

THIS ORDINANCE IS DEDICATED TO THE MEMORY OF

MR. C. RICHARD MILLARD

WHOSE DEDICATION TO THE TOWN OF ST. JOHN, THE ST. JOHN PLAN COMMISSION, AND VARIOUS OTHER TOWN COMMISSIONS HAS BEEN AND CONTINUES TO BE GREATLY APPRECIATED.

TOWN OF ST. JOHN, LAKE COUNTY, INDIANA

SUBDIVISION CONTROL ORDINANCE

ORDINANCE NUMBER 1707

AN ORDINANCE AMENDING AND RESTATING THE TOWN OF ST. JOHN SUBDIVISION CONTROL ORDINANCE, BEING AN ORDINANCE REGULATING THE SUBDIVISION OF LAND; DEFINING TERMS; ESTABLISHING REGULATIONS AND DESIGN STANDARDS FOR IMPROVEMENTS; ESTABLISHING PROCEDURES FOR THE PRESENTATION, APPROVAL, AND RECORDING OF PLATS OF SUBDIVISION; ESTABLISHING STANDARDS FOR EXTENSION OF WATER, SEWER AND OTHER MUNICIPAL SERVICES; ESTABLISHING STORM WATER DRAINAGE STANDARDS; ESTABLISHING PARK DEDICATION PROCEDURES; AND ESTABLISHING ADMINISTRATION AND ENFORCEMENT PROCEDURES.

NOW BE IT ORDAINED AND ENACTED BY THE TOWN COUNCIL OF THE TOWN OF ST. JOHN, INDIANA, pursuant to Indiana Code 36-7-4-700, at seq., as amended from time to time.

TABLE OF CONTENTS

TITLE I – INTRODUCTION AND GENERAL PROVISIONS	6
Section 1: Short Title.....	6
Section 2: Jurisdictional Area.....	6
Section 3: Authority	6
Section 4: Conformance	6
Section 5: Conflict.....	6
Section 6: Purpose	6
Section 7: Non-Applicability.....	7
Section 8: Compliance.....	7
Section 9: Issuance of Building Permits.....	7
Section 10: Plat of Survey	7
TITLE II – DEFINITIONS	8
Section 1: Inclusions	8
Section 2: Terms.....	8
TITLE III – PROCEDURE FOR SUBMISSION OF SUBDIVISIONS.....	9
Section 1: General	9
Section 2: Pre-Application Conferences and Study Sessions	9
Section 3: Primary (Preliminary) Plat	10
Section 4: Secondary (Final) Plat.....	16
TITLE IV – REQUIRED IMPROVEMENTS	26
Section 1: General	26
Section 2: Monuments, Markers and Notches.....	26
Section 3: Streets and Sidewalks.....	27
Section 4: Utilities	28
Section 5: Other Improvements.....	31
TITLE V – DESIGN STANDARDS.....	32
Section 1: General	32
Section 2: Natural Features	32
Section 3: Streets	32
Section 4: Curb and Gutter	40
Section 5: Sidewalks	42
Section 6: Potable Water Distribution Systems	42
Section 7: Fire Hydrants.....	42

Section 8:	Street Lighting	43
Section 9:	Lots	44
Section 10:	Blocks	46
Section 11:	Planned Unit Development (See Zoning Ordinance)	46
Section 12:	Easements	46
Section 13:	Manhole Covers	47
Section 14:	Bridges	47
Section 15:	Sanitary Sewer Systems	47
Section 16:	Wellhead Protection Plan	47
Section: 17:	Traffic Study	47
TITLE VI – STORM WATER DRAINAGE GUIDELINES		48
Section 1:	General Policy	48
Section 2:	Design Control Guidelines	48
Section 3:	Design Criteria	49
Section 4:	Roadway Culverts	50
Section 5:	Storm Sewers	52
Section 6:	Open Watercourse	54
Section 7:	Routing Path	56
Section 8:	Detention or Retention	57
Section 9:	Grading Plan	59
TITLE VII - PUBLIC SITES, OPEN SPACES AND PARK DEDICATION		72
Section 1:	Impact Fee Ordinance	72
Section 2:	Jurisdiction and Impact Zone	72
Section 3:	Zone Improvement Plan (Infrastructure Improvement Plan) Impact Fee	72
Section 4:	Credit in Lieu of Impact Fee Payment	72
Section 5:	Due Date of Impact Fee	73
Section 6:	Lien Rights	73
Section 7:	Appeals	73
Section 8:	Amendments	73
TITLE VIII – ADMINISTRATION AND ENFORCEMENT		74
Section 1:	Enforcement	74
Section 2:	Inspection	74
Section 3:	Maintenance	74
Section 4:	Acceptance	75

Section 5: Permits.....	75
Section 6: Occupancy.....	76
Section 7: Appeals.....	77
Section 8: Waivers and Exceptions.....	77
Section 9: Separability.....	77
Section 10: Penalties.....	78
TITLE IX – REPEAL, AMENDMENT AND EFFECT.....	78
Section 1: Repeal of Conflicting Ordinances.....	78
Section 2: Amendments.....	78
Section 3: Effect.....	78
TITLE X – PRINTING AND PUBLICATION.....	79
TITLE XI – VALIDITY AND ADOPTION.....	79
APPENDIX A.....	80
Section 1: General.....	80
Section 2: Pipe.....	81
Section 3: Protection of Water Mains:.....	85
Section 4: Pipeline Installation for Water Mains:.....	86
Section 5: Disinfection:.....	91
Section 6: Water Main Pressure Testing:.....	93
Section 7: Valves for Water Main:.....	93
Section 8: Fire Hydrant:.....	94
Section 9: Water Services :.....	95
Section 10: Administration and Enforcement:.....	97
APPENDIX B.....	108
Section 1: Requirements for Underground Wiring:.....	108
Section 2: Construction:.....	108
Section 3: Aluminum Poles and Bracket Arm:.....	111
Section 4: Submittal, Inspections, and Approvals:.....	114
Section 5: Decorative Lighting.....	115

TITLE I – INTRODUCTION AND GENERAL PROVISIONS

Section 1: Short Title

This ordinance shall be known and may be cited as the Subdivision Control Ordinance of the Town of St. John, Lake County, Indiana.

Section 2: Jurisdictional Area

This Ordinance shall apply to all incorporated and future incorporated land within the Town of St. John, Indiana, on the Jurisdictional Area Map, defined as the Town Boundary and Utility Boundary Map as amended from time to time, on file with the County Recorder, Lake County, Indiana.

Section 3: Authority

This Ordinance is in accordance with the authority granted by Indiana Code 36-7-4-700 et seq. as amended from time to time, and all acts amendatory thereto to the Town Council, Plan Commission and Sanitary and Water Boards, hereinafter referred to as the Governing Body of the Town of St. John, hereinafter referred to as the Municipality.

Section 4: Conformance

In addition to the provisions of this Ordinance, all subdivisions shall conform to the Zoning Ordinance, as amended from time to time, and the Comprehensive Master (land use and thoroughfare) Plan, as amended from time to time, for the Municipality and its extra-territorial planning area.

Section 5: Conflict

Whenever there is a difference between minimum standards or dimensions specified herein and those contained in other Regulations, Resolutions or Ordinances of the Town, County or State, the highest standards shall govern.

Section 6: Purpose

This Ordinance is adopted in accordance with the St. John Zoning Ordinance for the following purposes:

- A. To ensure equitable processing and review of all subdivision plans by establishing and maintaining uniform procedures and standards.
- B. To promote the health, safety, morals, comfort, prosperity and general welfare of the Municipality.
- C. To assist, approve and regulate the orderly and efficient development of the Town.

Section 7: Non-Applicability

This Ordinance shall not apply to:

- A. Transfers of interests in land by will or pursuant to court order;
- B. Leases for a term not to exceed ten (10) years, mortgages or easements;
- C. The sale or exchange of parcels of land unless made for the purposes of construction or development, immediate or future.

Section 8: Compliance

No platting or division of land within the Municipality or within its extra-territorial plat approval jurisdiction shall be permitted if it results in a subdivision, unless a plat of the subdivision is submitted and approved in accordance with this Ordinance.

No land use (zoning) or building permits shall be issued for construction on any real estate or lot until the final plat for the same has been duly recorded.

Section 9: Issuance of Building Permits

Prior to issuance of building permits, there shall be minimum road access improvements to provide accessibility for emergency vehicles and installation of backed curbs and temporary benchmarks to provide data reference for foundation grades. Access surfaces shall consist of compacted aggregate base and an intermediate course, curb to curb, with all associated utilities (storm and sanitary sewers, water and the like) in place, as set forth herein. Construction benchmarks shall be located within a six hundred (600) foot radius of all lots. Building permits shall not be issued until all improvements are installed, inspected and approved except for final asphalt surface and street lights. Street lights shall be installed prior to any home occupancies and in any case, within 9 months of secondary plat approval. All improvements include the installation of street signs and stop signs.

Section 10: Plat of Survey

Prior to the issuance of any building or land use permit, a Plat of Survey shall be provided, signed and sealed by a professional registered land surveyor, licensed in Indiana, responsible for the preparation of the same, showing all existing and proposed structures of subject property and flood zone designation.

TITLE II – DEFINITIONS

Section 1: Inclusions

For the purpose of these regulations, certain words and phrases used herein shall be interpreted as follows:

- A. The word "person" includes an individual, firm, association, organization, partnership, trust, company, corporation or any other legal entity.
- B. The masculine includes the feminine.
- C. The present tense includes the past and future tense and the singular number includes the plural.
- D. The word or term "shall" is a mandatory requirement.
- E. The word "may" is a permissive requirement.
- F. The word or term "should" is a preferred requirement.
- G. The words "used" or "occupied" shall be construed to include the words "intended, arranged, or designed to be used or occupied".
- H. The word "lot" includes the words "plot, plat, parcel and tract".
- I. The word "subdivider" is any person who undertakes the platting or subdivision of land. The subdivider may be the owner or the authorized agent of the owner of the land to be subdivided.

Section 2: Terms

For the purpose of this Ordinance, the terms or definitions found in the current Town of St. John Zoning Ordinance, as amended from time to time, will apply.

TITLE III – PROCEDURE FOR SUBMISSION OF SUBDIVISIONS

Section 1: General

No person proposing a subdivision, plat or P.U.D. shall sell, agree to sell, transfer, lease or otherwise convey any lot, parcel or tract in a subdivision, or construct or commence the construction of any building or structure in a subdivision until the Secondary (Final) Plat of the proposed subdivision is approved by the Plan Commission and recorded in accordance with provisions hereof.

No person proposing a subdivision, plat or P.U.D. shall proceed with any grading and improvements for streets or installation of public utilities until the Primary (Preliminary) Plat of the proposed subdivision is approved by the Plan Commission.

Section 2: Pre-Application Conferences and Study Sessions

A person desiring approval of a plat shall first meet with Town representatives of the Public Works, Fire Department, Police Department and Building and Planning Departments at a Pre-Application Conference to discuss the general proposal. A drawing of the proposed subdivision, drawn on a topographic survey map, should be submitted for that Pre-Application Conference. The subdivider shall also submit a location map showing the relationship of the proposed subdivision to traffic arteries, existing community facilities and adjacent properties.

If, after the Pre-Application Conference, the subdivider desires to proceed with an application for subdivision approvals, the subdivider shall then appear before the Plan Commission at a Study Session to discuss the proposal before filing an application for Primary (Preliminary) Plat approval. No fee or formal application is required for this meeting. The subdivider must be prepared to discuss the details of his/her proposed subdivision, including, but not limited to, such items as follows on the drawing.

- A. A scale of not less than 1" = 100'.
- B. Date, north point and scale.
- C. The dimensions of all lot and property lines showing the relationship of the subject property to abutting properties within 300' of property lines.
- D. The location and right-of-way widths of all abutting streets, and utility and drainage easements.
- E. The names and addresses of the architect, planner, designer, engineer, or person responsible for the preparation of the site plan.

Section 3: Primary (Preliminary) Plat

A. Primary (Preliminary) Plat Submission

The subdivider shall be responsible for providing all information and documentation deemed necessary as required by the Town and shall bear the burden of proof for the subdivision approval before the Plan Commission.

If after the Pre-Application Conference and the Study Session(s), the subdivider intends to pursue subdivision approval, the subdivider shall submit an application for approval of a Primary (Preliminary) Plat to the, Building and Planning Department (copy) and the Clerk-Treasurer (original) with payment to the Town Clerk-Treasurer in the manner required by the Town. The subdivider shall further be required to pay the prescribed application and plat review fee at the time of the filing of the application to the Town Clerk-Treasurer. The plat review fee shall be \$1,500.00- or \$200 per lot whichever is greater. If the subdivision proposal proceeds to the Secondary Plat approval stage where an additional review fee of 2% of the costs of improvement is required, then this plat review fee shall be deducted from the 2% fee due at that time.

Within thirty (30) days after the receipt of the application and payment of the application fee, the Plan Commission shall announce the date for the public hearing before the Plan Commission on the Primary (Preliminary) Plat of the subdivision.

The Plan Commission, when announcing the date for the public hearing, shall provide the applicant instructions for the giving of notice to the public of the hearing of the application for Primary (Preliminary) Plat approval pursuant to state law and Plan Commission rules.

A digital copy of the Primary (Preliminary) Plat must be presented to the Building and Planning Department at least thirty (30) days prior to the public hearing meeting scheduled for the Primary (Preliminary) Plat.

One copy of plat plans and corroborating information further shall be in the possession of both the Town Engineer and town staff thirty (30) days prior to any Plan Commission meeting at which the plat will be considered. Corrected plans shall also be in the possession of the Town Engineer and town staff at least fourteen (14) days before any subsequent meeting. Any additional or subsequent changes shall be considered a separate submittal and subject to the fourteen (14) day advance submittal requirement.

Proposed plats will be reviewed by various Town Departments (i.e. Police, Fire, Public Works, Building & Planning, etc.) and their comments will be forwarded to the Town Engineer.

B. Primary (Preliminary) Plat Plan Preparation

The Primary (Preliminary) Plat shall be prepared in accordance with and shall be prepared as follows:

1. The plat shall be drawn at a scale of not less than one hundred (100) feet to one (1) inch on a sheet(s) a minimum of twenty-four (24) by thirty-six (36) inches in size. For phased developments, all phases shall be shown on the Primary (Preliminary) Plat.
2. The proposed plat shall also show:
 - a. A vicinity key map at an appropriate scale showing the layout of the proposed subdivision and all existing subdivisions, street and tract lines, acreage of parcels of land immediately adjoining the proposed subdivision, between it and the nearest existing thoroughfares. It shall also show how streets in the proposed subdivisions may connect with existing and proposed streets in neighboring subdivisions or undeveloped property to produce the most advantageous development of the entire neighboring area.
 - b. Existing sewers, water mains, culverts, gas and electric, telecommunications, cable TV, telephone, or other underground facilities within the tract, indicating pipe sizes, grades and exact location, as obtained from public records.
 - c. Boundary lines of adjacent unsubdivided and subdivided land, showing owner's name(s).
 - d. Existing zoning of proposed subdivision and adjacent tracts, in zoned areas.
 - e. Contours based on not less than one (1) foot vertical intervals.
 - f. Name of subdivision, name of developer and name of owner(s).
 - g. Legal description of property to be subdivided.
 - h. The name and certification of the registered Professional Land Surveyor.
 - i. Scale shown graphically, date and northpoint.
 - j. Boundary of plat, based upon an accurate traverse with angular and lineal dimensions.
 - k. Exact location, width, length and name of all streets within and adjoining the plat; the naming of streets shall conform to the county system.

- l. True courses and distances to the nearest established street lines or official monuments which shall accurately describe the location of the plat.
- m. County, municipal or section lines accurately tied to the lines of the subdivision by distances and courses, and provide a cross reference to the State Plane coordinate system. GPS (global positioning system) information for reference points can be obtained from Town.
- n. Radii, internal angles, central angles, points of curvature and tangency, lengths of tangents and lengths of all arcs.
- o. All easements or rights-of-way provided for public services or utilities.
- p. All street numbers (addresses), lot numbers and lot lines, with accurate dimensions in feet in hundredths.
- q. Line of all streets with accurate dimensions in feet and hundredths, showing angles or bearings of street and lot lines.
- r. Accurate location and description of all survey monuments or markers, and provide a cross reference to the State Plane coordinate system.
- s. Accurate outlines and legal descriptions of any areas to be dedicated or reserved for public use, with the purposes indicated thereon and in the dedication, and of any area to be reserved by deed covenant for common uses of all property owners.
- t. Building setback lines accurately shown with dimensions.
- u. Flood and storm water information as required by this ordinance.
- v. FEMA flood plain map information reference.
- w. Restrictive covenants of all types, which shall run with the land and shall be documented on the plat.
- x. Certificates of approval.
- y. All requirements of other governmental bodies.
- z. All outlots, detention basin sites, parks, etc. Note whether these areas are to be considered private or public parcels.
- aa. Benchmark description and elevation, using latest USGS datum.

- bb. Drawings detailing subdivision identification monument sign or development sign.
3. Sufficient soils data shall be submitted with the primary (preliminary) plat, based on soil borings to demonstrate that the underlying soils are adequate to accommodate the improvements. At least one soil boring shall be taken for areas zero to two acres in size; two soil borings shall be taken for areas two to five acres in size. For areas more than five acres, one additional soil boring shall be taken for each additional five acres of area. At least one soil boring shall be taken at the proposed detention/retention basin site. If soils unsuitable for the work intended are found, the limit of unsuitable soil is to be determined by additional borings. All soil borings are to be 20 feet deep or to stable soil. A written report of the subsurface soils with recommendations for the construction of the infrastructure and buildings therein shall be submitted and certified by a Professional Engineer or Professional Geotechnical Engineer. Additional borings may be requested by the Public Works, Building & Planning or Town Engineer.
 4. Satisfactory evidence shall show that the proposed water supply and sewage disposal systems meet the requirements of the Indiana Department of Environmental Management as well as the standards of the Town of St. John.
 5. Proposed Plat Conditions shall be shown as follows:
 - a. Layout of streets, their names and widths and also cross walks and easements. Street layout shall include consideration of traffic patterns, traffic circulation, and traffic to be generated by the proposed subdivision; and the Thoroughfare Plan, which is included in the Comprehensive Plan of the Town, shall be consulted as a guide. The Plan Commission may require such frontage streets or roads as it deems necessary.
 - b. Layout, dimensions and numbers of lots and address numbers.
 - c. Parcels of land to be dedicated or reserved for public use or set aside for use for property owners in the subdivision (see Title VII herein). This also entails contact and interaction with Park Board (see Plan Commission Rules).
 - d. Master Drainage Plan. (See Title VI herein).
 - e. All other proposed improvements to be provided by the Subdivider.
 6. Approval of Primary (Preliminary) Plat
- The Plan Commission shall consider the application and Primary (Preliminary) Plat at a public hearing.

If, after the public hearing, the Plan Commission determines that the application and Plat comply with the standards in the Subdivision Control Ordinance, it shall make written findings and a decision granting Primary (Preliminary) Approval of the plat.

If, after the public hearing, the Plan Commission disapproves the Plat, it shall make written findings that set forth its reasons and a decision denying primary (preliminary) approval and shall provide the applicant a copy.

Approval of the Primary (Preliminary) Plat shall entitle the subdivider to final approval of the layout shown by such plat provided the secondary (final) plat conforms substantially to such layout and further, that any conditions of approval set forth at the public hearing have been met and all other Town ordinances have been met.

Primary (Preliminary) Plat approval shall be effective for a maximum period of twelve (12) months unless, upon application by the subdivider in writing, an extension of time is requested. The Plan Commission, finding reasonable grounds therefore, can grant one or more extensions which shall not be for a longer period of time than six (6) months, provided, however, secondary (final) plat approval of any portion of the primary (preliminary) plat, which portion shall be predetermined at the public hearing on the primary (preliminary) plat approval, shall automatically extend the remainder of the primary (preliminary) plat for an additional twelve (12) months.

The subdivider shall submit (2) sets of plans to the Public Works Department, two (2) sets of plans to the Building & Planning Department and one (1) set of plans to the Town Engineer reflecting any revisions and/or contingencies required by the approval of the Primary (Preliminary) Plat.

7. Final Engineering Drawing Certificates

The following forms shall be used in Final Engineering Drawings:

A. Certificates

1. The Final Engineering Drawings shall contain a Certification by a Certified Professional Engineer and/or Registered Land Surveyor that the storm water design installation shall not damage the land being developed, as well as not damage the adjacent and downstream properties, by certification that should read substantially as follows:

"I, the undersigned, state that to the best of my knowledge and belief, the drainage of surface waters will not be changed by the construction of this Subdivision, or that if such surface water drainage will be changed, reasonable provision has been made for the collection and diversion of such

surface waters into public areas or drains which the Subdivider has the right to use, and that such surface waters will be planned for in accordance with the generally accepted engineering practices required by the Town Subdivision Control Ordinance, as amended from time to time."

B. Notations

1. Each lot shall have a notation of minimum elevation, related to United States Coast and Geodetic Survey Datum, below which elevation no entrance into any principal use structure shall be permitted, or shall have a notation that the bottom of entrance openings into the principal use structure will be not less than eighteen (18") inches above the elevation of the top of the curb at the center of the lot or as otherwise required by the Plan Commission, to prevent storm waters from entering the building, and not greater than twenty-four (24") inches above the elevation of the top of the curb at the center of the lot, or as otherwise permitted during the subdivision approval process by the Plan Commission and Town Engineer. For purposes of this Ordinance, as amended from time to time, entrance openings shall be defined as doors or windows.

C. Submission Requirements

1. Final Engineering Drawings to be marked "For Construction", containing the above certifications and notations shall be submitted after preliminary approval of the subdivision has been granted by the Plan Commission. Said Final Engineering Drawings shall contain all revisions made during Preliminary approval review for the subdivision and Final Engineering review as conducted by the Plan Commission and Town Engineer.
2. All applicable contingencies to the preliminary plat of subdivision approval shall also be noted on the Final Engineering Drawings marked "For Construction".
3. Three (3) sets of Final Engineering Drawings marked "For Construction" shall be submitted to the Director of Building and Planning along with the development plans and at least 30 days prior to the public hearing.
4. Failure to meet the requirements as stipulated in "C.3" above shall void the Preliminary approval of the Plat of subdivision unless an extension is granted by the Plan Commission.

D. Compliance Certification

1. Prior to the inspection of the foundation by the Town Building Commissioner, the Town of St. John shall require written certification of compliance with said elevation as set forth in "B. Notations" above by a

Registered Land Surveyor and/or Professional Engineer, licensed in compliance with the Laws of the State of Indiana.

Section 4: Secondary (Final) Plat

A. Secondary (Final) Plat Submission

After approval of the Primary (Preliminary) Plat and specifications of the same by the Plan Commission, and the fulfillment of the requirements of these regulations, three (3) reproducible copies of the Secondary (Final) plat of the subdivision, drawn or copied in a permanent fashion, such as a sepia process, on a matte film 3 mils thick minimum (mylar) or some other dimensionally stable material, and a digital copy of said plat shall be submitted to the Plan Commission. Upon the final approval of plat, one reproducible copy (mylar) shall become the property of the Plan Commission.

One copy of plat plans and corroborating information shall be in the possession of both the Town Engineer and Town Staff twenty one (21) days prior to any Plan Commission meeting at which the plat will be considered. Corrected plans shall also be in the possession of the Town Engineer and the Town Staff fourteen (14) days before any subsequent meeting. Any additional or subsequent changes shall be considered a separate submittal and subject to the fourteen (14) day requirements.

B. Secondary (Final) Plat Plan Preparation

The Secondary (Final) Plat shall be prepared to the same scale and format as the Primary (Preliminary) Plat and shall show at a minimum:

1. A vicinity key map at an appropriate scale showing the layout of the proposed subdivision and all existing subdivisions, street and tract lines, acreage of parcels of land immediately adjoining the proposed subdivision and between it and the nearest existing thoroughfares. It shall also show how streets and alleys in the proposed subdivisions may connect with existing and proposed streets and alleys in neighboring subdivisions or undeveloped property to produce the most advantageous development of the entire neighboring area.
2. Name of subdivision, name of developer and name of owner(s).
3. Legal description of property to be subdivided.
4. The name and certification of the Registered Professional Land Surveyor.
5. Scale shown graphically, date and northpoint.

6. Boundary of plat, based upon an accurate traverse with angular and lineal dimensions. Global positioning system using State Planar coordinates shall also be used.
7. Exact location, width, length and names of all streets within the plat. The naming of streets shall conform to the county system.
8. True courses and distances to the nearest established street lines or official monuments which shall accurately describe the location of the plat.
9. County, municipal or section lines accurately tied to the lines of the subdivision by distances and courses. Global positioning system using State Planar coordinates shall also be used.
10. Radii, internal angles, central angles, points of curvation and tangency, lengths of tangents and lengths of all arcs.
11. All easements or rights-of-way provided for public services or utilities.
12. All street numbers (addresses), lot numbers and lot lines, with accurate dimensions in feet and hundredths. Addresses shall be numeric only. Additionally, single family lot addresses shall increase in even increments of 8 i.e. 2000, 2008, 2016, 2024 etc. Duplex or multifamily addresses within the same common wall structure shall increase in even increments of 2 i.e. 2000, 2002 but the address numbers for each lot shall increase in increments of 8 as noted previously. In areas where the number of lots exceed the number of addresses available with increments of 8, then a smaller increment may be used.
13. Lines of all streets with accurate dimensions in feet and hundredths, showing angles to street and lot lines.
14. Accurate location and description of all survey monuments and markers.
15. Accurate outlines and legal descriptions of any areas to be dedicated or reserved for public use, with the purposes indicated thereon and in the dedication, and of any area to be reserved by deed covenant for common uses of all property owners.
16. Building setback lines accurately shown with dimensions.
17. FEMA floodplain map information reference.
18. Restrictive covenants of all types which shall run with the land and shall be documented on the plat.

19. All street names using the county naming convention.

20. Zoning(s) shall be shown on the plat

C. Plat Plan Preparation Final Conditions

Prior to approval of the plat the developer shall:

1. Secure requirements of other governmental bodies as needed.
2. Secure verification of payment of fees which fees shall include but shall not be necessarily limited to a charge of two (2%) percent of the estimated cost of required improvements for the subdivision pursuant to the Town's Subdivision Control Ordinance. Which shall include, but not necessarily be limited to, curbs, water lines, storm water lines, sanitary sewer lines, streets and sidewalks that are to be placed adjacent to public areas, street signs and street lights, outlots, detention/retention basin sites or any other parcel that requires a sidewalk to be installed by other than the primary use structure builder; that it is the intent of this ordinance that the charge should be based upon the estimated cost of required improvements, the same as the estimate of the engineer for the required improvements in the subdivision and upon which a surety_bond or letter of credit is determined pursuant to the Town's Subdivision Control Ordinance; and however, shall specifically not include– sidewalks that front saleable lots in the fee computation, and further, notwithstanding anything in the foregoing to the contrary, regardless of the cost of required improvements for the plat, there shall be a minimum fee charged per plat in the sum of \$1,500 if the fee would be less than the sum based upon the cost of required improvements aforesaid.

D. Approval of Secondary (Final) Plat:

1. Secondary (Final) approval may be granted for a Secondary Plat of a Subdivision in which the improvements have been completed, and the As-Built plans approved as required by the Subdivision Control Ordinance, as amended from time to time, and any conditions or contingencies imposed by the Plan Commission at the public hearing have been met and satisfied. The Town Engineer, in conjunction with the Town Public Works Director, shall determine whether all improvements have been constructed and completed as required by the Subdivision Control Ordinance, as amended from time to time. The Subdivider shall pay for the costs of all improvements in the Subdivision.
2. Secondary (Final) approval may be granted to a Plat for a Subdivision in which the improvements have not been completed as required by the Subdivision Control Ordinance, as amended from time to time, if:

- a. The Applicant provides an acceptable form of Irrevocable Letter of Credit, acceptable form of Surety, or Cash Escrow Agreement similar to the example shown as follows:

IRREVOCABLE LETTER OF CREDIT

_____ (BANK) _____ Letter of Credit No. _____

_____ (ADDRESS) _____ Date: _____

Beneficiary: _____ Applicant: _____
Town of St. John, Lake County, IN _____
c/o Town Clerk-Treasurer _____
10955 W. 93rd Ave. _____
St. John, IN 46373 _____

AMOUNT: _____ Development: _____

Expiration Date: _____

Gentlemen:

We hereby establish our unconditional and irrevocable Letter of Credit No. _____ in your favor for the account of _____, United States Currency, available by your drafts on us at sight, for the purpose of guaranteeing completion of all improvements required for _____, Unit _____. The required improvements and amounts are itemized as follows:

Water Main	\$ _____
Sanitary Sewer	_____
Storm Drainage System	_____
Stone Base	_____
Asphalt 2" Intermediate	_____
Asphalt 1½" Surface	_____
Curbs	_____
Cut Streets	_____
Engineering	_____
Other	_____
Street lights	_____
Grading/excavating	_____

Street signs _____
As built drawings _____
Subtotal _____
Contingencies (10%) _____

TOTAL _____

All drafts drawn hereunder must be identified as "drawn under _____ Letter of Credit No. _____, dated _____." This Letter of Credit is restricted to the undersigned by the Drawer and payment of said drafts is subject to failure to complete the required improvements for _____. Drafts must be accompanied by your signed statement that said improvements were not made according to specifications.

This Letter of Credit may not be modified, extended, enlarged, or renewed except in writing and with prior approval of _____ (Bank) _____. All draws must be received by _____. If the full amount of the credit is negotiated, the original Letter of Credit must accompany the final draft.

Upon notification by you in writing, _____ (Bank) _____ may amend the amount of the Letter of Credit as work on the required improvements is completed.

This Letter of Credit is subject to Uniform Customs and Practice for Documentary Credits, I.C.C. Publication No. 400.

(Bank)

By: _____

Title: _____

ACCEPTANCE

This Irrevocable Letter of Credit is hereby acknowledged and accepted this _____ day of _____, 20____.

By: _____

Title: _____

The acceptable form of Irrevocable Letter of Credit, Surety or Cash Escrow Agreement shall be in an amount determined by the Plan Commission to be sufficient to complete the improvements and installations in compliance with the Ordinance. The applicant is to provide corroborating information concerning the improvements including the measure of unit, number of units and the respective unit prices for all applicable work items, and shall be subject to the review and recommendation of the Town Engineer and/or Director of Public Works. The Cash Escrow Agreement or Irrevocable Letter of Credit shall be no less than One Hundred Ten percent (110%) of the cost of the required improvements, as estimated by the Town Engineer and approved by the Plan Commission and accepted by the Town Council. In the event that the Applicant provides a Surety other than Cash Escrow Agreement or Irrevocable Letter of Credit, then the minimum amount of any such surety, if approved by and acceptable to the Plan Commission, shall be no less than One Hundred Thirty percent (130%) of the cost of the required improvements, as estimated and approved by the Town Engineer and Town Public Works Director.

- b. The Applicant will provide a warranty/guaranty guaranteeing the required completion of the required improvements within a One (1) year period. The One (1) year period can be extended by the Plan Commission upon request of the Subdivider.
 - c. The irrevocable letter of credit, Surety Bond or cash escrow agreement may be reduced a maximum of two times before being released. The developer must request a reduction in writing to the Building and Planning Department, an amount of the reduced letter of credit, Surety Bond or cash escrow agreement recommended by the Plan Commission and approved by the Town Council. The subdivider shall contact in writing, the Building & Planning Department a minimum of 45 days prior to the expiration of the letter of credit, cash escrow agreement or surety bond for any extension or release thereof.
3. In the case where the improvements have not been completed at the time of the Secondary (Final) Approval, nor within the one-year period or such time as extended by the Plan Commission as within aforesaid, the Town may elect to install any of the required improvements with the invoking of a sixty (60) day notice prior to the expiration of the letter of credit, Surety Bond in order that sufficient funds can be extracted from the letter of credit, Surety Bond to complete or install any improvements lacking completion.

In such event, all amounts held under irrevocable letter of credit, Surety Bond or cash escrow agreement shall be delivered to the town and applied to the cost of the required improvements. Any balance remaining after such improvements have been made shall be returned to the owner or subdivider.

Legal costs to remedy the use of letter of credit, Surety Bond monies will be borne by the provider (developer) of the letter of credit, Surety Bond.

4. After the completion of all improvements, the subdivider shall provide warranty/guaranty guaranteeing the improvements for a period of three (3) years after the completion and acceptance of the same by the Town of St. John in a form substantially as follows:

The Subdivider does hereby warrant and guarantee all work, construction and installation made pursuant hereto, including, but not limited to, streets, curbs and gutters, sidewalks, potable water distribution improvements, stormwater drainage system and detention/retention facilities, sanitary sewer additions and or improvements and any and all other improvements made and are accepted by the Town of St. John, against any defects or imperfections in workmanship, materials or equipment for a period of three (3) years thereafter the date of acceptance thereof by the Town. It is herewith covenanted and agreed that any defects or imperfections either in workmanship, materials or equipment which may exist, develop or become apparent within a three (3) year period will be repaired or replaced as may be necessary to the satisfaction of the Town of St. John at the undersigned's expense without any expense to said Town; said defects or imperfections will be repaired or replaced within a reasonable time after said defect is discovered, brought to the attention of the undersigned and request made for such repair or replacement. The covenants, promises, warranties and guarantees made herein are expressly made to the Plan Commission of the Town of St. John and may be enforced by them and is made in consideration to induce the Plan Commission to accept said Plat and the Town of St. John to accept the aforesaid work and installation.

Signed: _____
Subdivider

5. Upon Secondary (Final) Approval of the Plat by the Plan Commission and in the event the improvements have not been completed, the Plan Commission shall submit the irrevocable letter of credit, Surety Bond or cash escrow agreement to the Town Council for its approval.
6. At the time of the submission of the Secondary (Final) Plat and approval of the same by the Plan Commission, and at the time of submission of the recordable mylar copies of the plat, there shall also be required and submitted by the developer electronic (digital) copies of the subdivision plat in a file format compatible with the version used by the Town. Final validation and as-constructed (as-built) drawings of the plat of subdivision shall also be submitted in the formats above described prior to final approval. Such as-built drawings shall show the town utilities in color on the drawings as follows: in blue for water mains, in green for sanitary mains and in pink for storm water mains. Further,

such as-built drawings shall give the GPS coordinates accurate to within 3" for all hydrants, water valves, buffalo boxes, manholes of any type, storm water inlets and outlets and street lights. Additionally, such as-built drawings shall show rim elevations, invert elevations, pipe sizes, pipe slopes and pipe material. All underground fittings must be labeled: i.e. T fitting 8"x12"x8", 8" Gate valve, 12" ball valve etc.

A copy of the approved and signed Secondary (Final) Plat and a reproducible mylar copy shall be submitted to the County Auditor for recording prior to the sale of any interests of lands within said plat and within thirty (30) days of the approval. The recorded mylar copy shall be returned and filed with the St. John Clerk-Treasurer.

7. Plat Certification:

The following forms shall be used in Final Plats:

A. CERTIFICATES

1. Under the Authority provided by Indiana Code 36-7-4-700 (Sec.700-799), as amended from time to time, and an Ordinance adopted by the Town Council of the Town of St. John, Lake County, Indiana, this Plat of Subdivision was given Final Approval by the Town of St. John as follows:

Approved by the Town of St. John Plan Commission at a meeting held on the _____ day of _____, 20____.

PRESIDENT

SECRETARY

2. Each Final Plat of Subdivision submitted to the Plan Commission for approval shall carry a certificate signed by a Registered Land Surveyor, licensed in compliance with the Laws of the State of Indiana, in substantially the following form: "I (name) hereby certify that I am a Land Surveyor licensed in compliance with the Laws of the State of Indiana; that this Plat of Subdivision correctly represents a survey completed by me on (date); that all the monuments shown thereon actually exist; and that their location, size, type and material are accurately shown."

(Seal) (Signature)

(name and registration number)

B. DEDICATIONS, PROTECTIVE COVENANTS, PRIVATE RESTRICTIONS

1. Each Final Plat of Subdivision submitted to the Plan Commission for approval shall carry a Deed of Dedication in substantially the following form:

"We, the undersigned, (names), owners of the real estate shown and described herein, do hereby certify that we have laid off, platted and subdivided, and do hereby lay off, plat and subdivide, said real estate in accordance with the Plat herein.

This Subdivision shall be known and designated as (name), an Addition to (name). All streets, alleys and easements, as well as park areas, shown and not heretofore dedicated, are hereby dedicated, to the Town of St. John, Lake County, Indiana.

Front and side yard building set-back lines are hereby established as shown on this Plat, between which lines and property lines of the street, there shall be erected or maintained no primary building or structure. There are strips of ground (number) feet in width as shown on this Plat and marked "Easement", reserved for the use of public utilities for the installation of water and sewer mains, storm drainage system, poles, ducts, lines and wires, subject at all times to the proper authorities and to the easements herein reserved. No permanent or other structures are to be erected or maintained upon said strips of land, but owners of lots in this Subdivision shall take their titles subject to the rights of public utilities.

2. (Additional dedications and protective covenants or private restrictions would be inserted hereupon the Subdivider's initiative or the recommendation of the Plan Commission; important provisions are those specifying the use to be made of the property and, in the case of residential use, the minimum floor area.)

C. ACKNOWLEDGEMENT

Each Final Plat submitted to the Plan Commission for approval shall carry an acknowledgement in substantially the following form.

STATE OF INDIANA)
)
COUNTY OF LAKE)

Before me, a Notary Public, in and for said County and State. Personally appeared _____ and acknowledged the execution of the foregoing instrument as his/her voluntary act and deed, for the purpose therein expressed. Witness my hand and Notarial Seal this _____ day of _____, 20____

Notary Public

My Commission Expires: _____ A resident of _____ County

Printed Signature

TITLE IV – REQUIRED IMPROVEMENTS

Section 1: General

All of the required improvements specified in this Title shall be constructed in accordance with Town standards for construction and all other applicable Town, County, State, and Federal regulations.

Section 2: Monuments, Markers and Notches

A. Markers

A complete survey shall be made by a Registered Land Surveyor, contained along with other information or data which the surveyor deems necessary. The following requirements shall be met:

1. The traverse of the exterior boundaries of the tract and of each block, when computed from field measurements of the ground, shall close within a limit of one (1) foot in 10,000 feet or tolerance of perimeter before balancing the survey.
2. Markers shall be placed so that the center of the pipe or marked point shall coincide exactly with the intersection of lines to be marked and shall be set so that the top of the marker is level with the finished grade.
3. Prior to Secondary (Final) Approval, markers shall be set:
 - a. at the intersection of all lines forming angles in the boundary of the subdivision;
 - b. at the intersection of street property lines.
4. Prior to the issuance of a building permit, markers for the lot shall be set:
 - a. at the beginning and ending of all curves along street property lines;
 - b. at all points where lot lines intersect curves, either front or rear;
 - c. at all angles in property lines of lots.
5. Markers are to be placed at all subdivision phase boundary corners, etc.
6. Markers shall consist of iron pipes or steel bars at least twenty four (24) inches long, not less than five-eighths (5/8) inch in diameter and weigh at least one (1) pound per foot. Markers are to be placed at lot corners, etc., as described in 3 and 4 above.
7. Markers shall have a substantial plastic or metal cap permanently affixed thereto showing the Registered Land Surveyor's professional license number and/or the name or identification number of the land surveying firm.

B. Notches or Drill Holes

1. A notch in the curb should be installed to delineate lot property lines.

C. Installation

A letter of credit, surety bond or cash escrow agreement shall be provided to ensure the installation of all requirements of this section.

Section 3: Streets and Sidewalks

A. Grading

The subdivider shall grade the full width of the right-of-way of all streets proposed to be dedicated in accordance with plans and specifications approved by the Town. The subdivider shall grade the roadbeds in the street right-of-way to subgrade.

The subgrade shall have compaction and/or density tests performed as prescribed in the current edition of Standard Specifications of the Indiana Department of Transportation before the base is constructed. Proof rolling of the subgrade shall be required prior to performing compaction and/or density tests. Where fill is required to bring the subgrade to the proper elevation, the same test is required for each lift. Each lift shall not exceed twelve (12") inches in depth, except in cases where the depth of fill required exceeds four (4') feet. In this case, lifts of twenty-four (24") inches may be permissible if a method of compaction is proven to achieve the minimum density required. The location and number of compaction and/or density tests shall be approved by the Public Works Department and/or Town Engineer. Test results are to be submitted in writing to the Department of Public Works or the Building and Planning Department before the next lift or base is installed. The subgrade shall be compacted to a minimum of 95% of Standard Proctor for frontage and minor streets. Compaction requirements for collector and arterial streets shall be per the Town Engineer, but in no case less than 95% of Standard Proctor.

B. Surfacing

After the installation of all utility and storm water drainage improvements, the subdivider shall surface all roadways and streets proposed to be dedicated to the widths described by these regulations and the Comprehensive Plan or Comprehensive Plan components of the Town. Said surfacing shall be done in accordance with plans and standard specifications approved by the Town. The intermediate coat of asphalt and curbs must be installed before any building permits are issued. All street construction shall be performed in the manner prescribed in the applicable sections of the current edition of Standard Specifications of the Indiana Department of Transportation, and in the manner prescribed in any subsequent and applicable Town Ordinance. In any instance

where conflicting requirements may appear between Standard Specifications and an applicable Municipal Ordinance, the Town Engineer shall make the final determination.

C. Curb and Gutter

After the installation of all utility and storm water drainage improvements, the subdivider shall construct concrete curbs and gutters of a roll-type or as otherwise approved. Rebar dowels shall be required at cold joints or across utility trenches.

D. Sidewalks

1. A concrete sidewalk shall be installed on both sides of all streets within the subdivision unless the Plan Commission rules otherwise.
2. Wider than standard sidewalks may be required by the Plan Commission in the vicinity of schools, commercial areas and other places of public assemblage and the Plan Commission may require the construction of sidewalks in locations other than required under the preceding provisions of this Ordinance if such walks are necessary, in their opinion, for safe and adequate pedestrian circulation. Eight (8') foot wide sidewalks shall be required along town streets with a right of way width of 80' and above.
3. Sidewalks shall have curb ramps in line with the sidewalk along the street between blocks that conform with the Americans with Disabilities Act (ADA) at all streets. Cast iron detectable warning mats shall be used at all such curb ramps and shall be painted brick red. The area between sidewalks extended to the curb shall be concrete, not grass or other material that requires maintenance. Such curb area shall not be depressed.

Section 4: Utilities

A. Public Sanitary Sewerage and Private Sewerage Disposal Systems

The subdivider shall construct sanitary sewers in such a manner as to make adequate sanitary sewerage service available to each lot within the subdivision. Service lateral lines should be brought off of the main to a point three (3) feet outside of the easement/right-of-way line, marked with a wooden marker painted orange, placed at the end and extending down to the top of the service lateral line.

The size, type and installation of all sanitary sewers proposed to be constructed shall be in accordance with town standards. The Subdivider shall further be required to comply with the telemetry standards of the Sanitary District of the Town of St. John, as the same are amended from time to time. See Sanitary District Specifications.

All sanitary sewers shall be placed on the south and west side of the street and shall be placed between the sidewalk and curb. All sewers crossing the street shall be at right angles to the center line of the street where possible.

Sanitary sewers shall connect to existing St. John public sanitary sewers. Sanitary sewers shall be constructed to prevent infiltration and inflow of ground water and storm water in accordance with the St. John Sanitary District Specifications.

SUBDIVIDER SHALL ASSUME THE COST OF INSTALLING ALL SANITARY SEWERS

B. Storm Water Drainage and Detention Facilities

The subdivider shall construct storm water drainage and detention facilities which shall include curbs, gutters, manholes, catch basins and inlets, and storm sewers, as may be required; also a storm sewer stub shall be provided for each lot three (3) feet outside of the easement/right-of-way line, marked with a wooden marker painted green, placed at the end and extending down to the top of the stub. All such facilities are to be of adequate size and grade to hydraulically accommodate maximum potential volumes of flow, the type of facility required, the design criteria, and the sizes and grades to be determined as to present no hazard to life or property, and the size, type and installation of all storm water drains and sewers proposed to be constructed shall be in accordance with the plans and standards specifications approved by the Town Engineer and as described in Title VI of this Ordinance.

THE SUBDIVIDER SHALL ASSUME THE COST OF INSTALLING ALL STORM WATER DRAINAGE FACILITIES.

C. Public Water Supply Facilities

1. Water Mains

The Subdivider shall construct water mains in such a manner as to make adequate water service available to each lot within the subdivision. The Town shall require the subdivider to supply the material and labor necessary to tap the water main and extend a service lateral line terminated with a buffalo box valve to a point one (1) foot outside the street lot line and/or right of way line (i.e. on the privately-owned lot) Stainless steel rods and brass cotter pins shall be used when installing the buffalo box valve. Additionally, stainless steel saddles shall be used where C900 water mains are tapped. Further, the subdivider shall place a sturdy wooden marker, painted blue, directly above the service lateral line. Water mains shall be constructed in accordance with the Water Distribution Master Plan.

THE SUBDIVIDER SHALL ASSUME THE COST OF INSTALLING ALL WATER MAINS

All water mains shall be placed on the north and east side of the street and shall be placed between the sidewalk and curb. All water mains crossing the street shall be at right angles to the center line of the street where possible.

2. Fire Hydrants

Fire Hydrants shall be made in the USA and shall be model number EJ5BR250. Hydrants should be placed near each street intersection and intermediate hydrants placed as needed or required. Hydrant placement shall be shown on the final engineering plan. All hydrants need to be outfitted with 5" Storz fittings.

THE SUBDIVIDER SHALL ASSUME THE COST OF INSTALLING ALL HYDRANTS.

D. Other Utilities

All newly constructed utility distribution lines and services lines therefrom for telephone, gas, cable television, telecommunications, and electric service (except electric power substation tie lines), installed thereafter, shall be placed underground. The installation of such facilities shall be made in compliance with applicable orders, rules and regulations of the Public Service Commission of the State of Indiana, now or hereafter effective, and owners or subdividers of any property to be served from such underground installations shall be responsible for compliance with the rules and regulations, now and hereafter effective and filed with said Commission by any public utility whose service will be required with respect to the provisions of such underground facilities.

Plans indicating the location of all utility distribution and transmission lines required to serve the subdivision shall be approved by the Town Engineer and the utility, prior to Secondary (Final) Plat.

E. Utility Street Crossing

Any utility crossing under an existing street must be installed by boring or directional drilling methods. Open cut trenching across existing streets will not be allowed unless approved by the Director of Public Works. All requests to open cut an existing street must be made in writing.

Section 5: Other Improvements

A. Street Lighting

The subdivider shall supply or shall defray all expenses of supplying the subdivision with a street lighting system. Location, design and installation shall be considered as a part of the engineering improvements and requirements, and such plans shall be approved first by the public utility, and then by the Town.

The subdivider shall pay all street light costs to the Town at the time of official approval, including maintenance and operation for two (2) years from installation and acceptance by the Town of St. John, Indiana.

THE SUBDIVIDER SHALL ASSUME THE COST OF INSTALLING ALL STREET LIGHTS.

B. Street Signs

Street name signs of a type adopted or approved by the Town shall be installed at each street intersection, at a location approved by the Public Works Department.

The Public Works Department shall purchase and install all required street name signs and shall be reimbursed for the total cost of all material and labor by the developer upon presentation by the Town of a Statement for same. All street signs including decorative street signs, must comply with the Manual on Uniform Traffic Control Devices (MUTCD) standards.

C. Traffic Control Devices & Signs

The Public Works Department shall purchase and install all required traffic control signs in a number, manner, and location as approved by - the Plan Commission upon recommendation of the engineer for the development. The Town shall be reimbursed for the total cost of all material and labor for such signs by the developer upon presentation by the Town of a Statement of same. Also, all electronic traffic control devices and pavement markings shall be installed and paid for by the subdivider (developer) in a number, manner, and location as approved by the Plan Commission upon recommendation of the engineer for the development.

TITLE V – DESIGN STANDARDS

Section 1: General

Design standards shall assure that the layout of the subdivision harmonizes with existing plans affecting the development and its surrounding area and shall be in conformity with the current Comprehensive (Master) Plan for the development of the entire area.

Section 2: Natural Features

Existing natural features which would add value to the subdivision and the Town, such as trees, valleys, watercourses, wetlands, historic spots and similar irreplaceable assets, shall be preserved, insofar as possible, through harmonious design of the subdivision.

Section 3: Streets

The Plan Commission shall not approve any plat unless all streets shown thereon shall be of sufficient width and proper grade, and shall be so located as to accommodate the anticipated volume of traffic thereon, afford adequate light and air, facilitate fire protection and provide a coordinated system of streets conforming to the current Thoroughfare Plan of the Town as shown in Table 1 Urban Section Standards.

A. General Street Design

1. The design of all streets shall be considered in their relation to existing and planned streets, to reasonable circulation of traffic, to topographical conditions, to runoff of storm water, and to the proposed uses of the area to be served.
2. Where new streets extend existing adjoining streets, their projections shall be at the same or greater width, but in no case less than the minimum required width.
3. Where adjoining areas are not subdivided, the arrangement of streets in new subdivisions shall make provisions for the proper projection of streets. When a new subdivision adjoins unsubdivided land, the new streets shall be carried to the boundaries of such unsubdivided land.
4. As a minimum, all streets shall be constructed with a ten (10) inch compacted #53 limestone Type P, Class A or B aggregate base, a two (2) inch #9 or #11 hot mix asphalt (HMA) intermediate, and a one and one-half (1-1/2) inch paved 11B hot mix asphalt (HMA) surface. Compaction of subgrade is to be 95% of standard proctor. Compaction of limestone base is to be 100% of standard proctor. All subterranean construction below street pavements shall be back-filled with limestone (2 inch or smaller). Prior to placing the street surfacing, approved subsurface drainage for the street shall be provided. Concrete pavements (rigid pavement) may be used by the subdivider on approval of the Town Engineer and the Plan Commission.

5. All subdivisions shall have at least two (2) street accesses.

B. Street Width and Grades

1. Unless necessitated by exceptional topography, subject to the approval of the Plan Commission, the maximum centerline grade of any street or public way shall not exceed the following:

Street	Percent Grade
Arterial Streets	Six (6) percent
Collector streets	Eight (8) percent
Local streets, alleys, and frontage streets	Ten (10) percent
Pedestrian ways	Twelve (12) percent unless steps of acceptable design are provided.

The grade of any street shall in no case exceed twelve (12) percent or be less than one half of one (0.5) percent.

2. Street grades shall be established wherever practicable so as to avoid excessive grading, the indiscriminate removal of ground cover and tree growth, and general leveling of the topography.
3. Minimum right-of-way widths, paving widths, angle of intersection, curb radius, etc., shall be in accordance with Table 1 Urban Section Standards hereafter or as found in the balance of this section.

TABLE 1

URBAN SECTION STANDARDS

Street Type	R.O.W. Width To Be Dedicated	Pavement Width*
Arterial Street: 4-Lane divided	120 feet	Dual: 34 feet (20 foot median)
Not Divided	100 feet	48 feet
Minor Arterial	90 feet	48 feet
Collector Street	70 feet	40 feet
Minor Streets	60 feet	30 feet
Frontage Streets	37 feet	25 feet
* Back of curb or edge of shoulder to back of curb or edge of shoulder.		

C. Street Jogs

Street jogs with center line off-sets of less than 125 feet shall be avoided.

D. Street Intersections

Streets shall intersect at right angles and no intersection shall be at an angle of less than 60 degrees. It must be evidenced that safe and efficient traffic flow is encouraged. Spacing of centerlines crossing a common street shall not be less than 125'.

E. Cul-de-Sacs

Maximum length of pavement cul-de-sac streets shall be 660 feet measured along the center line from the intersection of origin to end of right-of-way. Each cul-de-sac shall be provided at the closed end with a turn-around having a minimum outside roadway diameter of 100 feet and a minimum street property line diameter of 130 feet.

F. Half Streets

Half streets shall be prohibited except where the Town finds it to be practicable to require the dedication of the other half when the adjoining property is subdivided.

G. Street Names

Proposed streets obviously in alignment with existing and named streets shall bear the names of such existing streets. In no case shall the name of the proposed street duplicate an existing street name, including phonetical similarities; the naming of streets shall conform to the county system.

H. Private Streets

Private streets shall be allowed only in planned unit developments subject to the approval of Plan Commission and Town Council. Public improvements, maintenance, or repairs shall not be approved for any private streets.

I. Frontage Streets

Where proposed in the Comprehensive Plan/Thoroughfare Plan, or required by the Plan Commission, frontage streets shall be required and incorporated in the proposed plat. Frontage roads that are part of parking lots will be allowed only with Plan Commission approval. These roads will conform to the Town's standard road construction requirements. Curbs may be required by the discretion of the Plan Commission. Frontage roads must have an easement or right of way. Maintenance of the frontage road will be the responsibility of the landowner including patching, striping, snow removal, etc. Cost of the traffic and street signs required will be paid by the landowner. The Town will install the signs at the cost of the developer.

J. Access to Arterial Streets and Highways

Where a proposed plat is adjacent to an Arterial Street, spacing of less than 600 feet between access points to such thoroughfares as measured from center line of street to center line of street shall be avoided.

K. Corners

Curb lines at street intersections shall be rounded at a radius of not less than twenty (20) feet. Where curbs are installed at intersections with streets that do not have curbs, the curbs shall be extended and terminated tangent to the edge of pavement of the street without curbs.

L. Maintenance

Dedicated streets included in approved subdivisions, except designated State, Federal or County roads, shall be maintained by the Town in which said streets are located unless other written arrangements are made prior to Final Plat approval.

M. Asphalt Surface Installation

The asphalt surface (topcoat) shall be installed immediately after the intermediate course is laid. Intermediate courses are to be inspected by the Public Works Department prior to installing the topcoat layer. All repairs to the intermediate layers are required to be made by the subdivider prior to surface layer installation.

N. Dead End Streets

All dead end streets shall have a guardrail type barricade and reflective markings spanning the width of the street and shall be installed at the end of the pavement. All dead end streets shall have a turnaround sufficient to allow large vehicles such as garbage trucks, dump truck snow plows, fire department vehicles, etc. to turn around and avoid having to back down a street. If such dead end streets are to be extended for future development then the turnarounds can be temporary.

O. Medians

Medians are to be a minimum width of 5' and shall not prevent turns in either direction from any driveway or street. Medians are not to have grass, but may have trees, shrubbery or other plants with the approval of Public Works.

P. Utility Street Crossing

Any utility crossing under an existing street must be installed by boring or directional drilling methods. Open cut trenching across existing streets will not be

allowed unless approved by the Director of Public Works and/or Town Engineer. If the open cut method is approved, the existing street pavement is to be saw cut a minimum of 2' from the edge of trench on each side of the trench and the pavements removed and replaced to the base layer. The trench backfill is to be compacted INDOT #53, #73, or 2" limestone for entire depth of trench.

Q. Deceleration Lanes and Passing Blisters

Deceleration lanes and passing blisters may be required at new streets that are planned to intersect with existing streets. The Director of Public Works and/or Town Engineer will determine the need for such items to be installed. Design drawings for the deceleration lanes and passing blisters are to be included in the plans submitted for Primary Plat approval. Deceleration lanes and passing blisters are to be a minimum of 12 feet wide. The length of tapers and lanes are to be determined by the Director of Public Works and/or Town Engineer. All deceleration lanes and passing blisters are to have curb and gutter installed along their entire length.

R. Center Left Turn Only Lane

A center lane for left turns may be required along the frontage of new subdivisions or commercial/industrial developments. The Director of Public Works and/or Town Engineer will determine the need for such a feature to be installed. Design drawings for the left turn lane are to be included in the plans for Primary Plat approval. The left turn only lane shall be a minimum of 12 feet wide with proper striping and pavement markings.

S. Commercial/Industrial Streets and Driveways

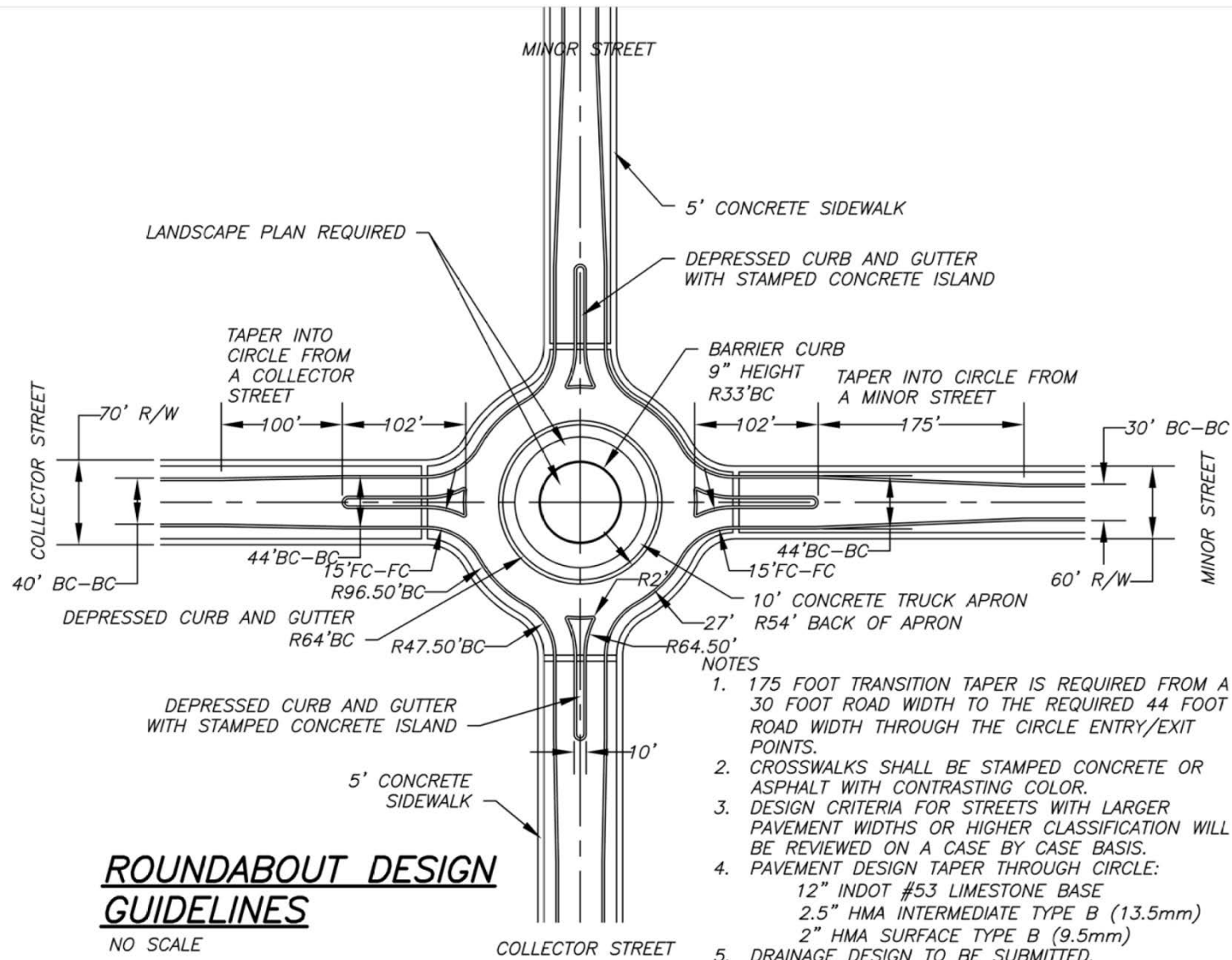
Streets and driveways that are to have heavier truck traffic than residential streets shall have an aggregate base thickness of 12 inches. Increased thicknesses of the asphalt intermediate and/or surface layers may also be required if deemed necessary by the Director of Public Works and/or Town Engineer.


T. Roundabouts (Traffic Circles) Design Specifications

At the sole option of the Plan Commission, a new subdivision may incorporate Roundabouts (Traffic Circles) where traffic congestion may be of concern. Any such approval by the Plan Commission shall be made during the approval of the subdivision. Roundabouts shall utilize the following design specifications:

- a. The Central Island Diameter (interior radius of the circle) shall have a face of curb of 67 feet and a back of curb of 65 feet to allow for a 24 inch depressed curb and gutter section.
- b. The Inscribed Circle diameter (Face of Curb) shall be 94 feet.
- c. The Central Island shall have a 10 feet wide concrete truck apron immediately adjacent to the depressed curb and gutter. The pavement section for the truck



- apron shall be minimally 8 inches of INDOT Class A concrete over 12 inches of compacted INDOT #53 limestone.
- d. Circulating Lane Width shall be minimally 27 feet.
 - e. Entry and exit lane widths shall be minimally 15 feet.
 - f. Splitter Island Radius shall be minimally 64.6 feet.
 - g. Entry Speed shall be a maximum of 20 miles per hour.
 - h. Roundabouts shall otherwise conform to the Roundabout Design Specifications detail sheet attached hereto.
 - i. Signage shall conform to the Roundabout Design Specifications detail sheet attached hereto. Roundabout landscaping plans shall be submitted and approved by the Plan Commission when a Roundabout is approved. Landscaping design considerations shall take into account sight distances and plant selections shall be such that minimal maintenance is required.

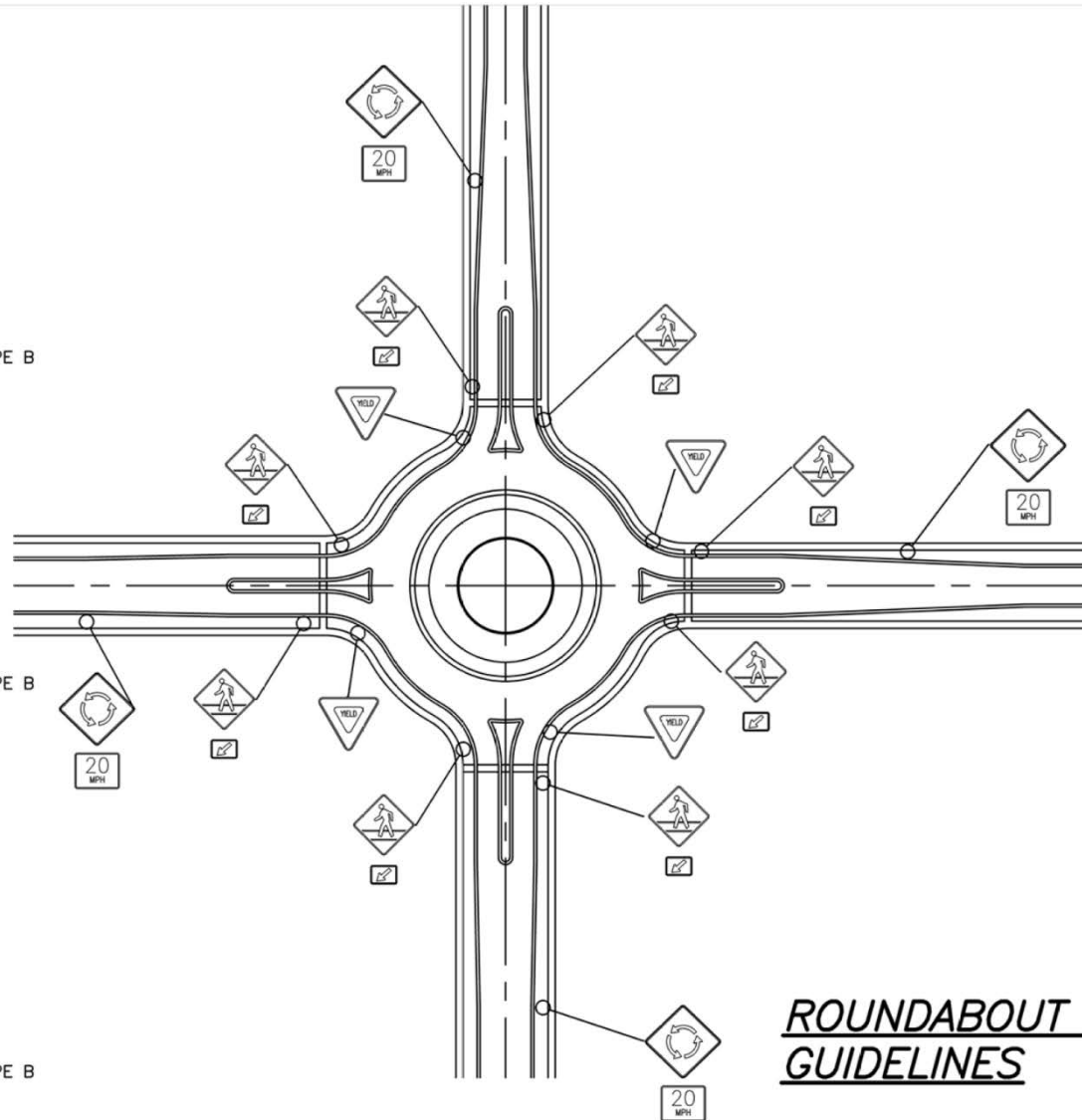



 R1-2
 36"
 14' METAL POST, TYPE B


 W11A-2
 30" x 30"

 M5-2
 21" x 15"
 15' METAL POST, TYPE B


 W2-6
 36" x 36"

 W13-1
 24" x 30"
 18' METAL POST, TYPE B

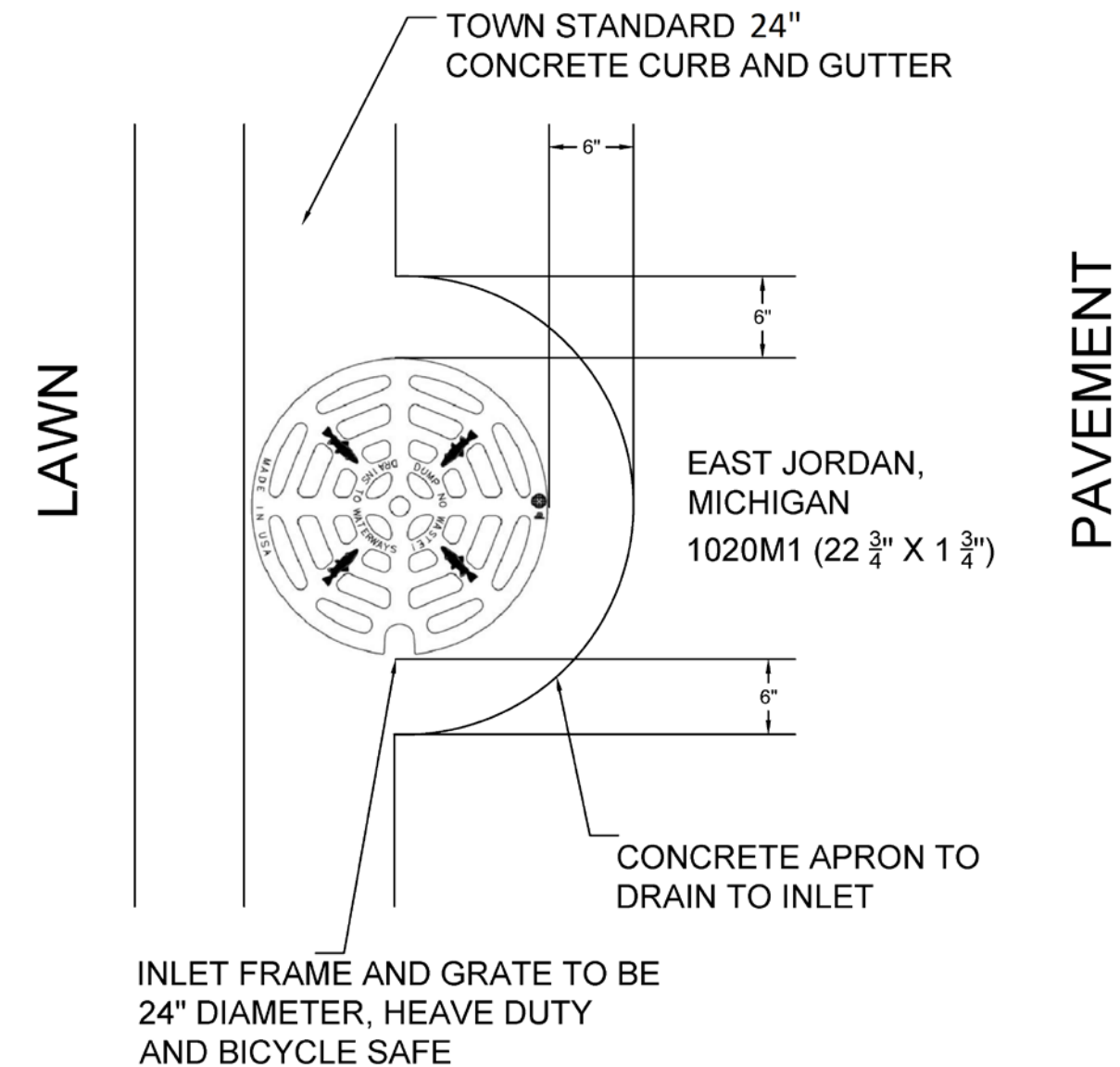


ROUNABOUT DESIGN GUIDELINES

Section 4: Curb and Gutter

After the installation of all utility and storm water drainage improvements, the Subdivider shall construct concrete curbs and gutters of a 24-inch wide roll-type. Curbs shall be a minimum of Ten (10) inches thick at the pavement edge and Twelve (12) inches thick at the rear edge. Curbs shall have 3-1/2" minimum aggregate base integral with street base. Curbs shall also be constructed with expansion joints every 100 feet and additional scoring every 20 feet. Special attention should also be made when grading adjacent to completed curbs, where sufficient said depth should be achieved so that soils do not wash away to the storm sewer system from lots. The Subdivider shall further be required to install all such required concrete curbs and gutters in conformance with applicable State and Federal Building Codes and Regulations, as amended from time to time, as well as the Americans with Disabilities Act (A.D.A.), as amended from time to time.

Concrete for curbs and gutters shall have a 28 day compressive strength of 4000 psi minimum (INDOT class A concrete mix) and have no more than a four (4) inch slump.



CONCRETE INLET APRON

NO SCALE

Section 5: Sidewalks

A concrete sidewalk shall be installed on both sides of all streets within the Subdivision. The construction of all sidewalks shall be in accordance with plans and standard specifications approved by the Town and shall be installed prior to the issuance of an occupancy permit, to be five (5) feet wide, four (4) inches thick and expansion joints at a minimum spacing of 20' and grooved at a maximum of every five (5) feet with a four (4) inch thick gravel base. The sidewalks across driveways and at street corners shall be six (6) inches thick and shall have welded wire fabric or fiber mesh reinforcing. The sidewalks shall be aligned with the sidewalk across the street and shall have handicapped accessible curb ramps at each street corner or where the Plan Commission deems them necessary. The Subdivider shall further be required to construct all sidewalks in conformance with applicable State and Federal Building Codes and Regulations as amended from time to time, as well as the Americans with Disabilities Act (A.D.A.), as amended from time to time. Cast iron detectable warning mats shall be used at all such curb ramps and shall be painted brick red. Concrete used for sidewalks to be the same as concrete used for curbs and gutters. Three (3) separate ten foot (10') lengths of #5 Rebar shall be required in sidewalks where there are b-box and sewer tap trenches crossing under the sidewalk section(s) from the street toward the buildings. The rebar shall be centered over the trench and evenly spaced across the width of the sidewalk.

Section 6: Potable Water Distribution Systems

The size and type of all public potable water distribution systems proposed to be constructed shall be in accordance with the Water Distribution Master Plan and Water Distribution System Construction Standards (see Appendix A) and be approved by the Town Engineer and/or Water Works District Engineer. The following dimensions should be maintained:

- 1) five (5) feet deep, minimum,
- 2) eight (8) inch minimum diameter, and
- 3) seven (7) feet in from curb.

Water mains are to be extended to existing mains to eliminate "dead ends".

Section 7: Fire Hydrants

Where public water supplies are available or may be extended, fire hydrants shall be installed along all public streets and shall be outfitted with Storz fittings. One (1) fire hydrant shall be placed near each street intersection, and intermediate fire hydrants placed where the distance between intersections exceeds five hundred (500') feet. The closest edge of an installed fire hydrant shall be no closer than forty (40") inches from the back of the street curb nor more than forty-eight (48") inches distant, or as otherwise required by the Public Works Department. The height of the steamer port is to be placed eighteen (18") inches minimum and twenty-four (24") inches maximum above finished grade. All fire hydrants must be made in the USA. All hydrants shall have a 5' standard marker attached to them, model number 22516 as shown in USABlueBook.

Section 8: Street Lighting

One light fixture shall be installed at each intersection, at the end of each cul-de-sac, in between intersections spaced not more than six hundred (600') feet apart, and at other locations deemed necessary by the Plan Commission. Street lights shall be installed before final acceptance of the street by the Town. An additional street light shall be provided at each pedestrian-way or crosswalk. All street lighting systems shall conform to the Town approved Street Lighting Control & Design Standard (see Appendix B) and Dark Skies Ordinance, as amended from time to time.



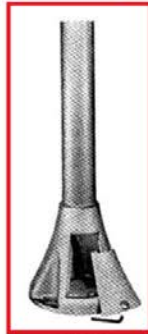
Section 1

Cabinets & Enclosures

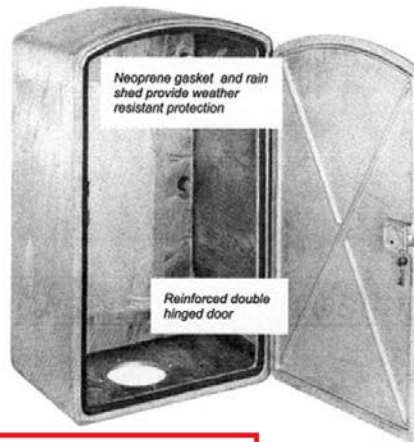
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LB-29-17-12-A
Mounting Adapter



LB-5-15-42
Pedestal, 3 bolt, 42" high



LB-29-17-12PMB
Pole Mount Bracket

LB-29-17-12 This cabinet is designed as an outdoor enclosure for panel mounted street lighting control equipment, traffic signal controllers and cable terminations. The inside dimensions are: 29 1/2" high x 17 1/2" wide x 12 1/2" deep. Typical wall thickness is .250". A reinforced hinged door comes equipped with a safe enclosure lock, when closed maintains a positive pressure against a neoprene gasket, making the cabinet weather resistant. Added protection from the rain and dust is provided by a water-shed extending 1/4" from the face of the cabinet over the top of the door opening. A legend, as specified, can be integrally cast on the door in 1" letters raised 1/8" high. (Same as Leitel Bros. cabinet, LB-11883) See the accessories page for optional mounting methods and for the mounted air vents.

Important: This box is cast in one piece. No welded joints or seams that can leak. The wall thickness is .250" as compared to a fabricated box that has a thin wall of .125" typical.

Traffco Products, LLC • phone / 773-374-6645 • fax / 773-721-0196 • web / www.traffco.com

Section 9: Lots

The lot and yard sizes shall conform with the requirements of the Town Zoning Ordinance, as amended from time to time, however, in no case shall compliance with minimum lots sizes in the Zoning Ordinance include any portion of a lot that extends into a detention or retention pond. Furthermore, in no case shall compliance with minimum lot sizes include any portion of a lot that extends into a major utility easement such as a pipeline, electrical transmission line, drainage easement or the like. Major utility easement shall mean a utility easement that is larger than 25' in width.

Lots shall be designed in accordance with the following design standards.

A. Layout

Where possible, said lot lines shall be at right angles to straight street lines or radial to curved street lines. Lots with frontage on two parallel streets shall be avoided except where one street is an arterial or highway with no direct access to the lot.

B. Size and Dimension

Minimum lot areas and lateral dimensions shall be as set forth in the Town Zoning Ordinance.

C. Lot Boundaries

Lots shall follow, rather than cross, municipal boundary lines whenever possible.

D. Lot Access

Every lot shall be provided with access adequate for the use of public safety vehicles and other public and private purposes and shall be served by a public or private street system, improved in accordance with this Ordinance, as amended from time to time, and connected to the general street system.

E. Lots Along Thoroughfares

Direct vehicular access from residential lots to arterial streets or highways shall be avoided as far as practicable. Residential lots shall be separated from railroad right-of-way by 25 foot buffer strip, which shall be in the form of added depth or width of lots backing on or siding on the railroad right-of-way.

F. Subdivision Lots

Subdivision lots in the municipality shall be in conformance with the area and width requirements of the Town Zoning Ordinance. Area and width requirements of subdivision lots in the extra-territorial plat approval jurisdiction shall conform to any

town zoning ordinance or extra-territorial town zoning regulation which may be in effect.

G. Corner Lots

Corner lots shall be platted at least 20 percent wider than the minimum lot width required.

H. Lot Remnants

Lot remnants which are below the minimum lot size must be added to adjacent or surrounding lots rather than be allowed to remain as an unusual outlot or parcel unless the Plan Commission approves a plan submitted by the developer for the future use of such remnant.

I. Lots Located Adjacent to Transmission Pipelines-Restrictions on Lots Located in Pipeline Impact Areas

1. Pipeline Impact Area – The Pipeline Impact Area for a Transmission Pipeline that transports natural gas, anhydrous ammonia, petroleum products such as propane, butane, natural gas liquids, benzene, gasoline, jet fuel, diesel fuel, fuel oil, or kerosene is the area located within fifty feet (50') of the boundary line of the easement or right-of-way for such pipeline.
2. Any lot created in:
 - a. Any Residential District, including R-1, RC-1 PUD, R-2, RC-2 PUD, and R-3
 - b. Any Commercial District including C-1, C-2, C-3 and C-4
 - c. Any Industrial District and
 - d. Any Special District

After June 24, 2020, shall have, at minimum, the minimum lot area for such applicable zoning district located entirely outside the Pipeline Impact Area.

3. No portion of any Floating Building Line, Front Yard, Side Yard or Rear Yard, as required by the Area and Width Regulations for the applicable Zoning District by the Town of St. John Zoning Ordinance, shall be located within a Pipeline Impact Area.
4. For any lot containing within its boundaries a Pipeline Impact Area, the Floating Building Line, Front Yard, Side Yard and Rear Yard building lines shall be measured beginning at the boundary line of such Pipeline Impact Area
5. No building established or built after June 24, 2020, shall be located within a Pipeline Impact Area except as provided in Subsection I(6).

6. Exemptions
 - a. An accessory Building or Structure used in Agriculture;
 - b. Any Pipeline, wellhead, or use that is an Accessory Use, Accessory Building or Structure to a Pipeline or a wellhead;
 - c. Enlargement, repair, and replacement of conforming Uses, Buildings and Structures that were lawfully established and existed on June 24, 2020.
 - d. Uses, Buildings and Structures established after June 24, 2020 on conforming Lots of records that existed on June 24, 2020.

Section 10: Blocks

A. Block Design

The lengths, widths and shapes of blocks shall be appropriate for the topography and the type of development contemplated.

Section 11: Planned Unit Development (See Zoning Ordinance)

The design standards of this Ordinance, as amended from time to time, may be modified by the Plan Commission in the case of a plan utilizing an unusual concept of development which meets the requirements of this section. The planned unit development provision is intended to encourage original and imaginative subdivision design which preserves the natural amenities of the site and provides for the general welfare of the Town.

- A. The unit plan shall be consistent with the spirit and intent of this Ordinance, as amended from time to time, including, but not limited to, bonding, inspection fees, and all Town inspections and requirements.
- B. The unit plan shall strictly conform to the "Planned Unit Residential, Business and Industrial Projects" requirements of the Town Zoning Ordinance, as amended from time to time.
- C. Properties adjacent to the unit plan shall not be adversely affected.
- D. Any lots or interests in real estate in a P.U.D. development cannot be sold or transferred until all improvements are complete or the necessary irrevocable letter of credit, surety bond or cash escrow is approved and accepted by the Town.

Section 12: Easements

- A. The Plan Commission shall require easements for poles, wires, conduits, storm water drainage, storm and sanitary sewers, gas and water mains, or other utility lines. Easements shall be at least twelve (12) feet wide and shall be adjacent to perimeter property lines. They should be located along the rear or side lot lines. Easements can be split between adjacent lots such that one half of the easement

width is located equally on both lots i.e. 6' on each lot such that side by side those 6' easements combine to make a 12' easement.

- B. A twelve (12) feet wide easement shall be required in the middle of a block from the street right-of-way to the rear property line when the block is longer than 1,000 feet, or as otherwise requested by the Plan Commission or Town Engineer.

Section 13: Manhole Covers

All subdivisions shall include and provide for gasketed closed pick hole manhole covers and external chimney seals on all sanitary sewer systems. See St. John Sanitary District Specifications. All manhole covers whether storm or sanitary, must have "Town of St. John" imprinted on them and need to be made in the USA.

Section 14: Bridges

All bridges shall be designed to conform with the requirements of the Lake County Drainage Board and Lake County Highway Department and shall be submitted by the developer to said Boards for approval prior to construction. The developer shall also petition the Lake County Highway Department to add to their bridge inventory and accept the responsibility of future maintenance of the bridge.

All permits required to construct the bridge shall be obtained by the developer from the applicable local, county, state and federal agencies.

Section 15: Sanitary Sewer Systems

The size and type of all public sanitary sewer systems proposed to be constructed shall be in accordance with the Sanitary Sewer Master Plan and Sanitary District Specifications of the Sanitary District and the Recommended Standards for Wastewater Facilities and be approved by the Town Engineer.

Section 16: Wellhead Protection Plan

All subdivisions and commercial, industrial and residential site improvements shall be in accordance with the Town of St. John Wellhead Protection Plan and be approved by the Town Engineer.

Section: 17: Traffic Study

In reviewing the design standards and the layout of the subdivision, the Plan Commission shall pay particular attention to the anticipated additional volume of traffic thereon, and if the Plan Commission deems it necessary, it shall require the developer to provide a traffic study prepared by a professional engineer addressing the anticipated increase in traffic volume. Such traffic study shall be paid for by the subdivider (developer).

TITLE VI – STORM WATER DRAINAGE GUIDELINES

Section 1: General Policy

This drainage ordinance, including guidelines and criteria, does not provide solutions to all drainage problems, nor is the engineer restricted to these designs or procedures exclusively. Although the policies as stated will hold true for most development work in this area, the Town of St. John realizes that there may be some exceptions to the policies or the criteria which, on individual projects, could involve special or unusual drainage problems that should be reviewed prior to completing the drainage plans.

The policy of the Town of St. John shall be:

- A. All information necessary will be submitted to the Town Engineer to determine if the stormwater rate of runoff should be controlled within the development prior to its release to downstream properties for all proposed developments.
- B. All stormwater drainage facilities within a development shall be designed to have capacity for the total tributary area, at the design storm frequency.
- C. All proposed developments with a runoff rate greater than that which the downstream system is, or will be designed for, will be required to control the rate of stormwater discharge.
- D. All developments having existing controls located downstream from the site will be required to control the discharge flow rate of stormwater to that rate which existed prior to development.

If the decision is made by the Town of St. John, through its Engineer, to handle stormwater runoff by storage, the detention facility will be transferred to the Town by Deed with a Reverter Clause to the developer if no longer used as a water storage facility; however, the Developer will be required to maintain the facility for two (2) years after approval or acceptance by the Town. Maintenance includes, but is not limited to, soil erosion, grass cover, pipes, overflow etc. Retention facilities may be retained and maintained by the developer or POA only with approval of the Plan Commission.

Section 2: Design Control Guidelines

The following guidelines provide a uniform design procedure to control the discharge of stormwater from areas where proposed changes in land use will result in changes in natural flow pattern and are necessary to: 1) clearly delineate the problem of handling runoff in urban areas; 2) define the responsibility any owner has to control the stormwater runoff from his property.

All land developers wishing to develop property in the Town of St. John are required to prepare and submit a Master Drainage Plan for the total development area.

- A. Prepare a topographic contour map, with the drainage area delineated, with plan for draining the total upstream tributary watershed through the proposed development.
- B. Prepare a topographic map with at least one (1') foot contours, with general layout of the proposed inlets and storm sewers for the total development showing all existing drainage structures with size and invert elevations.
- C. Determine the capacity of the downstream open channel, culvert or storm sewer that may be used for an outlet.
- D. Examine the points downstream that may be used as a control to determine the maximum allowable rate of stormwater runoff for the design storm. Existing culverts are not necessarily controls.
- E. Provide a routing path for runoff in the event the drainage facility's capacity is exceeded. The routing path will become part of a grading plan which will be submitted with detailed plans.
- F. Examine and show the routing of excess stormwater through the site and as it is discharged to off-site lands.
- G. The routing path shall be continuous from one development to the next.
- H. If the decision is made by the Town of St. John, through its Engineer, to handle stormwater runoff by storage and releasing it at a regulated rate to prevent flooding downstream, the storage basin will be located in and become part of the routing path.
- I. Excess stormwater will be kept out of proposed habitable structures.
- J. The Master Drainage Plan shall be approved by the Engineer.

Section 3: Design Criteria

A. Stormwater Runoff Criteria

It is the policy of the Town of St. John to use the Rational Method and or industry recognized computer programs to determine the peak rate of runoff for all design storms for drainage areas of 200 acres or less.

For drainage areas over 200 acres and for determining major storms, the method explained in "Urban Hydrology for Small Watersheds", Technical Release No. 55, may be used to provide peak rates of runoff. T.R. 55 can be obtained from the Soil Conservation Service Engineering Division, U.S. Department of Agriculture. Industry recognized computer programs can be used as well.

B. Stormwater Runoff Information

1. Peak Rate of Runoff

The basic formula for the Rational Method is $Q = CiA$ in which:

Q = Peak rate of runoff in cubic feet per second

C = Runoff coefficient, ratio of the maximum rate of runoff to the average rate of rainfall

A = The drainage area in acres

i = Rainfall intensity in inches per hour for a selected storm frequency and the time of concentration

2. Runoff Coefficient

The table of runoff coefficients presents average values for use with the Rational Method. The table relates the coefficient to land use and average slope of the watershed.

3. Rainfall Intensity

Rainfall Frequency Curves, relation of rainfall intensity vs. time, based on bulletin 71 or the latest published records of the U.S. Weather Bureau, for the Chicago area, will be used for all design storms.

4. Design Storm

The peak discharge to be computed for all storm drainage facilities used for collecting and transporting storm runoff is defined in the Design Criteria for those facilities.

5. Major Storm

The major storm will be based on a storm with a return period of not less than **50** years.

Section 4: Roadway Culverts

A. Roadway Culverts Criteria

A culvert is designed to carry water from one side of the road to the other. The size and shape of the culvert should be such that it will carry a predetermined design peak discharge without the depth of water at the entrance or the velocity at outlet exceeding allowable limits.

The culvert design procedure recommended for use is Hydraulic Engineering Circular No. 5. or industry recognized computer programs. This circular can be obtained from the Superintendent of Documents, U.S. Government Printing Office.

Single span culverts, including concrete box or slab top, should always be considered in lieu of multiple cell pipe culverts when they are the only structures that will meet the physical requirements introduced by rigid headwater controls.

The plan for each culvert shall have the drainage area in acres and the estimated runoff or design discharge in cubic feet per second shown.

The culvert inlet flowline elevation should be set such that it will be deep enough to provide an adequate outlet for future storm sewer improvements upstream.

B. Roadway Culverts Information

1. Design Storm Frequency
 - a. 10-year storm minimum
 - b. 25-year storm for arterial streets
2. Design Flow
 - a. Areas under 200 acres use Rational Method $Q = CiA$ or industry recognized computer programs
 - b. Areas between 200 and 300 acres transition between Rational Method and Technical Release 55. or industry recognized computer programs
 - c. Areas over 300 acres use Technical Release 55. or industry recognized computer programs
3. Runoff Coefficient
 - a. Based on Table No. 1 (see elsewhere in Title).
4. Maximum Allowable Headwater
 - a. 18" below top of curb
 - b. 12" below edge of pavement
 - c. 1.2 times diameter
 - d. Diameter or rise plus 4 feet or 2D, whichever is lower, in deep ravines.
5. Manning's "n" Value

a. Box Culvert	0.011
b. Slab Top Culvert	0.03 to 0.05
c. Concrete Pipe	0.012
d. Corrugated Metal	0.019 to 0.032
e. Polyvinyl Chloride (PVC)	0.01

6. Entrance Loss Coefficient
 - a. Box Culvert and Slab Top Culvert 0.2 to 0.5
 - b. Concrete Pipe 0.2
 - c. Corrugated Metal 0.2 to 0.9
 - d. Polyvinyl Chloride(PVC) 0.2
7. Minimum Cover
 - a. Desirable, 30 inches to pavement subgrade.
8. Maximum Cover
 - a. The structural design criteria for culverts will be the same as that required by the Indiana Department of Transportation.
9. Maximum Allowable Outlet Velocity
 - a. Bare Earth Channel 6 F.P.S.
 - b. Rock Protection 18 F.P.S.
 - c. Stilling Basin 18 F.P.S.
10. End Protection
 - a. Full height headwall with flared wings.
 - b. Other special type headwalls must be approved before use.
 - c. Flared-End section may be approved by Town Engineer.
 - d. Multiple pipe culverts must have a headwall.

Section 5: Storm Sewers

A. Storm Sewers Criteria

The more important criteria to consider in designing storm sewer systems are listed below:

1. All storm systems are to be designed using Manning's Equation

$$(Q = \frac{1.49}{n} R^{2/3} S^{1/2} A)$$
2. The sewer must be deep enough to receive the flow from all its sources within the watershed.
3. The size of the sewer must be adequate for flowing full, based on the design storm.
4. The gradient of the sewer must be sufficient to avoid deposition of solids.
5. The storm sewer material will be concrete, or polyvinyl chloride (PVC). Other approved material may be used for special design. Polyethylene pipe, smooth interior may be used in backyard or side yard application only.

6. The main pipe, if over 24 inches, in a sewer system will be required to be separated from all curb inlets, unless a special design is submitted for approval.
7. The flowline of pipes should be set such that the crown of pipes, at junctions, are at the same elevation; if the outlet elevation permits, the crown of the outlet pipe may be lower.
8. The flowline elevations of sewers should be set to avoid using concrete encasement.
9. Within the limits of an existing or proposed right-of-way, where minimum cover during construction or proposed cover over the outside top of the pipe is 30 inches or less for pipe size 6 to 27 inches in diameter inclusive, concrete encasement will be required.
10. Inlets designed to capture storm water runoff of streets are to be placed in the curb line and have a circular flat open grate that is 24" in diameter or other casting approved by the Town Engineer (see concrete inlet detail from Design Standards).
11. Manholes and inlets are to be constructed with sealed joints and adjusting rings and to seal the chimney externally.
12. The location of the storm water tap for each lot shall be marked on the curb in the color green with three (3) notches or cuts ¼" wide, 3" long and 1" apart.

B. Storm Sewers Information

1. Design Storm Frequency
 - a. Flowing full for five-year storm
2. Hydraulic Gradient
 - a. Based on five-year storm, shall not exceed grate elevation for an inlet or catch basin.
 - b. Grade line based on Tailwater or 0.8 D at outlet or other critical points within the system.
3. Design Flow
 - a. All design flow will be based on Rational Method $Q = CiA$ or industry recognized computer programs.

Minimum time of concentration:

Curb inlet - 10 minutes
Ditch C.B. - 10 minutes

4. Runoff Coefficient
 - a. Based on Table.
5. Manning's "n" Value
 - a. All storm sewers shall have an "n" value of 0.013 or less.
6. Minimum Cover to Subgrade
 - a. Desirable 30 inches to ground surface or pavement subgrade.
7. Maximum Cover
 - a. The supporting strength of the conduit, as installed, divided by a suitable factor of safety, must equal or exceed the loads imposed upon it by the weight of earth plus any superimposed loads.
 - b. The design procedure recommended for use in structural design of storm sewers is Design Manual Concrete Pipe, available from American Concrete Pipe Association.
8. Velocity in Sewer for Design Flow
 - a. 3 F.P.S. Minimum
 - b. 15 F.P.S. Maximum
9. Maximum Length between Access Structures
 - a. Pipes under 36" - 400 feet
 - b. Pipes 36" and over – 500 feet.
10. Curb Inlet Underdrains

The installation of perforated underdrains underneath the pavement for a length of between 30 to 40 feet (to be determined by the Town Engineer) in each direction at each curb inlet or catch basin in all subdivisions shall be required.

11. Rear Yard Inlets

Inlets or catch basins shall be placed along the rear yard property lines approximately every 300 feet or as approved by the Town Engineer.

12. A storm sewer service line shall tie into a storm sewer unless a lot is adjacent to a ditch or detention/retention basin then its storm sewer service line can discharge into the ditch or detention/retention basin

Section 6: Open Watercourse

A. Open Watercourse Access

Access to storm drainage ditches and channels shall be by means of maintenance easements. Such maintenance easements shall be not less than twenty (20) feet

in width, measured horizontally from the top of the bank, exclusive of the width of the ditch, or channel, and a maintenance easement of this type shall be provided on each side of a flood control or storm drainage ditch channel or similar type of facility. Maintenance easements are to be kept free of obstructions.

B. Open Watercourse Information

1. Design Storm Frequency
 - a. Flowing full for ten-year storm
2. Design Flow
 - a. Areas under 200 acres use Rational Method $Q = CiA$
 - b. Areas between 200 and 300 acres transition between Rational Method and Technical Release 55 or industry recognized computer programs.
 - c. Areas over 300 acres use Technical Release 55 or industry recognized computer programs.
3. Runoff Coefficient
 - a. Based on Table No. 1 (see elsewhere in Title).
4. Allowable Velocities New Ditches
 - a. 5.0 feet per second (fps) with sod or jute mat lining
 - b. Over 5 feet per second (fps) special lining
5. Allowable Velocities Existing Channels
 - a. Ability of the channel to handle the flow satisfactorily.
6. Manning's "n" Value
 - a. Sod or Jute mat lining 0.05
 - b. Paved Lining 0.015
 - c. Rock Protection 0.08
 - d. Existing Lining 0.025 to 0.20
7. Minimum Slope
 - a. Desirable for new channels 0.40%
 - b. Absolute 0.10% - with a minimum velocity of 2 F.P.S., based on a two-year storm
8. Side Slopes
 - a. Desirable 4:1

Section 7: Routing Path

The Routing Path or the Major Drainage System is that part of the storm drainage system, which carries the runoff, which exceeds the capacity of the designed drainage facilities. The major drainage system shall have the capacity to carry runoff from a storm with a return period of not less than 100 years without causing significant threat to property or public safety.

It is not economically feasible to size a storm sewer system to collect and convey more than the frequent storm runoff. However, runoff which exceeds the capacity of the storm sewer system must have a route to follow. Essentially, the complete drainage system of an urban area contains two separate drainage elements. While the storm sewers belong to the design system, surface drainageways must be provided for the major flow from more intense storms.

The intent of planning for the major drainage element is to ensure stormwater runoff, which exceeds the capacity of the design drainage system, has a route to follow which will not cause a major loss of property or any loss of life. Street rights-of-way are a common choice for conveying major drainage flows.

The major storm runoff is routed through the drainage system to determine if the combined capacity of the routing path and storm sewer system is sufficient to maintain surface flows within permissible limits. The capacity of the conduit at any given point is assumed to be the same for the major storm as for the initial design storm for preliminary design purposes. If the major storm runoff exceeds the combined capacity of the street and storm sewer drainage system, revision in the major drainage design is required.

Where the street is designated as the major drainage way, the depth of flow shall not exceed 12 inches at gutter line for local and collector streets, and shall not exceed six inches in depth at crown for arterial streets. The same maximum depth criteria will apply where a major drainageway crosses the street.

Routing of the major storm at culvert locations shall be at low areas or sags of vertical curves of streets. Elevations for the design of the street shall be such to permit the major storm to flow across the street and to prevent damage to any existing or proposed building structure.

Where a major drainageway is located outside a street right-of-way, easements will be provided and a grading plan will be submitted with detailed engineering plan submission. The grading plan will include elevations along the routing path and other elevations necessary to show that the major storm is contained within the planned area. The Grading Plan shall be submitted and filed with the Engineer.

Section 8: Detention or Retention

A. Detention or Retention Information

In developed and developing urban and suburban areas, several means for controlling stormwater runoff could be utilized. These usually involve storing runoff on or below the ground surface. The following types of storage facilities may be considered for detention: parking lots, underground tanks or chambers, and surface basins or ponds.

1. Parking Lot Storage

Parking lot storage using shallow ponding (6" maximum) designed to flood specifically graded areas of the parking lot may be used. Controlled release features must be incorporated into the surface drainage system of the parking lot. This method is intended to control the runoff directly from the parking area and is usually not appropriate for storing large runoff volumes.

2. Tank Storage

Tank storage in an underground tank or chamber, either pre-fabricated or constructed in place, with a gravity controlled release will be considered for detention.

3. Surface Basins or Ponds

- a. Wet ponds are permanent ponds where additional storage capacity is provided above the normal water level and special features for controlled release are included. Because of large land requirements and the necessity of maintaining a permanent pool of water, wet ponds have a broader application for instream control where large watershed areas are involved compared to their use as on-site facilities for small urban areas.
- b. Dry basins are surface storage areas created by constructing a typical excavated or embankment basin. There is no normal pool level and a specific controlled release feature is included to control the rate of discharge. The detention flow structure is usually a multi-stage device and the retention flow control structure is usually a single-stage device.

B. Detention or Retention Design Criteria

1. Design Frequency:

- a. 100-year storm – based on Bulletin 71 or latest NOAA report for the Chicagoland Area.

2. Design Flow:
 - a. Area under 200 acres use Rational Method ($Q = CiA$) or industry recognized computer programs.
 - b. Areas between 200 and 300 acres transition between Rational Method and Technical Release No. 55. or industry recognized computer programs.
 - c. Areas over 300 acres use Technical Release No. 55. or industry recognized computer programs.
3. Runoff Coefficient:
 - a. Based on Table No. 1 (see elsewhere in Title).
4. Release Rates:
 - a. The release rate for all developments requiring detention shall not exceed the storm water runoff rate from the tributary areas of greater than that calculated from a storm of two (2) year frequency, with a runoff coefficient of 0.15 or the ability of the downstream sewers or stream channel to handle the flow satisfactorily.
5. Miscellaneous:
 - a. The surface of a detention area should be constructed with sufficient slopes (minimum of 0.5%) to drain properly so that all of the runoff is removed following a storm.
 - b. A ditch, or ditches, shall be constructed from the pipe, pipes, or turn-outs, outletting into the basin to the outlet structure.
 - c. Seeding and other erosion control methods will be used to protect all slopes: sod, jute matting, rock protection or concrete.
 - d. Side slopes for a retention facility shall be 4:1 max. below permanent storage elevation. Minimum permanent water depth shall be 5' to the normal water level. Side slopes for a retention facility shall be 6:1 max. above the permanent storage elevation.
 - e. A ten (10') foot wide safety ledge at an elevation no more than two (2') feet below the permanent storage elevation is required at the perimeter of the permanent storage water line.
6. Time of Concentration:
 - a. Based on Chart No. 2 (see elsewhere in Title).
7. Debris-control structures may be required in the detention methods and should be considered as an essential part of design.
8. Emergency Spillway:
 - a. An emergency spillway shall be provided for flows in excess of the design storm.
 - b. Fifty year storm frequency shall be used to design size of Emergency Spillway.

- c. The Emergency Spillway shall be made of concrete or other material as approved by the Town Engineer.
- 9. Freeboard:
 - a. The freeboard shall be 12" from the high water level to top of bank of basin.
- 10. Aerators and Fountains:
 - a. Aerators and/or fountains shall be provided and installed by the subdivider for all retention basins. The developer shall be responsible to operate and maintain the aeration and/or fountains for a period of two years. Plans are to be submitted to the Town Engineer for approval.

Section 9: Grading Plan

A. Grading Plan

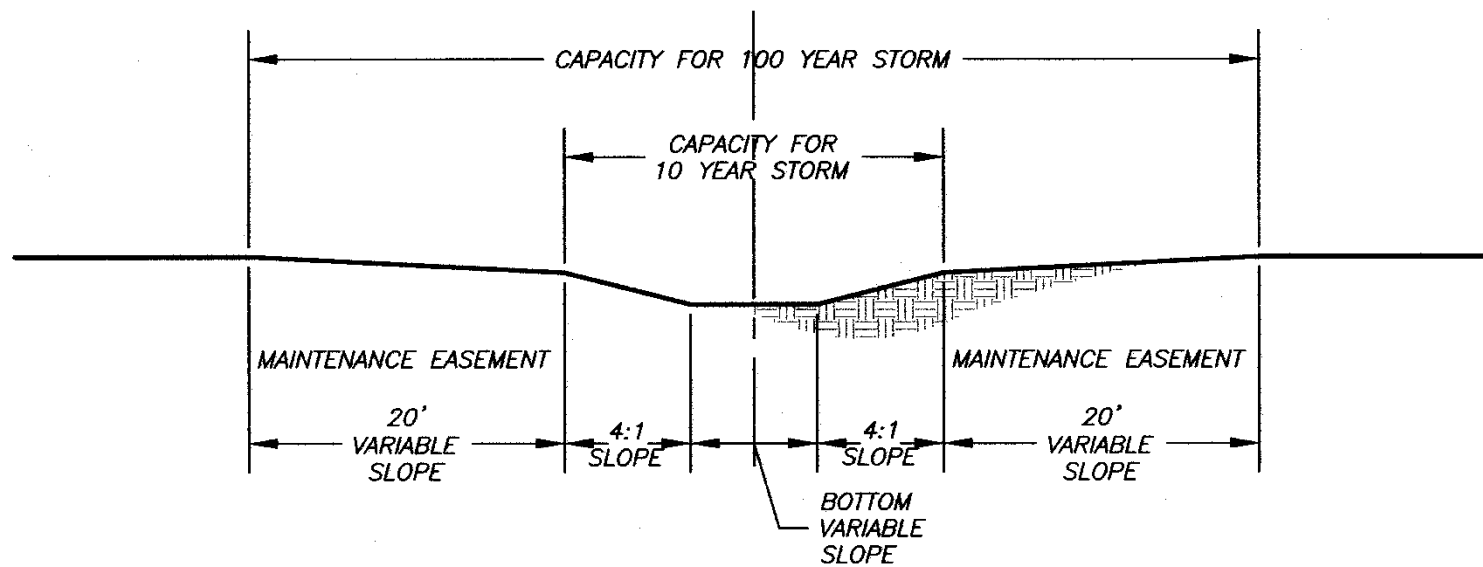
A Drainage/Grading Plan will be required as part of the plans submitted for Primary (Preliminary) Plat approval. This plan shall include the following:

1. A topographic contour map with one foot contours.
2. Delineate drainage sheds to inlets or group of inlets.
3. Show flood route path to detention/retention basin.
4. Show finish floor elevation for each lot.
5. Show finish grade at each corner of each lot and each change of grade.
6. Indicate direction of overland flow.
7. Indicate location of swales, length, slope, cross section, etc.
8. Show storm sewers, inlets, manholes and other structures, size, length, slope, type, rim and invert elevation, etc.
9. Show location of culverts, size, length, type, invert elevation, end treatment, etc.
10. Plat of subdivision including street names, lot numbers, right-of-way lines, property lines, easement lines.
11. Show elevations of high and low points or change of slopes on streets; indicate length and slope of streets.
12. Grading of the lot shall be indicated to extend to the lot line where the grades will match the existing grade of the adjacent property. The use of retaining walls or steep slopes to match the existing grades of the adjacent property shall not be acceptable unless approved by the Plan Commission.

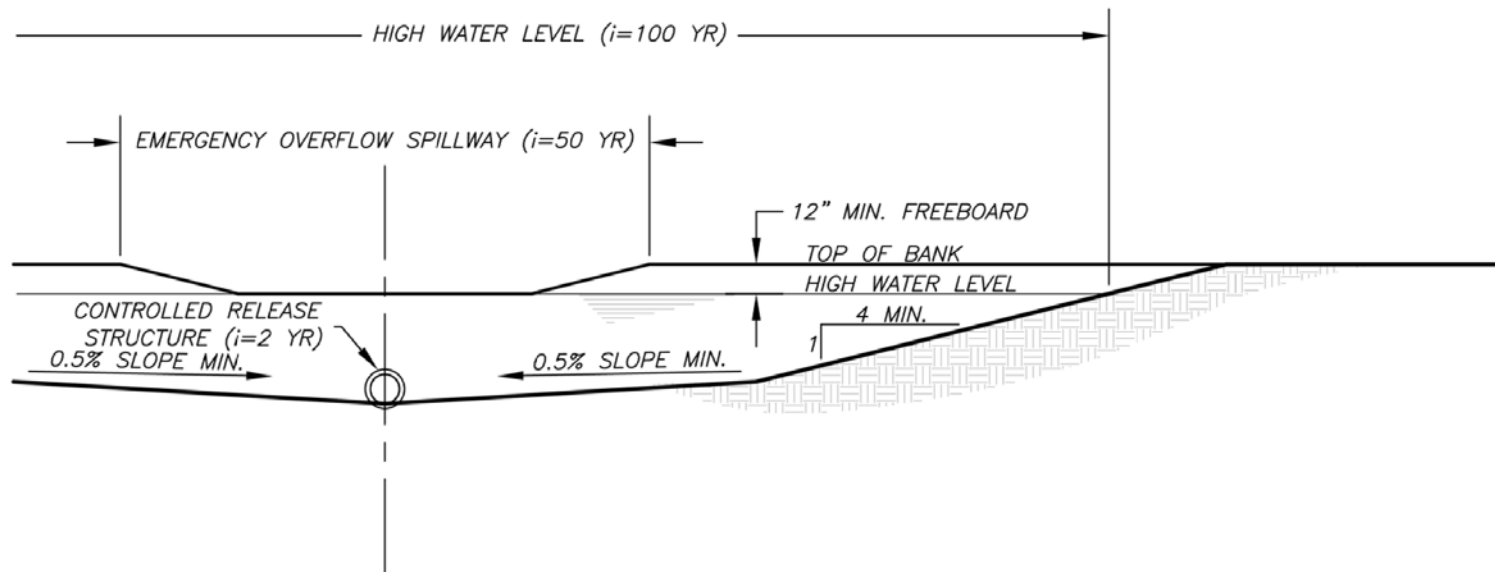
RUNOFF COEFFICIENTS

TABLE NO. 1

	(General Slope)	
	(Less Than)	(More Than)
	2%	7%
Unimproved Areas	0.30	0.30
Railroad Yard Areas	0.30	0.50
Parks & Cemeteries	0.20	0.35
Playgrounds	0.30	0.45
RESIDENTIAL		
Suburban	0.45	0.50
Single Family	0.50	0.50
Multi Units	0.50	0.70
Apartments	0.80	0.95
COMMERCIAL	0.80	0.95
INDUSTRIAL		
Light	0.50	0.80
Heavy	0.60	0.90



STORM DRAINAGE DITCH OR CHANNEL
NO SCALE



DETENTION OR DRY BASIN
NO SCALE

PROJECT: _____						DATE: _____								
CULVERT COMPUTATION SHEET														
BY: _____			CHECKED BY: _____			CONSULTANT: _____								
HYDROLOGIC AND CHANNEL INFORMATION Channel Slope _____ Drainage Area _____ Allowable Velocity _____ Design Q _____ Q ₁ = _____ Q ₂ = _____ TW ₁ = _____ TW ₂ = _____						<div style="text-align: right;">Station _____</div> <div style="text-align: right;">Skew _____</div>								
Culvert Type	Q	Size	Headwater Computation									Control- ling HW	Outlet Velocity	REMARKS
			Inlet Control		Outlet Control									
			$\frac{HW}{D}$	HW	K _e	d _c	$\frac{D_c ID}{2}$	h _o	H	L ^s _o	HW			

SUMMARY & RECOMMENDATIONS:

PROJECT :

DATE:

STORM SEWER CHECK SHEET

BY:

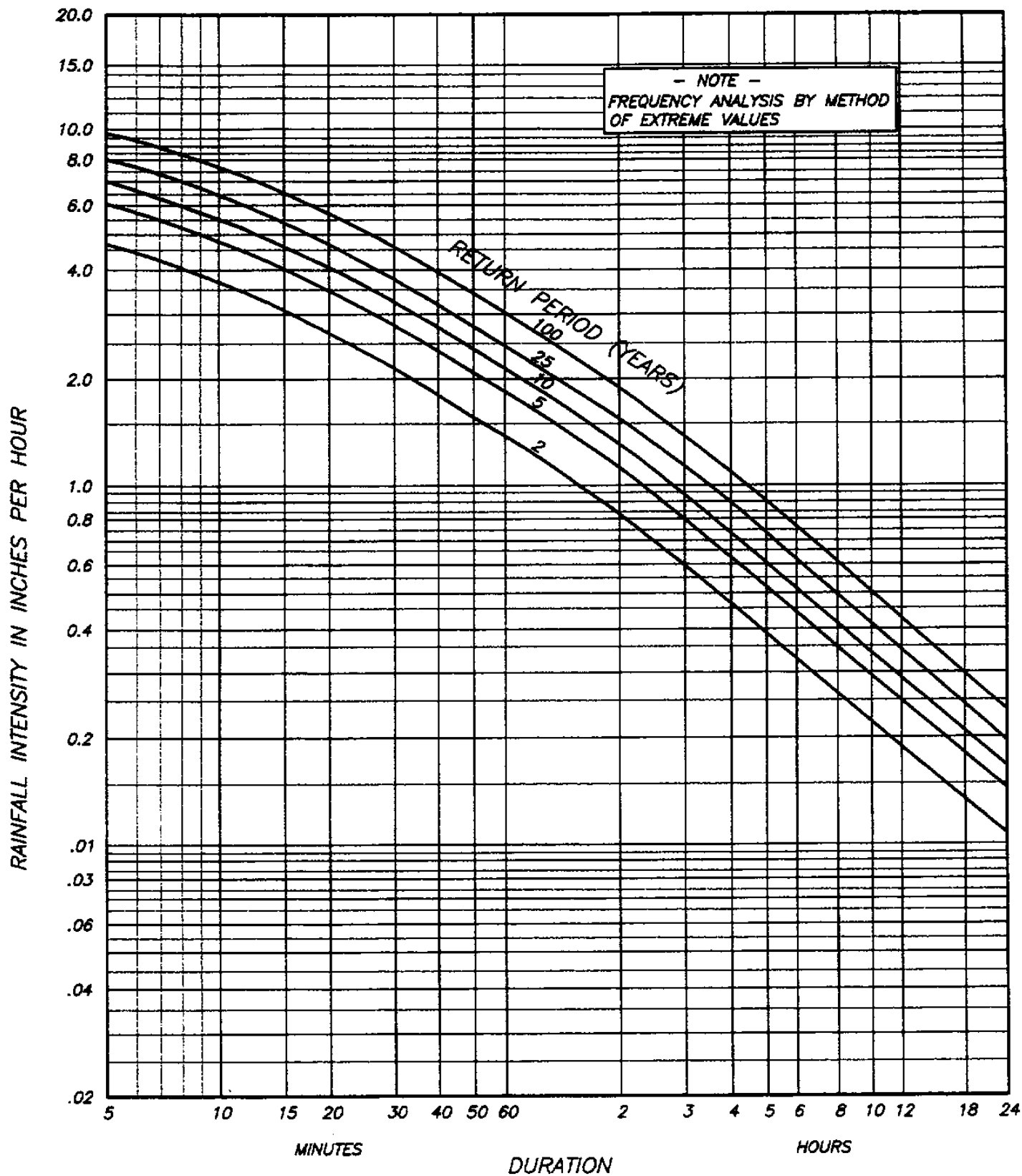
CHECKED BY:

CONSULTANT:[illegible]

[illegible]

PROJECT:	STORM SEWER COMPUTATION SHEET	DATE:
BY:		CONSULTANT:

[illegible]



RAINFALL FREQUENCY - INTENSITY - DURATION

CHART 1

Detailed Steps for Determining Allowable Release Rate and Required Flood Storage

The following are detailed steps for the determination of allowable release rate and the required flood storage capacity: (or use of industry recognized computer program)

Name of Project _____

Location _____

Design Engineer _____

I. Determination of Allowable Release Rate – Undeveloped Site:

1. Area of site _____ acres
2. Average ground slope _____ foot/foot
3. Overland flow distance _____ feet
4. Overland flow time of concentration _____ minutes
5. Average slope of channelized flow (See Note a) _____ foot/foot
6. Channelized flow distance _____ feet
7. Channelized flow time of concentration (See Note a) _____ minutes
8. Total time of concentration (line 4 + line 7) _____ minutes
9. Rainfall intensity for two-year storm _____ inch/hr
10. Runoff coefficient (Use $c=0.15$ as maximum, see _____)
11. Allowable release rate, (line 1 x line 9 x line 10) $Q=CiA$ _____ cfs

Note a: For flow in a well-defined channel determine time of concentration from measured lengths, cross-sections and slopes and submit necessary calculations and drawings.

II. Determination of Reservoir Size – Developed Site:

12. Impervious drainage area _____ acres
13. Pervious drainage area _____ acres
14. Composite runoff coefficient _____
15. Determine flood reservoir capacity. See detailed example attached. Required reservoir capacity _____ acre-ft.

III. Permissible Bypass Rate through Development Site from Upstream Area:

A. Determination of Bypass Rate:

16. Total area upstream _____ acres
17. Future/present impervious area (cross out inappropriate case) _____ acres
18. Future/present pervious area (cross out inappropriate case) _____ acres
19. Composite runoff coefficient (must not be less than 0.15. _____
20. Design storm frequency for the upstream area (2 yr.) _____ year
21. Time of concentration, for the upstream area at point of entry (upstream area to be considered as developed)(By same method as line 8) _____ min.
22. Design storm intensity for above duration _____ in./hr.
23. Permissible bypass rate (line 16 x line 19 x line 22) _____ cfs

B. Determination of Required Size of Bypass System:

24. Bypass system will be open channel/closed conduit (cross out inappropriate case).....
25. Water cross-section area for discharge in line 23..... _____ sq.ft.
26. Wetted perimeter for area in line 25..... _____ feet
27. Hydraulic radius (line 25 ÷ line 26)..... _____ feet
28. Line 27 to the 2/3 power..... _____
29. Invert slope..... _____ ft./ft.
30. Line 29 to the 1/2 power..... _____
31. Manning's roughness coefficient use (n) =
32. Bypass capacity [(1.49 x line 25 x line 28 x line 30) ÷ (line 31)]
$$Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$$

PROJECT: _____ DATE: _____

Storm Drainage Calculations

A _{Site} =	Drop =
A _{Offsite} =	S% =
A _{Total} =	T _c = $\frac{1.8 (1.1 - c) \sqrt{Length}}{\sqrt[3]{Slope \%}} =$
C _{Undev.} =	i ₂ =
Length =	

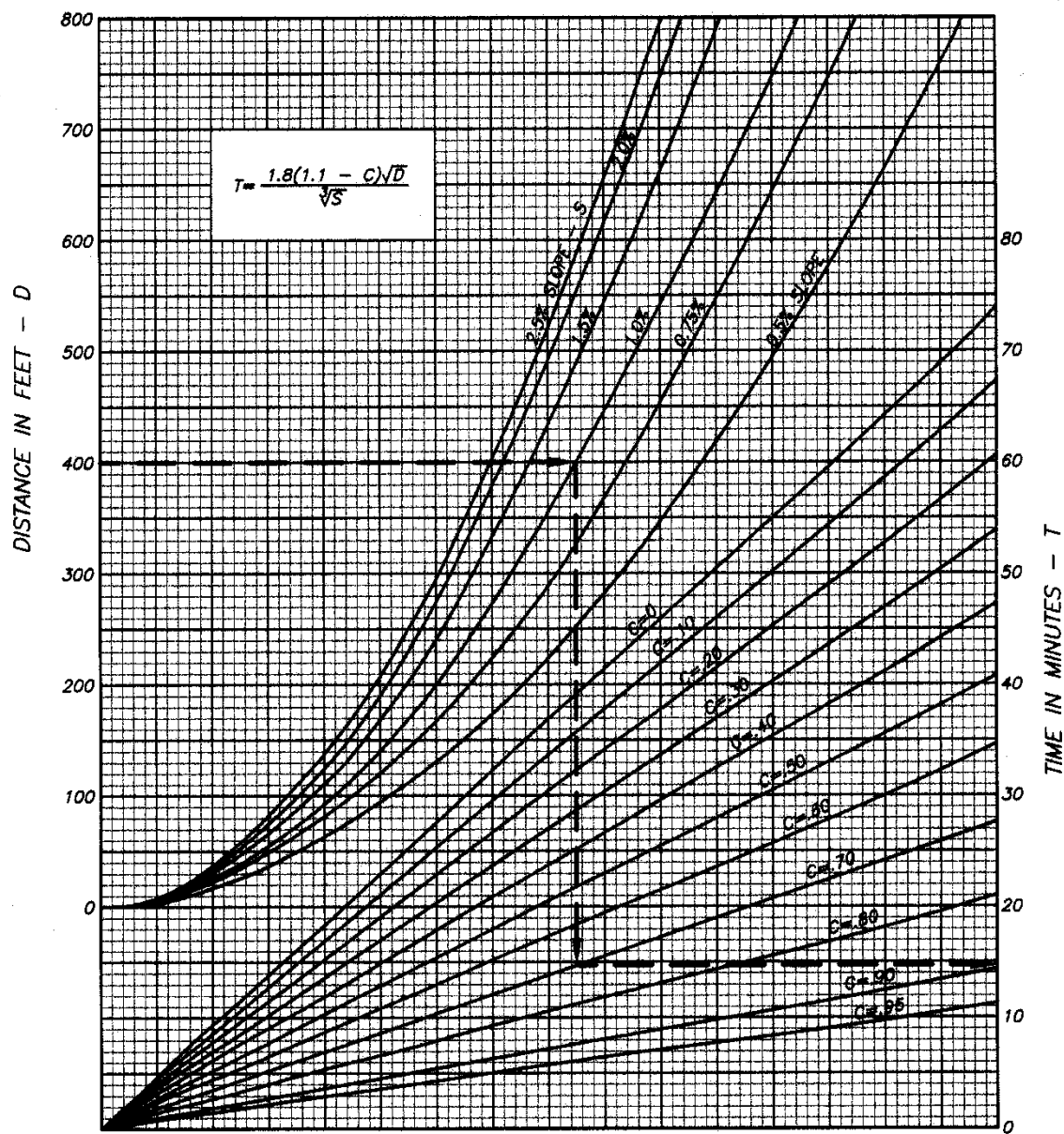
Release Rate Allowed: $Q = C_u i_2 A_{Total}$

Q_R =

C_{weighted} =

Detention Reservoir Size Calculation Table

A		B	C	D	E	F	
Duration Time		Intensity	Inflow Rate C _w x A _T x Column B	Release Rate Q _R	Stored Rate Col.C-Col.D	Reservoir Size Col.A x Co1 Ex 3600 43560	Max.
(Hrs)	(Min)	I ₁₀₀	(CFS)	(CFS)	(CFS)	(Ac/Ft)	
0.17	10	7.90					
0.33	20	5.80					
0.50	30	4.70					
0.67	40	4.00					
0.83	50	3.40					
1.00	60	3.00					
1.5	90	2.30					
2.0	120	1.85					
3	180	1.38					
4	240	1.10					
5	300	0.90					
6	360	0.78					



SURFACE FLOW TIME CURVES

CHART 2

TITLE VII - PUBLIC SITES, OPEN SPACES AND PARK DEDICATION

Section 1: Impact Fee Ordinance

The Town of St. John has in force a park impact fee ordinance under the auspices of I.C. 36-7-4-1300, et seq. This ordinance establishes an impact fee on new development in the Town of St. John for purposes of parks and recreational facilities.

Section 2: Jurisdiction and Impact Zone

The impact fee ordinance establishes an infrastructure impact zone which zone is the same as the existing corporate boundaries of the Town of St. John. This zone may be extended from time to time through annexation and over which the Town of St. John exercises planning and zoning jurisdiction. The impact fee ordinance applies uniformly to all residential developments in the Town of St. John in which the Town requires a structural building permit. The impact fee ordinance specifically does not apply to improvements that do not require a structural building permit; improvements which do not create a need for new and additional infrastructure, including the erection of a sign, construction of accessory buildings, structures or fences or the alteration, renovation, or expansion of an improvement where the use or intensity thereof has not changed; the replacement of a destroyed or partially destroyed improvement, provided that the replacement improvement does not create a need for new and additional infrastructure over and above the infrastructure needed by the original improvement prior to the destruction or partial destruction thereof; and non-residential development.

Section 3: Zone Improvement Plan (Infrastructure Improvement Plan) Impact Fee

As a part of the impact fee ordinance, the St. John Town Council has adopted a zone improvement plan (infrastructure improvement plan) and has determined pursuant thereto that an impact fee in the sum of \$1,868.01 per dwelling unit should be established. This fee is reviewed annually and a further review of the zone improvement plan is accomplished every five years. As a result thereof, the impact fee aforesaid may change from time to time. For the current fee in force at any given time, the Building & Planning Department of the Town of St. John should be consulted.

Section 4: Credit in Lieu of Impact Fee Payment

The impact fee ordinance has provisions that any person or entity obligated to pay the impact fee may have the option of financing, constructing, and dedicating park and recreational infrastructure in the form of block parks owned and operated by a neighborhood association for the public benefit, instead of making all or part of any impact fee payment which may be due. There are restrictions and qualifications attendant to the exercise of the option which are set forth in the ordinance. A request for credit must be presented pursuant to the ordinance prior to the issuance of the structural building permit. The amount of the credit for the actual cost in planning, financing, and constructing a park in lieu of the fee is set forth in the ordinance.

Section 5: Due Date of Impact Fee

The ordinance provides that the impact fee is due and payable upon the issuance of a structural building permit by the Town of St. John. The issuance of a structural building permit authorizes the applicant to commence construction activities, structural and otherwise. The entire fee is due at said time unless the amount of the fee upon calculation is greater than \$5,000.00 in which case an installment plan may be requested by the applicant pursuant to the terms of the ordinance. The ordinance also provides that if the fee payer requests, the amount of the impact fee shall be assessed upon the voluntary submission of a development plan or upon the issuance of the structural building permit, whichever is earlier.

Section 6: Lien Rights

The ordinance provides that pursuant to state law, the Town of St. John acquires a lien against the real estate which is the subject of the impact fee.

Section 7: Appeals

The ordinance provides that any fee payer who believes that it is aggrieved by the calculation of the impact fee, may appeal from such calculation to the Town of St. John Impact Fee Review Board. The regulations regarding appeals are set forth in the ordinance.

Section 8: Amendments

The ordinance provides that it may be amended from time to time, and accordingly, the impact fee may change. The Town of St. John Building & Planning Department should be contacted with regard to the ordinance then in effect at any given time.

TITLE VIII – ADMINISTRATION AND ENFORCEMENT

Section 1: Enforcement

The duly designated Town official shall have primary responsibility for enforcing this Ordinance. No land use (zoning) or building permits shall be issued for construction on any real estate or lot until the Secondary (Final) Plat for the subdivision has been duly recorded and placed on file in the office of the Clerk-Treasurer. Additionally, no land use (zoning) or building permits shall be issued until all infrastructure improvements are installed, inspected and approved including street signage. The exceptions to this rule are that the final surface of asphalt and street lights do not have to be in place prior to the issuance of land use (zoning) or building permits. However, street lights do have to be in place and must be operational prior to the issuance of any occupancy permits.

Section 2: Inspection

When the plans of streets and other improvements have been approved as provided in this Ordinance, as amended from time to time, the subdivider shall first notify the - Public Works_Department of the intention to proceed with the construction or installation of said streets and improvements. Notification shall be made at least two working days before any such construction or installation shall commence so as to give the Town an opportunity to inspect the site prior to commencement of work and to inspect installation or construction of said streets and improvements during the course of work being performed.

Section 3: Maintenance

Prior to the acceptance by the Town of any improvements, as hereinafter provided, the subdivider shall post a letter of credit, surety bond or cash escrow agreement naming the Town as Obligee in an amount deemed adequate by the Town to ensure maintenance of said improvements. The letter of credit, surety bond or cash escrow agreement shall be in an amount equal to fifteen (15) percent of the construction cost and shall run for a minimum period of two (2) years from the date of acceptance. However, the letter of credit, surety bond or cash escrow agreement shall continue in full force and effect until a certificate of release shall be issued by the Town Council.

Any draw on the above letter of credit, surety bond or cash escrow agreement by the Town shall include not only the full value of the letter or agreement, but also all expenses of the Town, including but not limited to reasonable attorney's fees. There will be an annual review of all letters or agreements by the Building and Planning Department.

Soil erosion control is to be maintained by the subdivider or lot owner. If the subdivider or lot owner fails to maintain soil erosion control when requested by the Town and the Town finds it necessary to perform soil erosion control tasks, the Town will bill the subdivider or lot owner for work performed.

Section 4: Acceptance

After all streets and improvements, including all permanent stormwater drainage and detention facilities, have been installed and constructed pursuant to the requirements contained in this ordinance, as amended from time to time, the subdivider shall notify the appropriate Town official that the construction or installment has been completed and, within thirty (30) days, shall supply the Town with a digital copy of the as-built plans on which the street or improvements in question will be shown as they were constructed or installed. Said as-built plans shall include a certified statement by a Professional Engineer or Registered Land Surveyor licensed in the State of Indiana on record drawings certifying that all completed streets and improvements, including all permanent stormwater drainage and detention facilities, substantially comply with the construction plans as approved. All permanent drainage and detention facilities that will be accepted by the Town shall be clearly identified by color, shading or hatching. Upon receipt of as-built plans, the letter of credit, surety bond or cash escrow will be released or Secondary (Final) Plat Approval granted.

The digital copy of the as-built plans shall show the plan and contain a notice thereon as to where and when the plat was recorded in the Office of the County Recorder. The portion of street improvement which the subdivider seeks to have the Town accept shall be clearly identified by color, shading or hatching on the digital copy. The as-built plans shall also clearly designate the number of lineal feet of said street or improvement, which the subdivider seeks to be accepted by the Town. The digital copy of the as-built drawings shall be submitted to the Building and Planning Department and Public Works Department using the State Planar coordinate system.

Section 5: Permits

No excavating, construction or building shall be commenced without first obtaining the required building permits. Building permits may be issued for foundations alone, or for the entire building. All applicable fees are to be paid. No building/zoning permit shall be issued without a proper Plat of Survey, certified by a Registered Land Surveyor, as per the Town Zoning Ordinance, as amended from time to time. The following list details the requirements which must appear on all Plats of Surveys submitted:

1. Legal description of property being surveyed.
2. FEMA flood zone designation of the property being surveyed.
3. Calculated distances and bearings of lot lines, lot sizes with total square footage, utility easements, streets, alleys, sidewalks, building set-back lines, width of lots at building set-back line, and lot grades.
4. Subdivision name and phase, lot numbers, street names and lot addresses.
5. Elevations:
 - a. Lowest point of entry as determined by the Building Commissioner;
 - b. Ground grade at each corner of building;
 - c. Ground grade at the four (4) lot corners;
 - d. Grade at side yard;

- e. Direction of overland drainage flow;
 - f. Elevations of adjacent properties including top of foundation grades, proposed finished grades at each lot corner and building corner, direction of overland drainage flow, and rim grades for all yard drains;
 - g. Elevations of manhole rims, storm drain rims and rear yard and side yard swale centerline grades and top of bank grades.
- 6. Corner lot ADA sidewalk cuts.
 - 7. Location of decks, fences, pools, etc.
 - 8. Specification of easements (utility, drainage or both).

Section 6: Occupancy

No persons shall occupy any structure prior to receiving the proper Occupancy Permits. All Occupancy Permits are subject to all Federal, State, and Local regulations (i.e., Building Codes), including, but not limited to, the following:

Connection of all utilities; grading in accordance with the subdivision engineering design elevations; submitting a Plat of Survey; adjusting all manhole and inlet castings to their proper elevations; completion of proper drainage design; completion of driveway, sidewalks and entrance walkways, if applicable; stairways and appropriate railings to all outside entrances, and posting of address with four (4) inch high or greater contrasting numerals on the building. The following list details the requirements which must appear on all Plat of Surveys submitted:

- 1. Legal description of property being surveyed.
- 2. FEMA flood zone designation of the property being surveyed.
- 3. Calculated distances and bearings of lot lines, lot sizes with total square footage, utility easements, streets, alleys, sidewalks, building set-back lines, width of lots at building set-back line, and lot grades.
- 4. Subdivision name and phase, lot numbers, street names and lot addresses.
- 5. As-built elevations:
 - a. Lowest point of entry as determined by the Building Commissioner;
 - b. Ground grade at each corner of building;
 - c. Ground grade at the four (4) lot corners;
 - d. Grade at side yard;
 - e. Direction of overland drainage flow;
 - f. Elevations of adjacent properties including top of foundation grades, proposed finished grades at each lot corner and building corner, direction of overland drainage flow, and rim grades for all yard drains;
 - g. Elevations of manhole rims, storm drain rims and rear yard and side yard swale centerline grades and top of bank grades.
- 6. Corner lot ADA sidewalk cuts.
- 7. Location of decks, fences, pools, etc.
- 8. Specification of easements (utility, drainage or both).

The occupancy escrow shall not be released until strict compliance of the aforementioned is achieved. After occupancy escrow is released, the homeowner shall be responsible for the maintenance of grades, drainage and swales on his or her lot as indicated on the approved plan.

Section 7: Appeals

Any decision or requirement of the Plan Commission made pursuant to the terms and provisions of this Ordinance, as amended from time to time, is subject to the right of appeal and review by certiorari pursuant to Indiana statute.

Section 8: Waivers and Exceptions

Where the Planning Commission finds that extraordinary hardships or particular difficulties may result from strict compliance with these regulations, it may agree and concur with waivers or exceptions to the regulations so that substantial justice may be done and the public interest secured, provided that such waiver or exception shall not have the effect of nullifying the intent and purpose of this Ordinance and further provided the Plan Commission shall not agree to waivers or exceptions to the regulations of this Ordinance unless it shall make findings based upon the evidence presented to it in each specific case that:

- 1) The granting of the waiver will not be detrimental to the public safety, health, or welfare or injurious to other property or improvements in the neighborhood in which the property is located;
- 2) The conditions upon which the request for a waiver is based are unique to the property for which the waiver is sought and are not applicable, generally, to other property;
- 3) Because of the particular physical surroundings, shape or topographical conditions of the specific property involved, a particular hardship to the owner would result if the strict letter of the regulations were carried out.

Section 9: Separability

Should any provision of this Ordinance, as amended from time to time, be declared invalid by a court of competent jurisdiction, such decision shall not affect the validity of the Ordinance, as amended from time to time, as a whole or of any other provisions thereof.

Section 10: Penalties

Any person or corporation, whether as principal, agent, employee or otherwise, who violates any of the provisions of this Ordinance, shall be subject to penalty and fine of not less than one-hundred (\$100.00) dollars and not more than five thousand (\$5,000.00) dollars for each offense. Each day of the existence of any violation shall be deemed a separate offense.

The erection, construction, enlargement, conversion, moving or maintenance of any building or structure and the use of any land or building which is continued, operated or maintained, contrary to any of the provision of this Ordinance, is hereby declared to be a violation of this Ordinance and unlawful.

The Town Attorney shall, immediately upon any such violation having been called to his attention by the Plan Commission and upon the direction of the Town Council, institute injunction, abatement, or any other appropriate action to prevent, enjoin, abate or remove such violation. Such action also may be instituted by any property owner who may be especially damaged by any violation of this Ordinance.

The remedy provided for herein shall be cumulative and not exclusive and shall be in addition to any other remedies provided by law.

TITLE IX – REPEAL, AMENDMENT AND EFFECT

Section 1: Repeal of Conflicting Ordinances

Ordinance Number 433, all amendments thereto, and all Ordinances or parts of Ordinances in conflict with this Subdivision Control Ordinance, or inconsistent with the provision of this Ordinance, are hereby repealed to the extent necessary to give this Subdivision Control Ordinance full force and effect.

Section 2: Amendments

The Town Council and Plan Commission may, from time to time, amend, supplement, change, modify, or repeal this Subdivision Control Ordinance by proceeding in the manner provided by State Law (I.C. 36-7-4-700, et. seq., as amended).

Section 3: Effect

This Subdivision Control Ordinance shall take effect upon its passage and approval by the Town Council of the Town of St. John.

TITLE X – PRINTING AND PUBLICATION

This Subdivision Control Ordinance shall be printed and published by order of the Town Council of the Town of St. John, Lake County, Indiana.

TITLE XI – VALIDITY AND ADOPTION

This Subdivision Control Ordinance shall take effect upon its approval by the Town Council of the Town of St. John, Lake County, Indiana, and in accordance with all requirements of the Laws of the State of Indiana regarding validity and adoption.

Passed by the Town Council of the Town of St. John, Lake County, Indiana, this _____ day of _____, 2020.

Town Council of the Town of St. John,
Lake County, Indiana

GERALD SWETS, President

PAUL PANCZUK, Vice-President

WAYNE PONDINAS, Member

MICHAEL SCHILLING, Member

BRYAN BLAZAK, Member

Attest:

Beth Hernandez, Clerk Treasurer

APPENDIX A

WATER DISTRIBUTION SYSTEM CONSTRUCTION STANDARDS

Section 1: General

- A. These Standards supersede all previous issues, and shall be effective for all plans and specifications approved after December 1, 2002.
- B. The Standards and Requirements found in this Article are for materials and construction of water mains constructed in and for the Town of St. John, Indiana. Specification references contained herein refer to the following:
 - 1. AWWA – American Water Works Association
 - 2. ANSI – American National Standards Institute
 - 3. INDOT – Indiana Department of Transportation
 - 4. IDEM – Indiana Department of Environmental Management
 - 5. ISBH – Indiana State Board of Health
 - 6. IDNR – Indiana Department of Natural Resources
 - 7. LCHD – Lake County Health Department
 - 8. LCDOT – Lake County Department of Transportation
 - 9. LCDB – Lake County Drainage Board
- C. The water system shall be located in the East or North parkway of the street/right of way, unless otherwise authorized in writing by the Director of Public Works.
- D. A permit from the Office of the Director of Public Works shall be obtained for all additions and/or connections to the existing water main system of the Town of St. John. Plans and Specifications for the work, detailing the proposed additions/connections shall be presented for review, approval, and issuance of permit PRIOR to the start of construction of the proposed addition/connection. Plans shall be completed by Registered Professional Engineer or Land Surveyor, licensed in the State of Indiana.
- E. Notice shall be given to the Director of Public Works not less than 48 hours in advance of the start of actual construction. The Owner/Developer shall insure that access to the work is provided at all times to Public Works personnel for the inspection of the work.
- F. All additions/connections to the existing water main system of the Town of St. John, Indiana, shall be designed in accordance with these standards, and in accordance with the Town of St. John Subdivision Control Ordinance as amended from time to time.

Section 1.1 – Construction Standards:

It is the intent of these standards to define allowable types of pipe, fittings, and accessory items normally used in water distribution systems in general, and in particular those methods, procedures and items allowed in the Town of St. John.

Section 1.2 – Other Permits Required:

All other Permits/Approvals required by other regulatory agencies of the State and/or County must be separately applied for and obtained by the Owner or his/her agent. Copies of all other approvals shall be provided to the Public Works Director.

Section 1.3 – Shop Drawings:

Prior to starting construction of any project two (2) sets of Shop Drawings shall be submitted to the Public Works Department for review and approval. Shop Drawings shall be provided for any materials of any kind not specifically described herein.

Section 2: Pipe

Section 2-1 Water Main Pipe:

A. Ductile Iron Pipe (DIP):

1. Ductile Iron Pipe meeting requirements of AWWA C-151 shall be used in the in the following pipe classes:
 - (a) For 12" nominal diameter and less use Pressure Class 350,
 - (b) For greater than 12" nominal diameter use Pressure Class 250.
2. Unrestrained Pipe shall utilize either the "Tyton" joint or the "Fastite" joint with gasket.
3. Restrained Joint Pipe shall utilize Boltless Restraint, as manufactured by either US Pipe and Foundry Co., "TR Flex"; Clow Water Systems Co., "Super Lock"; or American Cast Iron Pipe Co., "Flex Ring". (NOTE: Restraint using either Mechanical Joint Pipe with a "Mega Lug" Restraining Gland and Type 316 Stainless Steel Bolts or "Field Lock Gaskets."
4. If Ductile Iron Pipe is proposed for use, it shall be installed with the following:
 - (a) Polyethylene encasement meeting all requirements of AWWA C-105.
 - (b) Serrated Silicon Bronze wedges shall be used at each joint to provide electrical continuity.

B. PolyVinyl Chloride Pipe (PVC):

1. PVC pipe for water main shall be allowed for pipe sizes equal to or less than 12" nominal diameter, and shall meet requirements of AWWA C-900, Pressure Class 150, DR 18. Joints shall be push on.
2. Restraint of PVC pipe shall be provided using Series 1500 Bell Retainers with Type 316 Stainless Steel Bolts, as manufactured by the Ebba Iron Sales Co.
3. Restraint of PVC Pipe may be accomplished using Certa-Lok Pipe.

C. High Density Polyethylene Pipe (HDPE):

1. HDPE pipe for water main shall be allowed for sizes equal to or less than 16" nominal diameter, and shall meet requirements of AWWA C-906, Ductile Iron Pipe Size outside diameter, Pressure Class 160, DR 11.
2. Long runs of HDPE pipe (longer than 40 linear feet) shall be joined by heat fusion. Such fusion shall be performed by personnel certified by the manufacturer of the fusion equipment. Fusion recommendations published by the pipe manufacturer shall be utilized. Both the personnel certification and the pipe manufacturer fusion recommendations shall be maintained at the job site at all times while the work is in progress.
3. Short runs of HDPE pipe shall be joined by heat fusion, as described above; or use of mechanical joint fittings in accordance with specification requirements stated above.
4. If HDPE pipe is used, the actual pipe size used compared to the nominal size required shall be in accordance with the following (Basis of conversion is the internal diameter of the various pipe):

Nominal Size Required (DIP or PVC)	Size Required (HDPE)
6"	8"
8"	10"
10"	12"
12"	16"
16"	20"
18"	24"
20"	24"
24"	30"

Section 2-2 Fittings:

A. Ductile Iron Pipe (DIP):

1. Fittings for use with DIP shall be Mechanical Joint Fittings meeting requirements of AWWA C-153 and C-111.
2. All nuts and bolts used in the joint shall be made of Type 316 Stainless Steel.
3. The glands shall be the Wedge Action Mega Lug gland for use on DIP as manufactured by Ebba Iron Sales Co.
4. The fitting(s) shall be encased in polyethylene encasement materials meeting the requirements of AWWA C-105, encasement to extend beyond the fitting not less than three (3') feet in all directions from the fitting(s).

B. PolyVinyl Chloride Pipe (PVC):

1. Fittings for use with PVC shall be Mechanical Joint Fittings meeting requirements of AWWA C-153 and C-111.
2. All nuts and bolts used in the joint shall be made of Type 316 Stainless Steel.
3. The glands shall be the Wedge Action Mega Lug gland for use on PVC pipe as manufactured by Ebba Iron Sales Co.
4. The fitting(s) shall be encased in polyethylene encasement materials meeting the requirements of AWWA C-105, encasement to extend beyond the fitting not less than three (3') feet in all directions from the fitting(s).

C. High Density Polyethylene Pipe (HDPE):

1. Fittings for use with HDPE shall be Mechanical Joint Fittings meeting requirements of AWWA C-153 and C-111. All fittings, valves, and specials shall be sized to fit the actual o.d. of the HDPE Pipe installed.
2. All nuts and bolts used in the joint shall be made of Type 316 Stainless Steel.
3. The glands shall be the Wedge Action Mega Lug gland for use on PVC pipe as manufactured by Ebba Iron Sales Co.
4. The fitting(s) shall be encased in polyethylene encasement materials meeting the requirements of AWWA C-105, encasement to extend beyond the fitting not less than three (3') feet in all directions from the fitting(s).
5. On HDPE pipe of twelve (12") inch or smaller diameters, a Type 316 Stainless Steel insert stiffener shall be used at every gland location.

Section 2.4 Water Main Sizing:

- A. Water Main sizes shall conform to the Water Distribution System Construction Standards. A meeting shall be scheduled with the Public Works Director at the inception of the project to establish the proper sizes for the proposed water mains.
- B. The minimum required size water main in the Town of St. John shall be eight (8") inch.
- C. Dead End runs will not be permitted. Temporary dead ends will be acceptable, to accommodate project phasing. When permitted Temporary Dead Ends shall be provided with temporary hydrant assemblies for flushing purposes. An automatic flushing device shall be included which drains to a sanitary sewer.
- D. Water mains designed for multi-family developments, commercial developments, or industrial developments shall be sized based upon analysis of expected water use and fire protection needs. The developer shall present the sizing computations and analyses to the Public Works Director for review and final sizing determination in the design phase of the project. After review of the data submitted, the sizing determination of the Public Works Director will be final in all cases.
- E. Water Mains shall be sized using a "required" diameter. Actual constructed diameter is dependent upon the type of pipe used, and shall be based upon the internal diameter and flow characteristics of the various types of pipe used. The conversion between the required pipe size and nominal diameters for the differing pipe types shall be as follows:

Required Diameter	Ductile Iron Pipe	PVC, C-900, CI 150	HDPE, DR 11, CI 160
6"	6"	6"	8"
8"	8"	8"	10"
10"	10"	10"	12"
12"	12"	12"	16"
16"	16"	----	18"
18"	18"	----	24"
20"	20"	----	24"
24"	24"	----	30"

Section 3: Protection of Water Mains:

The following text taken from Recommended Standards for Water Works (10 States Standards) shall govern water main proximity to potential hazards. The reviewing authority for the Town and Waterworks Board shall be the Public Works Director:

Section 3.1 – Parallel Installation:

Water mains shall be laid at least 10-feet horizontally from any existing or proposed sewer/septic tank absorption field trench. The distance shall be measured edge to edge. In cases where it is not practical to maintain a ten foot separation, the reviewing authority may allow deviation on a case-by-case basis, if supported by data from the design engineer. Such deviation may allow installation of the water main closer to a sewer, provided that the water main is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer at such an elevation that the bottom of the water main is at least 18-inches above the top of the sewer.

Section 3.2 – Crossings:

Water mains crossing sewers shall be laid to provide a minimum vertical distance of 18-inches between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer with preference to the water main located above the sewer. At crossings, one full length of water pipe shall be located so both joints will be as far from the sewer as possible. Special structural support for the water and sewer pipes may be required.

Section 3.3 – Exception:

The reviewing authority must specifically approve any variance from the requirements of Sections 3.1 and 3.2 when it is impossible to obtain the specified separation distances. Where sewers are being installed and Section 3.1 and 3.2 cannot be met, the sewer materials shall be waterworks grade 150 psi (1.0 Mpa) pressure rated pipe or equivalent and shall be pressure tested to ensure water tightness.

Section 3.4 – Force Mains:

Water Mains shall be laid at least ten (10') feet horizontally from any existing or proposed Sanitary Sewer Force Mains, and not less than eighteen (18") inch vertical separation shall be provided.

Section 3.5 – Sewer Manholes:

No water pipe shall pass through or come in contact with any part of a sewer manhole. A minimum separation distance of eighteen (18") inches between the outside wall of the manhole structure and the nearest wall of the water main pipe barrel shall be maintained.

Section 3.6 – Separation of Water Mains from other Sources of Contamination:

Design engineers should exercise caution when locating water mains at or near certain sites such as sewage treatment plants or industrial complexes. On site waste disposal facility including absorption field must be located and avoided. The engineer must contact the reviewing authority to establish specific design requirements for locating water mains near any source of contamination.

Section 4: Pipeline Installation for Water Mains:

Section 4.1 – Licensed Contractor:

All Contractor's installing water main improvements in the Town of St. John, Indiana shall be registered to do such business in accordance with rules of the Town of St. John, Indiana Building Department Rules.

Section 4.2 – Open Cut Pipe Installation:

A. Ductile Iron Pipe Installation:

1. Ductile iron water main shall be installed in accordance with procedures defined in AWWA C-600.
2. Absolutely no slag materials will be permitted in contact with the ductile iron pipe.
3. An #8 Gauge insulated copper tracer wire shall be installed with both the main line piping and all service piping regardless of size and/or type of pipe used. The tracer wire shall be terminated at each hydrant assembly approximately two (2") inches above grade with three (3) wraps around the hydrant.

B. PolyVinyl Pipe Installation

1. PolyVinyl Chloride water main shall be installed in accordance with procedures defined in AWWA C-605.
2. An #8 Gauge insulated copper tracer wire shall be installed with both the main line piping and all service piping regardless of size and/or type of pipe used. The tracer wire shall be terminated at each hydrant assembly approximately two (2") inches above grade with three (3) wraps around the hydrant.

C. High Density Polyethylene Pipe Installation

1. High Density Polyethylene Pipe shall be installed in accordance with procedures defined in AWWA C-605.
2. An #8 Gauge insulated copper tracer wire shall be installed with both the main line piping and all service piping regardless of size and/or type of pipe used. The tracer wire shall be terminated at each hydrant assembly approximately two (2") inches above grade with three (3) wraps around the hydrant.
3. At each point where High Density Polyethylene Pipe transitions from/to another type of pipe a restraint shall be provided which will prevent the movement of the HDPE pipe due to thermal expansion/contraction.

D. Backfill

1. Backfill of water main trench not under or within four (4') feet of any existing or proposed pavement and above the bedding material may be suitable excavated material, compacted to 90% Standard Proctor. (See Figure No 1)
2. Backfill of water main trench crossing under any existing or proposed pavement and above the bedding material shall be INDOT Std Specification for #53 Crushed Stone Aggregate compacted to not less than 95% Standard Proctor. (See Figure No 2)
3. Backfill of water main trench laid longitudinally under or within four (4') feet of any existing or proposed pavement and above the bedding material shall be INDOT Std Specification for "B-Borrow for Structure Backfill" compacted to not less than 95% Standard Proctor. (See Figure No 3)
4. Existing or proposed pavement are defined as any roadway pavement (asphalt and/or concrete), driveway (asphalt and/or concrete), or sidewalk.
5. Compaction testing shall be the responsibility of the installer/developer. Copies of test reports shall be submitted to the Public Works Director prior to and as a condition of acceptance of the completed work. Tests shall be taken as follows:
 - a. for longitudinal runs under or within four (4') feet of existing or proposed pavement, one (1) test per two (2') depth per one thousand (1000') feet of trench length, or portion thereof.

Section 4.3 – Horizontal Directional Drilling Installation:

A. General:

1. The HDD System employed to install the lines shall be remotely steerable and permit electronic monitoring of the tunnel depth and direction of the pipe. It must be accurate to $\pm 2"$. (Any software required to "read" or "print" the depth data recorded shall be provided to the Town of St. John at no cost to the Town.)
2. The spoils from the HDD process shall be recovered by a vacuum system mounted on a vehicle. Spoils will not be discharged into the existing sanitary and/or storm sewer system.
3. The equipment shall be equipped with a permanent alarm system capable of detecting an electrical current. This system shall warn the Operator with an audible alarm horn when the drill head nears an energized buried cable or conduit.

B. Construction/Installation Requirements:

1. At each point where High Density Polyethylene Pipe transitions from/to another type of pipe or at a dead end (if permitted), an HDPE anchor ring encased in concrete shall be provided which will prevent the movement of the HDPE pipe due to thermal expansion/contraction. See Figure 4 for details of one (1) acceptable style anchor system.
2. Connections to HDPE pipe shall not be made immediately after the pipe has been installed. It is required to wait a minimum of twelve (12) hours after installation to permit the pipe to approach an equilibrium temperature with the ground. (Due to the much higher coefficient of expansion of the HDPE pipe, reaching the equilibrium point in the ground will result in lower induced stress on the connections.)
3. All proposed connection and restraint details shall be included with the Plans and Specifications for the project.
4. Backfill of bore holes shall be in accordance with Section 4.2.D above.

Section 4.4 – Conventional Highway and Railroad Crossings by Jack and Bore:

- A. Requirements of LC DOT, INDOT, or the particular Railroad shall be met, and a valid copy of the permit from the appropriate agency shall be provided to the Public Works Director before that portion of the work may begin. The provisions of Section 4.4.C below shall be incorporated in these crossings also.

- B. Crossings of all existing Town of St. John streets shall require either casing installed by Jack and Bore methods, or pipe installation using the horizontal directional drilling method.
- C. Minimum requirements for water main inside of casings are as follows:
 - 1. The minimum casing wall thickness shall be 0.250", but shall be no less than the thickness required by the appropriate agency issuing the permit for the work.
 - 2. The inside diameter of the casing shall be 6"-8" larger than the outside diameter of the bells of the carrier pipe.
 - 3. Manufactured casing chocks centering the water main in the casing shall be provided. The chocks shall be fabricated using either Type 316 Stainless Steel or plastic materials. Rollers shall be incorporated to permit the pipe to be inserted with minimum effort. A minimum of three (3) chocks per individual piece of pipe shall be provided.
 - 4. Manufactured end plugs to prevent soil and water from entering the casing shall be provided for each end of the casing.
 - 5. See Figure 5 for pipe in casing details.

Section 4.5 – Subaqueous Crossings:

- A. Waters of the State of Indiana are regulated by the IDNR, and their requirements for any subaqueous crossing shall be met. A valid copy of the permit for this crossing shall be provided to the Public Works Director before work on that segment of the project may begin.
- B. Natural or Legal Drains, not under the jurisdiction of the IDNR, are regulated by the LCDB, and their requirements for this crossing shall be met. A valid copy of the permit for this crossing shall be provided to the Public Works Director before work on that segment of the project may begin.
- C. Any subaqueous crossing not under the jurisdiction of either the IDNR or the LCDB shall be governed by the Town of St. John, and the requirements of the crossing shall be as directed by the Public Works Director.

Section 4.6– Depth of Cover:

Unless otherwise approved by the Public Works Director, all water mains shall be laid to a depth of not less than five (5') feet and not greater than eight (8') feet measured from existing ground surface or established final grade to the top of the barrel of the pipe.

Section 4.7– Dewatering:

When installing water mains, no matter the type of pipe used or the method of installation, a dry trench shall be maintained. No trench water shall be allowed in the new pipe at any time. Provisions shall be made to prevent the flotation of the pipeline.

Section 4.8 – Thrust Blocking and Restrained Joints:

- A. Thrust Blocking is an acceptable method of preventing the movement of a water main. Thrust blocks shall be a minimum of twelve (12") inches thick and use concrete with a minimum compressive strength of three thousand pounds per square inch (3,000 psi). Each block shall be designed for the test pressure using a passive soil pressure of three thousand pounds per square foot (3,000 psf). Thrust blocks shall be placed to allow complete access to all fitting joints and bolts.
- B. Joint restraint shall be devices to connect pipe segments and/or fittings for the length shown in the following table. All joint restraint systems using bolts shall use Type 316 Stainless Steel bolts. All joint restraint systems used on PVC and/or HDPE pipe shall be approved prior to use by the Public Works Director.

Nominal Pipe Size (inches)	RESTRAINED PIPE LENGTH (FEET)					
	Tee* Branch	90° Bend	45° Bend	22 ½° Bend	11 1/4° Bend	Dead End
4	0	15	6	3	2	20
6	9	22	9	4	2	28
8	18	27	11	5	3	37
10	25	33	14	7	3	44
12	33	39	16	8	4	52
16	48	50	21	10	5	68
18	56	55	23	11	5	75
20	63	61	25	12	6	82
24	77	71	29	14	7	96

* One Full Length of Pipe each side of Tee to Be Restrained Also.

NOTE:

1. Increase all lengths in the table by 75% if the pipe is DIP encased in polyethylene wrap.
2. Increase all lengths in the table by 75% if the pipe is PVC.
3. Test Pressure is based on 150 psi.
4. Length to be restrained shall extend the tabular distance on each side of the fitting.

Section 4.9 – Connections to Existing Mains:

- A. Connections to existing water mains shall be accomplished without interruption of service.
- B. All taps on existing mains shall be not greater than two (2) sizes less than the water main being tapped, unless otherwise approved by the Public Works Director. (i.e. Existing water main size is 12", maximum tap size is 8".)
- C. Taps of greater size than permitted by Section 4.8.B above will be allowed subject to the prior approval by the Public Works Director.

Section 5: Disinfection:

- A. Before being placed into service, all new mains and extensions to existing mains shall be disinfected using the "Tablet Method" in accordance with AWWA C-651, except that ONLY quick dissolving calcium hypochlorite granules with a minimum of 70% available chlorine shall be used. During construction, the calcium hypochlorite granules shall be placed at the upstream end of each run, at the upstream end of each branch, and at five hundred (500') foot intervals. The quantity of granules shall be not less than that shown in the following table:

Ounces of Calcium Hypochlorite Granules, per 500 feet of Main

Pipe Diameter, in.	Calcium Hypochlorite Granules	
	Oz.	Grams
4	1.7	57
6	3.8	113
8	6.7	200
10	10.5	300
12	15.1	430
16	20.1	570
18	22.7	640
20	25.2	710
24	30.2	860

- B. When pipe installation has been completed, the mains shall be filled with water at a rate that will ensure a velocity not greater than one (1fps) foot per second. Precautions shall be taken to ensure that air pockets are eliminated. The water shall remain in the pipe for not less than twenty four (24 hrs) hours. If the water temperature is less than forty one degrees Fahrenheit (41°F), the water shall remain in the pipe for forty eight (48 hrs) hours. A detectable chlorine residual should be found at each sampling point in the main.

1. The Public Works Director shall be notified not less than forty eight (48 hrs) hours in advance of the intent to fill the pipe, to ensure that sufficient supply is available, and to prevent disruption of existing service to upstream users.
 2. Filling of pipe shall only be conducted between the hours of 9:00 AM and 2:30 PM.
- C. Following chlorination, all treated water shall be thoroughly flushed from the newly laid pipe at its extremity until the replacement water throughout its length shows a residual not in excess of that carried in the system. The Public Works Department shall be notified at least 48 hours in advance of any main flushing occurring. The following additional conditions appurtenant to the flushing shall be met:
1. Flushing shall be conducted in such a manner as to produce a velocity of three feet per second (3 fps) in the mains being flushed.
 2. All taps, hoses, temporary risers, or other requisites necessary to accomplish chlorination, flushing, temporary or permanent release of air, or disinfection sampling shall be provided at no cost to the Town of St. John. All such taps, hoses temporary risers, or other requisites necessary to accomplish chlorination not otherwise needed or permanently incorporated into the final water main system shall be removed by the Contractor before acceptance of the improvements by the Town of St. John.
 3. Per the current requirements of the Indiana Department of Environmental Management the disposal of heavily chlorinated water shall be reviewed prior to the actual conduct of the flushing.
 - a. In ALL cases the discharge shall be dechlorinated prior to release to the environment.
 - b. The discharge location shall be reviewed to ensure that erosion, or any other damage to existing facilities will not occur.
- D. THE PUBLIC WORKS DEPARTMENT OF THE TOWN OF ST. JOHN SHALL DRAW THE NECESSARY SAMPLES AND COMPLETE THE LABORATORY TESTING OF ALL NEW WATER MAIN CONSTRUCTION. The developer shall pay for the cost of any such testing including retests if they are necessary. The Public Works Director shall be notified of the need to draw samples 48 hours before the samples are requested to be drawn. After flushing, water samples will be collected on two (2) successive days by the Town of St. John from the treated piping system, as directed by the Director of Public Works or Town Engineer. The Contractor shall provide any personnel and/or equipment necessary to assist the Town personnel in completing this task. The samples taken shall show satisfactory bacteriological results. Should the initial treatment result in an unsatisfactory bacterial test, the chlorination procedure shall be repeated by the Contractor until satisfactory results are obtained. In the event that rechlorination is required, the procedures and methods to be employed shall be approved by the Public Works Director prior to completing the work.

Section 6: Water Main Pressure Testing:

- A. After the pipe has been installed, all newly laid pipe or any valved sections of it shall, be subjected to a hydrostatic pressure of one hundred and fifty (150) pounds per square inch in accordance with the procedures outlined in AWWA C600. Duration of each pressure test shall be for a period of not less than two (2) hours.
- B. Suitable means shall be provided by the Contractor for determining the quantity of water lost to leakage under the specified test pressure. Allowable leakage shall be not greater than that computed by the following table. (Allowable leakage is shown in Gal./Hr./1000/Ft.)

Diameter of pipe, inches	Allowable Leakage,Gph
6"	0.55
8"	0.74
10"	0.92
12"	1.10
16"	1.47
18"	1.66
20"	1.84
24"	2.21

- C. Each test shall be witnessed by a representative of the Public Works Department, and the contractor shall notify the Public Works Director of the date and time of the test not less than forty eight (48) hours prior to the time of the start of the test.

Section 7: Valves for Water Main:

- A. The valves shall be suitable for ordinary waterworks service, intended to be installed in a normal position on buried pipe lines for water distribution systems.
- B. East Jordan (Flow Master) or equal resilient wedge gate valves conforming to AWWA C515 shall be provided for all mains 16-inches in diameter and less. Valves shall open left. Valves shall be suitable for direct buried service. East Jordan three piece valve box (EJ8550 Series) made in the USA with "Water" embossed on the lid and Valve Box Stabilizer shall be provided. See details at Figure 6. Valves shall have restrained mechanical joints.
- C. Butterfly valves conforming to AWWA C504 Class 150B shall be provided for mains 14-inches and greater in diameter. Wafer type valves are not acceptable. All valves shall be suitable for direct burial. Three piece valve box with "Water" embossed on the lid and Valve Box Stabilizer shall be provided. See details at Figure 6. Valves shall have restrained mechanical joints

D. Valves shall be located as follows:

1. At intervals not exceeding eight hundred (800') feet in industrial and commercial areas.
2. At intervals not exceeding six hundred (600') feet in all other areas.
3. At the ends of mains which are to be extended in the future.
4. Not in an asphalt or concrete paved area.
5. Three (3) valves shall be provided at each tee in the main, except at hydrants and large diameter service branches.
6. Four (4) valves shall be provided at each cross in the main.

E. All valves provided shall be of US manufacture. Acceptable manufacturers are; East Jordan Iron Works, Clow Corp., US Pipe Co., American Cast Iron Pipe Co., Mueller Corp., or approved equal.

Section 8: Fire Hydrant:

A. Fire flows for an individual installation shall be approved jointly by the Public Works Director and the Town of St. John Fire Chief.

B. Hydrants shall be traffic model designed for above ground valve replacement and shall conform to AWWA C502 with two 2 ½ inch ports and one 5 inch Storz fitting pumper nozzle with threads conforming to the St. John Fire Department Standards. The main valve opening shall be 5 ¼ inch. The main valve seat shall be constructed entirely of bronze. All hydrants shall be of U.S. manufacture and for purposes of standardization shall be EJ Model 5BR250. All hydrants shall be painted red. An auxiliary valve shall be installed such that the hydrant may be isolated from the water main without interrupting service to customers, and the lid for the auxiliary valve box shall be painted red. Hydrants shall be installed as shown at Figure 7.

C. Hydrant spacing shall be as follows:

1. One (1) Hydrant shall be placed at or near each intersection, and
2. At intervening points such that the distance between hydrants shall be not greater than five hundred (500') feet.
3. All hydrants shall have a 5' standard marker attached to them, model number 22516 as shown in USABlueBook.

- D. The following fire flows listed below are the minimum allowed in the Town of St. John. The building construction, on-site fire protection systems, and the hazard of contents will be used in the Town's determination of the exact flow requirement within the minimum range. The required fire flow is to be calculated at water system maximum day demand condition using a residual pressure of 20 psi.

Single family detached residential homes-----	1000-1500 GPM
Town, row or cluster housing-----	1500-2000 GPM
Apartment type buildings-----	3000-4000 GPM
Manufacturing and storage-----	3000-5000 GPM
Institutional-----	3000-4000 GPM
Business and Office uses-----	2500-3500 GPM
Commercial, mercantile or regional shopping center-----	3000-5000 GPM

Section 9: Water Services :

- A. Meter size, water main tap size, and service line size will be determined by the Public Works Director for each individual case. In cases where the Public Works Director determines that the building location on the site will result in excessive pressure loss in the service line, the director may require that service line between the buffalo box and the building be sized larger than the meter and water main tap size. Usually for structures of greater than 2000 Sq. Ft. in area an upsize will be required. In special circumstances, such as in areas of known low pressure, the Public Works Director may require the increased service line size for lesser distances from the main to the residence. Irrigation meters, if used shall be 1-inch and shall connect to the service line outside the residence.
- B. Service connections equal to or less than two (2") inches in diameter shall be copper tube type "K". Fittings, Corporation Cocks, Curb Stops and Stop Boxes shall be of the following manufacture:
1. Corporation Cocks –
 - a. Ford Meter Box Co., Fig. F-1000
 - b. Mueller Co., Fig. H-15008
 - c. AY McDonald Co., Fig. 4701Q or comparable
 2. Curb Stops –
 - a. Ford Meter Box Co., Fig. B-66
 - b. Mueller Co., Fig. B-25209
 - c. AY McDonald Co., Fig. 6100Q or comparable
 3. Stop Boxes –
 - a. Ford Meter Box Co., Fig. EA-1-55-40-42R
 - b. Mueller Co., Fig. H-10306
 - c. AY McDonald Co., Fig. 5604 box with stainless steel rod

4. Fittings and/or Specials shall be of the same type of manufacture as the Corporation Cocks, and Curb Stops above
 5. Unions 4758Q
- C. Taps for copper services shall:
1. Be made in the upper third of the main as close to a forty-five degree (45°) angle with the horizontal axis as is practical. (A tap in the top of the main will not be permitted.)
 2. Adjacent taps shall not be less than ten (10') feet apart.
 3. Full Circle Type 316 Stainless Steel Tapping Saddles shall be used as follows:
 - a. For all taps on Ductile Iron Pipe of 10" nominal diameter and less.
 - b. For all taps made on PolyVinyl Chloride Pipe of any nominal diameter.
 - c. For all taps made on High Density Polyethylene Pipe of any diameter.
 4. Details of service taps less than three (3") inch diameter are shown at Figure 8.
- D. Water service connections greater than two (2") inch diameter shall be constructed using one of the types of pipe defined in Section 503 above; or PVC, ASTM D-2241 Pressure Pipe, Class 160 may be used on private property. Additionally, such taps shall meet the following:
1. If the tap is constructed at the same time that the main is constructed, the tap may be accomplished with appropriate fittings specified for the water main.
 2. If the tap is constructed on an existing main, constructed of either DIP or PVC, the tap shall be made using a Type 316 Stainless Steel tapping sleeve and valve. Such a tap shall be limited in size to two (2) sizes less than the main being tapped. (i.e. Existing main is 12" PVC, C-900 pipe. Tap size not greater than 8" maximum will be permitted.)
 3. If the tap is constructed on an existing High Density Polyethylene Pipe, a Flanged Branch Saddle shall be heat fused to the pipe to accomplish the tap. Such a tap shall be limited in size to two (2) sizes less than the main being tapped. (i.e. Existing main is 16" HDPE pipe (Required 12" diameter). Tap size not greater than 10" HDPE (required 8" diameter) maximum will be permitted.)
 4. Taps of greater size on existing water mains than permitted above require the prior approval of the Public Works Director.
 5. In all cases for taps greater than or equal to three (3") inch required diameter, an isolation valve shall be provided adjacent to the main not in a paved area.
 6. See Figure 9 for details.

- E. It is possible that taps, of any size, may be required on existing water mains that are located within the paved area of an existing street or property. Should such a situation occur, the roadway cut shall be kept to the minimum dimensions possible, and repairs completed in accordance with Section 600.
- F. Installation of water service tap piping shall be completed in accordance with Section 503, above, except that all pipe installation under existing paved areas shall be completed utilizing trenchless technology.

Section 10: Administration and Enforcement:

A. Inspection of Construction Activities:

- 1. Inspection shall be completed by the Public Works Department of the Town of St. John, Indiana. A prior notice of intent to begin work shall be provided not less than forty eight (48) hours before any work shall commence.
- 2. In resolution of any situations arising in the construction phase of the work the decision of the Public Works Director shall be final.

B. Maintenance on Completion:

- 1. Any water system improvements shall be guaranteed by the developer on their completion. The guarantee shall be in the form of a written warranty of three (3) years. The three (3) year guarantee period shall start on the date of acceptance of the improvements by the Town of St. John, Indiana.

C. As Built Drawings:

1. Water Mains:

- a. As Built Drawings of the water system improvement shall be submitted to the Public Works Director.
- b. Two (2) copies of As Built Drawings, and one (1) digital electronic copy of the same data in Auto CAD format of the same version possessed by the Town of St. John (or a compatible format) shall be provided. Further, the digital As Built data will be entered on the base drawing as a separate layer named "Water Main – As Built Data- 'Subdivision Name and Phase'," to facilitate its incorporation into the Town of St. John digital map base.
- c. The "X", "Y" and "Z" Coordinate of each tee, bend, plug, valve and hydrant shall be provided using the State Plane Coordinate System. The "Z" coordinate shall be at the approximate centerline of the new mains.

2. Services:

a. For services less than three (3") in diameter:

(1.)The "X", "Y", and "Z" coordinate of the tap location and the stop box location shall be provided. On the digital record all tap data shall be entered on a separate layer named "Water Main – Tap Data – Subdivision Name and Phase".

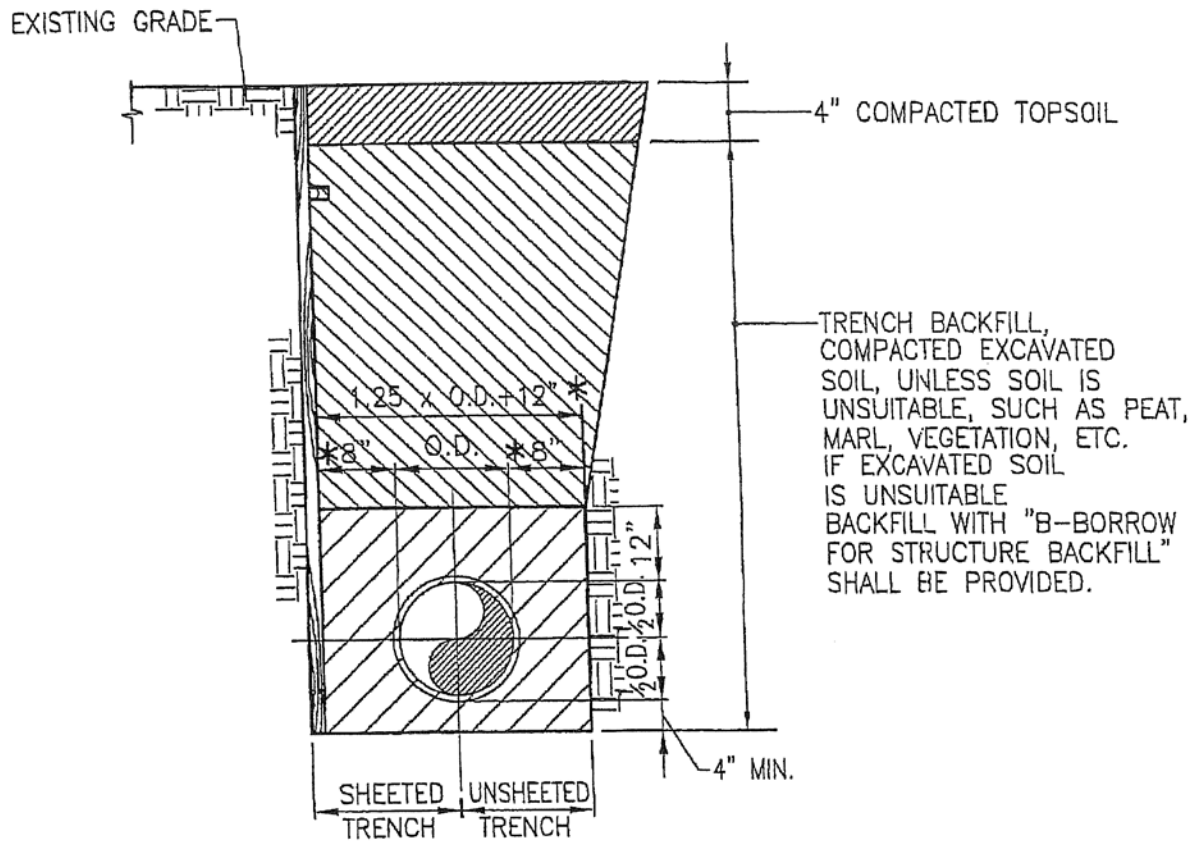
(2.)Additionally, on the As Built Drawings (both prints and digital sets), the following measurements shall be shown:

(a.)The lateral distance from the intersection north/east of the tap to the tap, along the centerline of the street, and

(b.)The distance from the centerline of the street out to the stop box.

b. Services three (3") and larger shall be shown on the Water Main – As Built in accord with requirements of Section 10.C.1 above.

Figure 1



PIPE BEDDING DETAIL

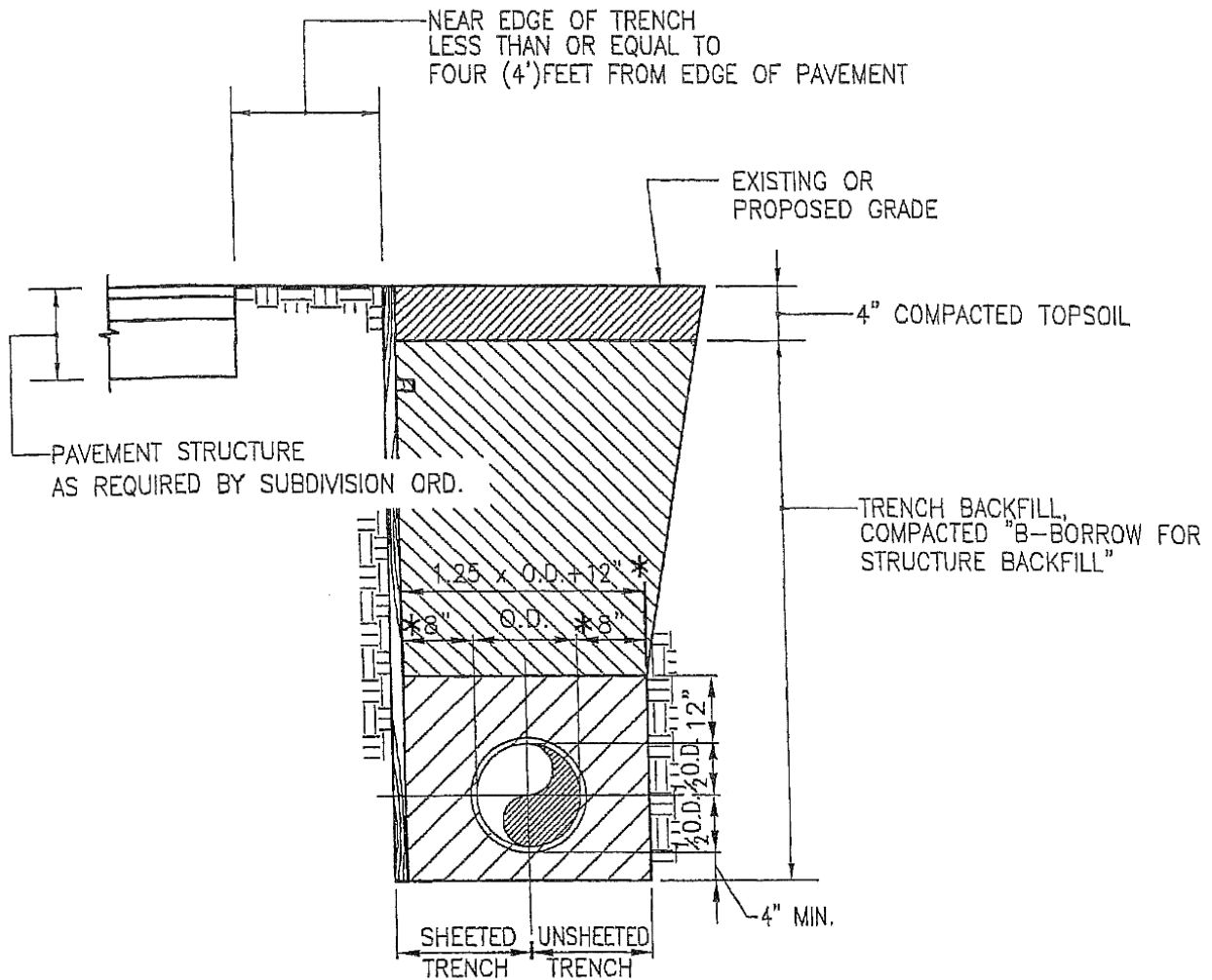
NOT TO SCALE

FOR TRENCH NOT IN PAVED AREAS

NOTES:

1. THE COST OF TRENCH SUPPORT SHALL BE INCLUDED IN THE COST OF THE PIPE.
2. OPEN-CUT TRENCHES SHALL BE SHEETED AND BRACED AS REQUIRED BY OSHA (29CFR 1926/1910), AND AS NECESSARY TO PROTECT LIFE, PROPERTY, AND THE WORK.
- * 3. WHICHEVER PROVIDES GREATER TRENCH WIDTH

Figure 2



PIPE BEDDING DETAIL

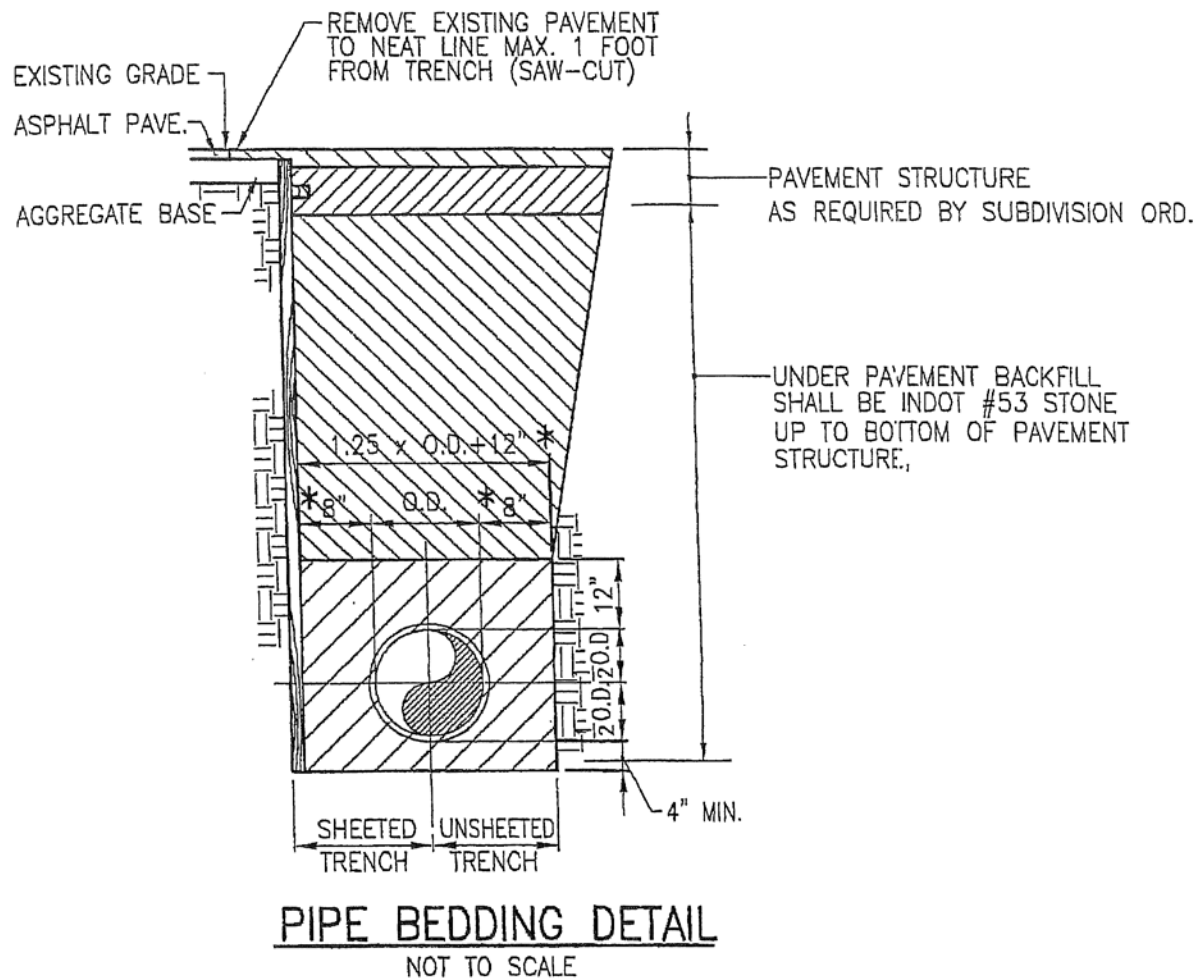
NOT TO SCALE

FOR TRENCH WITHIN FOUR FEET OF PAVEMENT

NOTES:

1. THE COST OF TRENCH SUPPORT SHALL BE INCLUDED IN THE COST OF THE PIPE.
2. OPEN-CUT TRENCHES SHALL BE SHEETED AND BRACED AS REQUIRED BY OSHA (29CFR 1926/1910), AND AS NECESSARY TO PROTECT LIFE, PROPERTY, AND THE WORK.
- * 3. WHICHEVER PROVIDES GREATER TRENCH WIDTH

Figure 3

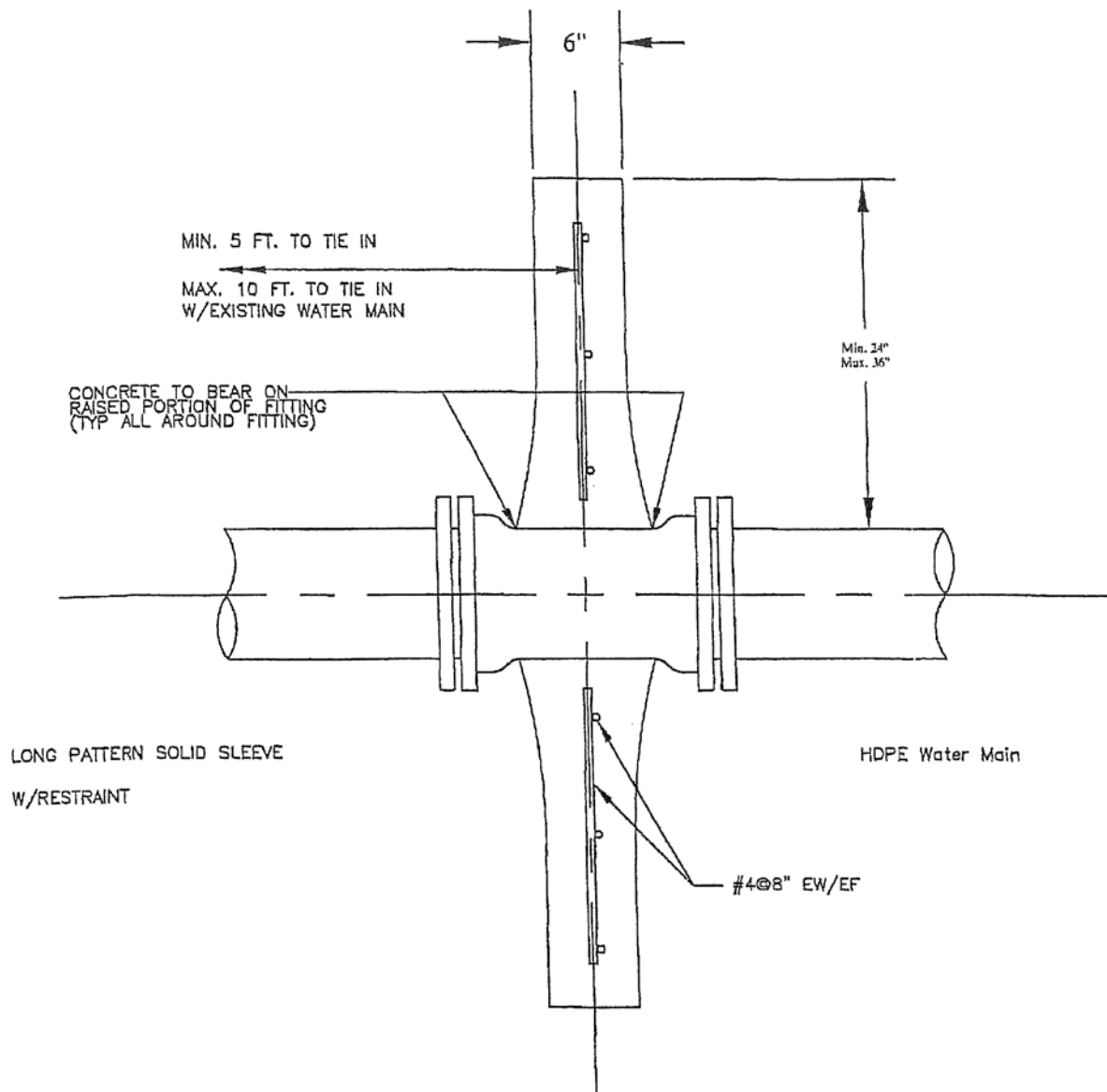


FOR TRENCH UNDER EXISTING OR PROPOSED PAVEMENT

NOTES:

1. THE COST OF TRENCH SUPPORT SHALL BE INCLUDED IN THE COST OF THE PIPE.
2. OPEN-CUT TRENCHES SHALL BE SHEETED AND BRACED AS REQUIRED BY OSHA (29CFR 1926/1910), AND AS NECESSARY TO PROTECT LIFE, PROPERTY, AND THE WORK.
- * 3. WHICHEVER PROVIDES GREATER TRENCH WIDTH

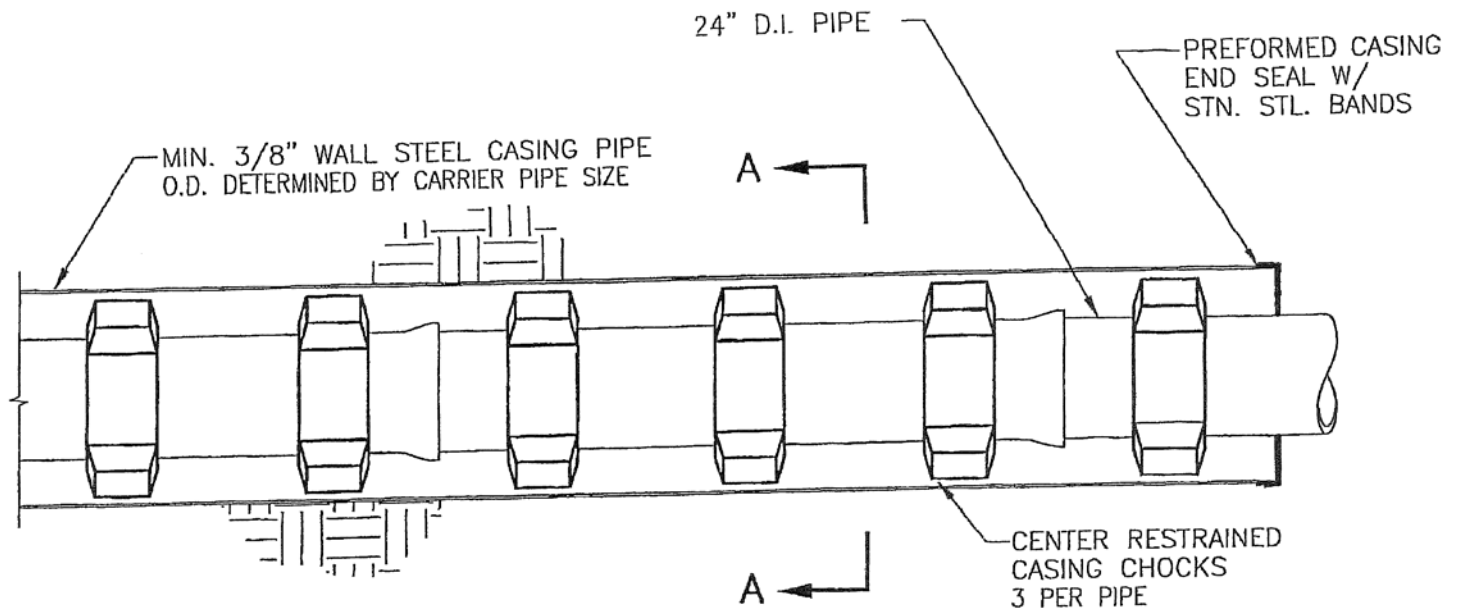
Figure 4



HDPE ANCHOR RING DETAIL

NO SCALE

Figure 5



CASING DETAIL

(LONGITUDINAL SECTION)
NOT TO SCALE

SECTION A-A

NOT TO SCALE

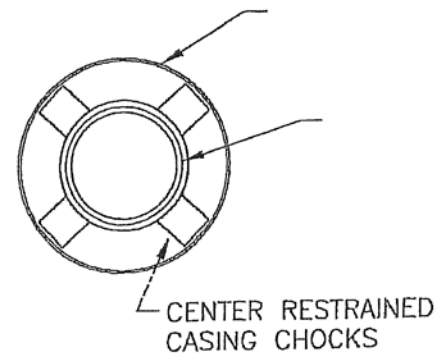
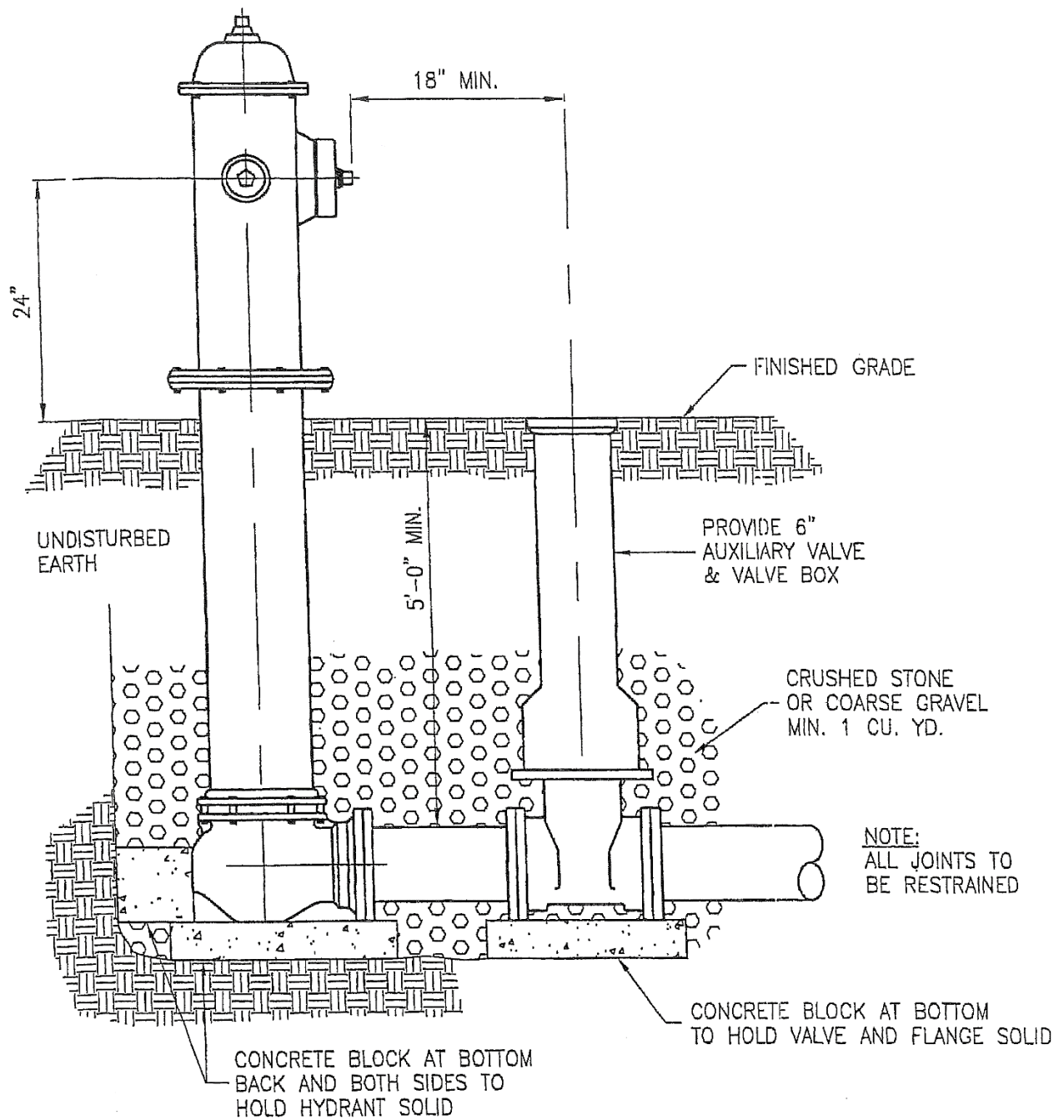


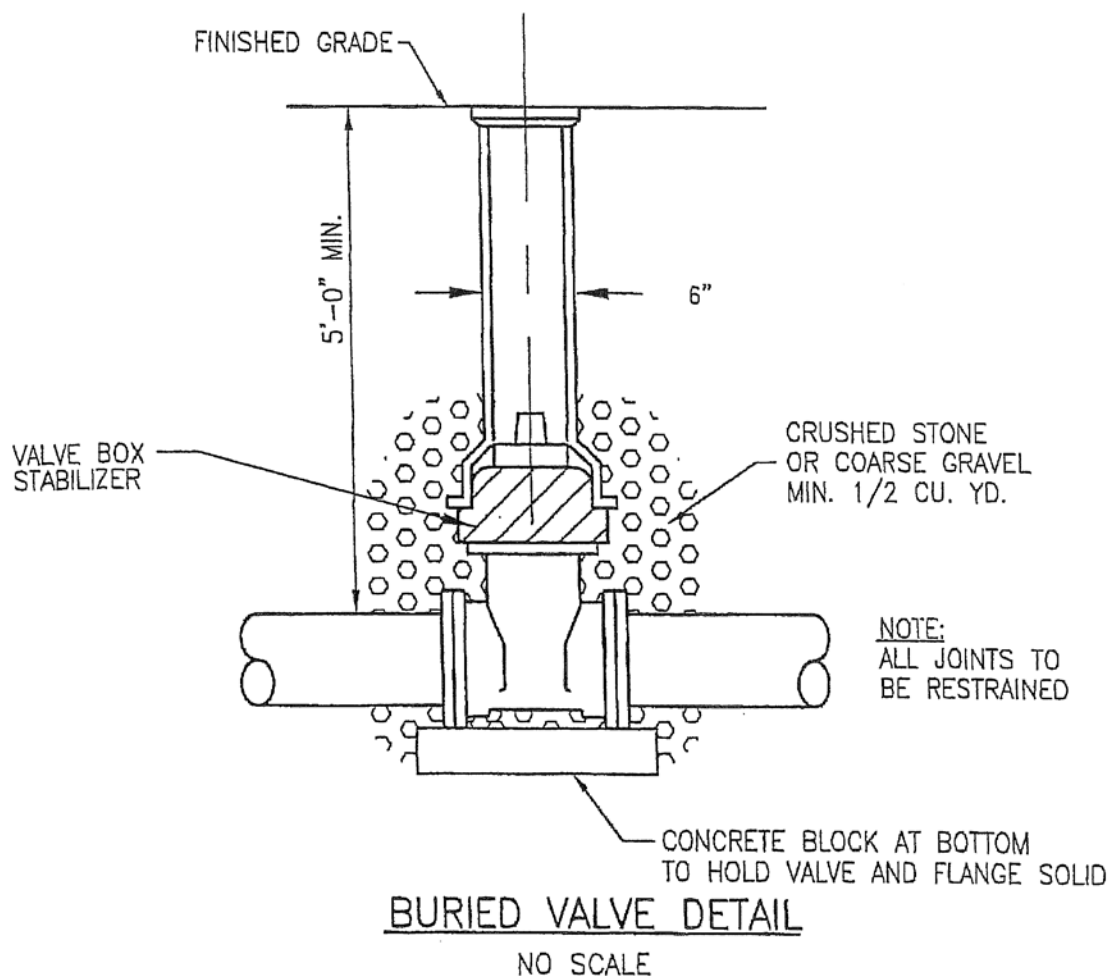
Figure 6



TYPICAL HYDRANT ASSEMBLY DETAIL

TRAFFIC MODEL — BREAKABLE FLANGE AND COUPLING
NOT TO SCALE

Figure 7



NOTE: FOR ALL VALVES 3" - 24"

VALVES OVER 12" ARE BUTTERFLY VALVES

Figure 8

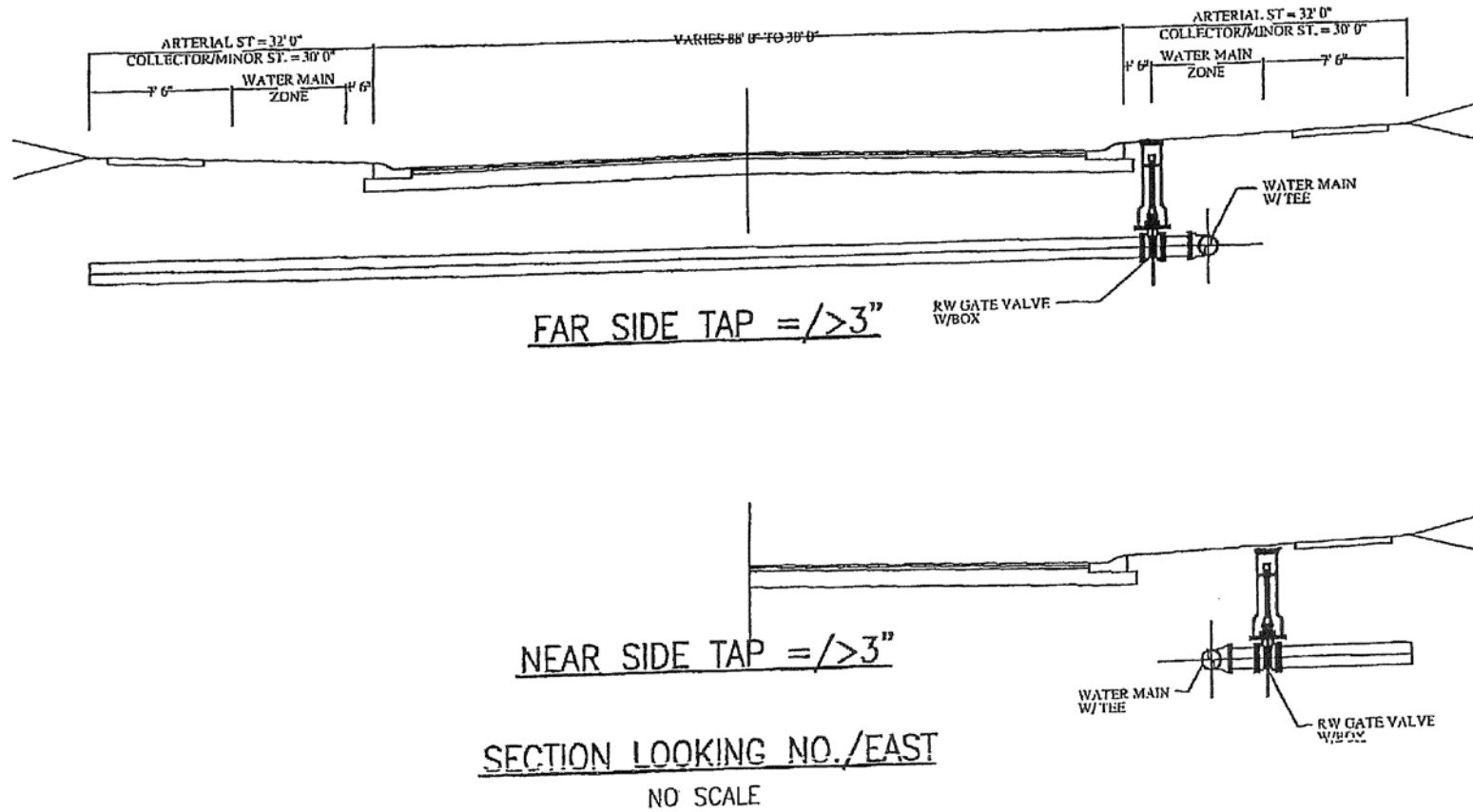
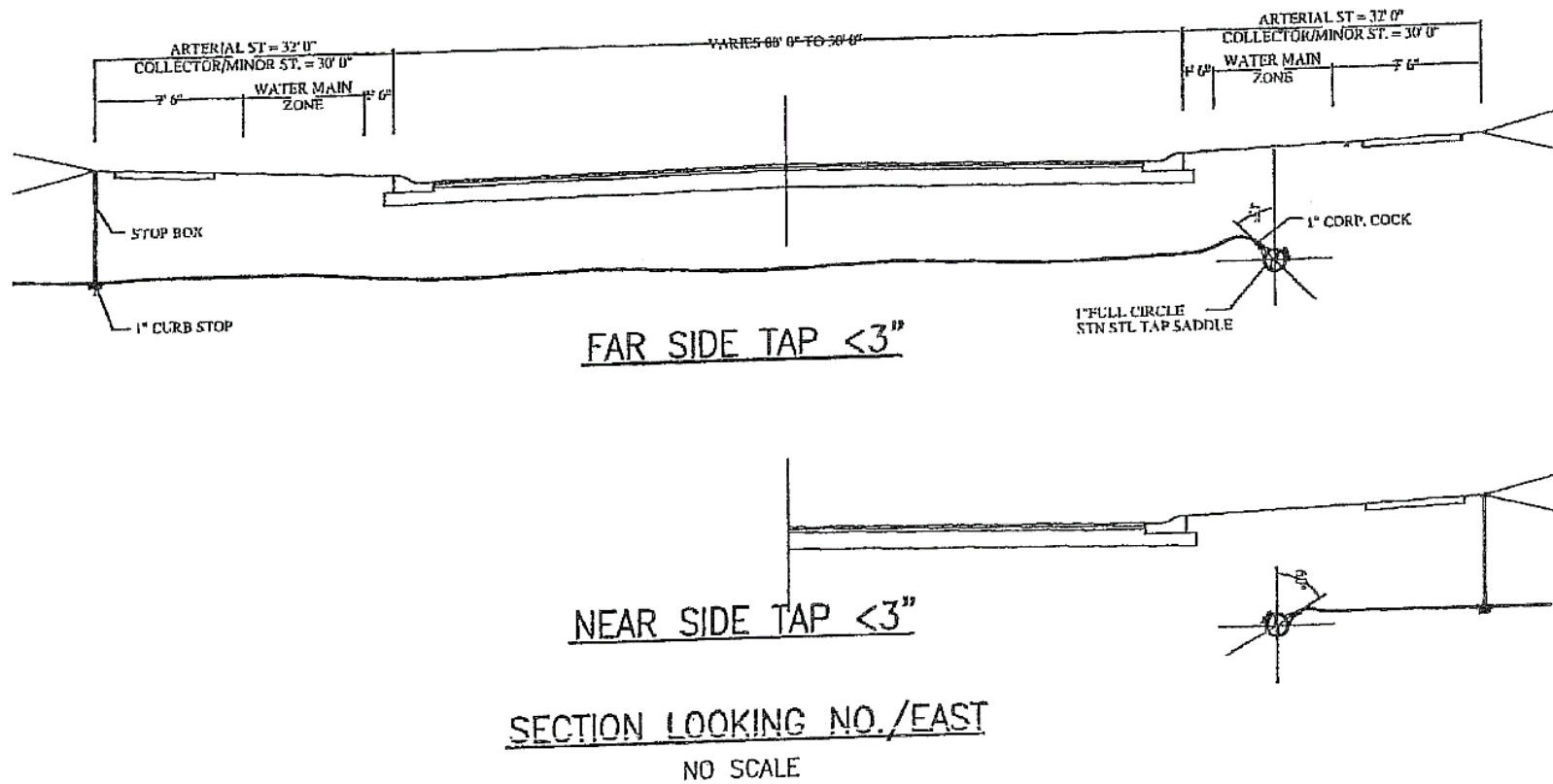


Figure 9



APPENDIX B

TOWN OF ST. JOHN STREET LIGHTING STANDARDS

Section 1: Requirements for Underground Wiring:

The subdivider shall make arrangements for all lines for telephone, electric, television, and other similar services distributed by wire or cable to be placed underground entirely throughout a subdivided area.

Such conduits or cables shall be placed underground within dedicated public ways or easements.

All such facilities placed in dedicated public easements or rights-of-way shall be planned so as not to conflict with other underground utilities. All underground utility installations, which traverse privately owned property, shall be protected by easements granted by the sub-divider to the Town.

Section 1.1 – Street Lighting:

Street lighting improvements shall be installed to serve properties within a subdivision or planned unit development. Such improvements shall consist of standards, luminaries, cable, conduit, controllers, and all other miscellaneous work and equipment necessary for the integrated system of street lights.

Section 2: Construction:

All construction work shall be performed in accordance to the latest edition of the National Electric Code.

Section 2.1 – Electric Service:

Power furnished by Northern Indiana Public Service Company shall be 120/240 volts, single phase, three wires, at their transformer. The power company shall approve the electrical service connection and location. A lockable, watertight disconnect box with appropriate size circuit breakers shall be provided. Service shall be underground conduit from point of connection to the proposed control station.

Section 2.2– Lighting Control:

An independent control cabinet will be installed at a location approved by Northern Indiana Public Service and the Town of St. John Electrical Inspector. Unless otherwise approved by the Towns Electrical Inspector, the Controller shall contain a main breaker for the control circuit and a contactor. A photoelectric cell located at the top of the pole closest to the control cabinet or at the control cabinet shall control the contactor for all lighting circuits. A locking, weatherproof control cabinet shall be provided to house all

electrical, and control equipment. The cabinet must be a minimum of 24" x 36"x 18" deep in size and shall be placed within the roadway easement, as close to side yard lot lines as possible, centered in the area between the sidewalk and the curb. Alternate size cabinets will be considered, but require the consent of the Towns electrical inspector. The cabinet's door shall face the sidewalk. The control cabinet shall be constructed entirely of either stainless steel or aluminum. The stainless steel cabinet shall remain unfinished; aluminum cabinets shall be painted green utilizing epoxy paint. In either case the words STREET LIGHTING CONTROLS shall be cast into the door. The cabinet is to be set on a minimum four inch (4") thick concrete slab. The concrete slab shall have a stone base of at least six inches (6"). The cabinet shall also contain a 110 volt 20 amp GFI duplex outlet. Cabinet shall be wired in a fashion so that a standard 110-watt light bulb, or led bulb lumen equivalent, automatically illuminates when the cabinet door is opened.

Section 2.3 – Voltage:

All lighting circuits shall be 240 VAC. Control circuits shall be 120 VAC. Voltage drop shall not exceed five percent (5%) from disconnect to last standard.

Section 2.4 – Light Standard:

Light standards shall be an aluminum pole and bracket arm with a nominal mounting height of thirty (30) feet. Bracket arm shall be a truss type, eight (8) feet in length for commercial applications and six (6) foot for residential.

Section 2.5 Light Distribution:

All luminaries shall have MS type II 4-way distribution. Shields shall be provided where required to eliminate any unnecessary glare.

Section 2.6 – Underground Wiring:

All wiring between poles shall be underground. Colors shall be black, red, white, and green Underground cable shall be of four (4) No. 4 XHHW, one (1) conductor in one inch (1-1/4 ") duct, buried a minimum of thirty inches (30") below finished grade. The cable shall be located three (3) feet behind back of curb. Great care shall be taken when installing conduits to avoid conflicts with other buried utilities. Splicing of underground cable will not be permitted. Hand holes, when required, shall conform to the attached detail.

Section 2.7 – Grounding:

A one-half inch by eight foot (1/2" x 8') copperweld ground rod shall be located in the trench outside each foundation and shall be connected to the ground wire and the grounding lug located in the base of each lighting standard.

Section 2.8 – Pole Wiring:

Pole wiring shall be No. 10 AWG type use wire in a continuous length from underground distribution system to luminaire. It shall be connected to the underground cable by means of a waterproof in-the-line fuse holder. Cables shall be long enough to allow extensions through pole hand hole of not less than eight inches (8").

Section 2.9 – Luminaires:

A subdivision shall be lighted by high-pressure sodium luminaires and shall be used throughout the subdivision. All luminaires on secondary and minor streets, intersection and cul-de-sacs shall be 100-watt high-pressure sodium. General Electric model number M2AR10SON1GMS2 shall be the standard. The Town reserves the right to specify larger wattage fixtures, as it deems necessary.

Section 2.10 – Conduit:

Two-inch (2") schedule 40 PVC conduit shall be installed at all locations that the underground cable crosses a commercial driveway or roadway. Conduit shall extend one foot (1') beyond back of curb or edge of driveway. Schedule 40 PVC conduit shall also extend one foot (1') beyond any location, or proposed location, where two sidewalks meet at an intersection. The ends of all conduits shall be provided with a pipe thread insulated conduit bushing.

Section 2.11 – Spacing:

One light fixture shall be installed at each intersection, at the end of each cul-de-sac, in between intersections spaced not more than 600 feet apart or at other locations deemed necessary by the Plan Commission. An additional streetlight shall be provided at each pedestrian-way or crosswalk. Plans submitted for preliminary approval to the Plan Commission shall indicate the locations of streetlights for the Plan Commissions review. Spacing requirements for decorative lighting shall be determined based on the manufacturers recommended intervals considering pole height and lamp wattage. The developer shall install streetlights prior to receiving final acceptance of the street by the Town.

Section 2.12 – Location:

Poles shall be set as close to the side yard lot lines as possible with in the road right-away. Poles located at intersections shall be installed at a point away from any existing or proposed sidewalk crossing. Poles shall not be installed at the point between the two sidewalk crossings and the curb's radius. Lights poles shall be set back a distance of 3' from the back edge of the curb to the center of the pole. Where practical, street lighting system shall be installed on the opposite side of the street as the water main.

Section 2.13 – Foundation:

Concrete foundations for light standards shall be twenty-four inches (24") in diameter and six feet (6') in length. Anchor bolts shall be in one inch (1") in diameter, thirty-six inches (36") in length, with four-inch (4") hook at the bottom. Each foundation shall be provided with a sufficient number of non-metallic raceways for cable entry.

Section 2.14 – Materials:

All materials shall be as specified below, or as approved by the Towns Electrical Inspector.

Section 3: Aluminum Poles and Bracket Arm:

Section 3.1 – Shaft:

The shaft shall be a one-piece, round tapered tube of alloy 6063, and shall be full-length heat-treated after welding on the base flange to produce T6 temper. (See attached detail) Poles shall include a 4" x 6" reinforced handhole centered 18" above the bottom of the shaft. Length of shaft in a residential setting shall be 25' and installations in commercial / industrial settings shall be 30'. A cover with stainless steel screws shall be provided on each pole. If requested by the Town a manufactured, independently fused, 110 volt 20 amp festoon lighting outlet shall be factory installed into the shaft. The outlet shall be installed into the shaft at a height of thirteen feet (13') from the base of the pole. Festoon shall also have a cover to prevent moisture entering the receptacle while in use. (See detail) Town staff shall determine the locations of the poles that must include a festoon.

Section 3.2 – Base flange:

The base flange for the attachment of the shaft to the foundation shall be a one-piece cast socket of aluminum alloy 356. The flange shall be joined to the shaft by means of complete circumferential welds, externally at the top of the flange and internally at the bottom of the shaft tube. Four anchor bolt covers of aluminum alloy 43 and stainless steel screws for their attachment shall be provided.

Section 3.3 – Bracket Arm:

The bracket arm shall be the truss type of design with an upper and lower member joined near the luminaire end of the arm and braced with a vertical strut. The upper member shall be the continuous or wiring member and shall be a tapered tub ovalized at the pole shaft end with the major dimension of the oval in a horizontal plane. Its nominal wall thickness shall be 1/8". The lower member shall be standard pipe. Both the upper and lower members shall be attached to the pole shaft with 1/4" thick wrought plates. The upper attachment shall be made with two 3/8" stainless steel bolts and blind nuts that have been installed in the pole shaft in the factory. Arms that are eight (8') feet in length shall be installed in commercial or industrial areas in Town, and six (6') in length in

residential areas. Wiring at the upper attachment shall be through a grommeted 1-1/4" diameter hole. The material of the main bracket members and their attachment plates shall be alloy 6063-T6. Bracket arms installed in residential settings shall be 6' in length and ones installed in a commercial / industrial setting the shall be 8'.

Section 3.4 – Shaft Cap:

An ornamental cap of aluminum alloy shall be provided with each shaft. The cap shall be fastened to the shaft by means of a stainless steel screw. Underwriters tags and labels shall be permanently removed from the reels by the contractor and given to the Town for its records.

Conductors shall be No. 6 AWG and comply with underwriters standard No. 83 for thermoplastic insulated conductors. Conductor insulation shall be heat and moisture resistant for use in 75-degree temperatures, in dry and wet locations at 600 volts. Conductors shall be stranded copper and comply with ASTM specification B-8, Class B.

Duct shall be black polyethylene, flexible enough for easy coiling and uncoiling but rigid enough to maintain its shape over its entire life. It shall be permanently marked at twelve inch (12") intervals on the outside with the manufacturer's name or trademark. One and One quarter (1-1/4") duct shall have a wall thickness of .080 inches minimum. Unit duct shall be installed so that it is possible to withdraw a conductor and pull in a new one. Under no circumstances shall bends be less than eighteen inches (18") radius.

Where unit duct terminates in an anchor base pole, the duct shall terminate at a point halfway between the bottom of the pole and the handhole. The cables and conductors shall extend eighteen inches (18") beyond the duct. It is intended that the duct can be pulled to the opening in the handhole for pulling in a replacement conductor or cable. Ground conductor shall be No. 6 AWG bare soft- drawn copper, having been manufactured with twelve months of installation.

Section 3.5 – Miscellaneous Hardware:

All nuts, bolts, and washers used in the fabrication of the pole shall be grade 18-8 stainless steel, aluminum alloy 2024-T4 with alumilite No. 204 finish, or aluminum alloy 6061-T6, except for anchorage hardware.

Section 3.6 – Grounding:

Each pole shaft shall contain an internal lug with a 3/8" diameter hole for the purpose of attaching a grounding connector.

Section 3.7 – Welding:

Welding shall be done by the inert gas shielded metal arc method with consumable electrode. Aluminum alloy 4043 electrode shall be used.

Section 3.8 – Surface Finish:

The pole shaft shall be provided with a satin finish accomplished by mechanical rotary grinding. The bracket arms shall be provided with a satin-etched finish. All material shall be cleaned and free from dents and unsightly scratches. The Town shall reserve the right to inspect all materials prior to their installation.

Section 3.9 – Luminaire:

The luminaire housing, both upper and lower, shall consist of cast aluminum joined by an integrally cast pin hinge at the mounting, and a one-hand latch at the door. The reflector shall be highly polished anodic-surfaced aluminum secured with spring latch for each positioning. The refractor shall be of the unbreakable type secured with spring latches. The ballast shall be the regulator type, wired for 240-volt operation. It shall be suitable for high ambient temperature operation. General Electric model number M2AR10S0N1GMS21. (See attached detail)

The luminaries shall have an adjustable socket capable of producing an MS II or MS II 4-way distribution. Also, it shall be capable of adapting to 1-1/4" or two inch (2") mounting brackets.

Section 3.10 – Lamp:

100-watt high-pressure sodium vapor lamps. The lamp shall be designed to burn in any position and have a rated life of 24,000 hours with 10 hours burning time per start and shall come to full candle power in not over four minutes after starting. The lamp shall have a minimum initial lumen output of 27,500 and 16,000 lumens respectively, and shall provide 98% of the initial lumens after 6,000 hours of operation. The maximum operating temperature shall not exceed 120 degrees C at the inside bottom of the reflector when operating at 25 degrees ambient temperature. Bulbs must be manufactured in a way that allows the Town to meet all state and federal regulations concerning high-pressure sodium lamp disposal without any costs incurred by the Town for disposal. The town reserves the right to specify more effective and efficient bulbs as lighting technologies advance. LED lighting is the current best technology as of 2020.

Section 3.11 – Cable-In-Duct:

The cable duct assembly shall be made at the factory in continuous lengths that will permit installation of the longest spans shown on the plans without splicing or cutting either conduit or cable. Splices of cable or conduit will be permitted only in handholes or pole bases. None will be permitted in the trench. Both conduit and cable will be continuous from pole to pole. The unit duct assembly shall be factory coiled and delivered on reels with identifying underwriters' tags and labels attached there to. Cable duct shall be 1-1/4" in diameter.

Section 3.12 – Conduit:

Conduit shall be constructed of schedule 40 PVC pipe.

Section 3.13 – Foundation:

The concrete pole foundation shall conform to the specifications of Class X concrete as contained in the Indiana Department of Transportation lighting specifications, latest edition.

Section 3.14 – Fuse Holder:

The fuse holder shall be made of a durable molded plastic material in two sections held together with a captive nut. Waterproofing shall be provided by an “O” ring at the point of connection. The fuse will be held on the load side of the unit when separated, the line being recessed. The tubular terminals on each end of the fuse holder shall be the crimp-type and shall accommodate various sizes of wire on the line side. A crimpable insulating sleeve covers each terminal to provide a good surface for taping. The fuse holder to be used shall be HEB-AB and HEB-AD, and each fuse holder shall come complete with a 13/32” x 1-1/2” fuse, type KTK, rated at 10 AMPS complete with boot style covers.

Section 4: Submittal, Inspections, and Approvals:

The Town, before construction, shall approve all street lighting plans and review and approve all lighting submittals. A permit shall be obtained by a licensed electrical contractor for all street lighting projects prior to construction beginning.

After the electric cable is in place, and before being connected to the luminaries and equipment, the system shall be tested for shorts and grounds by means of an approved type of constant potential ‘Megger’ in the presence of the Towns Electrical Inspector. All cables showing insulations resistance lower than recommended by the cable manufacturer shall be replaced. Luminaires shall also be adjusted to the satisfaction of the Town to obtain proper light distribution. After notification that the work is complete, the Town will make such tests and inspections as it may deem necessary to determine the acceptability of the system. The developer shall furnish all labor and equipment necessary for the above tests at no cost to the Town and shall be responsible for all costs associated with adjusting fixtures or correcting worked deemed to be inferior by the Town.

As-built plans will be submitted to the Town at or prior to the final inspection of the installation or the final inspection shall not be considered complete.

Section 4.1 – Operation Expenses

The developer shall be responsible for a period of two years from the date of acceptance by the town for all electrical charges from NIPSCO and the fees are to be paid to the Town prior to the Towns final acceptance of the lighting system. The developer shall be

responsible for all maintenance of the street lighting system for a period of three years from the date of acceptance. At that point in time the lighting system shall become the property of the Town and all costs associated with the future of maintenance and operation expenses shall transfer.

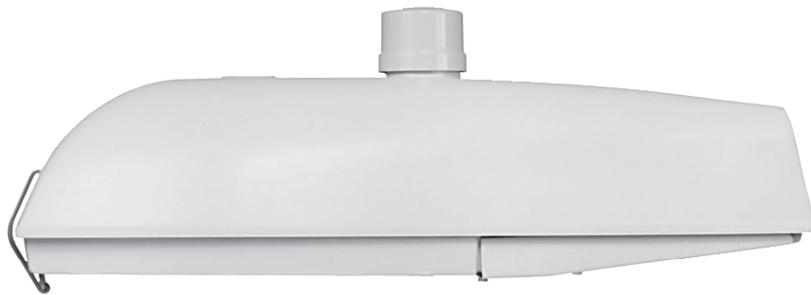
Section 5: Decorative Lighting

The Town may consider decorative light poles and fixtures. The standard shall be manufactured by Hadco and shall be the Victorian style model number V 71 with the base and pole being model number P-1765, fourteen foot in height or approved equal. (See attached detail). Decorative lighting must meet Dark Skies standards and must provide 9,000 lumens and 4,000 kelvins.

GE
Lighting

Roadway Lighting

M-250A2 Powr/Door™ with Cutoff Optics (M2AC)



imagination at work

Product Features

From HID to LED, GE continues to push Roadway Lighting to new heights. Recognized for the highest quality and reliability in street, highway, parkway, and commercial applications, GE offers a wide selection of styles to meet the lighting needs of municipalities, utilities, DOT customers and more.

Applications

- For residential streets, access roads, parking lots where light trespass could be a problem

Housing

- Die-cast aluminum housing
- External stainless steel bail latch

Finish

- Polyester powder gray paint finish

Rating

- V_L/V_L Listed for wet location available as an option

Mounting

- Universal two-bolt slipfitter

Reflectors

- ALGLAS™ finish on reflector

Unique Features

- Streetside adjustable E39 mogul base socket standard where lamp is available in mogul base (E26 Medium Base otherwise)
- No-tool PE receptacle
- Plug-in ignitor
- Plastic pest guard standard (not required for 2 in. pipe)
- True 90° cutoff – no light above 90°
- Filtered optics
- Powr/Module ballast assembly

Ordering Number Logic

M-250A2 Powr/Door™ with Cutoff Optics (M2AC)



M2AC

PROD. ID	WATTAGE	LIGHT SOURCE	VOLTAGE	BALLAST TYPE SELECTION	PE FUNCTION	LENS TYPE (PRISMATIC) REFRACTOR	IES DISTRIBUTION TYPE	FILTER	OPTIONS
M2AC M-250A2 with Cutoff * Optics * Previously IESNA Full Cutoff Optics	05 = 50 07 = 70 10 = 100 15 = 150 (SSV) 20 = 200 21 = 100/150 (SSV) 25 = 250 71 = 70/100 NOTE: Dual wattage connected for lower wattage	E = Energy Act Compliant Pulse MH (EPMH) S = HPS P = PMH Standard Lamp not included.	60Hz 0 = 120/208/240/277 Multivolt 1 = 120 2 = 208 3 = 240 4 = 277 5 = 480 7 = 120X240 8 = 240V Ballast 120V PE Receptacle not reconnectable D = 347 F = 120X347 T = 220 50Hz 6 = 220 R = 230 Y = 240	See Ballast Selection Table A = Autoreg G = Mag-Reg with Grounded Socket Shell H = HPS Reactor or Log J = CWI M = Mag-Reg N = HPS Reactor or Log P = CWI with Grounded Socket Shell Series (in Top Housing) S =	1 = None 2 = PE Receptacle NOTE: Receptacle connected same voltage as unit, except as noted. Order PE Control separately.	See Photometric Selection Table A = Acrylic Clear Globe G = Flat Glass L = Polycarbonate Clear Globe S = Sag Glass Clear Globe NOTE: 150 watt Maximum with Acrylic or Polycarbonate Clear Globes. * = Previously IESNA Full Cutoff Optics	See Photometric Selection Table S = Short M = Medium C = Cutoff* 2 = Type II 3 = Type III * = Previously IESNA Full Cutoff Optics	1 = Fiber gasket 2 = Charcoal with elastomer gasket	F = Fusing (Not available with multivolt or dual voltage) J = Line Surge Protector, Expulsion Type (JL not available) U = listed (all HPS up to 175W MH max) with glass or polycarbonate (60Hz only)

Ballast Selection Table

Wattage	Light Source	Ballast Type/Voltage 60Hz										Ballast Type/Voltage 50Hz			
		Multivolt	120	208	240	277	480	120X240	347**	120X347	240/120 PER	220	220	230	240
50	HPS	H,N	H,N	H,N	H,N	H,N	H,N	H,N	H,N	H,N	H,N	N/A	N/A	N/A	N/A
70,100,150 (SSV)	HPS	A,H,N	A,G,H,M,N,P	A,G,H,M,N	A,G,H,M,N,P	A,G,H,M,N	G,M	G,M,P	G*,H,M*,N	G,M,N	N/A	H,M,N	H	M	
100/150 (SSV)	HPS	N/A	H,N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
200	HPS	A,J,P	A,H,N,P	A,H,N,P	A,H,N,P	A,P	A	A,P	N/A	A,H,N	N/A	N/A	N/A	N/A	N/A
250	HPS	A,J,P	A,H,N,P	A,H,N,P	A,H,N,P	A,P	A,P	A,J,P	A,P	A,H,N	H	A,H,N	H	A,H	
175	EPMH	A	A	A	A	A	A	A	N/A	A	N/A	N/A	N/A	N/A	N/A
100**	PMH	H,N	H,N	H,N	H,N	H,N	H,N	H,N	H,N	H,N	N/A	N/A	N/A	N/A	N/A
150**	PMH	N/A	A,H	H	H	H	N/A	H	H	H	N/A	N/A	N/A	N/A	N/A
250	EPMH	A	A	A	A	A	A	N/A	A	A	N/A	N/A	N/A	N/A	N/A

NOTE: N/A = Not Available **150(SSV) only *Not available in 120X347V **Medium Base Socket

Photometric Selection Table

All light sources are clear unless otherwise indicated.

Wattage	Light Source	Lens Type	IES Distribution Type Photometric Curve Number 35 - (Socket Position)		
			MC2	MC3	SC2
50, 70, 100, 150 (SSV)	HPS	Clear globe, acrylic or Polycarbonate	N/A	177287 (1A)	N/A
50	HPS	Clear globe, glass	452543 (2CL)	452544 (1CL)	N/A
70	HPS	Clear globe, glass	452545 (3CL)	452546 (1CL)	N/A
100	HPS	Clear globe, glass	452547 (2CL)	452548 (1CL)	N/A
150 (SSV)	HPS	Clear globe, glass	452549 (2CL)	452550 (1CL)	N/A
50, 70, 100, 150 (SSV)	HPS	Glass, flat*	177286 (2CL)	177285 (1CL)	N/A
200	HPS	Clear globe, glass	452551 (2CH)	452552 (2CL)	N/A
250	HPS	Clear globe, glass	N/A	452553 (2CH)	N/A
200, 250	HPS	Glass, flat*	177303 (2DH)	177304 (1DH)	N/A
175, 250	EPMH	Glass, flat*	N/A	N/A	177299 (1B)
**100, 150	PMH	Glass, flat*	452707	451435 (2CL)	453603

NOTE: N/A = Not Available PMH—Contact Manufacturer *Meets RP8-2000 for full cutoff with flat glass **Medium base socket

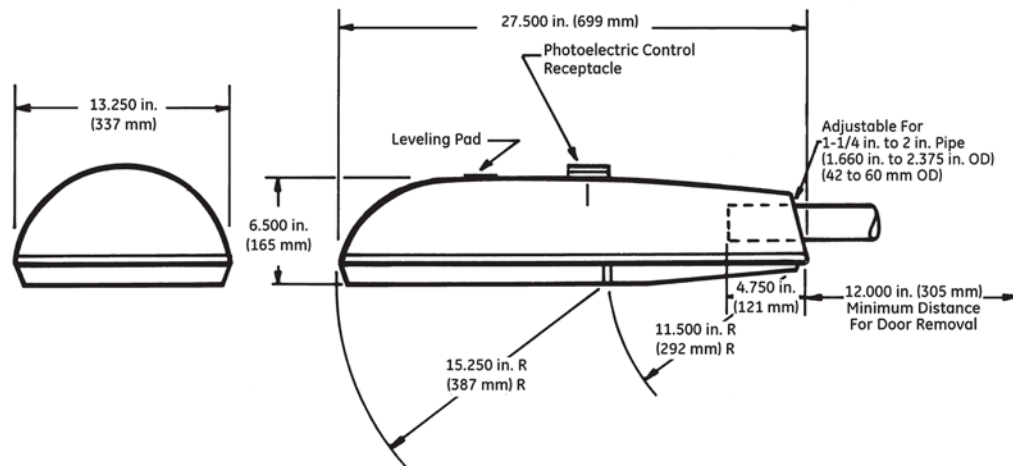
M2AC – Suggested Catalog Ordering Numbers

Catalog Number	Wattage	Light Source	Voltage (60 Hz)	Ballast Type	Refractor Type	Photometric Distribution
M2AC10S1N2GMC21	100	HPS	120	NPF Reactor	Glass	MC2
M2AC15S1N2GMC21	150	HPS	120	NPF Reactor	Glass	MC2
M2AC25S0A2GMC31	250	HPS	Multivolt	Auto-Regulator	Glass	MC3

All GE suggested catalog ordering numbers come with PE receptacle. PE control must be ordered separately. Order and install SCCL-PECTL if no PE is desired.

Multivolt ballasts can be for either 120, 208, 240, or 277 volt incoming power supply.

Product Dimensions



DATA

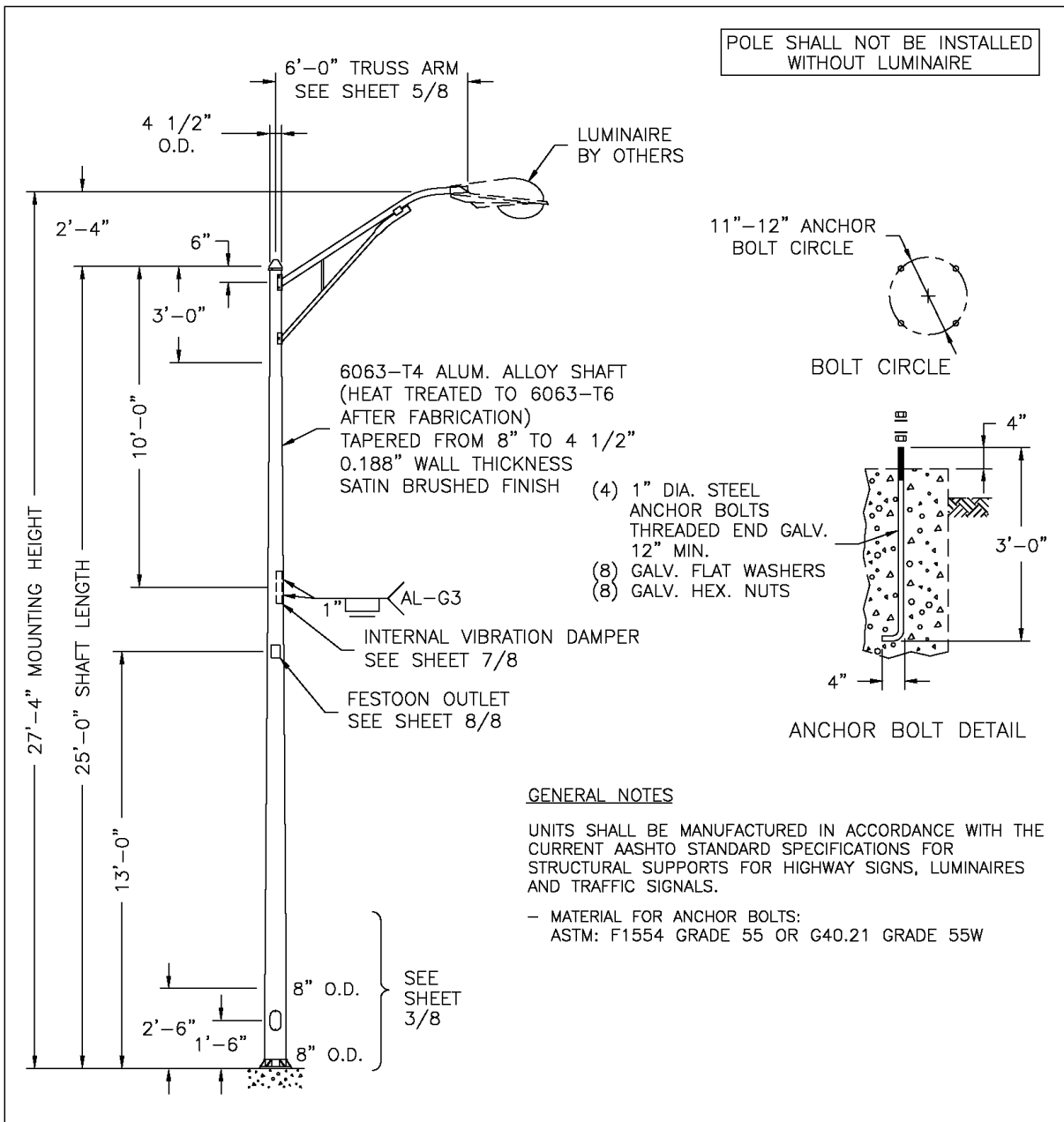
- Approximate Net Weight: 20-30 lbs (9-14 kgs)
- Effective Projected Area:
 - Flat Glass Unit 0.9 sq. ft. max. (0.08 sq. M max.)
 - Clear Acrylic Globe Unit 1.0 sq. ft. max. (0.09 sq. M max.)
- Suggested Mounting Height: 20-40 ft. (6-12 M)



www.gelighting.com

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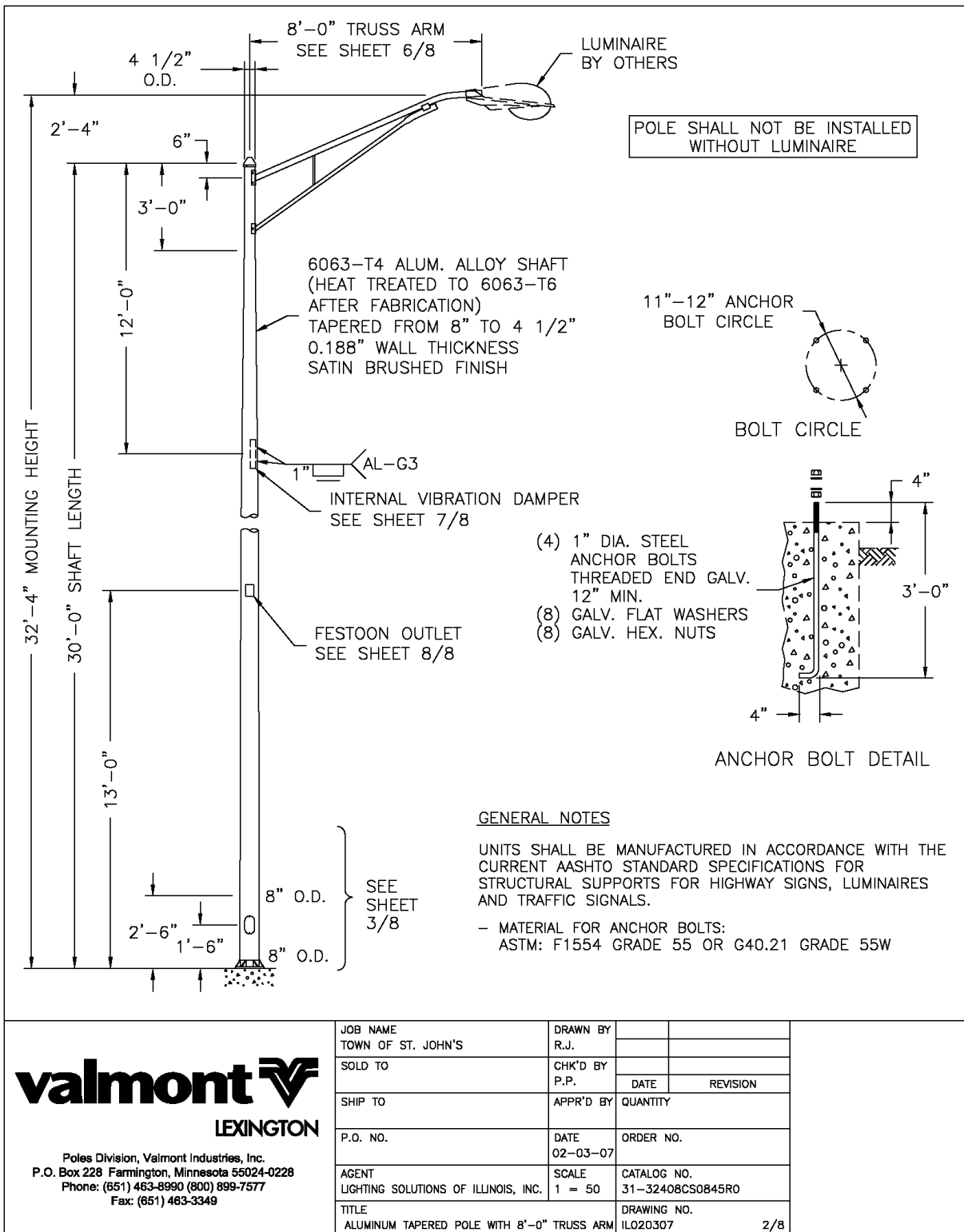
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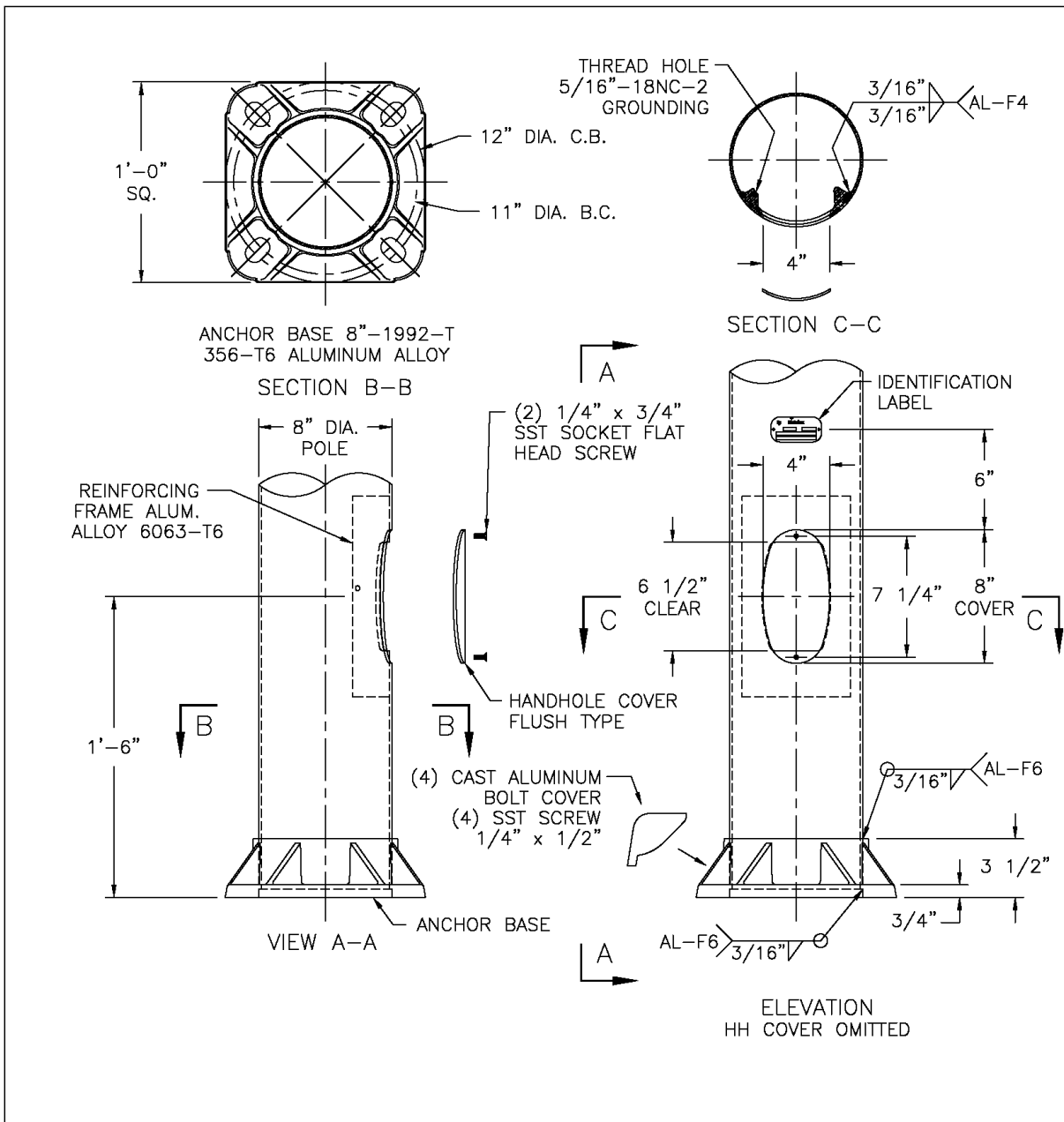


valmont 
LEXINGTON

Poles Division, Valmont Industries, Inc.
P.O. Box 228 Farmington, Minnesota 55024-0228
Phone: (651) 463-8990 (800) 899-7577
Fax: (651) 463-3349

JOB NAME TOWN OF ST. JOHN'S	DRAWN BY R.J.		
SOLD TO	CHK'D BY P.P.	DATE	REVISION
SHIP TO	APPR'D BY	QUANTITY	
P.O. NO.	DATE 02-03-07	ORDER NO.	
AGENT LIGHTING SOLUTIONS OF ILLINOIS, INC.	SCALE 1 = 50	CATALOG NO. 31-27406CS0845R0	
TITLE ALUMINUM TAPERED POLE WITH 6'-0" TRUSS ARM	DRAWING NO. ILO20307	1/8	

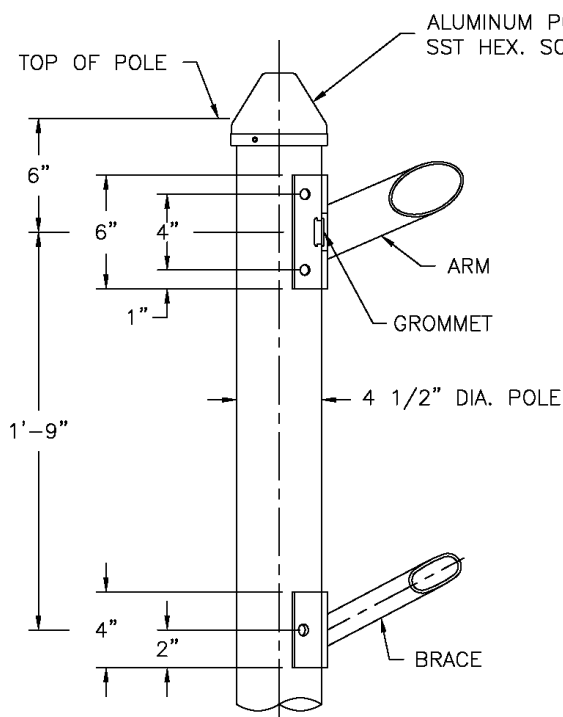




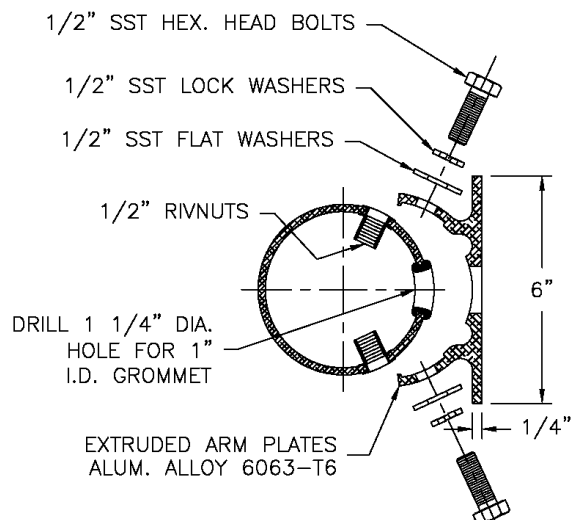
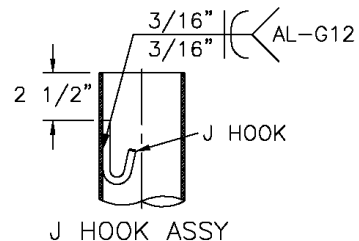
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Poles Division, Valmont Industries, Inc.
P.O. Box 228 Farmington, Minnesota 55024-0228
Phone: (651) 463-8990 (800) 899-7577
Fax: (651) 463-3349

JOB NAME TOWN OF ST. JOHN'S	DRAWN BY R.J.		
SOLD TO	CHK'D BY P.P.	DATE	REVISION
SHIP TO	APPR'D BY	QUANTITY	
P.O. NO.	DATE 02-03-07	ORDER NO.	
AGENT LIGHTING SOLUTIONS OF ILLINOIS, INC.	SCALE	CATALOG NO.	
TITLE 8" DIA. LIGHT POLE LOWER PART	DRAWING NO. ILO20307	3/8	



TRUSS ARM MOUNTING
1/8" = 1"

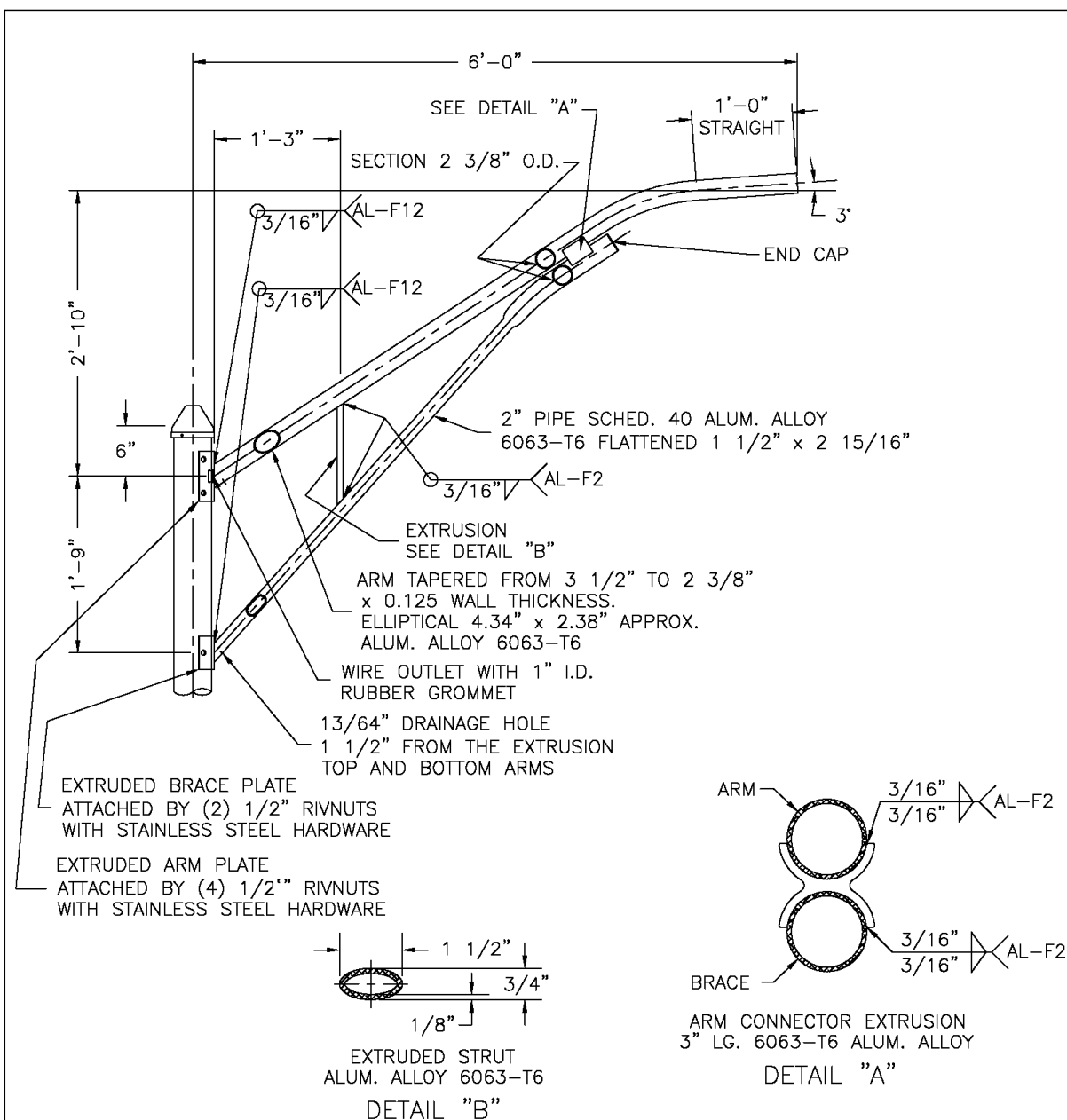


TRUSS ARM MOUNTING
TYPICAL SECTION
1/4" = 1"

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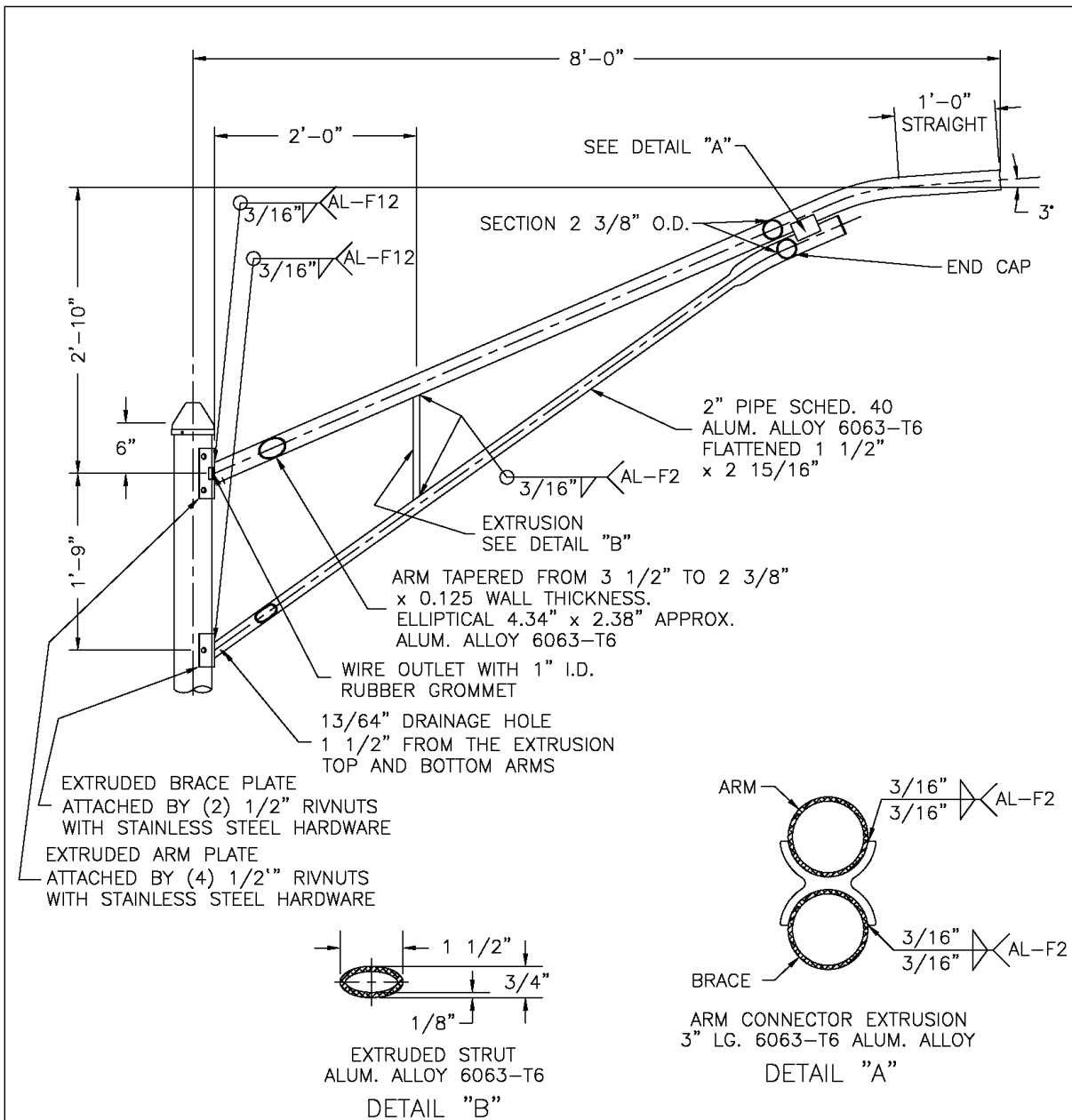
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SOLD TO	CHK'D BY P.P.	DATE	REVISION
SHIP TO	APPR'D BY	QUANTITY	
P.O. NO.	DATE 02-03-07	ORDER NO.	
AGENT LIGHTING SOLUTIONS OF ILLINOIS, INC.	SCALE AS SHOWN	CATALOG NO.	
TITLE ARM AND BRACE PLATES ASS'Y ON 4 1/2" DIA. POLE	DRAWING NO. ILO20307	4/8	



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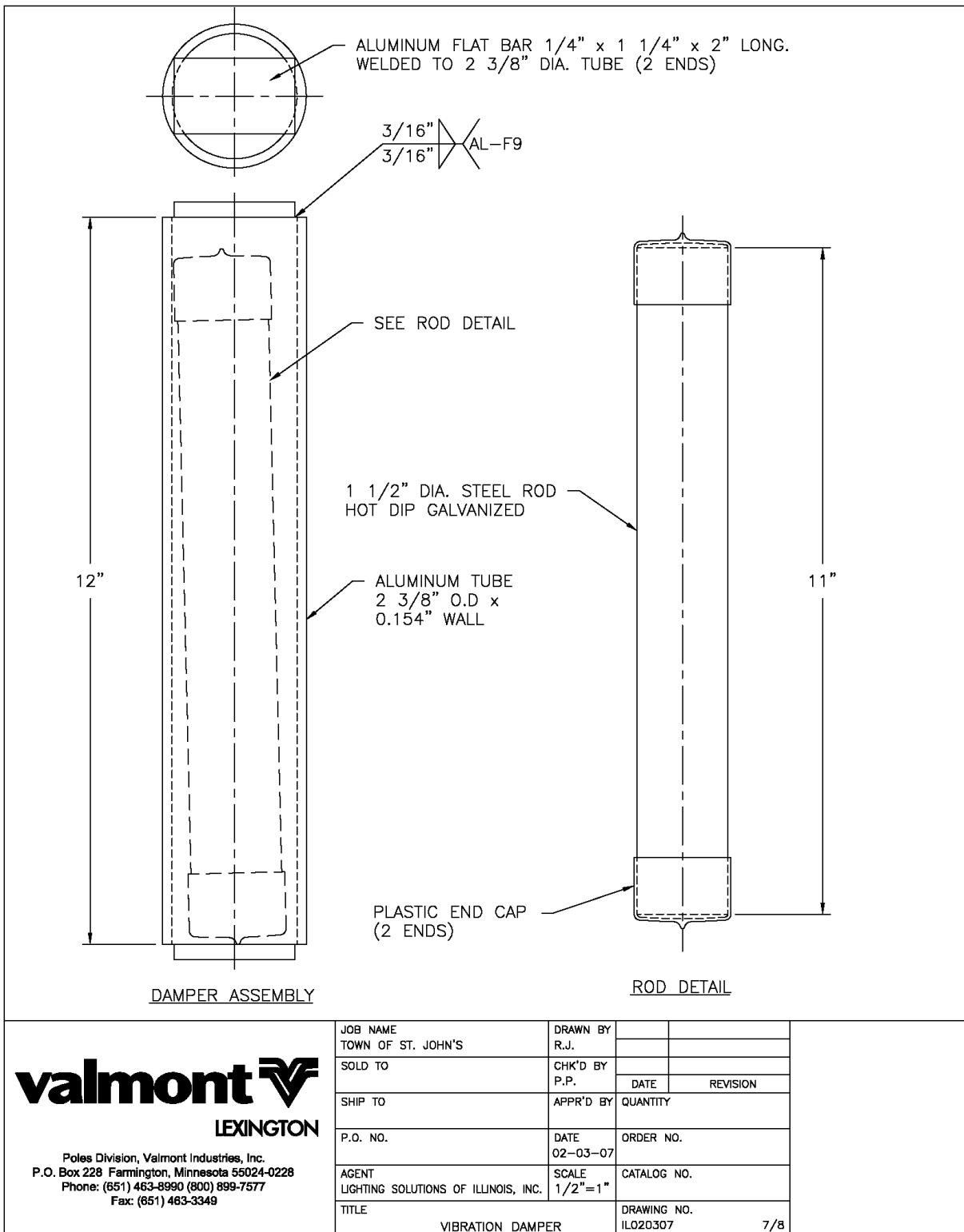
JOB NAME TOWN OF ST. JOHN'S	DRAWN BY R.J.		
SOLD TO	CHK'D BY P.P.	DATE	REVISION
SHIP TO	APPR'D BY	QUANTITY	
P.O. NO.	DATE 02-03-07	ORDER NO.	
AGENT LIGHTING SOLUTIONS OF ILLINOIS, INC.	SCALE 1/16"=1"	CATALOG NO.	
TITLE TRUSS ALUMINUM ARM 6'-0"	DRAWING NO. ILO20307	5/8	

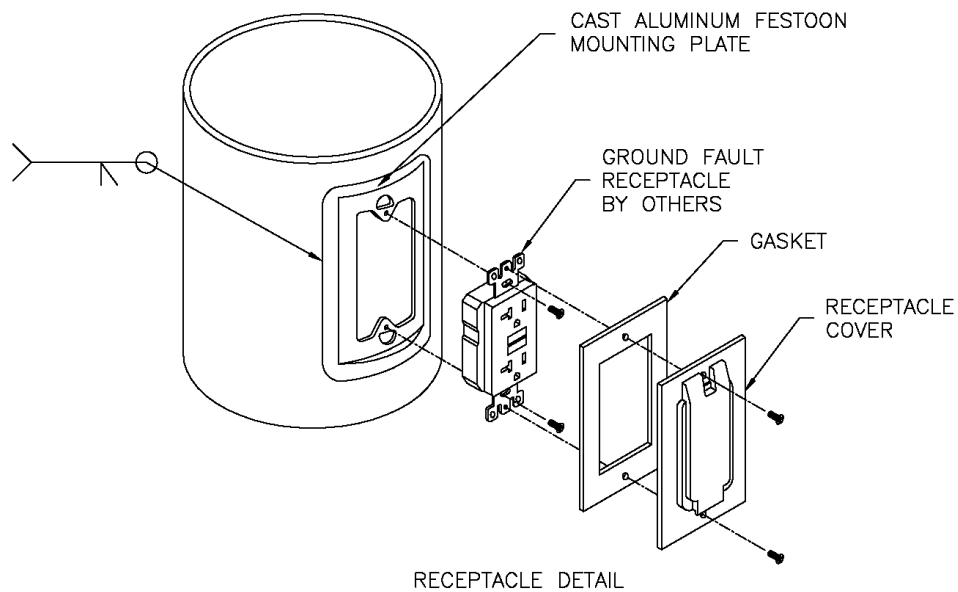


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SOLD TO	CHK'D BY P.P.	DATE	REVISION
SHIP TO	APPR'D BY	QUANTITY	
P.O. NO.	DATE 02-03-07	ORDER NO.	
AGENT LIGHTING SOLUTIONS OF ILLINOIS, INC.	SCALE 1/16"=1"	CATALOG NO.	
TITLE TRUSS ALUMINUM ARM 8'-0"	DRAWING NO. ILO20307	6/8	



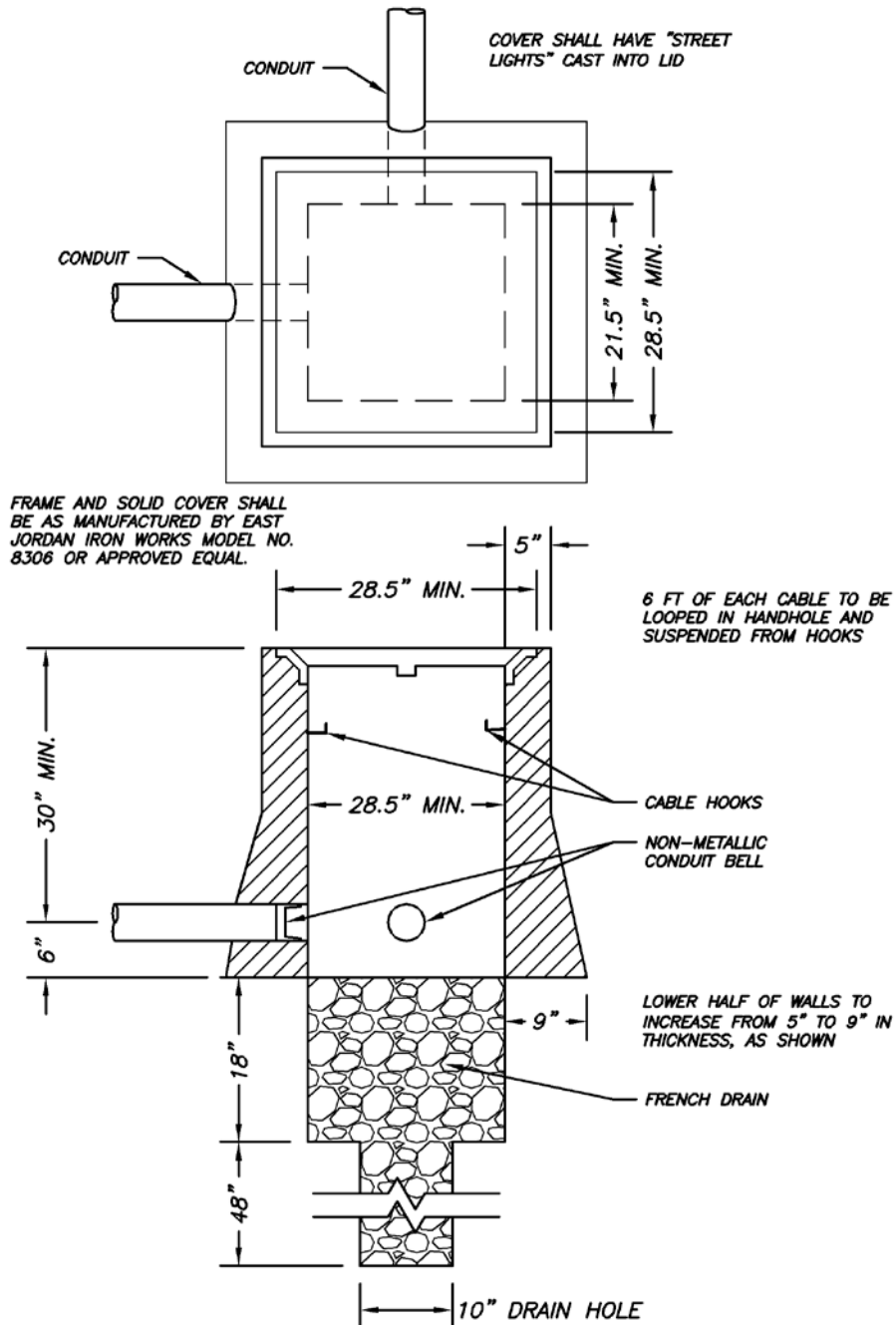


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JOB NAME TOWN OF ST. JOHN'S	DRAWN BY R.J.		
SOLD TO	CHK'D BY P.P.	DATE	REVISION
SHIP TO	APPR'D BY	QUANTITY	
P.O. NO.	DATE 02-03-07	ORDER NO.	
AGENT LIGHTING SOLUTIONS OF ILLINOIS, INC.	SCALE N/A	CATALOG NO.	
TITLE CAST ALUMINUM FESTOON	DRAWING NO. ILO20307	8/8	

STANDARD HANDHOLE



VICTORIAN V71, V72

VICTORIAN V71, V72

Polycarbonate globes in a variety of turn-of-the-century shapes to add authenticity to historic streetscapes and nostalgic building themes. Self-contained ballast pods of durable cast aluminum are combined with vandal-resistant globes.



HABCO®



MODEL #	P-2260			P-1710			P-1740			P-1765			P-1790		
TENON/TOP	3" O.D.			3" O.D.			3" O.D.			3" O.D.			3" O.D.		
(Base Template)															
BOLT CIRCLE	5 7/16" dia.			12 3/8" dia.			12 3/8" dia.			11 3/8" dia.			11 3/8" dia.		
ANCHOR RODS	(3) 1/2" x 18"			(4) 1/2" x 18"			(4) 1/2" x 18"			(4) 1/2" x 18"			(4) 1/2" x 18"		
BASE	12 1/4" dia. x 14 1/4" H			10 1/2" Sq. x 24 1/2" H			10 1/2" Sq. x 46" H			10 1/2" Sq. x 46" H			10 1/2" Sq. x 46" H		
BASE COVER	Internal Anchor Rods			11 1/2" Sq. x 2 1/2" H			11 1/2" Sq. x 2 1/2" H			11 1/2" Sq. x 2 1/2" H			11 1/2" Sq. x 2 1/2" H		
HAND HOLE OPENING	7" X 5 1/2" x 4"			9" x 10"			9" x 10"			9" x 10"			9" x 10"		
SHAFT	3" Fluted			5" to 3" Tapered			4" to 3" Tapered			4" Fluted			4" to 3" Tapered		
WALL	.125 Aluminum			.125 Aluminum			.125 Aluminum			.125 Aluminum			.125 Aluminum		
HEIGHT/EPA	HT.	80	100	HT.	80	100	HT.	80	100	HT.	80	100	HT.	80	100
	6'	3.90	2.30	8'6"	19.15	11.87	8'8"	7.29	4.26	10'	15.21	9.42	10'	14.31	8.64
	8'	2.80	1.50	10'6"	15.29	9.30	10'8"	5.53	3.03	12'	11.56	6.96	12'	11.69	6.86
				12'6"	12.47	7.40	12'8"	4.21	2.08	14'	7.22	4.17	14'	7.73	4.36
				14'6"	8.23	4.72				16'	5.57	2.98	16'	5.83	3.11