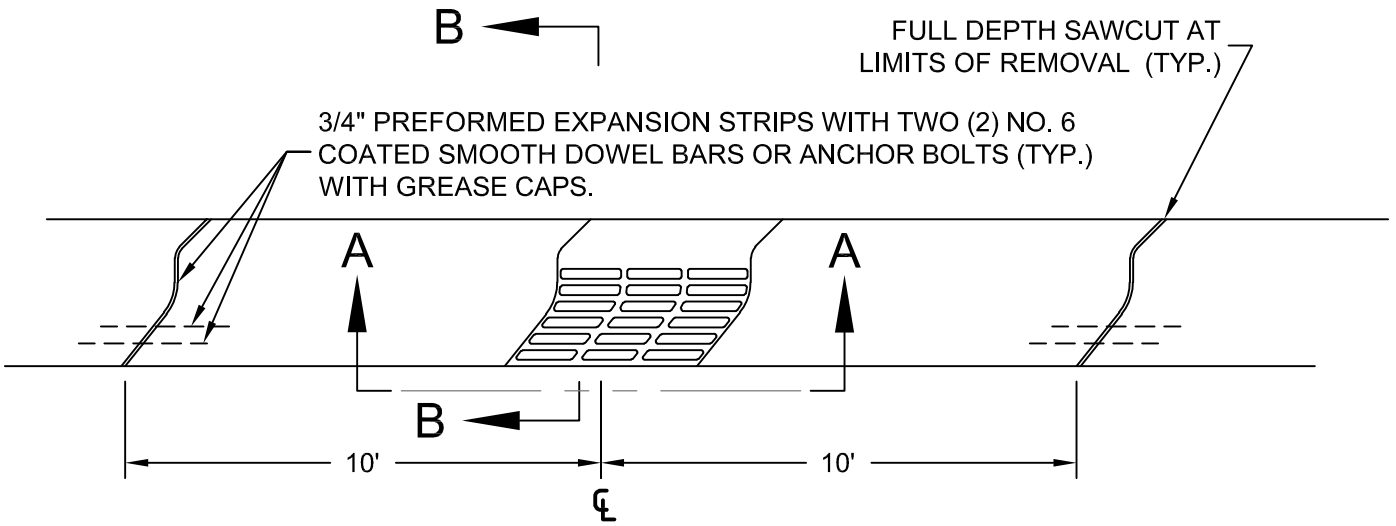


SECTION A-A

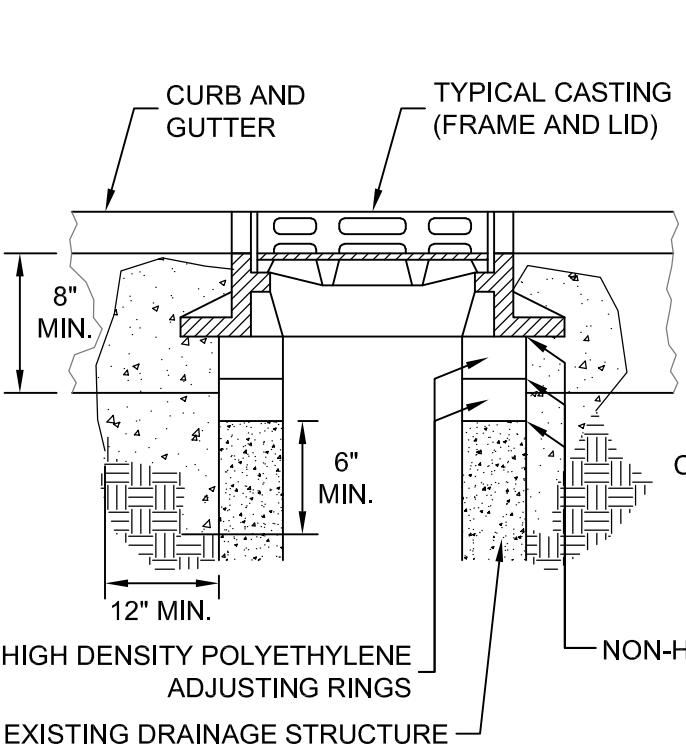
GENERAL NOTES:

1. PROVIDE SELECT GRANULAR BACKFILL, CA-6 GRADATION AROUND MANHOLE TO SUBGRADE ELEVATION.
2. WHEN THE FRAME DOES NOT MEET PROPOSED ELEVATION, A MAXIMUM OF THREE HIGH-DENSITY POLYETHYLENE ADJUSTING RINGS SHALL BE USED FOR FINAL ADJUSTMENT TO A MAXIMUM HEIGHT OF 12 INCHES. THE RING(S) AND FRAME SHALL BE SET ON A BED OF NON-HARDENING BUCKET MASTIC.
3. PRECAST ADJUSTING RINGS SHALL BE REINFORCED WITH NO. 3 GAUGE WIRE OR EQUIVALENT AND SHALL HAVE A MINIMUM THICHNESS OF TWO (2) INCHES.
4. WHEN ADJUSTMENTS ARE LOCATED IN TRAVEL LANES, THEY SHALL BE PROTECTED BY A BARRICADE WITH TWO (2) FLASHING LIGHTS, TWO (2) BARRICADES EACH WITH A SINGLE FLASHING LIGHT OR COVERED BY A ONE (1) INCH STEEL PLATE PROVIDED AND MAINTAINED BY THE CONTRACTOR UNTIL THE SURFACE RESTORATION IS COMPLETE.
5. WHEN ADJUSTMENTS TEMPORARILY RAISE A CASTING ABOVE THE ELEVATION OF THE PAVEMENT SURFACE, IN AREAS SUBJECTED TO VEHICULAR TRAFFIC, A BITUMINOUS RAMP SHALL BE TRANSITIONED A DISTANCE OF ONE (1) FOOT HORIZONTAL FOR EACH INCH OF VERTICLE DISTANCE ABOVE THE EXISTING PAVEMENT. SUCH RAMPS SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL THE COMPLETION OF THE SURFACE RESTORATION.
6. FOR BOTH CONCRETE AND ASPHALT ROADS, THE BASE COURSE REPLACEMENT (CONCRETE COLLAR) SHALL BE EXTENDED DOWN TO THE TOP OF THE CONE SECTION.

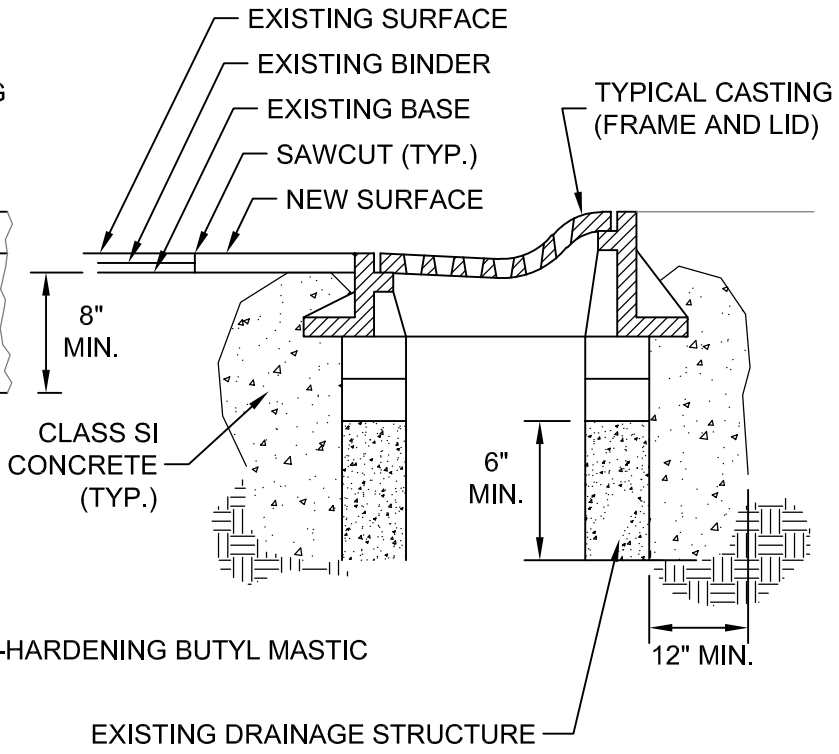
REV.:	REV.:	CASTING ADJUSTMENTS FOR STRUCTURES IN PAVED AREAS	VILLAGE OF ITASCA
REV.:	REV.:		
DRAWN BY: REL	DATE: 3-14-2018		STORM 7



REMOVE AND REPLACE CURB A MINIMUM OF 10' EITHER SIDE OF STRUCTURE
OR TO THE NEAREST EXPANSION JOINT (WHICHEVER IS CLOSEST)



SECTION A-A



SECTION B-B

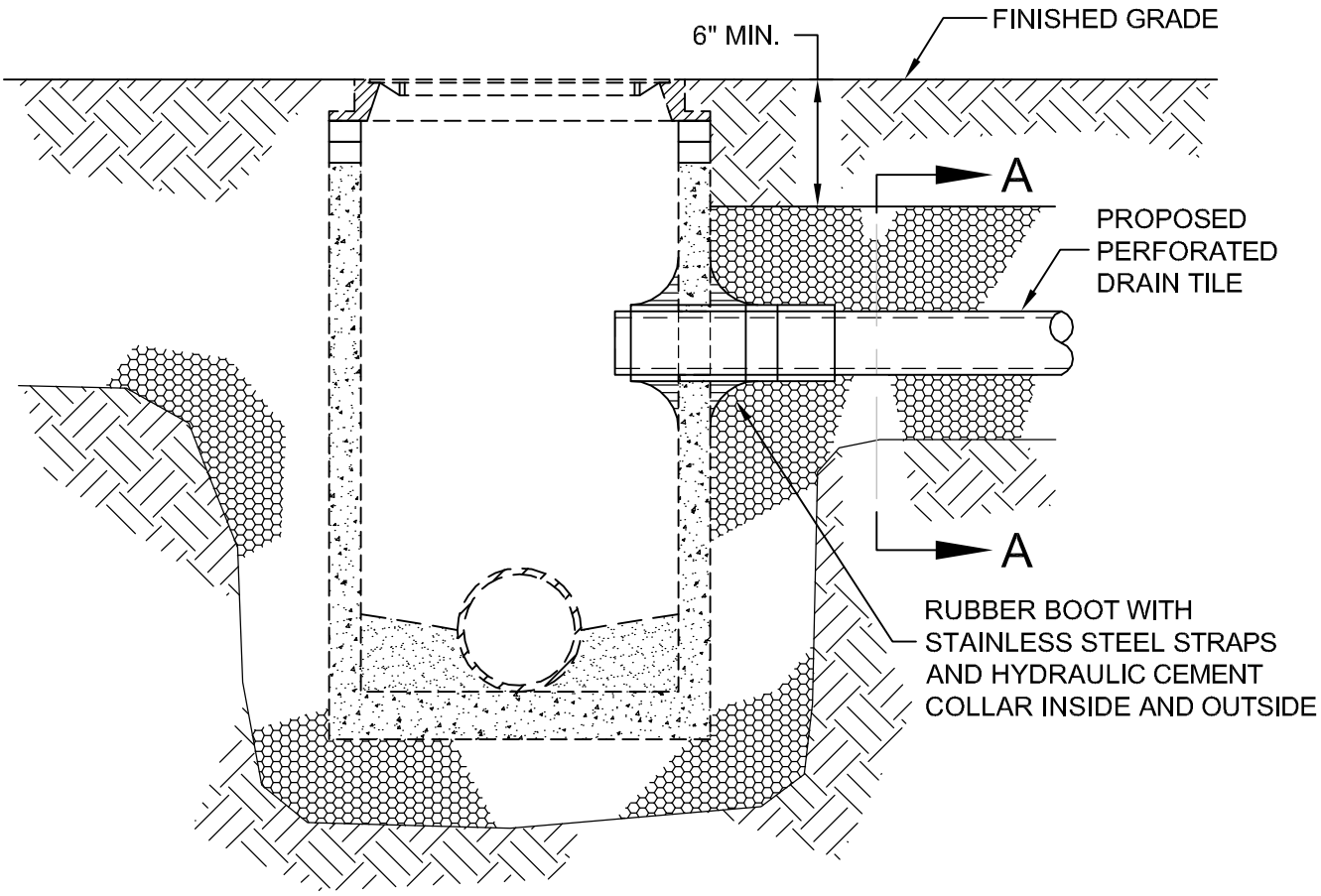
GENERAL NOTES:

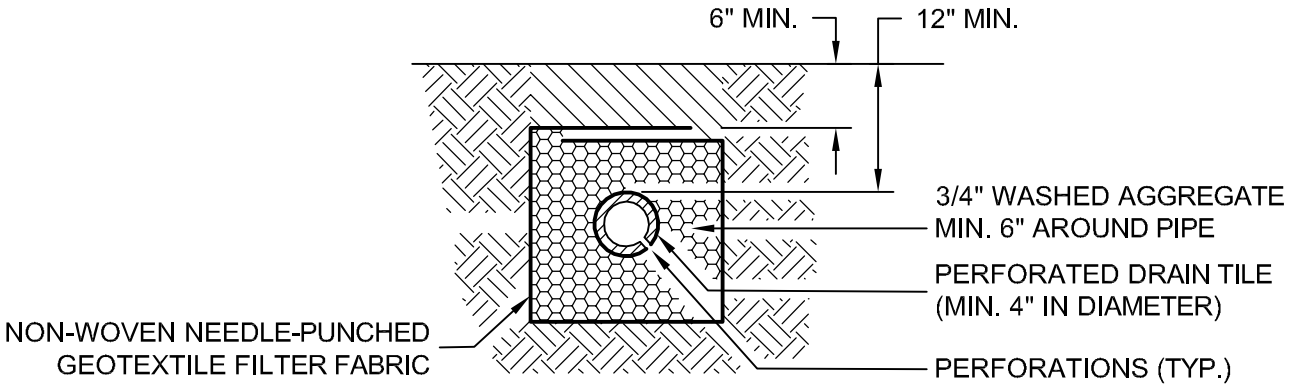
1. WHEN THE FRAME DOES NOT MEET PROPOSED ELEVATION, A MAXIMUM OF THREE HIGH-DENSITY POLYETHYLENE ADJUSTING RINGS SHALL BE USED FOR FINAL ADJUSTMENT TO A MAXIMUM HEIGHT OF 12 INCHES. THE RING(S) AND FRAME SHALL BE SET ON A BED OF NON-HARDENING BUTYL MASTIC.

2. MORTAR SHALL NOT BE USED TO DRESS UP ADJUSTING RINGS.

3. ALL REMOVABLE CASTINGS SHALL BE ORIENTED SO THE OPENING IN THE GRATE PROVIDES THE MAXIMUM HYDRAULIC EFFICIENCY.

REV.:	REV.:	CASTING ADJUSTMENTS FOR STRUCTURES IN THE CURB LINE	VILLAGE OF ITASCA
REV.:	REV.:		STORM 8
DRAWN BY: REL	DATE: 3-14-2018		





SECTION A-A

GENERAL NOTES:

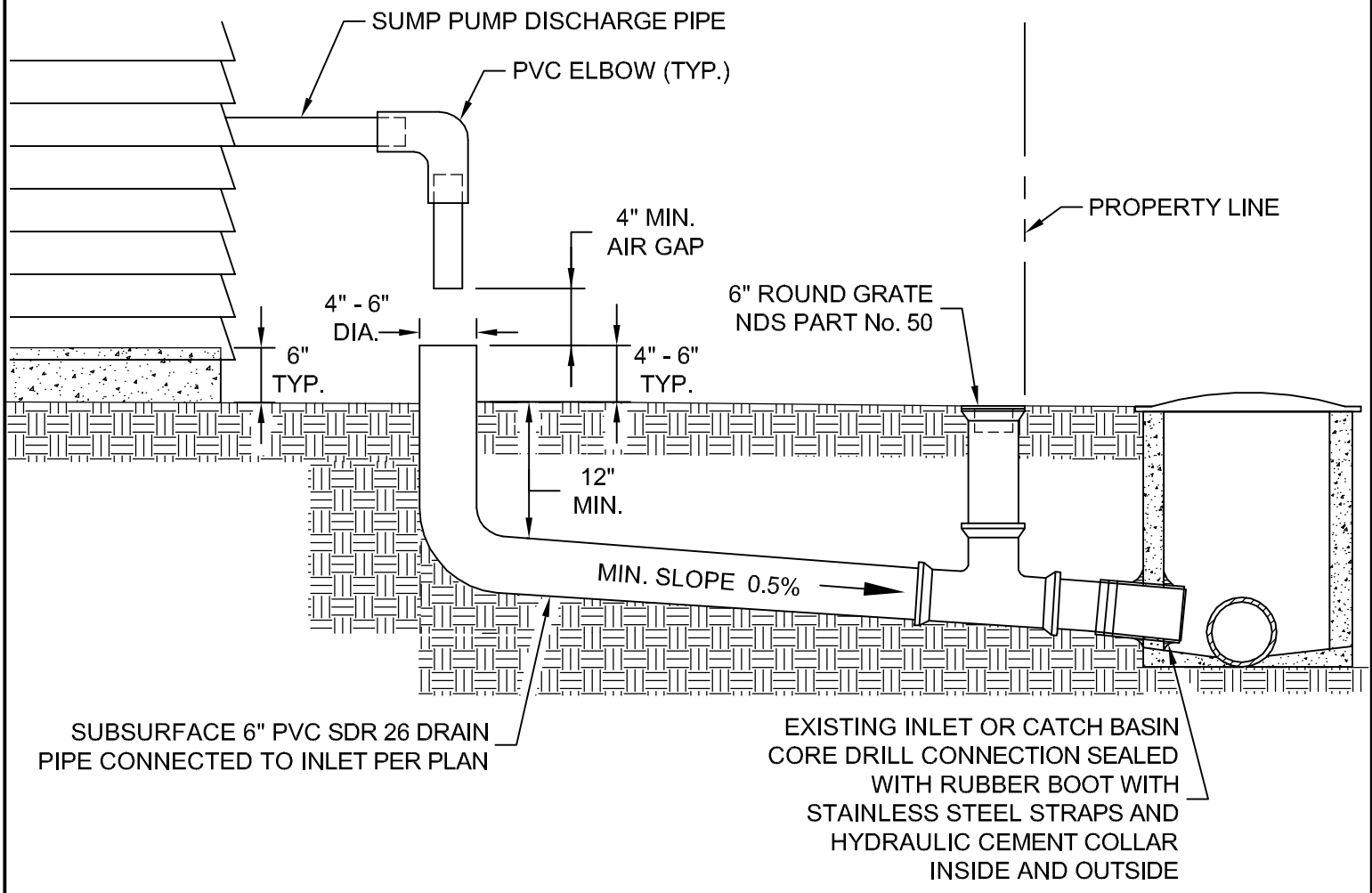
1. BOTH THE TRENCH AND DRAIN TILE SHALL BE WRAPPED WITH NON-WOVEN NEEDLE-PUNCHED GEOTEXTILE FILTER FABRIC.

2. WASHED AGGREGATE SHALL BE PLACED AROUND THE DRAIN TILE.

3. HOLE SHALL BE CORED DRILLED INTO STRUCTURE.

4. PIPE CONNECTION TO NEW AND EXISTING MANHOLES THROUGHT OPENINGS (CAST OR CORE-DRILLED) SHALL BE PROVIDED WITH A FLEXIBLE RUBBER WATERTIGHT CONNECTOR CONFROMING TO ASTM C-923 (STANDARD SPECIFICATIONS FOR RESILIENT CONNECTIONS BETWEEN REINFORCED CONCRETE MANHOLE STRUCTURES AND PIPES). KOR-N-SEAL OR APPROVED EQUAL, WITH 3" HYDRAULIC CEMENT COLLAR INSIDE AND OUTSIDE.

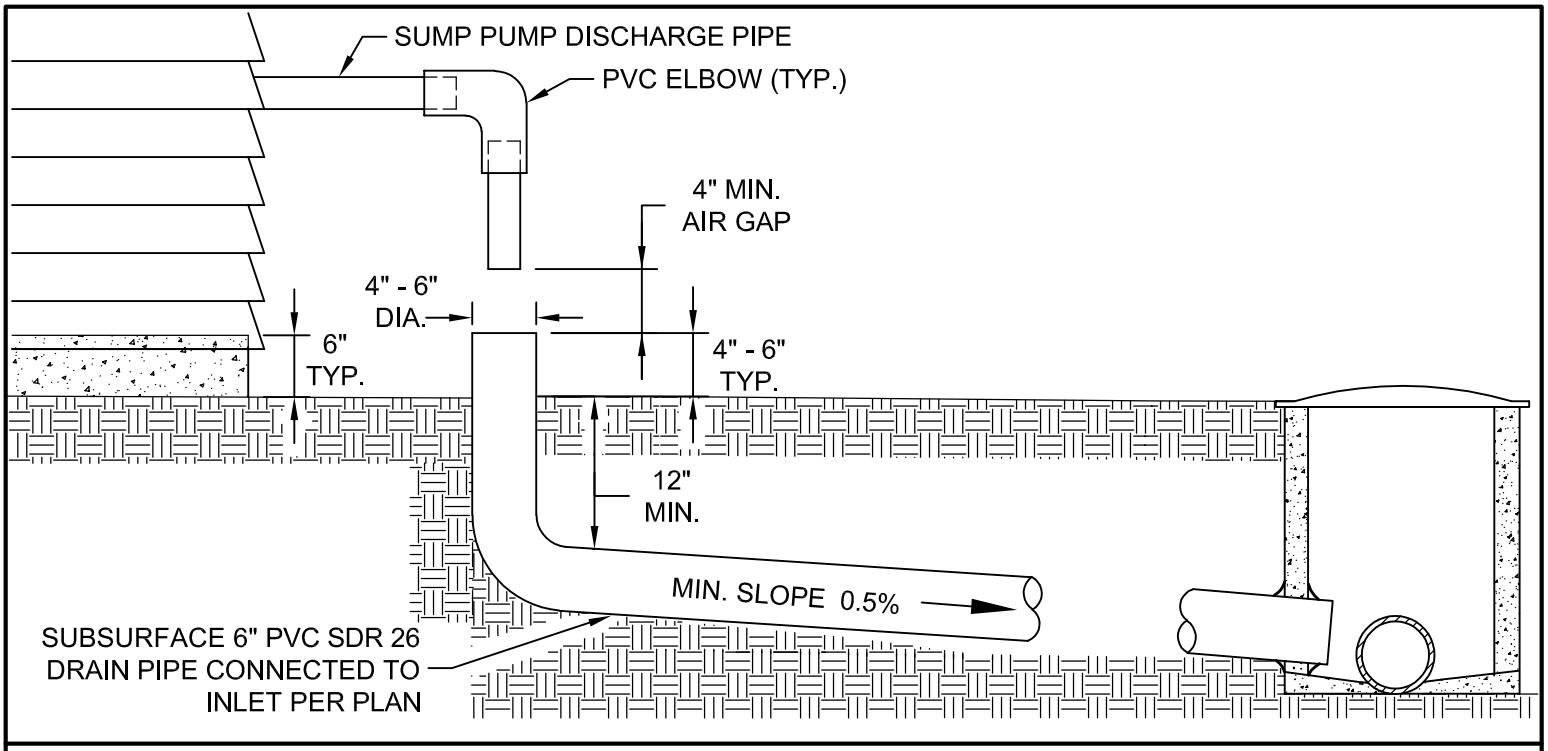
REV.:	REV.:	SUBSURFACE DRAIN TILE CONNECTION	VILLAGE OF ITASCA
REV.:	REV.:		STORM 9
DRAWN BY: REL	DATE: 2-9-2021		

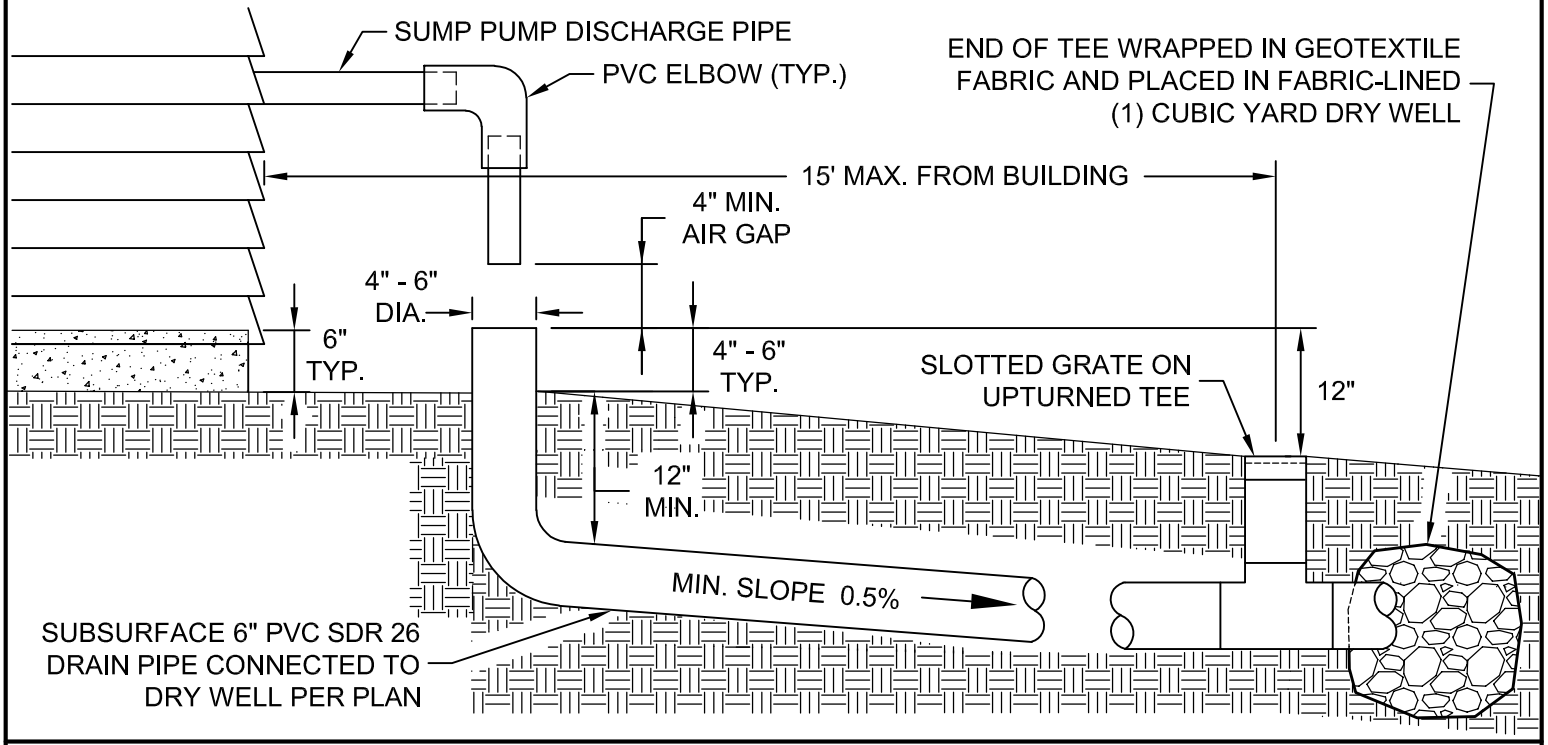


GENERAL NOTES:

1. HOMES THAT ARE LOCATED IN AREAS SERVED BY A COMBINED SEWER SYSTEM SHALL NOT CONNECT SUMP PUMPS TO THE SEWER SYSTEM.
2. SUMP PUMP CONNECTIONS THAT DIRECTLY CONNECT INTO THE SEPARATED STORM SEWER SYSTEM ARE ONLY PERMITTED IF APPROVED BY THE DIRECTOR OF PUBLIC WORKS OR COMMUNITY DEVELOPMENT.
3. INSTALLATION OF SUMP PUMP CONNECTION MUST BE INSPECTED BY THE VILLAGE OF ITASCA.
4. INSTALLER ASSUMES FULL RESPONSIBILITY AND LIABILITY FOR ANY AND ALL DAMAGE TO UTILITIES OR ADJOINING PROPERTIES.
5. REFER TO STORM 10A FOR STANDARD SUBSURFACE DRAIN TILE SUMP PUMP CONNECTION.
6. EXISTING SIDEWALK SHALL BE REMOVED AND REPLACED.
7. SEE STORM 12 FOR TRENCH SECTION.

REV.:	REV.:	DIRECT SUBSURFACE DRAIN TILE SUMP PUMP CONNECTION	VILLAGE OF ITASCA
REV.:	REV.:		STORM 10
DRAWN BY: REL	DATE: 2-9-2021		

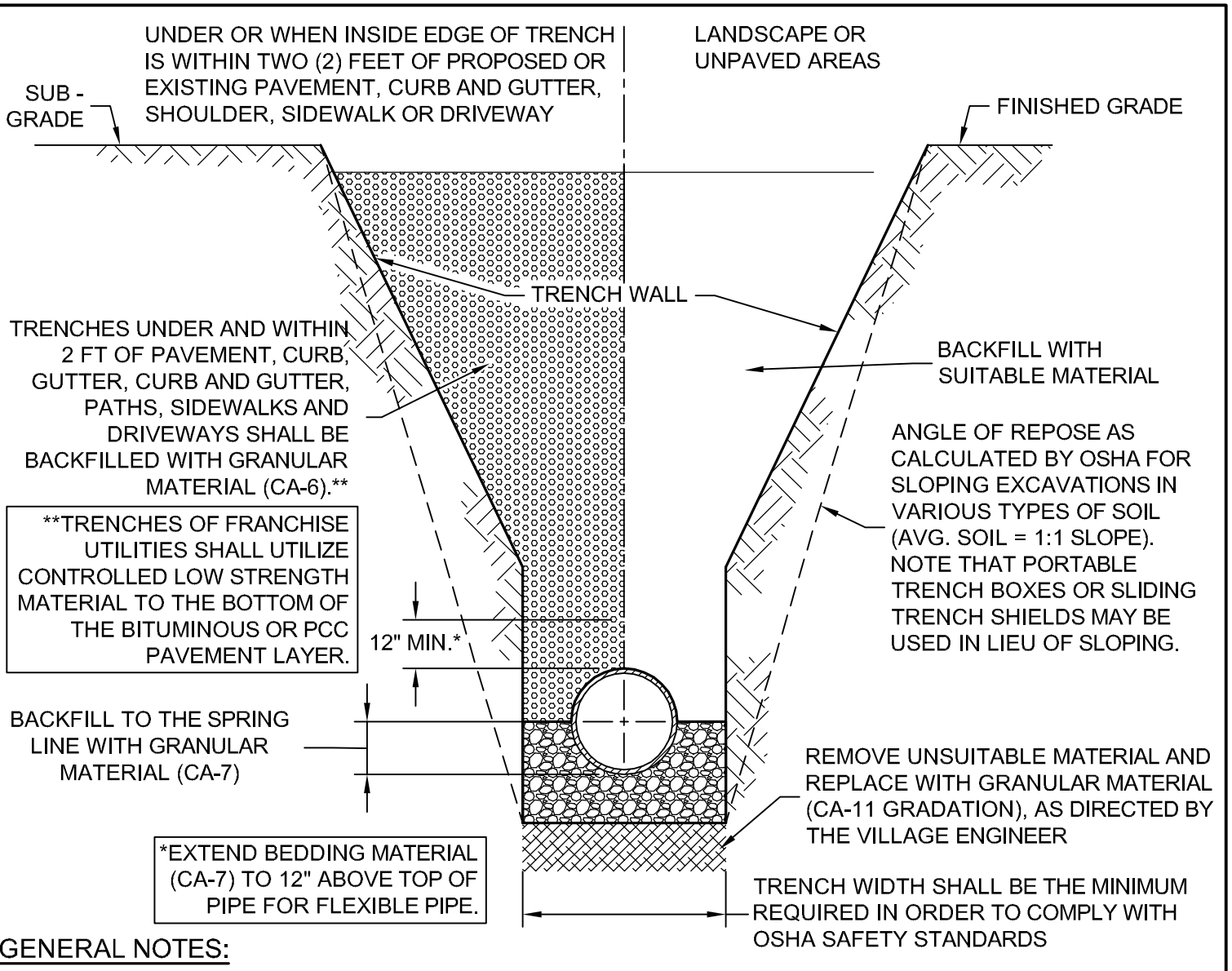




GENERAL NOTES:

1. FOR RESIDENTIAL DEVELOPMENTS WITH AN ON-SITE STORM WATER CONTROL FACILITY, THE SUMP PUMP SHALL BE CONNECTED INTO THE STORM SEWER SYSTEM NOT LOCATED WITHIN THE PUBLIC RIGHT-OF-WAY.
2. ALL OTHER SUMP PUMP CONNECTIONS ARE TO SPLASH TO GRADE UNLESS WRITTEN APPROVAL IS GIVEN BY THE DIRECTOR OF COMMUNITY DEVELOPMENT.
3. SUMP PUMP DISCHARGE SHALL BE DIRECTED AWAY FROM ADJACENT PROPERTIES.
4. INSTALLER ASSUMES FULL RESPONSIBILITY AND LIABILITY FOR ANY AND ALL DAMAGE TO UTILITIES OR ADJOINING PROPERTIES.
5. INSTALLATION OF SUMP PUMP DRAIN TILES MUST BE INSPECTED BY THE VILLAGE OF ITASCA.
6. SLOTTED GRATE ON UPTURNED TEE SHALL BE 12" BELOW ENTRANCE POINT.
7. SEE STORM 12 FOR TRENCH SECTION.

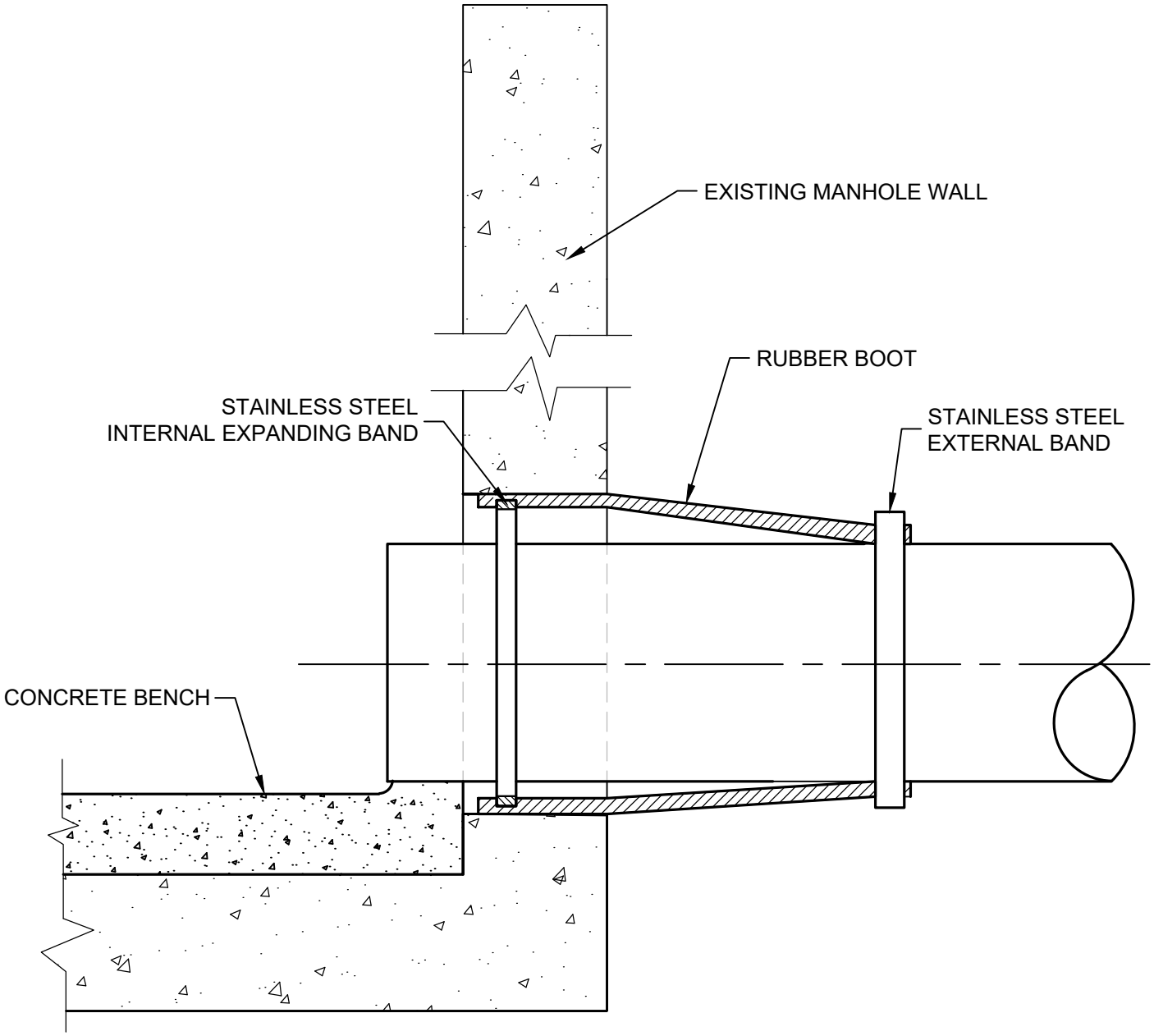
REV.:	REV.:	SUBSURFACE DRAIN TILE SUMP PUMP CONNECTION	VILLAGE OF ITASCA
REV.:	REV.:		STORM 11
DRAWN BY: REL	DATE: 3-14-2018		



GENERAL NOTES:

1. CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN A SAFE MANNER AT ALL TIMES AND SHALL COMPLY WITH ALL APPLICABLE GOVERNING REGULATIONS, INCLUDING BUT NOT LIMITED TO OSHA SAFETY STANDARDS.
2. ALL BACKFILL MATERIAL UP TO A HEIGHT OF 12 INCHES ABOVE THE PIPE SHALL BE CAREFULLY DEPOSITED IN UNIFORM LAYERS NOT EXCEEDING 8 INCHES THICK (LOOSE MEASURE). THE MATERIAL IN EACH LAYER SHALL BE FIRMLY COMPACTED BY RAMMING OR TAMPING WITH TOOLS APPROVED BY THE VILLAGE ENGINEER IN SUCH A MANNER AS NOT TO DISTURB OR INJURE THE PIPE. THE BACKFILLING ABOVE THIS HEIGHT SHALL BE DONE AS NOTED BELOW.
3. GRANULAR BACKFILL MATERIAL SHALL BE PLACED AND COMPACTED AS SPECIFIED IN NOTE 2, ABOVE. THE USE OF JETTING SHALL NOT BE ALLOWED UNLESS AUTHORIZED IN WRITING BY THE VILLAGE ENGINEER. IT SHALL BE THE DESIGN ENGINEER OR CONTRACTOR'S RESPONSIBILITY TO PROVIDE APPROPRIATE JUSTIFICATION AND DOCUMENTATION (SOIL INVESTIGATION REPORTS. ETC.) TO THE VILLAGE ENGINEER WITH THE REQUEST FOR APPROVAL OF JETTING.
4. BACKFILL MATERIAL CONSISTING OF SUITABLE EXCAVATED MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING EIGHT (8) INCHES THICK (LOOSE MEASURE) AND EACH LAYER SHALL BE COMPACTED BY RAMMING OR TAMPING TO ACHIEVE THE REQUIRED COMPACTION. JETTING OF THIS MATERIAL MAY BE PERMITTED WHEN AUTHORIZED IN WRITING BY THE VILLAGE ENGINEER. IT SHALL BE THE DESIGN ENGINEER OR THE CONTRACTOR'S RESPONSIBILITY TO SUBMIT APPROPRIATE JUSTIFICATION AND DOCUMENTATION (SOILS INVESTIGATION REPORTS, ETC.) TO THE VILLAGE ENGINEER WITH THE REQUEST FOR APPROVAL OF JETTING.
5. GRANULAR MATERIAL FOR BACKFILL AND BEDDING SHALL BE GRAVEL, CRUSHED GRAVEL OR STONE MEETING THE REQUIREMENTS OF THE IDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" FOR COURSE AGGREGATE, OF THE GRADATION SPECIFIED. NO RECYCLED CONCRETE SHALL BE ALLOWED.
6. MINIMUM COVER OVER THE TOP OF PIPE SHALL BE SIX (6) INCHES BELOW FINISHED SUBGRADE IN PAVED AREAS AND TWELVE (12) INCHES BELOW FINISHED GRADE IN LANDSCAPE AREAS.
7. THE BEDDING THICKNESS SHALL BE EQUAL TO ONE-QUARTER (1/4) OF THE OUTSIDE DIAMETER OF THE PIPE BUT NOT LESS THAN SIX (6) INCHES.

REV.:	REV.:	STORM SEWER TRENCH SECTION	VILLAGE OF ITASCA
REV.:	REV.:		STORM 12
DRAWN BY: REL	DATE: 2-1-2021		



GENERAL NOTES:

1. CORE-DRILL CIRCULAR OPENING IN MANHOLE WALL OF DIAMETER TO FIT THE REQUIRED BOOT SIZE.

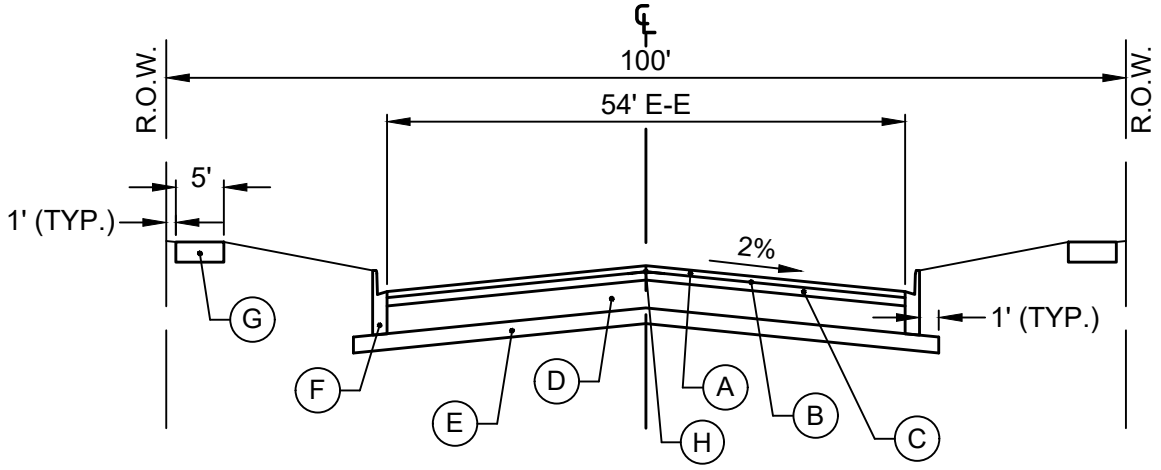
2. KOR-N-SEAL FLEXIBLE RUBBER BOOT (MANUFACTURED BY NATIONAL POLLUTION CONTROL SYSTEMS, INC.) OR APPROVED EQUAL SHALL BE USED FOR WATERTIGHT CONNECTION.

3. CUT, SHAPE AND SLOPE NEW INVERT CHANNEL IN THE EXISTING CONCRETE BENCH FOR SMOOTH FLOW FROM NEW STORM SEWER CONNECTION.

4. CLEAN EXISTING MANHOLE OF ANY DIRT, CONCRETE OR DEBRIS WHICH MAY ACCUMULATE DURING THE CONSTRUCTION PROCESS.

REV.:	REV.:	CORING BOOT	VILLAGE OF ITASCA
REV.:	REV.:		STORM 13
DRAWN BY: REL	DATE: 2-9-2021		

TYPICAL SECTION
ARTERIAL STREET

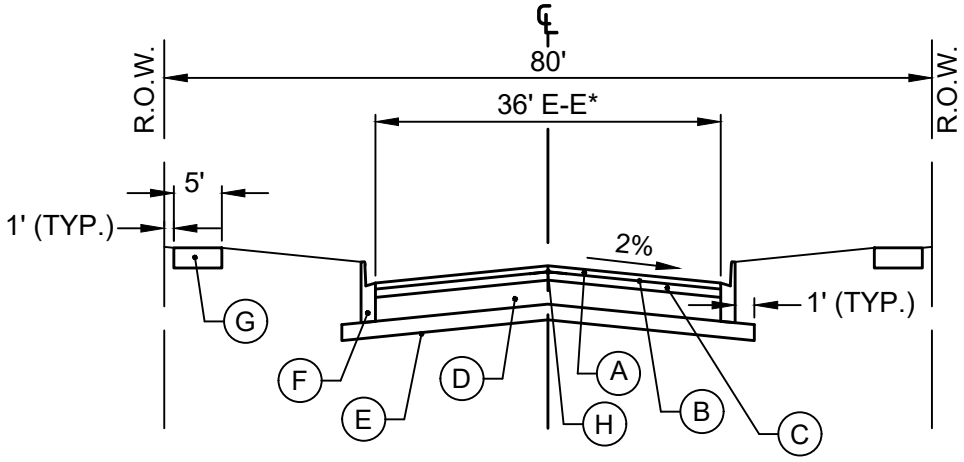


LEGEND

- (A) HOT-MIX ASPHALT SURFACE COURSE, MIX. C, N50, 2"
- (B) BITUMINOUS MATERIALS (PRIME COAT)
- (C) HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50, 3"
- (D) HOT-MIX ASPHALT BASE COURSE, 9"
- (E) AGGREGATE SUB-BASE, TYPE CA-6, 4"
- (F) BARRIER CURB & GUTTER, TYPE B-6.12 (FLAG DEPTH @ E.P.=14")
- (G) PC CONCRETE SIDEWALK, 5" WITH 4" AGGREGATE SUB-BASE (6" THROUGH DRIVEWAYS WITH 6x6x10 WWF)
- (H) LONGITUDINAL JOINT SEALANT

REV.:	REV.:	TYPICAL SECTION ARTERIAL STREET	VILLAGE OF ITASCA
REV.:	REV.: 12-02-2021		PAVEMENT 1
DRAWN BY: REL	DATE: 2-1-2021		

TYPICAL SECTION
COLLECTOR STREETS
(RESIDENTIAL DISTRICTS)

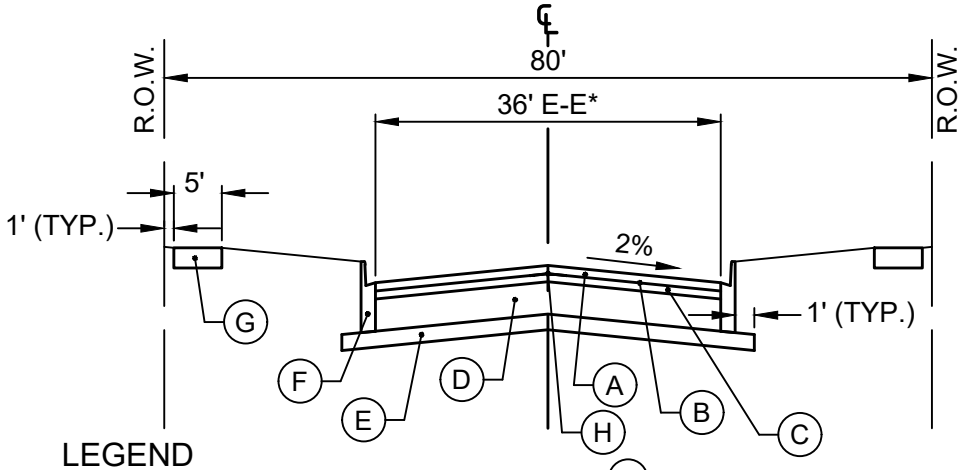


LEGEND

- (A) HOT-MIX ASPHALT SURFACE COURSE, MIX. C, N50, 1-1/2"
- (B) BITUMINOUS MATERIALS (PRIME COAT)
- (C) HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50, 2-1/2"
- (D) HOT-MIX ASPHALT BASE COURSE, 6"
- (E) AGGREGATE SUB-BASE, TYPE B (CA-6), 4"
- (F) BARRIER CURB & GUTTER, TYPE B-6.12 (FLAG DEPTH @ E.P.=10")
- (G) PC CONCRETE SIDEWALK, 5" WITH 4" AGGREGATE SUB-BASE (6" THROUGH DRIVEWAYS WITH 6x6x10 WWF)
- (H) LONGITUDINAL JOINT SEALANT

* WIDTH OF COLLECTOR MAY BE REDUCED FOR RECONSTRUCTION FROM RURAL TO RUBAN CROSS SECTION IN DEVELOPED AREAS WHERE EXITING RIGHT OF WAY IS LESS THAN REQUIRED, OR IF APPROVED BY IDOT FOR FEDERALLY FUNDED PROJECTS.

TYPICAL SECTION
COLLECTOR STREETS
(RESIDENTIAL DISTRICTS)
(ALTERNATE)



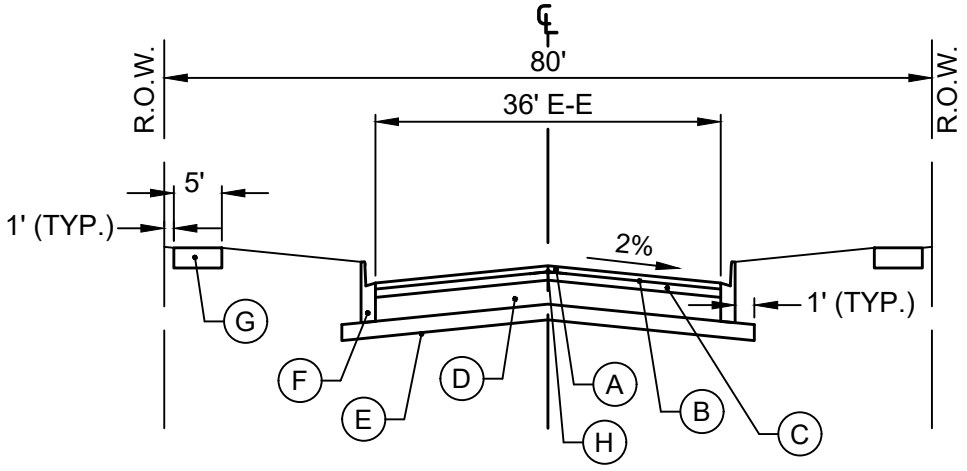
LEGEND

- (A) HOT-MIX ASPHALT SURFACE COURSE, MIX. C, N50, 1-1/2"
- (B) BITUMINOUS MATERIALS (PRIME COAT)
- (C) HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50, 2-1/2"
- (D) AGGREGATE BASE, TYPE B (CA-6), 12"
- (E) AGGREGATE SUB-BASE, TYPE B (CA-6), 4"
- (F) BARRIER CURB & GUTTER, TYPE B-6.12 (FLAG DEPTH @ E.P.=16")
- (G) PC CONCRETE SIDEWALK, 5" WITH 4" AGGREGATE SUB-BASE (6" THROUGH DRIVEWAYS WITH 6x6x10 WWF)
- (H) LONGITUDINAL JOINT SEALANT

* WIDTH OF COLLECTOR MAY BE REDUCED FOR RECONSTRUCTION FROM RURAL TO RUBAN CROSS SECTION IN DEVELOPED AREAS WHERE EXITING RIGHT OF WAY IS LESS THAN REQUIRED, OR IF APPROVED BY IDOT FOR FEDERALLY FUNDED PROJECTS.

REV.:	REV.:	TYPICAL SECTION COLLECTOR STREET	VILLAGE OF ITASCA
REV.:	REV.: 12-02-2021		PAVEMENT 2
DRAWN BY: REL	DATE: 3-14-2018		

TYPICAL SECTION
COLLECTOR STREETS
(COMMERCIAL AND INDUSTRIAL DISTRICTS)

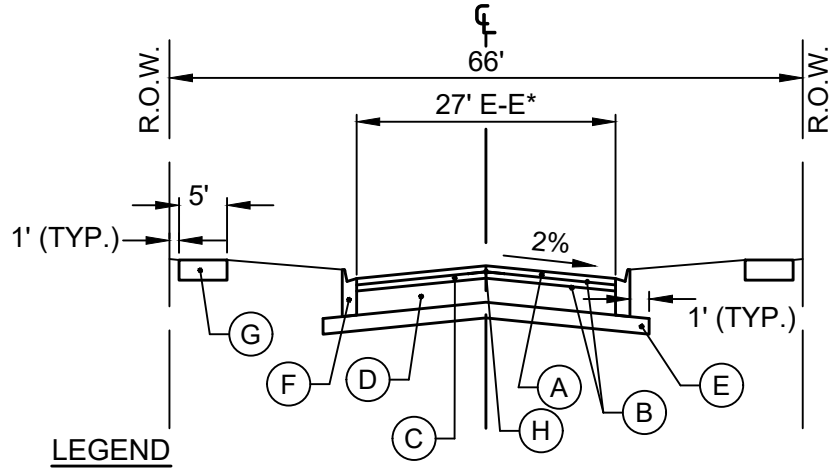


LEGEND

- (A) HOT-MIX ASPHALT SURFACE COURSE, MIX. C, N50, 2"
- (B) BITUMINOUS MATERIALS (PRIME COAT)
- (C) HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50, 2-1/2"
- (D) HOT-MIX ASPHALT BASE COURSE, 7"
- (E) AGGREGATE SUB-BASE, TYPE B (CA-6), 4"
- (F) BARRIER CURB & GUTTER, TYPE B-6.12 (FLAG DEPTH @ E.P. = 11-1/2")
- (G) PC CONCRETE SIDEWALK, 5" WITH 4" AGGREGATE SUB-BASE (6" THROUGH DRIVEWAYS WITH 6x6x10 WWF)
- (H) LONGITUDINAL JOINT SEALANT

REV.:	REV.:	TYPICAL SECTION COLLECTOR STREET	VILLAGE OF ITASCA
REV.:	REV.: 12-02-2021		PAVEMENT 3
DRAWN BY: REL	DATE: 3-14-2018		

TYPICAL SECTION
LOCAL STREETS AND CUL-DE-SACS
(RESIDENTIAL DISTRICTS)

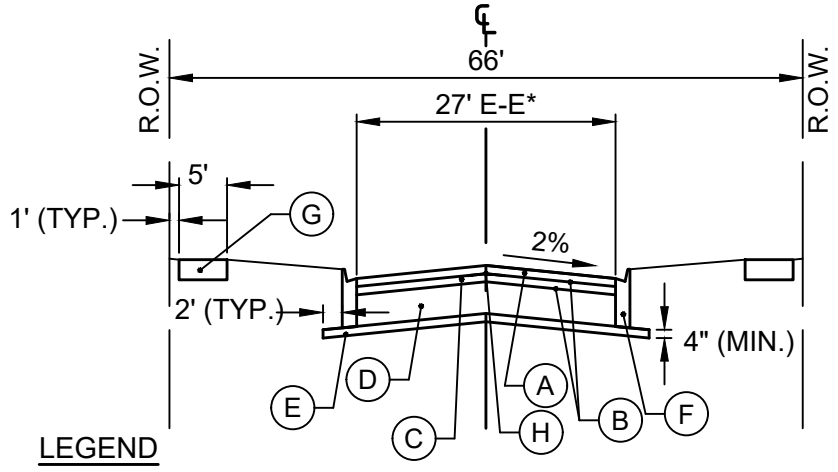


LEGEND

- (A) HOT-MIX ASPHALT SURFACE COURSE, MIX. C, N50, 1-1/2"
- (B) BITUMINOUS MATERIALS (PRIME COAT)
- (C) HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50, 2-1/4"
- (D) HOT-MIX ASPHALT BASE COURSE, 6"
- (E) AGGREGATE SUB-BASE, TYPE CA-6, 4"
- (F) BARRIER CURB & GUTTER, TYPE B-6.12 (FLAG DEPTH @ E.P.=9-1/2")
- (G) PC CONCRETE SIDEWALK, 5" WITH 4" AGGREGATE SUB-BASE (6" THROUGH DRIVEWAYS WITH 6x6x10 WWF)
- (H) LONGITUDINAL JOINT SEALANT

* FOR STREETS BEING RECONSTRUCTED FROM RURAL TO URBAN CROSS SECTION, PAVEMENT WIDTH TO BE 25' EDGE TO EDGE OF PAVEMENT AND 28' BACK TO BACK OF CURB, OR MATCH ADJACENT EXISTING URBANIZED ROADWAY WIDTHS.

TYPICAL SECTION
LOCAL STREETS AND CUL-DE-SACS
(RESIDENTIAL DISTRICTS)
(ALTERNATE)



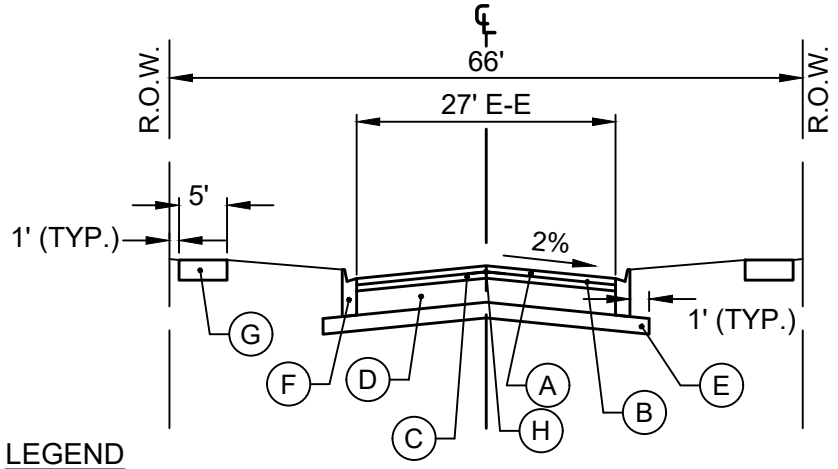
LEGEND

- (A) HOT-MIX ASPHALT SURFACE COURSE, MIX. C, N50, 1-1/2"
- (B) BITUMINOUS MATERIALS (PRIME COAT)
- (C) HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50, 2-1/4"
- (D) AGGREGATE BASE, TYPE B (CA-6), 12"
- (E) AGGREGATE SUB-BASE, TYPE B (CA-6), 4"
- (F) BARRIER CURB & GUTTER, TYPE B-6.12 (FLAG DEPTH @ E.P.=15-1/2")
- (G) PC CONCRETE SIDEWALK, 5" WITH 4" AGGREGATE SUB-BASE (6" THROUGH DRIVEWAYS WITH 6x6x10 WWF)
- (H) LONGITUDINAL JOINT SEALANT

* FOR STREETS BEING RECONSTRUCTED FROM RURAL TO URBAN CROSS SECTION, PAVEMENT WIDTH TO BE 25' EDGE TO EDGE OF PAVEMENT AND 28' BACK TO BACK OF CURB, OR MATCH ADJACENT EXISTING URBANIZED ROADWAY WIDTHS.

REV.:	REV.:	TYPICAL SECTION LOCAL STREET	VILLAGE OF ITASCA
REV.:	REV.: 12-02-2021		PAVEMENT 4
DRAWN BY: REL	DATE: 2-1-2021		

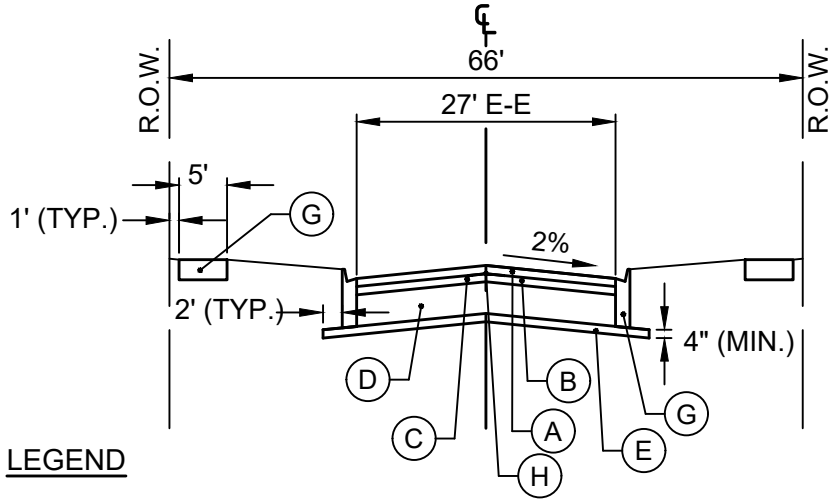
TYPICAL SECTION
LOCAL STREETS AND CUL-DE-SACS
(COMMERCIAL AND INDUSTRIAL DISTRICTS)



LEGEND

- (A) HOT-MIX ASPHALT SURFACE COURSE, MIX. C, N50, 1-1/2"
- (B) BITUMINOUS MATERIALS (PRIME COAT)
- (C) HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50, 2-1/4"
- (D) HOT-MIX ASPHALT BASE COURSE, 6"
- (E) AGGREGATE SUB-BASE, TYPE B (CA-6), 4"
- (F) BARRIER CURB & GUTTER, TYPE B-6.12 (FLAG DEPTH @ E.P.=10")
- (G) PC CONCRETE SIDEWALK, 5" WITH 4" AGGREGATE SUB-BASE (6" THROUGH DRIVEWAYS WITH 6x6x10 WWF)
- (H) LONGITUDINAL JOINT SEALANT

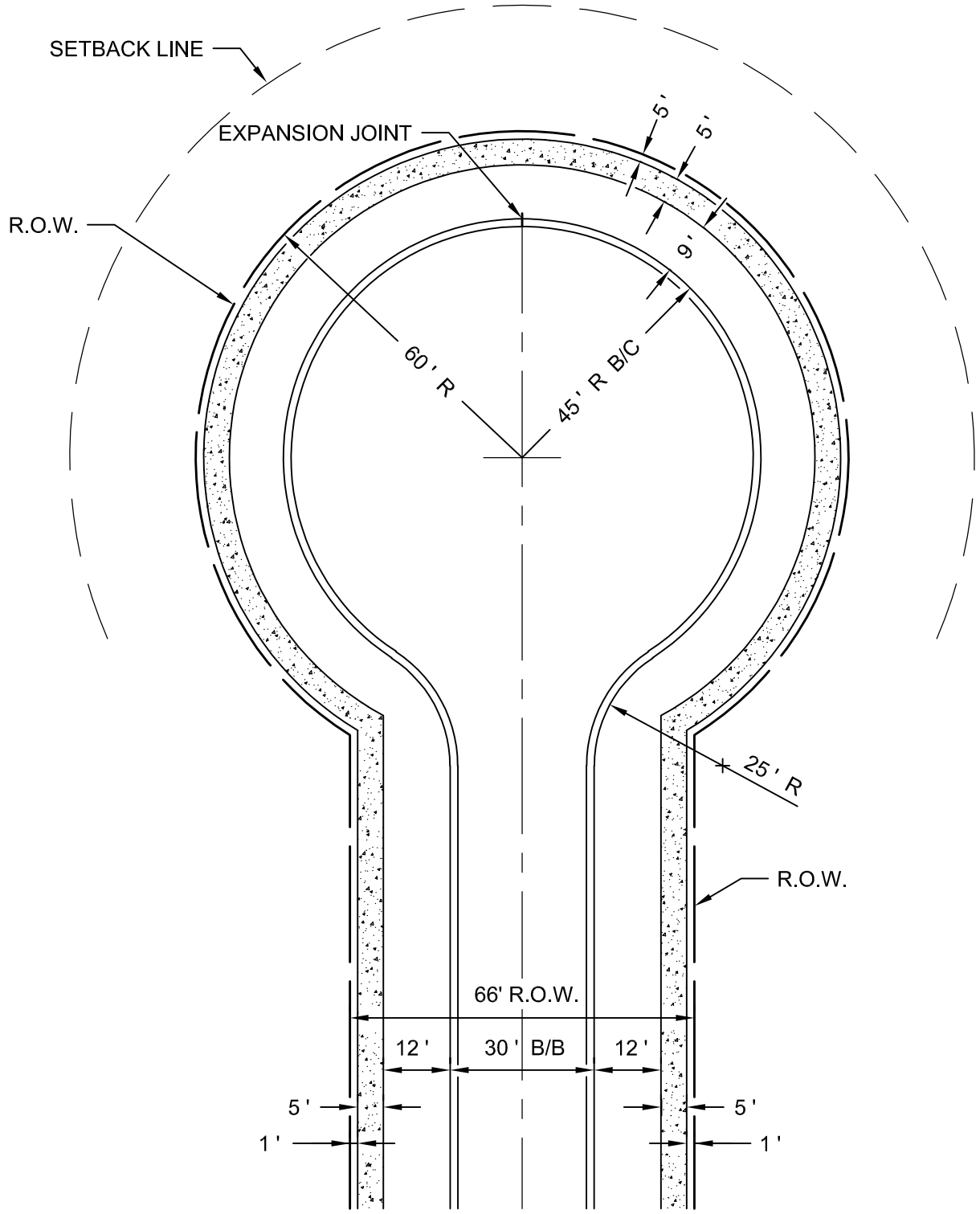
TYPICAL SECTION
LOCAL STREETS AND CUL-DE-SACS
(COMMERCIAL AND INDUSTRIAL DISTRICTS)
(ALTERNATE)



LEGEND

- (A) HOT-MIX ASPHALT SURFACE COURSE, MIX. C, N50, 1-1/2"
- (B) BITUMINOUS MATERIALS (PRIME COAT)
- (C) HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50, 2-1/4"
- (D) AGGREGATE BASE, TYPE B (CA-6), 12"
- (E) AGGREGATE SUB-BASE, TYPE B (CA-6), 4"
- (F) BARRIER CURB & GUTTER, TYPE B-6.12 (FLAG DEPTH @ E.P.=16")
- (G) PC CONCRETE SIDEWALK, 5" WITH 4" AGGREGATE SUB-BASE (6" THROUGH DRIVEWAYS WITH 6x6x10 WWF)
- (H) LONGITUDINAL JOINT SEALANT

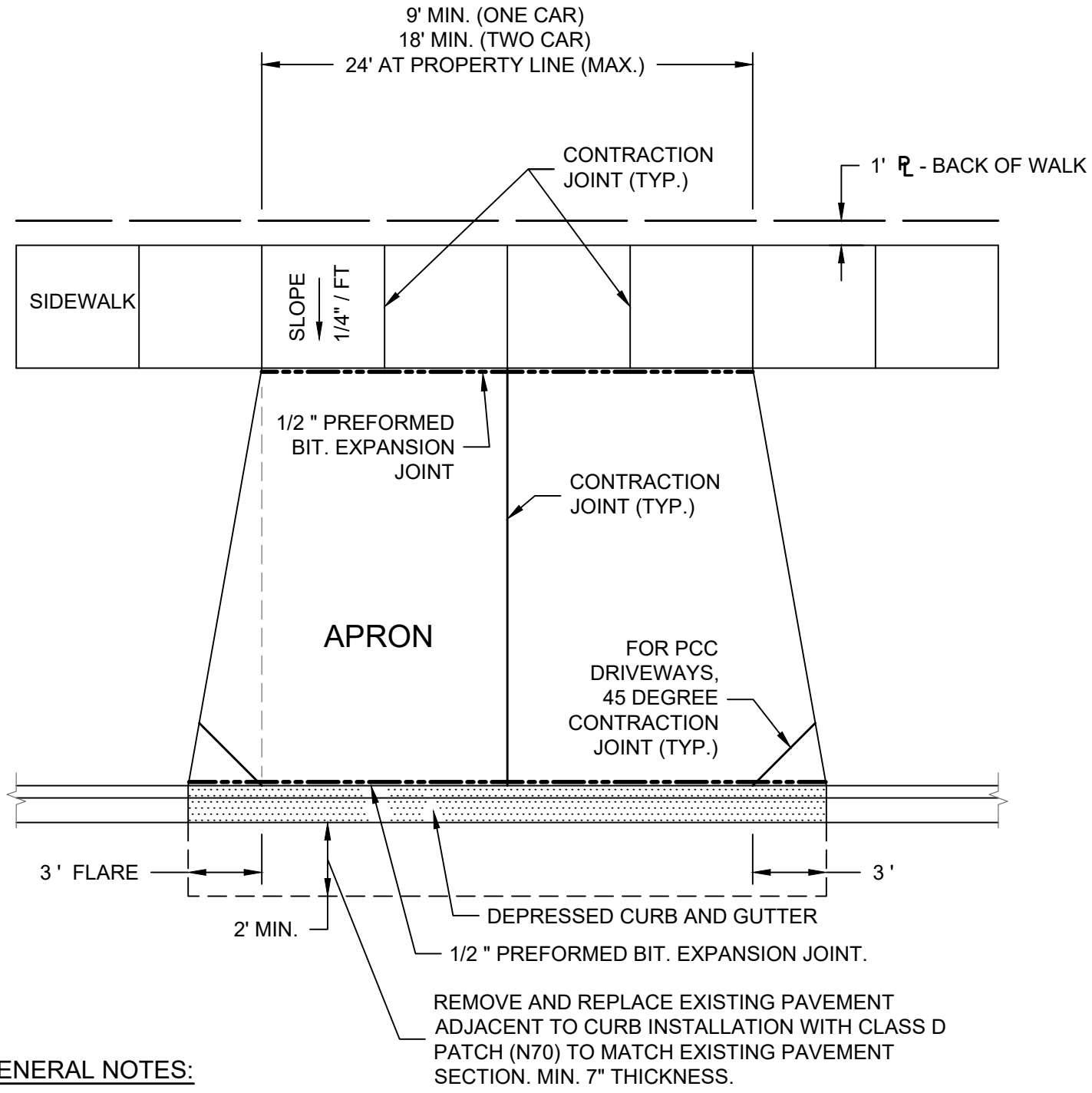
REV.:	REV.:	TYPICAL SECTION LOCAL STREET	VILLAGE OF ITASCA
REV.:	REV.: 12-02-2021		PAVEMENT 5
DRAWN BY: REL	DATE: 3-14-2018		



GENERAL NOTES:

1. THE CONCENTRIC CUL-DE-SAC ILLUSTRATION, AS PRESENTED ABOVE, IS PROVIDED AS A VISUAL AID. THE DIMENSIONS AS ILLUSTRATED ARE NOT ALL OF THE DIMENSION REQUIREMENTS FOR THE VILLAGE OF ITASCA. DESIGNS SHALL BE REVIEWED ON A SITE SPECIFIC BASIS FOR COMPLIANCE WITH MUNICIPAL CODES. DIMENSION VARIATIONS MAY BE WARRANTED. ALL CONCENTRIC CUL-DE-SAC DESIGNS SUBMITTED FOR REVIEW AND APPROVAL, SHALL PROVIDE INFORMATION IN A FORM AS PRESENTED ABOVE.

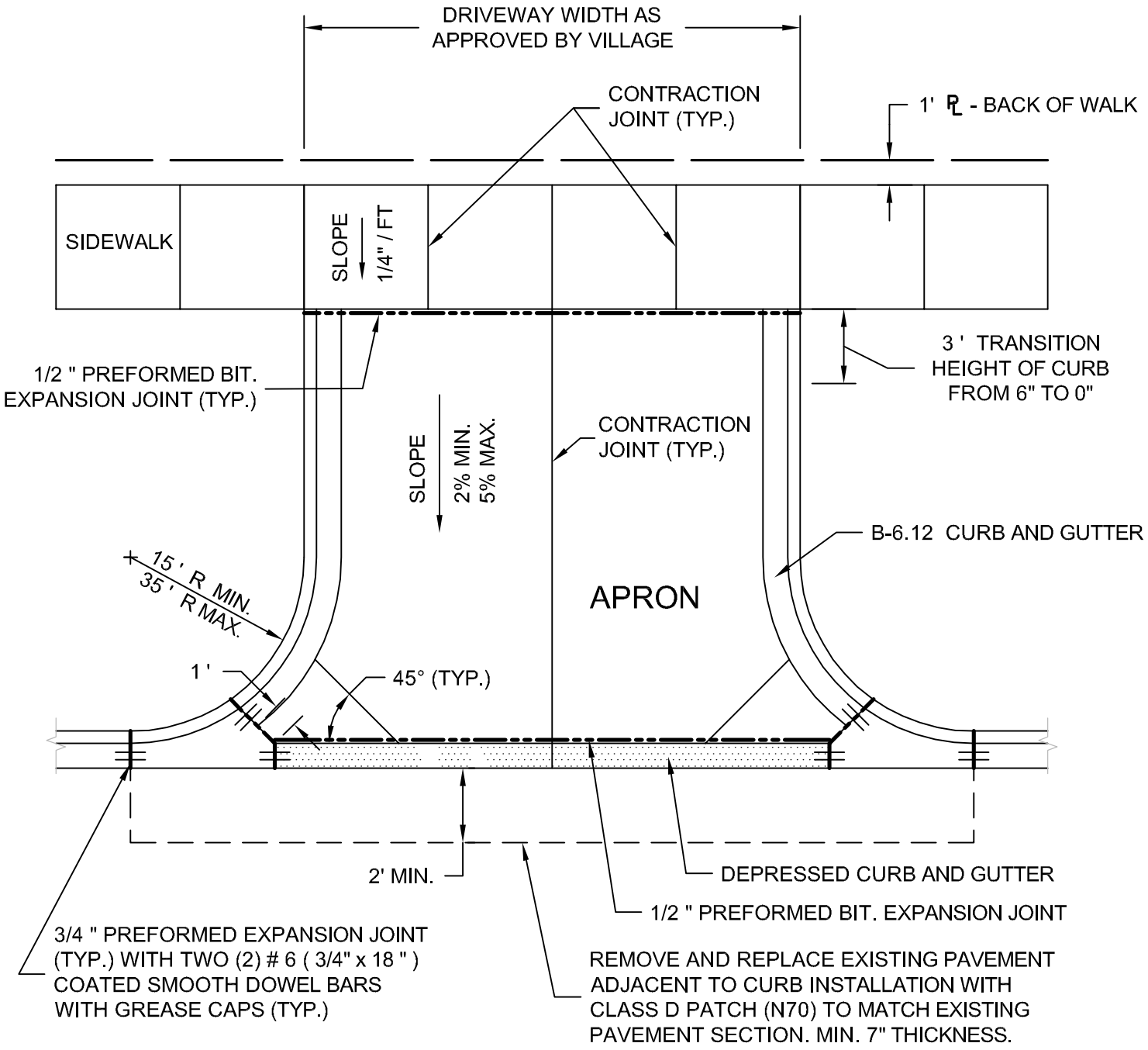
REV.:	REV.:	CONCENTRIC CUL-DE-SAC	VILLAGE OF ITASCA
REV.:	REV.:		PAVEMENT 6
DRAWN BY: REL	DATE: 3-14-2018		



GENERAL NOTES:

1. APRONS SHALL NOT EXCEED 24 FEET IN WIDTH MEASURED AT THE RIGHT-OF-WAY LINE.
2. ALL AGGREGATE SUB-BASE SHALL BE MECHANICALLY COMPACTED.
3. MINIMUM THICKNESS FOR APRONS: 6" P.C. CONCRETE ON 4" COMPACTED AGGREGATE SUB-BASE (CA-6 GRADATION) 6x6x10x10 WELDED WIRE FABRIC REINFORCEMENT SUSPENDED AT MID-HEIGHT IN THE SLAB THROUGHOUT, OR 3" BITUMINOUS SURFACE ON 6" COMPACTED AGGREGATE SUB-BASE (CA-6 GRADATION).
4. SIDEWALK SHALL EXTEND THROUGH THE DRIVEWAY. SIDEWALK THROUGH DRIVEWAY TO BE 6" THICK WITH 6x6x10x10 WWF.
5. DRIVEWAYS AND APRONS SHALL HAVE A MINIMUM SLOPE OF 2% AND A MAXIMUM SLOPE OF 8%.
6. PATCHES ARE NOT ALLOWED IN NEW APRONS.
7. PCC SHALL BE CLASS SI (SIX BAG MIX) WITH AIR ENTRAINMENT OF 5%-8% AND 28 DAY COMPRESSIVES STRENGTH OF 3,500 PSI (MIN.)

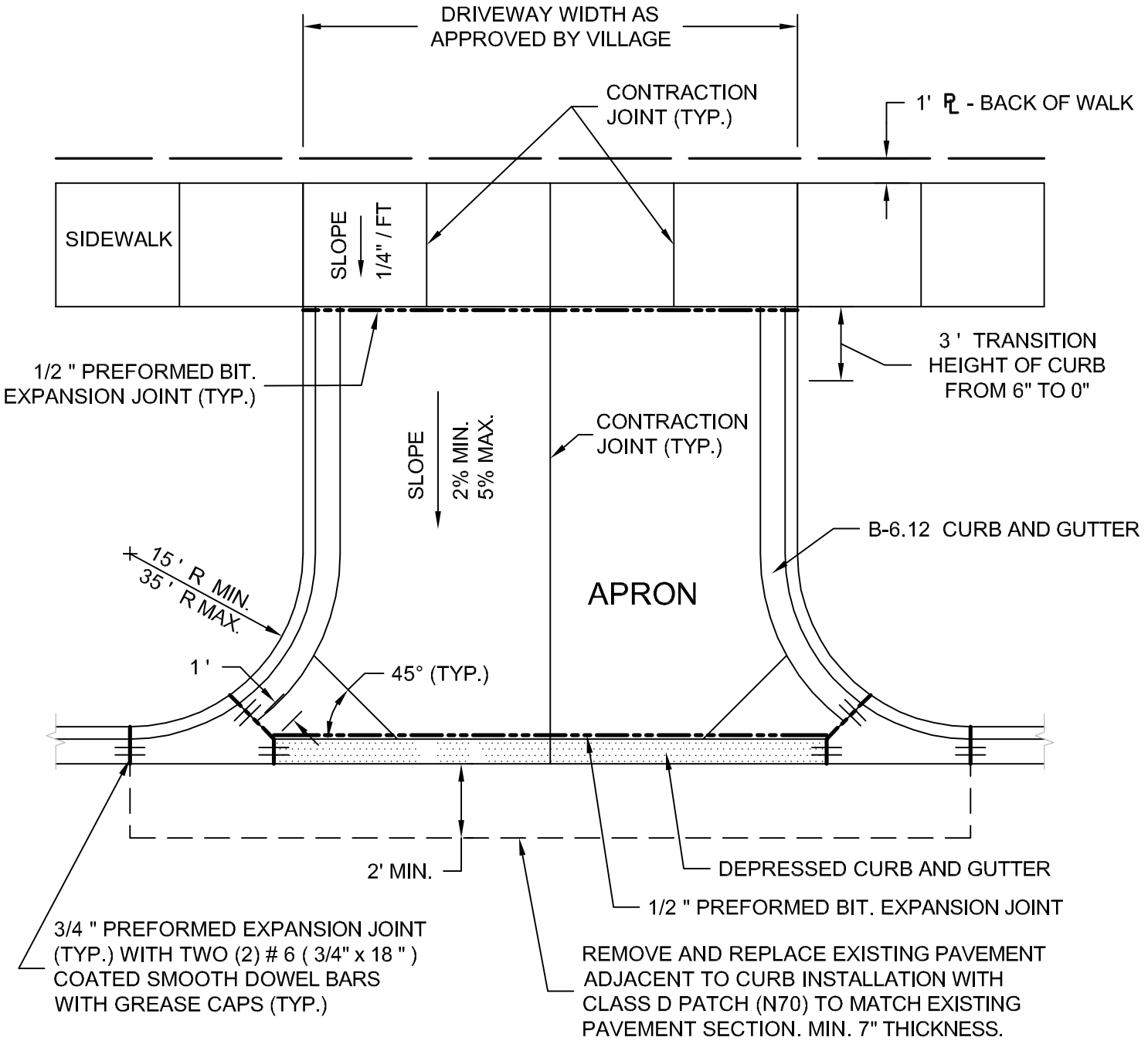
REV.:	REV.:	RESIDENTIAL DRIVEWAY APRON	VILLAGE OF ITASCA
REV.:	REV.:		
DRAWN BY: REL	DATE: 3-10-2021		PAVEMENT 7



GENERAL NOTES:

1. APRONS WIDTH AS APPROVED BY VILLAGE, MEASURED AT THE RIGHT-OF-WAY LINE.
2. ALL AGGREGATE SUB-BASE SHALL BE MECHANICALLY COMPACTED.
3. THICKNESS FOR APRONS:
   6" REINFORCED PORTLAND CEMENT CONCRETE (6X6x10x10 WWF)
   ON 10" COMPACTED AGGREGATE BASE OR
   1-1/2" HMA SURFACE COURSE AND 2-1/4" HMA BINDER COURSE WITH
   14" AGGREGATE BASE COURSE.
4. SIDEWALK SHALL EXTEND THROUGH THE DRIVEWAY. SIDEWALK THROUGH DRIVEWAY TO BE 6" THICK WITH (6x6x10x10 WWF).
5. APRONS SHALL HAVE A MINIMUM SLOPE OF 2% AND A MAXIMUM SLOPE OF 5%.
6. PATCHES ARE NOT ALLOWED IN NEW APRONS.
7. PCC SHALL BE CLASS SI (SIX BAG MIX) WITH AIR ENTRAINMENT OF 5%-8% AND 28 DAY COMPRESSIVES STRENGTH OF 3,500 PSI (MIN.)

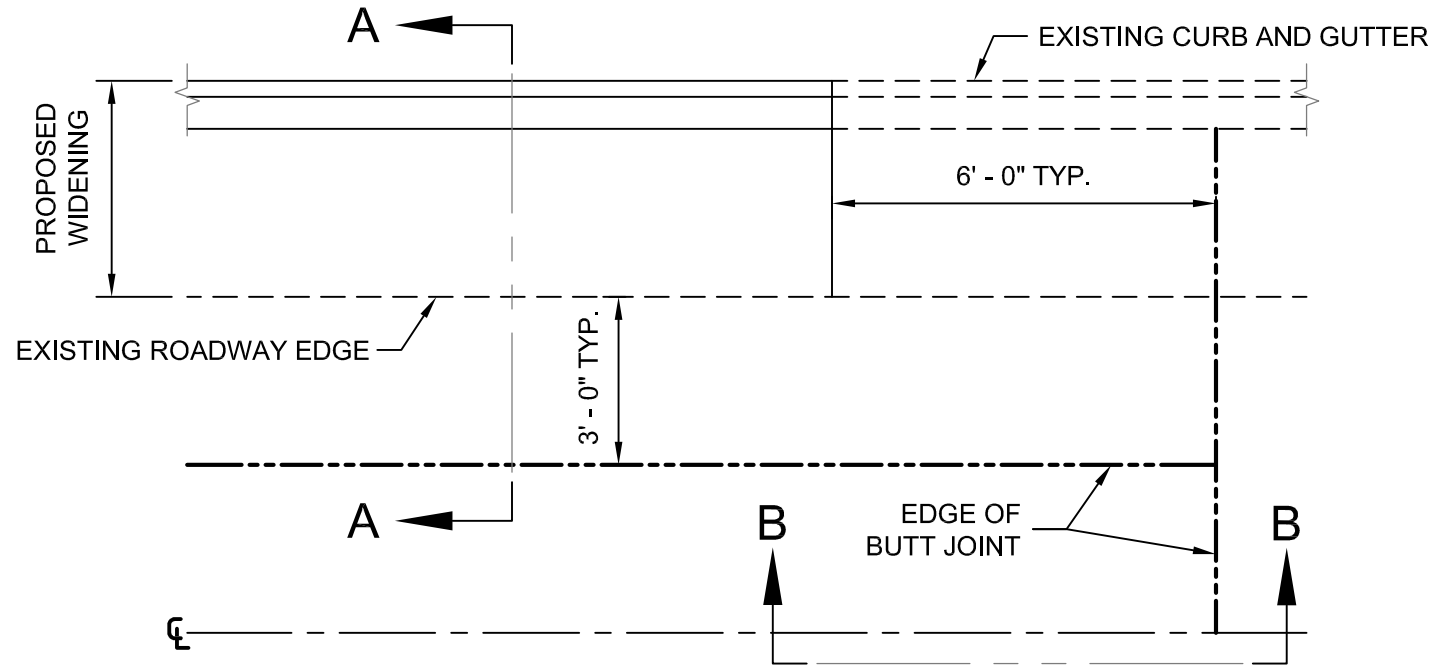
REV.:	REV.:	COMMERCIAL / INDUSTRIAL DRIVEWAY APRON - HEAVY	VILLAGE OF ITASCA
REV.:	REV.:		PAVEMENT 8
DRAWN BY: REL	DATE: 2-1-2021		

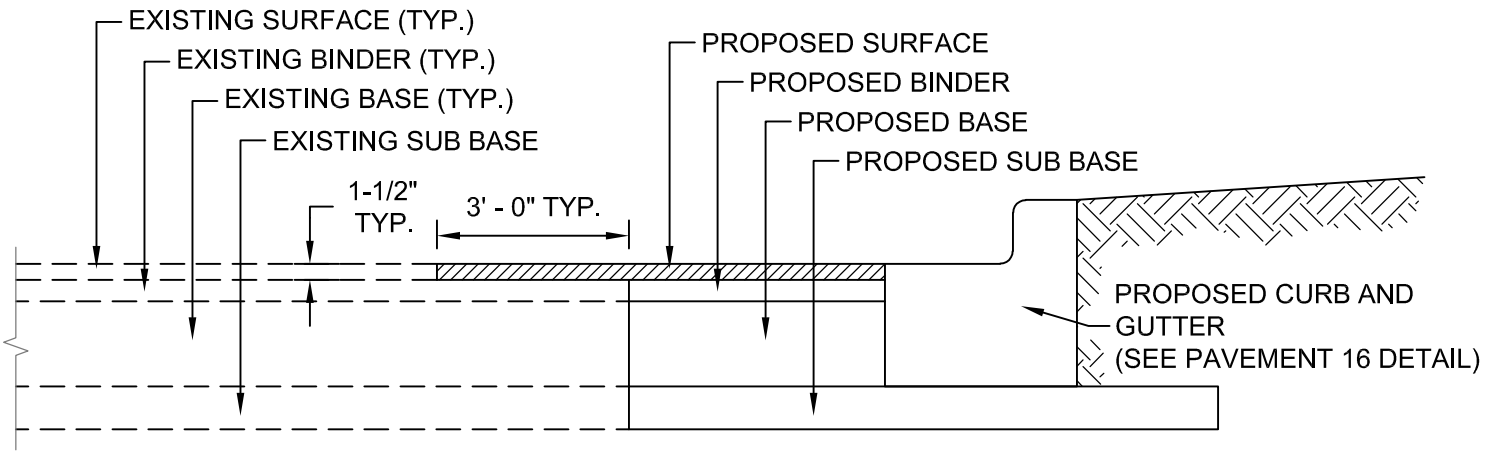


GENERAL NOTES:

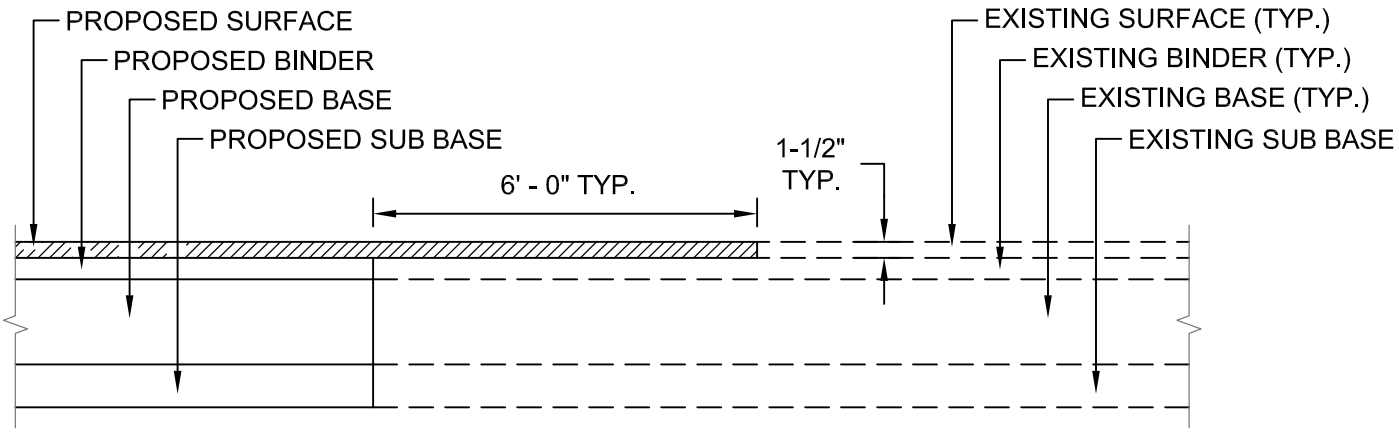
1. APRONS WIDTH AS APPROVED BY VILLAGE, MEASURED AT THE RIGHT-OF-WAY LINE.
2. ALL AGGREGATE SUB-BASE SHALL BE MECHANICALLY COMPACTED.
3. THICKNESS FOR APRONS:
   6" REINFORCED PORTLAND CEMENT CONCRETE (6X6x10x10 WWF)
   ON 4" COMPACTED AGGREGATE BASE OR
   1-1/2" HMA SURFACE COURSE AND 2-1/4" HMA BINDER COURSE WITH
   12" AGGREGATE BASE COURSE.
4. SIDEWALK SHALL EXTEND THROUGH THE DRIVEWAY. SIDEWALK THROUGH DRIVEWAY TO BE 6" THICK WITH (6x6x10x10 WWF).
5. APRONS SHALL HAVE A MINIMUM SLOPE OF 2% AND A MAXIMUM SLOPE OF 5%.
6. PATCHES ARE NOT ALLOWED IN NEW APRONS.
7. PCC SHALL BE CLASS SI (SIX BAG MIX) WITH AIR ENTRAINMENT OF 5%-8% AND 28 DAY COMPRESSIVES STRENGTH OF 3,500 PSI (MIN.)

REV.:	REV.:	COMMERCIAL / INDUSTRIAL DRIVEWAY APRON - LIGHT	VILLAGE OF ITASCA
REV.:	REV.:		PAVEMENT 9
DRAWN BY: REL	DATE: 2-9-2021		





SECTION A-A

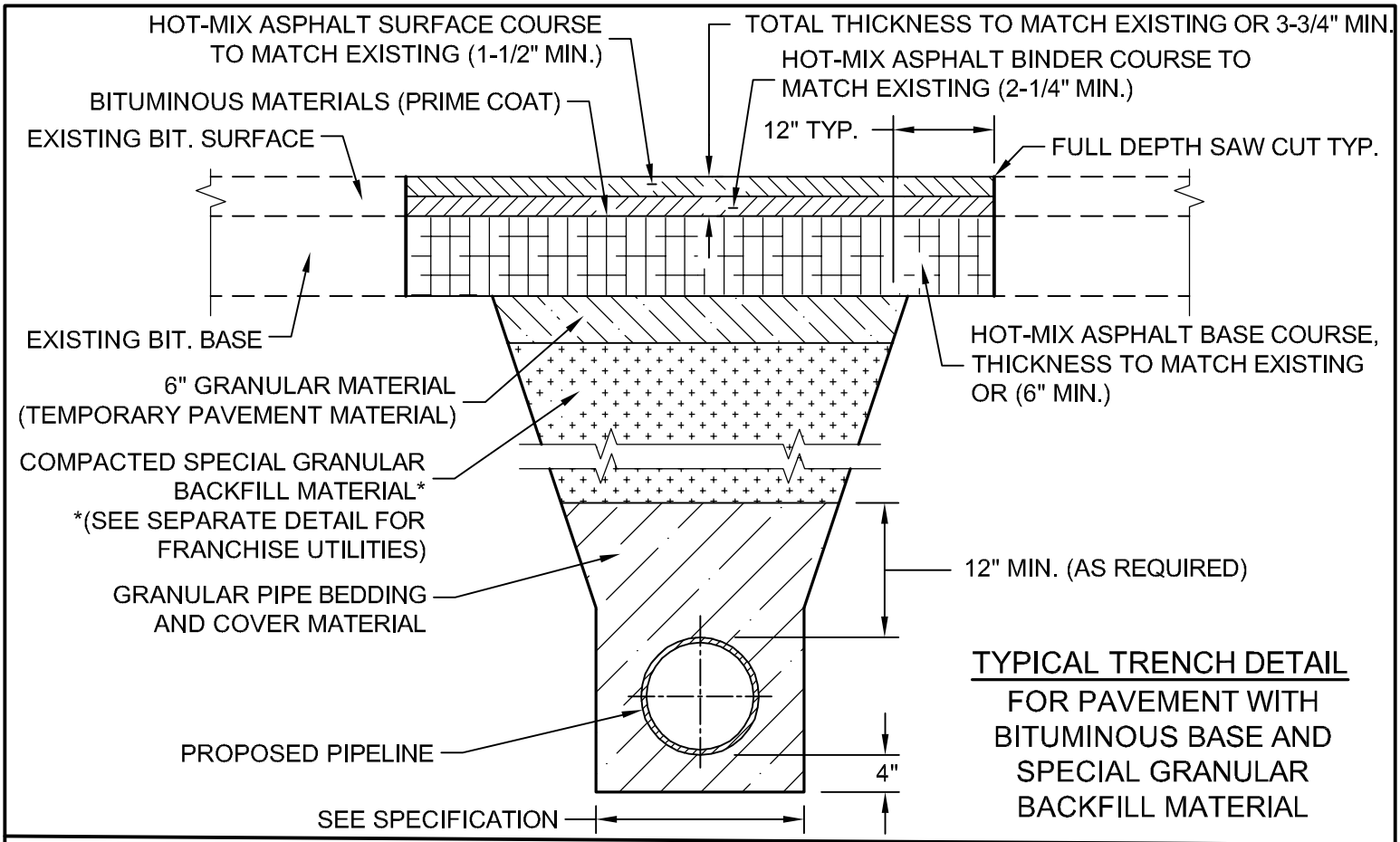


SECTION B-B

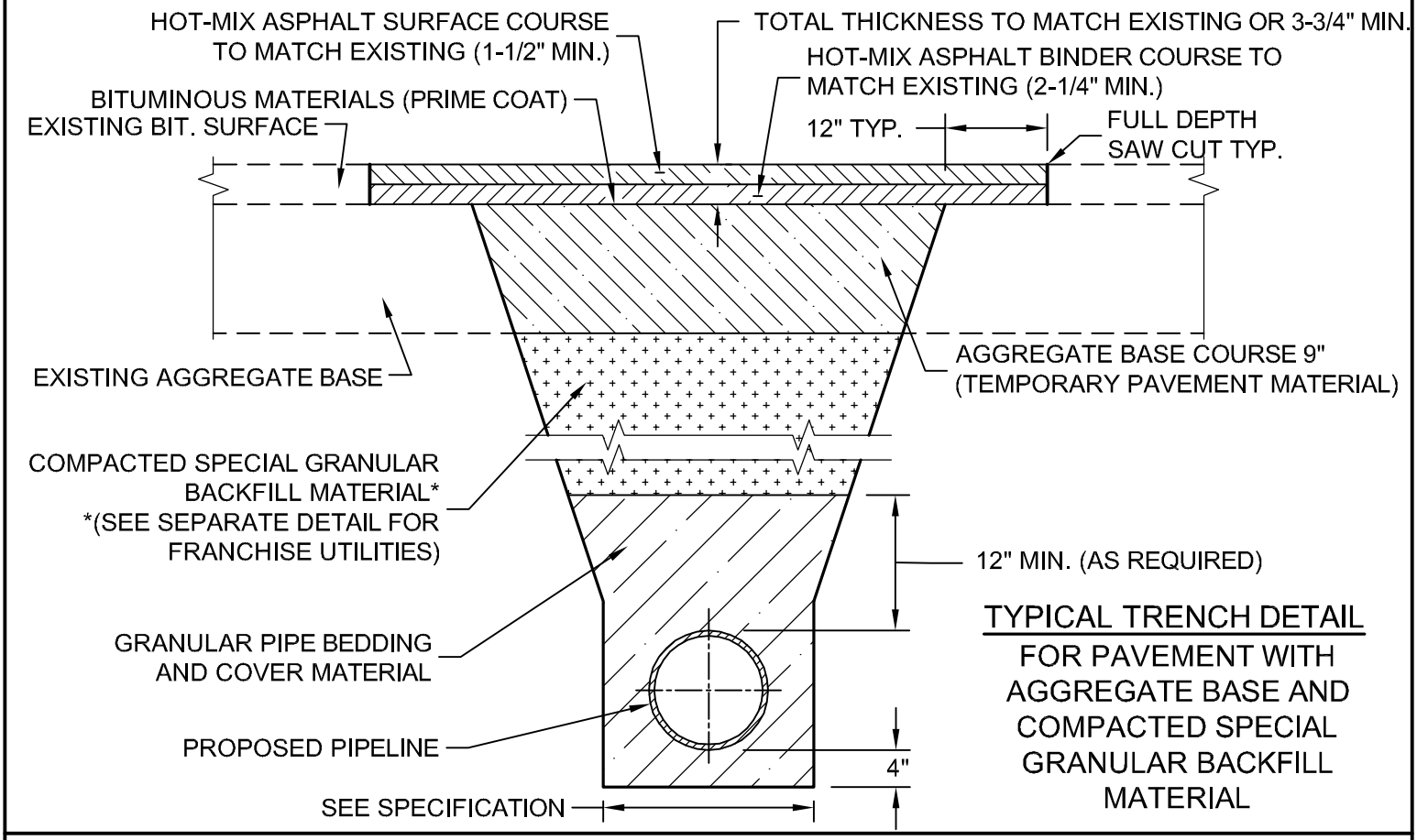
GENERAL NOTES:

1. FOR WIDENING LESS THAN 8 INCHES AND/OR WHERE REQUIRED COMPACTION IS DIFFICULT TO OBTAIN, CONCRETE BASE SHALL BE USED.

REV.:	REV.:	PAVEMENT BUTT JOINT	VILLAGE OF ITASCA
REV.:	REV.:		PAVEMENT 10
DRAWN BY: REL	DATE: 3-14-2018		



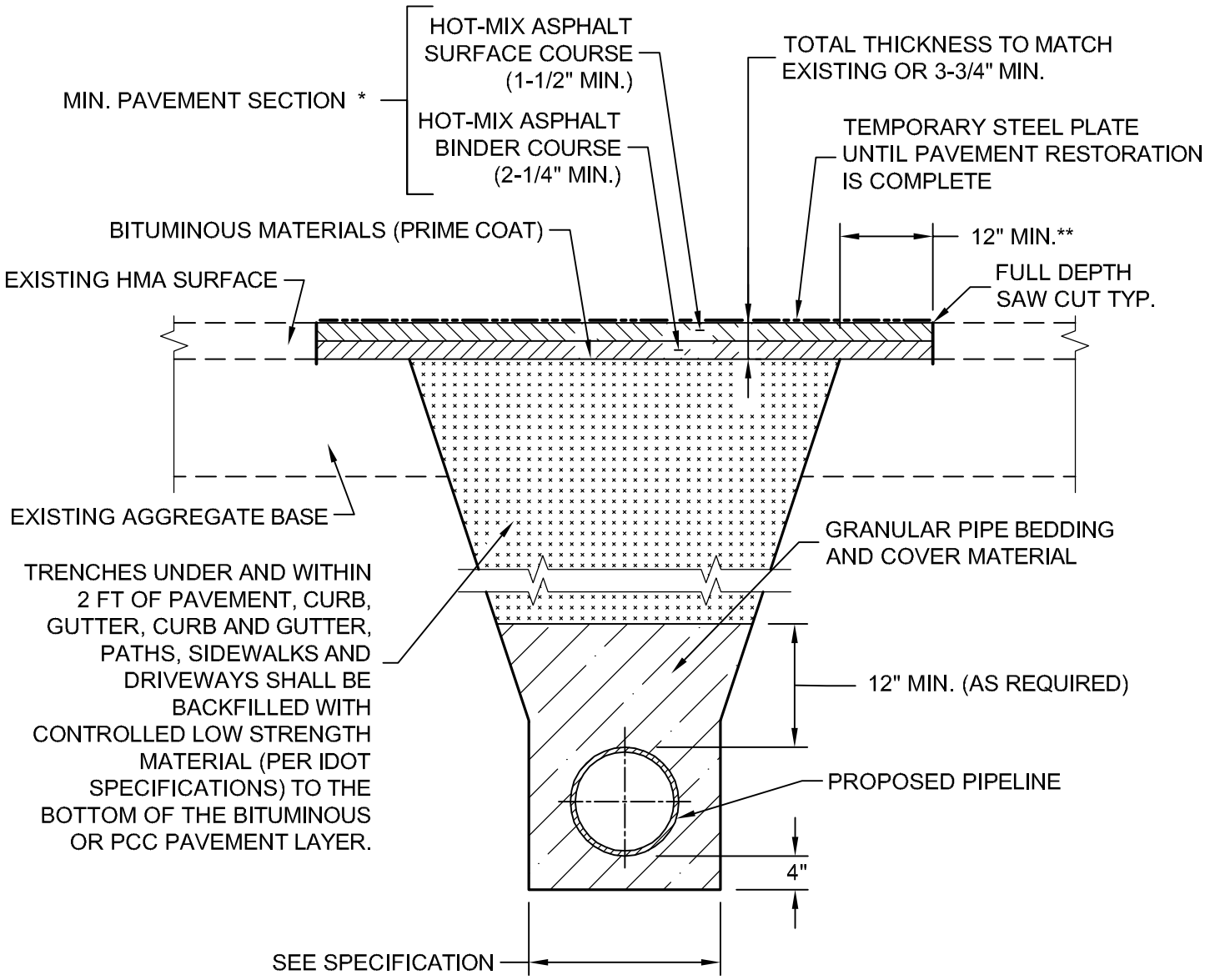
TYPICAL TRENCH DETAIL
FOR PAVEMENT WITH BITUMINOUS BASE AND SPECIAL GRANULAR BACKFILL MATERIAL



TYPICAL TRENCH DETAIL
FOR PAVEMENT WITH AGGREGATE BASE AND COMPACTED SPECIAL GRANULAR BACKFILL MATERIAL

NOTE: GRANULAR TRENCH BACKFILL IS REQUIRED IN ALL LOCATION WHERE THE UTILITY TRENCH IS UNDER OR WITHIN TWO (2) FEET OF EXISTING OR PROPOSED PRIVATE PAVEMENTS, PUBLIC SIDEWALKS OR PUBLIC BIKE PATHS.

REV.:	REV.:	TYPICAL TRENCH DETAIL GRANULAR TRENCH BACKFILL	VILLAGE OF ITASCA
REV.:	REV.:		PAVEMENT 11
DRAWN BY: REL	DATE: 2-1-2021		



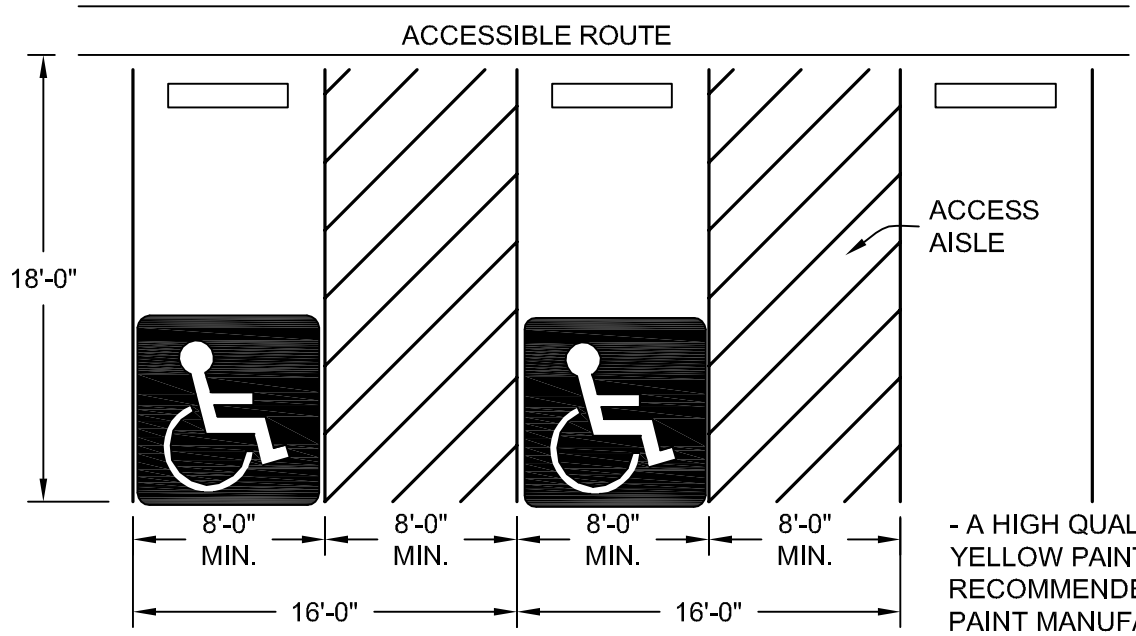
TYPICAL TRENCH DETAIL
W / PAVEMENT RESTORATION

*MATERIAL USED FOR FINAL SURFACE COURSE AND EXACT DEPTH OF MATERIAL SHALL BE APPROVED BY VILLAGE ENGINEER AND PUBLIC WORKS DIRECTOR PRIOR TO INITIAL CONSTRUCTION.

**SURFACE TO BE REMOVED AND REPLACED FOR THE ENTIRE LANE WIDTH

NOTE: CONTROLLED LOW-STRENGTH MATERIAL BACKFILL IS REQUIRED IN ALL LOCATION WHERE THE UTILITY TRENCH IS UNDER OR WITHIN TWO (2) FEET OF EXISTING OR PROPOSED PUBLIC STREETS OR DRIVEWAY APRONS.

REV.:	REV.:	TYPICAL TRENCH DETAIL FRANCHISE UTILITIES	VILLAGE OF ITASCA
REV.:	REV.:		PAVEMENT 12
DRAWN BY: REL	DATE: 2-9-2021		



STANDARD IL DESIGN

- A HIGH QUALITY YELLOW PAINT RECOMMENDED BY THE PAINT MANUFACTURER FOR PAVEMENT STRIPING SHALL BE USED

NOTE: ADA PARKING SPACES SHALL COMPLY WITH THE 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN, OR LATEST EDITION.

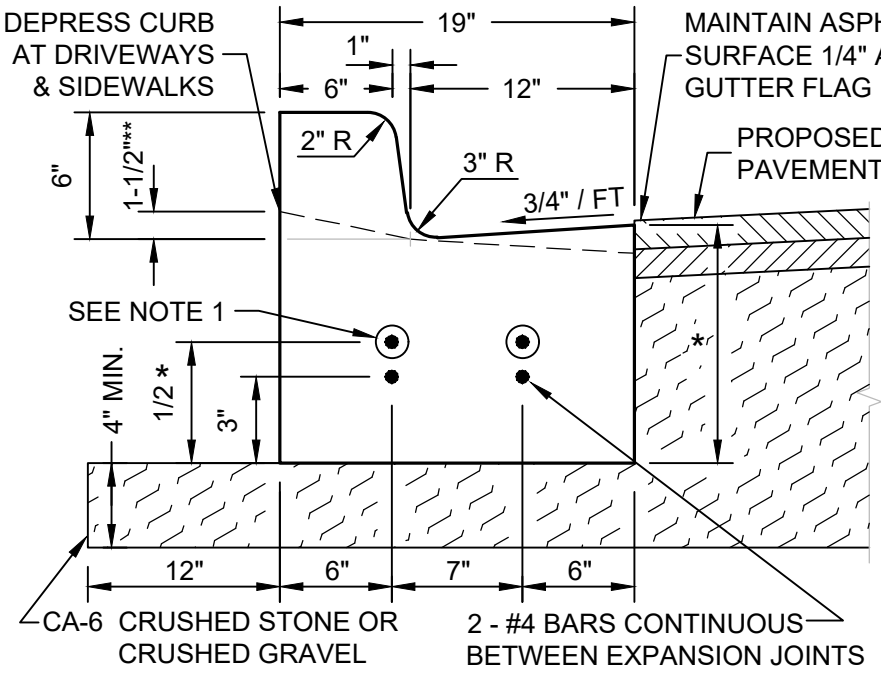
R7-8

THIS IS A STANDARD SIGN AND MAY BE ORDERED FROM ANY TRAFFIC SIGN SUPPLIER BY NUMBER. THE ARROW SHOULD BE OMITTED WHERE THERE IS ONLY ONE SPACE. THE ARROW MAY ALSO BE MADE TO POINT IN ONLY ONE DIRECTION. THE SIGN MUST BE SUPPLEMENTED WITH THE ILLINOIS STANDARD R7-I101 PLATE GIVING THE AMOUNT OF THE FINE FOR ILLEGALLY PARKING IN THE RESERVED SPACE(S).

ILLINOIS STANDARD
R7-I101

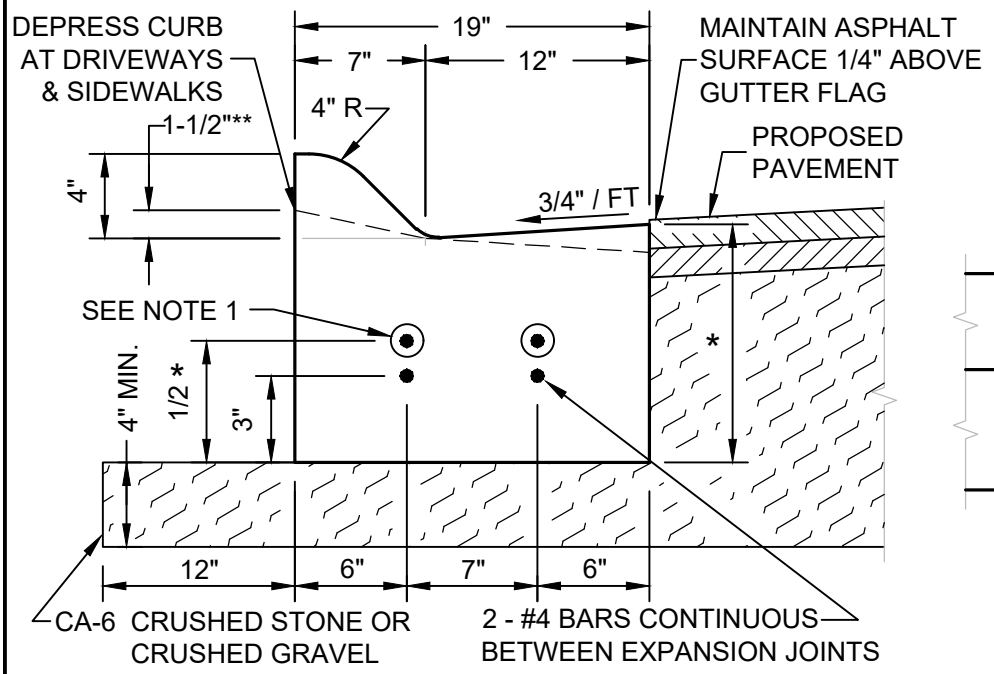
THIS PLATE MAY BE MOUNTED DIRECTLY BELOW THE R7-8 SIGN OR COMBINED WITH THAT SIGN ON A SINGLE 12" BY 24" PANEL. WHERE A FINE IN EXCESS OF $100 IS ESTABLISHED BY A MUNICIPALITY BY ORDINANCE IN ACCORDANCE WITH THE STATUES, THE ACTUAL AMOUNT OF THE FINE SHOULD BE SHOWN.

REV.:	REV.:	ACCESSIBLE STALL	VILLAGE OF ITASCA
REV.:	REV.:		PAVEMENT 13
DRAWN BY: REL	DATE: 2-1-2021		



CURB AND GUTTER TYPE B-6.12

NO SCALE

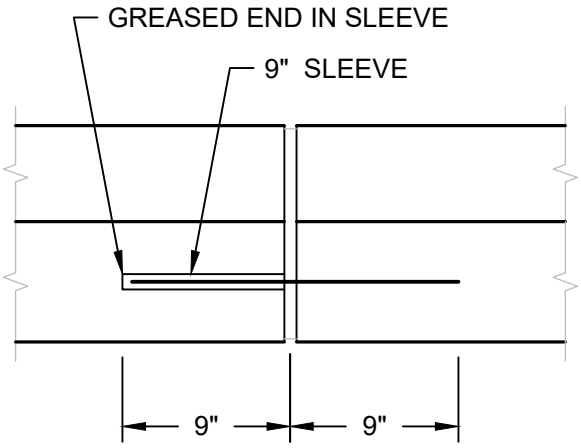


CURB AND GUTTER TYPE M-4.12

NO SCALE

* VARIES TO MATCH PAVEMENT THICKNESS (8" MIN.)

** DEPRESSED CURB AT SIDEWALKS SHALL BE 1/2" MAX. FOR ADA COMPLIANCE



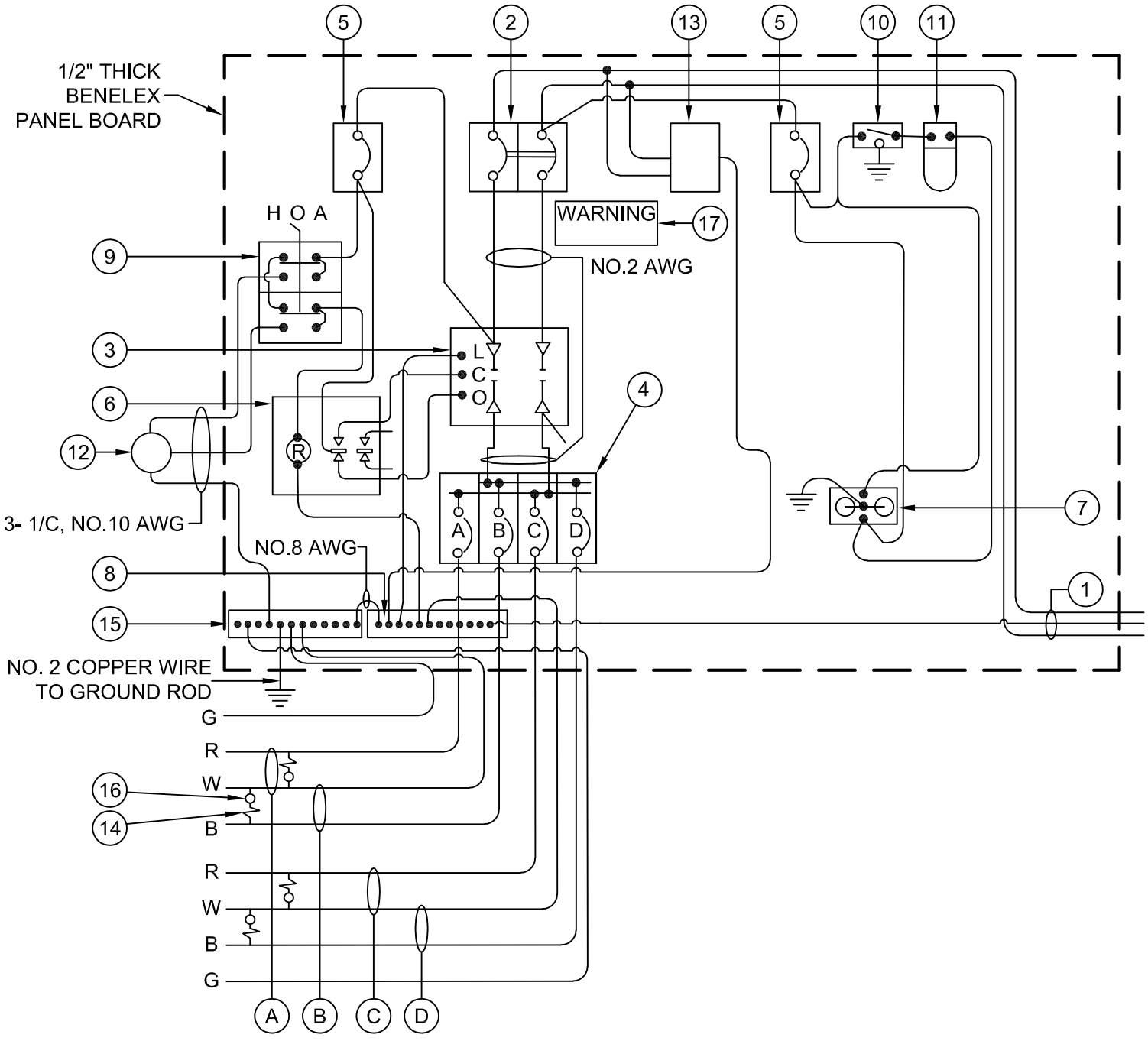
SLEEVE DETAIL

NO SCALE

GENERAL NOTES:

1. EXPANSION JOINTS W / 3/4" PREFORMED EXPANSION JOINT MATERIAL AND TWO (2) #5 SMOOTH DOWEL BARS WITH GREASE CAPS SHALL BE PLACED:
   a. AT ENDS OF INTERSECTION RADII, P.C.'S, RADIUS POINTS AND BACK OF CUL-DE-SACS
   b. 5 FT. ON EACH SIDE OF DRAINAGE STRUCTURES
   c. MAXIMUM OF 45 FOOT INTERVALS
   d. WHERE NEW CURB MEETS EXISTING CURB, THE EXISTING CURB SHALL BE DRILLED AND TWO (2) #5 SMOOTH DOWEL BARS GROUTED IN PLACE W / THE GREASE CAP PLACED ON THE SIDE OF THE NEW CURB AND GUTTER WITH 1" EXPANSION JOINT.
2. TOOL OR SAW CUT CONTRACTION JOINTS AT 15 FOOT INTERVALS, 1-1/2" DEEP.
3. SAW CUTS SHALL BE MADE WITHIN TWENTY-FOUR (24) HOURS AND SEALED W / JOINT SEALANT. JOINTS SHALL BE CLEAN AND DRY PRIOR TO APPLICATION OF SEALANT.

REV.:	REV.:	CURB AND GUTTER	VILLAGE OF ITASCA
REV.:	REV.:		PAVEMENT 14
DRAWN BY: REL	DATE: 2-9-2021		



CONTROLLER WIRING DIAGRAM

(SEE DETAIL SHEET: LIGHTING 1B FOR DIAGRAM LEGEND AND NOTES)

REV.:	REV.:	CONTROLLER WIRING DIAGRAM	VILLAGE OF ITASCA
REV.:	REV.:		LIGHTING 1A
DRAWN BY: REL	DATE: 3-14-2018		

CONTROLLER WIRING DIAGRAM LEGEND

(1) 3-1/C, NO. 1/0 600V SERVICE WIRE IN 2" DIA GALVANIZED STEEL CONDUIT FOR 120/240 VOLT, 1Ø, 3 WIRE, 60HZ. SERVICE.

(2) (1) 100 AMP MAIN CIRCUIT BREAKER, 2 POLE, 600 VOLT, 100 AMP BASE, NON-INTERCHANGEABLE TRIP INTERRUPTING RATING NEMA - 14000 AMP AT 480 V.

(3) (1) 100 AMP CONTACTOR SWITCH, ELECTRICALLY OPERATED, MECHANICALLY HELD, 2 POLE, 600 VOLT

(4) (4) 30 AMP CIRCUIT BREAKER, 1 POLE, 600 VOLT, 100 AMP BASE, NON-INTER-CHANGEABLE TRIP RATING NEMA - 14000 AMP AT 240 VOLTS.

(5) (2) 20 AMP CONTROL CIRCUIT-CIRCUIT BREAKER, 1 POLE, 240 VOLT, 100 AMP BASE, NON-INTERCHANGEABLE TRIP INTERRUPTING RATING NEMA 7500 AMP AT 120 V.

(6) (1) 20 AMP, 1 POLE DOUBLE THROW, 120 VOLT RELAY

(7) (1) 20 AMP, 120 VOLT DUPLEX GFCI RECEPTACLE.

(8) NEUTRAL BUS BAR, 1/4"x1"x12" LONG MOUNTED ON PANEL WITH TAPS.

(9) 3 POSITION SELECTOR SWITCH

(10) SWITCH FOR LIGHTING FIXTURE MOUNTED IN BOX.

(11) WEATHER-PROOF INCANDESCENT LIGHTING FIXTURE WITH 60 WATT, 120 V LAMP.

(12) BUTTON TYPE PHOTOCELL MOUNTED TO CABINET OVERHANG

(13) SURGE ARRESTER, VALVE TYPE, 650 VOLT MAX

(14) IN-LINE FUSEHOLDER WITH FUSE AS NOTED IN FUSE TABLE

(15) GROUND BUS BAR 1/4"x1"x12" MINIMUM LENGTH MOUNTED ON PANEL WITH TAPS.

(16) LUMINAIRE

(17) WARNING PLATE TO READ: WARNING, MAINTENANCE CIRCUIT IS LIVE WHEN MAIN BREAKER IS SWITCHED OFF.

(A) CIRCUIT (RED)

(B) CIRCUIT (BLACK)

(C) CIRCUIT (RED)

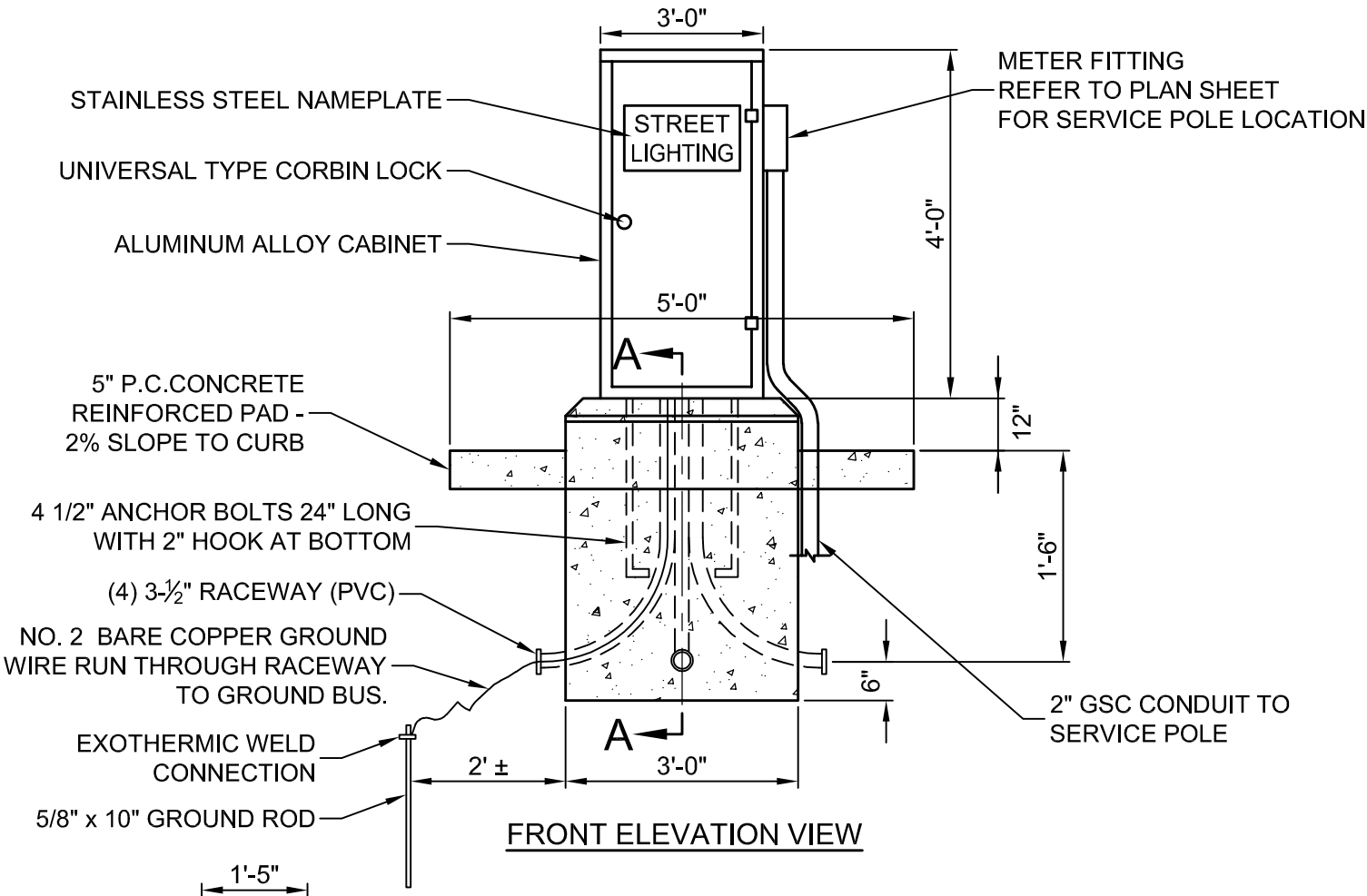
(D) CIRCUIT (BLACK)

GENERAL NOTES FOR CONTROL CABINET

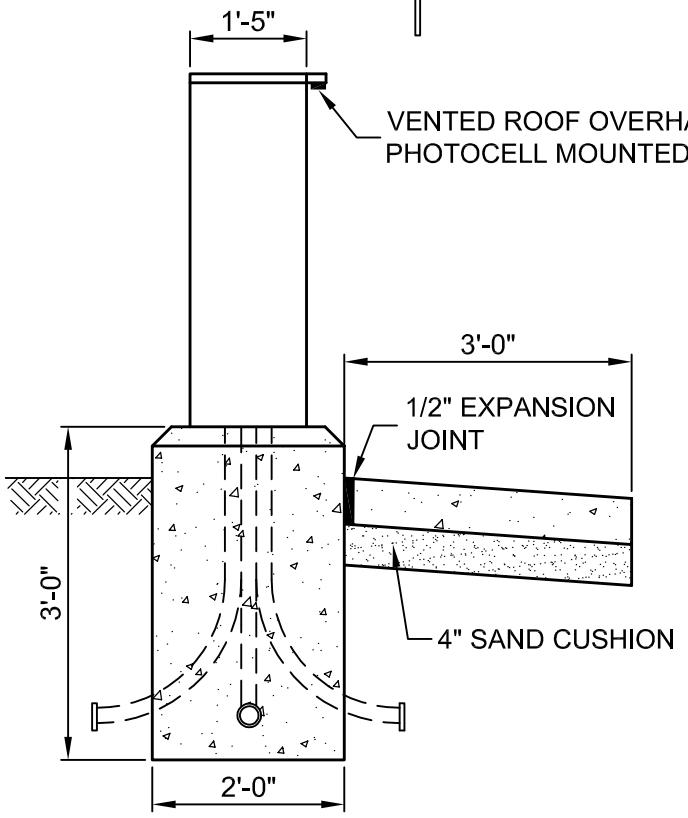
1. ENTIRE CONTROL CABINET SHALL BE GROUNDED.
2. ALL WIRING SHALL BE TAGGED WITH SELF-STICKING WIRE MARKERS.
3. GROUND BUS TO BE COLOR CODED GREEN, NEUTRAL BUS WHITE, AND BONDED TO CABINET ENCLOSURE, BY LISTED PRESSURE CONNECTORS OR LISTED CLAMPS.
4. ALL INTERNAL CONTROLLER WIRING TO BE NO.12 AWG UNLESS OTHERWISE SPECIFIED.
5. CABINET WIRING INSULATION TO BE TYPE XHHW OR APPROVED EQUAL.

(SEE DETAIL SHEET: LIGHTING 1A FOR DIAGRAM DETAILS)

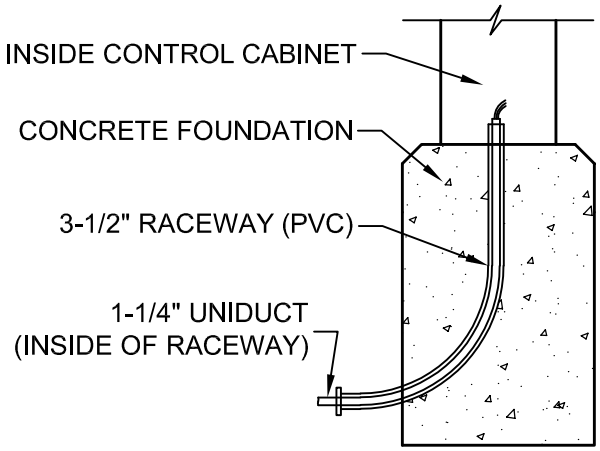
REV.:	REV.:	CONTROLLER WIRING DIAGRAM LEGEND & NOTES	VILLAGE OF ITASCA
REV.:	REV.:		LIGHTING 1B
DRAWN BY: REL	DATE: 3-14-2018		



FRONT ELEVATION VIEW



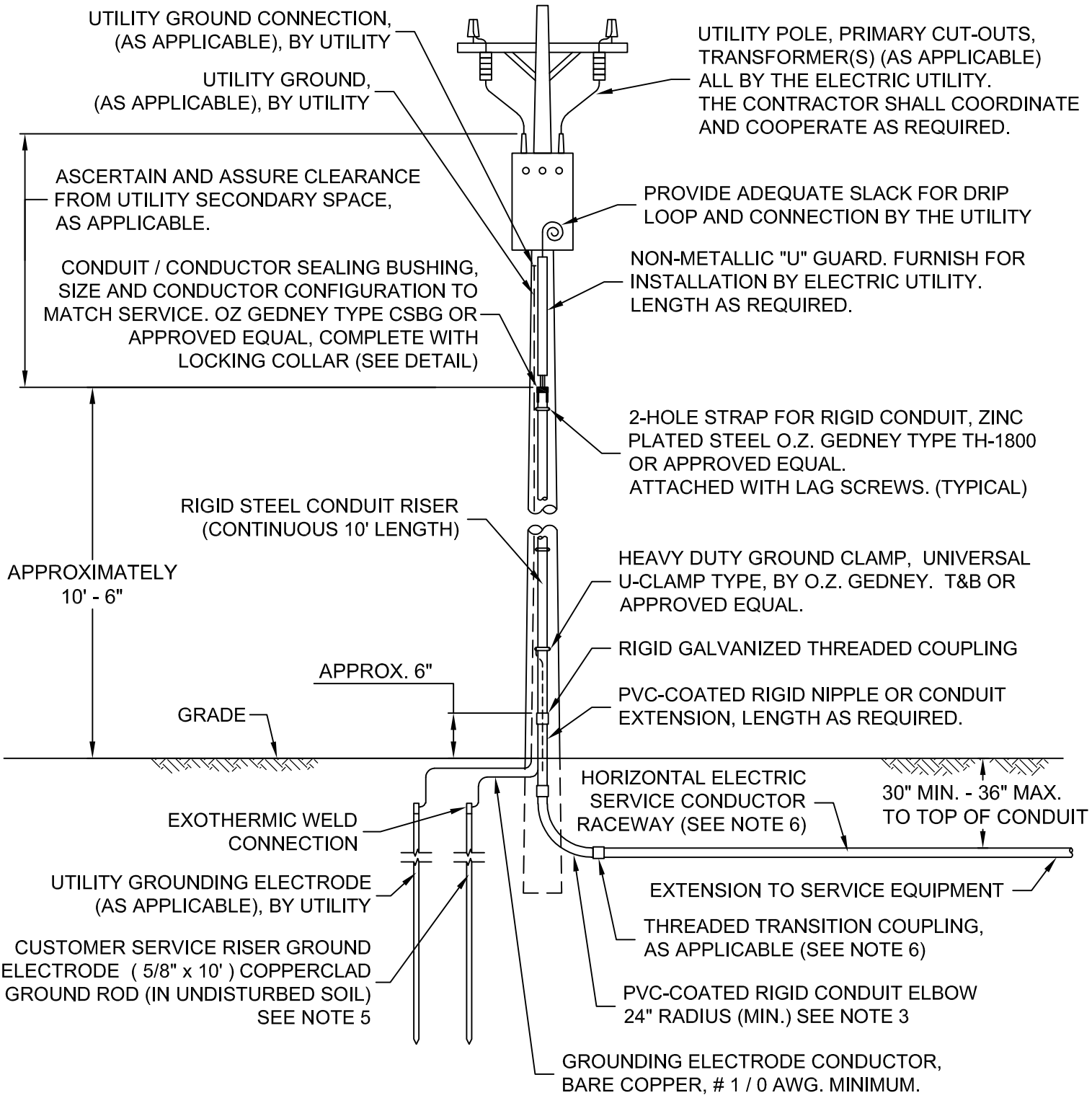
SIDE ELEVATION VIEW



SECTION A-A

LIGHTING CONTROLLER INSTALLATION

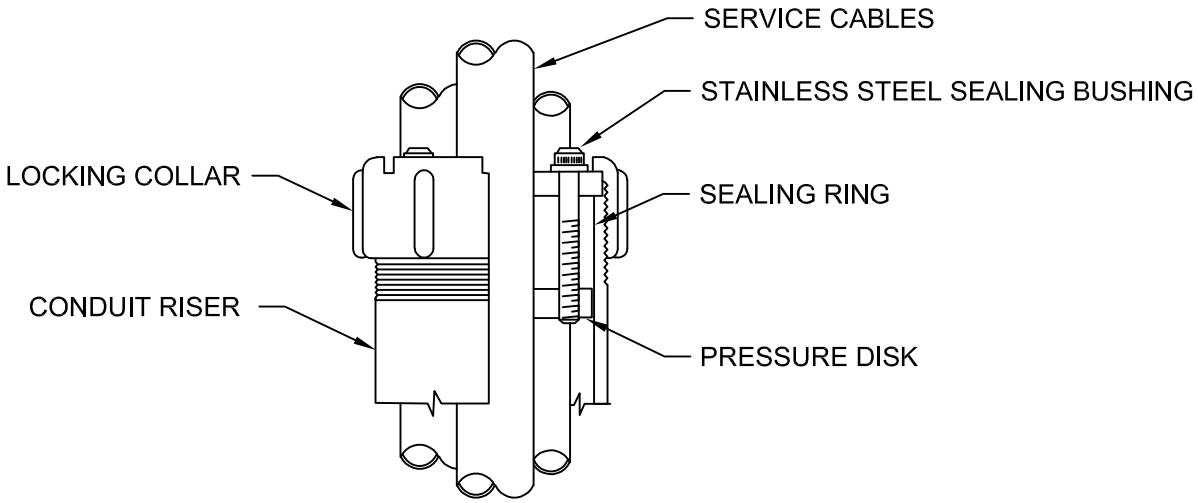
REV.:	REV.:	CONTROLLER INSTALLATION	VILLAGE OF ITASCA
REV.:	REV.:		LIGHTING 2
DRAWN BY: REL	DATE: 3-14-2018		



APPLICATION:
THIS DETAIL APPLIES FOR LOW VOLTAGE ELECTRIC SERVICE (660 V OR LESS) FROM AN OVERHEAD UTILITY SUPPLY TO SEPARATELY-MOUNTED SERVICE EQUIPMENT.

(SEE LIGHTING DETAIL SHEET 3B)

REV.:	REV.:	SERVICE CONNECTION FOR ALL CONTROLLERS	VILLAGE OF ITASCA
REV.:	REV.:		LIGHTING 3A
DRAWN BY: REL	DATE: 3-14-2018		



SEALING BUSHING DETAIL

NOTES:

1. SERVICE VOLTAGE SHALL BE AS INDICATED ELSEWHERE IN THE DRAWINGS.

2. UNLESS OTHERWISE INDICATED, ITEMS AND WORK SHALL BE INCLUDED AND PAID AS PART OF ELECTRIC UTILITY SERVICE INSTALLATION PAY ITEM.

3. CONDUIT AND CONNECTOR DIAMETER SHALL MATCH THE DIAMETER OF THE SERVICE CONDUCTOR RACEWAY AS INDICATED ON THE PLANS.

4. PVC COATED RACEWAYS AND ACCESSORIES SHALL BE CAREFULLY INSTALLED WITH MFR RECOMMENDED TOOLS AND PROCEDURES TO AVOID DAMAGE. ANY DAMAGE SHALL BE REPAIRED WITH COMPATIBLE PVC TOUCH-UP MATERIAL TO THE SATISFACTION OF THE ENGINEER OR THE DAMAGED MATERIAL SHALL BE REPLACED AT NO ADDITIONAL COST.

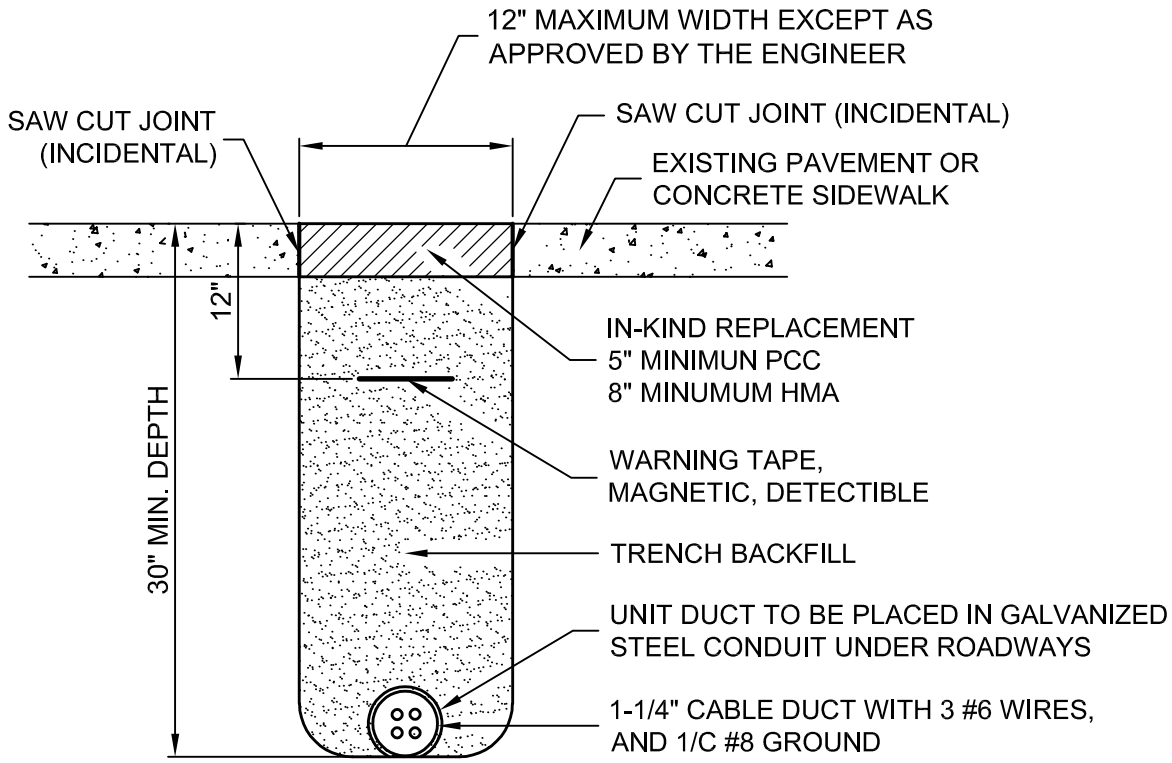
5. THE CONTRACTOR SHALL OBTAIN INSPECTION AND APPROVAL BY THE ENGINEER OF SERVICE RISER GROUND ELECTRODE, RISER ELBOW, NIPPLE AND CONNECTION TO SERVICE CONDUCTOR RACEWAY EXTENSION BEFORE BACKFILL AND SHALL ALSO OBTAIN INSPECTION OF SERVICE RISER AND SEALING BUSHING BEFORE UTILITY "U" GUARD INSTALLATION AND SERVICE CONNECTION.

6. THE HORIZONTAL ELECTRIC SERVICE CONDUCTOR RACEWAY SHALL BE AS INDICATED AND SHALL BE MEASURED SEPARATELY FOR PAYMENT. WHEN THE RACEWAY IS PVC-COATED RIGID GALVANIZED STEEL, THE COUPLING SHALL BE THE SAME. WHEN THE RACEWAY IS PVC CONDUIT (IN CONCRETE), THE COUPLING SHALL BE A METALLIC TO NON METALLIC ADAPTER. WHEN THE RACEWAY IS ENCASED IN CONCRETE, THE CONCRETE SHALL EXTEND TO COVER THE COUPLING.

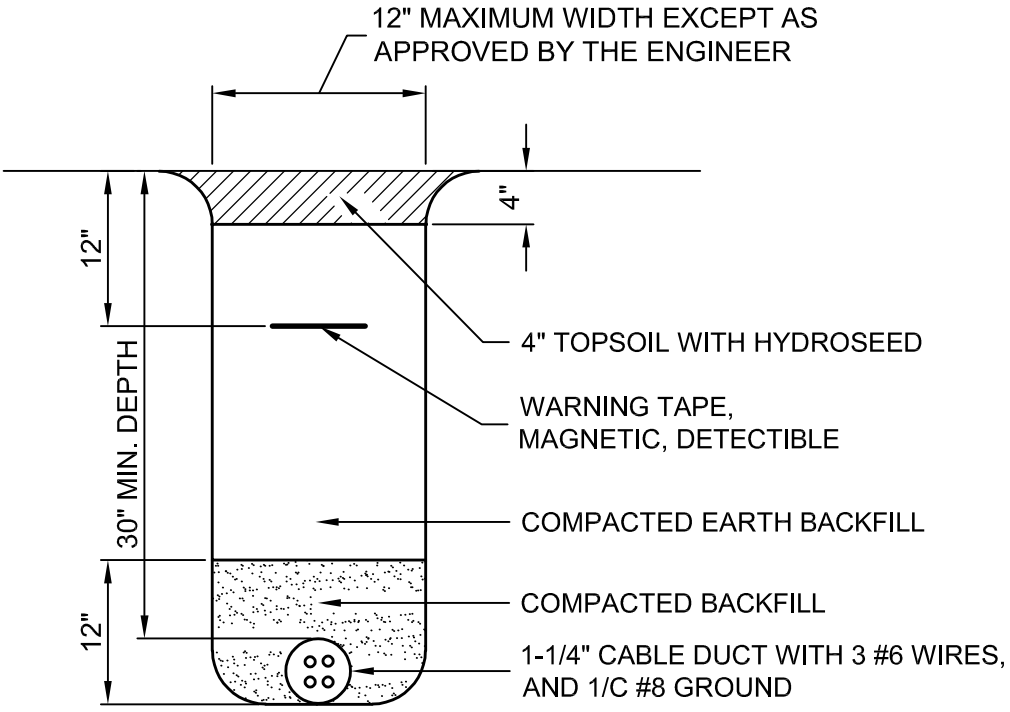
7. PLANS AND DETAILS INDICATE THE GENERAL NATURE AND REQUIREMENTS. THEY DO NOT SHOW EVERY ACCESSORY AND ATTACHMENT, AND THEY DO NOT RELIEVE THE CONTRACTOR OF THE REQUIREMENTS OF THE SPECIFICATIONS AND SPECIAL PROVISIONS TO ASCERTAIN UTILITY REQUIREMENTS AND TO COORDINATE ACCORDINGLY, FURNISHING ALL ITEMS AND WORK NOT PROVIDED BY THE UTILITY, BUT NECESSARY FOR A COMPLETE SERVICE INSTALLATION IS REQUIRED AND SHALL BE INCLUDED IN THE ELECTRIC UTILITY SERVICE INSTALLATION PAY ITEM.

(SEE LIGHTING DETAIL SHEET 3A)

REV.:	REV.:	SERVICE CONNECTION FOR ALL CONTROLLERS	VILLAGE OF ITASCA
REV.:	REV.:		LIGHTING 3B
DRAWN BY: REL	DATE: 3-14-2018		

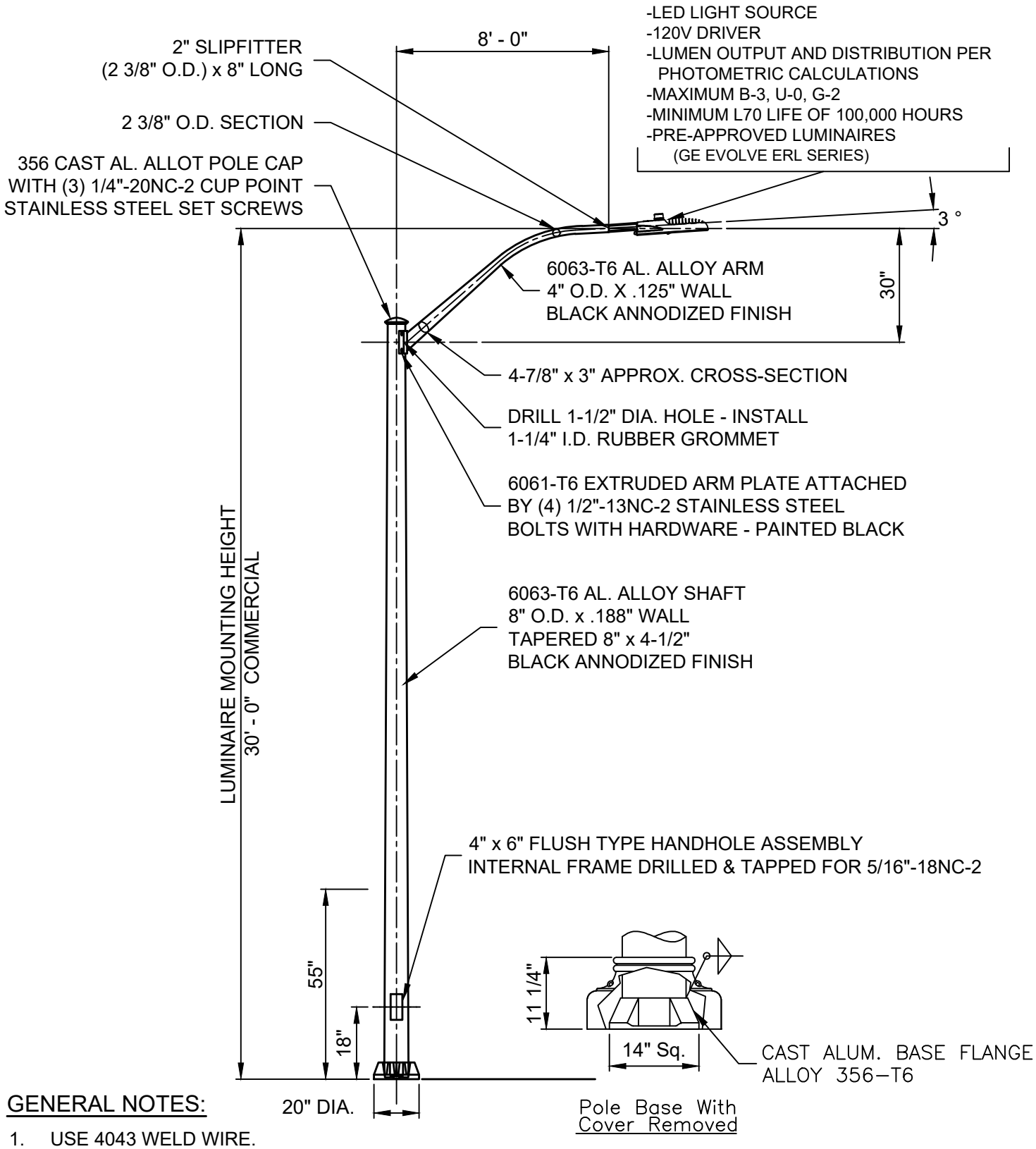


TRENCH DETAIL - PAVED AREAS



TRENCH DETAIL - UNPAVED AREAS

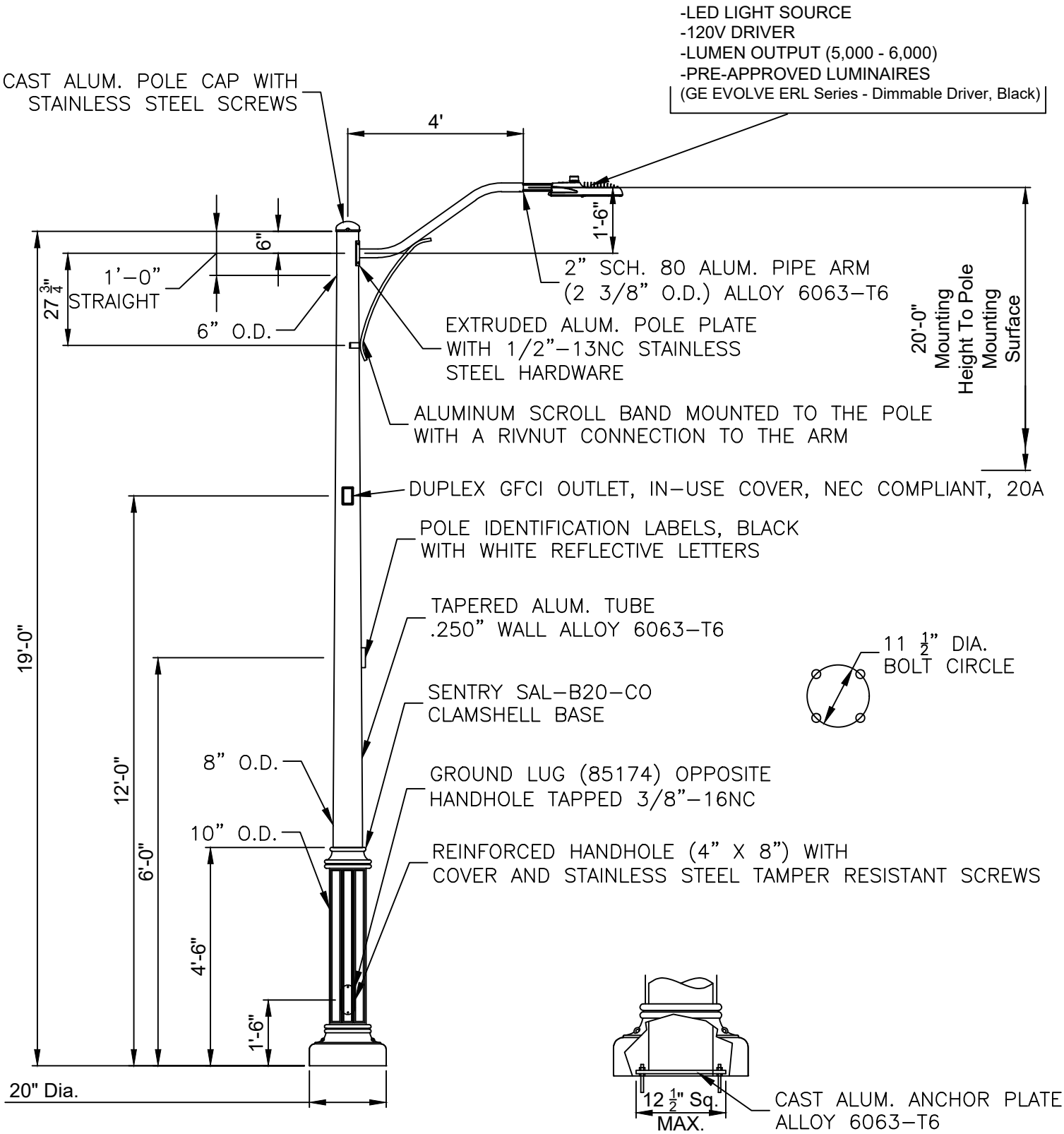
REV.:	REV.:	TRENCH DETAILS	VILLAGE OF ITASCA
REV.:	REV.:		LIGHTING 4
DRAWN BY: REL	DATE: 3-14-2018		



GENERAL NOTES:

1. USE 4043 WELD WIRE.
2. 6063-T4 ASSEMBLY .375 WALL OR LESS TO BE HEAT-TREATED TO T6 TEMPER AFTER WELDING.
3. THE LIGHTING UNITS SHALL MEET AASHTO DESIGN CRITERIA. DESIGN FOR 90 M.P.H. WIND WITH 30% GUST AND 75 POUND LUMINAIRE HAVING AN E.P.A. OF 1.6 SQ. FT. AND PROPER ICE LOADING.
4. LIGHT POLE AND ASSOCIATED EQUIPMENT TO BE U.L. LISTED
6. POLE DESIGNED PER AASHTO 2015 FOR A 115 MPH WIND SPEED SUPPORTING (1) 1.6 FT² EPA, 55 LBS FIXTURE MOUNTED AT THE END OF EACH 8' ARM.
7. ALUMINUM ALLOY 6063-T6 SHALL BE USED.
8. ALL POLE COMPONENTS, ACCESSORIES, BRACKETS, AND EXPOSED HARDWARE SHALL BE BLACK.

REV.: 06-09-2022	REV.: 11-28-2021	TYPICAL POLE INSTALLATION IN COMMERCIAL AREAS	VILLAGE OF ITASCA
REV.: 04-25-2022	REV.: 10-12-2021		LIGHTING 5
DRAWN BY: REL	DATE: 2-1-2021		



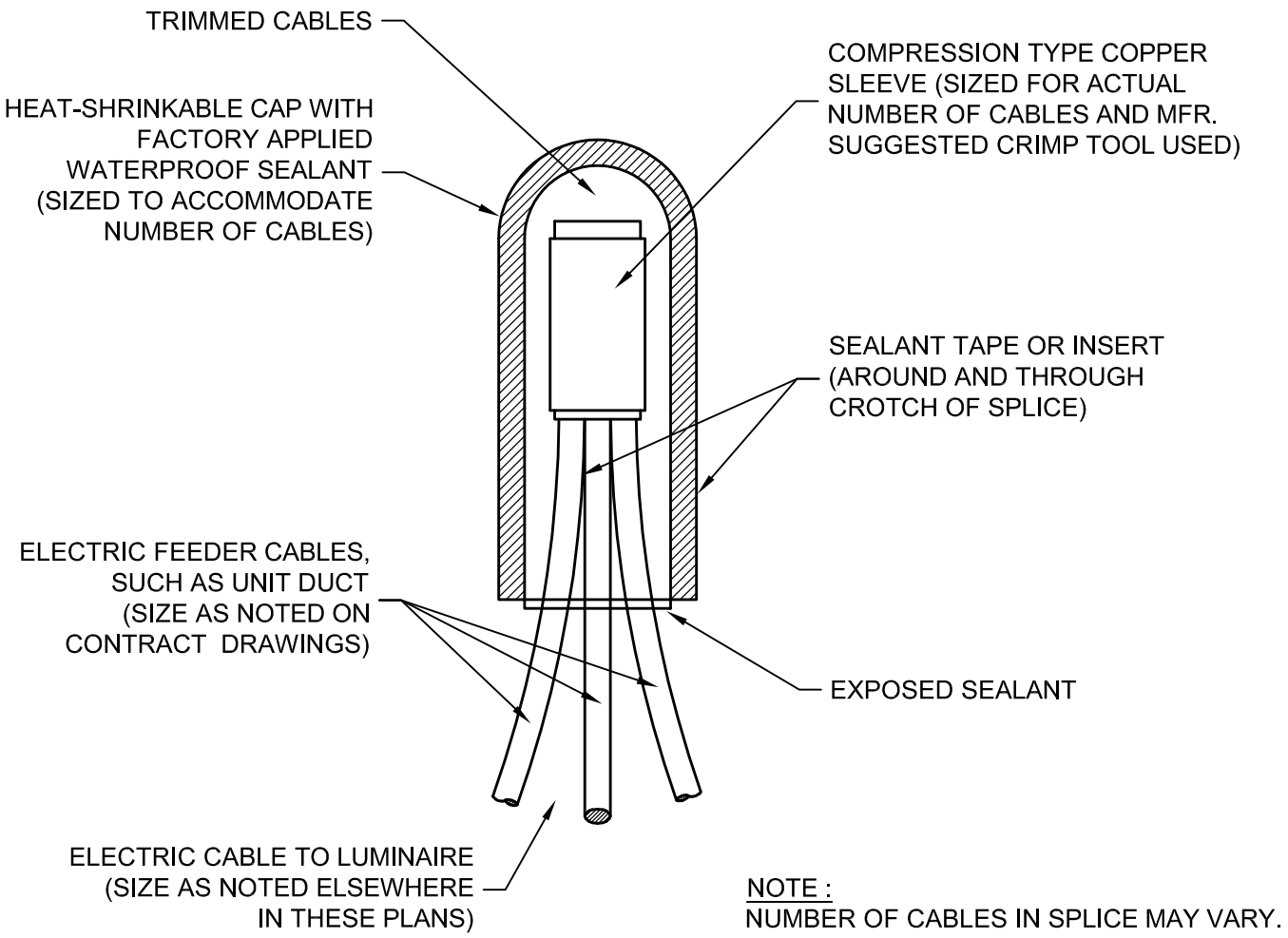
Pole Base With Cover Removed

GENERAL NOTES:

POLE INSTALLATION

1. USE 4043 WELD WIRE.
2. 6063-T4 ASSEMBLY .375 WALL OR LESS TO BE HEAT-TREATED TO T6 TEMPER AFTER WELDING.
3. THE LIGHTING UNITS SHALL MEET AASHTO DESIGN CRITERIA. DESIGN FOR 90 M.P.H. WIND WITH 30% GUST AND 75 POUND LUMINAIRE HAVING AN E.P.A. OF 1.6 SQ. FT. AND PROPER ICE LOADING.
4. LIGHT POLE AND ASSOCIATED EQUIPMENT TO BE U.L. LISTED
5. SHAFT AND BRACKET(S) (SKJKOPP59507B) HEAT TREATED TO -T6 TEMPER AFTER WELDING.
6. POLE DESIGNED PER AASHTO 2015 FOR A 115 MPH WIND SPEED SUPPORTING (1) 1.6 FT² EPA, 55 LBS FIXTURE MOUNTED AT THE END OF EACH 4' ARM, AND (1) 2.2 FT2 EPA, 60 LBS FIXTURE MOUNTED AT THE END OF THE PEDESTRIAN ARM WITH THE BASE OF THE POLE MOUNTED AT GRADE LEVEL.
7. ALUMINUM ALLOY 6063-T6 SHALL BE USED.
8. ALL POLE COMPONENTS, ACCESSORIES, BRACKETS, AND EXPOSED HARDWARE SHALL BE POWDER COATED BLACK.

REV.:	REV.: 04-25-2022	TYPICAL POLE INSTALLATION IN RESIDENTIAL AREAS	VILLAGE OF ITASCA
REV.: 06-09-2022	REV.: 11-28-2021		LIGHTING 5A
DRAWN BY: REL	DATE: 11-1-2021		



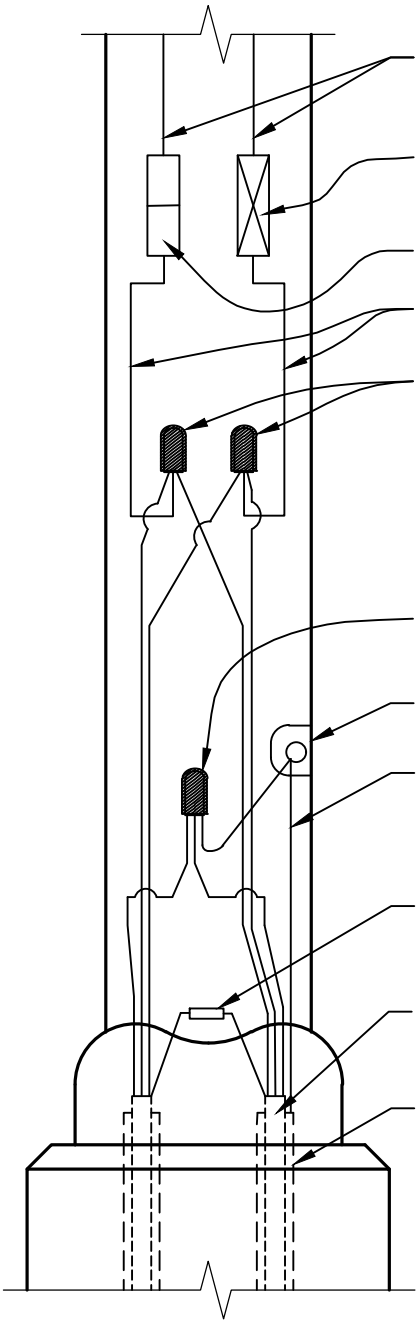
NOTE :
NUMBER OF CABLES IN SPLICE MAY VARY.

SPLICING ELECTRIC CABLES
BASIC MATERIALS AND METHODS

REV.:	REV.:	SPLICING ELECTRIC CABLES BASIC MATERIALS AND METHODS	VILLAGE OF ITASCA LIGHTING 6
REV.:	REV.:		
DRAWN BY: REL	DATE: 3-14-2018		

NOMINAL WATTAGE	FUSE SIZE
80	2.0 AMP

LUMINAIRE FUSE SIZE TABLE



NO SPLICING ALLOWED FROM THIS POINT TO LUMINAIRE

CONNECTOR KIT W/FUSEHOLDER & INSULATING BOOTS (QUICK DISCONNECT TYPE) REFER TO FUSE SIZES ABOVE

UNFUSED CONNECTOR KIT (QUICK DISCONNECT TYPE)

NO.10 AWG WIRE

COMPRESSION SLEEVE CONNECTION SEALED WITH HEAT-SHRINK CAP REFER TO SPLICING ELECTRIC CABLES DETAIL, (LIGHTING DETAIL 6)

COMPRESSION SLEEVE CONNECTION SEALED WITH HEAT-SHRINK CAP REFER TO SPLICING ELECTRIC CABLES DETAIL, (LIGHTING DETAIL 6)

GROUND LUG

NO. 6 BARE COPPER WIRE TO GROUND ROD

INSULATING LINK

1-1/4" DUCT W/3-1/C, NO. 6 AWG, AND 1/C NO. 8 GROUND WIRE (RED CONDUCTOR CIRCUIT A, BLACK CONDUCTOR CIRCUIT B, WHITE NEUTRAL, AND GREEN GROUND INSULATION)

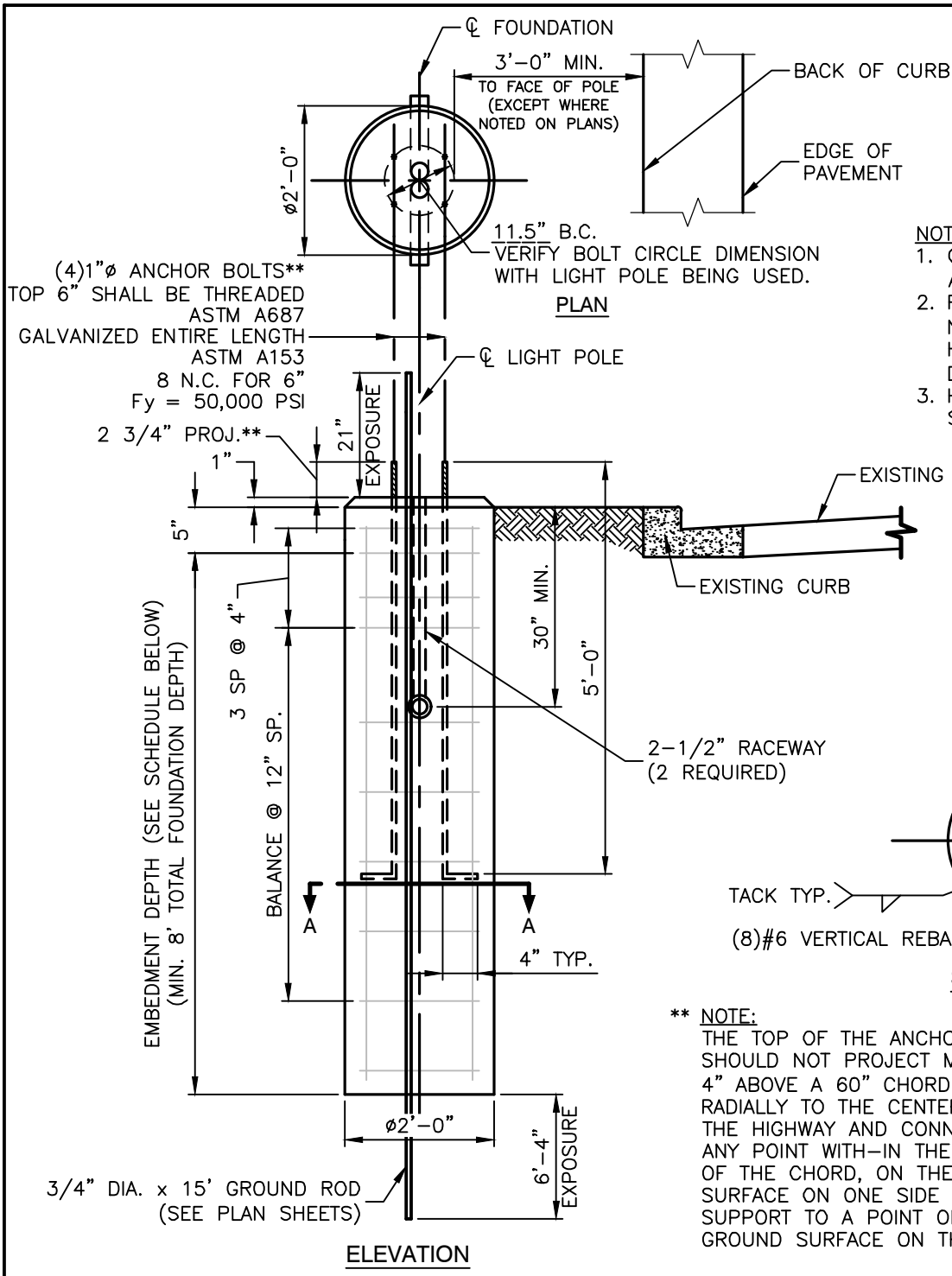
50MM (2") RACEWAY

NOTE :
ALLOW 750MM (30") LOOP OF CABLES TO INSURE SUFFICIENT SLACK FOR WITHDRAWAL OF THE CONNECTORS OUTSIDE OF THE POLE HANDHOLE.

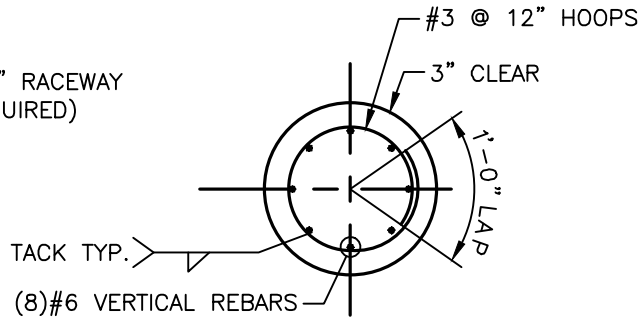
POLE HANDHOLE WIRING DIAGRAM

(TYPICAL FOR SINGLE LUMINAIRE INSTALLATION)

REV.:	REV.:	POLE HANDHOLE WIRING DIAGRAM	VILLAGE OF ITASCA
REV.:	REV.:		LIGHTING 7
DRAWN BY: REL	DATE: 3-14-2018		



NOTES:
1. CONCRETE SHALL BE 3500 PSI AT 14 DAYS. (CLASS SI)
2. REINFORCING BARS SHALL BE OF NEW BILLET STEEL (ASTM A615) HAVING Fy = 60,000 PSI AND DEFORMED (ASTM A307)
3. HOLE FOR THE FOUNDATION SHALL BE AUGURED



SECTION A-A

** NOTE:
THE TOP OF THE ANCHOR BOLTS SHOULD NOT PROJECT MORE THAN 4" ABOVE A 60" CHORD ALIGNED RADIALLY TO THE CENTERLINE OF THE HIGHWAY AND CONNECTING ANY POINT WITH–IN THE LENGTH OF THE CHORD, ON THE GROUND SURFACE ON ONE SIDE OF THE SUPPORT TO A POINT ON THE GROUND SURFACE ON THE OTHER SIDE.

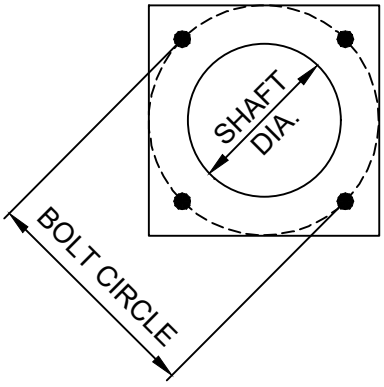
FOUNDATION SCHEDULE*

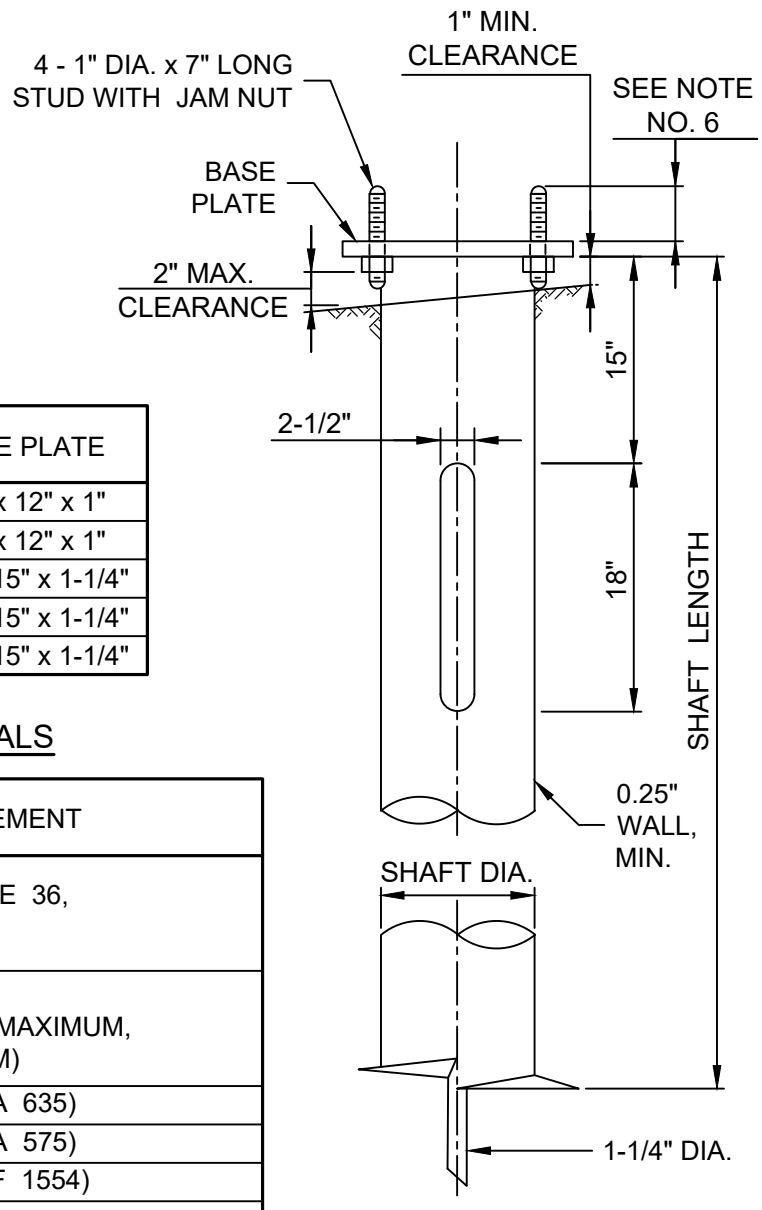
TYPE OF SOILS		EMBEDMENT MOUNTING HEIGHT				
DESCRIPTION	STANDARDS	25 FT.	30 FT.	35 FT.	40 FT.	50 FT.
SOFT CLAY	Qu= .25–.50 T/FT.²	9'–0"	9'–0"	9'–8"	10'–6"	14'–0"
MEDIUM CLAY	Qu= .50–1.0 T/FT.²	7'–6"	7'–6"	7'–6"	7'–6"	10'–0"
DENSE CLAY	Qu= 1.0–2.0 T/FT.²	7'–6"	7'–6"	7'–6"	7'–6"	8'–6"
LOOSE SAND	N= 4–10	7'–6"	7'–6"	7'–8"	8'–4"	11'–0"
MEDIUM SAND	N= 10–30	7'–6"	7'–6"	7'–6"	7'–6"	9'–6"
DENSE SAND	N= 30–50	7'–6"	7'–6"	7'–6"	7'–6"	8'–6"

* NOTE:
TOTAL FOUNDATION DEPTH (8' MIN.) EQUALS EMBEDMENT DEPTH (FROM SCHEDULE) PLUS 6".

TYPICAL CONCRETE LIGHT POLE FOUNDATION

REV.:	REV.:	TYPICAL CONCRETE LIGHT POLE FOUNDATION	VILLAGE OF ITASCA
REV.:	REV.:		LIGHTING 8
DRAWN BY: REL	DATE: 2-9-2021		





HELIX FOUNDATION SIZE

POLE MOUNTING HEIGHT	BOLT CIRCLE	SHAFT DIA.	SHAFT LENGTH	BASE PLATE
30 FT.	11-1/2"	8-5/8"	6 FT.	12" x 12" x 1"
31 FT.- 35 FT.	11-1/2"	8-5/8"	6 FT.	12" x 12" x 1"
36 FT.- 40 FT.	15"	8-5/8"	6 FT.	15" x 15" x 1-1/4"
41FT.- 45 FT.	15"	8-5/8"	6 FT.	15" x 15" x 1-1/4"
46 FT.- 50 FT.	15"	10"	8 FT.	15" x 15" x 1-1/4"

METAL HELIX FOUNDATION MATERIALS

ITEM	MATERIAL REQUIREMENT
BASE PLATE	AASHTO M 270M GRADE 36, (M 270M, GRADE 250)
SHAFT	ASTM A 252, GRADE 2 (PHOSPHOROUS 0.04% MAXIMUM, SULFUR 0.05% MAXIMUM)
HELIX SCREW	AASHTO M 183 (ASTM A 635)
PILOT POINT	AASHTO M 270 (ASTM A 575)
ANCHOR RODS / STUDS	AASHTO M 314 (ASTM F 1554)
HEXIGON NUTS	AASHTO M 291M (ASTM A 563) GRADE DH, OR AASHTO M 292 (ASTM A 194) GRADE 2H
WASHERS	AASHTO M 293 (ASTM F 436)

(SEE DETAIL SHEET: LIGHTING 8B FOR GENERAL NOTES)

REV.:	REV.:	LIGHT POLE FOUNDATION, METAL	VILLAGE OF ITASCA
REV.:	REV.:		LIGHTING 8A
DRAWN BY: REL	DATE: 2-9-2021		

GENERAL NOTES:

1. ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SHOWN.

2. ALL MATERIAL SHALL BE GALVANIZED ACCORDING TO AASHTO M111, UNLESS OTHERWISE SPECIFIED.

3. ALL WELDS SHALL BE CONTINUOUS AND NOT LESS THAN 1/4" FILLET WELDS. THE WELDED FOUNDATION SHALL BE CAPABLE OF WITHSTANDING 10,000 FT/LBS OF INSTALLATION TORQUE APPLIED ABOUT THE AXIS OF THE FOUNDATION.

4. THE HELIX FOUNDATION SHAFT SHALL BE INSTALLED VERTICAL AND THE BASE PLATE SHALL BE IN LEVEL. THE BREAKAWAY COUPLINGS AND HARDWARE SHALL NOT BE USED TO ALIGN THE POLE INSTALLATION.

5. THE CABLE TRENCH SHALL BE BACKFILLED AND FIRMLY COMPACTED BEFORE THE INSTALLATION OF THE LIGHT POLE.

6. THE CONTRACTOR SHALL COORDINATE EXTENSION OF ANCHOR BOLTS ABOVE TOP OF THE BASE PLATE WITH THE BREAKAWAY DEVICE MANUFACTURER'S REQUIREMENTS.

7. ANY VOIDS WITHIN THE METAL FOUNDATION SHALL BE FILLED WITH FINE AGGREGATE.

8. METAL FOUNDATIONS SHALL BE INSTALLED IN UNDISTURBED SOIL. PRE-DRILLING A PILOT HOLE AND/OR BACKFILLING AROUND THE FOUNDATION IS NOT ALLOWED.

9. THE METAL FOUNDATION SHALL NOT BE INSTALLED TO A TORQUE WHICH EXCEEDS THE MANUFACTURER'S MAXIMUM TORQUE RATING NOR SHALL IT BE INSTALLED TO AN INSTALLATION TORQUE VALUE OF LESS THAN 3,500 FT LB. METAL FOUNDATIONS THAT ARE NOT INSTALLED TO FULL INSTALLATION DEPTH OR DO NOT ACHIEVE THE MINIMUM INSTALLATION TORQUE SHALL BE REMOVED AND REPLACED WITH A CONCRETE FOUNDATION AT NO ADDITIONAL COST.

10. THE BASE PLATE SHALL BE PERPENDICULAR TO THE SHAFT AXIS (± 1°) TO THE SHAFT AXIS AND THE HOLE CENTERLINE SHALL BE CONCENTRIC (± 0.188) TO THE SHAFT AXIS.

11. THE PILOT POINT AND SHAFT AXIS SHALL BE CONCENTRIC (± 0.125) AND IN LINE (± 2°).

12. THE BASE PLATE SHALL BE STAMPED WITH THE MANUFACTURER'S NAME AND DATE OF MANUFACTURE.

(SEE DETAIL SHEET: LIGHTING 8A FOR DETAIL AND FOUNDATION SIZES / MATERIALS)

REV.:	REV.:	LIGHT POLE FOUNDATION, METAL	VILLAGE OF ITASCA
REV.:	REV.:		LIGHTING 8B
DRAWN BY: REL	DATE: 3-14-2018		