#### CITY OF SHELBYVILLE

Adam M Rude Director



Allan Henderson Deputy Director

#### PLAN COMMISSION

MEETING DATE: 9/27/2021

Case Number & Name: PC 2021-15; Culvers; Site Development Plan  Petitioner's Name: S & L Properties Shelbyville, LLC  Owner's Name: Marilyn Sue Pearce Irrevocable Trust  Petitioner's Representative: Mikel Currier; Jones, Petrie Rafinski  Address of Property: 1930 North Morristown Road, Shelbyville, IN 46176									
Owner's Name: Marilyn Sue Pearce Irrevocable Trust  Petitioner's Representative: Mikel Currier; Jones, Petrie Rafinski									
Petitioner's Representative:  Mikel Currier; Jones, Petrie Rafinski									
Representative: Mikel Currier; Jones, Petrie Rafinski	Marilyn Sue Pearce Irrevocable Trust								
Representative:	Mikel Currier: Iones Petrie Rafinski								
Address of Property: 1930 North Morristown Road, Shelbyville, IN 46176									
	930 North Morristown Road, Shelbyville, IN 46176								
Subject Property BG – Business General	C Business Coneral								
Zoning Classification:	J – Business General								
Comprehensive Future Gateway-Mixed Use									
Land use:									
North East South West									
Surrounding RE – Residential R	_								
Properties' Zoning Business General Business Highway Business High	hway								
Classifications:									
Surrounding									
Properties' Gateway/ Mixed Conservation Gateway/ Mixed Use Gateway/ Mixed	ed Use								
Comprenensive Future Use									
Land Use  The site is currently a farm field located just to the north of the existing Cracker Barro									
History: along the Interstate 74 corridor.	C1								
Vicinity Map:									
Action Requested: Site Development Plan approval for a new Culvers restaurant.									

- 1. This petition is to construct a Culver's restaurant at 1930 North Morristown Highway. The proposal includes a 4,386 sq. ft. store with 106 seat capacity. The project is developing a 4.05-acre site that is currently in agricultural production.
- 2. The Zoning Ordinance (Section 9.05 (F) (5)) requires the Plan Commission make Findings of Fact that the Site Development Plan:

#### a. Is consistent with the City of Shelbyville Comprehensive Plan:

The planning staff has determined the subject petition is consistent with the goals of the Comprehensive Plan. A focus of the Comprehensive Plan is to increase development around the interstate interchanges. The site for Culver's is located north of Interstate 74 and State Road 9 interchange. The Comprehensive Plan and Future Land Use Map shows the area as Gateway-Mixed Use.

#### b. Meets the Technical Review Committee's expectations for best practices and quality design:

The Technical Review Committee reviewed the site development plan against their applicable standards. The petitioner has responded and addressed the Tech Review Committee's comments.

#### c. Satisfies the applicable requirements of Article 2: Zoning Districts;

The planning staff has determined the subject petition is consistent with the business highway zoning district. The business highway is intended to provide areas for business that either service travelers or requires immediate access to high-volume streets for the delivery of goods and services. This district should be integrated into the community at its entrances and in centers along major transportation routes.

#### d. Satisfies the applicable requirements of Article 5: Development Standards:

All standards of Article 5 of the Unified Development Ordinance appear to be met, except:

#### **UDO 5.08 – Architectural Standards**

The Unified Development Ordinances requires a higher level of architectural design for facades, roofs, building materials and entryways for properties located in the IS – Institutional, BC – Business Central, BG – Business General and the BH – Business Highway.

Note: The design for the Culver's Restaurant is meeting all of the required architectural standards.

#### **UDO 5.52 - Parking Standards (A)(2):**

Maximum Number: Developments that wish to have more than 130% of the minimum required number of spaces shall be required to increase the required perimeter parking lot landscaping (see Section 5.35 Parking Lot Landscaping Standards) by fifty percent (50%) and increase the number or size of the required parking lot landscape islands or peninsulas by fifty percent (50%). Developments that wish to have more than 160% of the minimum required number of spaces shall be required to double the required perimeter parking lot landscape islands and peninsulas, and double the required plantings in those parking lot landscape islands or peninsulas.

Parking standards require one (1) parking space for every 4-seats in a restaurant and one

(1) parking space per employee working on the largest shift.

Description	Required Parking
106 (+24 patio) seat	23 spaces
Restaurant	
Largest Shift	15 spaces
Total provided spaces	48 spaces

Description	Provided Parking
Standard Parking	52
ADA Parking	3
Bus Parking	5
Oversized Parking	6
Tesla Charging Stations	8
Total Number of Parking	74
Spaces	
Number of Extra Spaces	26
Percent Over required	158%
parking	

Note: The landscaping plan has been modified to include increased perimeter landscaping as well as landscape islands. The standard is being met.

#### **UDO 5.58 – Sign Standards**

The Unified Development Ordinance requires pole and pylon signs to be permitted via special exception by the Board of Zoning Appeals. Discussion during the Technical review Committee meeting indicated Culver's intends to build a pole sign on property and thus be required to apply for a special exception to build a pole sign on property.

Note: Prior to the administrative issuance of a sign permit, detailed elevations to determine square footage and dimensions of facades ensuring compliance with standards will be required.

#### e. Satisfies the applicable requirements of Article 6: Design Standards

Article 6: Design Standards provides the standards for all subdivisions and generally apply to the construction of residential planned unit developments with public improvements. Article 6: Design Standards do not apply to this project.

#### f. Satisfies any other applicable provisions of the Unified Development Ordinance.

All other applicable provisions of the Unified Development Ordinance are being satisfied by the submitted civil plans.

#### STAFF RECOMMENDATION: APPROVAL

#### Site Development Plan: PC 2021-15; Culvers; Site Development Plan

#### Findings of Fact by the Shelbyville Plan Commission

#### Staff Prepared

	Motion:
	(I) would like to make a motion to approve the site development plan as presented to this body, pursuant to the planning staff's report and Findings of Fact.
1.	The site development plan is consistent with the <i>City of Shelbyville Comprehensive Plan</i> as outlined in the planning staff's report.
	The site development plan is <b>not</b> consistent with the <i>City of Shelbyville Comprehensive Plan</i> , as outlined in the planning staff's report.
2.	The site development plan meets the Technical Review Committee's expectations for best practices and quality design, a outlined in the planning staff's report, as outlined in the planning staff's report.
	The site development plan <b>does not</b> meet the Technical Review Committee's expectations for best practices and qualit design, as outlined in the planning staff's report, as outlined in the planning staff's report
3.	The site development plan satisfies the applicable requirements of Article 2: Zoning Districts, as outlined in the planning
	staff's report.  The site development plan does not satisfy the applicable requirements of Article 2:.Zoning Districts, as outlined in the planning staff's report.
4.	The site development plan satisfies the applicable requirements of Article 5: Development Standards, as outlined in the
	planning staff's report.  The site development plan <b>does not</b> satisfy the applicable requirements of Article 5:.Development Standards, as outlined in the planning staff's report.
5.	The site development plan satisfies the applicable requirements of Article 6: Design Standards, as outlined in the planning
	staff's report.  The site development plan does not satisfy the applicable requirements of Article 6: Design Standards, as outlined by the planning staff's report.
6.	This site development plan satisfies all other applicable provision of the <i>Unified Development Ordinance</i> , as outlined be
	the planning staff's report.  The site development plan does not satisfy all other applicable provision of the Unified Development Ordinance, a outlined in the planning staff's report.
Addi	tional Conditions Imposed by the Shelbyville Plan Commission:
]	1.
2	<u>2.</u>
3	3.
Shell	pyville Plan Commission
By:	Attest:
	Chairperson / Presiding Officer Adam M. Rude, Secretary

# SHELD VILLE

#### TECHNICAL REVIEW SUBMITTAL

Shelbyville Planning & Building Department 44 West Washington Street Shelbyville, IN 46176 P: 317.392.5102

Applicant:	Owr	er:
Name: S&L Properties Shelbyville, LLC	Name:	Marilyn Sue Pearce Irrevocable Trust
Address: 2651 Kirking Court		6131 Stonehenge Blvd
Portage, WI 53901		Noblesville, IN 46062
Phone Number: (608) 742-2893	Phone Nu	ımber:
Fax Number:	Fax Num	per:
Project Designer:		
Name:Jones Petrie Rafinski		
Address: 325 S Lafayette Blvd. South Bend, IN 46601		
Phone Number: (574) 232-4388		
Fax Number:		
「ype of Review ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	v Plat	
<ul> <li>Minor Subdivision Preliminar</li> <li>Site Development Plan</li> <li>Planned Unit Development Co</li> <li>Planned Unit Development Do</li> <li>Construction Plans</li> </ul>	ry Plat onceptual Plans etail Plans	
□ Others		
	Representative for the	Project
	Representative for the	Project  1059 Circle Drive Highland, WI 53543
Contact of F	Representative for the	1059 Circle Drive



SITE DEVELOPMENT PLAN APPLICATION
Shelbyville Planning & Building Department
44 West Washington Street
Shelbyville, IN 46176
P: 317.392.5102

For Office Use Only:
Case #: PC
Hearing Date:
Fees Paid: \$
Final Decision:
Approved Denied

	Approved Denied
1.	
Applicant	Property Owners Information (if different than Applicant)
Name: S & L Properties Shelbyville, LLC	
Address: 2651 Kirking Court Portage, WI 53901	Address: 6131 Stonehenge Blvd Noblesville, IN 46062
Phone Number: (608) 742-2893	Phone Number:
Fax Number:	Fax Number:
Email: jeff@bleedblue.net	
2.	
Applicant's Attorney/Representative	Project Engineer
Name: McCon Building Corporation	Land Daffardi
Address: 1059 Circle Drive	Address: 325 S Lafayette Blvd.
Highland, WI 53543	South Bend, IN 46601
Phone Number: (608) 929-7737	Phone Number: (574) 232-4388
Fax Number:	Fax Number: Email: mcurrier@jpr1source.com
Email: cmcguire@mccon.net	Email:mcurier@jpr1source.com
	ant parcel immediately north of Cracker Barrel 1898 N Morristown Road
Current Zoning: BG - Business General Proposed Zoning: BG - Business General	Existing Use of Property: Agriculture Proposed Use: Restaurant with drive thru
Proposed Zoning: BG - Business General	Proposed Ose. Nestadiant with dive that
4. Attachments	
□ Affidavit and Consent of Property Owner (if applicable)	☐ Lighting Plan (Will be submitted soon)
Proof of Ownership (copy of deed, recent property card)	
■ Letter of Intent	□ Drainage Plan and Report
	☑ Dimensioned Site Plan
∀icinity Map	▼ Filling Fee
Serial S	160m € 400,000
The undersigned states the above information is tr	
Applicant:	Date: <u> </u>
State of (M'SCONSIA) County of (MONDO) SS: Subscribed and sworn to before	eme this 9th day of August , 201
Kelley G. F	Notary Public Printed
Residing in Colom b	ACounty. My Commission Expires: 8/31/34
	· · · · · · · · · · · · · · · · · · ·

KELLY J. HINTZE Notary Public State of Wisconsin

# **AFFIDAVIT & CONSENT OF PROPERTY OWNER**

# APPLICATION TO THE SHELBYVILLE PLAN COMMISSION

STATE	TY OF HOMITTON SS:
Ι,	Mimi Pearce-Clark, Trustee of the Marilyn Sue Pearce Irrevocable Trust (the "Trust") , AFTER BEING DULY SWORN, DEPOSE AND SAY THE
FOLLO	(Name of property owner) OWING:
1.	Trustee of the Trust which is the  That I am the owner of real estate located at  Vacant parcel immediately north of Cracker Barrel - 1898  N Morristown Road Pcl #73-07-29-100-025.000-002
	(Address of subject property)
2.	That I have read and examined the Application made to the Shelbyville Plan Commission by:  S & L Properties Shelbyville, LLC  (Name of applicant)
3.	That I have no objections to, and consent to the request(s) described in the Application made to the Shelbyville Plan Commission.
	Owner's Name (Please Print)  Trustee  Owner's Signature
Subscri	all Printed    August   August
	Residing in BOONE County My Commission expires 3.31-28
	TERA D. PREUSS  Notary Public - Seal  Boone County - State of Indiana  Commission Number NP0632835  My Commission Expires Mar 31, 2028

# STATE OF INDIANA SHELBY COUNTY PROJECT LOCATION SHOWN BY -

TECHNICAL REVIEW COMMITTEE SIGNATURE TABLE

PLANNING DIRECTOR

44 W Washington St.

Shelbyville, IN 46176

TEL: 317.392.5102

STREET COMMISSIONER

TEL: 317.392.5169

WRRF SUPERINTENDENT

Shelbyville, IN 46176

JOHN KUNTZ, PE

44 W Washington St.

Shelbyville, IN 46176

TEL: 317.392.5102

775 West Boggstown Rd.

CITY ENGINEER SHELBYVILLE

EMAIL: jkuntz@cityofshelbyvillein.com

mkhallad@centerpointenergy.com \_\_\_\_ Released via TRC Form

605 Hale Road

KEVIN KREDIT

EMAIL:

arude@cityofshelbyvillein.com

dhunt@cityofshelbyvillein.com

kkredit@cityofshelbyvillein.com Released via TRC Form

Released via TRC Form

# CULVER'S OF SHELBYVILLE, IN

#### PROJECT DESCRIPTION

DEVELOP A VACANT PARCEL OF LAND BY CONSTRUCTING A DRIVE THRU RESTAURANT

## SHELBY COUNTY

# **PROJECT** RAMPART ST NOT TO SCALE

#### LOCATION MAP

PART OF SHELBY COUNTY SECTION 29, TOWNSHIP 13 NORTH, RANGE 7 EAST, ADDISON TOWNSHIP, SHELBY COUNTY, INDIANA

THE PROPOSED CONSTRUCTION WILL NOT BE LOCATED WITHIN THE 100 YEAR FLOODPLAIN PER FEMA FLOOD MAP 18141C0113D, EFFECTIVE 1/6/2011

#### INDEX OF PLANS

COVER

**GENERAL NOTES** 

ALTA/TOPOGRAPHIC SURVEY

SITE DEMOLITION PLAN

SITE DIMENSIONAL PLAN SITE GRADING PLAN

SITE UTILITY PLAN

SITE EROSION CONTROL PLAN & DETAILS

SITE LANDSCAPE PLAN

SITE LANDSCAPE DETAILS STORM AND MISC. DETAIL SHEET

ARCHITECTURAL ELEVATIONS (BY OTHERS)

ARCHITECTURAL ELEVATIONS (BY OTHERS)

FOOD SERVICE PLAN (BY OTHERS)

SITE PHOTOMETRIC PLAN (BY OTHERS) SITE PHOTOMETRIC PLAN (BY OTHERS)

(CITY OF SHELBYVILLE DETAILS)

#### IMPORTANT UNDERGROUND UTILITY NOTES

DEPUTY PLANNING DIRECTOR

EMAIL: ahenderson@cityofshelbyvillein.com

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EMAIL: mweidner@cityofshelbyvillein.com

EMAIL: dbyers@cityofshelbyvillein.com

EMAIL: bhopkins@cityofshelbyvillein.com

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\_\_\_\_\_ Released via TRC Form

44 W Washington St.

Shelbyville, IN 46176

TEL: 317.392.5102

CHIEF OF POLICE

105 West Taylor St

TEL: 317.392.5106

DERRICK BYERS

MS4 OPERATOR

**BRETT HOPKINS** 

FIRE DEPARTMENT

40 West Broadway St

Shelbyville, IN 46176

TEL: 317-699-0179

44 W Washington St

Shelbyville, IN 46176

TEL: 317.392.5102

EXISTING UNDERGROUND UTILITIES SHOWN IN THESE PLANS ARE BASED ON EVIDENCE OF ABOVE GROUND FEATURES, ON LOCATIONS MARKED IN THE FIELD BY OTHERS, OR ON RECORD INFORMATION PROVIDED BY UTILITY COMPANIES. PIPE INVERT ELEVATIONS WERE MEASURED WITHOUT ENTERING CONFINED SPACES. NO EXCAVATION SHOULD OCCUR WITHOUT NOTIFICATION OF APPROPRIATE AGENCIES AND UTILITY COMPANIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF PIPE INVERT ELEVATIONS AND UTILITY LOCATIONS, AND SHALL NOTIFY THE ENGINEER IMMEDIATELY IF CONFLICTS ARE DISCOVERED.

#### **GENERAL NOTES**

FOR PROTECTION OF UNDERGROUND UTILITIES, CONTRACTOR SHALL CALL 1-800-382-5544 A MINIMUM OF THREE WORKING DAYS PRIOR TO EXCAVATING IN THE VICINITY OF UTILITY LINES. ALL INDIANA 811 PARTICIPATING MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE PART OF THE INDIANA 811 ALERT SYSTEM.

IF ANY ERRORS BECOME APPARENT, THESE SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONSTRUCTION SO THAT CLARIFICATION OR REDESIGN MAY OCCUR.

THE CONTRACTOR SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE LOCAL GOVERNMENT, INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, AND THE INDIANA DEPARTMENT OF TRANSPORTATION.

UTILITY LOCATE (INDIANA)

"HOLEY MOLEY" 1-800-382-5544

THE CONTRACTORS SHALL MAKE WHATEVER SOIL BORINGS NECESSARY TO FULLY ACQUAINT THEMSELVES WITH CONDITIONS AS THEY EXIST SO THAT THEY MAY FULLY UNDERSTAND THE CONDITIONS WHICH MAY AFFECT THE COST OF THE WORK. FAILURE TO MAKE SUCH BORINGS OR ANY BORINGS MADE WHICH DO NOT PROVIDE A COMPLETE UNDERSTANDING OF THE CONDITIONS ENCOUNTERED SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR CARRYING OUT ALL THE WORK TO COMPLETION AS SHOWN ON THE PLANS, OR AS SPECIFIED, AT THE PRICE SPECIFIED TO BE PAID FOR THE WORK. WHERE THE RESULTS OF ANY TEST BORINGS ARE SHOWN ON THE PLANS, THE INFORMATION IS NOT GUARANTEED AND THE CONTRACTOR MUST SATISFY HIMSELF AS TO THE CHARACTER OF MATERIALS THAT MAY BE ENCOUNTERED.

INDEX OF REVISIONS

REVISIONS TRC COMMENTS

TAYLOR SUMMERFORD SHELBY COUNTY SURVEYOR

Shelbyville, IN 46176

ГЕL: 317.392.6481

TEL: 317.392.0711

1470 Jackson Street

Columbus, IN 47201

DEWAYNE HAMILTON

TEL: 317.966.3356

FIBER OPTIC-CENTURYLINK

TOM DAVIS

COMCAST

25 W Polk St., Room B020

INDIANA AMERICAN WATER

1700 McCall Dr. P.O. Box 418

EMAIL: travis.edington@amwater.com

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TEL: 812.799.0915 EXT. 3108

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EMAIL: dewayne.hamilton@level3.com

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EMAIL: Thomas\_davis3@cable.comcast.com

norma.ross@co.shelby.in.us

SHEET NO.(S)

MDC 9/8/21

420 East 7th Street Columbus, IN 47201

TEL: 812.376.2887

LUKE LAUGLE

DUKE ENERGY

EMAIL: tb2932@att.com

2910 East State Road 44

TEL: 317.398.5345

CHRIS CHASTAIN

Manilla, IN 46150

VECTREN

600 Industrial Dr.

Franklin, IN 46131

TEL: 317.736.2965

TEL: 765.544.2600

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EMAIL: cchastain@rse.coop

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SANDRA CASEY/MOSTAFA KHALLAD

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EMAIL: sandra.casey@centerpointenergy.com

Released via TRC Form

EMAIL: luke.laugle@duke-energy.com

\_\_\_\_\_ Released via TRC Form

THE CONTRACTOR SHALL FOLLOW THE IOSHA REGULATIONS 29 C.F.R. 1926 SUBPART P, FOR TRENCH SAFETY SYSTEMS. THE COST FOR TRENCH SAFETY SYSTEMS SHALL BE MERGED INTO THE PAY ITEM OF THE PRINCIPAL WORK WITH WHICH THE SAFETY SYSTEMS ARE ASSOCIATED. THE CONTRACTOR SHALL OTHERWISE BE RESPONSIBLE FOR SAFETY IN REGARD TO THE PROJECT'S



9/10/21 BRIAN B. KONARSKI PE 11011333 REGISTERED PROFESSIONAL ENGINEER STATE OF INDIANA

**OWNER/DEVELOPER** 

2651 KIRKING COURT PORTAGE, WI 53901

#### SURVEYOR/ENGINEER

JONES PETRIE RAFINSKI CORP. 325 S LAFAYETTE BLVD SOUTH BEND, IN 46601

SHELBYVILL SHELBYVILL OF OF S

COVER

PERTIES CULVER'S 0 PR ∞ 3

DESIGNED BY: M CURRIER

DRAWN BY: M CURRIER

SEPTEMBER 2021

JOB NUMBER: 2021-0185

NONE

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#### **GENERAL NOTES**

1. A PRE-CONSTRUCTION MEETING BETWEEN THE OWNER, DEVELOPER, THE DEVELOPER'S CONTRACTOR, AND THE APPROPRIATE COUNTY AND/OR CITY PERSONNEL MUST BE SCHEDULED PRIOR TO ANY WORK BEING PERFORMED ON THE SITE.

2. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CONSTRUCTION WITH OTHER CONTRACTORS INVOLVED WITH CONSTRUCTION OF THE PROPOSED DEVELOPMENT AND FOR REPORTING ANY ERRORS OR DISCREPANCIES BETWEEN THESE PLANS AND PLANS PREPARED BY OTHERS.

3. CONTRACTOR SHALL RETAIN A LICENSED LAND SURVEYOR TO ESTABLISH GRADES AND LOCATE BUILDINGS.

4. FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53,1974, THE CONTRACTOR SHALL CALL INDIANA 811. AT 800-382-5544 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS, PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE IUPPS ALERT SYSTEM. THE CONTRACTOR SHALL CONDUCT OPERATIONS IN A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

5. THE CONTRACTOR SHALL INSTALL A TEMPORARY PEDESTRIAN SECURITY FENCE AROUND ALL EXCAVATIONS TO BE LEFT OPEN OVERNIGHT AS REQUIRED.

6. ALL CONSTRUCTION SIGNING SHALL BE IN ACCORDANCE WITH THE INDIANA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. REGULATORY SIGNAGE AS NECESSARY FOR MAINTAINING SAFE TRAFFIC ON ADJACENT ROADWAYS SHALL BE PER THE INDIANA DEPARTMENT OF TRANSPORTATION (INDOT). THE CONTRACTOR IS RESPONSIBLE FOR PROPER TRAFFIC CONTROL AND WARNING SIGNING AND DEVICES FOR THE DURATION OF CONSTRUCTION ON ANY PUBLIC STREET. FAILURE TO DO SO WILL RESULT IN THE CITY PROVIDING THE NECESSARY EQUIPMENT AND CHARGING THE CONTRACTOR WITH ALL RELATED COSTS.

7. WHEN WORKING WITHIN PUBLIC RIGHTS-OF-WAY, THE CONTRACTOR SHALL MAINTAIN FLASHING WARNING LIGHTS ON CONSTRUCTION SIGNS AND BARRICADES ON A MINIMUM WEEKLY BASIS, AND SHALL PROMPTLY RESPOND TO PROBLEMS WITH THESE AS DIRECTED, (I.E. FALLEN SIGNS, OBSTRUCTED

8. ALL SITE IMPROVEMENTS ON-SITE OR OFF ARE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THE GENERAL CONTRACTOR MUST OBTAIN ALL PERMITS TO WORK IN RIGHTS-OF-WAY UNLESS OTHERWISE NOTED.

9. THE CONTRACTOR SHALL PROMPTLY RE-GRADE AND RE-VEGETATE ERODED AREAS, AND CLEAN UP SEDIMENTATION RESULTING FROM CONSTRUCTION

10. THE CONTRACTOR SHALL UTILIZE AND MAINTAIN (AT ALL TIMES) TEMPORARY EROSION AND SEDIMENTATION CONTROL FEATURES SO AS TO PREVENT ERODED SOILS FROM ENTERING STORM WATER STRUCTURES, PIPES, AND RETENTION PONDS. SEDIMENTATION SHALL BE REMOVED FROM THESE AREAS PRIOR

11. ALL WORK SHALL CONFORM TO ALL LOCAL, STATE AND FEDERAL LAWS, RULES AND REGULATIONS IN FORCE AT TIME OF CONSTRUCTION.

12. DIMENSIONS TAKE PRECEDENCE OVER SCALE. CONTRACTOR TO VERIFY ALL DIMENSIONS IN FIELD

13. IF ANY ERRORS, DISCREPANCIES, OR OMISSIONS BECOME APPARENT, THESE SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER PRIOR TO CONSTRUCTION OF ANYTHING AFFECTED SO THAT CLARIFICATION OR REDESIGN MAY OCCUR.

14. THERE ARE NO SIGNIFICANT IMPACTS TO OFFSITE WATER SHED PATTERNS.

15. THE ENTERING AND EXITING OF EQUIPMENT AND HAULING TRAFFIC FROM THE WORK SITE SHALL BE DONE IN A SAFE MANNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT EQUIPMENT OPERATORS AND HAUL TRUCK DRIVERS, ETC., USE CAUTION AND ACCEPTABLE SPEEDS DURING

#### PAVING AND GRADING NOTES

CURB TO BE PROVIDED WHERE SHOWN AND INTEGRAL WITH SIDEWALK AT PAVING EDGE.

2. ALL ELEVATIONS SHOWN ARE TO FINISHED PAVEMENT UNLESS OTHERWISE NOTED ON PLANS.

3. SLOPE GRADES UNIFORMLY BETWEEN ELEVATIONS SHOWN. SLOPE SIDEWALKS AWAY FROM BUILDING AT 2% MAXIMUM ON ENTRY WALK.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING POSITIVE DRAINAGE THROUGHOUT THE PROJECT. FINISHED PAVEMENT ELEVATION SHALL BE MARKED ON CURBING AS NEEDED. THE CONTRACTOR SHALL AVOID PONDING AT INVERTED CROWNED PAVEMENT.

5. EXPANSION JOINTS IN CONCRETE PAVEMENT AND SIDEWALKS SHALL BE 1/2" ASPHALT IMPREGNATED FULL DEPTH 40' O.C. MAXIMUM AND AT SIDEWALK INTERSECTIONS. CRACK CONTROL SCORING REQUIRED AT SIDEWALK WIDTH DIMENSION. EXTERIOR CONCRETE SHALL BE 4000 PSI, 4-6% AIR ENTRAINED, LIMESTONE AGGREGATE, WITH A BROOM FINISH AND CURING SEAL.

6. STANDARD HMA PAVEMENT SHALL BE:

165#/SYD (1-1/2") HMA SURFACE, TYPE B, 9.5 MM ON TACK COAT OVER 440#/SYD (4") HMA BASE, TYPE B, 25.0 MM OVER

8" INDOT COMPACTED AGGREGATE, NO. 53 BASE OVER COMPACTED SUBGRADE

RECYCLED BITUMINOUS PAVEMENT (RAP) SHALL BE ALLOWED IN BITUMINOUS PAVEMENT ACCORDING TO CURRENT INDOT SPECIFICATIONS.

7. CONCRETE PAVEMENT REQUIREMENTS:

6" REINFORCED CONCRETE WITH 6"X6" - #10X#10 WIRE FABRIC OVER 6" COMPACTED AGGREGATE, NO. 53 OVER COMPACTED SUBGRADE

CONCRETE TO BE CAPABLE OF REACHING 4000 PSI IN 28 DAYS. SUBBASE TO BE ADEQUATELY DRAINED.

8. THE OWNER OR OWNER'S REPRESENTATIVE SHALL APPROVE EACH BITUMINOUS MIXTURE LIFT PRIOR TO THE PLACEMENT OF THE FOLLOWING LIFTS.

9. AFTER SUBGRADE TREATMENT IN ACCORDANCE WITH THE GEOTECHNICAL EVALUATION LETTER, THE COMPACTION SHALL BE ACCOMPLISHED BY PLACING THE MATERIAL IN 8" LOOSE LIFTS AND MECHANICALLY COMPACTING EACH LIFT TO THE SPECIFIED DENSITY OR AS DIRECTED BY THE SOILS ENGINEER. FIELD DENSITY TESTS SHALL BE PERFORMED ON EACH LIFT AS NECESSARY TO INSURE THAT ADEQUATE MOISTURE CONDITIONS AND COMPACTION ARE BEING ACHIEVED. ANY FAILED DENSITY TESTS SHALL BE RETAKEN AT THE SAME LOCATION, AFTER CORRECTIVE MEASURES, UNTIL PASSING RESULTS ARE

10. SOILS EXPOSED IN THE BASE OF ALL SATISFACTORY FOUNDATION EXCAVATIONS SHOULD BE PROTECTED AGAINST ANY DETRIMENTAL CHANGES IN CONDITION SUCH AS FROM DISTURBANCE, RAIN AND FREEZING. SURFACE RUN-OFF WATER SHALL BE DRAINED AWAY FROM THE EXCAVATION AND NOT ALLOWED TO POND. IF POSSIBLE, ALL FOOTING CONCRETE SHOULD BE POURED THE SAME DAY THE EXCAVATION IS MADE. IF THIS IS NOT PRACTICAL, THE FOOTING EXCAVATIONS SHOULD BE ADEQUATELY PROTECTED.

11. REMOVE AND REPLACE WITH CONTROLLED FILL ANY AREAS THAT HAVE BEEN SOFTENED BY RAINS, FREEZING, CONSTRUCTION EQUIPMENT, ETC.

12. OVERLOT GRADING OR MASS FILLING SHALL BE DONE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS PERTAINING TO THE SITE. BACKFILL OR MASS FILL WITHIN BUILDING PAD AREAS SHALL BE IN ACCORDANCE WITH THE ARCHITECT'S REQUIREMENTS OR AS SPECIFIED BY THE

13. MATERIALS WHICH INHIBIT DRAINAGE, SUCH AS CLAY OR ORGANIC SOILS, SHALL NOT BE PLACED UNDER PROPOSED DETENTION POND BOTTOMS. CONTRACTOR SHALL NOT ALLOW HEAVY EQUIPMENT TO COMPACT SOILS IN THE BOTTOM OF THE DETENTION POND. 3" OF TOPSOIL SHALL BE PLACED AT DETENTION POND AREAS OVER EXISTING UNCOMPACTED SOILS AND SEEDED AS DETAILED ON THE LANDSCAPE PLAN.

14. ALL FILL FOR THIS PROJECT SHALL COMPLY WITH THE GEOTECHNICAL EVALUATION LETTER AND MUST BE OBTAINED AND PLACED BY THE EXCAVATION CONTRACTOR. ALL REQUIRED FILL SHALL BE SELECTED EXCAVATED MATERIAL FROM THE SITE APPROVED BY THE ENGINEER, OR INDOT STRUCTURAL BACKFILL MATERIAL. EXCESS FILL SHALL BE REMOVED FROM SITE BY THE EXCAVATION CONTRACTOR AS DIRECTED BY THE OWNER AFTER SUBSTANTIAL COMPLETION. NOTE: NO BORROW OR SOIL REMOVAL ARRANGEMENTS HAVE BEEN PREARRANGED BY THE OWNER, AND IT SHALL BE THE RESPONSIBILITY OF THE EXCAVATION CONTRACTOR TO COORDINATE WITH THE OWNER. ENCOUNTERED TOPSOIL MATERIALS SHALL BE STOCKPILED SEPARATELY FOR REUSE AT AREAS TO SUPPORT VEGETATION. NO EARTH MATERIALS SHALL BE REMOVED FROM THE SITE PRIOR TO RECEIVING PERMISSION FROM THE OWNER/ENGINEER.

15. ALL GRANULAR FILL SHALL BE COMPACTED TO 95% MODIFIED PROCTOR (ASTM D1557) DENSITY. ALL SUBGRADE AND SUBBASE MATERIALS SHALL BE COMPACTED TO 98% MODIFIED PROCTOR (ASTM D1557) DENSITY BEFORE PARKING LOT AND DRIVEWAY ASPHALT PLACEMENT

16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROCTOR TESTING AND IN-PLACE DENSITY TESTING OF COMPACTED AGGREGATE SUBBASE AS SPECIFIED BY THE GEOTECHNICAL ENGINEER. NO PAVEMENT MATERIAL SHALL BE PLACED ON COMPACTED AGGREGATE PRIOR TO THE GEOTECHNICAL ENGINEER'S APPROVAL OF SUBBASE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE WORK REQUIRED TO REACH AN ACCEPTABLE MOISTURE CONTENT AT ANY TIME PRIOR TO PAVING (I.E. WETTING OR AERATING OF SUBBASE) AS PER INDOT SPECIFICATIONS. THIS SHALL ALSO APPLY TO THE CONTROL OF MOISTURE CONTENT ON SUBGRADE AND COMPACTED FILL.

17. ALL TOPSOIL AND OTHER UNSUITABLE MATERIAL LOCATED BENEATH THE PROPOSED PAVEMENT AND BUILDING AREA SHALL BE REMOVED. ALL TOPSOIL REMOVED MAY BE STOCKPILED AND REUSED AS TOPSOIL SURFACE - 6". THE SURFACE SOIL MATERIALS IN THE FLOOR SLAB AND PAVEMENT AREAS OF THE SITE SHALL BE STRIPPED AND REMOVED FROM THE CONSTRUCTION AREAS. THE EXPOSED SUBGRADE SHALL BE VISUALLY EXAMINED AND PROOF ROLLED WITH A MEDIUM WEIGHT VIBRATORY ROLLER. ANY UNSUITABLE MATERIALS (I.E., ACCUMULATIONS OF FROZEN SOIL, TOPSOIL, NON-SOIL FILL, SOFT OR LOOSE MATERIALS, ETC.) THUS EXPOSED SHOULD BE REMOVED AND REPLACED WITH A WELL COMPACTED, STRUCTURAL BACKFILL AS DEFINED BY INDOT.

18. SUBGRADE FOR ALL PAVEMENT SHALL BE PROOF—ROLLED, IN ACCORDANCE WITH CURRENT INDOT STANDARDS, PRIOR TO PAVING. ANY ENCOUNTERED "PUMPING" AREAS SHALL BE UNDERCUT AND BACKFILLED WITH STRUCTURAL BACKFILL AT THE NEAT LINE LIMITS AS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AVOIDING PONDING OF STORM WATER ON SUBGRADE AND SUBBASE.

19. CONCRETE TESTING — CONTRACTOR SHALL EMPLOY AN INDEPENDENT TESTING ENGINEER TO VERIFY THAT THE SLUMP & AIR ENTRAINMENT MEET CURRENT & APPLICABLE INDOT STANDARDS. CONTRACTOR TO PROVIDE (3) CYLINDER SAMPLES FROM EACH DAYS' POUR, OR FOR EACH 50 C.Y. OF CONCRETE POURED AND SHALL PERFORM CYLINDER TESTING TO VERIFY STRENGTH REQUIREMENTS AND REPORT PROMPTLY TO OWNER.

20. THE CONTRACTOR SHALL CONSTRUCT THE INTERIOR BUILDING FLOOR SLAB TO AVOID DETRIMENTAL DIFFERENTIAL MOISTURE AND TEMPERATURE CONDITIONS BETWEEN TOP AND BOTTOM OF SLAB DURING CONCRETE CURING, SO AS TO AVOID SLAB CURLING.

#### SITE UTILITY NOTES

DESIGN, INSTALLATION AND SPECIFICATION FOR IMPROVEMENTS RELATED TO GAS, TELEPHONE, ELECTRIC AND CABLE TELEVISION SERVICES SHALL BE COORDINATED BY THE CONTRACTOR. APPROVAL OF THE DESIGN, SCHEDULE, AND INSTALLATION SHALL BE BY THE OWNER OR OWNER'S REPRESENTATIVE.

CONTRACTOR SHALL COORDINATE TELEPHONE, ELECTRIC, AND CABLE TELEVISION CONDUITS WITH THE APPROPRIATE UTILITY PRIOR TO

3. CONTRACTOR IS TO UNCOVER AND CONFIRM ALL TAP LOCATIONS. LOCATION DISCREPANCIES ARE TO BE BROUGHT TO THE ENGINEER'S ATTENTION FOR RESOLUTION.

4. THE CONTRACTOR SHALL NOTIFY THE CITY OF SHELBYVILLE 48 HOURS PRIOR TO COMMENCING CONSTRUCTION OF SANITARY SEWER TAPS. THE CITY OF FRANKLIN CAN AID IN LOCATING EXISTING UTILITY LINES AND REQUIRES INSPECTION OF UTILITY CONSTRUCTION CONNECTIONS. 5. TAPPING OF PUBLIC WATER MAINS MUST BE PERFORMED BY THE INDIANA AMERICAN WATER COMPANY. TO SCHEDULE TAPS, CONTACT TROY BRYANT OF INDIANA AMERICAN WATER COMPANY AT 317-831-3385. ALL FEES FOR WATER CONNECTION SHALL BE PAID BY

6. MAINTAIN 10' MINIMUM HORIZONTAL SEPARATION AND 18" VERTICAL SEPARATION BETWEEN WATER UTILITIES AND SANITARY SEWER AND/OR STORM SEWER.

COMMERCIAL WATER SERVICES SHALL BE FITTED WITH EITHER INTERIOR OR EXTERIOR BACKFLOW PREVENTION DEVICES. EXTERIOR BACKFLOW PREVENTION DEVICES ARE TO BE PLACED IN ABOVE GROUND ENCLOSURES THAT ARE INSULATED AND HEATED TO RESIST FREEZING. 8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS, PERMIT COSTS, TAP FEES, METER DEPOSITS, PERMANENT UTILITY APPLICATIONS, BONDS, AND ALL FEES REQUIRED FOR PROPOSED WORK TO OBTAIN OCCUPANCY.

9. SANITARY SEWER UTILITY SERVICE LATERALS SHALL BE A MINIMUM OF 6" IN DIAMETER AND LAID WITH A MINIMUM SLOPE TO PERMIT A 2.0 FT/SEC CLEANING VELOCITY. (I.E. 6" PIPE REQUIRES 0.6% SLOPE).

10. WATER SERVICES UNDER 4" SHALL BE TYPE "K" COPPER OR PE CTS DR9 PLASTIC WITH TWO #10 COPPER TRACER WIRES.

11. WATER SERVICES 4" AND UP SHALL BE C900 PVC, BLUE COLOR, OR AN ENGINEER APPROVED EQUAL. THE PIPE SHALL MEET THE REQUIREMENTS OF THE LATEST REVISION OF AWWA C900 AND ANSI/NSF 61 'DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS'. C900 PVC PIPE SHALL HAVE A PRESSURE CLASS OF 200, DR WATER MAIN PIPE SHALL BE MANUFACTURED TO CAST IRON OUTSIDE DIAMETERS. THE SEAL SHALL MEET THE REQUIREMENTS OF ASTM F477.

12. ANY SANITARY SEWER, SANITARY SEWER SERVICE LEADS, WATER MAIN, WATER SERVICES, AND/OR STORM SEWER WHICH IS DAMAGED BY THE CONTRACTOR DURING HIS OPERATIONS SHALL BE REPAIRED TO THE OWNER OR OWNER'S REPRESENTATIVE'S SATISFACTION AT THE

13. UTILITY TRENCHES SHALL BE BACKFILLED WITH GRANULAR MATERIAL AND COMPACTED IN 8" TYPICAL LIFTS TO 98% STANDARD PROCTOR

14. MANHOLE AND CATCH BASIN STRUCTURES SHALL BE PRE-CAST AND HAVE A MAXIMUM OF 2 ADJUSTING RINGS FOR FINISH GRADE 15. ALL WATER MAINS TO HAVE A BURIAL DEPTH AS REQUIRED BY THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT FOR THE

SPECIFIC REGION OF WORK (60" MIN. IN SHELBY COUNTY). 16. SANITARY PIPE SHALL BE SDR35 PVC WITH BELL AND SPIGOT JOINTS AND CONFORM TO ASTM D3034. STORM SEWER SHALL BE HDPE OR

17. THE CONTRACTOR SHALL TERMINATE THE SANITARY SEWER STUB AND WATER SERVICE FIVE (5) FEET FROM THE EDGE OF THE BUILDING. THE SEWER STUB AND WATER SERVICE SHALL BE PLUGGED WATER TIGHT. 18. INCIDENTAL TO ALL UTILITY PIPE WORK SHALL BE STRUCTURAL BACKFILL BEDDING AND BACK FILL. EXISTING MATERIAL SHALL NOT BE

ALLOWED FOR PIPE BACKFILL UNLESS APPROVED IN WRITING FOR SPECIFIC LOCATIONS BY THE ENGINEER. 19. ALL MANHOLE, CATCH BASIN, AND INLET CASTINGS SHALL BE BICYCLE SAFE.

20. ALL WATER MAINS SHALL BE INSTALLED AND TESTED AS PER MANUFACTURER'S INSTRUCTION, UTILITY PROVIDER, AND AS PER AWWA C600. WATER MAINS SHALL BE DISINFECTED AS PER AWWA C651. HYDROSTATIC PRESSURE AND LEAKAGE TEST AND BACTERIOLOGICAL TESTS SHALL BE COORDINATED WITH THE INDIANA AMERICAN WATER COMPANY. CERTIFIED COPIES OF ALL TEST RESULTS SHALL BE PROVIDED TO THE INDIANA AMERICAN WATER COMPANY.

1. ALL LANDSCAPE SHRUBS, TREES AND VEGETATION SHALL BE REMOVED UNLESS OTHERWISE NOTED ON THE PLAN, OR AS DIRECTED BY OWNER OR OWNER'S REPRESENTATIVE. GRINDING OF ANY STUMPS SHALL NOT BE PERMITTED.

2. REMOVE EXISTING CURB, CONCRETE PAVEMENT, ASPHALT PAVEMENT, ETC. AS REQUIRED, AS SHOWN ON PLANS, OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.

GRADES AND TO ACCOMMODATE THE PROPOSED PAVEMENT SECTION. 4. ALL EXISTING STRUCTURES, FOUNDATIONS, SANITARY SEPTIC SYSTEMS, PIPING AND WATER WELLS SHALL BE REMOVED UNLESS OTHERWISE NOTED, TO CITY STANDARDS.

3. REMOVE THE EXISTING GRAVEL BASE BELOW PAVED SURFACES AS REQUIRED FOR NEW CONSTRUCTION TO OBTAIN PROPOSED FINISHED

5. ALL EXISTING SITE SIGNAGE SHALL BE REMOVED, UNLESS OTHERWISE NOTED.

#### SITE PLAN NOTES

ALL SITE IMPROVEMENTS ARE DIMENSIONED TO THE BACK OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED. RADII ARE MEASURED TO THE BACK OF CURB UNLESS OTHERWISE NOTED.

2. HEIGHT, STYLE AND DESIGN OF BUILDING FACADE AND ELEVATIONS WILL BE AS PER THE ARCHITECTURAL PLANS.

3. TEMPORARY PROJECT IDENTIFICATION SIGNS SHALL BE REMOVED UPON COMPLETION OF THE PROJECT.

4. ALL SITE SIGNAGE SHALL BE AS SHOWN, OR AT THE OWNER'S DIRECTION.

5. INTERIOR TRAFFIC CIRCULATION SIGNS SHOWN FOR LOCATION ONLY - OWNER TO SELECT MATERIAL AND DESIGN.

6. PAVEMENT MARKINGS FOR PARKING AND RESTRICTING AREAS SHALL BE A 30 MIL APPLICATION OF CHLORINATED RUBBER TRAFFIC MARKING PAINT, AND OF SUFFICIENT APPEARANCE AS APPROVED BY THE OWNER OR OWNER'S REPRESENTATIVE. INSUFFICIENT PAVEMENT MARKINGS SHALL BE REDONE AS DEEMED NECESSARY BY THE OWNER OR OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE. ALL LINES SHALL BE 4" WIDE, STRAIGHT, EVENLY SPACED, AND UNIFORM IN LENGTH.

7. ALL HANDICAPPED SIGNAGE SHALL COMPLY WITH THE STATE OF INDIANA'S BARRIER FREE DESIGN REQUIREMENTS AND THE AMERICANS WITH DISABILITIES ACT.

8. IN ADDITION TO PAVEMENT MARKINGS FOR PARKING SPACES, LANE ARROW AND "ONLY" MARKINGS FOR "RIGHT—IN, RIGHT—OUT" AND INTERIOR TRAFFIC FLOW, ETC. SHALL BE INCIDENTAL TO THE PROJECT AND SHALL BE PLACED IN ACCORDANCE WITH INDOT STANDARD SPECIFICATIONS.

#### **DETENTION BASIN NOTES**

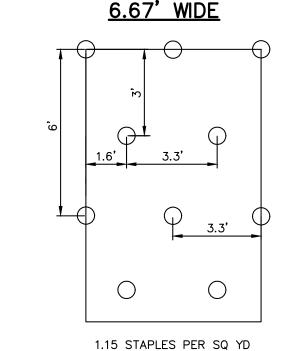
INITIAL BASIN EXCAVATION SHOULD BE CARRIED TO WITHIN I FT. OF THE FINAL ELEVATION OF THE BASIN FLOOR. FINAL EXCAVATION TO BE CONDUCTED AFTER SITE WORK HAS BEEN COMPLETED. FINAL GRADE SHALL BE AS SHOWN ON PLANS.

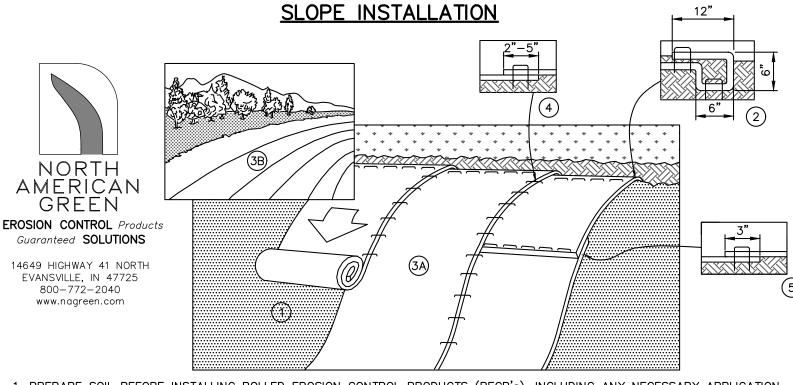
2. THE FINISHED GRADE SHOULD BE DEFERRED UNTIL ALL SLOPES IN THE WATERSHED HAVE BEEN SEEDED AND PROTECTED WITH PRESCRIBED EROSION CONTROL MEASURES.

3. THE FINAL PHASE EXCAVATION SHALL BE PERFORMED CAREFULLY TO REMOVE ALL ACCUMULATED SEDIMENT. LIGHT EQUIPMENT SHALL BE USED FOR THIS OPERATION TO AVOID DEEP COMPACTION OF THE BASIN FLOOR.

4. AFTER THE FINAL GRADING IS COMPLETED, THE BASIN FLOOR SHALL BE TILLED WITH ROTARY TILLERS OR DISC HARROWS TO OPEN THE SOIL PORES AND PROVIDE A WELL-AERATED, HIGHLY POROUS SURFACE TEXTURE FOR SEEDING.

#### STAPLE PATTERN GUIDE





1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN. 2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP'S IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECP'S EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECP'S BACK OVER SEED AND COMPACTED SOIL. SECURE RECP'S OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECP's. 3. ROLL THE RECP'S (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. RECP'S WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP'S MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM ™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN. 4. THE EDGES OF PARALLEL RECP'S MUST BE STAPLED WITH APPROXIMATELY 2" - 5" OVERLAP DEPENDING ON RECP's TYPE.

5. CONSECUTIVE RECP'S SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE RECP's WIDTH.

\*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE RECP's.

EROSION CONTROL BLANKET DETAIL

#### **EROSION CONTROL NOTES**

. THE CONTRACTOR IS ADVISED THAT THE WORK MUST BE DONE IN COMPLIANCE WITH THE FOLLOWING SPECIFICATIONS, SOME OF WHICH RESULT FROM THE REQUIREMENTS OF THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT'S STORM WATER PERMITS SECTION. AN APPROVED PERMIT FROM THIS AGENCY IS BASED ON THE CONTRACTOR'S COMPLIANCE WITH THE SPECIFICATIONS AND THE ACTUAL PERMIT DOCUMENTS.

2. THE CONTRACTOR SHALL INSPECT ALL EROSION AND SEDIMENT CONTROL PRACTICES WEEKLY AND WITHIN 24 HOURS AFTER STORM EVENTS OF 1/2" OR MORE PRECIPITATION OR AFTER HEAVY USE AND REPAIR IMMEDIATELY.

3. THE CONTRACTOR SHALL KEEP A LOG OF THE CONTRACTOR'S INSPECTION OF TEMPORARY EROSION CONTROL MEASURES. THE LOG SHALL BE AVAILABLE AT THE JOB SITE FIELD OFFICE DURING ALL WORK DAY HOURS FOR REVIEW BY VISITING IDEM INSPECTORS, SWCD INSPECTORS, CITY INSPECTORS AND THE ENGINEER. THE LOG SHALL BE BRIEF, BUT SHALL INCLUDE THE NAME OF CONTRACTOR'S INSPECTOR, DATE OF INSPECTION, MAN HOURS OF CONTRACTOR'S INSPECTION TIME AND COMMENTS ON ANY AND ALL FAILED OR FAILING EROSION CONTROL FEATURES ALONG WITH THE MEASURES TAKEN FOR PROMPT CORRECTION.

4. THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN ALL EROSION AND SEDIMENTATION CONTROL PRACTICES UNTIL COMPLETION OF PROJECT

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING AND COORDINATING WITH UTILITIES WITH RESPECT TO AVOIDING CONFLICTS AND DISTURBANCE OF SERVICES.

6. THE CONTRACTOR SHALL HAVE ON FILE, AT THE SITE, THE "INDIANA STORM WATER QUALITY MANUAL.

7. THE CONTRACTOR SHALL CLEAN OUT ALL CATCH BASINS AND STORM SEWER UPON COMPLETION OF THE PROJECT

8. THE CONTRACTOR SHALL STRIP AND STOCKPILE TOPSOIL AND REMOVE EXCESS FROM SITE TO A PROPERLY PERMITTED SITE AS APPROVED BY THE OWNER UPON SUBSTANTIAL COMPLETION OF THE WORK.

9. ANY TOPSOIL STOCKPILES ARE TO BE PROTECTED FROM EROSION. TEMPORARY TOPSOIL STOCKPILES WILL BE PERMITTED IN AREAS APPROVED BY THE ENGINEER.

10. THE CONTRACTOR SHALL CONTROL DUST ON THE PROJECT SITE WHEN NECESSARY USING METHODS WHICH COMPLY WITH THE "INDIANA STORM WATER QUALITY MANUAL." 11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL AND CONTAINING OF LIQUID OR SOLUBLE CONSTRUCTION MATERIALS FOR THE PROTECTION OF THE

GROUNDWATER RESOURCE. ANY ACCIDENTAL SPILLAGE SHALL BE CLEANED UP IMMEDIATELY BY ACCEPTABLE MEANS, REGARDLESS OF THE TIME OF DAY OR DAY OF WEEK. 12. THE CONTRACTOR IS ADVISED THAT THE ENVIRONMENTAL REVIEW FOR THIS PROJECT HAS DETERMINED THAT THE PROJECT HAS LIMITED POTENTIAL TO ADVERSELY AFFECT THE WATER BEARING AQUIFER. THE CONTRACTOR'S OPERATIONS SHALL BE SUCH AS TO AVOID THE CREATION OF THE POTENTIAL FOR STORM WATER TO ENTER THE GROUND

13. STOCKPILES OF EARTH MATERIALS SHALL BE SHAPED AS PER STATE STANDARDS. TOPSOIL MATERIALS SHALL BE STOCKPILED SEPARATELY FROM OTHER SOILS.

14. THE CONTRACTOR SHALL CONSTRUCT TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT PADS PRIOR TO OTHER SITE OPERATIONS. REMOVE ALL VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA AND GRADE AND CROWN FOR POSITIVE DRAINAGE. CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE "INDIANA STORM WATER QUALITY MANUAL.'

15. THE CONTRACTOR'S BID SHALL INCLUDE THE USE OF TEMPORARY GRAVEL ENTRANCE PADS (INCIDENTAL TO THE CONTRACT) WHERE APPROVED HAULING ROUTES CONNECT TO ROADWAYS. THE WORK SHALL INCLUDE THE EVENTUAL REMOVAL OF SUCH GRAVEL PADS, AND THE INCIDENTAL GRADING, SÉEDING, OR SODDING REQUIRED TO RETURN THE PAD AREAS TO ORIGINAL CONDITION. THE TEMPORARY GRAVEL PADS SHALL HAVE A MINIMUM 8" THICK APPLICATION OF 2" TO 3" COARSE AGGREGATE AT A MINIMUM 20' WIDE AND 150' LONG, WITH SUFFICIENT RADII AT THE ROADWAY. GEOTEXTILE FOR STABILIZATION BELOW THE GRAVEL PADS SHALL BE INCLUDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROMPTLY CLEANING UP ANY MATERIALS FROM PUBLIC ROADWAYS, WHICH ARE THE RESULT OF WORK OPERATIONS.

16. THE CONTRACTOR SHALL PERMANENTLY SEED, FERTILIZE, AND MULCH ALL FINAL GRADE AREAS (I.E., LANDSCAPE BERMS, RETENTION SWALES, ETC.) AS EACH IS COMPLETED. SEEDING, FERTILIZING, AND MULCHING SHALL BE IN COMPLIANCE WITH THE "INDIANA STORM WATER QUALITY MANUAL."

17. TEMPORARY GRASS SEEDING SHALL BE PERFORMED ON ALL AREAS SCHEDULED, OR LIKELY, TO REMAIN INACTIVE FOR A PERIOD OF 15 DAYS OR MORE. TEMPORARY SEEDING SHALL BE INCIDENTAL TO THE CONTRACT AND SHALL INCLUDE THE FOLLOWING SPECIES AND RATES:

RATE/ACRE OPTIMUM PLANTING WHEAT OR RYE 150# 9/15 TO 10/30 SPRING OATS 100# 3/1 TO 4/15 ANNUAL RYE GRASS 40# 3/1 TO 5/1, 8/1 TO 9/1

A FERTILIZER APPLICATION OF 400#/ACRE OF 12-12-12 ANALYSES MATERIAL SHALL ACCOMPANY THE SEEDING APPLICATION. MULCHING OF TEMPORARY SEEDING SHALL BE 'AS

LANDSCAPING PLANS NOTES. PERMANENT SEEDING SHOULD BE APPLIED FROM MARCH 1ST THRU MAY 10TH OR FROM AUGUST 10TH THRU SEPTEMBER 30TH, ANY PERMANENT SEEDING BETWEEN JUNE 1ST AND AUGUST 10TH MUST BE IRRIGATED TO ALLOW FOR PROPER SEED GERMINATION. 19. SEEDING SHALL BE DONE PROMPTLY AND PROGRESSIVELY AS WORK IS COMPLETED IN ORDER TO ALLOW FOR THE EARLIEST POSSIBLE ESTABLISHMENT OF STABILIZED GRASS.

18. PERMANENT SEEDING SHALL BE INDOT TYPE 'R' MULCHED SEEDING AS PER CURRENT INDOT STANDARD SPECIFICATIONS OR ALTERNATE SEEDING IF PROVIDED WITH

20. THE JOB WIDE SEQUENCE OF GENERAL WORK OPERATIONS RELATING TO EARTH DISTURBING ACTIVITIES SHALL BE SUCH AS TO PREVENT THE POTENTIAL FOR EROSION AND SEDIMENTATION. THE SEQUENCE SHALL BE GENERALLY AS FOLLOWS, WHILE ALSO CONSIDERING MAINTENANCE OF TRAFFIC:

SITE CLEARING AND BUILDING DEMOLITION TEMPORARY SEEDING AS NEEDED — INCIDENTAL APPLICATIONS THROUGHOUT CONSTRUCTION

MULTIPLE MOBILIZATIONS FOR THE SEEDING OF SPECIFIC SECTIONS SHALL BE INCLUDED IN THE WORK.

27. REMOVAL OF TEMPORARY EROSION AND SEDIMENTATION PROTECTION IS REQUIRED FOR FINAL PROJECT ACCEPTANCE.

- UNDERGROUND CONSTRUCTION ROUGH GRADING/FINE GRADING
- BUILDING CONSTRUCTION
- PAVEMENT CONSTRUCTION COMPLETION OF PERMANENT SEEDING MISCELLANEOUS CONSTRUCTION

FINAL CLEANUP

ACT AS SEDIMENT FILTERS.

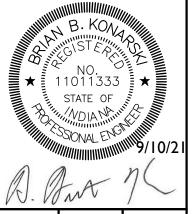
21. TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED AT THE TIME OF SITE CLEARING AS EARLY IN THE ABOVE SEQUENCE AS NEEDED, AND SHALL BE MAINTAINED THROUGHOUT THE SEQUENCE AS NEEDED. DURING THE COURSE OF WORK, CLEANUP SHALL BE DONE AS NEEDED AND AS DIRECTED TO AVOID EROSION AND SEDIMENTATION.

22. THE EROSION AND SEDIMENTATION CONTROL MEASURES AS SHOWN SHALL BE CONSIDERED A MINIMUM APPLICATION AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING EROSION AND SEDIMENTATION CONTROL BEST MANAGEMENT PRACTICES AS NEEDED THROUGHOUT THE CONSTRUCTION.

23. THE CONTRACTOR SHALL LOCATE AND MAINTAIN A CONCRETE WASHOUT AREA FOR THE DURATION OF CONCRETE POURING ACTIVITIES. THE CONTRACTOR SHALL REMOVE ALL DRIED CONCRETE FROM THE WASHOUT AREA BY THE END OF THE PROJECT.

24. THE CONTRACTOR SHALL PROVIDE RIP-RAP DAMS ACROSS ALL DITCHES, SWALES, AND ROUGH CUT ROADS WHICH EXIT FROM THE SITE TO ELIMINATE SEDIMENT RUN-OFF 25. THE CONTRACTOR SHALL AVOID UNNECESSARILY DISTURBING OR REMOVING EXISTING VEGETATED TOPSOIL OR EARTH COVER ALONG THE PROJECT PERIMETER. THESE AREAS

26. ALL TEMPORARY SOIL EROSION AND SEDIMENTATION PROTECTION SHALL REMAIN IN PLACE UNTIL THE COMPLETION OF THE WORK AND THE AFFILIATED AREA IS PERMANENTLY STABILIZED.



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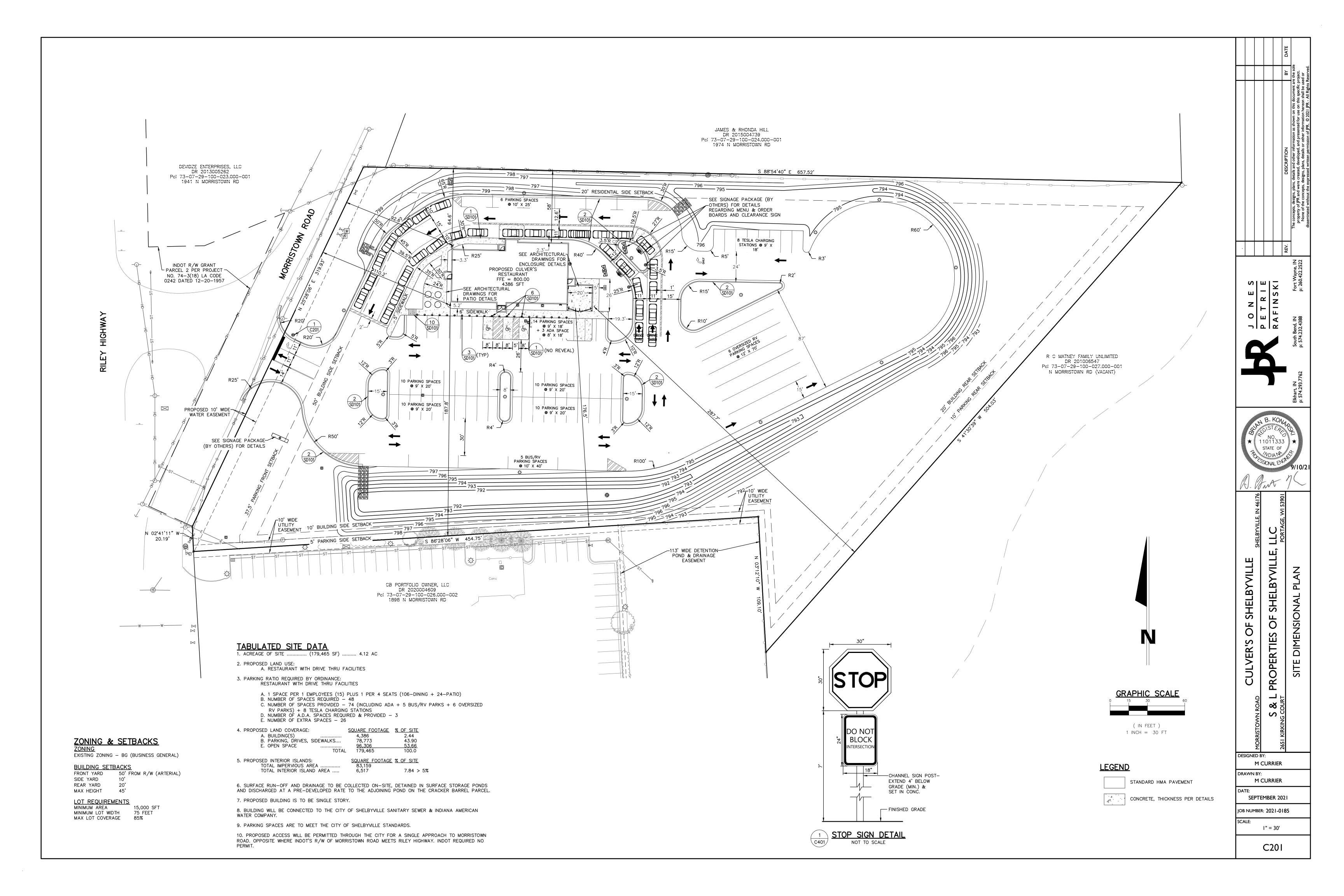
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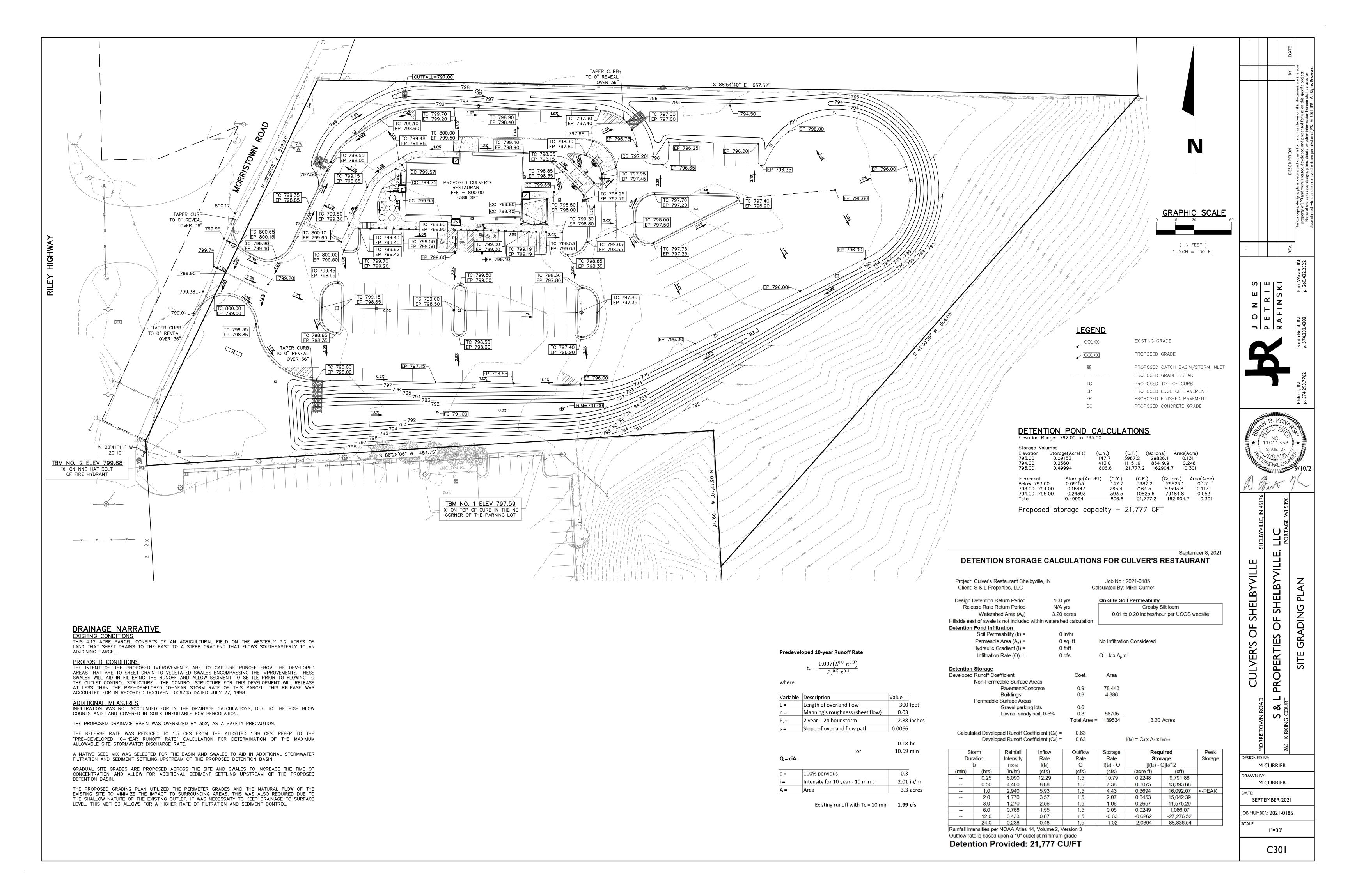
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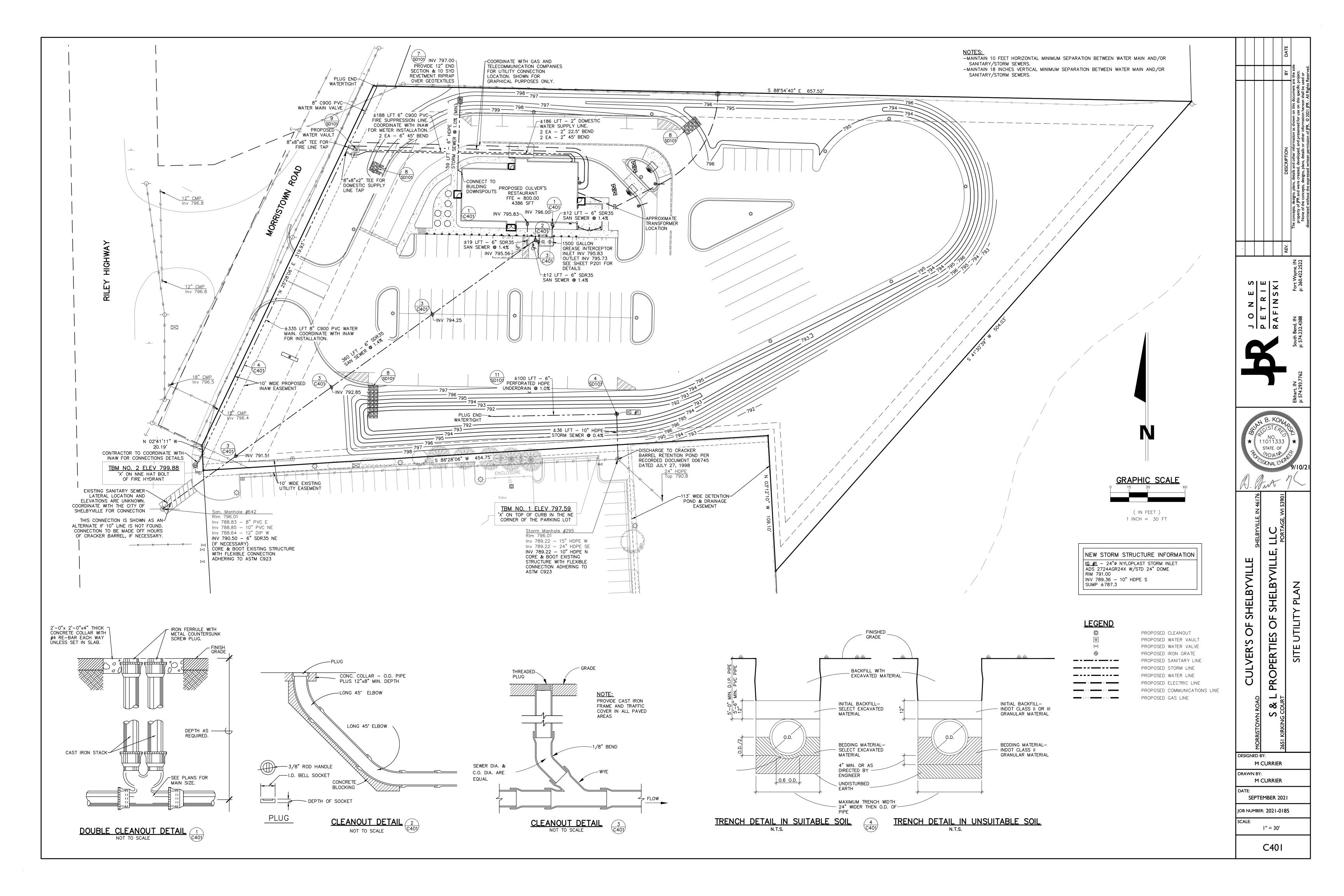
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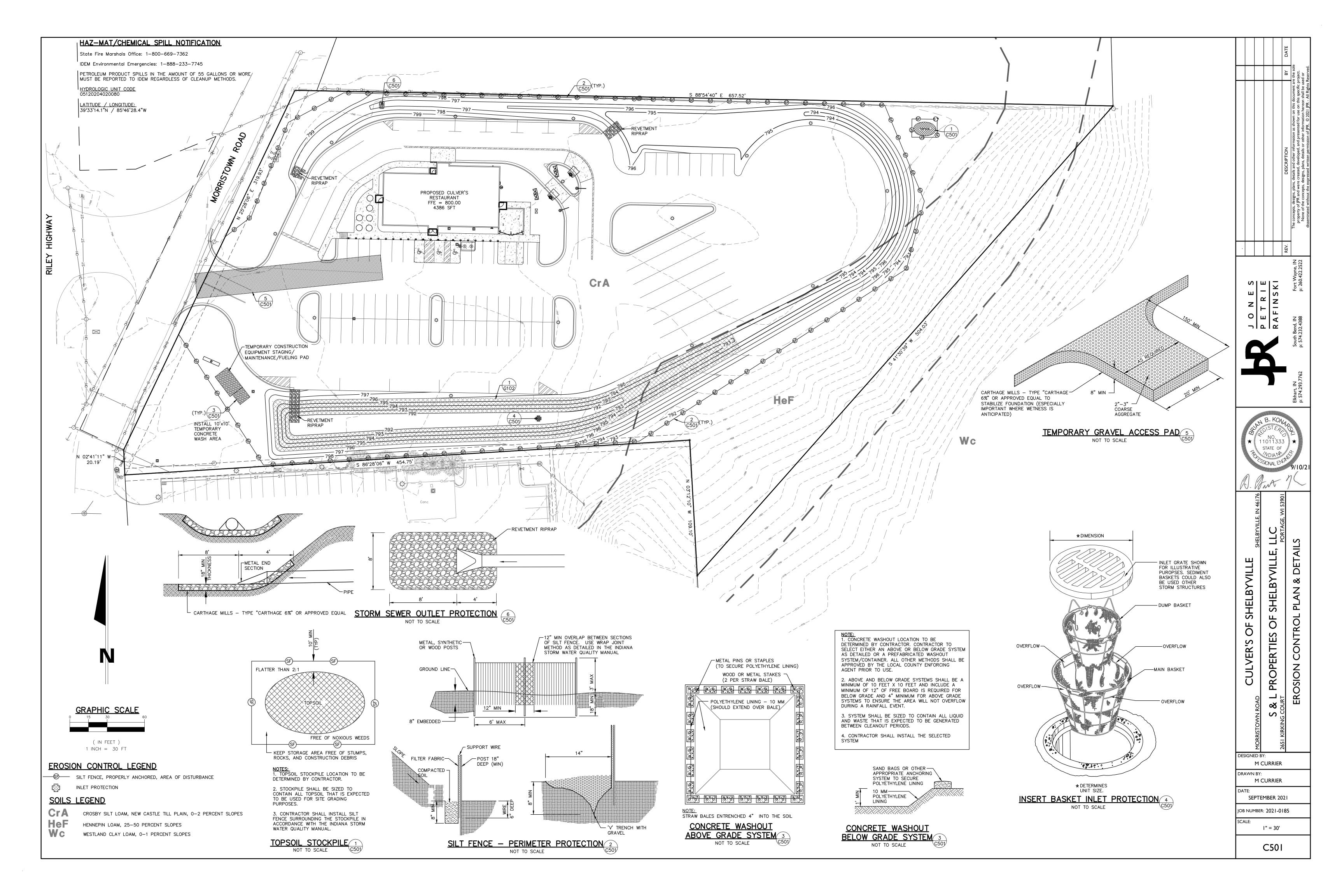
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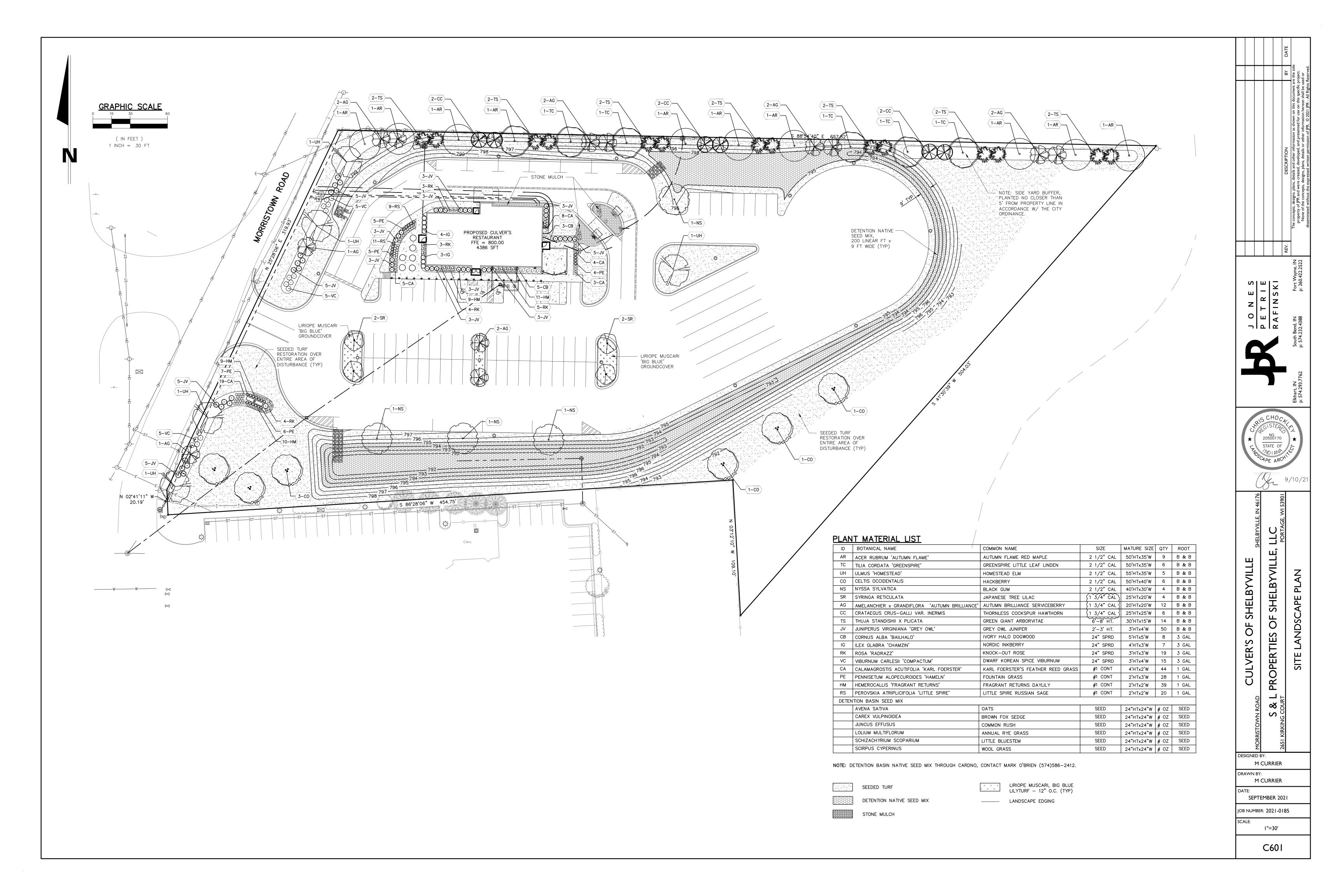


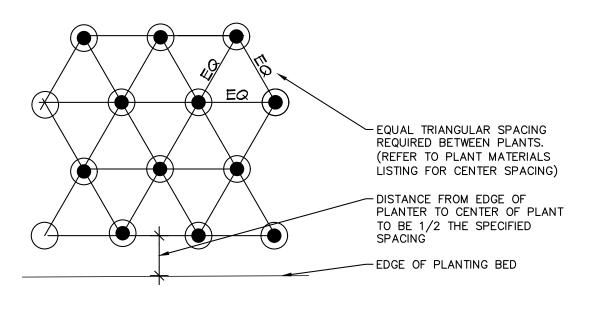


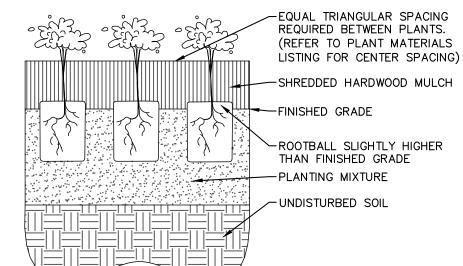


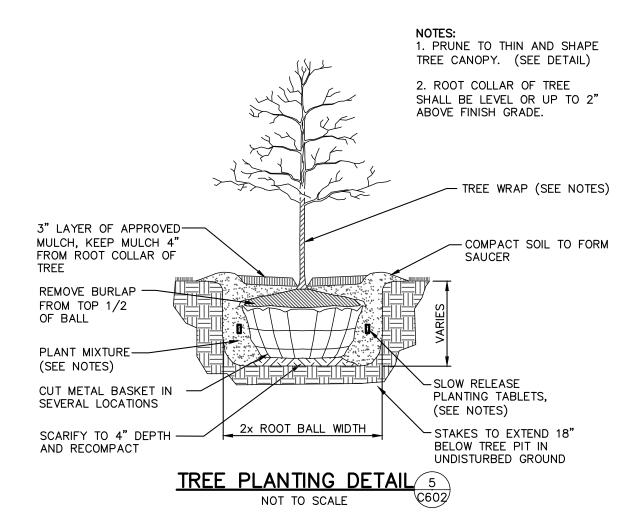


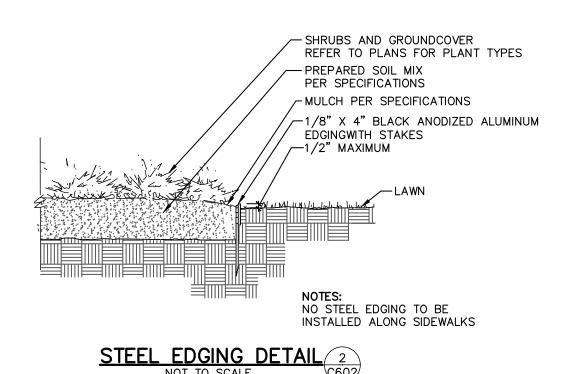


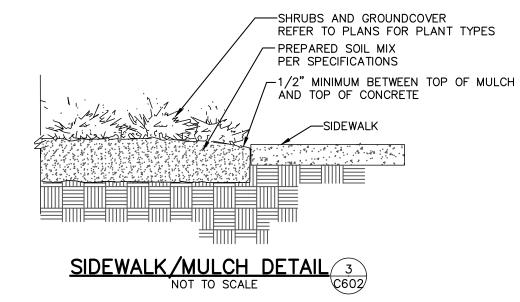


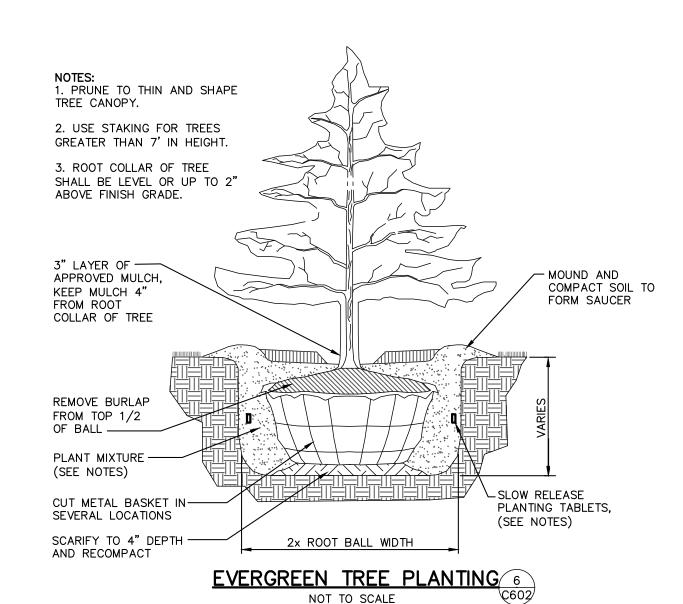


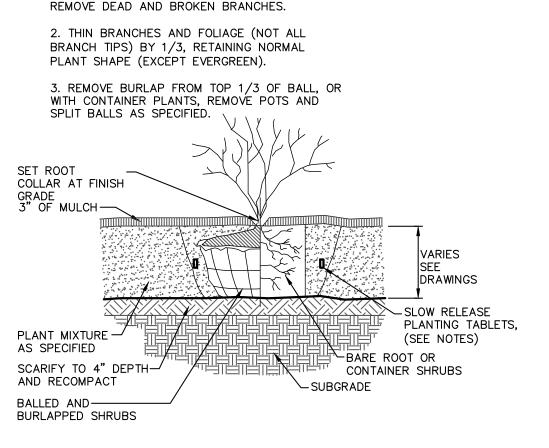












1. DO NOT PRUNE EVERGREENS, EXCEPT TO

#### GENERAL LANDSCAPE NOTES

VERIFY LOCATION OF ALL PRIVATE AND PUBLIC UTILITY LINES WHICH AFFECT THIS SITE. CONTRACTOR SHALL ALSO NOTIFY ALL UTILITY COMPANIES PRIOR TO THE COMMENCEMENT OF ANY SITE WORK.

2. CONTRACTOR SHALL REVIEW PLANTING SPECIFICATIONS AND PLANTING DETAILS BEFORE BEGINNING WORK.

3. CONTRACTOR SHALL VISIT THE PROJECT SITE AND BECOME FAMILIAR WITH CONDITIONS UNDER WHICH WORK SHALL BE IMPLEMENTED PRIOR TO

4. CONTRACTOR SHALL NOTIFY CONTRACT OFFICER OF ANY DISCREPANCIES IN THE EXISTING CONDITIONS OR WITHIN THE PLANS PRIOR TO

5. PLANTING BEDS SHALL HAVE FINISHED GRADES SMOOTHED TO ELIMINATE PONDING OR STANDING WATER. CONTRACTOR SHALL MAINTAIN A MINIMUM 2% DRAINAGE AWAY FROM BUILDINGS AND PAVING INTO DRAINAGE STRUCTURE OR TO STREET. CONTRACTOR SHALL NOTIFY OWNER IMMEDIATELY OF ANY CONFLICTS IN MAINTAINING DRAINAGE. IRRIGATION SYSTEM SHALL BE DESIGNED TO ELIMINATE OVERSPRAY ONTO BUILDINGS, STRUCTURES AND MONUMENT SIGNS.

6. CONTRACT OFFICER SHALL APPROVE ALL FINISH GRADING PRIOR TO PLACEMENT OF ANY PLANT MATERIAL.

7. CONTRACTOR SHALL IMMEDIATELY, UPON THE AWARD OF THE CONTRACT, LOCATE, ORDER AND PURCHASE (OR HAVE HELD) ALL PLANT MATERIAL REQUIRED BY THESE PLANS AND SPECIFICATIONS.

8. CONTRACTOR SHALL NOTIFY CONTRACT OFFICER FOR OBSERVATION AT THE FOLLOWING TIMES: -IRRIGATION MAINLINE AND LATERALS - PRIOR TO BACKFILL AND PRESSURE TEST -TREE LOCATIONS - PRIOR TO PLANTING

-IRRIGATION COVERAGE - PRIOR TO PLANT PLACEMENT -PLANT APPROVAL AND SPOTTING - PRIOR TO PLANTING

-PRE-MAINTENANCE APPROVAL -POST-MAINTENANCE / FINAL APPROVAL

9. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY REPAIRS MADE NECESSARY THROUGH THE ACTIONS/NEGLIGENCE OF THEIR CREW.

10. SHRUB AND GROUNDCOVER MASS QUANTITIES ARE SHOWN ON PLANS. UNDERPLANT ALL TREES WITH THE ADJACENT SHRUB AND/OR GROUNDCOVER AS INDICATED BY THE PLANS. PLANTS SHALL BE INSTALLED WITH TRIANGULAR SPACING. PLANT GROUNDCOVERS TO WITHIN 36" OF TREE TRUNK OR 12" OF SHRUB STEMS.

11. PLANT SYMBOLS TAKE PRECEDENCE OVER PLANT QUANTITIES SPECIFIED. WHERE SHRUB SYMBOLS ARE MASSED. CONTRACTOR SHALL MAINTAIN A CONSISTENT ON CENTER, TRIANGULAR SPACING AS SPECIFIED IN LEGEND. CONTRACTOR SHALL VERIFY PLANT TOTALS FOR BID

12. ALL ROCKS AND DEBRIS ONE INCH (1") AND LARGER SHALL BE REMOVED FROM PLANTING AREAS TO A DEPTH OF 1'-0" AND THEN FROM THE SITE TO A LEGAL SITE OF DISPOSAL. WHERE GRASS IS TO BE PLANTED, ALL ROCKS AND DEBRIS ONE HALF INCH (1/2") AND LARGER SHALL BE REMOVED.

13. PLANTING SOIL SHALL BE A THOROUGHLY GROUND AND BLENDED MIXTURE OF EQUAL PARTS OF THE FOLLOWING MATERIALS: ONE THIRD (1/3) TOPSOIL, ONE THIRD (1/3) PEAT MOSS AND ONE THIRD (1/3) SAND. ALL PLANTED AREAS SHALL RECEIVE A MINIMUM OF 6" OF TOPSOIL. 14. PRIOR TO PLANT INSTALLATION, CONTRACTOR SHALL IRRIGATE ALL PLANTING AREAS NORMALLY FOR TWO WEEKS TO GERMINATE WEEDS. CONTRACTOR SHALL THEN APPLY CONTACT HERBICIDE TO WEEDS ONLY PER MANUFACTURER, MONSANTO 'ROUND-UP' OR APPROVED EQUAL.

15. PLANT MATERIAL MAY BE REJECTED AT ANY TIME BY CONTRACT OFFICER DUE TO CONDITION, FORM OR DAMAGE BEFORE OR AFTER PLANTING.

16. ALL PLANT MATERIAL TO BE PLANTED WITH PLANTING TABLETS ACCORDING TO THE MANUFACTURER'S INSTRUCTION AND AS FOLLOWS: -BALLED & BURLAPPED PLANT MATERIAL USE TWO (2) 21 GRAM TABLETS PER EACH 1/2" CALIPER

-7 GALLON CONTAINER PLANT MATERIAL, USE THREE (3) 21 GRAM TABLETS PER PLANT

-5 GALLON CONTAINER PLANT MATERIAL, USE TWO (2) 21 GRAM TABLETS PER PLANT -3,2, AND 1 GALLON CONTAINER PLANT MATERIAL, USE ONE (1) 21 GRAM TABLETS PER PLANT

-PLANTING TABLETS SHALL BE AGRIFORM 20-10-5, PLANTING TABLETS PLUS MINORS STOCK NO. 90026 (21 GRAMS) OR APPROVED EQUAL.

17. ALL PLANT MATERIAL SHALL RECEIVE GRANULAR PLANT FOOD TO THE SURFACE OF THE PLANT BEDS INCLUDING GROUND COVER BEDS WHICH DO NOT CONTAIN MANURE OR PLANTING TABLETS. THE PLANT FOOD SHALL BE SPREAD OVER THE ROOT AREA STARTING 6" FROM THE TRUNK AND EXTENDING TO THE DRIP LINE OF EACH PLANT OR TO THE OUTER EDGE OF THE PLANT BED, WHICHEVER LARGER, AT THE RATE OF 2 POUNDS PER 100 SQ FT.

18. CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF ALL LANDSCAPE PLANT MATERIAL TO THE LATEST HORTICULTURAL PRACTICE STANDARDS.

19. ALL PLANTING BEDS SHALL HAVE A 3 INCH (3") DEPTH OF SHREDDED HARDWOOD MULCH APPLIED AFTER INSTALLATION OF PLANT MATERIAL. MULCH SHALL BE PEST & DISEASE FREE PLANT MATERIAL AND BE FREE OF TWIGS. LEAVES. STONES, CLAY OR OTHER FOREIGN MATERIAL. CONTRACTOR SHALL SUBMIT SAMPLE OF MULCH TO CONTRACT OFFICER FOR APPROVAL PRIOR TO INSTALLATION.

20. ALL DESIGNATED PERIMETER PLANTING AREAS SHALL HAVE 4 INCHES (4") PROFESSIONAL GRADE BLACK ANODIZED ALUMINUM EDGING INSTALLED PER MANUFACTURE'S SPECIFICATIONS.

21. CONTRACTOR SHALL BE RESPONSIBLE FOR A MINIMUM ONE (1) YEAR GUARANTEE TIME FOR THE REPLACEMENT OF ANY PLANT MATERIAL WHICH DIES AFTER THE DATE OF INSTALLATION ON SITE. THE RÈPLACEMENT PLANT MATERIAL SHALL BE EQUAL IN SIZE AND QUALITY TO THE PLANT MATERIAL SHOWN ON THE LANDSCAPE PLANS. ALL COSTS FOR THE REMOVAL OF DEAD PLANTS AND THEIR REPLACEMENTS SHALL BE BORNE BY THE CONTRACTOR.

22. SUBSTITUTIONS OF PLANT MATERIAL SHALL BE PERMITTED UPON WRITTEN SUBMISSION THAT SPECIFIED PLANT(S) ARE UNAVAILABLE OR UNACCEPTABLE DUE TO HARDINESS. SUBSTITUTE PLANT MATERIAL SHALL BE EQUAL IN SIZE, CHARACTERISTICS AND CONDITION OF MATERIAL BEING REPLACED. OWNER SHALL BE NOTIFIED AND APPROVE ALL SUBSTITUTIONS PRIOR TO THEIR INSTALLATION.

23. CONTRACTOR SHALL INSPECT BACKFILL AND PLACEMENT OF TOPSOIL TO DETERMINE WHETHER OR NOT A "HARDPAN" SITUATION EXISTS OR COULD EXIST DUE TO PREVIOUS SOIL CONDITIONS, PLACEMENT OF AND COMPACTION OF FILL DURING CONSTRUCTION, OR ANY OTHER CONTRIBUTING FACTOR PRIOR TO INSTALLATION OF PLANT MATERIALS. IF SUCH A SITUATION IS FOUND OR ANTICIPATED, IT SHOULD BE BROUGHT TO THE ATTENTION OF JPR AND/OR OWNER IMMEDIATELY, AND PRIOR TO THE INSTALLATION OF PLANT MATERIAL, FOR A REMEDY. CONTRACTOR RESPONSIBLE FOR PLANT REPLACEMENT IF PLANT MATERIAL IS PLANTED IN A "HARDPAN" SITUATION.

24. DIMENSIONS FOR HEIGHTS, SPREAD AND CALIPER OF TREES SPECIFIED ON THE PLANT LIST ARE GENERAL GUIDES FOR THE MINIMUM DESIRED SIZE OF EACH PLANT. EACH PLANT SHALL HAVE A UNIFORM AND CONSISTENT SHAPE AS IT PERTAINS TO THE LATEST EDITION OF AMERICAN STANDARD FOR NURSERY STOCK. PLANT MATERIAL WHICH FAILS TO CONFORM TO THE SPECIFICATIONS IS SUBJECT TO REJECTION BY

#### **SEEDING NOTES**

D BE DRILL SEEDED WITH THE FOLLOWING GRASS SEED MIXTURE: ALL DISTURBED AREAS 1 <u>% BY WEIGHT</u> <u>% BY PURITY</u> <u>% BY GERMINATION</u> TYPE KENTUCKY BLUE GRASS RED FESCUE MANHATTAN PERENNIAL RYE NORLEA PERENNIAL RYE

2. TURF SEED INSTALLATION: SOW SEED WITH DRILL SEEDING MACHINE. EVENLY DISTRIBUTE SEED BY SOWING EQUAL QUANTITIES IN TWO DIRECTIONS AT RIGHT ANGLES TO EACH OTHER. DO NOT USE WET SEED OR SEED THAT IS MOLDY OR OTHERWISE DAMAGED.

DO NOT SEED AGAINST EXISTING TREES. LIMIT EXTENT OF SEED TO OUTSIDE EDGE OF PLANTING SAUCER.

-SOW SEED AT A TOTAL RATE OF 4 LB/1000 SQ FT.

-RAKE SEED LIGHTLY INTO TOP 1/8 INCH OF SOIL, ROLL LIGHTLY, AND WATER WITH FINE SPRAY. -PROTECT SEEDED AREAS WITH SLOPES EXCEEDING 1:3 WITH EROSION-CONTROL BLANKETS INSTALLED AND

STAPLED ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. -PROTECT SEEDED AREAS WITH SLOPES NOT EXCEEDING 1:3 BY HYDROMULCH. SPREAD UNIFORMLY AT A

MINIMUM RATE OF 1 1/2 TONS/ACRE TO FORM A CONTINUOUS BLANKET OVER SEEDED AREAS.

3. SATISFACTORY SEEDED TURF: AT END OF MAINTENANCE PERIOD (90 DAYS), A HEALTHY, UNIFORM, CLOSE STAND OF GRASS HAS BEEN ESTABLISHED, FREE OF WEEDS AND SURFACE IRREGULARITIES, WITH COVERAGE EXCEEDING 90 PERCENT OVER ANY 10 SQ FT AND BARE SPOTS NOT EXCEEDING 3 INCHES BY 3 INCHES (3" X 3").

#### PLANT MATERIAL NOTES

1. ALL PLANT MATERIAL TO MEET AMERICAN STANDARDS FOR NURSERY STOCK, 1990 EDITION/ HORTIS THIRD 1076 CORNELL UNIVERSITY.

2. ALL LANDSCAPE AREAS TO BE 100% IRRIGATED WITH AN UNDERGROUND AUTOMATIC IRRIGATION SYSTEM.

3. PLANT CONTAINER SIZES ARE SHOWN AS GUIDELINES ONLY (MINIMUM HEIGHT AND SPREAD REQUIREMENTS RULE). PLANT HEIGHT AND SPREAD SPECIFICATIONS ARE MINIMUMS, ON CENTER (O.C.) SPECIFICATIONS ARE MAXIMUMS.

4. DETENTION BASIN NATIVE SEED MIX THROUGH CARDNO, CONTACT MARK O'BRIEN (574)586-2412.

#### RETENTION BASIN NOTES

. INITIAL BASIN EXCAVATION SHOULD BE CARRIED TO WITHIN I FT. OF THE FINAL ELEVATION OF THE BASIN FLOOR. FINAL EXCAVATION TO BE CONDUCTED AFTER SITE WORK HAS BEEN COMPLETED. FINAL GRADE SHALL BE AS SHOWN ON PLANS.

2. THE FINISHED GRADE SHOULD BE DEFERRED UNTIL ALL SLOPES IN THE WATERSHED HAVE BEEN SEEDED AND PROTECTED WITH PRESCRIBED EROSION CONTROL MEASURES.

3. THE FINAL PHASE EXCAVATION SHALL BE PERFORMED CAREFULLY TO REMOVE ALL ACCUMULATED SEDIMENT. LIGHT EQUIPMENT SHALL BE USED FOR THIS OPERATION TO AVOID DEEP COMPACTION OF THE BASIN FLOOR.

4. AFTER THE FINAL GRADING IS COMPLETED, THE BASIN FLOOR SHALL BE TILLED WITH ROTARY TILLERS OR DISC HARROWS TO OPEN THE SOIL PORES AND PROVIDE A WELL-AERATED, HIGHLY POROUS SURFACE TEXTURE FOR SEEDING.



SHELBYVILL

BYVILLI **DETAILS** ᆸ SH જ

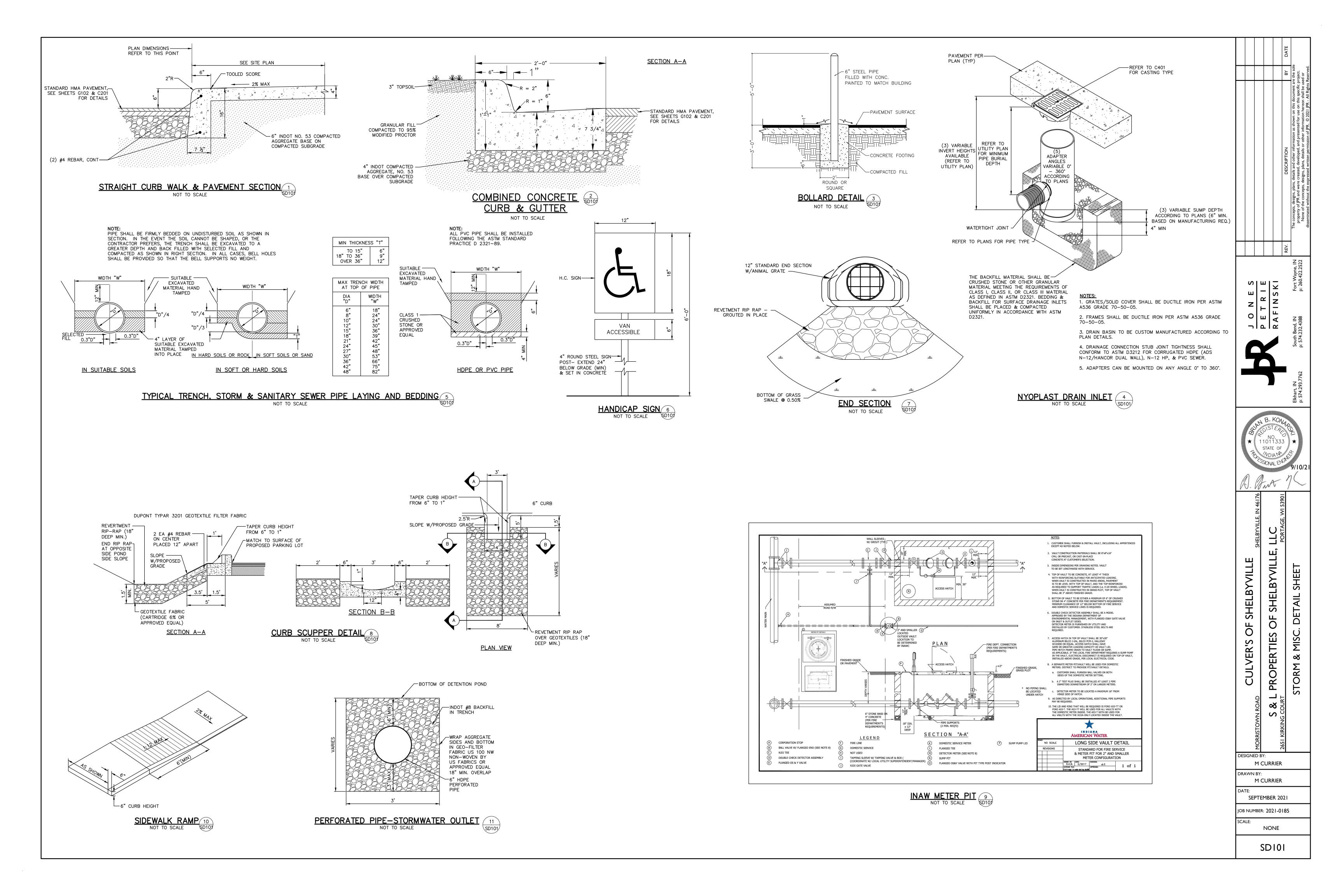
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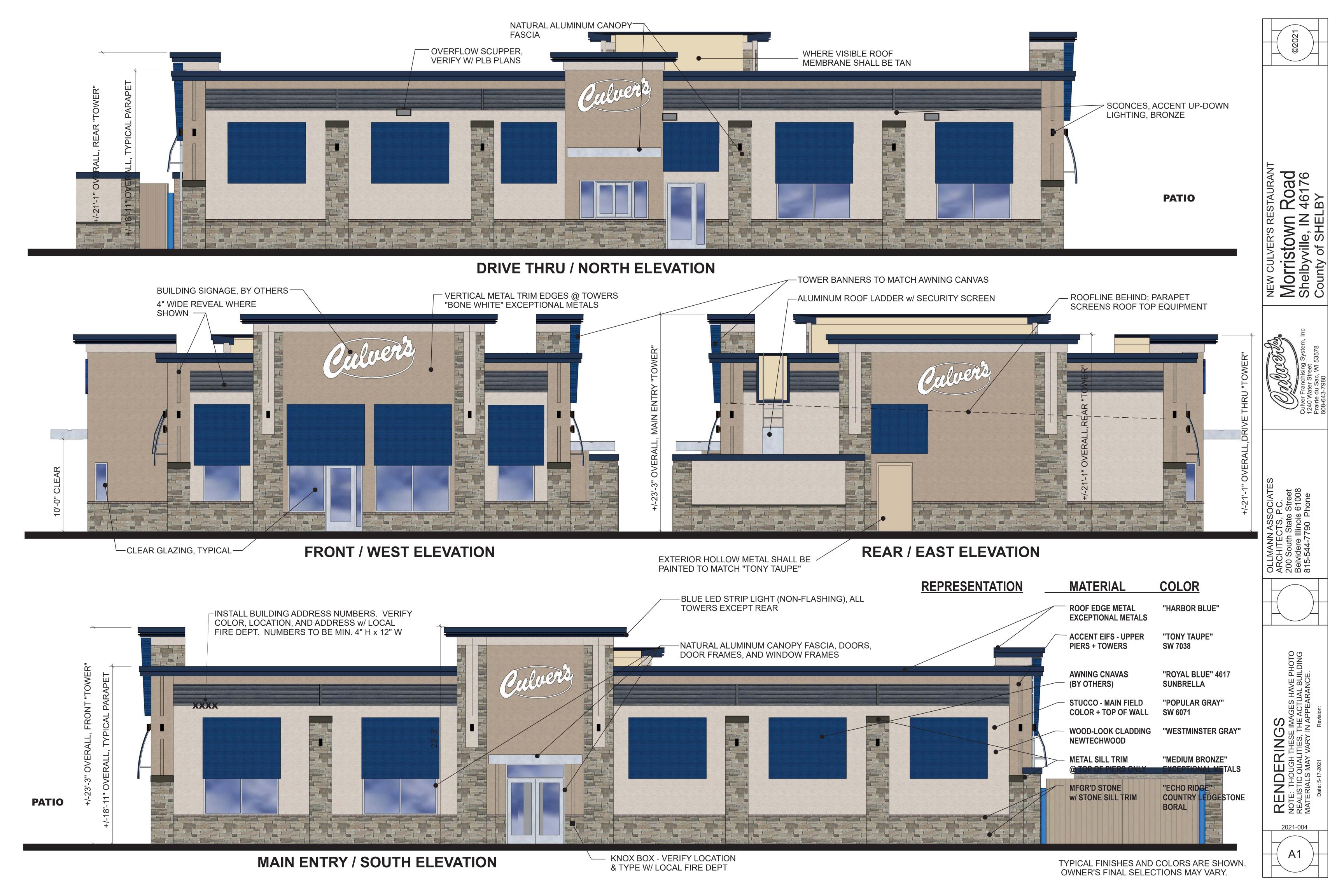
DESIGNED BY: M CURRIER DRAWN BY:

M CURRIER SEPTEMBER 2021

IOB NUMBER: 2021-0185

1"=30'







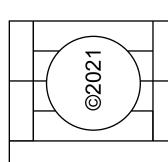








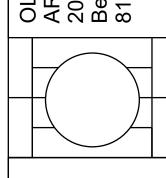




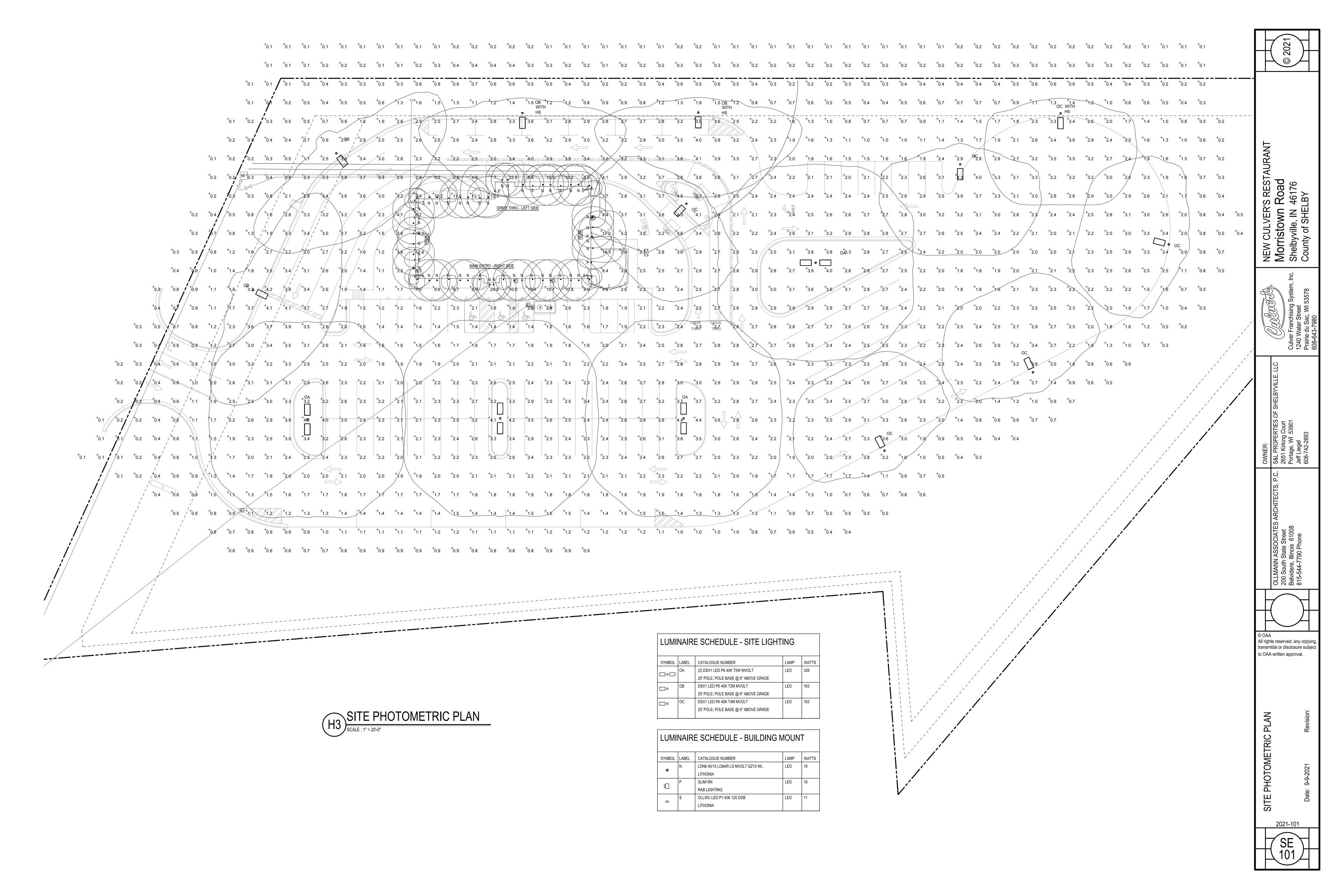
NEW CULVER'S RESTAURANT

Morristown Road
Shelbyville, IN 46176
County of SHELBY

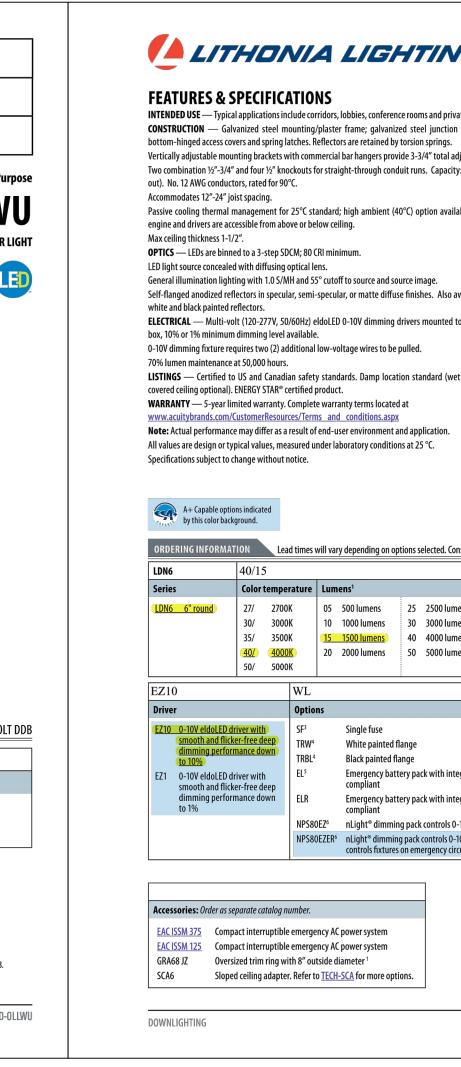




PRESSURE WASHER HOOK UP & SWITCH FOR POWER WASHER.







30/ 3000K

35/ 3500K

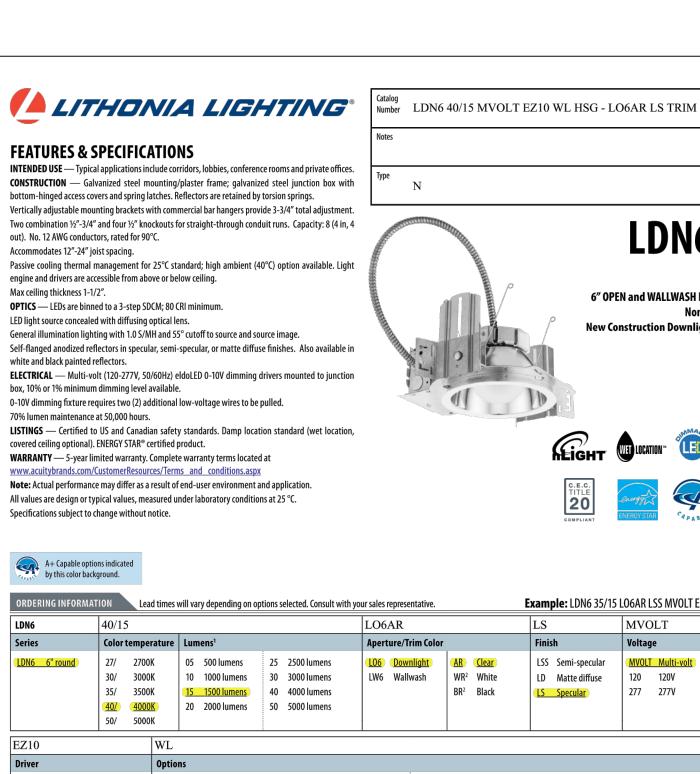
40/ 4000K

50/ 5000K

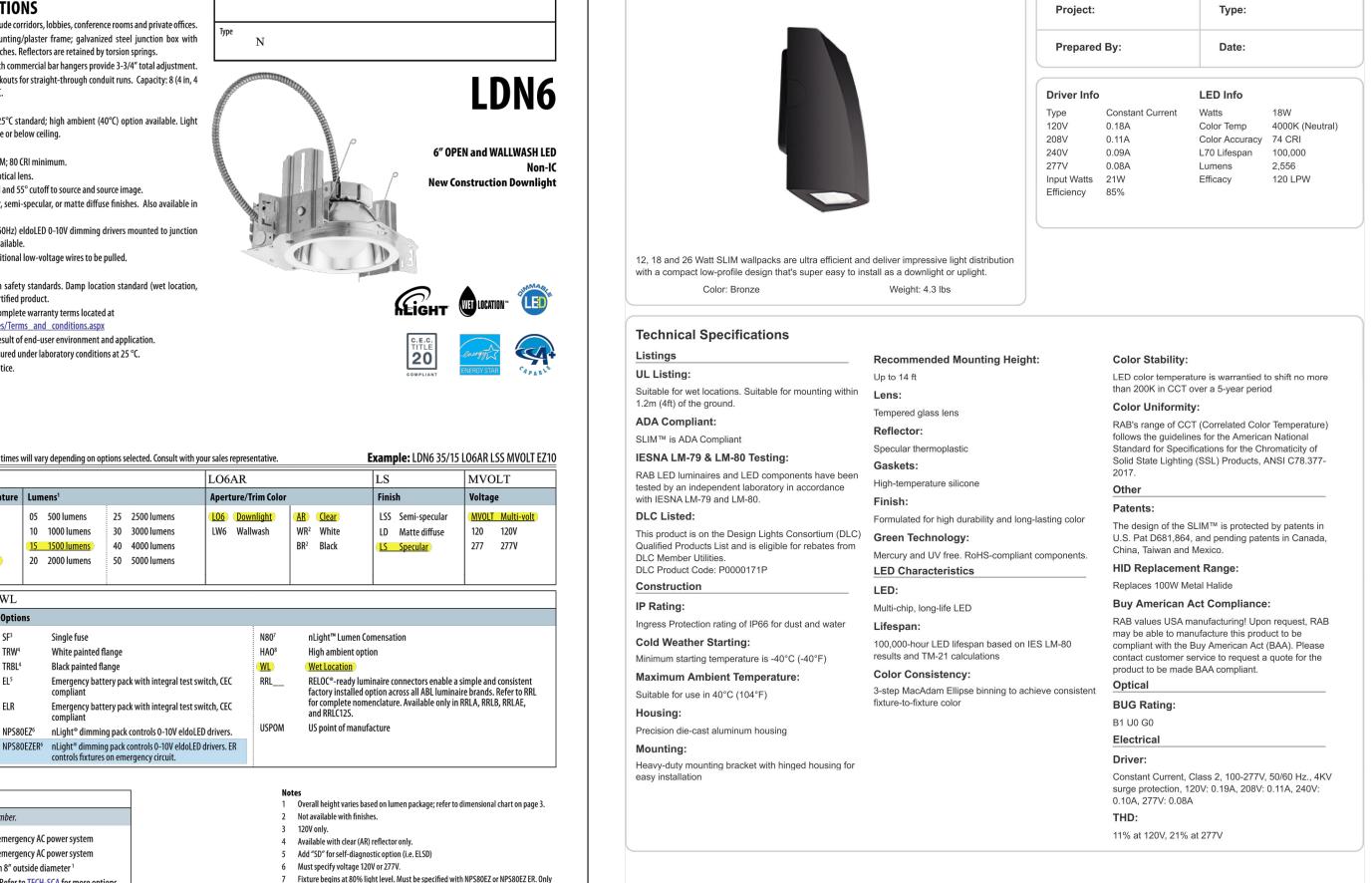
White painted flange

Black painted flange

controls fixtures on emergency circuit.



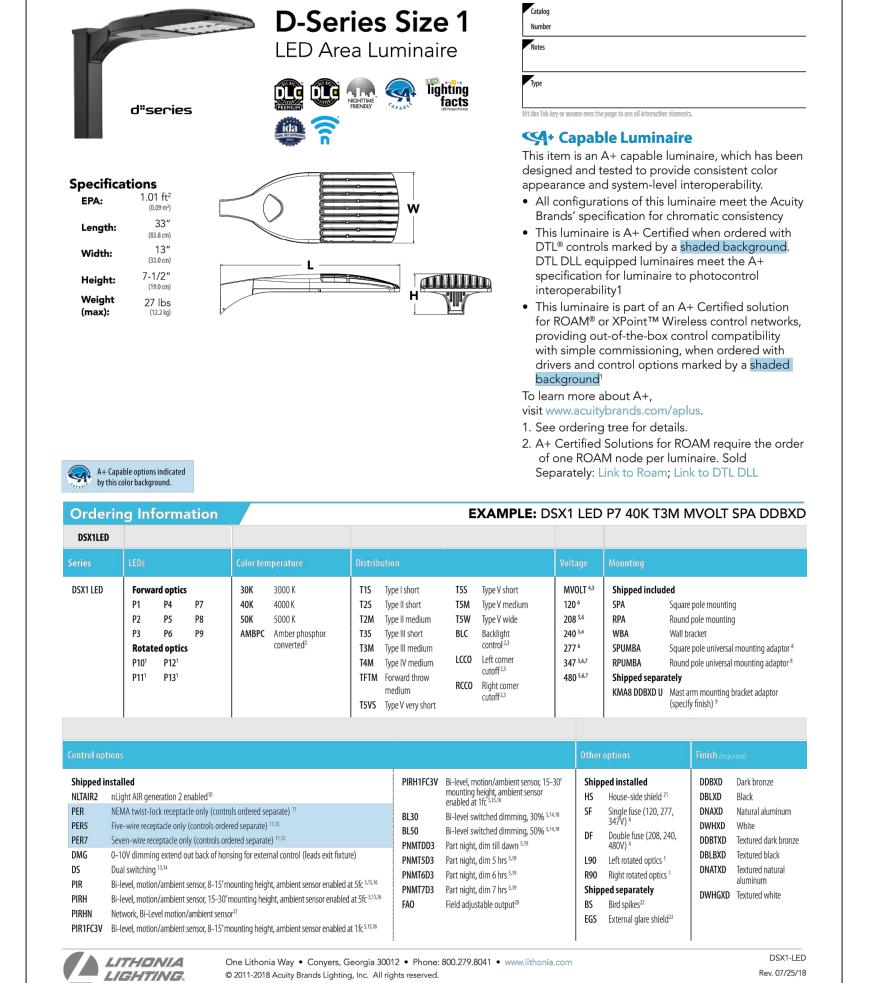
available with EZ10 and EZ1 drivers. 8 Fixture height is 6.5" for all lumen packages with HAO.

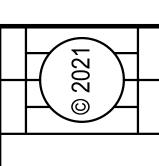


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SLIM18N





RAB Outdoor

Page 1 of 2

Page 1 of 7

NEW CULVER'S RESTA

Morristown Road

Shelbyville, IN 46176

County of SHELBY

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DET SITE

2021-101

# SHELBYVILLE, INDIANA

# SHELBYVILLE CONSTRUCTION STANDARDS

#### **DIRECTIONS FOR USE**

- 1.) The Entire Set Of Signed Standards Shall Be Attached To The Site Development Plans And Construction Drawings And Shall Be Considered Part Thereto.
- 2.) Details Prepared By Outside Sources Shall Not Be Included In The Construction Drawings When Said Details Cover Work Which Is Covered By Shelbyville Standards.
- 3.) Individual Shelbyville Standards That Do Not Apply May Be Crossed-out By Design Engineer Through The Placement Of A Single Large 'X' Over Detail. Minor Reference Notations May Be Placed Adjacent To Individual Standard Drawings For Coordination. However, The Standards Themselves Shall Not Be Modified In Any Way.
- 4.) Details Prepared By Outside Sources Covering Work Which Is Not Covered By Shelbyville Standards Are The Sole Responsibility Of The Design Engineer And Shall Be Placed On Sheets Other Than The Shelbyville Standards Sheets.
- 5.) For Details, Specifications, And Design Guidelines Not Covered In These Standards, Refer To The Documents Stated Below. In The Event That These Standards Are Used, Referenced, Or Incorporated Into Any Publicly Or Privately Funded Project And A Conflicting Standard(s) And/Or Specifications(s) Exist, The Following Order Shall Govern:
  - 5.1 Shelbyville Construction Standards
  - 5.2 City Of Shelbyville Unified Development Ordinance
  - 5.3 City Of Shelbyville Stormwater Design Manual
  - 5.4 INDOT Standards And Specifications / Indiana Manual On Uniform Traffic Control Devices / INDOT Work Zone Safety Manual.
  - 5.5 "Ten State Standards" Prepared By Great Lakes-Upper Mississippi River Board Of State
  - Public Health And Environmental Managers And Sanitary Engineers 5.6 ASTM And/Or AWWA Standards And Specifications
  - 5.6 ASTM And/Or AVVWA Standards
    5.7 Project's Written Specifications
  - 5.8 Project's Plans
- 6.) Design Professional Certifying The Plans For The Project Acknowledges Their Professional Responsibility For Ensuring That All Work Is Correct, Accurate, And Complies With All Applicable Laws, Standards, Regulations, And Ordinances. If Such An Error And/Or Omission Is Found, The Design Professional Accepts Full Responsibility And Shall Determine A Solution That Complies With All Applicable Laws, Standards, Regulations, And Ordinances. If Such An Error Or Omission Is Found, The Developer Is Not Relieved To Comply With All Applicable Laws, Standards, Regulations, And
- 7.) All Requests For Interpretations And/Or Clarification With The Standards Shall Be Done In Writing To The City Engineer. All Official Responses By The City Engineer Will Be Done In Writing.
- 8.) Failure To Properly Execute The Above Directions For Use Will Not Effect The Applicability Nor The Enforcement Of The Individual Shelbyville Standards.
- 9.) The City Of Shelbyville Shall Be Contacted When Required By Calling (317) 392-5102.

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Sheet #	DESCRIPTION					
1	DIRECTIONS FOR USE, GENERAL NOTES, AND REVISION LOG					
2	RIGHT-OF-WAY					
3	RIGHT-OF-WAY, SITE DEVELOPMENT STANDARDS					
4	PAVEMENT DETAILS AND NOTES					
5	CURB AND DRIVEWAY DETAILS AND NOTES					
6	SIDEWALK AND ADA RAMPS DETAILS AND NOTES					
7	TRENCH BACKFILL AND STREET CUT DETAILS AND NOTES					
8	STORM SEWER BEDDING AND PIPE DETAILS AND NOTES					
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15	FIRE DEPT. & WATER STANDARD DETAILS					
16	SIGNS, MARKINGS, & MONUMENTATION DETAILS					
17	ARTERIAL/COLLECTOR ROUNDABOUT STANDARDS AND DETAILS					
18	LOCAL ROUNDABOUT STANDARDS AND DETAILS					

Shelbyville Construction Standards Apply To Public & Private Property



#### **BOARD OF PUBLIC WORKS AND SAFETY**

APPROVED

Tom DeBaun

Mayor

Date

David Finkel

APPROVED

APPROVED

Bob Williams

Member

Date

05/11/2021

05/11/2021

05/11/2021

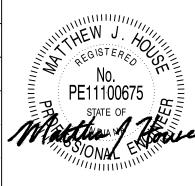
#### GENERAL NOTES

- 1.) Contractor Shall Verify The Exact Location Of All Existing Utilities At Least 48 Hours Prior To Any Construction Or Excavation. During Construction, All Utilities Shall Be Adequately Supported To Minimize Damage. The Contractor Shall Be Responsible For Repairing Or Replacing Damaged Utilities To The Satisfaction Of The City Of Shelbyville And The Owner Of The Affected Utility. All Utility Main Lines And All Utility Service Lines/Laterals Are Included In The Definition Of All Utilities.
- 2.) Contractor Shall Obtain A R/W Permit From The Engineering Dept. Prior To Starting Any Work Within City R/W. R/W Permits Require A Minimum 2 Working Days For Internal Review Prior To Approval. A \$10K Maintenance & Performance Bond Shall Be Posted With R/W Permit Application. The City Reserves The Right To Require A Larger Maintenance & Performance Bond Based On Project Scope If Deemed Necessary By The City. Failure To Obtain The Proper Permits As Required May Result In Penalties As Provided In City Ordinance 10.99.
- 3.) Project Plans Shall Be Provided For Review By The Technical Review Committee (TRC). Any Project With Public Works Infrastructure Improvements Shall Commence With Construction No Later Than 2 Years From TRC Approval, Or Shall Be Subject To A Subsequent TRC Approval.
- 4.) The Contractor Shall Notify The City And All Other Applicable Governmental Agencies At Least 48 Hours Prior To Starting Or Resuming Work On A Project. If Work Involves A Lane Closure, The Contractor Must Notify The Street Department At Least 72 Hours In Advance.
- 5.) The Contractor Is Responsible For Maintaing A Safe Construction Site And For Keeping Surrounding And Adjacent Streets Neat And Clean. The Contractor Shall Provide All Traffic Control, In Accordance With Most Recent Version Of The INDOT Workzone Safety Manual, Required On Public Ways Near The Project.
- 6.) All Erosion Control / Stormwater Pollution Prevention Measures Shall Meet Or Exceed The Requirements Set Forth In The Indiana Storm Water Quality Manual. Contractor Is Responsible For Maintaining Such Measures In Compliance With All Applicable IDEM, DNR, And City Of Shelbyville MS4 Standards And Regulations.
- 7.) All Street Cuts Shall Be Square And Neat. Jagged Or Irregular Street Cuts Are Not Permitted And Shall Be Repaired By The Contractor At No Cost To The City.
- 8.) Installation Of, Or Provisions For The Installation Of All Underground Utilities (Including Service Laterals) To Be Placed Under Pavement Areas Shall Be Established Prior To The Construction Of The Pavements. The City Reserves The Right To Require Trenchless Construction For Crossing Of Existing Streets. No Open Cut Construction Of New Pavement, Curb, Or Sidewalk Will Be Allowed.
- 9.) All Benchmarks And Elevations Shall Be Based On The City/County G.I.S. Datum.
- 10.) Whenever Proprietary Equipment Is Specified, All Proposals for Substitution Shall Be Submitted In Writing To The Shelbyville Engineering Department For Review.
- 11.) As-Built Record Drawings Shall Be Submitted To The Shelbyville Plan Commission Office. Two Full Hard-Copy Sets, One Full-Size PDF Set, And One Electronic AutoCAD Set Shall Be Submitted To The Shelbyville Plan Commision Office. Electronic AutoCAD Drawings Shall Be Compliant With The State Plane Coordinate System With Units Provided In U.S. Survey Feet. All Benchmarks And Elevations Shall Be Based On The City/County G.I.S. Datum. As-Built Drawings Shall Be Certified By A Registered Land Surveyor Or Engineer. As-Builts Are Required For Sanitary Sewer Systems, Storm Sewers Systems, Water Systems, Conduits, Lights, Roadways, And All Other Infrastructure Within Public Right-Of-Ways And/Or Easements.
- 12.) All Construction Within Public Right-Of-Ways Shall Comply With The Most Recent Version Of The Requirements Of The Americans With Disabilities Act (ADA). Construction Shall Meet The Standards Set Forth In The Current ADA Accessibility Guidelines (ADAAG) And Public Right-Of-Ways Guidelines (PROWAG).



CITY OF SHELBYVILLE

	REVISIONS	
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	ADA Compliance Notes, References To New UDO	01/14/2014
3	Updated Entire Set	02/11/2020
4	Sanitary Dedicated Easement, H.P. Storm Pipe	05/11/2021





DIRECTIONS FOR USE, GENERAL NOTES, & REVISION LOG SHEET 1 OF 18

#### **GENERAL NOTES**

- 1.) The Right-Of-Way Widths, Pavement Widths, And Easement Widths Indicated On This Sheet Are Minimum Distances Required By The City Of Shelbyville. Greater Widths May Be Provided Or Required. Additional Right-Of-Way Width May Be Required By The City In The Proximity of Intersections With Thoroughfare Or Arterial Roads. The City Of Shelbyville Unified Development Ordinance, Section 6.19, Provides For The Specific Details For Right-Of-Way, Pavement, and Sidewalk Widths. The Contractor Shall Review The Plat And The Plans To Confirm The Various Widths Indicated On This Sheet And Shall Report Any Discrepancy To The City Engineer Prior To Proceeding With Construction.
- 2.) Local Street Pavement Width (Excluding Curb & Gutter) May Be Required To Be Wider Than Specified When Directed By The Shelbyville Plan Commission And / Or City Engineer. Additional Width Requirement Will Be Considered When Dwelling Density Exceeds 4 Lots Per Acre.
- 3.) Dimensions Shown On The Street Cross Section Details On This Sheet Are For Two-Lane Streets With No Parking. See Note ② In Table 1 For Street And Right-Of-Way Widths For Streets With Parking.
- 4.) If The Width Of A New Sidewalk Is Different Than The Width Of A Connecting Existing Sidewalk, A 5 Ft Sidewalk Taper Or Flare Section Shall Be Constructed To Transition To Existing Sidewalks Having A Different Width.
- 5.) All Permits And Easements Shall Be Obtained By The Owner With Any Required Insurance Or Bonds To Be Provided By The Owner Or Contractor Prior To The Start Of Work On The Project.
- 6.) Minimum Profile Grade On Streets Shall Be 0.60%. Minimum Length Of Vertical Curves Shall Be 25 Feet. Vertical And Horizontal Design Of Streets Shall Comply With Street Alignment Design Tables As Shown On This Sheet.
- 7.) "Ten State Standards" Shall Be Followed, Including 18" Minimum Vertical Separation And 10'-0" Minimum Horizontal Separation Shall Be Maintained Between Watermains, Hydrants, And All Sewers (Storm and Sanitary).
- 8.) Standard Pavement Markings Shall Be Placed In Streets / Roads As Shown In Accordance With The Most Recent Version Of The Indiana Manual On Uniform Traffic Control Devices (MUTCD). For Asphalt Pavements, All Pavement Markings Shall Be Thermoplastic. For Concrete Pavements, All Pavement Markings Shall Be Epoxy Or Pre-Formed Plastic.
- 9.) Top Of Manhole Frames Shall Be Set To Meet The Finished Yard Or Sidewalk Grade When Located In Front Yard Area Of Lot Or
- 10.) Snowplowable Raised Pavement Markers (RPMs) Shall Be Placed On All Arterial Roads, In Accordance With The Most Recent Version Of The Indiana Manual On Uniform Traffic Control Devices (MUTCD). Blue RPMs Shall Be Used When Adjacent To A Fire Hydrant.
- 11.) Arterial Streets And All Divided Streets Shall Be Coordinated With The City Engineer And Plan Commissioner And Shall Be In Accordance With The Minimum Design Standards Outlined By The Unified Development Ordinance.
- 12.) Residential Streets Are Defined As Streets Serving Only Residential Properties. Non-Residential Streets Are Defined As Streets Serving Non-Residential Properties Or Any Combination of Residential And Non-Residential Properties.
- 13.) Street Classifications Shall Be Confirmed With The City Plan Commission Office.
- 14.) Refer To The Shelbyville Unified Development Ordinance Section 6.17 For Cul-De-Sac Design Standards.
- 15.) For Construction In Already Developed Areas, Some Of The Required Road Widths, Planting Strip Widths, And Other Items May Be Reduced With Permission From The City Engineer And/Or Plan Commissioner.
- 16.) Contractors And Developers Shall Refer To The City's Bicycle And Pedestrian Master Plan For New Construction. Projects May Be Required To Install A Wider Asphalt Path In Lieu of Concrete, Which May Affect R/W Widths.
- 17.) Street Trees Shall Be Required On All New Streets Unless Deemed Infeasible By The City Engineer. Trees Shall Be Planted Every 40' On-Center, In The 'Planting Strip" On Both Sides Of The Road, And Shall Be A Species Identified In Unified Development Ordinance 6.21. Existing Streets That Are Reconstructed Shall Have At Least Six New Trees Placed Per Block
- 18.) Street Lights Shall Be Required On All New And Majorly Reconstructed Streets Per The Unified Development Ordinance. The Spacing And Coverage Shall Be Designed By Lighting Professionals And Approved By The Planning Director.

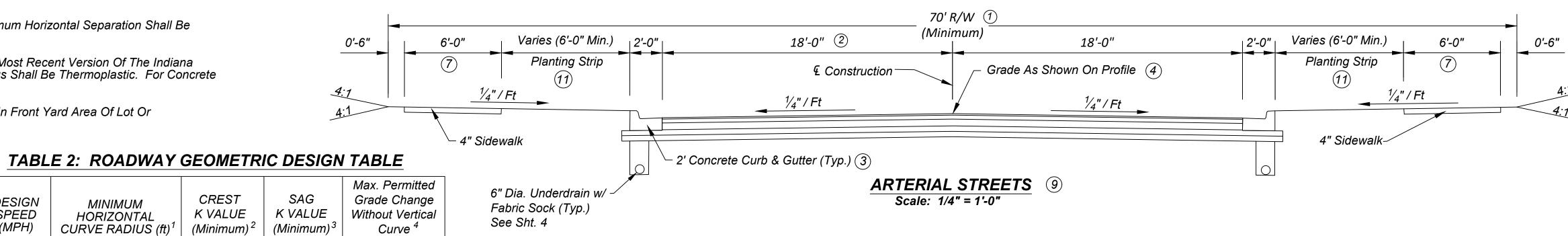
Fabric Sock (Typ.)

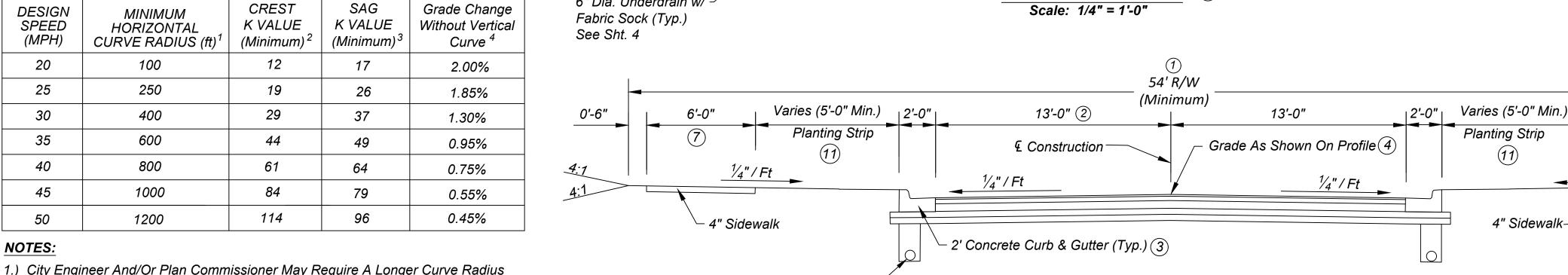
See Sht. 4

#### TABLE 1: STREET DESIGN STANDARDS

		Local	Street - Resid	dential	Local St	treet - Non-Re	sidential	Collec	tor Street - R	esidential	Collector	Street - Non-F	Residential	Arterial Street	Rural Collector Street
		No Parking	Parking On 1 Side 12			Parking On 1 Side 12		No Parking	Parking On 1 Side 12		No Parking	Parking On 1 Side 12		No Parking	To Be Determined By The City Based
1) Rigi	ht-Of-Way Width	50	56	66	52	62	70	50	60	70	54	64	72	70	On Traffic Volume
2) Pav	vement Width	22	31	40	24	34	44	24	34	44	26	36	46	36/48	and Design Speed
3) Cur	rb Requirement (Type)	I/II	I/II	I/II	II	II	II	II	II	II	II	II	II	II	
4) Gra	ade (Min Max.)	0.6% - 7%	0.6% - 7%	0.6% - 7%	0.6% - 5%	0.6% - 5%	0.6% - 5%	0.6% - 5%	0.6% - 5%	0.6% - 5%	0.6% - 5%	0.6% - 5%	0.6% - 5%	0.6% - 5%	0.6% - 5%
5) <i>Min</i>	nimum Tangent Distance	10 100	10 100	10 100	10 150	10) 150	10 150	10 200	10 200	10 200	10 250	10 250	10 250	10 300	10 300
6) Min	nimum Corner Radius	10 25	10) 25	10 25	10 30	10 30	10 30	10 35	10 35	10 35	10 45	10 45	10 45	10 50	10 50

- (7)| See Also Note #4 (Single Family 4"-0" Width), (Multi-Family 5'-0" Width), (Commercial 6'-0" Width), (Industrial 4'-0" Width)
- 8 Care Should Be Taken To NOT Disturb Lot Corner Pins When Constructing Sidewalks.
- 9 2 Lane Arterial Street Standards Shown All Other Arterial Street Designs Shall Be Consistent With The Requirements Of The City Engineer And INDOT.
- (10) Subject To Additional Requirements And Any Alternate Standards Established By The City Engineer And/Or INDOT, Based On Design Speed
- (11) Pavement / Sidewalk Separation May Be Reduced To 4 Feet In Commercial Areas Where Parking Is Provided On Both Sides Of The Street.
- (12) Street Widths Are Based On Parallel Parking Only. Other Parking Configurations Must Be Approved By The City Engineer And Plan Commission Office.





6" Dia. Underdrain w/

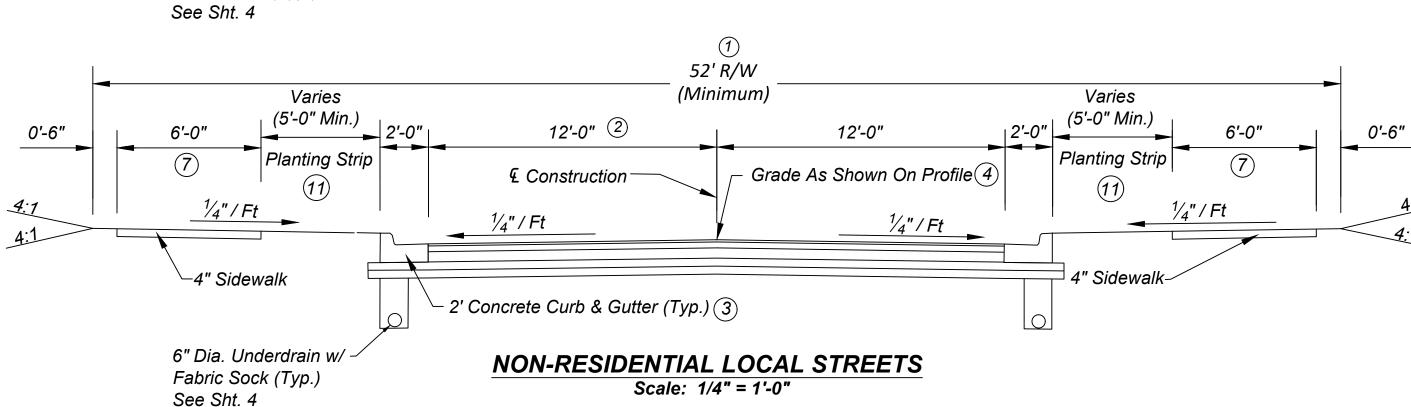
4" Sidewalk

Fabric Sock (Typ.)

Ensured Near The High Point Of The Curve. See Sht. 4 3.) If Curbs Are Present, And K>150, Proper Pavement Drainage Should Be Ensured Near The Low Point Of The Curve. 50' R/W 4.) Applies to Local Streets Only. Minimum Required Distance Between (Minimum) Varies **Varies** Consecutive Deflections Is 100 ft. 12'-0" (2) (5'-0" Min.) 12'-0" 0'-6" Planting Strip Planting Strip Grade As Shown On Profile 4 **©** Construction ½"/Ft ½" / Ft ½"/Ft

> RESIDENTIAL COLLECTOR STREETS 6" Dia. Underdrain Fabric Sock (Typ.) Scale: 1/4" = 1'-0"

2' Concrete Curb & Gutter (Typ.) 3



NON RESIDENTIAL COLLECTOR STREETS

Scale: 1/4" = 1'-0"

	REVISIONS	
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	References To New UDO, Added Rural Section, Revised Design Tables	01/10/2014
3	Updated Entire Set	02/11/2020



RIGHT-OF-WAY

CITY OF SHELBYVILLE

SHEET

6'-0"

½" / Ft

Planting Strip

4" Sidewalk

4" Sidewalk

0'-6"

#### Varies (50' Minimum) Varies (12' - 0" Min.) Varies (12' - 0" Min.) Varies Varies Varies Varies (2' - 0" Min. (2' - 0" Min.) € Construction Grade As Shown On Profile ½" / Ft <sup>3</sup>/<sub>8</sub>"/ft 3/8"/ft ½" / Ft NOTE: 6" Dia. Underdrain w.

**DESIGN** 

**SPEED** 

20

25

30

35

45

50

**RURAL STREETS** Scale: 1/4" = 1'-0"

Dimensions For Rural Street Sections Shall Be Site-Specific Based Upon Street Classification, Design Speed, Utility Requirements, Drainage Requirements, And Clear Zone Requirements.

At A Minimum, Rural Lane, Shoulder, And Ditch/Clear Zone Dimensions Shall Meet The Criteria Set Forth In The Most Recent Version Of The INDOT Design Manual. All Rural Street Section Proposals Shall Be Submitted To The City Engineer For Approval Prior To Design.

2.) If Curbs Are Present, And K>150, Proper Pavement Drainage Should Be

Varies

" Sidewalk

½" / Ft

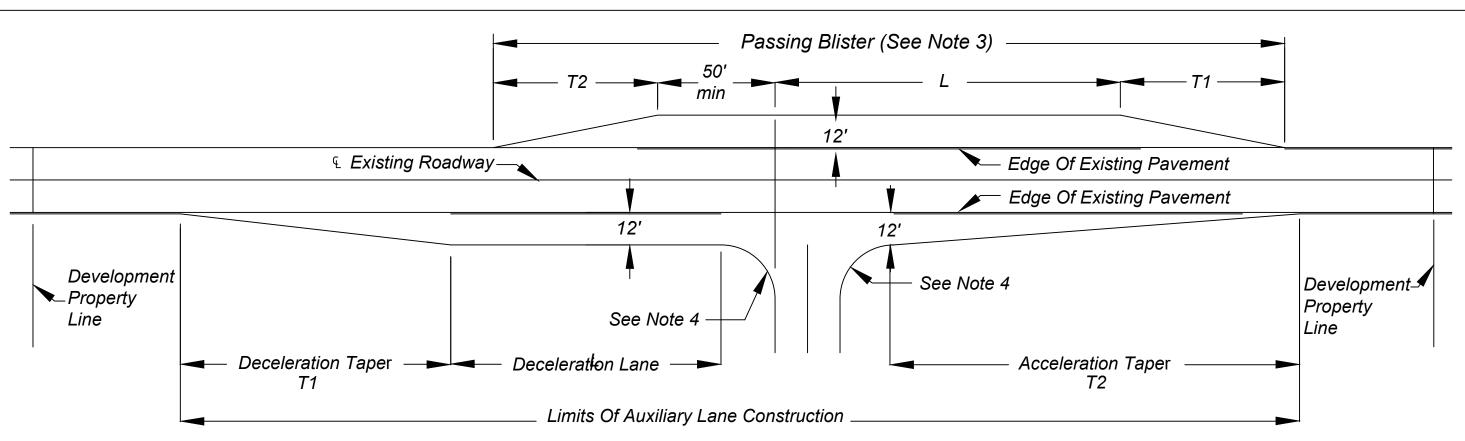
50' R/W (Minimum) Varies 11'-0" (2) (5'-0" Min.) (5'-0" Min.) 11'-0" 0'-6" Planting Strip Planting Strip **€** Construction Grade As Shown On Profile ½"/Ft ½" / Ft ½" / Ft 4:1 " Sidewalk 2' Concrete Curb & Gutter (Typ.) (3) 6" Dia. Underdrain w Fabric Sock (Typ.) RESIDENTIAL LOCAL STREETS See Sht. 4

Scale: 1/4" = 1'-0"

No. PE11100675

#### GENERAL DEVELOPMENT NOTES

- 1.) Both The Subdivision Developer And The Individual Lot Builder Are Responsible To Construct New Residential Lots In Accordance With The Details Established In The City Of Shelbyville Construction Standard Details, Latest Revision.
- 2.) An Erosion Control Plan Shall Be Submitted To The City Of Shelbyville. Such Plan Shall Require That A Minimum Of 4 Inches Topsoil Shall Be Placed And Graded Prior To Final Permanent Seedina.
- 3.) This Sheet Is NOT All Inclusive For The Unified Development Ordinance Regulations. All New Developments Shall Comply With The City of Shelbyville Unified Development Ordinance.
- 4.) Monuments Shall Be Placed For The Purpose Of Accurately Denoting The Center Of Each Roadway. At A Minimum. Monuments Shall Be Placed At Points Of Tangency, Points Of Curvature, And Roadway Intersections.
- 5.) The External Boundary Of The Development / Subdivision Shall Be Monumented As Denoted On The Final Plat. Monuments Shall Be Placed At All Corner And Deflection Points Of The External Boundary. Two Markers Shall Be Placed At The Points Of Tangency At A Rounded Boundary Corner Or Arc.
- 6.) Each Individual Lot Corner And Internal Angle Point Shall Be Monumented. Two Markers Shall Be Placed At The Points Of Tangency At A Rounded Lot Corner Or Arc.
- 7.) All External Boundary And Individual Lot Monuments Shall Be Installed Before Acceptance Of Final Plat, Unless Otherwise Approved by Planning Department. All Roadway Monuments Shall Be Installed Within Six (6) Months Of Placement Of Pavement Surface. All Monumentation Shall Be In Place Prior To The Acceptance Of The Public Improvements By The Board Of Public Works And Safety.
- 8.) A Land Surveyor, Registered In The State Of Indiana, Shall Attest To The Accuracy Of The Installed Monuments. Attestment Certifying All Monumentation Has Been Placed Shall Be Delivered As Soon As All Monumentation Has Been Placed. Attestment Must Be Received Prior To Release Of Surety / Bond. Certified Statements Of Attestment Shall Be Submitted To The Shelbyville Plan Commission.
- 9.) All Monuments Shall Be Constructed In Accordance With The Monument Details Shown On This Sheet.
- 10.) Monuments Which Are Damaged, Buried, Or Altered Shall Be Reset By Party Responsible For Damage/Alteration.



#### **ENTRANCE NOTES:**

Accessible Route

└60" Min. Except Van

ACCESSIBLE PARKING SPACE

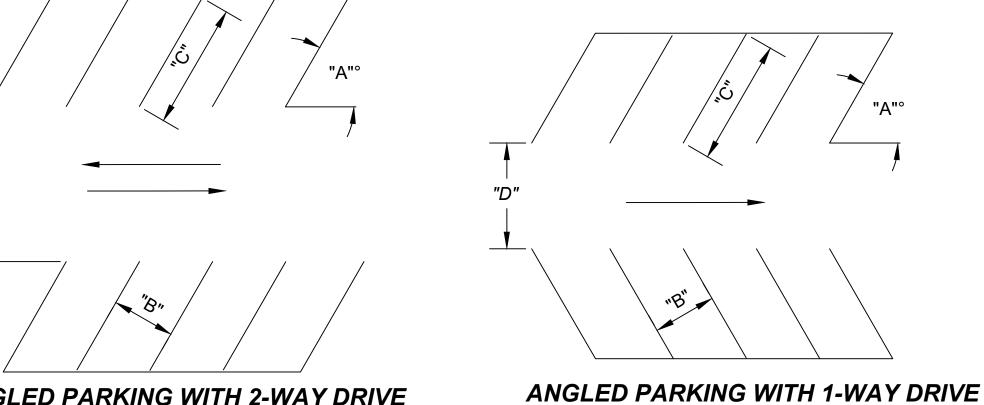
Scale: None

Accessible (See Note 2)

- 1.) Acceleration / Deceleration Lanes Shall Be Constructed For All New Development Entrances Which Connect To An Arterial Or Collector Roadway. Passing Blister(s) May Also Be Required By The City. The City Reserves The Right To Require A Traffic Study To Determine Traffic Impacts And Any Additional Roadway Improvements Necessary To Mitigate Adverse Impacts.
- 2.) The City Reserves The Right To Require Lane Widening, Surface Milling, Resurfacing, New Roadway Markings, And/Or Any Additional Improvements Deemed Necessary By The City On Existing Roads Adjacent To New Site Or Subdivision Entrances.
- 3.) The City May Require A Passing Blister At The Intersection Of A Site Or Subdivision Entrance. Passing Blisters Shall Be Designed In Accordance With The Most Recent Version Of The INDOT Design Manual.
- 4.) Minimum Corner Radius Shall Be In Accordance With Table 1, Item 6 On Sheet 2.
- 5.) All Above Surface Utilities, Structures, Plantings, Or Other Conflicts Within 12 Feet Of Roadway Improvements, Including Accel/Decel Lanes And Passing Blisters, Shall Be Removed Or Relocated Prior To Construction Of Roadway Improvements.
- 6.) Construction Plans Shall Include Centerline Profile And Cross Sections Of Existing Road Being Intersected By The Entrance.

#### MINIMUM SITE / SUBDIVISION ENTRANCE STANDARD

Scale: None



ANGLED PARKING WITH 2-WAY DRIVE

	Scale: None		Scale:	None		
_		TABLE 7: N	IINIMUM PA	ARKING ST	ANDARD D	<u>IMENSIONS</u>
"D"		ANGLE OF PARKING "A"	STALL WIDTH "B"	STALL LENGTH "C"		DRIVE WIDTH TWO-WAY "E"
"Å"		61° - 90°	9'	18'	18'	26′
<u> </u>		46° - 60°	9′	23.6′	15'	24'
"C"		1° - 45°	9'	27.6′	12'	22'
PARALLEL I	PARKING WITH 1-WAY DRIVE	PARALLEL	9'	22'	12'	22'

- 1.) For Purposes Of Measurements, Drives With Parking On One Side Only Shall Be Considered As One-Way Drives.
- 2.) Dimensions Shown For Parking Spaces Are Minimums.
- 3.) Pavement Sections For Parking Areas Shall Comply With The Standard Parking Lot Criteria Shown On Sheet 4 Of These Standards. Pavement Sections Shall Be Selected Based Upon Design Traffic Loading. A Modified Pavement Section May Be Required If Deemed Necessary By The City Engineer.

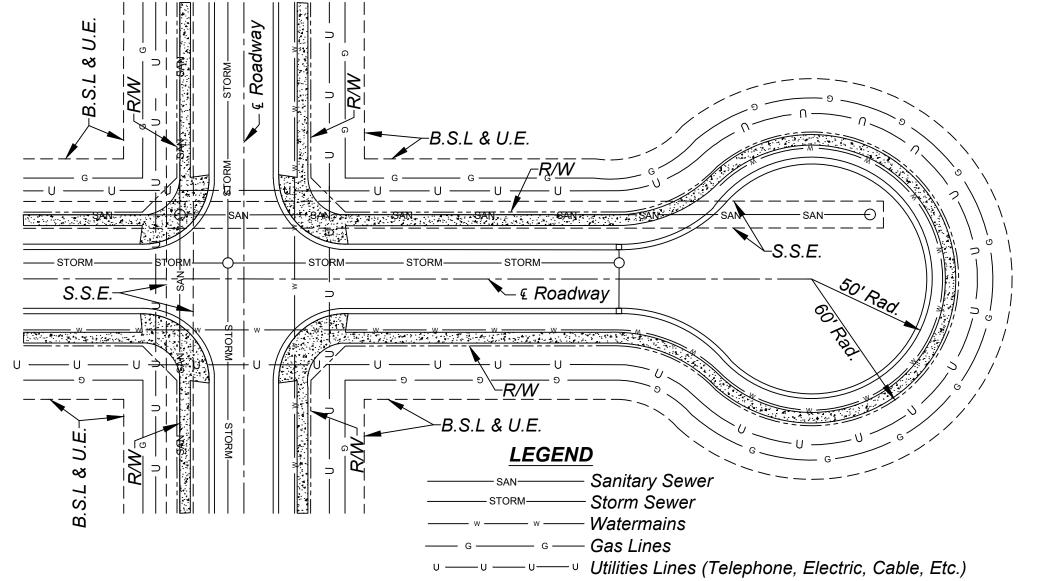
4.) Parking Shall Comply With City's	
Unified Development Ordinance.	

	REVISIONS	
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	References To New UDO, Added Monument Detail	01/10/2014
3	Updated Entire Set	02/11/2020
4	Note On Sanitary Dedicated Easement	05/11/2021

Scale: None

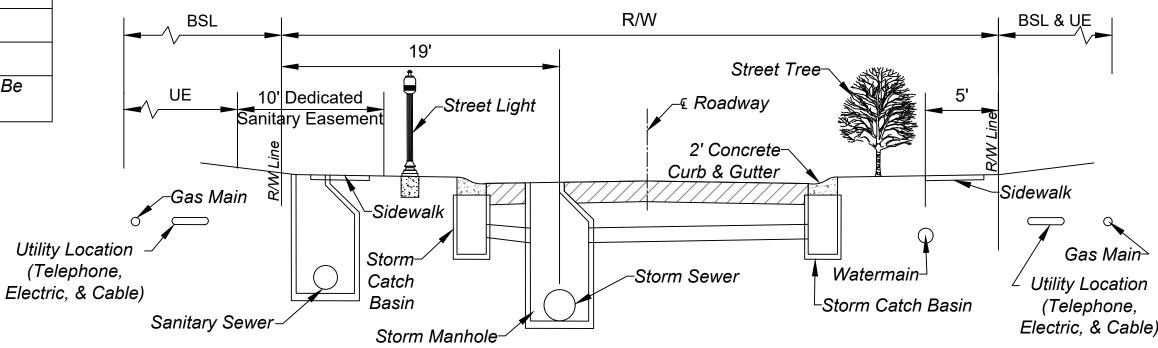
#### TABLE 6: MINIMUM AUXILIARY LANE DIMENSIONS

DESIGN SPEED (mph)	T1 (ft)	L (ft)	T2 (ft)	
30 or Less	100	100	100	
35	150	150	100	
40	150	200	150	
45	200	250	200	
Greater Than 45	Refer To INDOT Standards. Shall Be Based On Design Speed.			



#### TYPICAL UTILITY LOCATION PLAN

Scale: None

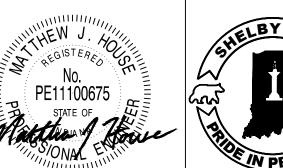


#### TYPICAL UTILITY LOCATION SECTION

#### **UTILITY NOTES**

#### Scale: None

- 1.) Utility Layout Within The Right-Of-Way And Utility Easements Shall Be As Shown In The Typical Details On This Sheet. The Location Of Proposed Utilities Are So Indicated To Ensure The Orderly Development Of The Land. Requests To Change The Location of The Proposed Utilities Shall Be Submitted In Writing To The City Engineer And Planning Commissioner. Utilities Not Meeting These Requirements Shall Be Removed And Replaced As Directed By The City Engineer And / Or Planning Commissioner At No Expense To The City.
- 2.) All Utility Street Cuts And Trenches Shall Be In Accordance With The City Standard Details Shown On Sheet 7.
- 3.) All Newly Installed Utilities Shall Be Placed Underground Except For Drops Or Laterals That Serve An Individual Structure Or Service.
- 4.) Telephone/Fiber, Electric, And Cable Shall Be Placed In Joint Trench. If Joint Trench Is Not Possible, Approval For Alternate Placement Must Be Granted By The City Engineer And Plan Commissioner In Writing.
- 5.) Abandoned Utility Infrastructure Shall Be Completely Removed After Activating Newly Constructed, Upgraded, Or Relocated Facilities. Underground Pipes/Conduits Shall Be Capped And Filled With Flowable Fill If Not Removed. Trenches Shall Be Properly Backfilled As Noted In The City Standards.
- 6.) Storm Sewers, Fiber, Telephone, Cable, And/Or Electric May Alternatively Be Placed In Public Easements Outside Of The Right-Of-Way To Facilitate Site Drainage And Overall Utility Layout. Utilities Other Than Storm Sewers Shall Not Be Placed In Drainage Swales.
- 7.) The Sanitary Sewer Shall Have A 10' Dedicated Easement, Centered On The Sanitary Sewer. Sanitary Structures Shall Be Placed A Maximum 10 Feet From The Back of Curb And The Top Of Manhole Casting Shall Match The Sidewalk Elevation.
- 8.) All Concrete, Asphalt, And Aggregate Materials Shall Be Produced And/Or Supplied From An INDOT Approved Source And Meet INDOT Specifications. Variance From INDOT Specifications May Only Be Done So When Directed By The City Engineer.
- 9.) Street Lights And Street Trees Shown Herein Are Conceptual Only And Based Upon The City Of Shelbyville Unified Development Ordinance. Street Lights and Street Trees Shall Be Located To Avoid Conflicts With All Utilities. Potential Damage To Utilities, Sidewalks, Curbs, Or Other Infrastructure Shall Be Considered When Selecting Street Tree Species. The City Reserves The Right To Remove Any Street Tree Or Street Light Placed Within The Right-Of-Way That Is Deemed By The City To Pose A Threat To Any Infrastructure Or Utility. The City Of Shelbyville Shall Not Be Liable For Replacement Of Or Compensation For Any Street Light Or Street Tree That Is Removed From The Right-Of-Way, Whether Or Not Such Street Light Or Street Tree Is In Compliance With The Unified Development Ordinance.
- 10.) City Is Not Responsible For Maintaining, Repairing, Or Replacing Non-Public Infrastructure Within Right-Of-Way. Non-Public Infrastructure Includes, But Is Not Limited To, The Following: Landscaping, Irrigation Systems, Pet Containment Systems, And/Or Fences.
- 11.) Any Work Within The Rights-Of-Way Or Public Easements Shall Obtain The Appropriate Permits From The Engineering Department. Failure To Obtain The Proper Permits As Required May Result In Penalties As Provided In City Ordinance 10.99. See General Note #2 on Sheet 1.

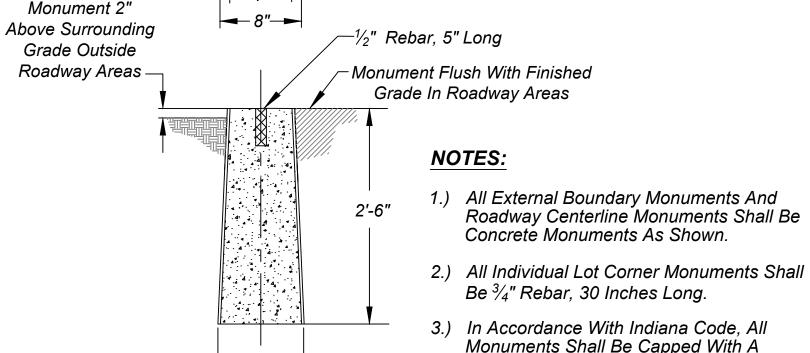




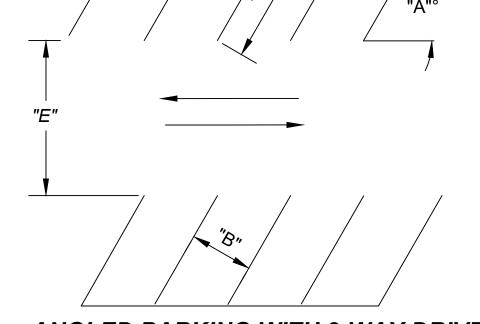
RIGHT-OF-WAY, SITE DEVELOPMENT STANDARDS

CITY OF SHELBYVILLE

SHEET



Substantial, Durable Plastic Or Metal Cap Permanently Affixed Showing The Registered Land Surveyor's Identification Information. **MONUMENT DETAIL** Scale: None



# Scale: None

#### **PARKING STANDARDS:**

#### **PAVEMENT CONSTRUCTION**

#### **GENERAL NOTES**

- 1.) The Pavement Construction Details Shown On This Sheet Are Minimum Standards Required By the City of Shelbyville.
  The City Engineer Or Street Commissioner May Require A Modified Pavement Design Based On Site Conditions Or
  Traffic Volumes. Geotchnical Testing Shall Be Required For Arterials And Non-Residential Collectors.
- 2.) The Roadway Pavement Cross Section Shall Be Completed Within 60 Calendar Days From The Start Of The Subgrade Treatment. For Flexible Pavements, The Surface Asphalt Course May Be Placed More Than 60 Calendar Days After Subgrade Treatment, But Shall Be Placed Within Two Calendar Years Of Placement Of Asphalt Intermediate Course, Except When Approved Otherwise By The City Engineer And/Or Street Commissioner. Surface Asphalt Installed After Any Delay Shall Have Tack Coat Placed Prior To Installation.
- 3.) All Concrete, Asphalt, And Aggregate Materials Shall Be Produced And/Or Supplied From An INDOT Approved Source And Meet INDOT Specifications. Variance From INDOT Specifications May Only Be Done So When Directed By The City Engineer.
- 4.) Pervious Pavements May Be Used In Parking Lots, Private Driveways, Private Local Streets, And Other Areas Not To Be Dedicated For City Rights-Of-Way Or Easements. Pervious Pavements Shall Be Designed And Constructed In Accordance With Current Industry Standards. Owner(s) Shall Be Responsible For All Maintenance Of Pervious Pavements.

#### SUBBASE AND SUBGRADE REQUIREMENTS

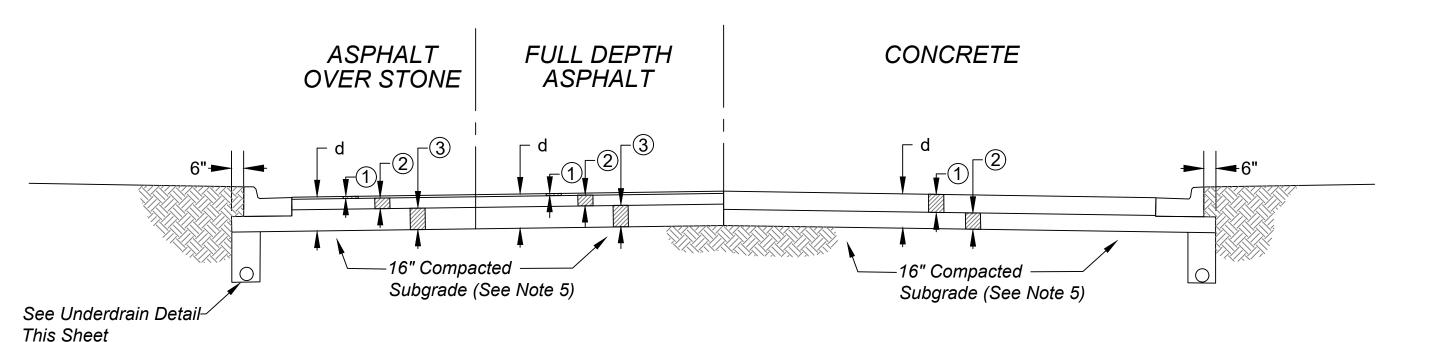
- 5.) Subbase And Subgrade Shall Be Compacted To At Least 100 Percent Of The Maximum Dry Density, At Optimum Moisture Content In Accordance With A.A.S.H.T.O. T99 To A Minimum Depth Of 16 Inches For All Local Streets And 24 Inches For All Collector And Arterial Streets. Compaction Tests Shall Be At The Contractor's Expense And Shall Be Performed By An Independent Laboratory. Test Results Shall Be Submitted To The Shelbyville City Engineer And Street Commissioner Prior To Placing Any Material On The Subbase Subgrade. One In-Place Density Test Shall Be Completed For Each Lift For Every 400 Linear Feet Of Traffic Lanes. One Lift Of Structural Fill Shall Not Be More Than 6 Inches In Thickness. At The Discretion Of The City Engineer Or The Street Commissioner, The Compaction Testing May Be Waived And The Adequacy Of Subbase And Subgrade Shall Be Determined Solely By Either The Shelbyville City Engineer Or Street Commissioner Based On A Contractor Performed Proof-Roll With A Fully Loaded Tri-Axle Dump Truck. The Type Of Compacted Crushed Aggregate Base Or Subbase Shall Be In Accordance With The Most Recent INDOT Standard Specifications For Aggregates (Section 904). Coarse Aggregate Shall Not Be Placed On Frozen Subbase Or Subgrade.
- 6.) Proof Roll Tests Shall Be Passed Prior To Placement Of Underdrains And First Lift Of Roadway Base Material. Proof Roll Tests Shall Not Be Conducted On Frozen Subgrade. The Temperature For The Previous 72 Hours Prior To The Proof Roll Test Shall Be Above 32°F. Subgrade Shall Be Free From Excess Moisture. If It Rains After A Proof Roll, The Contractor Is Required To Perform Another Proof Roll.
- 7.) Areas In Which Failures Occur During Proof Roll Test Are To Be Marked In The Field By The City Of Shelbyville. Failures Shall Be Corrected And Retested Until Passing Inspection.
- 8.) The City Engineer And/Or Street Commissioner May Require Additional Measures If Subgrade Or Subbase Is Determined To Be Inadequate. Contractor Shall Take Measures To Ensure Adequate Subgrade And Subbase As Directed By The City Engineer And/Or Street Commissioner. Additional Measures May Include, But Are Not Limited To, One Or More Of The Following:
  - a. Chemical Modification Of Subgrade Soils
  - b. Excavation Of Unsuitable Material
  - c. Placement Of Tensar TX160 Geogrid d. Additional Compaction
  - e. Increase In Depth Of Aggregate Base
  - f. Modification Of Pavement Section
- 9.) If Deemed Necessary By The City Engineer And/Or Street Commissioner, Chemical Modification Of The Subgrade Soils Shall Be Performed In Accordance With INDOT Standard Specifications Section 215, Most Recent Version. The Depth Of Chemical Modification Shall Be To Minimum Depth Of 14 Inches. Following Soil Modification, Compaction Shall Be Performed Until The Modified Layer Has A Density Not Less Than 100% Of The Maximum Dry Density, Or The Zone Below The Modified Layer Has A Density Not Less Than 95% Of The Maximum Dry Density, At Optimum Moisture Content. Maximum Dry Densities Shall Be Determined In Accordance With INDOT Design Procedures For Soil Modification Or Stabilization. The Proposed Design And Construction Procedure For Modification Or Stabilization Shall Be Submitted To The City Engineer And Street Commissioner For Approval. If The City Engineer And/Or Street Commissioner Determine That The Soil Modification Is Unsatisfactory, Contractor Shall Take Additional Measures At The Direction Of The City Engineer And/Or Street Commissioner As Stated In Note 6 On This Sheet.
- 10.) Compaction And Testing For Aggregate Base Lifts Shall Meet The Requirements Set Forth For Subbase And Subgrade In Notes 5.6.7. And 8 On This Sheet.

#### FLEXIBLE PAVEMENT REQUIREMENTS

- 11.) Specifications For Asphalt Paving Operations, Placement Methods, And Weather Limitations Shall Conform To The Most Current INDOT Specifications Sections 402. The Contractor Shall Be Responsible For All Aspects Of Process Control Of The Mixtures Insuring They Meet All Other Requirements Of The INDOT Standard Specifications. All Test Data Shall Be Submitted To The City Engineer And Street Commissioner For Review.
- 12.) Tack Coat Shall Be Placed In Accordance With The Most Recent INDOT Standard Specifications For Asphalt Pavements.
- 13.) Roadways Which Have Exposed Milled Areas Shall Place And Compact Temporary Asphalt Pavement, Cold Mix Or Hot Mix, At The Milled Joints To Smooth The Transition Between The Milled Surface And Unmilled Surface.

#### RIGID PAVEMENT REQUIREMENTS

- 14.) Specifications For Portland Cement Concrete Pavement (PCCP) Paving Operations, Placement Methods, And Weather Limitations Shall Conform To The Most Current INDOT Specifications Section 502. The Conractor Shall Be Responsible For All Aspects Of Process Control Of The Mixtures Insuring They Meet All Other Requirements Of The INDOT Standard Specifications. All Test Data Shall Be Submitted To The City Engineer And Street Commissioner For Review.
- 15.) All PCCP Pavement Shall Be Cured With An Approved White Pigmented Liquid Membrane Forming Compound In Accordance With INDOT Standard Specifications 501.20 and 504, Most Recent Version.
- 16.) For Cold-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 306R For Protection From Physical Damage Or Reduced Strength. For Hot-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 305R For Protection From Physical Damage Or Reduced Strength, As Associated With Rapid Moisture Loss.
- 17.) Wherever Rigid Pavement Is To Be Used, The Contractor Shall Submit A Detailed Paving Plan To The City Engineer And/Or Street Commissioner For Approval. The Paving Plan Shall Show The Location And Type Of Jointing (Construction, Contraction, And Expansion Joints) To Be Used In The Construction. The Location And Type Of Jointing Shall Meet The Requirements Of The Most Recent INDOT Standard Details And Specifications.
- 18.) For Local Residential Streets And Parking Lots With Concrete Pavement, 4 Inch Compacted INDOT No.8 Aggregate Base May Be Waived By The City Engineer And/Or Street Commissioner If Adequate Subgrade Is Present. Adequacy Of Subgrade Shall Be Determined Solely By The City Engineer And/Or Street Commissioner Based On A Contractor Performed Proof-Roll With A Fully Loaded Tri-Axle Dump Truck.



#### LOCAL RESIDENTIAL STREETS

#### ASPHALT OVER STONE

- $d = 13\frac{1}{2}$ "
- 1 1 ½" HMA Surface Type B (165 #/SY)
- 2 4" HMA Intermediate Type B (440 #/SY)
- 3 8" Compacted INDOT No. 53 Crushed Aggregate Base (2 Lifts)

#### FULL DEPTH ASPHALT

- $d = 9\frac{1}{2}$ "
- 1  $\frac{1}{2}$ " HMA Surface Type B (165 #/SY)
- ② 3" HMA Intermediate Type B (330 #/SY)
- ③ 5" HMA Base Type B (550 #/SY)

#### CONCRETE

- d = 10"
- ① 6" Concrete Pavement
- ② 4" Compacted INDOT No.8 Crushed Aggregate Base

#### RESIDENTIAL COLLECTOR AND NON-RESIDENTIAL LOCAL STREETS

#### ASPHALT OVER STONE

- $d = 16\frac{1}{2}$ "
- 1 1 ½" HMA Surface Type B (165 #/SY)
- 2) 3" HMA Intermediate Type B (330 #/SY) Over 4" HMA Base Type B (440 #/SY)
- 3 8" Compacted INDOT No. 53 Crushed Aggregate Base (2 Lifts)

#### FULL DEPTH ASPHALT

- d = 12"
- (1)  $1\frac{1}{2}$ " HMA Surface Type B (165 #/SY)
- ② 3" HMA Intermediate Type B (330 #/SY)
- (3) 3½" HMA Base Type B (385 #/SY) Over 4" HMA Base Type B (440 #/SY)

#### CONCRETE

- d = 11"
- 7" Concrete Pavement
- 2 4" Compacted INDOT No. 8 Crushed Aggregate Base

#### NON-RESIDENTIAL COLLECTOR AND ARTERIAL STREETS

#### ASPHALT OVER STONE

- $d = 17\frac{1}{2}$ "
- 1  $\frac{1}{2}$ " HMA Surface Type C (165 #/SY)
- 2 3" HMA Intermediate Type C (330 #/SY) Over 5" HMA Base Type C (550 #/SY)
- 3 8" Compacted INDOT No. 53 Crushed Aggregate Base (2 Lifts)
  INDUSTRIAL STREETS

#### FULL DEPTH ASPHALT

- d = 13"
- 1 1½" HMA Surface Type C (165 #/SY)
- 2 3" HMA Intermediate Type C (330 #/SY)
- 3 4" HMA Base Type C (440 #/SY) Over  $4\frac{1}{2}$ " HMA Base Type C (495 #/SY)

#### RURAL STREETS

To Be Determined By The City Based Upon Traffic Volume, Street Design Speed, And Soil Conditions

#### CONCRETE

- d = 12"
- 1 8" Concrete Pavement
- 2 4" Compacted INDOT No. 8 Crushed Aggregate Base

**PARKING LOTS** 

Design Professional Shall Design Pavement Sections For Parking Lots Based On Site Subgrade Conditions, Use, And Expected Loading. Parking Lot Pavement Design Shall Be Subject To Approval By The City Engineer. At Minimum, Parking Lot Pavement Sections Shall Meet The Following Criteria:

LIGHT (General Car & Light Truck Parking):

1  $\frac{1}{2}$  " HMA Surface Type B Over 2" HMA Intermediate Type B Over 6" Compacted Aggregate #53

MEDIUM (Access Roads & Drives, Store Frontage, Fuel/Service Stations):

HEAVY (Truck Loading Areas, Heavy Truck Parking, Warehouse And Industrial Areas):

Conditions

To Be Determined By The City

Street Design Speed, And Soil

Based Upon Traffic Volume,

Same Criteria As Local Residential Streets

Same Criteria As Arterial Streets

II C

INDOT #8 Crushed Stone
Or INDOT #8 Fractured
Face Aggregate

6" Min. Dia Perforated
Plastic Pipe As Per
INDOT Spec 715.02(d)
W/ Fabric Sock

4" (Min.)

INDOT #53 Compacted
Aggregate Base Or
HMA Base

(Min.)

1% Min : 2% Max

**CROSS-SECTION** 

Concrete

Dumpster

Single=12' Clearance

Double=19' Clearance

**PLAN** 

2.) Concrete Pad Shall Be Reinforced With 6x6wwf Or #5 Bars @ 18" O.C. If

CONCRETE DUMPSTER PAD DETAIL

1.) Screening Shall Meet All Requirements Set Forth

Top Of Curb

4" Topsoil

In The Unified Development Ordinance.

Deemed Necessary By The City Engineer.

Screening

6" Of 4000 PSI Concrete

4" Of Compacted

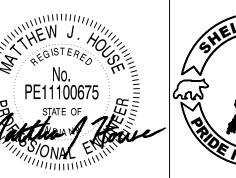
Aggregate Base

**NOTES:** 

INDOT No. 53

UNDERDRAIN DETAIL
Scale: None

Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	References To New UDO, Revised Underdrain Detail, Added Rural Section	01/10/2014
3	Updated Entire Set	02/11/2020





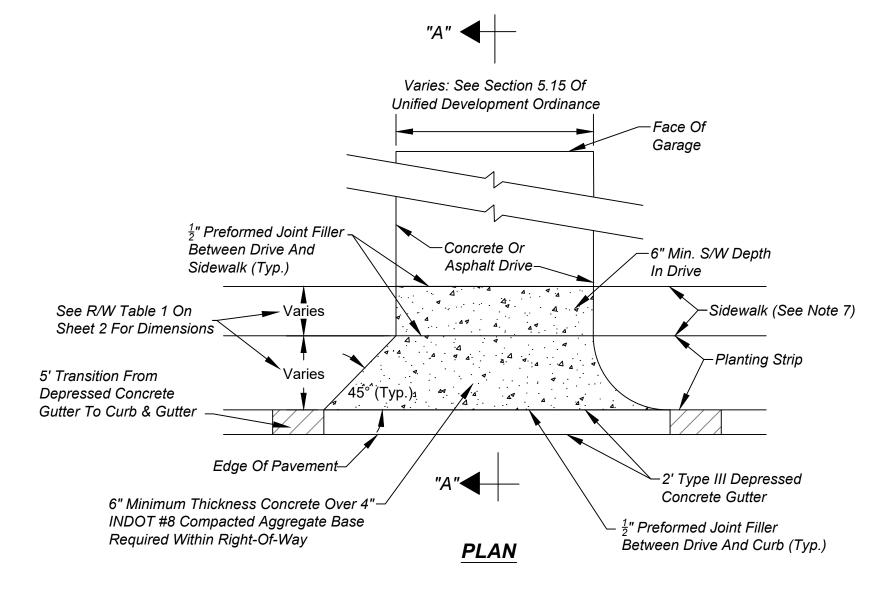
CITY OF SHELBYVILLE

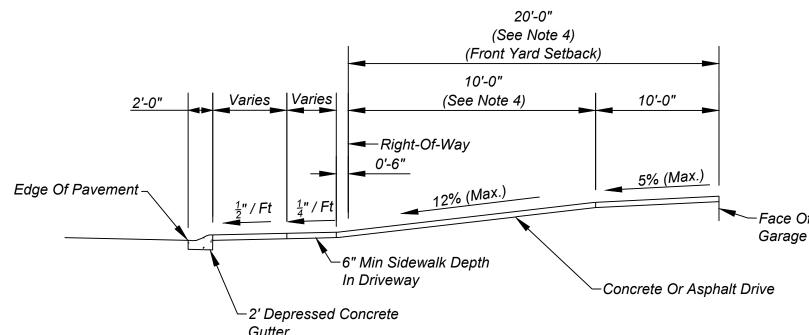
PAVEMENT DETAILS
AND NOTES

SHEET 4 OF 18

Concrete Curb & Gutter

Pavement





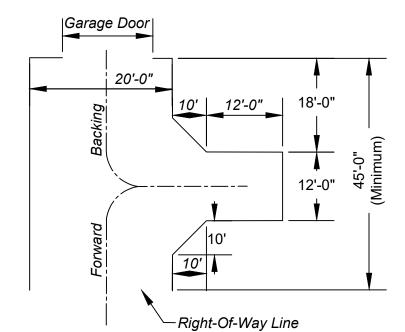
TYPICAL SUBDIVISON RESIDENTIAL PRIVATE DRIVE

Scale: None

**SECTION A-A** 

#### RESIDENTIAL DRIVES NOTES

- 1.) The Maximum Algebraic Difference In Grades For Any 10 Foot Interval Shall Not Exceed 8% For Crest Vertical Curves, Nor 10% For Sag Vertical Curves.
- 2.) Frontage Of All Lots Shall Drain To Adjacent Streets Unless Otherwise Approved By The City Engineer.
- 3.) Concrete Drives Require Control Joints At A Maximum Of Every 10 Feet Each Way.
- 4.) Use Actual Setback As Shown On Plat And As Provided By The City Of Shelbyville Unified Development Ordinance.
- 5.) When A Private Drive Requires A Pipe To Ensure Proper Storm Drainage, The Pipe Shall Be Designed By A Registered Engineer Or Land Surveyor. The Pipe Shall Have End Sections At Both The Upstream And Downstream Ends. The Ends Of The Pipe Shall Extend A Minimum Of 4 Feet Beyond The Limits Of The Drive Surface. Minimum Pipe Size Shall Be 12 Inches.
- 6.) Concrete Drive Approaches Shall Be Constructed In Accordance With Sections 502 And 504 Of The Most Recent Version Of The Indiana Department Of Transportation Standard Specifications.
- 7.) Refer To Sheet 2 For Required Width Of Concrete Sidewalk
- 8.) Drives Shall Provide Positive Drainage Toward The Roadway. Slope Between The Curb And Sidewalk Shall Be Between 0.6% And 4%. Slope Along Sidewalk Shall Not Exceed 2% Per ADA Requirements. Slope Behind The Sidewalk Shall Be Between 1%
- 9.) For Additional Driveway Specifications, See Sections 5.12 Through 5.15 Of The City Of Shelbyville Unified Development Ordinance.
- 10.) All Construction Within Public Right-Of-Ways Shall Comply With The Most Recent Version Of The Requirements Of The Americans With Disabilities Act (ADA). Construction Shall Meet The Standards Set Forth In The Current ADA Accessibility Guidelines (ADAAG) And Public Right-Of-Ways Guidelines (PROWAG).



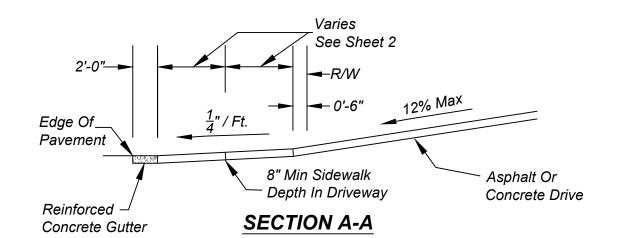
#### PRIVATE DRIVE TURN AROUND:

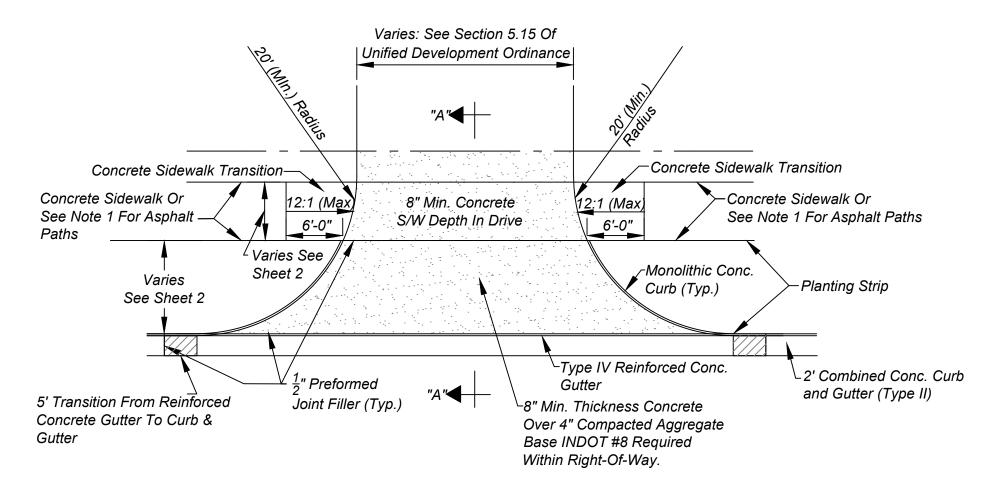
- 1.) Any Residential Lot That Fronts Onto A Road Classified As Either A Collector Or An Arterial Roadway Shall Have A Private Drive Turn
- 2.) See The Typical Subdivision Private Drive Detail On This Sheet For Additional Drive Requirements.

STRAIGHT IN - BACK OUT

#### PRIVATE DRIVE TURN-AROUND

Scale: None

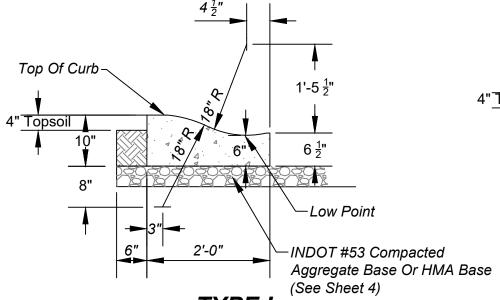




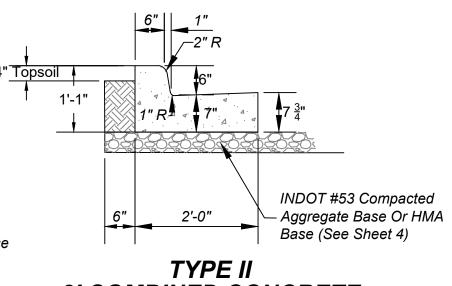
#### TYPICAL COMMERCIAL PRIVATE DRIVE Scale: None

#### COMMERCIAL PRIVATE DRIVE NOTES

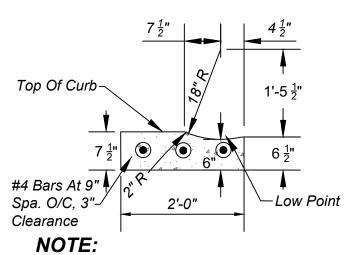
- 1.) Asphalt Path Terminations Within The Public Right-Of-Way At Commercial Drives, Private Drives, Or Approaches Shall Be Accomplished With A 6' Minimum Length Of Concrete Sidewalk Transition (Increased Length Of Concrete Sidewalk Transition As Required To Meet The 12:1 Maximum Slope Requirement) So That The Asphalt Path Meets The Concrete Sidewalk Transition At A Neat Line Perpendicular To The Path Alignment.
- 2.) The Maximum Algebraic Difference In Grades For Any 10 Foot Interval Shall Not Exceed 8% For Crest Vertical Curves Nor 10% For Sag Vertical Curves.
- 3.) Concrete Drives Require Control Joints At A Maximum Of Every 10 Feet Each Way.
- 4.) Use Actual Setback As Shown On Plat And As Provided By The City Of Shelbyville Unified Development Ordinance.
- 5.) When A Private Drive Requires A Pipe To Ensure Proper Storm Drainage, The Pipe Shall Be Designed By A Registered Engineer Or Land Surveyor. The Pipe Shall Have End Sections At Both The Upstream And Downstream Ends. The Ends Of The Pipe Shall Extend A Minimum Of 4 Feet Beyond The Limits Of The Drive Surface. Minimum Pipe Size Shall Be 12 Inches.
- 6.) Concrete Drive Approaches Shall Be Constructed In Accordance With Sections 502 And 504 Of The Most Recent Version Of The Indiana Department Of Transportation Standard Specifications.
- 7.) Drives Shall Provide Positive Drainage Toward The Roadway. Slope Between The Curb And Sidewalk Shall Be Between 0.6% And 4%. Slope Along Sidewalk Shall Not Exceed 2% Per ADA Requirements. Slope Behind The Sidewalk Shall Be Between 1% And 12%.
- 8.) For Additional Driveway Specifications, See Sections 5.12 Through 5.15 Of The City Of Shelbyville Unified Development Ordinance.
- 10.) All Construction Within Public Right-Of-Ways Shall Comply With The Most Recent Version Of The Requirements Of The Americans With Disabilities Act (ADA). Construction Shall Meet The Standards Set Forth In The Current ADA Accessibility Guidelines (ADAAG) And Public Right-Of-Ways Guidelines (PROWAG).



#### TYPE I 2' CONCRETE ROLL CURB & GUTTER (RESIDENTIAL STREETS ONLY) Scale: None

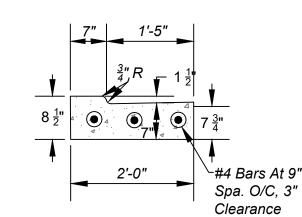


2' COMBINED CONCRETE **CURB & GUTTER** Scale: None



Depressed Reinforced Concrete Gutter Is Reg'd At All Private Drives That Intersect A Public Road With Type I 2' Concrete Roll Curb And Gutter Or Similar, When Type I Curb Is To Be Depressed.

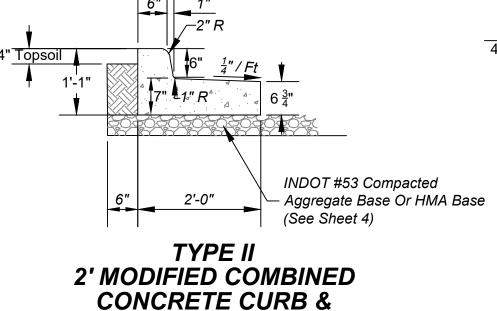
#### TYPE III 2' DEPRESSED REINFORCED **CONCRETE GUTTER** Scale: None

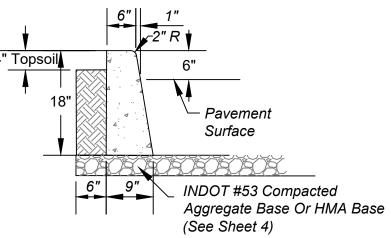


#### NOTE:

Truncated Reinforced Concrete Gutter Is Reg'd. At All Private Drives That Intersect A Public Road With Type II 2' Combined Concrete Curb And Gutter Or Similar

#### TYPE IV 2' TRUNCATED REINFORCED **CONCRETE GUTTER** Scale: None





TYPE V 18" BOX CURB WITH 6" FACE Scale: None

#### **CURB & GUTTER CONSTRUCTION NOTES**

REVERSE GUTTER

Scale: None

- 1.) Removal And Replacement Of Existing Curb Shall Begin And End At The Nearest Joint.
- 2.) At The Point Where A Curb Ends, A 5 Ft. Transition Taper Down To Edge Of Pavement Grade Shall Be Constructed.
- 3.) Concrete Curbs Shall Be Constructed In Accordance With The Most Recent Version Of INDOT Standard Specifications Section 605. Control Joints Shall Be Spaced Maximum 10 Ft. Apart. Saw Cuts Or Tooled Joints Shall Be Vertical And Neat.
- 4.) For Cold-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 306R For Protection From Physical Damage Or Reduced Strength. For Hot-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 305R For Protection From Physical Damage Or Reduced Strength, As Associated With Rapid Moisture Loss.
- 5.) If Any Curb With Lettering Showing The Location Of A Utility Service Line (S,W,G,Etc.) Is Removed, Such Lettering Shall Be Placed In The New Curb At The Same Location As The Corresponding Utility Service Line. See Note 6 On Sheet 13.
- 6.) All Construction Within Public Right-Of-Ways Shall Comply With The Most Recent Version Of The Requirements Of The Americans With Disabilities Act (ADA). Construction Shall Meet The Standards Set Forth In The Current ADA Accessibility Guidelines (ADAAG) And Public Right-Of-Ways Guidelines (PROWAG).

	REVISIONS	
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	ADA Compliance Notes, References To New UDO	01/10/2014
3	Updated Entire Set	02/11/2020





CITY OF SHELBYVILLE

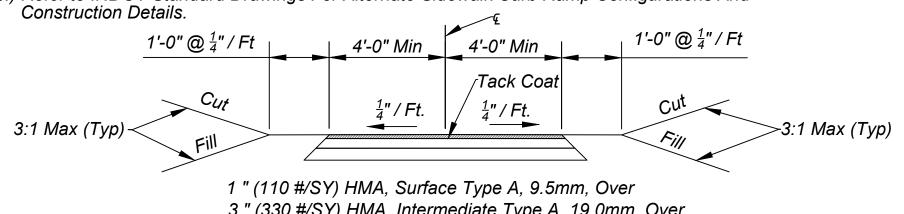
CURB AND DRIVEWAY DETAILS AND NOTES

#### SIDEWALK CONSTRUCTION

- 1.) Care Shall Be Taken To Assure A Uniform Grade On All Ramps With No Grade Breaks.
- 2.)  $\frac{1}{2}$ " Preformed Joint Filler Shall Be Incorporated At A Maximum Spacing Of 48 Feet Of Walk And When Abutting Concrete Curbs, Structures, Walls, Or Other Fixed Objects.
- 3.) Surface Texture Shall Be Obtained By A Coarse Brooming, Transverse To The Profile Of The Sidewalk.
- 4.) Distance Between Contraction Joints Shall Be Consistent Between Driveways.
- 5.) All Concrete Sidewalks Shall Be 4" Thick, Except At Residential Drive Crossings Where The Minimum Thickness Shall Be 6". At Commercial Drives, The Concrete Sidewalk Thickness Shall Be
- 6.) Concrete Sidewalks Shall Be Constructed In Accordance With The Latest Version Of INDOT Specifications Section 604. Sawcuts Or Tooled Joints Shall Be Uniform, Vertical, And Neat.
- 7.) A Minimum Of 4" Thick Compacted Granular Base Or 4" Pea Gravel Bed Shall Be Placed Prior To The Construction Of The Sidewalk. Subgrade Should Be Compacted With Plate Compactor. Any Utility Trenches Should be Backfilled And Compacted Per City Standards.
- 8.) Sidewalk Longitudinal Grade Shall Be Within ± 1% Of The Adjacent Roadway's Longitudinal Grade Except At Curb Ramps.
- 9.) For Cold-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 306R For Protection From Physical Damage Or Reduced Strength. For Hot-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 305R For Protection From Physical Damage Or Reduced Strength, As Associated With Rapid Moisture Loss.
- 10.) All Sidewalks Within Public Right-Of-Ways Shall Comply With The Most Recent Requirements Of The Americans With Disabilities Act (ADA). Sidewalks Shall Meet The Standards Set Forth In The Current ADA Accessibility Guidelines (ADAAG) And Public Right-Of-Ways Guidelines (PROWAG).

#### ADA SIDEWALK CURB RAMP CONSTRUCTION

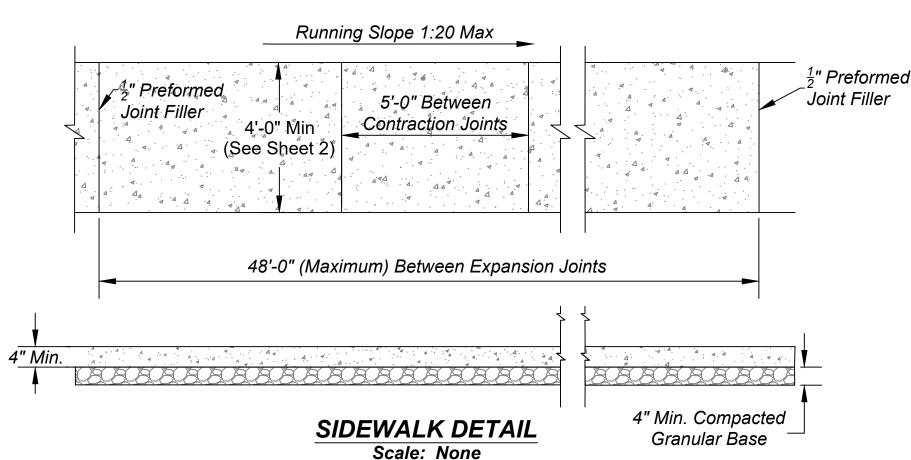
- 1.) All ADA Sidewalk Curb Ramps Shall Comply With The Most Recent Requirements Of The Americans With Disabilities Act (ADA). ADA Ramps Shall Meet The Requirements Set Forth In The Current ADA Accessibility Guidelines (ADAAG) And Public Right-Of-Ways Guidelines (PROWAG). All Ramps Shall Comply With The Most Recent INDOT Standard Specifications And The City Of Shelbyville's Most Recent Standards. Curb Swipes Required For Curb Ramps Shall Be Provided At Time Of Initial Construction.
- 2.) Minimum Width Of Curb Ramp Shall Be 4 Feet Or Match Sidewalk Width. Whichever Is Greater, Not Including Flares. Maximum Vertical Slope Of Ramps Shall Be 12:1. Maximum Horizontal Slope Shall Be 50:1.
- 3.) ADA Curb Ramps Shall Be Located As Shown On The Plans Or As Directed By The City Engineer Or Street Commissioner.
- 4.) Type C Ramps Shall Be Provided Adjacent To Each Point Of Tangency At All Corners Of Every Street Intersection Where There Is An Existing Or Proposed Sidewalk And Curb. In Case Of "T"-Intersection, A Type C Ramp Shall Be Provided Adjacent To Each Corner Ramp. Type C Ramps Also Shall Be Provided At Walk Locations At Mid-Block In Vicinity Of Hospitals, Medical Centers Or Athletic Stadiums. The Use Of Details Contrary To Those Shown Hereon Shall Require The Prior Written Approval Of The City.
- 5.) Ramps Shall Direct Pedestrians Perpendicularly Across Roadway To Another Ramp. Where A Ramp Abuts A Roadway, The Ramp Elevation Should Be Flush With The Roadway With No "Lip".
- 6.) Surface Texture Of The Ramp Shall Be That Obtained By A Coarse Brooming Transverse To The Slope Of The Ramp.
- 7.) Ramps Shall Be Provided On Both Sides Of A Driveway Whenever A Curbed Driveway Crosses A Sidewalk.
- 8.) Care Shall Be Taken To Assure A Uniform Grade On All Ramps With No Breaks In Grade.
- 9.) Drainage Structures Shall Not Be Placed In Line With The Ramps Except Where Existing Drainage Structures Are Being Utilized In The New Construction. Location Of The Ramps Shall Take Precedence Over Location Of Drainage Structures.
- 10.) The Normal Gutter Line Profile Shall Be Maintained Through The Area Of The Ramp.
- 11.) The Expansion Joint For The Ramp Shall Be A Maximum  $\frac{1}{2}$ " Wide. The Top Of The Joint Filler For All Ramp Types Shall Be Flush With Adjacent Concrete.
- 12.) Crosswalk And Stop Line Marking, When Used, Shall Be So Located As To Stop Traffic Short Of Ramp Crossing.
- 13.) Slope Of Ramp May Be Warped Only When Field Conditions Warrant And When Approved By The City Engineer Or Street Commissioner.
- 14.) Sidewalk Ramps Shall Not Be Constructed Within Any Portion Of A Driveway.
- 15.) Items On This Sheet Shall Be Constructed In Accordance With Sections 604 And 605 Of The Most Current Indiana Department Of Transportation Standard Specifications
- 16.) Refer to INDOT Standard Drawings For Alternate Sidewalk Curb Ramp Configurations And

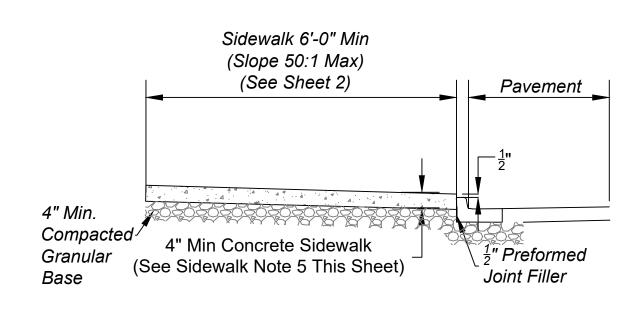


3 " (330 #/SY) HMA, Intermediate Type A, 19.0mm, Over 4" Compacted INDOT #53 Crushed Aggregate Base

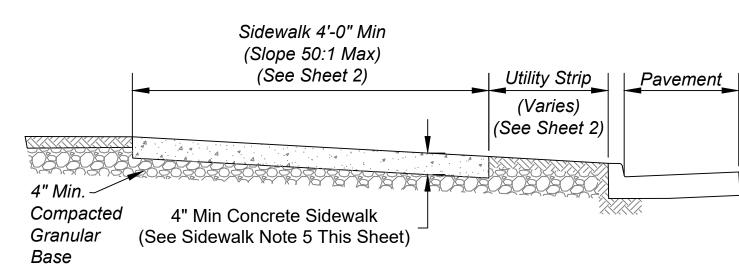
TYPICAL ASPHALT PATH CROSS SECTION

Scale: None

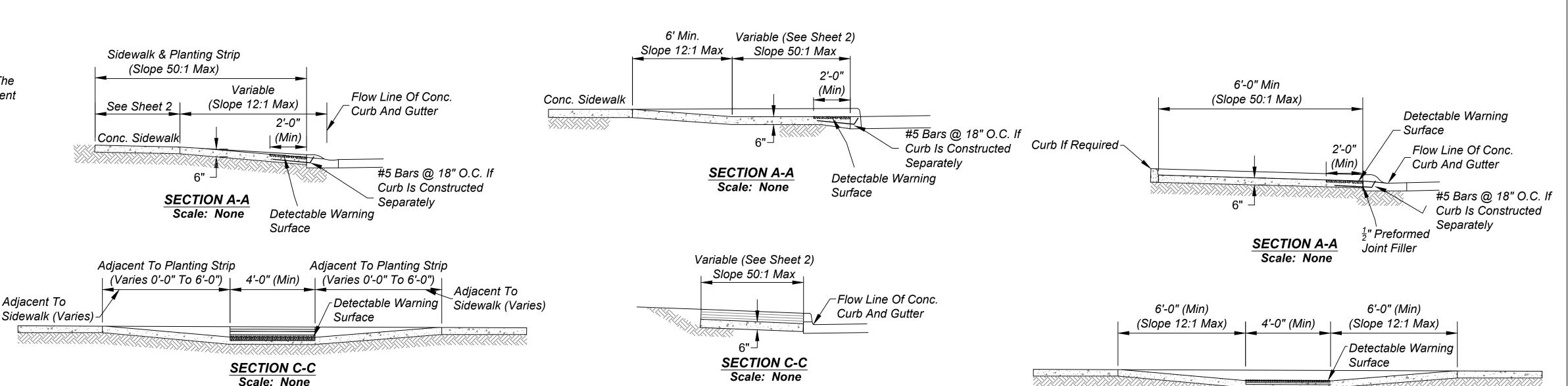


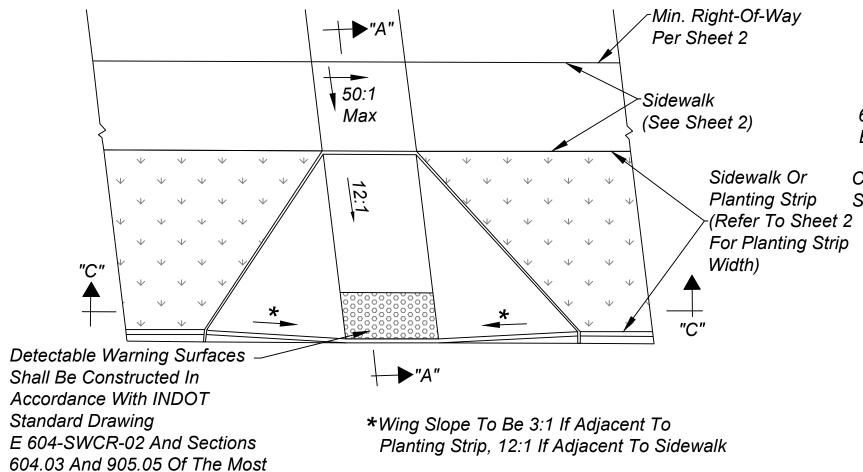


#### SECTION THROUGH SIDEWALK ADJACENT TO CURB Scale: None



SECTION THROUGH SIDEWALK WITH UTILITY STRIP Scale: None





CURB RAMP TYPE C

Scale: None

Recent INDOT Standard

Warnins Are Not Permitted.

Specifications. Brick Detectable

4' (Min) Landing Area With Coarse Concrete √Broomed Finish ∿ Sidewalk 6' (Min) Ramp With Coarse Broomed Finish (Slope 12:1) Concrete Sidewalk (Min) Ramp With Coarse Broomed Finish (Slope 12:1) Detectable Warning Surfaces Shall Be Constructed In Accordance With INDOT Standard Drawing E 604-SWCR-02 And Sections 604.03 And 905.05 Of The Most Recent INDOT Standard Specifications. Brick CURB RAMP TYPE H

Detectable Warnings Are Not

Permitted.

4' (Min) Landing Area With Curb If Required Coarse Broomed Finish 6' (Min) Ramp With Coarse ∕-6' (Min) Ramp With Coarse Broomed Finish (Slope 12:1)7 Broomed Finish (Slope 12:1) 6'-0" Min Concrete Sidewalk Detectable Warning Surfaces Shall Be Constructed In Accordance With INDOT Standard Drawing E 604-SWCR-02 And Sections 604.03 And 905.05 Of The Most Recent INDOT Standard Specifications. Brick Detectable Warnings Are Not Permitted.

**SECTION C-C** 

Scale: None

Type H Ramps Are Not Permissible Unless Approved By City Engineer. Ramps At An Intersection Should Be Two Type C Ramps

Scale: None

**REVISIONS** Rev. No. **Description** Date 07/26/2011 **Entire Set** 01/10/2014 ADA Compliance Notes, Revised Asphalt Path X-Sec 2 Updated Entire Set 02/11/2020 3





CITY OF SHELBYVILLE

**CURB RAMP TYPE K** 

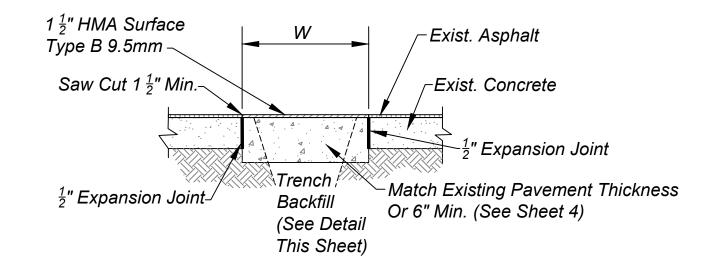
Scale: None

SIDEWALK AND ADA RAMPS DETAILS AND NOTES

0 18

#### **GENERAL NOTES:**

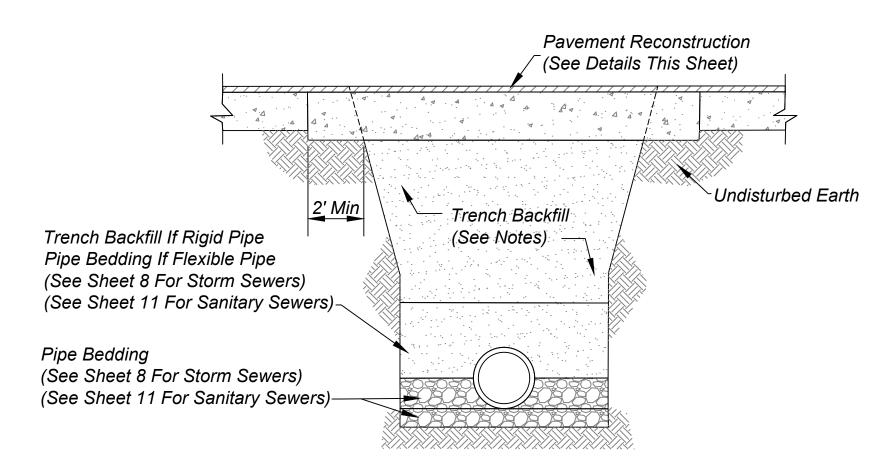
- 1.) The Contractor Shall Notify The City Of Shelbyville At Least 24 Hours Prior To Beginning Backfill Or Excavation. If The Permanent Patch Placement Is To Be A Separate Operation, The Contractor Shall Also Notify The City Of Shelbyville 24 Hours Prior To Placement Of Patch.
- 2.) The Contractor Shall Be Responsible For Maintaining And Repairing
  Any And All Open Cuts Permitted Within The City Of Shelbyville
  Right-Of-Way For A Period Of One Year Upon Final Acceptance By The
  City.
- 3.) Saw Cut Existing Pavement So That Cut Provides A Square, Vertical, Neat And Uniform Edge. Jagged Or Irregular Saw Cuts Are Not Permitted And Shall Be Repaired By The Contractor At No Cost To The City.
- 4.) All Materials Shall Comply With Specifications As Required By The Shelbyville Department Of Engineering.
- 5.) The New Surface Pavement Grade Shall Match The Existing Surface Pavement Grade For All Street Cuts.
- 6.) Trench Backfill And Pavement Restoration Shall Be Conducted In An Expedient Manner.
- 7.) Prior to Conducting Any Work Within The City Of Shelbyville Right-Of-Way, Contractor Shall Secure A Right-Of-Way Permit From The City Of Shelbyville Engineering Department. See General Note 2 On Sheet 1.



#### NOTES:

- 1.) Specifications For Portland Cement Concrete Pavement (PCCP) Paving Operations, Placement Methods, And Weather Limitations Shall Conform To The Most Current INDOT Specifications Section 502. The Contractor Shall Be Responsible For All Aspects Of Process Control Of The Mixtures Insuring They Meet All Other Requirements Of The INDOT Standard Specifications. All Test Data Shall Be Submitted To The City Engineer And Street Commissioner For Review When Required.
- 2.) For Cold-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 306R For Protection From Physical Damage Or Reduced Strength. For Hot-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 305R For Protection From Physical Damage Or Reduced Strength, As Associated With Rapid Moisture Loss.
- 3.) Contractor Shall Contact The Shelbyville Department Of Engineering To Determine If Anchors Or Dowels Are Required On Existing Concrete Pavement Repairs.
- 4.)  $A^{\frac{1}{2}}$  Expansion Joint Shall Be Placed Against Existing Concrete On Both Sides Of Trench. Joint Shall Be Sealed With Crack Sealant (See Note 7).
- 5.) The Concrete Pavement And The Existing Vertical Edge Of Pavement Shall Be Tack Coated Prior To The Placement Of New Asphalt. Tack Coat Shall Be Applied In Accordance With The Most Recent INDOT Standard Specifications.
- 6.) The New Surface Pavement Grade Shall Match The Existing Surface Pavement Grade.
- 7.) A 2 Inch Wide Band Of Crack Sealant Shall Be Applied Along The Joint Between The Existing And New Asphalt Surface. Sealant Shall Be Applied In Accordance With The Most Recent INDOT Standard Specifications, Section 408.

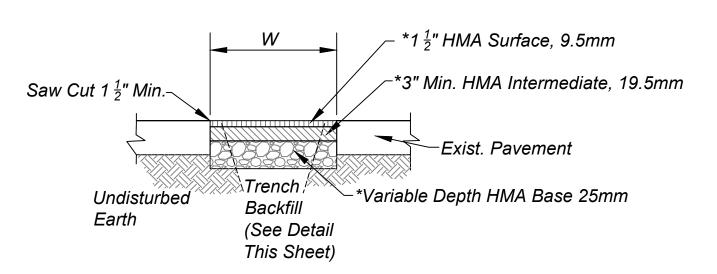
CONCRETE WITH BITUMINOUS
SURFACE PATCH STREET CUT DETAIL
Scale: None



#### NOTES:

- 1.) Trench Spoils Shall Be Removed From The Work Site And Disposed Of Out Of The Right-Of-Way.
- 2.) Whenever A Trench Opening Encroaches Within 5 Ft. Of An Existing Collector Or Arterial Street, Flowable Fill Shall Be Used For Trench Backfill.
- 3.) Whenever A Trench Opening Encroaches Within 5 Ft. Of A Proposed Collector Or Arterial Street, Flowable Fill Or Granular Backfill Shall Be Used For Trench Backfill.
- 4.) Whenever A Trench Opening Encroaches Within 5 Ft. Of An Existing Or Proposed Local Street, Alley, Private Drive, Or Sidewalk; Flowable Fill Or Granular Backfill Shall Be Used For Trench Backfill.
- 5.) Approved Excavated Material May Be Used For Backfill Outside Of Limits Specified Herein. Excavated Material Shall Be Free Of Organic Material, Rocks Larger Than 6 Inches, Frozen Material, Debris, Excessive Water, Or Other Unsuitable Material As Determined By The City Of Shelbyville.
- 5.) The City Engineer And/Or Street Commissioner Reserve The Right To Require Flowable Backfill When They Deem Necessary.
- 7.) Flowable Fill, When Used, Shall Be Mixed And Placed As Specified In The Latest INDOT Standard Specifications, Section 213.
- 8.) The Compressive Strength Of The Flowable Fill Shall Not Be Less Than 50 PSI Nor Greater Than 100 PSI At 28 Days.
- 9.) Whenever Granular Backfill Is Placed In A Trench, Contractor Shall Place And Compact Material In Lifts Not To Exceed 6 Inches In Thickness. Contractor Shall Compact Material To A Minimum Of 95% Maximum Dry Density, At Optimum Moisture Content, As Per AASHTO T99. The City Reserves The Right To Require Compaction Testing At Its Discretion By An Independent Testing Firm At The Contractor's Expense
- 10.) Whenever A Steel Plate Is Used To Cover A Trench, The Street Department Shall Be Immediately Notified.

TRENCH BACKFILL DETAIL
Scale: None



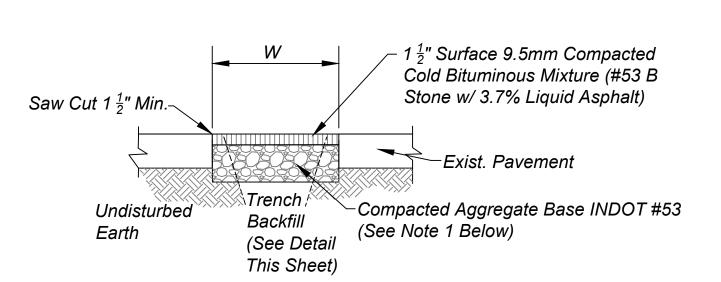
#### NOTES:

1.) HMA Type (A,B, or C) And Thickness Of HMA Base Layer Shall Be In Accordance With The Pavement Construction Details On Sheet 4 Based On Street Classification.

\*See Note 1 Below

- 2.) The Existing Vertical Edge Of Pavement Shall Be Tack Coated Prior To The Placement Of New Asphalt. Tack Coat Shall Be Applied In Accordance With The Most Recent INDOT Standard Specifications.
- 3.) The New Surface Pavement Grade Shall Match The Existing Surface Pavement Grade.
- 4.) A 2 Inch Wide Band Of Crack Sealant Shall Be Applied Along The Joint Between The Existing And New Asphalt Surface. Sealant Shall Be Applied In Accordance With The Most Recent INDOT Standard Specifications, Section 408.

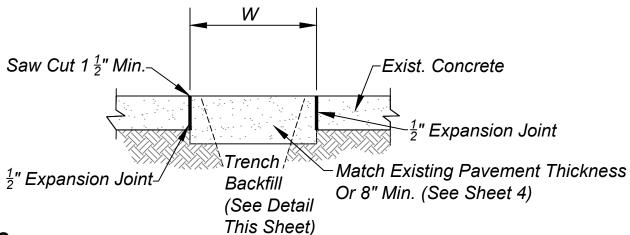
BITUMINOUS PATCH STREET CUT DETAIL Scale: None



#### **NOTES:**

- 1.) The Contractor Shall Reference Shelbyville Standard Cross-Section (Sheet 4) As To the Required Thickness Of The Compacted Aggregate Base.
- 2.) Temporary Repair Patch Is Required When Restoration Work Occurs Between November 15 And April 15, Or When Temperature Is Less Than 40 Degrees Fahrenheit.
- 3.) Contractor Shall Be Responsible For Maintenance And Repair Of Temporary Patch Until Permanent Patch Is Installed.

TEMPORARY REPAIR PATCH STREET CUT DETAIL Scale: None



#### **NOTES**

- 1.) Surface Of Repair Shall Be Broom Finished At Right Angles To Traffic Flow.
- 2.) Specifications For Portland Cement Concrete Pavement (PCCP) Paving Operations, Placement Methods, And Weather Limitations Shall Conform To The Most Current INDOT Specifications Section 502. The Contractor Shall Be Responsible For All Aspects Of Process Control Of The Mixtures Insuring They Meet All Other Requirements Of The INDOT Standard Specifications. All Test Data Shall Be Submitted To The City Engineer And Street Commissioner For Review When Required.
- 3.) For Cold-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 306R For Protection From Physical Damage Or Reduced Strength. For Hot-Weather Concrete Placement, Contractor Shall Comply With Provisions Of ACI 305R For Protection From Physical Damage Or Reduced Strength, As Associated With Rapid Moisture Loss.
- 4.) Contractor Shall Contact The Shelbyville Department Of Engineering To Determine If Anchors Or Dowels Are Required On Existing Concrete Pavement Repairs.
- 5.) A ½" Expansion Joint Shall Be Placed Against Existing Concrete On Both Sides Of Trench. Joints Shall Be Sealed With Concrete Joint Sealant In Accordance With INDOT Standard Specifications, Sections 503 And 906.

CONCRETE PATCH STREET CUT DETAIL (FOR CUTS WITHIN CONCRETE STREETS)

Scale: None

	REVISIONS	
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	Revised Trench Backfill Detail	01/10/2014
3	Updated Entire Set	02/11/2020





## TRENCH BACKFILL AND STREET CUT DETAILS AND NOTES

CITY OF SHELBYVILLE

— SHEET
7
OF
18

#### REINFORCED CONCRETE PIPE:

1.) Reinforced Concrete Pipe (RCP) Shall Be Class III, IV, or V As Specified In ASTM C-76.

DEPTH OF FILL OVER PIPE Between 2 Ft. And 10 Ft. Between 10 Ft. And 16 Ft. 16 Ft. Or Greater

2.) Reinforced Elliptical Concrete Pipe Shall Be Class HE-III Or HE-IV As Specified In ASTM C-507

DEPTH OF FILL OVER PIPE CLASS HE-III Between 2 Ft. And 10 Ft. HE-IV 10 Ft. And Greater

- 3.) All RCP Storm Sewer Pipe Shall Have A Minimum Of 2 Feet Of Cover Under Pavement And A Minimum 1.5 Feet Of Cover Outside Of Pavement. As Measured From The Top Of The Outside Of The Pipe To The Finished Grade.
- 4.) Lift Holes Are Not Allowed For Pipes Less Than 24 Inches In Diameter. A Maximum Of Two Lift Holes Are Allowed For Pipe 24 Inches In Diameter Or Larger. Lift Holes Shall Be Repaired According To The Most Recent INDOT Specifications.
- 5.) Fittings And Specialties Shall Be In Accordance With The Specifications For The Type Of Pipe Being
- 6.) Each Pipe Section Shall Be Marked With Date Of Manufacture, Size And Class Of Pipe, Specification Designation, Manufacturer And Plant Identification.
- 7.) Pipe Shall Be Furnished With A Bell Or Groove On One End Of A Unit Of Pipe And A Spigot Or Tongue On The Adjacent End Of The Adjoining Pipe. All Joints Shall Have A Groove On The Spigot For Placement Of A Rubber "O"- Ring Or Profile Gasket In Accordance With ASTM C 443. The Gasket Shall Be A Continuous Ring Which Fits Snugly Into The Annular Space Between The Overlapping Surfaces Of The Assembled Pipe Joint To Form A Flexible Soil-Tight Seal.
- 8.) Pipe Size And Classification Shall Be Called Out In Plan And Profile Of Construction Drawings.
- 9.) Storm Sewer Pipe Shall Have A Minimum Horizontal Separation Of 10 Feet From Sanitary Sewer Pipe Or Water Main Pipe. All Pipe Crossings Shall Have A Minimum Vertical Separation Of 1.5 Feet. Dimensions Are Measured From The Outside Of Pipe To Outside Of Pipe.

#### STORM SEWER POLYVINYL CHLORIDE (P.V.C.) SEWER PIPE:

- 1.) PVC Pipe Greater Than 24 Inches In Diameter May Only Be Used When Approved By The City Engineer Or MS4 Operator.
- 2.) Pipe Diameters Of 12 Inches And 15 Inches Shall Meet Or Exceed All The Requirements Of ASTM D-3034, And Shall Have A Minimum Cell Classification Of 12454. Reference Should Be Made To ASTM D-1784 For A Summarization Of Cell Class Properties. Pipe Diameters Greater Than 15 Inches Shall Meet Or Exceed All Requirements Of ASTM F-679, And Shall Have A Minimum Cell Classification of 12454.
- 3.) P.V.C. Pipe Shall Conform To The Following Specifications Based On Pipe Diameter And Depth Of Cover:

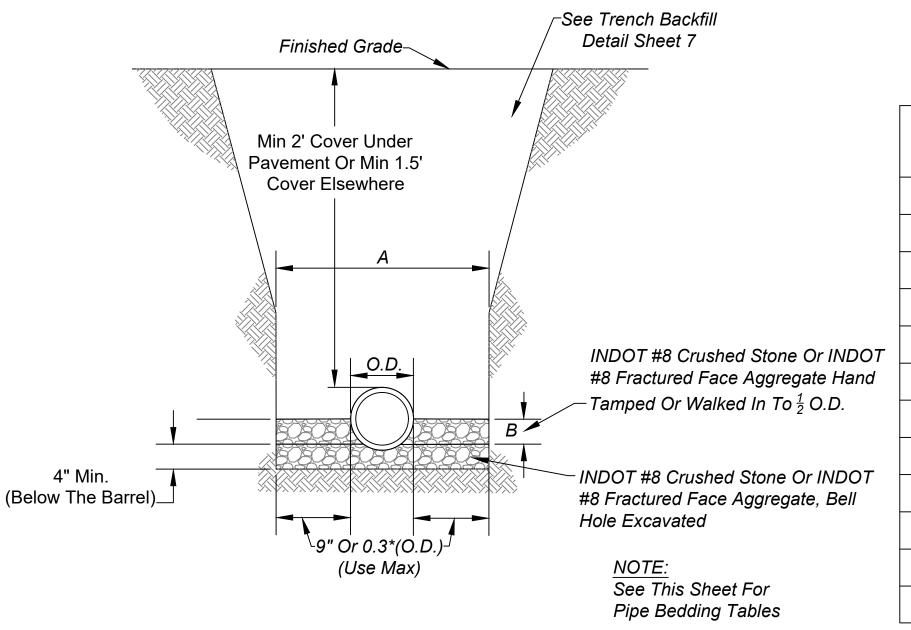
DIDE DIAMETED			A CTM CTANDADD
PIPE DIAMETER	<u>DEPTH OF FILL OVER PIPE</u>	PIPE SPECS	<u>ASTM STANDARD</u>
6" - 15"	Less Than 15 Feet	SDR-35 Type PSM	D-3034
6" - 15"	15 Feet Or Greater	SDR-26 Type PSM	D-3034
18" or Greater	Less Than 15 Feet	PS 46	F-679
18"or Greater	15 Feet Or Greater	PS 115	F-679

P.V.C. SDR-35 And PS-46 Pipe Shall Have A Minimum Pipe Stiffness Of 46 Pounds Per Square Inch For Each Diameter When Measured At 5% Deflection And Tested In Accordance With ASTM D-2412. P.V.C. SDR-26 And PS-115 Pipe Shall Have A Minimum Pipe Stiffness Of 115 Pounds Per Square Inch For Each Diameter When Measured At 5% Deflection And Tested In Accordance With ASTM D-2412.

- 4.) Pipe Joints Shall Have A Bell Wall, Gasket Groove And Spigot Which Is Integral With The Pipe. The Assembly Of Joints Shall Be In Accordance With Pipe Manufacturer's Recommendations And ASTM D-3212. No Solvent Cement Joints Shall Be Allowed.
- 5.) Gasket Material Shall Meet Or Exceed All Requirements Of ASTM D3212-07. Standard Specification For Joints For Drain And Sewer Plastic Pipes Using Flexible Elastometric Seals.
- 6.) Each Pipe Section Shall Be Marked With Name Of Manufacturer, Trademark Or Tradename, Nominal Pipe Size, Production/Extrusion Code, Material And Cell Class Designation And ASTM Number.
- 7.) Installation Shall Be In Accordance With ASTM Recommended Practice D-2321.
- 8.) All PVC Storm Sewer Pipe Shall Have A Minimum Of 2 Feet Of Cover As Measured From The Top Of The Outside Of The Pipe To The Finished Grade.

#### STORM SEWER H.D.P.E. AND H.P. PIPE:

- 1.) HDPE And HP Pipe May Only Be Used When Approved By The City Engineer Or MS4 Operator. Deflection Testing Is Required For HDPE And HP Pipe.
- 2.) HDPE And HP Pipe Greater Than 48 Inches In Diameter Shall Not Be Allowed For Use In The City Of Shelbyville.
- 3.) Requirements For Test Methods, Dimensions And Marking Shall Meet The Requirements Of A.A.S.H.T.O. Specifications M-252 And M-294 For HDPE Pipe, And ASTM D2321 For HP Pipe.
- 4.) For HDPE Pipe, Pipe And Fittings Shall Be Made Of Polyethylene Compounds Which Meet Or Exceed The Requirements Of Type III, Category 4 Or 5, Grade P33 Or P34, Class C Per ASTM D-1248 With The Applicable Requirements Defined In ASTM D-1248. For HP Pipe, Fittings Shall Confrom To ASTM F2881 And AASHTO M330. Pipe And Fitting Production Shall Be Impact Modified Copolymer Meeting The Material Requirements Of ASTM F2881, Section 5 And AASHTO M330, Section 6.1.
- 5.) Minimum Pipe Stiffness Values Shall Be In Accordance With A.A.S.H.T.O. Specifications M-294.
- 6.) H.D.P.E. Corrugated Pipe Shall Have An Integrally Formed Smooth Interior. HP Pipe Shall Have A Smooth Interior And Annaul Exterior Corrugations.
- 7.) For HDPE Pipe, Male And Female Pipe Ends Which Allow The Construction Of Overlapping, Gasketed Joints Shall Be In Conformance With ASTM D-3212. Neoprene Gaskets Shall Meet ASTM F-477. For HP Pipe, Pipes Shall Be Joined With Gasketed Integrel Bell And Spigot Joint Meeting The Requirements Of ASTM F2881. Bell And Spigot Fittings Joint Shall Meet ASTM D3212. Corrugated Couplings Shall Be Split Collar, Engaging In At Least 2 Full Corrgations. Spigots Shall Have Gaskets Per ASTM F477.
- 8.) Installation Shall Be In Accordance With ASTM Recommended Practice D-2321.
- 9.) All HDPE And HP Storm Sewer Pipe Shall Have A Minimum Of 2 Feet Of Cover As Measured From The Top Of The Outside Of The Pipe To The Finished Grade.



#### RCP PIPE BEDDING DETAIL Scale: None

INDOT #8 Crushed Stone Or INDOT #8

Tamped Or Walked In To  $\frac{1}{2}$  O.D. + 12"

4" Min. Up To 30" Pipe

(Below The Barrel)

6" Min. For Pipe For 36" And Larger 上

Fractured Face Aggregate Hand

Above Pipe

Finished Grade-

Min 2' Cover

-9" Or 0.3\*(O.D.)<sup>\_</sup>

(Use Max)

#### TABLE 10: RCP PIPE BEDDING TABLE

Pipe Size Nominal (in)	Pipe Size O.D. (in)	A (in)	B (in)	Cubic Yards Of Bedding Per Foot Of Pipe (Cys/Ft)
12	16.0	34.0	8.00	0.079
15	19.5	37.5	9.75	0.094
18	23.0	41.0	11.50	0.110
21	26.5	44.5	13.25	0.127
24	30.0	48.0	15.00	0.144
27	33.5	53.6	16.75	0.173
30	37.0	59.2	18.50	0.204
36	44.0	70.4	22.00	0.275
42	51.0	81.6	25.50	0.356
48	58.0	92.8	29.00	0.448
54	65.0	104.0	32.50	0.550
60	72.0	115.2	36.00	0.662

Detail Sheet 7

#### Contact City Engineer For Elliptical Pipe Details

TABLE 11: FLEXIBLE (PVC OR HDPE) PIPE BEDDING TABLE

STORM SEWER GENERAL NOTES:

Referenced For Stormwater Design.

1.) Storm Sewer Pipe Of Other Material Or Material Not Meeting These

3.) The Smallest Permissible Storm Sewer Pipe Diameter Is 12 Inches.

4.) The City Of Shelbyville Stormwater Technical Standards Manual Shall Be

5.) Prior To Earthwork, Pipe Construction, Or Other Activity That May Affect Or

6.) All Culverts Or Ends Of Storm Pipe That Do Not Connect Directly To A

Alter Stormwater Runoff, The Downstream Receiving End Of Stormwater Shall

Be Secured And Stabilized To Accommodate All Upstream Runoff, Including

Offsite. This Includes, But Not Limited To, Downstream Ditch Improvements,

Culvert Improvements. Or Constructing Positive Outlet For Retention Facility.

Structure Shall Require Precast Flared Reinforced Concrete End Sections.

Required In Accordance With The Most Recent INDOT Channel Design Guide

Specifications. See Precast Concrete Pipe End Section Detail On Sheet 9.

8.) As-Built Record Drawings Shall Be Submitted To The City Plan Commission

Office. See General Note 11 On Page 1 For As-Built Requirements.

Concrete Toe Anchors Shall Be Required. Revetment Rip-Rap Shall Be

And INDOT Specifications. Revetment Rip-Rap Shall Be Placed Over

Geotextile In Accordance With The Most Recent INDOT Standard

7.) Pre-Fabricated Galvanized Debris Guard Shall Be Installed On All End

Sections. See Debris Guard Detail Sheet 9.

Illustrating Conformance With These Specifications.

Specifications Shall Require The Prior Written Approval Of The City Engineer.

2.) Upon Request, The Contractor Shall Submit Information To The City Engineer

Pipe Size Nominal (in)	Pipe Size O.D. (in)	A (in)	B (in)	C (in)	Cubic Yards Of Bedding Per Foot Of Pipe (Cys/Ft)
6*	6.3	24.3	3.14	15.14	0.131
8*	8.4	26.4	4.20	16.20	0.151
10*	10.5	28.5	5.25	17.25	0.172
12	12.5	30.5	6.25	18.25	0.192
15	15.3	33.3	7.65	19.65	0.221
18	18.7	36.7	9.35	21.35	0.257
21	22.1	40.1	11.03	23.03	0.294
24	24.8	42.8	12.40	24.40	0.325
27	28.0	46.0	13.98	25.98	0.362
30	32.0	51.2	16.00	28.00	0.425
36	38.3	61.3	19.15	31.15	0.560
42	44.5	71.2	22.25	34.25	0.708
48	50.8	81.3	25.40	37.40	0.875

\* Sanitary Sewer Only

Contact City Engineer For Elliptical Pipe Details

#### FLEXIBLE (PVC OR HDPE) PIPE BEDDING DETAIL Scale: None

INDOT #8 Crushed Stone Or INDOT #8

INDOT #8 Crushed Stone Or INDOT #8

Fractured Face Aggregate Compacted

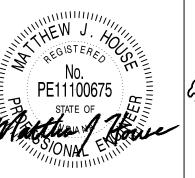
To 95% Max. Dry Density, Bell Hole

Excavated

Fractured Face Aggregate Hand

Tamped Or Walked In To  $\frac{1}{2}$  O.D.

	REVISIONS	
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	Updated Entire Set	02/11/2020
3	Added H.P. Pipe	05/11/2021



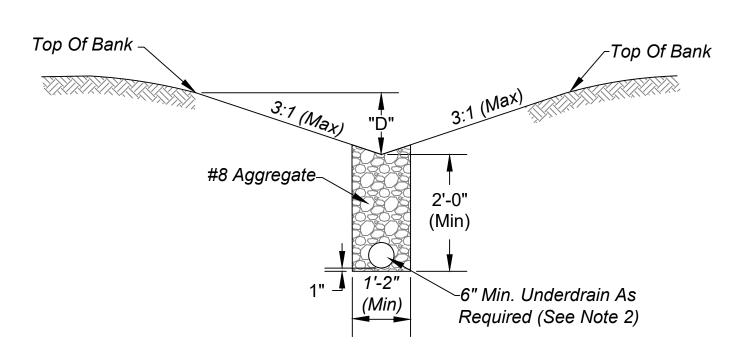


### STORM SEWER BEDDING AND PIPE DETAILS AND NOTES

CITY OF SHELBYVILLE

#### STORM SEWER DEFLECTION TESTING, TELEVISING AND AS-BUILT DRAWINGS:

- 1.) Deflection Testing Is Required For All Mainline Flexible Storm Sewer Pipe Installed In The City Of Shelbyville. The City Engineer And MS4 Operator Shall Be Given A Minimum Of 24 Hour Written Notice Of Deflection Testing. A Nine-Point "Go-No-Go" Mandrel Shall Be Used For The Deflection Test. A Proving Ring Shall Be Provided For Each Mandrel. The "Go-No-Go" Mandrel Shall Be Manually Pulled Without The Use Of Any Mechanical Devices. An Allowable Deflection Of 5 Percent Of Inside Pipe Diameter Will Be Acceptable After All Backfilling Has Been In Place For 30 Days.
- 2.) Contractor Shall Bear All Testing Costs.
- 3.) All Pipe Exceeding The Allowable Deflection Shall Be Replaced Or Rerounded. The Replaced Or Rerounded Section Shall Be Retested 30 Days After Replacement Or Rerounding.
- 4.) Closed Circuit Television (CCTV) Inspection May Be Required to Be Performed In Areas Of Concerned On Pipes Installed Within The City Of Shelbyville For The Purposes Of Conveying Storm Water. Televising Shall Be Done After Deflection Testing.
- 5.) The Contractor Or Developer Responsible For Installing The Storm Sewer Pipe Shall Employ/Hire The Contractor Responsible For The Television Inspection Services. The Contractor Or Developer Shall Contact The City Engineer To Schedule The CCTV Inspection.
- 6.) All Pipe Segments Shall Be Thoroughly Cleaned Before The Start Of The CCTV Inspection.
- 7.) A Camera Equipped With Remote Control Devices To Adjust The Light Intensity And 1,000 Linear Feet Of Sewer Cable Shall Be Provided. The Camera Shall Transmit A Continuous Image To The Television Monitor As It Is Being Pulled Through The Pipe. The Image Shall Be Clear Enough To Enable The City Of Shelbyville Representative And Others Viewing The Monitor To Easily Evaluate The Interior Condition Of The Pipe. The Camera Shall Stamp The Video / DVD With Linear Footage And Project Number. An Audio Voice-Over Shall Be Made During The Inspection Identifying Any Problems.
- 8.) The Contractor Shall Bear All Costs Associated With Televising, Line Clearing, And Debris Removal & Disposal.
- 9.) If Any Pipe And/Or Joint Is Found To Be Faulty Or Leaking, The Contractor Shall Repair That Portion Of The Work To The Satisfaction And Approval Of The City Of Shelbyville.
- 10.) 2 Digital Copies Of The Entire Sewer Line, Reproduction Map Indicating The Numbers Of All Pipes That Have Been Televised, And As-Built Drawings Shall Be Submitted To The City Of Shelbyville MS4 Operator And City Engineer For Their Records.



SWALE UNDERDRAIN DETAIL
Scale: None

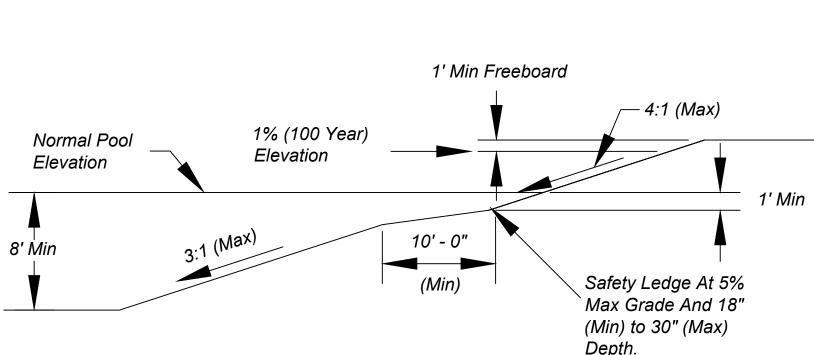
#### SWALE REGULATIONS ON DEVELOPED LOTS:

- 1.) Swales Shall Not Be Constructed In Front Yards. The Front Portion Of Lots Shall Be Graded Toward The Street And/Or Side Yard Lines.
- 2.) Swales Shall Be Constructed With A Minimum 0.5 Percent Profile Grade Provided That A 6-Inch Diameter Underdrain Is Provided For Swales With Less Than 1.0 Percent Profile Grade.
- 3.) Maximum Swale Depth "D" Shall Be In Accordance With The Following Table:

#### TABLE 13: SWALE DIMENSIONS AND SPECIFICATIONS

Lot Area (square feet)	Maximum Swale Depth "D" (inches)	Minimum Usable Rear Yard Depth (feet)			
Performance	<i>D</i> ≤ 24	10			
Based Lots	24 > D < 36	15			
	D > 36	20			
Greater Than 10,000	48	30			

- 4.) Minimum Usable Rear Yard Depth Shall Lie Between The Furthest Rear Portion Of The Residence And The Top Of Bank Of The Near Swale Slope. The Maximum Slope In This Area Shall Be 5.0 Percent.
- 5.) Swales Shall Be Graded With Side Slopes No Steeper Than 3h:1v And Lay Totally Within The Drainage Easement Limits.



#### TYPICAL DETENTION POND SECTION

Scale: None

#### **NOTES:**

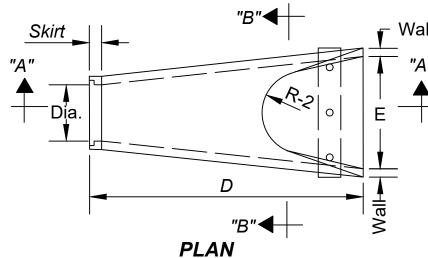
- 1.) Public Safety Shall Be A Paramount Consideration In Storm Water Systems and Pond Design. Providing Safe Retention Is The Applicant's Responsibility.
- 2.) All Wet And Dry Detention Facilities Shall Be Posted With Warning Signage. All Wet And Dry Detention Facilities Shall Be Posted With Signs Warning Of Rapid Rise In The Water Levels And Strong Hydraulic Forces At Pipe Inlets And Outlets. All Wet Retention Facilities Shall Be Posted With Drowning Hazard Signs, No Swimming Or Wading Signs, And No Ice Skating Signs On All Sides.
- 3.) All Wet And Dry Detention Facilities Shall Be Designed To Maximize The Distance Between Inflow And Outflow Pipes. Baffles May Be Required If Deemed Necessary By The City Engineer Or MS4 Operator.
- 4.) All Wet Retention Facilities Located Within 100 Feet Of A Roadway Or Parking Lot Shall Be Designed With Measures To Prevent Vehicular Entry Into The Water. These Measures Shall Include One Or More Of The Following:
  - A. High-Tension Cable Barrier In Accordance With INDOT Specifications
  - B. W-Beam Guardrail In Accordance With INDOT Specifications
  - C. Steel-Backed Timber Guardrail In Accordance With FHWA Standards, Sections 617 And 710.
  - D. Earth Mound At Least 8 Feet In Height With Maximum 4:1 Slopes

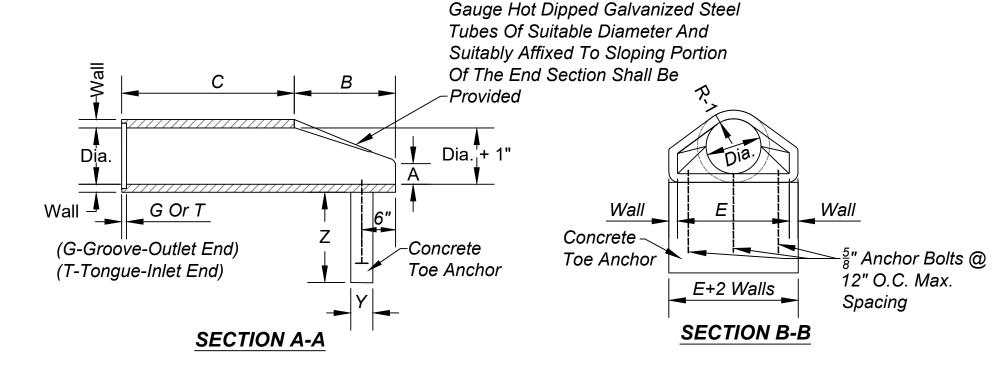
    E. Wider Safety Lodge Or Shallow Wetlands Strip Adjacent To Boadwa
  - E. Wider Safety Ledge Or Shallow Wetlands Strip Adjacent To Roadway Side Of Pond
  - F. Thick Vegetative Buffers (i.e. Bushes, etc.) May Be Used As A Secondary Measure To Reduce Errant Vehicle Velocities And To Improve The Appearance Of The Site

The City Engineer or MS4 Operator May Require Additional Measures Based On Site Conditions And Layout.

- 5.) Dam/Embankment Safety And Design Is The Applicant's Responsibility. Dams/Embankments Shall Be Designed To Prevent Failure Due To Erosion, Slope Instability, Overtopping, Heave, And Piping. The Following Elements Shall Be Incorporated In The Design Of All Dams And Embankments:
  - A. Appropriate Foundation Materials
  - B. Appropriate Core Fill Materials
  - C. Maximum 3:1 Side Slopes And Minimum 10 Feet Top Width
  - D. Emergency Spillway Designed In Accordance With The City Of Shelbyville Stormwater Design Manual And Adquately Protected
  - Against Erosion And Scour

    E. Anti-Seep Collar For All Outflow Pipes
- 6.) Dry Bottom Basins Shall Be Subject To The Maximum Of 3:1 Slope Above The Basin Floor. The Longitudinal Grade Shall Be Minimum 1% (0.5% With A Minimum 6 Inch Diameter Underdrain).
- 7.) City Engineer May Approve Alternate Detention Pond / Basin Sections.
- 8.) Access Should Be Provided Around Entire Width Of Pond. See Shelbyville Stormwater Design Manual For Easement Requirements.





End Section End Treatment

Involving Horizontal Minimum No. 12

#### TABLE 12: PRECAST CONCRETE PIPE END SECTION SPECIFICATIONS

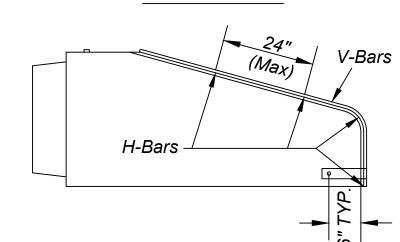
DIA.	WALL	G or T	WT SEC	Α	В	С	D	E	DIA.+1"	R-1	R-2	SKIRT	Υ	Z
12	2	1-1/2	530	4	24	48-7/8	72-7/8	24	13	10-1/16	9	3-1/2	12	24
15	2-1/4	2	740	6	27	46	73	30	16	12-1/2	11	3-1/2	12	24
18	2-1/2	2-1/2	990	9	27	46	73	36	19	15-1/2	12	4	12	24
21	2-3/4	2-1/2	1280	9	35	38	73	42	22	16-1/8	13	4	12	36
24	3	2-1/2	1520	9-1/2	43-1/2	30	73 -1/2	48	25	16-11/16	14	4-1/2	18	36
27	3-1/4	2-1/2	1930	10-1/2	48	25-1/2	73 -1/2	54	28	17-3/4	14-1/2	4-1/2	12	36
30	3-1/2	3	2190	12	54	19-3/4	73 -3/4	60	31	18-5/16	15	5	12	36
33	3-3/4	3-3/8	3150	13-1/2	58-1/2	39-1/4	97 -3/4	66	34	23-3/4	17-1/2	5-1/2	18	36
36	4	3-1/2	4100	15	63	34-3/4	97 -3/4	72	37	24-1/16	20	5-1/2	18	36
42	4-1/2	3-3/4	5380	21	63	35	98	78	43	27-1/4	22	5-1/2	24	36
48	5	4-1/4	6550	24	72	26	98	84	49	28-1/8	22	5-3/4	24	36
54	5-1/2	4-3/4	8040	27	65	35	100	90	55	32-7/8	24	6-1/4	30	36
60	6	5	8750	30	60	39	99	96	61	36-3/4	24	6-3/4	30	36
66	6-1/2	5-1/2	10630	24	78	21	99	102	67	35-11/16	24	7-1/4	30	36
72	7	6	12520	34	78	21	99	108	73	38-5/8	24	7-3/4	36	36
78	7-1/2	6-1/2	14430	24	78	21	99	114	79	41-15/16	24	8-1/2	36	36
84	8	7	16350	24	78	21	99	120	85	44-13/16	24	9	39	36

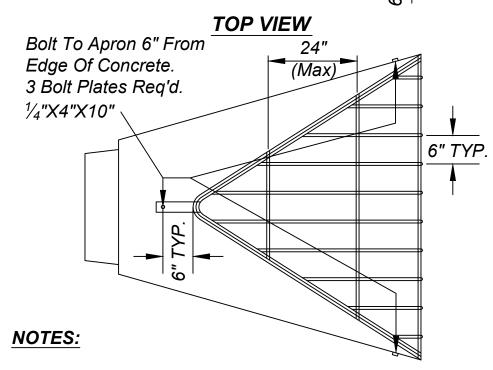
NOTE: Debris Guard Shall Be Installed On All End Sections In Accordance With Debris Guard Detail Shown On This Sheet.

#### PRECAST CONCRETE PIPE END SECTION

\* See City Engineer For Flexible Pipe Requirements

SIDE PROFILE Scale: None





- 1.) Bars And Plates Shall Be Hot-Rolled Steel.
- 2.) Bars, Plates, And Pipe Shall Be Finished With Two Coats Of Aluminum Paint
- 3.) Bolts Shall Be Galvanized.
- 4.) No Rebar Through Pipes Shall Be Allowed.
- 5.) Debris Guard Shall Be Removable.
- 6.) Debris Guard Shall Be Smooth On All Surfaces And Free From Jagged Edges, Sharp Edges, And Protruding Bars.

#### TABLE 12A: DEBRIS GUARD SPECIFICATIONS

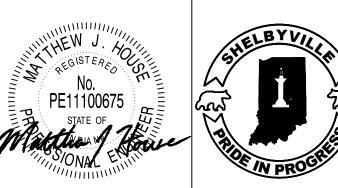
	APRON	V-BAR	NO. OF	H-BAR	BOLT	"A"
	SIZE	SIZE	H-BARS	SIZE	DIA.	DIM.
	(INCHES)	(INCHES)	REQ'D	(INCHES)	(INCHES)	(INCHES)
	18	1/2	3	5/8	1/2	5
	24	5/8	4	3/4	1/2	7
ns	30	5/8	4	3/4	1/2	7-1/2
Arch Pipe Aprons	36	3/4	4	1	1/2	10-1/2
A/	42	3/4	4	1	3/4	11
jpe	48	3/4	4	$1\frac{1}{2}$ Pipe	3/4	12
1 F	54	3/4	4	$1\frac{1}{2}$ Pipe	3/4	12
Arc	60	3/4	5	$1\frac{1}{2}$ Pipe	3/4	14
	72	3/4	5	$1\frac{1}{2}$ Pipe	3/4	14
	84	3/4	6	1 ½ Pipe	3/4	15

	12	1/2	3	5/8	1/2	4
	15	1/2	3	5/8	1/2	4-1/2
	18	1/2	4	5/8	1/2	4-1/2
	21	1/2	4	5/8	1/2	5
ω	24	5/8	4	3/4	1/2	5
2008	27	5/8	4	3/4	1/2	5-1/2
4pr	30	5/8	4	3/4	1/2	5-1/2
) e (	36	3/4	4	1	3/4	8
Round Pipe Aprons	42	3/4	4	1	3/4	8
nd	48	3/4	5	1	3/4	8
301	54	3/4	5	1 ½ Pipe	3/4	8
	60	3/4	5	1 ½ Pipe	3/4	8
	66	3/4	6	1 ½ Pipe	3/4	8
	72	3/4	6	1 ½ Pipe	3/4	9
	84	3/4	7	1 ½ Pipe	3/4	10
	90	3/4	7	1 ½ Pipe	3/4	14

#### **DEBRIS GUARD FOR END SECTIONS**

Scale: None

	REVISIONS	
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	Updated Entire Set	02/11/2020



CITY OF SHELBYVILLE	SHEET
STORM SEWER	9
AND DRAINAGE	OF
DETAILS AND NOTES	18

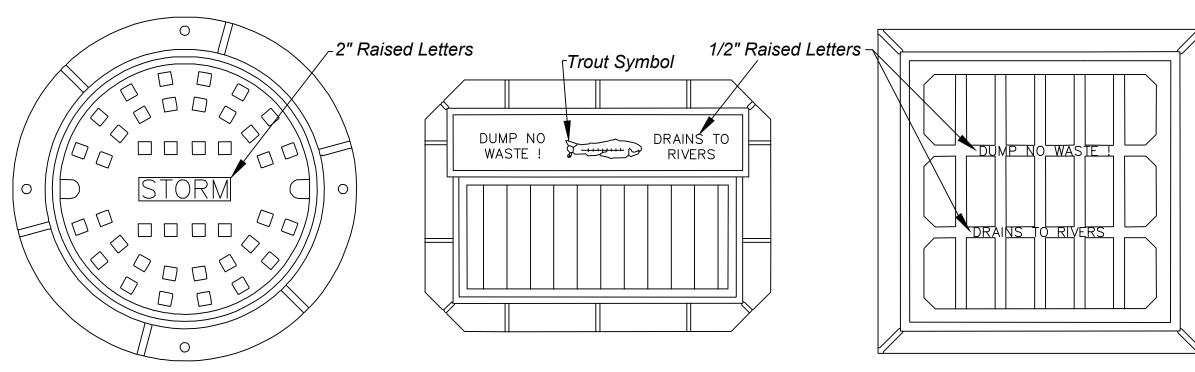
#### **GENERAL NOTES**

- 1.) Type J, K, L, M And N Manholes As Detailed Herein Require A Certain Minimum Depth. In Cases Where The Depth Of The Storm Sewer Is Not Sufficient To Meet The Minimum Depth As Required By The Detail, "F" Diameter Manhole Section May Be Used Throughout The Depth Of The Manhole.
- 2.) Manholes Shall Conform To ASTM C-478. Joints Shall Conform To ASTM C-443. The Use Of Cast-In-Place Concrete Structures Shall Require The Prior Written Approval Of The City Engineer. Regardless Of Type Of Casting Used, The Casting Shall Be Centered Over The Manhole Steps.
- 3.) Manhole Steps Shall Be Neenah R-1981-J, M.A. Industries PS 1-PF, Or Equivalent As Approved By The City Engineer.
- 4.) All Structures And Castings Shall Be Specified Based On Surface Conditions In Accordance With Table 14 On
- 5.) Castings For All Storm Structures Shall Be Stamped With Lettering As Shown In The Structure And Castings Specifications Detail On This Sheet.
- 6.) Castings Shall Not Be Buried And Shall Be Flush With The Adjacent Finished Grade. Castings Which Are Surrounded By Asphalt Or Concrete Shall Be Constructed Within A Tolerance Of ± 0.1' Of The Designed Elevation. All Other Castings Shall Be Constructed Within A Tolerance Of ± 0.2' Of The Designed Elevation.
- 7.) The Contractor Shall Remove Soils Under A Precast Bottom And Replace With 6 Inches Of Compacted INDOT #8 Stone.
- 8.) For Type C Manholes. The Base And First Riser Section Of The Precast Concrete Manhole Shall Be Integrally Cast As One Complete Unit.
- 9.) Final Adjustment In Elevation Of The Frame, Cover, Or Casting Shall Be Accomplished By The Use Of A 4 Inch Minimum And 12 Inch Maximum Thickness Adjusting Ring Or Collar. Brick Or Block Shall Not Be Used In The Construction Of A Structure Or To Adjust The Elevation Of Frame Or Casting.
- 10.) All Structures Shall Have A Minimum Of 4" Allowed For Riser Rings Or Adjustment.
- 11.) The Minimum Pipe Diameter For Storm Sewer In Public Right-Of-Way Is 12".
- 12.) Manholes Shall Be Installed At Distances Not Greater Than 400 Feet. For Pipes 36 Inches Or Larger, Greater Distances Between Manholes May Be Used With Written Approval Of The City Engineer.
- 13.) All Structure Castings Shall Be Surrounded By A  $\frac{1}{2}$ " Expansion Joint When Placed In Asphalt Or Concrete. When Placed In Asphalt, Joint Shall Be Sealed In Accordance With INDOT Standard Specifications, Section 408. When Placed In Concrete, Joint Shall Be Sealed In Accordance With INDOT Standard Specifications, Sections 503 and 906.
- 14.) For A Series Of More Than One Inlets Connecting To A Trunkline, A Catch Basin With A 2 Feet Sump Shall Be Installed At The Structure Closest To The Trunkline.
- 15.) Maximum Pipe Intrusion In A Structure Shall Be 3 Inches.
- 16.) Each Pipe Section Shall Be Marked With Date of Manufacture, Size, And Class Of Pipe, Specification Designation, Manufacturer, And Plant Identification.

#### TABLE 14: STORM SEWER STRUCTURE & CASTING REQUIREMENTS

SURFACE DRAINAGE TYPE	COMPATIBLE STRUCTURE TYPES	*NEENAH CASTING #	*EJIW CASTING #
Type I Roll Curb & Gutter	Inlet & Catch Basin Type A	R-3501-T (R or L)	7495 (M1 or M2)
Type Then dank a dane.	Inlet & Catch Basin Type B	R-3501-TB	
	Manhole Type C, H, J, K, L, M, N	R-3501-L2	7495
Type II Combined Curb & Gutter	Inlet & Catch Basin Type A	R-3286-8V	7520 T1
Type V Curb	Inlet & Catch Basin Type B	R-3287-10V	7505 (M1 or M2)
	Inlet & Catch Basin Type C	R-3287-15V	7565 T1
	Manhole Type C, H, J, K, L, M, N	R-3286-8V	7520 T1
Type III Gutter	Inlet & Catch Basin Type A	R-3210-L	5344
Type IV Gutter	Inlet & Catch Basin Type B	R-3067-L	7034
	Inlet & Catch Basin Type C	R-3396	
	Manhole Type C, H, J, K, L, M, N	R-3238	5100
Open Pavement (No Curb)	Inlet & Catch Basin Type A	R-3402-E	
• • • •	Manhole Type C, H, J, K, L, M, N	R-2502-D	1022 M1
Swales/Grass/Unpaved Areas	Manhole Type C, H, J, K, L, M, N	R-4342	6489
No Surface Drainage	Manhole Type C, H, J, K, L, M, N	R-1772	1022-2 TYPE A

\* Castings Other Than Neenah Or East Jordan Shall Be As Approved By The City Engineer.

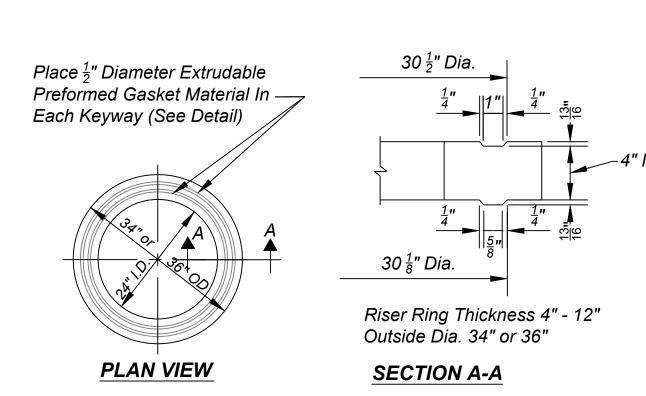


LETTERING FIGURE 1 Applies To Solid Manhole Castings

**LETTERING FIGURE 2** Applies To Curb & Gutter Castings **LETTERING FIGURE 3** Applies To Open Pavement And Unpaved Open Areas Castings

#### STORM STRUCTURE AND CASTING SPECIFICATIONS

Scale: None



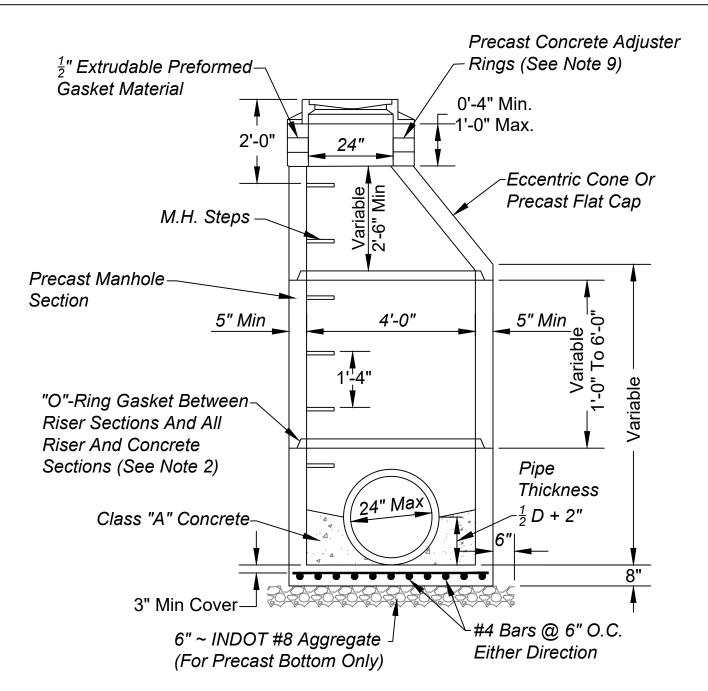
-Precast Concrete Adjusting Ring Or Flange Of Casting Nominal ½" Butyl Rubber

Base Extrudable Preformed Gasket Material (Typ.)

GASKET DETAIL

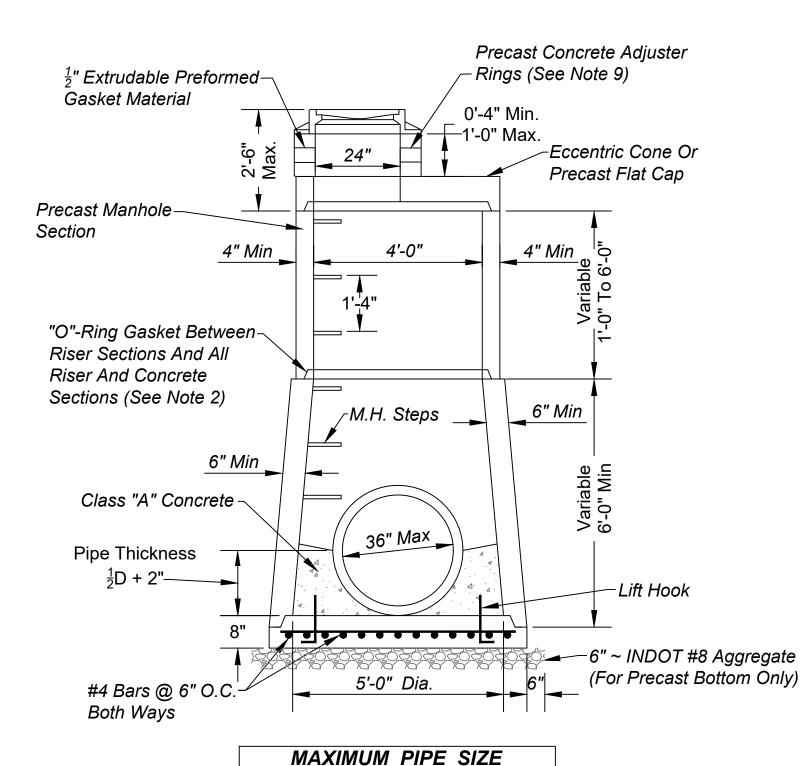
#### PRECAST ADJUSTING RING

Scale: None



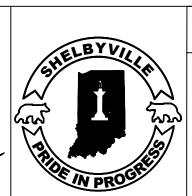
MAXIMUM	PIPE SIZE				
Pipe Entering /	Pipe Entering /				
Pipe Exiting At	Pipe Exiting At				
0° - 45° Bend	45° - 90° Bend				
24"	21"				

MANHOLE TYPE C Scale: None



Pipe Entering / Pipe Entering / Pipe Exiting At Pipe Exiting At 45° - 90° Bend 0° - 45° Bend 30"

MANHOLE TYPE H Scale: None

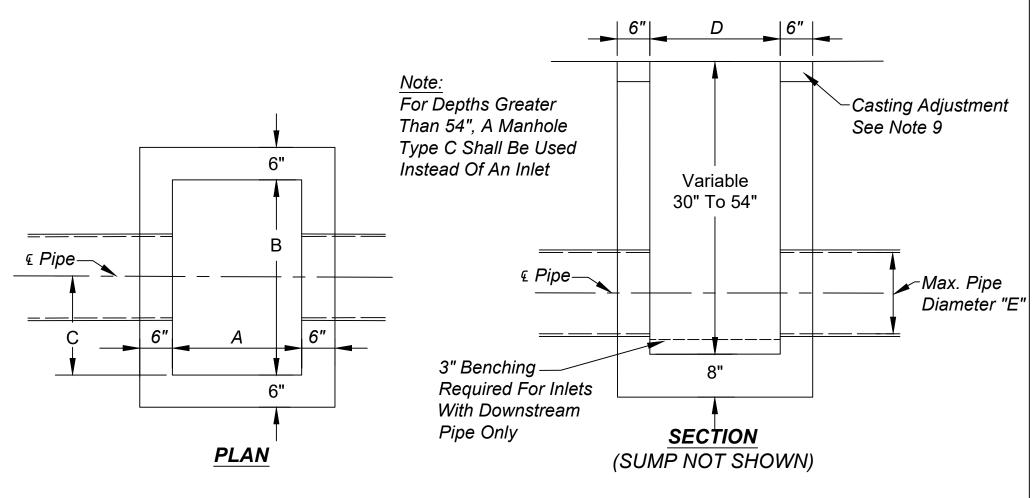


½" Extrudable Preformed—	Precast Conc Rings (See No	_
Gasket Material		entric Cone Or east Flat Cap
Precast Manhole————————————————————————————————————	4'-0" 4" Min	Variable -0" To 6'-0"
"O"-Ring Gasket Between- Riser Sections And All Riser And Concrete Sections (See Note 2)		ducer  ←
6" Min	"F" Dia.	Minimum Maximum
Class "A" Concrete	"G" Max	60" Minimum 9'-0" Maximum
Pipe Thickness <sup>1</sup> / <sub>2</sub> D + 2"  8"		6"
#4 Bars @ 6" O.C.  Both Ways	Lift Hook	6" ~ INDOT #8 Aggrega (For Precast Bottom On

#### TABLE 15: DIMENSIONS FOR MANHOLE TYPES J,K,L,M & N

		MAXIMUM PIPE SIZE "G"			
Manhole Type	Manhole Diameter "F"	Pipe Entering / Pipe Exiting At 0° - 45° Bend	Pipe Entering / Pipe Exiting At 45° - 90° Bend		
J	60"	36"	30"		
K	72"	48"	36"		
L	96"	54"	48"		
М	102"	72"	66"		
Ν	108"	84"	72"		

#### MANHOLE TYPES J, K, L, M, & N Scale: None



#### TABLE 16: INLET AND CATCH BASIN DIMENSIONS

						<del>_</del>
STRUCTURE TYPE	A (in)	B (in)	C(in)	D (in)	E (in)	Sump (in)
Inlet Type A	24	24	12	24	18	None
Catch Basin Type A	24	24	12	24	18	24
Inlet Type B	24	36	18	24	24	None
Catch Basin Type B	24	36	18	24	24	24
Inlet Type C	30	46	23	30	30	None
Catch Basin Type C	30	46	23	30	30	24

#### INLETS AND CATCH BASINS - TYPES A, B, AND C Scale: None

CITY OF SHELBYVILLE

SHEET STORM SEWER STRUCTURES 18 **DETAILS AND NOTES** 

	REVISIONS		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Rev. No.	Description	Date	HEW J.
1	Entire Set	07/26/2011	No.
2	Updated Entire Set	02/11/2020	PE111000 STATE OF
			Mattery
			1///UNIX

#### SANITARY SEWER GENERAL NOTES

- 1.) Sanitary Sewer Pipe Of Other Material Or Material Not Meeting These Specifications Shall Require The Prior Written Approval Of The City Engineer And Wastewater Superintendent.
- 2.) The Contractor Is Responsible For Locating All Sanitary Mains And Laterals Prior To Construction. Any Mains Or Laterals Damaged During Construction Shall Be Repaired By The Contractor At His/Her Expense.
- 3.) The Contractor Shall Submit Information To The City Engineer Showing Conformance With These Specifications
- 4.) As-Built Drawings Shall Be Submitted To The City Engineer And Wastewater Superintendent. See Note 11 On
- 5.) During Construction Of New Sanitary Sewer Lines, The Contractor Shall Install A Watertight Plug In The End Of The Existing Sewer That Is Being Connected To. This Plug Shall Remain In Place And Be Checked For Water Tightness Daily Until The Entire Project Is Complete And Testing Has Been Performed. A Letter From The Wastewater Superintendent Must Be Written, Giving Permission To Remove The Plug Before The Plug Can Be Removed By The Contractor.

#### SANITARY SEWER POLYVINYL CHLORIDE (P.V.C.) PIPE:

- 1.) P.V.C. Pipe Diameters Of 6 Inches Through 15 Inches Shall Meet Or Exceed All The Requirements Of ASTM D-3034, And Shall Have A Minimum Cell Classification Of 12454. Reference Should Be Made To ASTM D-1784 For A Summarization Of Cell Class Properties. P.V.C. Pipe Diameters Greater Than 15 Inches Shall Meet Or Exceed All Requirements Of ASTM F-679, And Shall Have A Minimum Cell Classification Of 12454.
- 2.) P.V.C. Pipe Shall Conform To The Following Specifications Based On Pipe Diameter And Depth Of Cover:

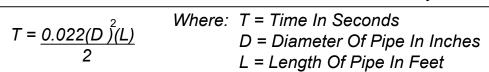
PIPE DIAMETER	DEPTH OF FILL OVER PIPE	PIPE SPECS	ASTM STANDARD
<u>6" - 15"</u>	Less Than 15 Feet	SDR-35 Type PSM	D-3034
6" - 15"	15 Feet Or Greater	SDR-26 Type PSM	D-3034
18" or Greater	Less Than 15 Feet	PS 46	F-679
18" or Greater	15 Feet Or Greater	PS 115	F-679

P.V.C. SDR-35 And PS-46 Pipe Shall Have A Minimum Pipe Stiffness Of 46 Pounds Per Square Inch For Each Diameter When Measured At 5% Deflection And Tested In Accordance With ASTM D-2412. P.V.C. SDR-26 And PS-115 Pipe Shall Have A Minimum Pipe Stiffness Of 115 Pounds Per Square Inch For Each Diameter When Measured At 5% Deflection And Tested In Accordance With ASTM D-2412.

- 3.) Pipe Joints Shall Have A Bell Wall, Gasket Groove And Spigot Which Is Integral With The Pipe. The Assembly Of Joints Shall Be In Accordance With Pipe Manufacturers' Recommendations And ASTM D-3212. No Solvent Cement Joints Shall Be Allowed.
- 4.) Gasket Material Shall Meet Or Exceed All Requirements Of ASTM D3212-07, Standard Specification For Joints For Drain And Sewer Plastic Pipes Using Flexible Elastometric Seals.
- 5.) Pipe Fittings Shall Be SDR-26 Manufactured Fittings Made Of P.V.C. Plastic Having A Cell Classification Of 12454
  As Defined In ASTM D-1784. Saddle Connections Shall NOT Be Allowed For New Construction.
- 6.) Each Pipe Section Shall Be Marked With The Name Of Manufacturer, Trademark Or Tradename, Nominal Pipe Size, Production/Extrusion Code, Material And Cell Class Designation, And ASTM Number.
- 7.) Lateral Connections Shall Be Made With A SDR-26 Or PS 115 "Tee-Wye" Fitting Only.
- 8.) Sanitary Sewer Pipe Shall Have A Minimum Horizontal Separation Of 10 Feet From Storm Sewer Pipe Or Water Main Pipe. All Pipe Crossings Shall Have A Minimum Vertical Separation Of 1.5 Feet. Dimensions Are Measured From The Outside Of Pipe To Outside Of Pipe.
- 9.) Installation Shall Be In Accordance With ASTM Recommended Practice D-2321.

#### SANITARY SEWER REINFORCED CONCRETE PIPE

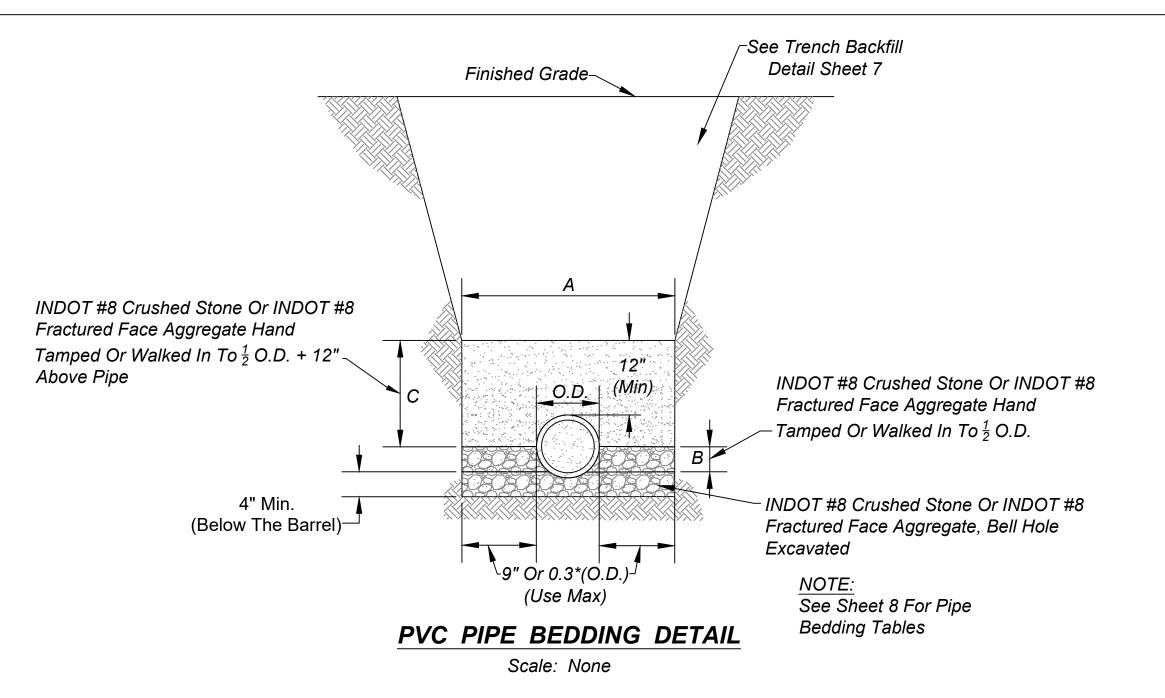
- 1.) Reinforced Concrete Pipe For Use As Sanitary Sewers Shall Be Class III, IV, Or V As Specified In ASTM C-76. Lift Holes Shall Not Be Permitted.
- 2.) Each Section Of Reinforced Concrete Pipe Shall Be Vacuum Tested By The Manufacturer Prior To Delivery To The Job Site. Only Pipe Sections Passing This Test Shall Be Marked As "Vacuum Tested". Vacuum Test Requirements
- a. Each Section Of Pipe Shall Be Tested By Bringing The Internal Pressure Within The Pipe To 3.5 PSIG Below Atmospheric Pressure And The Pressure Must Not Drop To Less Than 2.5 PSIG Below Atmospheric Pressure Within The Time Limitation As Determined By The Following:



- b. Any Pipe Section Failing To Meet This Test Shall Not Be Permitted For Use As Sanitary Sewer In The City Of
- 3.) Lateral Connections Shall Be Made With Insert-A-Tee Connector Or City Approved Equal.
- 4.) Each Pipe Section Shall Be Marked With The Date Of Manufacture, Size And Class Of Pipe, Specification Designation, Manufacturer And Plant Identification.
- 5.) Pipe Shall Be Furnished With A Bell Or Groove On One End Of A Unit Of Pipe And A Spigot Or Tongue On The Adjacent End Of The Adjoining Pipe. All Joints Shall Have A Groove On The Spigot For Placement Of A Rubber "O"-Ring Or Profile Gasket In Accordance With ASTM C-443. The Gasket Shall Be A Continuous Ring Which Fits Snugly Into The Annular Space Between The Overlapping Surfaces Of the Assembled Pipe Joint To Form A Flexible Watertight Joint Under All Conditions Of Service. Joint Shall Be Adequate For Hydrostatic Pressures Up To 13 Pounds Per Square Inch (30 Feet) Without Leakage.

#### SANITARY SEWER LEAKAGE TESTING:

- 1.) Leakage Testing Shall Be Performed For All Mainline Segments. Testing For Leakage Shall Commence After Backfill Has Been In Place For 30 Days. The City Engineer And Wastewater Superintendent Shall Be Given 24 Hour Written Notice Of The Required Leakage Testing Procedure To Be Performed By The Contractor. Low Pressure Air Shall Be Slowly Introduced Into The Sealed Line Until The Internal Air Pressure Reaches 5 PSIG Plus The Groundwater Head Divided By 2.31 (Maximum Test Pressure Is 9 PSIG).
- 2.) At A Stable Internal Air Pressure Within 0.5 PSIG Of The Initial Internal Air Pressure, Timing Shall Commence With A Stopwatch Or Similar Device Of 99.8 Percent Accuracy. Timing Shall End When The Internal Air Pressure Drops 1 PSIG Below The Stable Internal Air Pressure.
- 3.) The Line Shall Be Accepted If The Time Shown In Table 17 For The Designated Pipe Size And Length Elapses Before The Air Pressure Drops 1 PSIG Below The Stable Internal Air Pressure At Which Time The Test Can Be Discontinued For The Accepted Line.
- 4.) If A Leak Must Be Repaired, Then The Entire Mainline Segment Shall Be Retested For Leakage. If Contractor Excavates Pipe For The Purpose Of Repairing A Leak, Then The Entire Mainline Segment Shall Be Retested For Both Leakage And Deflection.
- 5.) The Design Engineer Or His/Her Representative Shall Attest That Each Mainline Segment Was Tested For Leakage, With Successful Results, In Compliance With Stated Leakage Testing Requirements.
- 6.) Contractor Shall Bear All Testing Costs.



#### SANITARY SEWER DEFLECTION TESTING:

- 1.) An In-Place Deflection Test Shall Be Performed On All Mainline Flexible Pipe To Be Used For The Purposes Of Conveying Sanitary Sewage. The City Engineer And Wastewater Superintendent Shall Be Given A Minimum 24 Hour Written Notice Of Deflection Testing Procedure To Be Performed By The Contractor. A Nine-Point "Go-No-Go" Mandrel Shall Be Used For The Deflection Test. A Proving Ring Shall Be Provided For Each Mandrel. The "Go-No-Go" Mandrel Shall Be Manually Pulled Without The Use Of Any Mechanical Devices. An Allowable Deflection Of 5% Of Inside Pipe Diameter Will Be Acceptable After All Backfilling Has Been In Place For 30 Days.
- 2.) All Pipe Exceeding The Allowable Deflection Shall Be Replaced Or Rerounded. The Replaced Or Rerounded Section Shall Be Retested For Leakage And Deflection 30 Days After Replacement Or Rerounding.
- 3.) The Design Engineer Or His/Her Representative Shall Attest That Each Mainline Segment Was Tested for Deflection, With Successful Results, In Compliance With Stated Deflection Testing Requirements.
- 4.) Contractor Shall Bear All Testing Costs.

#### SANITARY SEWER TELEVISING AND AS-BUILT DRAWINGS:

- 1.) Closed Circuit Television (CCTV) Inspection Shall Be Performed On All Pipe Installed Within The City Of Shelbyville For The Purposes Of Conveying Sanitary Sewage. Televising Shall Be Performed After Deflection And Leakage Testing Are Completed.
- 2.) The Contractor Or Developer Responsible For Installing The Sanitary Sewer Pipe Shall Employ/Hire The Contractor Responsible For The Television Inspection Services. The Contractor Or Developer Shall Contact The City Engineer Or Wastewater Superintendent To Schedule The CCTV Inspection.
- 3.) All Pipe Segments Shall Be Thoroughly Cleaned Before The Start Of The CCTV Inspection.
- 4.) A Camera Equipped With Remote Control Devices To Adjust The Light Intensity And 1,000 Linear Feet Of Sewer Cable Shall Be Provided. The Camera Shall Transmit A Continuous Image To The Television Monitor As It Is Being Pulled Through The Pipe. The Image Shall Be Clear Enough To Enable The City Of Shelbyville Representative And Others Viewing The Monitor To Easily Evaluate The Interior Condition Of The Pipe. The Camera Shall Stamp The Video With Linear Footage And Project Number. An Audio Voice-Over Shall Be Made During The Inspection Identifying Any Problems.
- 5.) The Contractor Shall Bear All Costs Associated With Televising, Line Cleaning And Debris Removal & Disposal.
- 6.) If Any Pipe And/Or Joint Is Found To Be Faulty Or Leaking, Regardless Of The Results Of Leakage And Deflection Testing, The Contractor Shall Repair That Portion Of The Work To The Satisfaction And Approval Of The City Of Shelbyville. All Repaired Or Replaced Pipe Sections Shall Be Retelevised And Retested.
- 7.) The Digital Copies Of The Entire Sewer Line, Reproduction Map Indicating The Numbers Of All Pipes That Have Been Televised, And As-Built Drawings Shall Be Submitted To The City Engineer And Wastewater Superintendent For Their Records.

#### MANHOLE TESTING REQUIREMENTS:

- 1.) After Manhole Assembly And Prior To Backfilling, A City Representative Will Visually Inspect Each Structure For Leakage Or Evidence Thereof. Contractor Shall Contact The City Engineer Or Wastewater Superintendent At Least 24 Hours Prior To Backfilling.
- 2.) All Sanitary Manholes Shall Be Vacuum Tested In Accordance With ASTM C-1244-93 (Latest Revision).
- 3.) Test Shall Commence By Drawing A Vacuum Of 5 Psig. Timing Shall Commence With A Stopwatch Or Similar Device Of 99.8% Accuracy Once The Vacuum Pressure Reaches 5 Psig. Timing Shall End When The Vacuum Pressure Drops To 4.5 Psig.
- 4.) If Any Manhole Shows Leakage Or Signs Thereof, The Manhole Shall Be Repaired To The Satisfaction Of The City Of Shelbvville And Retested.
- 5.) The Manhole Shall Be Accepted If The Time Shown In Table 18 For The Designated Manhole Size And Depth Elapses Before The Vacuum Pressure Drops Below 4.5 Psig, At Which Time The Test Can Be Discontinued For The Accepted Manhole.
- Contractor. 7.) The Design Engineer Or His/Her Representative Shall Attest That All Manholes Were Vacuum Tested, With Successful Results, In

6.) All Vacuum Testing And Equipment Shall Be Provided By The Contractor. Any Repairs Shall Be The Responsibility Of The

Accordance With ASTM C-1244-93. A City Representative Shall Be Present Onsite During Each Vacuum Test.

**REVISIONS** Rev. No. **Description** Date 07/26/2011 **Entire Set** Updated Entire Set 02/11/2020





#### TABLE 18: SPECIFICATION TIME REQUIRED FOR A 0.5 PSIG PRESSURE DROP FROM 5PSIG TO 4.5PSIG FOR SIZE AND DEPTH OF MANHOLES INDICATED.

ANHO	LE VA	CUUM	TEST	TIMES	TABL	E
		Diame	ter Of M	anhole		
48"	60"	72"	84"	96"	108"	120"
	M	linimum	Time (Se	conds)		•
20	26	33	39	45	51	57
25	33	41	48	56	64	72
30	39	49	58	67	77	86
35	46	57	68	79	89	100
40	52	67	77	90	102	114
45	59	73	87	101	115	129
50	65	81	96	112	127	143
55	72	89	106	123	140	157
59	78	97	116	134	153	171
64	85	105	125	145	166	186
69	91	113	135	157	178	200
74	98	121	144	168	191	214
	48" 20 25 30 35 40 45 50 55 59 64 69	48" 60"  20 26 25 33 30 39 35 46 40 52 45 59 50 65 55 72 59 78 64 85 69 91	Diame       48"     60"     72"       Minimum       20     26     33       25     33     41       30     39     49       35     46     57       40     52     67       45     59     73       50     65     81       55     72     89       59     78     97       64     85     105       69     91     113	Diameter Of M           48"         60"         72"         84"           Minimum Time (Se           20         26         33         39           25         33         41         48           30         39         49         58           35         46         57         68           40         52         67         77           45         59         73         87           50         65         81         96           55         72         89         106           59         78         97         116           64         85         105         125           69         91         113         135	Diameter Of Manhole           48"         60"         72"         84"         96"           Minimum Time (Seconds)           20         26         33         39         45           25         33         41         48         56           30         39         49         58         67           35         46         57         68         79           40         52         67         77         90           45         59         73         87         101           50         65         81         96         112           55         72         89         106         123           59         78         97         116         134           64         85         105         125         145           69         91         113         135         157	48"         60"         72"         84"         96"         108"           Minimum Time (Seconds)           20         26         33         39         45         51           25         33         41         48         56         64           30         39         49         58         67         77           35         46         57         68         79         89           40         52         67         77         90         102           45         59         73         87         101         115           50         65         81         96         112         127           55         72         89         106         123         140           59         78         97         116         134         153           64         85         105         125         145         166           69         91         113         135         157         178

SANITARY SEWER BEDDING

AND PIPE **DETAILS AND NOTES** 

CITY OF SHELBYVILLE

SHEET 18

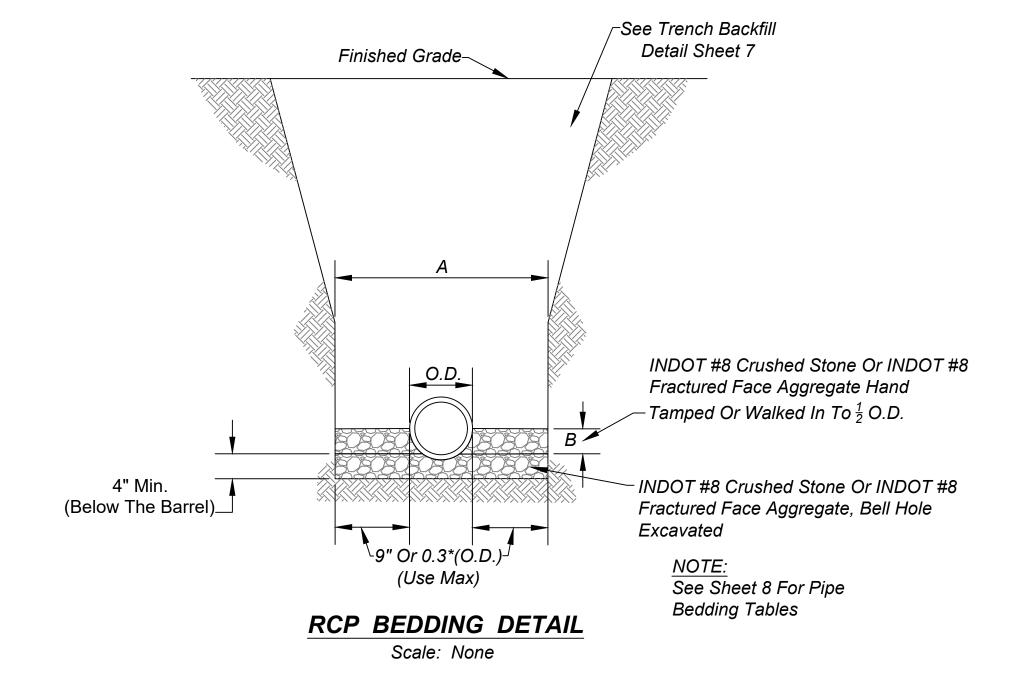


TABLE 17: SPECIFICATION TIME REQUIRED FOR A 1.0 PSIG PRESSUR	'E
DROP FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q=0.0015	

1	2	3	4								
Pipe	Minimum	Length For	Time For		Specifica	tion Time	For Leng	gth (L) Sh	own (Min	:Sec)	
Diameter (In.)	Time (Min:Sec)	Minimum Time (Ft)	Longer Length (Sec.)	100 Ft.	150 Ft.	200 Ft.	250 Ft.	300 Ft.	350 Ft.	400 Ft.	450 Ft.
6	5:40	398	0.854L	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24
8	7:34	298	1.520L	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24
10	9:26	239	2.374L	9:26	9:26	9:26	9:53	11:52	13:51	15:49	17:48
12	11:20	199	3.418L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	14:10	159	5.342L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04
18	17:00	133	7.692L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
21	19:50	114	10.470L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31
24	22:40	99	13.674L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33
27	25:30	88	17.306L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48
30	28:20	80	21.366L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15
33	31:10	72	25.852L	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53
36	34:00	66	30.768L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:46

#### NOTE:

For More Efficient Testing Of Long Test Sections And/Or Sections Of Larger Diameter Pipes, A Timed Pressure Drop Of 0.5 PSIG May Be Used In Lieu Of The 1.0 PSIG Timed Pressure Drop. If A 0.5 PSIG Pressure Drop Is Used, Required Test Time Shall Be Exactly Half As Long As Those

#### Watertight Self Sealing Manhole Ground Line Frame And Cover (See Note 4) Precast Concrete " Extrudable Preformed \_ Adjusting Rings (See Note 2) 24" Infiltration Barrier 1' - 0" Max (See Note 7) 5" Min 5" Min Tapered Cone Section Precast \_ Or Flat Cap Section (See Note 1) O-Ring Gasket Between All Rise Manhole Steps Sections, And Riser And Cone Sections, Plus $\frac{1}{2}$ " Extrudable Joint Wrap On All Manholes Preformed Gasket (Typ) <sup>--</sup>48" Dia. (Min) See Table 19 Minimum $\frac{1}{2}$ " Per Ft. Slope 6" For 48" Dia. Manhole 8" For Over 48" Dia. Manhole 6" Compacted #4 Bars @ 12" OC Both Ways INDOT #8 Aggregate

#### TABLE 19: SANITARY MANHOLE SIZES

	Minimum Manh	ole Diameter
Dina Cina	Pipe Entering /	Pipe Entering /
Pipe Size	Pipe Exiting At	Pipe Exiting At
	0" - 45" Bend	45" - 90" Bend
8" - 21"	48"	48"
24"	48"	60"
27" - 30"	60"	60"
33" - 36"	60" *	72"

\* 72" With A-Lock Connector

Reconstruct Bench Walls Core Drilled Opening Flexible Boot Connector Kor-N-Seal or City Approved Equal Existing Sanitary Manhole Proposed Sanitary Sewer

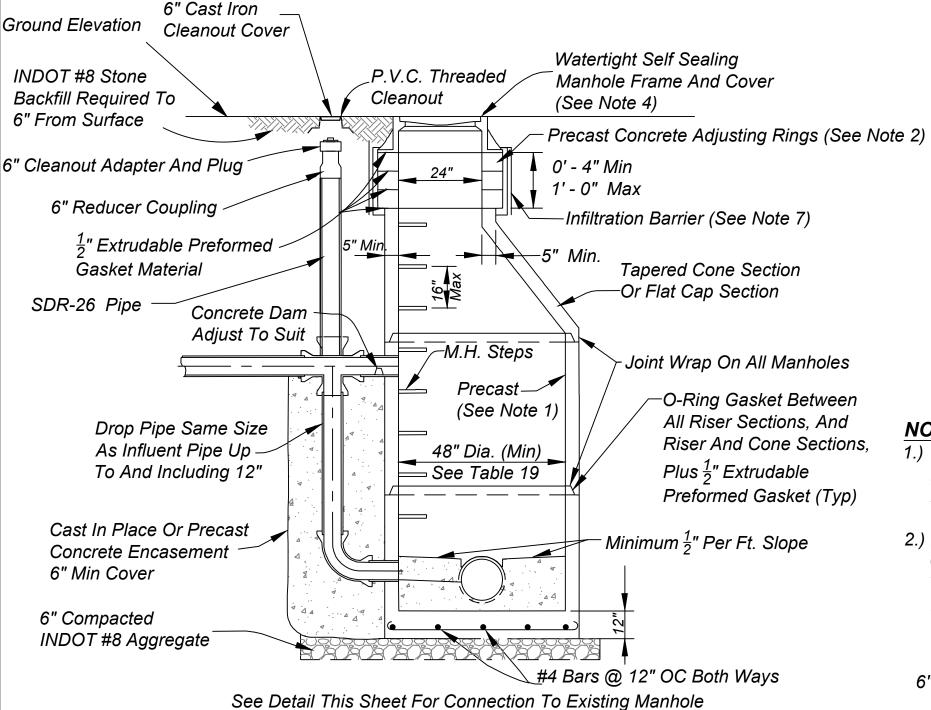
See Detail This Sheet For Connection To Existing Manhole

#### TYPICAL MANHOLE TYPE A Scale: None



Scale: 1/2" = 1'-0"

Ground Elevation



TYPICAL MANHOLE TYPE B (DROP MANHOLE)

Scale: None

Refer To Typical Manhole Details

Flexible Connector (Typ.)

For Construction Of Manhole

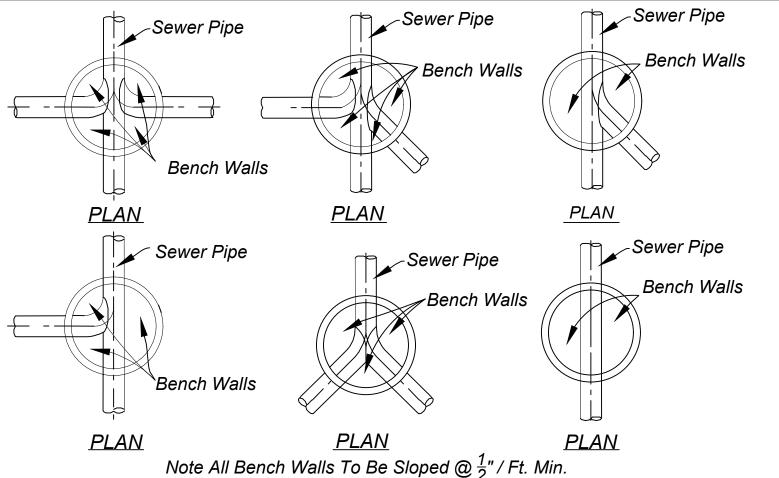
Fiberglass Inside Drop Bowl (See Note 1. This Detail) Core Drilled Opening Influent Pipe Existing Sanitary Manhole Flexible Boot Connector Kor-N-Seal, A-Lok, Dura Seal, Or City Approved Equal **NOTES** 1.) Fiberglass Inside Drop Bowl As External Pipe Coupler Manufactured By Reliner/Duran Inc. Or City Approved Equal. PVC Drop Pipe 2.) Inside Drop Connections May Stainless Steel Pipe Straps With Only Be Used When Connecting S.S. Expansion Anchors (4" Max To Existing Sanitary Sewer Spacing) Manholes Reconstruct Bench Walls Accept Inside Drop Assemply 6" Compacted INDOT #8 Aggregate

#### MODIFIED TYPE B INTERIOR DROP MANHOLE

Scale: None

#### **MANHOLES:**

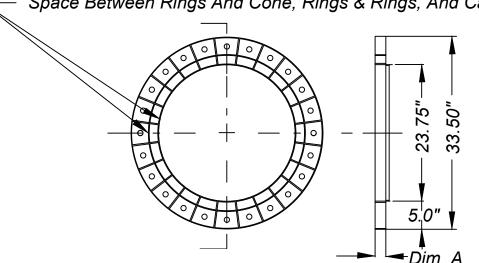
- 1.) Precast Concrete Manholes Shall Conform To ASTM C-478. With Rubber Type Gaskets Equal To ASTM C-443. Monolithic Cast-In-Place Manholes Shall Only Be Used With The Prior Written Approval Of The City. The Base And First Riser Section Of The Precast Concrete Manhole Shall Be Integrally Cast As One Complete Unit. Precast Concrete Cones Shall Be Of The Eccentric Cone Type. No "See Through" Lift Holes Shall Be Allowed On Precast Concrete Manholes 48 Inches In Diameter Or Less. In Addition To The Rubber Type Gaskets All Joints Shall Receive A 1/2 Inch Diameter Nonasphaltic Mastic (Kent-Seal Or City Approved Equal) Conforming To AASHTO M-198 And Federal Specifications SS-S-210A. Pipe Connection To Manhole Shall Be Watertight Flexible Connector (KOR-N-SEAL, A-LOK, Dura-Seal) Or City Approved Equal.
- 2.) Where One Solid Riser Or Barrel Section Cannot Be Used, Final Adjustment In Elevation Of The Frame And Cover Shall Be Accomplished By The Use Of A 4 Inch Minimum Thickness Adjusting Ring As Detailed Herein To A Maximum Combined Thickness Of 12 Inches. Brick Or Block Shall NOT Be Used In The Construction Of A Manhole Or To Adjust The Elevation Of The Frame And Cover.
- 3.) Manhole Steps Shall Be Neenah No. R-1981-J. East Jordan Iron Works No. 8512, M.A. Industries No. PS 1-PF Or City Approved
- 4.) Manhole Frame And Cover Shall Be Self-Sealing Neenah R-1772-B, East Jordan 1022-2-A Or City Approved Equal. When Watertight Frame And Cover Is Required By The City Or Developer, Neenah R-1916-C, East Jordan 1022-2-WT Or City Approved Equal Shall Be Provided. All Covers Shall Be Stamped "SANITARY SEWER" With 2" Raised Letters.
- 5.) The Lowest Elevation To Receive Gravity Sanitary Service Must Be One (1) Foot Above The Top Of Manhole Casting Elevation Of Either The First Upstream Or Downstream Manhole On The Public Sewer To Which Connection Is To Be Made. Those Portions Of The Building Not Meeting The Stated Gravity Sanitary Service Requirement Shall Be Provided And Maintained By The Property Owner With A Grinder Pump System Or City Approved Equal Discharging To The Gravity Building Connection Outside Of The Public Right-Of-Way.
- 6.) See Sheet 11 For Manhole Vacuum Testing Requirements
- 7.) Contractor Shall Install An External Rubber Sleeve Sealing System Wrapped Over The Flange Of The Manhole Frame To 2 Inches Below The Bottom Of The Lowest Adjusting Ring. The External Rubber Sealing Sleeve Shall Have A Minimum Thickness Of 60 Mils And Meet The Requirements Of ASTM C-923, ASTM C-443 And ASTM F-477. The Rubber Sleeve Shall Be Infi-Shield External Manhole Seal, Or As Approved By The City Of Shelbyville.
- 8.) Apply MasterSeal 614 Bituminous Coating, Or City Approved Equivalent, On The External Face Of The Entire Manhole. Apply Non-Shrink Mortar Or Epoxy Grout On The Internal Face At All Manhole Section Joints.
- Manholes Shall Be Installed At Distances Not Greater Than 400
- 10.) Castings Shall Not Be Buried And Shall Be Flush With The Adjacent Finished Grade. Castings Which Are Surrounded By Asphalt Or Concrete Shall Be Constructed Within A Tolerance Of ± 0.1' Of The Designed Elevation. All Other Castings Shall Be Constructed Within A Tolerance Of ± 0.2' Of The Designed Elevation.
- 11.) There Shall Be A Minimum Of 0.1 Feet Of Fall Between The Upstream Invert(s) And The Downstream Invert In The Structure For Pipes Of The Same Diameter. For Pipes Of Differing Diameters. The Crown Of The Upstream Pipe Shall Match The Crown Of The Downstream Pipe. An Outside Drop Manhole Is Required For Upstream Inverts Which Are At Least Two Feet (2') Higher Than The Downstream Invert.
- 12.) All Manholes Receiving Discharge From A Forcemain Shall Be Coated With A City Approved Epoxy Or Polyurethane Coating Such As Culy Microsilica Cement Mortar And Epoxy Corrosion Barrier Or Approved Equal.



#### BENCH WALL DETAIL

Scale: None

Place <sup>1</sup>/<sub>2</sub>" Diameter Extrudable Preformed Gasket Material In The Annular Space Between Rings And Cone, Rings & Rings, And Casting Frame.



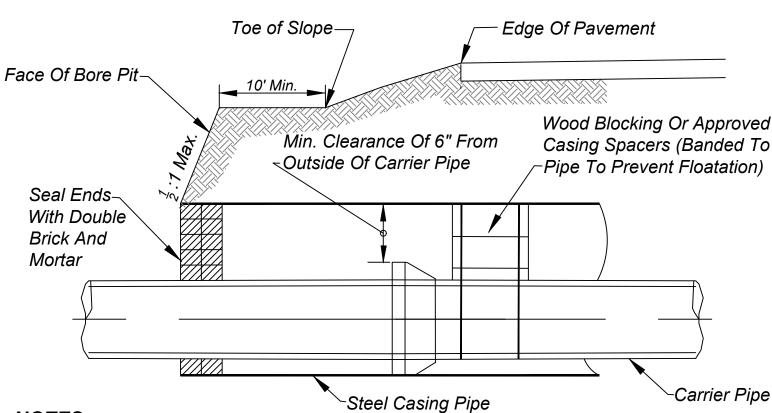
Dim A Options 1.25", 1.50", 2.00" & 4.00" Or Sloped To Match Grade

#### **NOTES:**

- 1.) HDPE Rings Shall Be Injection Molded Recycled HDPE As Manufactured By LADTECH, Inc., Or Approved Equal, And Installed In Accordance With The Manufacturer's Recommendations.
- 2.) Wastewater Superintendent May Require Concrete Adjusting Rings For Manholes Subject To High Traffic Loading.
- 3.) Alternate Adjusting Rings May Be Submitted To The Shelbyville Wastewater Superintendent For

#### HDPE ADJUSTING RING

Scale: None



#### NOTES:

- 1.) Certification Is Limited To Those Standards And Guidelines Outlined In This Detail. Boring(s) Is Subject To Construction Drawings, Shop Drawings, And Design Engineer's Certification. Bored Or Jacked Crossings Require Intimate Knowledge Of Site Conditions. Therefore, Construction Is Subject To Certified Special Provisions Prepared By The Design Engineer.
- 2.) Design Engineer Is Responsible To Determine The Appropriate Size, Thickness, And Joint Strength For Steel Casing Pipes.
- 3.) Carrier Pipes Shall Be In Accordance With Shelbyville Standards.
- 4.) Bore Pits Shall Be Designed To Maximize Safety In Accordance With All Applicable State And Federal Regulations.

#### **ROADWAY BORING DETAILS**

					Scale: None
	REVISIONS		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		CITY OF SHELBYVIL
No.	Description	Date	THEW J. HOLLING	SHELBYVILLE	

	REVISIONS		
Rev. No.	Description	Date	
1	Entire Set	07/26/2011	
2	Added Joint Wrap Note For Manholes	01/10/2014	
3	Updated Entire Set	02/11/2020	1
			ı





SANITARY SEWER DETAILS AND NOTES SHEET

#### Existing Pipe -Existing Pipe Manhole Bench - 0" Min 6" Compacted INDOT #8 Aggregate **NOTE:** Cut Existing Pipe(s) On The Side Of The Proposed Manholes. Remove Existing Pipe(s) Section

∠ € Manhole

New PVC SDR 35 (Typ.)

Fernco Flexible Coupling w/ No. 304

Stainless Steel Clamps

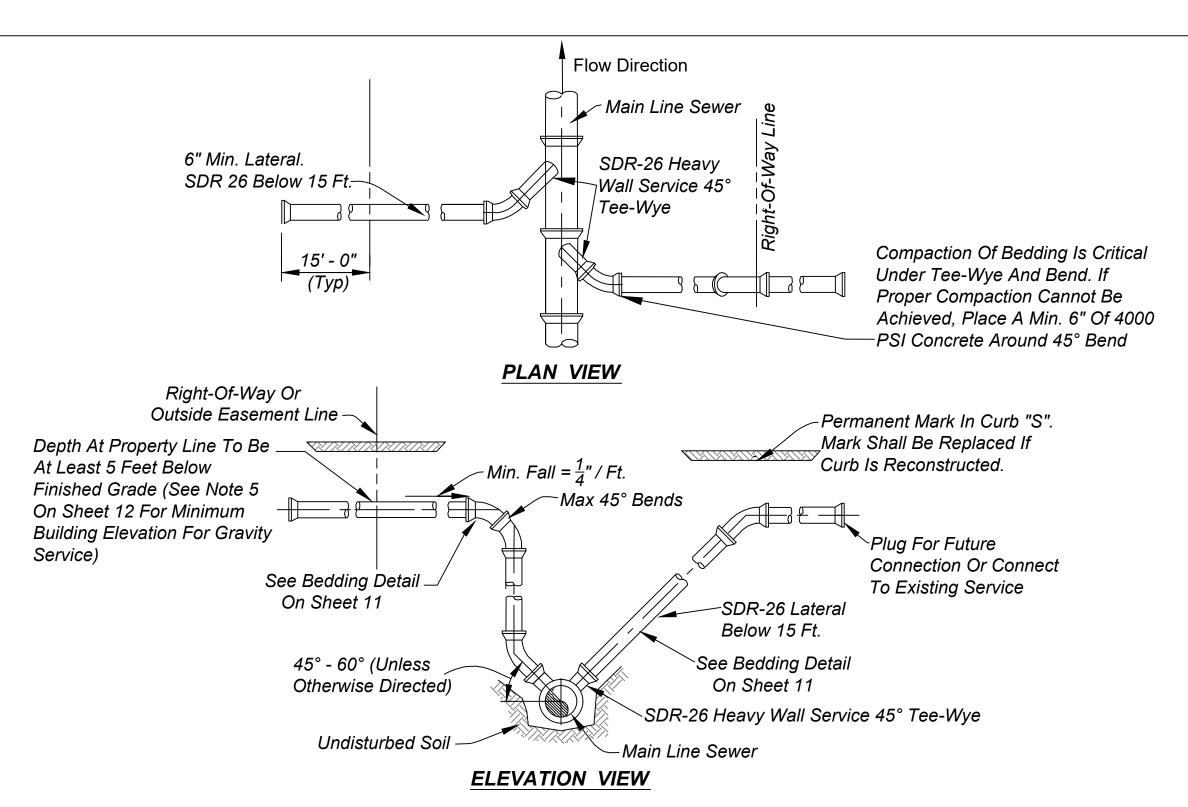
And Install Manhole Base. Proceed With Typical Connections And Manhole Constructions.

SPECIAL MANHOLE CONNECTION DETAIL TO EXISTING PIPE

Scale: None

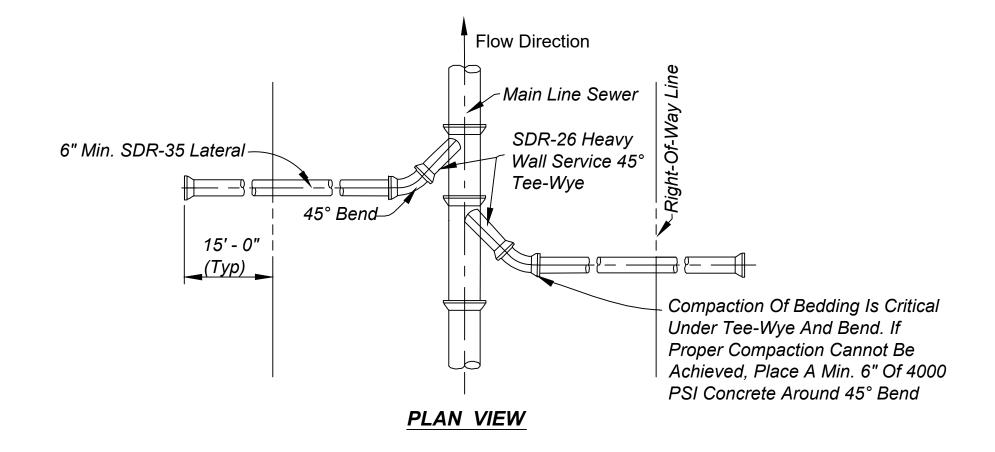
#### SANITARY SEWER LATERAL PIPE AND FITTINGS

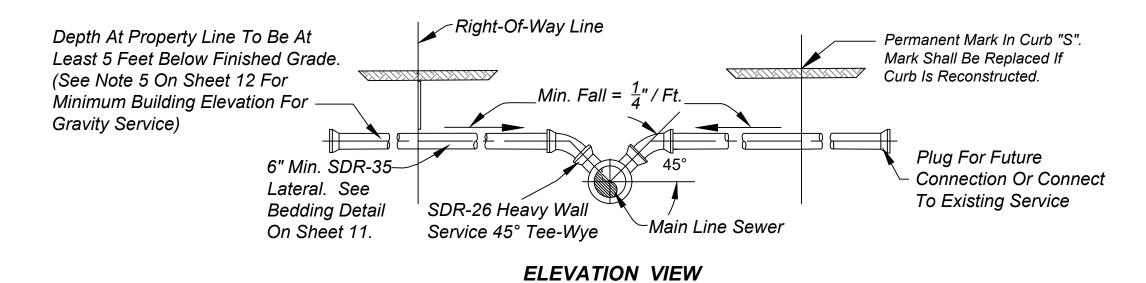
- 1.) Service Laterals Shall Be Gasketed PVC Pipe From The Sewer Main To The Building. Laterals Less Than 15 Feet Deep Shall Be SDR-35. Laterals Greater Than 15 Feet Deep Shall Be SDR-26. All Laterals Shall Be Inspected By The Shelbyville Wastewater Department Prior To Backfill.
- 2.) Joints Shall Be Flexible Gasket Push-On-Compression Type Conforming To ASTM D-3212 And ASTM F-477. No Solvent Cement Joints Shall Be Allowed.
- 3.) Lateral Size Shall Be A Minimum Of 6 Inches In Diameter Between Mainline Sewer And Clean-Out Closest To Building. Lateral Size Shall Be A Minimum Of 4 Inches In Diameter Between Building And First Downstream Clean-Out.
- 4.) A Minimum Of One Clean-Out Shall Be Installed For Each Lateral. Where The Length Of A Lateral Exceeds 100 Feet, Then One Clean-Out Shall Be Installed For Every 100 Feet Of Lateral Length. In Any Event, A Clean-Out Shall Be Located No Farther Than 5 Feet From The Building.
- 5.) In Accordance With City Ordinance §50.048, Approval Consideration Of A Lateral Connection Requires The Owner Of The Residence Or Business To Provide The Following Information On A Legible Diagram: Name Of Property Owner, Address, Telephone Numbers Of Both Property Owner And Contractor, Depth And Position Of Lateral Between Mainline Sewer And The Building, Location Of Connection Point Referenced To Any Permanent Object, Length And Size Of Pipe To Be Installed, Pipe Material, Slope Of Pipe, Bedding Type, Pipe Contractor, And Method Of Connection.
- 6.) Contractor Shall, When Curbs Are Available, Engrave A 3-Inch High By  $\frac{1}{8}$  -Inch Deep "S" On The Curb Directly Above Each Service Lateral. Where Curbs Are Not Available, Contractor Shall Notch The Sidewalk Directly Above Each Service Lateral. If No Curb Or Sidewalk Is Present, A Concrete Monument Shall Mark The Lateral Location.
- 7.) A Backflow Prevention Valve May Be Installed By The Property Owner If Approved By The Wastewater Superintendent. Property Owner Shall Be Solely Responsible For Installation And Maintenance. The Backwater Prevention Valve Shall Be Installed On The Owner's Property Outside City Right-Of-Way. The Backflow Prevention Valve Shall Be Housed In A Minimum 18 Inch Diameter Meter Pit, Readily Accessible At All Times, And Located A Maximum 3 Feet Deep. The City May Require A Backflow Prevention Valve If The Finished Floor Elevation Of A Structure Is Below The Top Of Casting Elevations Of The Immediate Upstream Or Downstream Sanitary Manhole.
- 8.) The Approval Of A New Sanitary Sewer Service Lateral Or The Modification Of An Existing Service Lateral Requires The Procurement Of A Sewer Connection Permit From The Shelbyville Wastewater Department.
- 9.) Lateral Abandonment Requires Approval From The Shelbyville Wastewater Department. A Watertight Cap Or Seal With Fernco Type Fittings Shall Be Installed On The Abandoned Lateral In The Vicinity Of The Sidewalk Or Curb.
- 10.)In Accordance With ASTM D-3034, The Outside Of Each Pipe Section Shall Be Legibly Marked With The Date Of Manufacture, Class Of Pipe, Specification Designation, Name Or Trademark Of Manufacturer And Identification Of Plant/Location. Pipe Shall Be Rotated In Such A Manner That The Markings Are Easily Readable During Sanitary Lateral Inspection.
- 11.) In New Development, The Sanitary Laterals Shall Be Extended To The BSL When The Sanitary Main Is Being Installed.
- 12.) Unless Approved By The Wastewater Superintendent, Laterals Should Connect To The Main Directly In Front Of The Lot, Behind The Lot, Or Across The Street, And Not In Front Of Adjacent Lots, The Intent Being, One Lateral And One Tap Per Residential Lot.



# SERVICE CONNECTION FOR DEEP SEWERS (15' DEEP AND OVER)

Scale: None

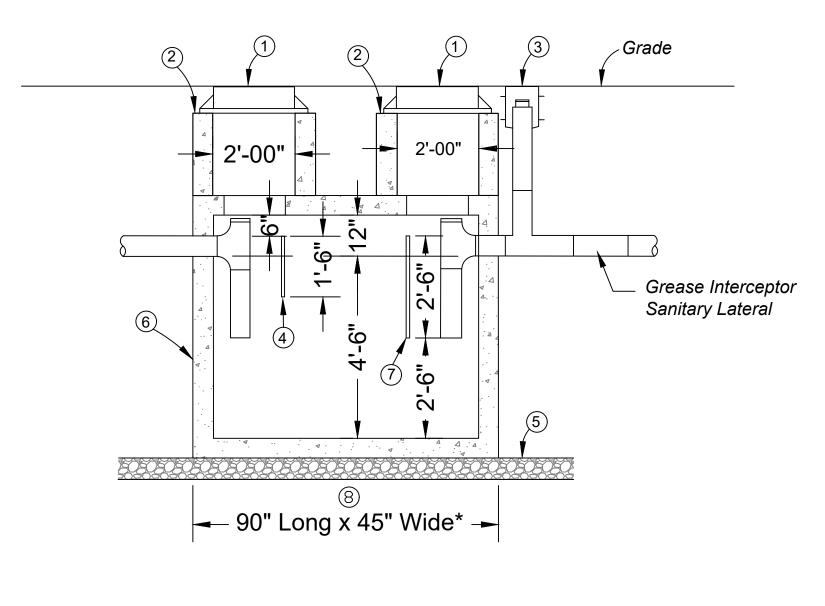




#### SERVICE CONNECTION FOR SHALLOW SEWERS

(LESS THAN 15' DEPTH)

Scale: None



#### NOTES:

- Cast Iron Manhole Frame And Cover Neenah
   R-6461-FH Or R-6462-FH Or Approved Equal
- 2 24" Diameter Concrete Pipe Riser
- (3) Cast Iron Clean-Out And Cover
- 4 Precast Concrete Inlet Baffle
- (5) 6" Compacted INDOT #8 Aggregate
- 6 Precast Concrete Structure Designed For Vehicle Traffic. (Structure Shall Be Approved By The City And Shall Have 6" Minimum Wall Thickness)
- 7) Precast Concrete Outlet Baffle
- 8 Length And Width Dimensions Shown Correspond To A 1,000 Gallon Capacity Grease Trap. Larger Dimensions May Be Required. See Site Plan For Actual Size. Additional Vertical Depth May Also Be Required.
- All New Commercial Or Industrial Entities, Which Either Generate And/Or Waste Oil, Grease Or Other Similar Substances Thereto, Shall Construct A 1,000-Gallon (Minimum) Grease Trap. The Design Engineer Shall Submit Detailed Calculations For Size Justification Of Said Trap. Calculations Shall Be Accompanied With References Specifically Denoting Origin Of Sizing/Calculation Method.

- 10 Toilets, Urinals, Sinks, And Other Non-Grease Laden Wastes Shall Not Waste Through The Grease Interceptor. All Other Waste Shall Enter Through The Grease Interceptor, Through The Inlet Pipe Only.
- Grease Interceptor Shall Be Installed Downstream Of All Kitchen Drains Or Grease-Laden Equipment Drains, And In A Location Readily And Easily Accessible For Cleaning And Inspection Purposes, In Accordance With City Ordinances §50.048 (I) And §50.052 (D)(1).
- 12) The Oil/Grease Trap Shall Be Located Outside The Building And At A Distance Far Enough To Allow Soluble Grease/Oil To Become Insoluble. Water Temperatures Shall Be Less Than 120° F Prior To Entering The Grease Interceptor. Greater Distances May Be Required By The City.
- 13 Each Building Or Facility Shall Have A Separate Individual Grease Interceptor.
- All Property Owners Or Utility Users With Grease Interceptors Shall Have Sole Responsibility For The Installation And Maintenance Of The Grease Interceptor. Owners Or Utility Users Shall Be Responsible For The Proper Removal And Disposal, By Appropriate And Lawful Means, Of The Captured Material In The Interceptors.
- The City Of Shelbyville Reserves The Right To Inspect All Grease Interceptors That Are Located Upstream Of City Owned Sewers. Any Person, Business, Industry, Or Owner That Is Found To Be Responsible For Discharging Fats, Oils, Grease, Or Other Similar Substances Thereto Shall Be Responsible For The Cost Of Remediating Any And All Issues Created By Such Discharge.

#### FOOD GRADE GREASE INTERCEPTOR DETAIL

Scale: None

#### NOTE:

When An Oil Separator Is Required For Garages And Other Industrial Uses, The Oil Separator Must Be Approved By The WRRF Superintendent.

Sealtite Multi-Range Sewer Pipe Saddle		
	6" Service Lateral (SDR 3 Joints Shall Be Rubber Ga	,
Core Drill + Opening	45° - 60° (Unless Otherwise Directed) Fill Voids And Encase	1.) Sewer Pipe S Company Se Connecting T
	Saddle With Concrete	With A 6.275
Existing Main Line Sewer	Undisturbed Soil	2.)Sewer Pipe S Company Se

SANITARY LATERAL SADDLE TAP

Scale: None

1.) Sewer Pipe Saddle Shall Be General Engineering Company Sealtite Type "U" For Laterals Connecting To Existing Mainline Sanitary Sewer With A 6.275" OD. TO 30.00" OD.

2.) Sewer Pipe Saddle Shall Be General Engineering Company Sealtite Type "C" For Laterals Connecting To Existing Mainline Sanitary Sewer Over 30.00" OD.

	REVISIONS	
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	Updated Entire Set	02/11/2020
3	Note About Extending Laterals	05/11/2021

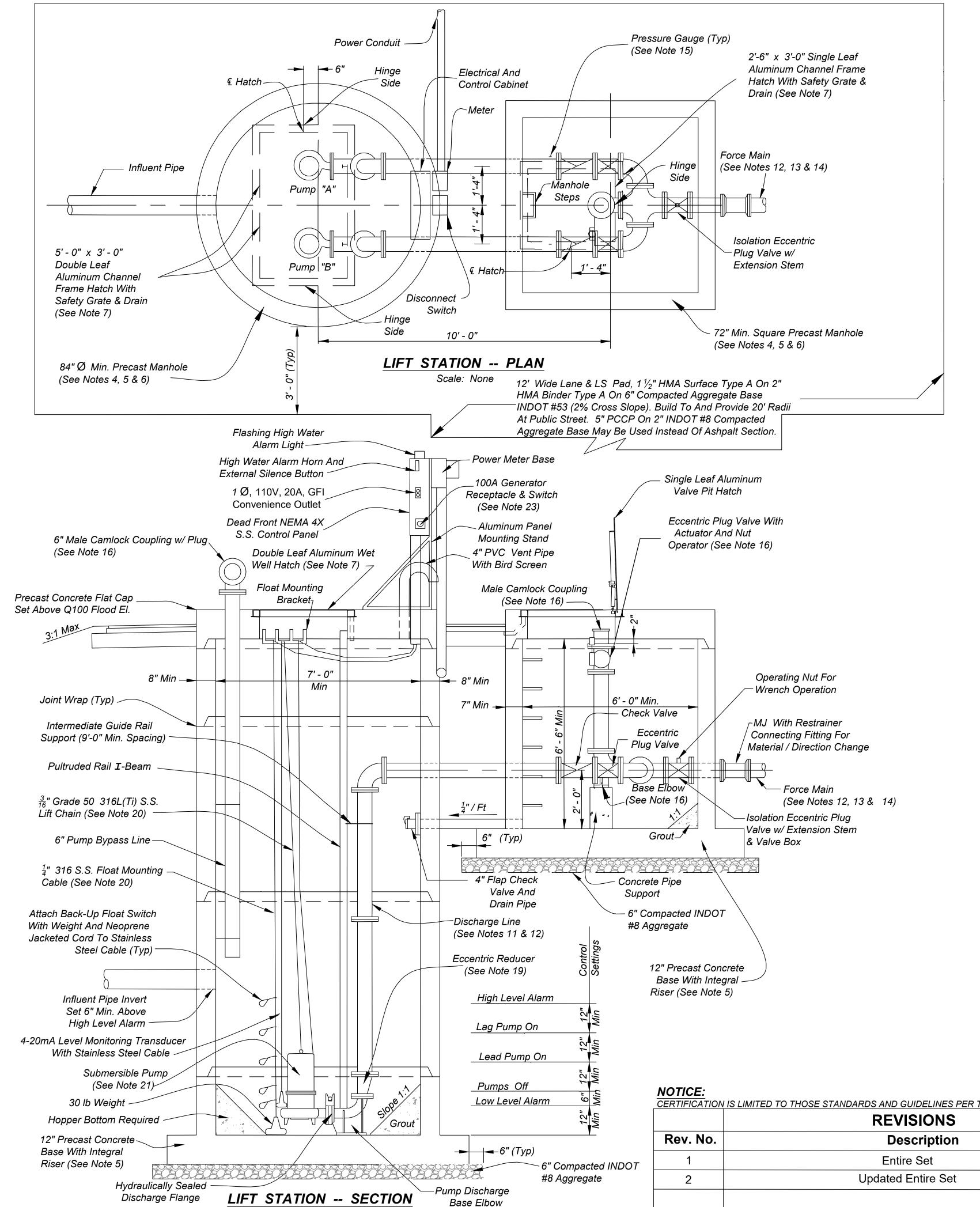




CITY OF SHELBYVILLE

SANITARY SEWER
DETAILS AND NOTES

SHEET 13 OF 18



Scale: None

#### **GENERAL NOTES:**

- 1.) Lift Station Use Shall Be Only On A Temporary Basis Or As Necessary To Comply With The City Of Shelbyville Sanitary Sewer Master Plan.
- 2.) Actual Lift Station Dimensions, Control Settings, & Pump Selection To Be As Indicated By The Design Engineer's Certification Sheet.
- 3.) City May Require Lift Station Perimeter To Be Fenced. If A Fence Is Required, Fence Shall Be Coated Chain Link. Gate(s) Shall Be Wide Enough To Permit Passage Of A Pump And Any Hauling Equipment.
- 4.) Lift Station And Valve Pit Manholes Shall Be Precast Concrete In Accordance With ASTM C-478, With Rubber Gaskets Equal To ASTM-443 With ½" Gasket Material Or City Of Shelbyville Approved Equal. See Sanitary Sewer Details And Notes Sheet 12 For Manhole Steps.
- 5.) Concrete Lift Station Structure Shall Be Designed Based On Site Conditions To Resist Any Buoyancy Forces That May Be Encountered.
- 6.) All Lift Station Exterior Vertical Surfaces Shall Be Dampproofed With MasterSeal 614 Bituminous Coating, Or City Approved Equivalent.
- 7.) Aluminum Hatches Shall Be Channel Frame Type Flygt Safe-Hatch Or Approved Equal. Leaf Shall Be  $\frac{1}{4}$ " Aluminum Diamond Plate Live Load Rated To 300 PSF. Channel Frame Shall Be  $\frac{1}{4}$ " Extruded Aluminum With A Mill Finish And Bituminous Coating On Exterior Surfaces. Hatch Shall Be Provided With Type 316 S.S. Hardware Throughout, Automatic Hold-Open Arm With Release Handle, Slam Lock With Removable Handle, And 1-1/2" Drain Coupling.
- 8.) All Manholes And Lift Stations Receiving Discharge From A Forcemain Shall Be Coated With A City Approved Epoxy Or Polyurethane Coating Such As Culy Microsilica Cement Mortar And Epoxy Corrosion Barrier Or Approved Equal.
- 9.) Sewer Connection To Wet Well Shall Be KOR-N-SEAL, A-LOK, Dura-Seal, Or City Of Shelbyville Approved Equal.
- 10.) Force Main Penetrations Of Wet Well And Valve Pit Shall Be Core Drilled And Made Watertight Through Use Of KOR-N-SEAL, A-LOK, Dura-Seal, Or City Of Shelbyville Approved Equal.
- 11.) Piping And Fitting In Wet Well And Valve Pit Shall Be Factory Primed Tnemec Series 140-1211 To A Dry Film Thickness Of 5.0 To 11.0 Mils And Shall Be Field Painted With Tnemec Series 69-Color To A Dry Film Thickness Of 5.0 To 6.0 Mils. Fittings Shall Be Manufactured By Clow, Tyler, Mueller, Or As Approved By City Of Shelbyville.
- 12.) Piping In And Within 2 Feet Of Wet Well And Valve Pit Shall Be Class 53 Flanged Ductile Iron Pipe And Shall Be Manufactured By Griffith, U.S. Pipe, Or As Approved By City Of Shelbyville. All Fasteners Within Wet Well And Valve Vault Shall Be 316 S.S.
- 13.) Piping Not Within 2 Feet Of Wet Well And Valve Pit Shall Be DI AWWA C151, HDPE AWWA C906, PVC ASTM D2241, PVC AWWA C900, Or City Of Shelbyville Approved Equal. See Design Engineer's Certification Sheet For Pipe Class.
- 14.) For All Forcemains, Contractor Shall Install Two 10-Gauge Insulated, Solid Copper Tracer Wire And Polyethylene Identification Tape. Both Items Shall Be Highly Resistant To Alkalis, Acids, And Other Destructive Agents Found In Soil. The 10-Gauge Tracer Wire Shall Be Directly Attached To The Outside Of The Forcemain Pipe Every 10 Feet. The Polyethylene Identification Tape Shall Have A Minimum Thickness Of 4 Mils And Shall Be Placed Directly Over The Pipe 18" Below Final Grade.
- 15.) Pressure Gauge Shall Be Trerice Model 450 LFB Or City Of Shelbyville Approved Equal. Drill & Tap Run Of Pipe To Install Pressure Gauge.
- 16.) Camlock Coupling And Eccentric Plug Valve On By-Pass Line Shall Be 6 Inch Diameter With Transition To Force Main Size Occurring With Concentric Reducer Placed On Top Of Base Elbow. Fix Operating Nut For Eccentric Plug In Vertical Position To Enable Wrench Operation From Surface. Layout Of All Valve Vault Fittings And Equipment To Be Based Upon By-Pass Line Being Up Close To Hatch Opening As Shown.
- 17.) Plug Valve Shall Be An Eccentric Buna N Rubber Faced Plug With Hand Lever Operation In-Line And Gear Operation On By-Pass. Valve Shall Be Valmatic F-5800-R, Clow F-5412, Or As Approved By City Of Shelbyville. The Valve Shall Be Furnished With Fusion Bonded Epoxy
- 18.) Check Valve Shall Be Bronze Seated, Rubber Coated, And Shall Be Provided With Bolted Covers For Easy Access To The Discs. Valve Shall Be Outside Adjustable Weight & Lever As Mueller A-2600-6-01, Clow F-5382, Or As Approved By City Of Shelbyville. The Valve Shall Be Furnished With Fusion Bonded Epoxy Coating Inside And Out In Accordance With AWWA C-550.
- 19.) Eccentric Reducer Shall Be Installed As Required For Force Main Size. Consult City Of Shelbyville Waste Water Department If Force Main Piping Is Greater Than 6-Inch Diameter.
- 20.) Provide Sufficient Lift Chain, Float Mounting Cable, And Pump Power & Sensor Cable To Enable Non-Spliced Field Adjustment. Lift Chain Shall Have A Minimum Work Load Limit Of 1100 Pounds. Float Mounting Cable Shall Be Held In Place By Weight. Floats Shall Be Fastened To Cable With S.S. Clamps Near Each Float Location. Pump Power & Sensor Cable Shall Be Suitable For Submersible Pump Applications And This Shall Be So Indicated By A Code/Legend Permanently Embossed On The Cable.
- 21.) Pumps "A" And "B" Shall Be Identical, Centrifugal, And Submersible. Pumps Shall Be Hydromatic Or Flygt Grinder Or Chopper Pumps Or City Approved Equal. Manufacturer Shall Warrant The Pumps For Five Years After Installation With Pro-Rated Warranty.

All Mating Surfaces Intended To Be Watertight Shall Be Machined And Fitted With Nitrile Rubber O-Rings With Sealing Complete When Metal - To - Metal Contact Is Made, Resulting In Controlled Compression Of O-Rings Without Specific Torque Limit. Fasteners Shall Be 316 S.S.

Mechanical Shaft Seal System Running In An Oil Reservoir Shall Have Separate, Constantly Lubricated Lapped Seal Faces. The Lower Seal Unit Between Media And Oil Reservoir Shall Consist Of One Stationary Seat And One Rotating Ring Held In Place By Its Own Spring. The Rotating Seat Ring And The Stationary Seat Ring Shall Be Made Of Tungsten-Carbide. The Lower Seal Shall Be Removable Without Disassembling The Seal Chamber. The Upper Seal Between Seal Chamber And Motor Shall Be Of The Same Design With Its Own Spring. Seals Shall Be Maintenance Free, But Shall Be Easily Inspectable.

Lower Seal Failure Alarm Shall Be Engaged By Seal Failure Sensor Provided In The Seal Chamber Which Senses Water Intrusion Through The Lower Seal.

Overtemperature Alarm And Pump Shut-Down Shall Be Engaged By Heat Sensor Attached To The Motor Windings. Motor Winding And Stator Lead Insulation Shall Be Class F With Maximum Temperature Capability Of 155°C Or Better. Housing Shall Be Filled With High-Dielectric Oil. Air Filled Housing May Be Acceptable When Approved By City Of Shelbyville. Pump And Motor Shall Be Designed To Operate Partially Or Fully Submerged In Pumped Media Without The Use Of Cooling Jackets.

Rail System Shall Enable The Easy Removal Of The Pump Without The Need For A Person To Enter The Wet Well. A Non-Corrosive FRP I-Beam Shall Be Provided For Each Pump. The Guide Rail Shall Be Supported At The Bottom By The Discharge Elbow, Aligned Perfectly Plumb And Securely Affixed To Access Frame. One Intermediate Guide Rail Support Is Required For Each 9' Of Guide Rail Length. Schedule 40 S.S. Guide Rails May Be Acceptable If Pump Is Approved By City Of Shelbyville.

22.) Automatic Pump Control System Shall Include All Necessary Items And Appurtenances, Which Might Normally Be Considered A Part Of A Complete System, Including But Not Limited To; Condensate Heater, Push To Test Button, Push to Silence Button, Alternator Selector Switch For Manual Designation Of Lead Pump, Time Delay Relay For Lag Pump Start, And Pump Run Time Hour Meters. System Shall Be Supplied By One Manufacturer, Shall Be Factory Assembled, Wired, And Tested, And Shall Be Per Complete Electrical Drawings And Instructions. Major Components And Sub-Assemblies Shall Be Identified As Function With Laminated, Engraved, Bakelite Nameplates. System Shall Be Built In A NEMA 4x S.S. Enclosure Suitable For The Specified Horsepower And Voltage Of The Pumps. The Outer Door Of The Panel Shall Be A Hinged Dead Front With Provisions For Padlocking. Inside Shall Be A Separate Hinged Panel To Protect All Electrical Components, H-O-A Switches, Run Lights, Circuit Breakers, Etc., Mounted Such That Only The Faces Protrude Through Said Panel With No Wiring Fixed To Said Panel. The Manufacturer Shall Warrant The Control Center For One Year After Installation Covering 100% Parts And Labor.

The Control Center Shall Be Approved By The WRRF Superintendent To Control The Pumps And to Maintain The Level In The Wet Well. The Controller Shall Also Receive A Signal From The Back-Up Floats And Automatically Switch To Back-Up If The 4-20 mA Signal Is Lost. All Necessary Components For Above Controller To Operate Shall Also Be

The Control Center Shall Incorporate Connections For Heat Sensors Which Are Installed In The Pumps. The Connection Shall Disconnect The Starter Upon High Temperature Signal, And Will Automatically Reconnect When Condition Has Been Corrected.

The Control Center Shall Incorporate Connections For Seal Failure Sensors Which Are Installed In The Pumps. The Panel Will Have A Seal Failure Alarm Light For Each Pump. This Alarm Indicates Failure Of The Lower Mechanical Seal In The Pump. This Will Be An Alarm Light Only And Will Not Shut Down The Pump.

The Liquid Level Of The Wet Well Shall Be Sensed By A Submersible Level Transducer Model 6100 As Manufactured By Sigma. The Transducer Shall Be A 2-Wire Type To Operate From A Supply Voltage Of 15 To 45 VDC And Produce A 4-20 mA Instrumentation Signal In Direct Proportion To The Measured Level Excursion Over A Factory-Calibrated Range Which Will Be Indicated By Readout On The Front Panel. It Shall Be Of The Head-Pressure Sensing Type, Suitable For Continuous Submerged Operation And Shall Be Installed In Accordance With The Manufacturer's Instructions. The Bottom Diaphragm Face Of The Sensor Will Be Installed Where Shown On The Plans. The Diaphragm Face Shall Be A Minimum Of 2.5 Inches Outside Diameter.

Provide The Services Of A Factory-Trained, Qualified Representative To Inspect, To Adjust, And To Place The System In Trouble-Free Operation And To Instruct The Operating Personnel In The Proper Operation And Care Of The System.

All Major Components Of Control Center Shall Be American-Made And Available From Local Sources Within 100 Miles Of The City Of Shelbyville Or Approved By The Waste Water Superintendent. Pump Manufacturer Shall Accept The Control Center In Writing To Ensure Unit Responsibility And Warranty.

Provide A Manual Transfer Type Disconnect Switch Housed In A Separate NEMA 4 X S.S. Enclosure With External Operation Handle Capable Of Being Locked In The "ON" Normal Position Or The "ON" Secondary Position With A Middle "OFF" Position. Control Panel Shall Be A Single Or Double Door NEMA 4X With A 3 Point Latch.

A Lightning Arrestor Shall Be Provided At The Phase Relay Block And Connected To Each Line Of The Incoming Side Of The Power Input Terminals. A Single Main Fusible/Breaker Disconnect Switch Of Adequate Size To Provide Power For Control, Operation, And Appurtenant Components Shall Be Provided. Provide A Circuit Breaker And Magnetic Starter With Each Leg Manual Reset Overload Protected For Each Pump. Starters Shall Have Auxiliary Contacts On 3 Ø Applications To Operate Both Pumps Simultaneously. Provide A Phase Monitor With Phase Fail Relay. Provide A Circuit Breaker And Transformer To Power The Control Panel With 1 Ø, 115 Volt Service For All Control Functions Including Scada, Radio And Flowmeter. Provide A Green "RUN" Light And H-O-A Switch To Enable Field Connections.

Materials And Installation Of The Required Equipment Grounding Shall Be In Accordance With NEC Section 250-83(c). All Wiring Shall Have Not Less Than 600 Volt Insulation. Wiring And Buss Shall Be In Accordance With NEC, State, Local, And NEMA Standards. All Wiring Shall Be Color Coded. Minimum 4" Diameter, Schedule 40 Conduit Shall Be Provided From Wet Well To Control Panel Enabling Pump Power & Sensor Cables And Float Switch Cables To Be Easily Pulled. Seal Conduit At Control Panel To Prevent Sewer Gases From Entering. All Conduits, Fittings, Or Connections Shall Enter From The Bottom Of Enclosures.

Sump Level Rise To Lead Pump Run Float Causes Lead Pump To Operate. Lead Pump Operating And Sump Level Falling To Pumps Off Float Causes Lead Pump To Shut Off. Lead Pump Operating And Sump Level Rising To Lag Pump Run Float Causes Lag Pump To Operate. Lag Pump Operating And Sump Level Falling To Pumps Off Float Causes Both Pumps To Shut Off. Sump Level Rise To High Level Alarm Causes High Level Alarm To Operate. Sump Level Fall To Low Level Alarm Causes Low Level Alarm To Operate. An Alternating Relay Shall Be Provided To Cause Pumps To Alternate Whenever Pumps Off Float Is De-Energized. If One Pump Fails For Any Reason, The Remaining Pump Shall Operate Upon Sump Level Rise To Lag Pump Run Float. An Hour Meter Shall Be Provided For Each Pump To Record The Elapsed Operating Time Of Each Pump. Floats Are Backup If Level Transducer Fails.

- 23.) Generator Receptacle To Be Crouse-Hinds AR2041-SS22 Dead Front Interlocked Receptacle With Factory Sealed Switch For Receipt Of The City Of Shelbyville Crouse-Hinds AP-20457-SS22 M80 Plugged Portable Generator Set.
- ) The Contractor Shall Furnish A Wireless Cellular Monitor As Manufactured By Omni-Site.net And Approved By The City Of Shelbyville. The Monitor Shall Be Mounted In The Above Main Pump Control Panel With Antenna Mounted On Enclosure Exterior. Contacts To Be Monitored Shall Be Pump 1 Fail, Pump 2 Fail, Pump 1 Seal Fail, Pump 2 Seal Fail, High Water Alarm, Low Water Alarm, Control Power Fail, Main Power Phase Fail, Pump 1 Run (Normally Open Contact), And Pump 2 Run (Normally Open Contact).
- Four Manuals Shall Be Presented To The Owner Which Shall Include The Following Minimum Information: 1) Operation Instructions, 2) Maintenance Instructions, 3) Recommended Spare Parts List, 4) Lubrication Schedule, 5) Structural Diagrams, 6) As-Built Wiring Diagrams, & 7) Bill Of Materials.

CERTIFICATION IS LIMITED TO THOSE STANDARDS AND GUIDELINES PER THIS SHEET. CONSTRUCTION IS SUBJECT TO CONSTRUCTION DRAWINGS, SHOP DRAWINGS, AND DESIGN ENGINEER'S CERTIFICATION SHEET.

**Date** 07/26/2011 PE11100675 02/11/2020





CITY OF SHELBYVILLE SANITARY SEWER LIFT STATION STANDARDS AND GUIDELINES

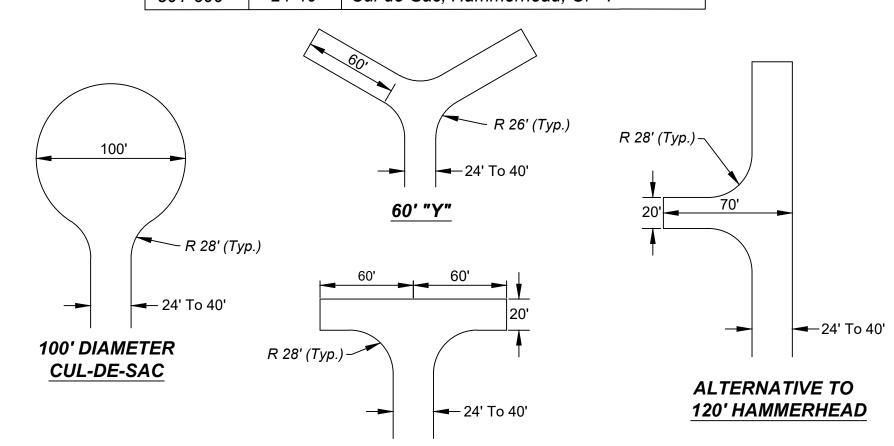
#### FIRE DEPARTMENT GENERAL NOTES

- 1.) A Water Distribution Plan Shall Be Submitted As Part Of The Site Development Plans And Approved By The City Of Shelbyville Tech Review Committee Prior To Issuance Of An Improvement Location Permit. The Water Distribution Plan Shall Include The Following Items:
  - A. Existing And Proposed Water Mains With Sizes Denoted
  - B. Location Of Existing And Proposed Fire Hydrants
  - C. Location Of Proposed Fire Protection Equipment (FDC, PIV, Etc.)
- 2.) An Approved Water Supply Capable Of Supplying The Required Fire Flow For Fire Protection Shall Be Provided To Premises Upon Which Facilities, Buildings, Or Portions Of Buildings Are Hereafter Constructed.
- 3.) Water Distribution Mains Shall Be Looped Or Designed To Facilitate Future Looping As Appropriate. Distribution Mains For Commercial And Industrial Structures Shall Be Minimum 8 Inches In Diameter Or As Determined By The Shelbyville Fire Department And Indiana American
- 4.) All Water Mains Shall Be Minimum 8 Inches In Diameter. All Hydrant Feeder Lines Shall Be Minimum 6 Inches In Diameter. All Public And Private Water Mains And Appurtenances Shall Meet Indiana American Water Company And American Water Works Association (AWWA) Specifications.
- 5.) All Fire Hydrants and FDCs Shall Be Bagged Prior To Being Placed In Service.
- 6.) A Minimum Of Two Means Of Access Shall Be Provided For:
  - A. Any Subdivision With 50 Or More Single Or Double Family Residential Lots;
  - B. Any Development Having One Or More Commercial, Multi-Family, Institutional, Or Industrial Structures 3 Stories Or

  - C. Any Development Having 3 Or More Commercial, Multi-Family, Institutional, Or Industrial Structures Of Any Height.
- 7.) Fire Department Accessibility Shall Not Be Obstructed In Any Manner, Including The Parking Of Vehicles. Fire Apparatus Access Shall Have A Minimum Unobstructed Width Of 26 Feet, Measured From The Outside Of The Building Sidewalk And Foundation Landscaping, And A Minimum Unobstructed Vertical Clearance Of 13 Feet 6 Inches, Except For:
  - A. Truck Dock Areas Designed For Loading And Unloading
  - B. Areas Used For Trash Compactors
  - C. Parking Areas Approved By The Shelbyville Fire Department
- 8.) Approved Fire Apparatus Access Roads Shall Be Provided For Every Facility, Building, Or Portion Of A Building Hereafter Constructed Or Moved Into Or Within The City Of Shelbyville. The Fire Apparatus Access Roads Shall Extend To Within 150 Feet Of All Portions Of The Facility Or Any Portion Of The Exterior Wall Of The First Story Of The Building. Apparatus Access Road Shall Be Constructed Of Driveable Grass, Asphalt, Or Concrete And Be Designed To Adequately Support Fire Vehicle Loads Of 75,000 Pounds Or Greater.
- 9.) Fire Apparatus Access Road Shall Be Constructed And Made Serviceable Prior To Start Of Building Construction. Fire Apparatus Access Roads Shall Not Be Obstructed In Any Manner, Including The Parking Of Vehicles. The Apparatus Access Road Shall Have A Minumum Unobstructed Horizontal Width Of 24 Feet And Vertical Clearance Of 13 Feet 6 Inches At All Times.
- 10.) Knox Boxes Are Required For All Commercial, Industrial, Institutional, Apartment, And Townhouse Buildings And Shall Be Mounted In Accordance With The Specific Directions Of The Shelbyville Fire Department. Required Number Of Knox Boxes Shall Be Determined By The Shelbyville Fire Department.
- 11.) Alarm Panel Shall Be Located Near The Front Door.
- 12.) Electrical Rooms, Riser Rooms, Roof Access, Basement Access, And Alarm Rooms Shall Be Labeled In Minimum 3-inch Letters And Shall Be Of Reflective Material.
- 13.) No Smoking Signs Shall Be Located Near All Outside Doors.
- 14.) Vehicle Impact Protection Shall Be Installed For Gas Meters.
- 15.) New And Existing Buildings Shall Have Approved Address Numbers Plainly Legible And Visible From The Road Along The Property Frontage. These Numbers Shall Contrast With Their Background. Address Numbers Shall Be Arabic Numerals Or Alphabet Letters. Numbers Shall Be A Minimum Of 4 Inches High With A Minimum Stroke Width Of 0.5 Inches.
- 16.) Temporary Building Address Signs Shall Be Installed At The Start Of Construction For All New Buildings. Temporary Address Signs Shall Meet The Requirements In Note 15.
- 17.) Streets And Roads Shall Be Identified With Approved Signs. Temporary Signs Shall Be Installed At Each Street Intersection When Construction Of New Roadways Allows Passage By Vehicles. Signs Shall Be Of An Approved Size, Weather Resistant, And Be Maintained Until Replaced By Permanent Signs.
- 18.) All Roads Or Drives Which Dead-End That Are In Excess Of 150 Feet In Length Shall Be Designed With Width And Turnaround Provisions In Accordance With The Dead-End Road Turnaround Detail On This Sheet. All Roads Or Drives With Fire Apparatus Access Shall Have A Minimum Unobstructed Vertical Clearance Of 13 Feet 6 Inches.
- 19.) All Other Items Not Specifically Stated Herein Shall Be In Accordance With The Most Recently Adopted Edition Of The Indiana Fire Code, NFPA, The International Fire Code, and Indiana General Administrative Rules.
- 20.) For Required Inspections. Contact Shelbyville Fire Department 24 Hours Prior To Inspection At 317-392-5119.

#### TARLE 20. DEAD-END ROAD REQUIREMENTS

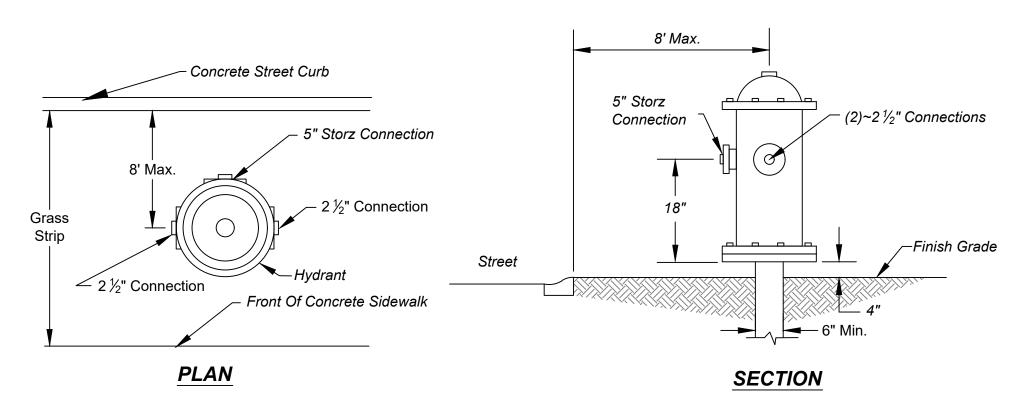
IADLL	U. DLAL	J-LIND NOAD NEWOINLINEN IS
LENGTH (ft)	WIDTH (ft)	TURNAROUNDS REQUIRED
0-150	24-40	None
151-500	24-40	Cul-de-Sac, Hammerhead, Or "Y"
501-600	24-40	Cul-de-Sac. Hammerhead. Or "Y"



#### 120' HAMMERHEAD

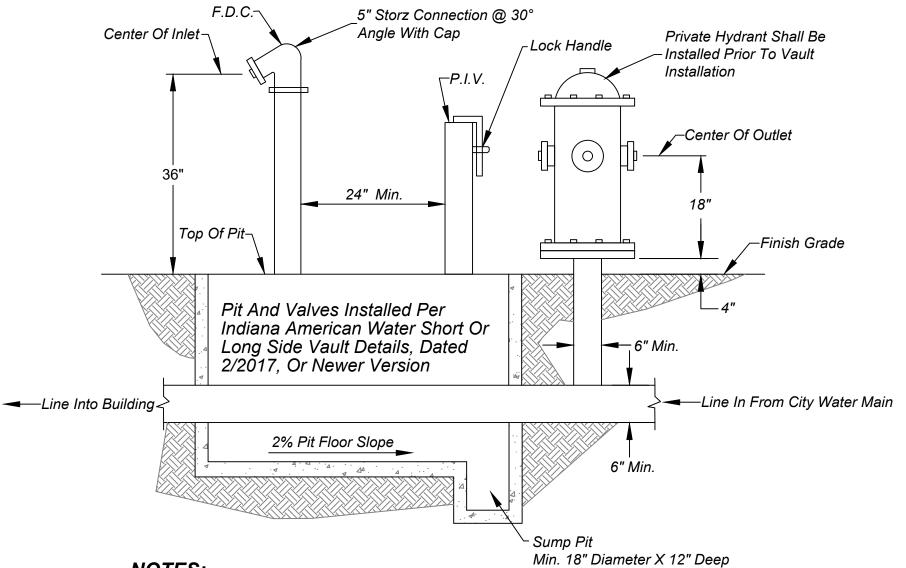
#### DEAD-END ROAD TURNAROUND DETAILS

Scale: None



#### FIRE HYDRANT LOCATION WITHIN R/W

Scale: None

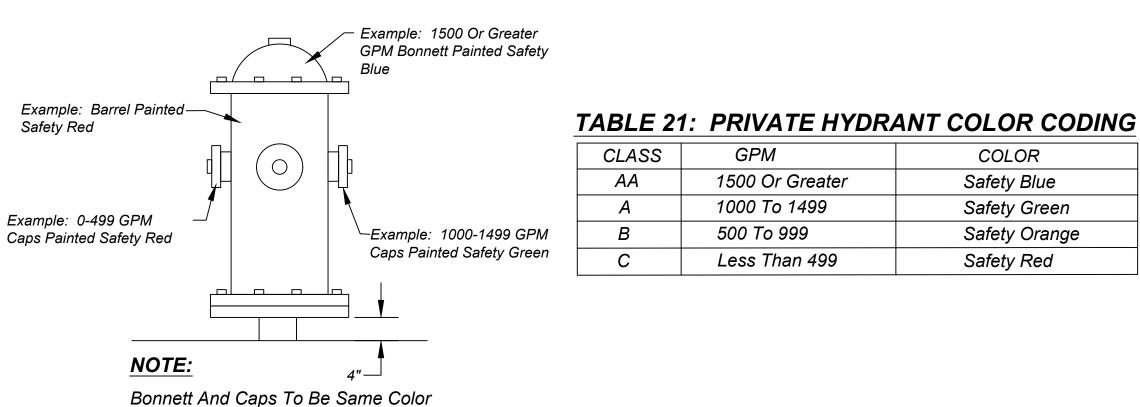


Safety Red

- 1. A Permanent Sump Pump Shall Be Installed In The Sump Pit. Sump Pump Discharge Pipe Shall Connect Directly To An Underdrain Or Storm Sewer Structure
- 2. Private Hydrant To Be Installed Upon Request By The Shelbyville Fire Dept.
- 3. 6 Inch Diameter Schedule 40 Pipe Bollards, Painted Safety Yellow, Shall Be Installed Adjacent To FDC's And Private Hydrants Where No Curb Is Present.

#### FIRE HYDRANT AND CONNECTION DETAILS

Scale: None



#### PRIVATE FIRE HYDRANT COLOR CODE DETAIL

Scale: None

Color Code = Gallons Per Minute (GPM)

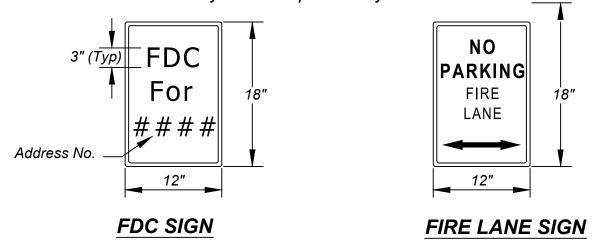
#### **REVISIONS** Rev. No. **Description Date** 07/26/2011 **Entire Set** 01/10/2014 2 **Revised Storz Details** 3 Updated Entire Set 02/11/2020

#### FIRE HYDRANT NOTES

- 1.) Fire Hydrants Shall Not Be Located More Than 500 Feet Apart. Shelbyville Fire Department Reserves The Right To Require Less Hydrant Spacing For Large Buildings. All Hydrants Shall Be Located A Minimum 1<sup>1</sup>/<sub>2</sub> Times Outside The Collapse Zone Of The Building. All Fire Hydrants Within City Right-Of-Way Shall Be Located Between The Curb And Sidewalk As Shown Herein. The 5 1/2 Inch Connection Shall Face The Street.
- 2.) Fire Hydrant Outlets Shall Be Located No Further Than 8 Feet From The Edge Of Pavement.
- 3.) All Fire Hydrants Shall Be Installed, Functional, And Approved By The Fire Inspector Prior To Start Of Building
- 4.) Fire Hydrants Shall Have A Maintained 3 Foot Radial Clear Space At All Times.
- 5.) The Size Of The Main Valve Opening And The Size Of The Hydrant Barrel Shall Be Suitable For Required Fire Protection.
- 6.) Dry Hydrants Shall Be Reviewed And Approved By The Fire Department. Dry Hydrants Shall Be Placed Within 8 Feet Of Roadway. Connection Shall Be 4 1/2 Inch Male, National Standard Thread. Center Of Connection Shall Be 32 Inches Above Finished Grade With A Cap And Chain. Dry Hydrant Shall Comply With NFPA Standard 1142. Ch.8.
- 7.) Private Water Hydrants Shall Be Painted Safety Red In Color, Flow Tested, And Painted To Meet NFPA Standards As Shown Herein. See NFPA Standards 24 and 291. And Table 21. This Sheet.

#### FIRE DEPARTMENT CONNECTION (FDC) NOTES

- 1.) The FDC Shall Not Be Located More Than 50 Feet From The Nearest Fire Hydrant. The FDC Shall Be Located A Minimum 1 ½ Times Outside The Collapse Zone Of The Building.
- 2.) The FDC Shall Meet Or Exceed The Requirements Of The Most Recent State Of Indiana Adopted Edition Of NFPA 13 and NFPA 14.
- 3.) The FDC Shall Be Provided With A Single 5 Inch Storz Connection That Shall Face Towards The Nearest Point Of Fire Department Access.
- 4.) A Minimum 4 Inch FDC Service Pipe Shall Be Utilized On A Fire Service Line That Is 6 Inches Or Larger.
- 5.) The FDC Shall Be Installed Directly To The Sprinkler System



#### **NOTES:**

- 1. FDC and Fire Lane Signs Shall Be Constructed Out Of A Material That Is Not Susceptible To Degradation. The Sign Material Shall Be Approved By The Shelbyville Fire
- 2. The Sign Lettering Shall Be Red In Color With A White Reflective Background.
- 3. Signs Shall Be Supported By An Approved Permanent Post. FDC Signs May Be Attached To The FDC By An Approved Method.
- 4. If Freestanding, The Top Of The Sign Shall Be Mounted Between 36 Inches And 48 Inches From Finished Grade.

#### FDC AND FIRE LANE SIGN DETAILS

Scale: None



#### FIRE LANE PARKING DETAIL

Scale: None

- 1.) The "No Parking Fire Lane" Message Shall Be Six (6) Feet In Depth From Edge Of Pavement Or Curb.
- 2.) The Letters Shall Be Two (2) Feet In Height And A Minimum Of Four (4) Inches Wide.
- 3.) A "No Parking Fire Lane" Sign Shall Be Placed Every Thirty (45) Feet And Comply With Standard Sign Detail On This Sheet. Fire Apparatus Access Roads Up To 26 Feet Wide Shall Be Posted With Signs On Both Sides As A Fire Lane. Fire Apparatus Access Roads Greater Than 26 Feet Wide Shall Be Posted With Signs On One Side As A Fire Lane.
- 4.) The Striping Shall Be A Minimum Of Four (4) Inches Wide At A Forty-Five (45) Degree Angle And Five (5) Feet On
- 5.) All Pavement Markings Shall Be Painted Traffic Yellow. Curb Adjacent To Fire Lanes Shall Be Painted Safety Yellow Along The Entire Length Of The Fire Lane. Curb Adjacent To Hydrants Or FDC's Shall Be Painted Safety Red.
- 6.) Pavement Adjacent To Fire Protection Equipment, Including FDC, Fire Protection Control Valve, And Fire Hydrants Shall Be Marked In Accordance With This Detail. A "No Parking Fire Lane" Sign Shall Be Placed Every 30 Feet In These Zones And Comply With The Standard Sign Details On This Sheet.



COLOR

Safety Blue

Safety Green

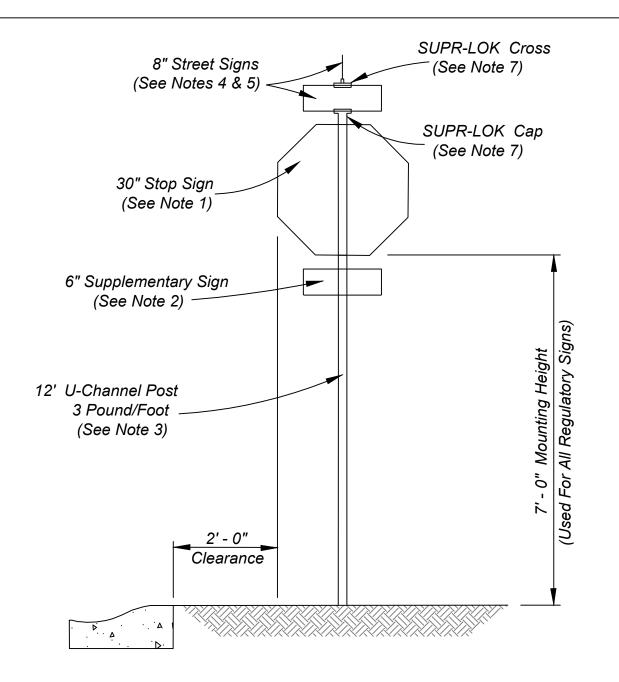
Safety Red

Safety Orange



FIRE DEPT. AND WATER STANDARD DETAILS

CITY OF SHELBYVILLE



#### Lime 3983 SCHOOL (Or Equal) White Background Scotchlite White 3870 (Or Equal) S4-2 24" x 18" SIGN 30" x 30" 30" x 30" Yellow Background NO Yellow Background DEAD Scotchlite

S4-3

24" x 8"

SCHOOL

SPEED

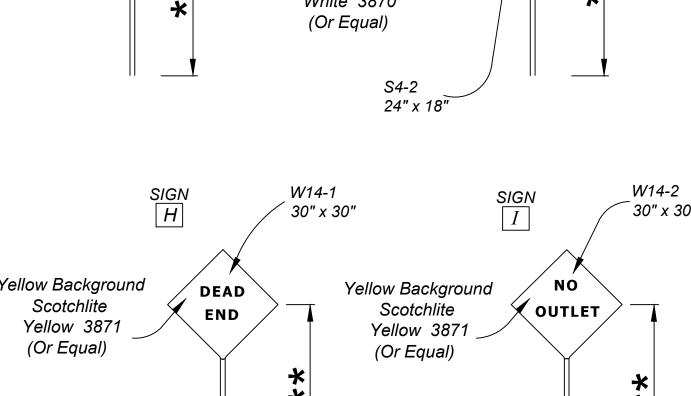
LIMIT

S4-2 24" x 18" –

24" x 30"

#### TYPICAL REGULATORY / WARNING AND STREET SIGN REQUIREMENTS:

- 1.) Stop Sign Shall Be High Intensity And In Accordance With Most Recent Indiana Manual On Uniform Traffic Control Devices. Unless Otherwise Detailed On This Sheet, Other Regulatory Signs Shall Be Of The Design, Size, And Construction As Specified In Said Manual. All Signs Shall Be Tagged On The Rear Of The Sign With An Adhesive Label With The Month And Year That The Signs Were Installed.
- 2.) An All Way Stop Intersection Requires An "ALL WAY" Supplementary Sign 18" Wide By 6" Tall In Accordance With Said Manual. A Two Way Stop Controlled Intersection Requires A "CROSS TRAFFIC DOES NOT STOP" Supplementary Sign Of The Same Size And In Accordance With Said Manual.
- 3.) All Regulatory/Warning Signs, Other Than Stop Signs, With Panels Less Than Or Equal To 48" x 30" In Size Shall Be Mounted On 12' U-Channel Posts (3 pounds/foot). All U-Channel Posts Shall Be Painted Green. Regardless If Material For Posts Is Other Than As Shown Herein, Mounting Height Shall Be 7' - 0".
- 4.) Streets Shall Be Signed At Non-Signalized Intersections With Two Such Street Sign Assemblies.
  Separate 12' U-Channel Post (3 pounds/foot) For Street Signs Permitted Only At Signalized Intersections.
- 5.) Street Signs Shall Be 8" Tall Extruded Aluminum (6063-T6) Reflective Green Background With 6" Tall Reflective White Letters. Street Signs Shall Have Rounded Corners.
- 6.) Refer To INDOT Standard Drawings E 802-SNGS-09 And E802-SNGS-10 For Post Standards And For The Mounting Of Sign Panels Larger Than 48" x 30".
- 7.) SUPR-LOK Cross Shall Be Model #990X. SUPR-LOK Cap Shall Be Model #91UX-NU180.
- 8.) Signs With Panel Widths Greater Than 36" Shall Be Reinforced On The Back Side Of The Panel By An Approved Method.
- 9.) Alternate Custom Posts May Be Used Upon Receiving Expressed Written Permission From The City Of Shelbyville. Custom Posts Shall Be The Financial Responsibility Of Subdivision's Homeowner's Association. In The Event That The City Of Shelbyville Must Replace Custom Sign Posts, The City Reserves The Right To Install Its Standard Steel Post.
- 10.) All Required Traffic Control (Signs And Markings) Shall Be In Place Prior To The Release Of The First Occupancy Permit.
- 11.) All Signs Shall Be Compliant With Latest Set Of MUTCD Standards.
- 12.) The City Of Shelbyville Will Order All Regulatory Signs, Warning Signs, And Street Signs For The Contractor. The Contractor Shall Pay For The Signs.



#### \*\* 7' - 0" Mounting Height From Bottom Of Sign To Roadway Edge Of Pavement. (Typical)

30" x 30"

SIGN

24" x 12"

30" x 30"

Lime Background

Scotchlite

All Black Lettering Is To Be Scotchlite 7720 (Or Equal)

Yellow Background-

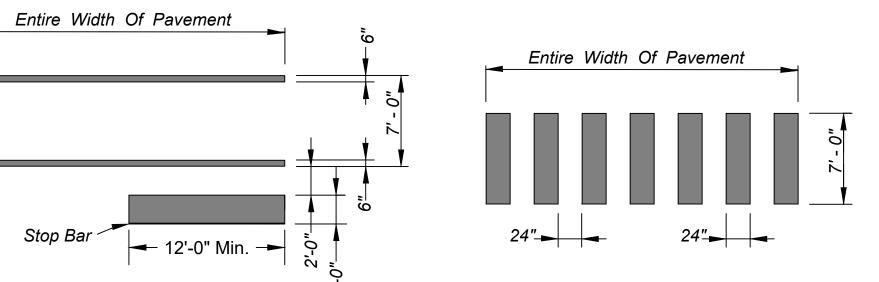
Scotchlite

Yellow 3871

(Or Equal)

#### REGULATORY / WARNING SIGN DETAILS

Scale: None



30" x 30"

Yellow Background

Scotchlite

Yellow 3871

(Or Equal)

W16-2

18" x 24"

#### INTERSECTION CROSSWALK DETAIL

Scale: None

#### SPECIAL CROSSWALK DETAIL Scale: None

24" x 12"

30" x 30"

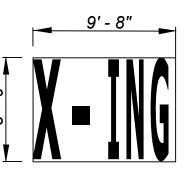
FEET

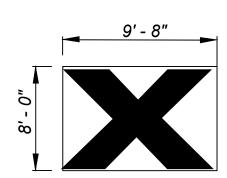
Yellow Background

Scotchlite

Yellow 3871

(Or Equal)





SIGN

BUS STOP

AHEAD

Lime Background

Scotchlite

White 3983

(Or Equal)

S3-1-A

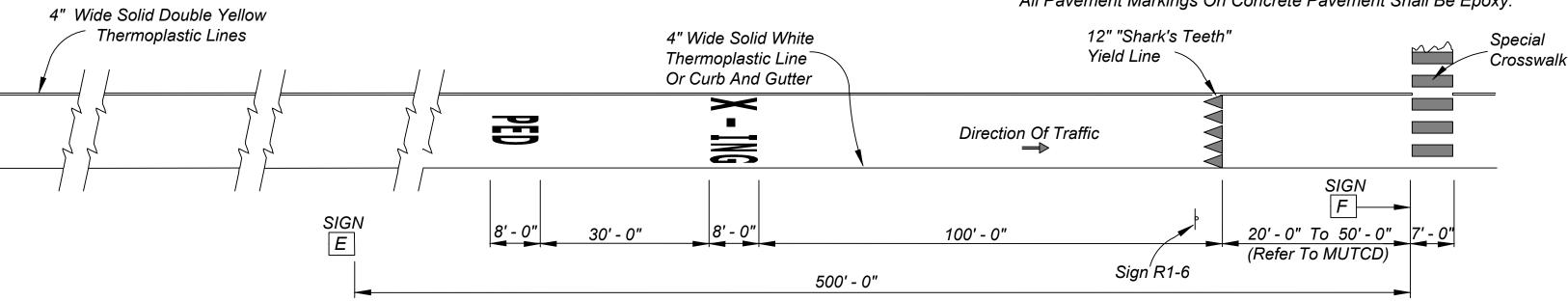
<sup>-</sup>30" x 30"

#### PAVEMENT MARKING DETAIL

Scale: None

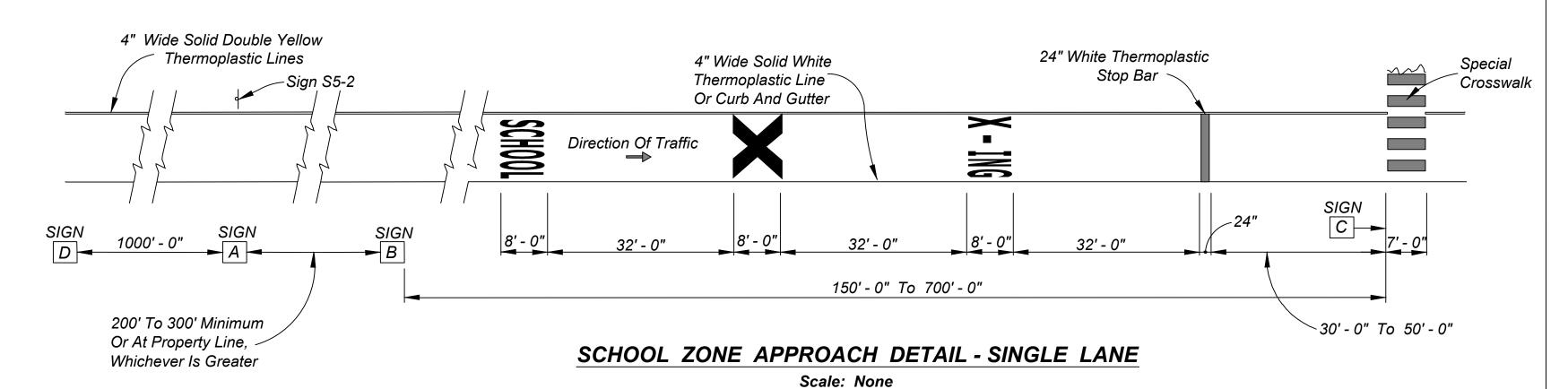
#### **GENERAL NOTES:**

- 1.) All Regulatory Signs Shall Be High Intensity And In Accordance With The Indiana Manual On Uniform Traffic Control Devices, Most Recent Edition.
- 2.) Signs S3-1-A, W14-1 & W14-2 To Be Installed When Required By The City Of Shelbyville.
- 3.) All Pavement Markings Shown In These Details, Except For Double Yellow Lines And Edge Lines, Shall Span Across Approach Lanes.
- 4.) Where Pedestrian Cross Traffic Is Not Established, School Crossing Pavement Markings And Sign C May Be Omitted At The Discretion Of The City Of Shelbyville.
- 5.) All Pavement Markings On Asphalt Pavement Shall Be Thermo Plastic.
  All Pavement Markings On Concrete Pavement Shall Be Epoxy.



#### PEDESTRIAN CROSSING APPROACH DETAIL - SINGLE LANE

Scale: None



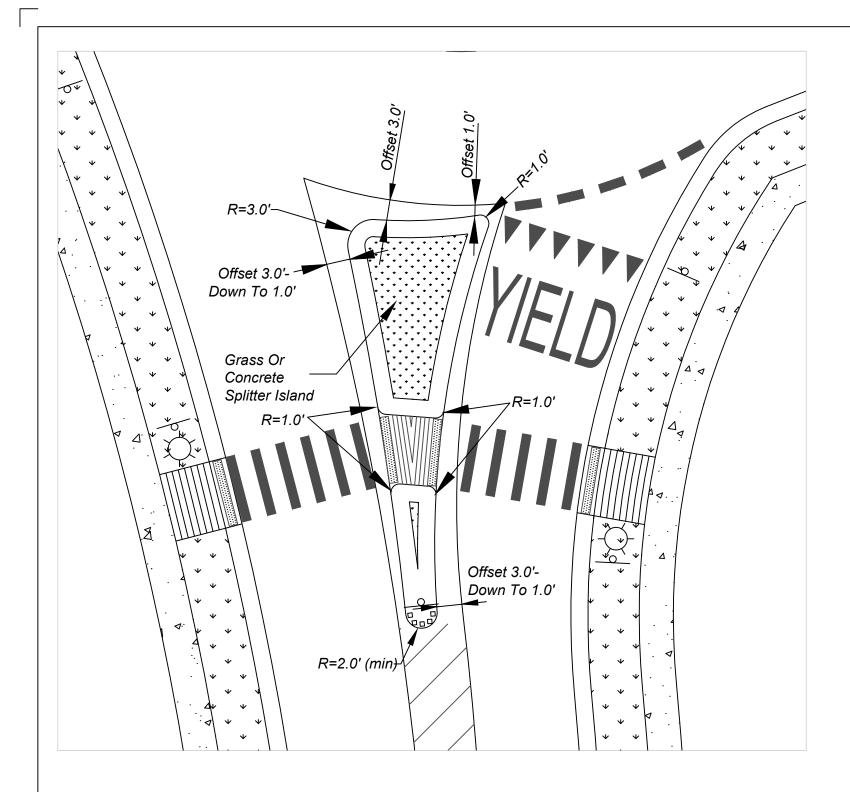
	REVISIONS		
Rev. No.	Description	Date	
1	Entire Set	07/26/2011	
2	Removed Monument Detail	01/10/2014	
3	Entire Set	02/11/2020	1

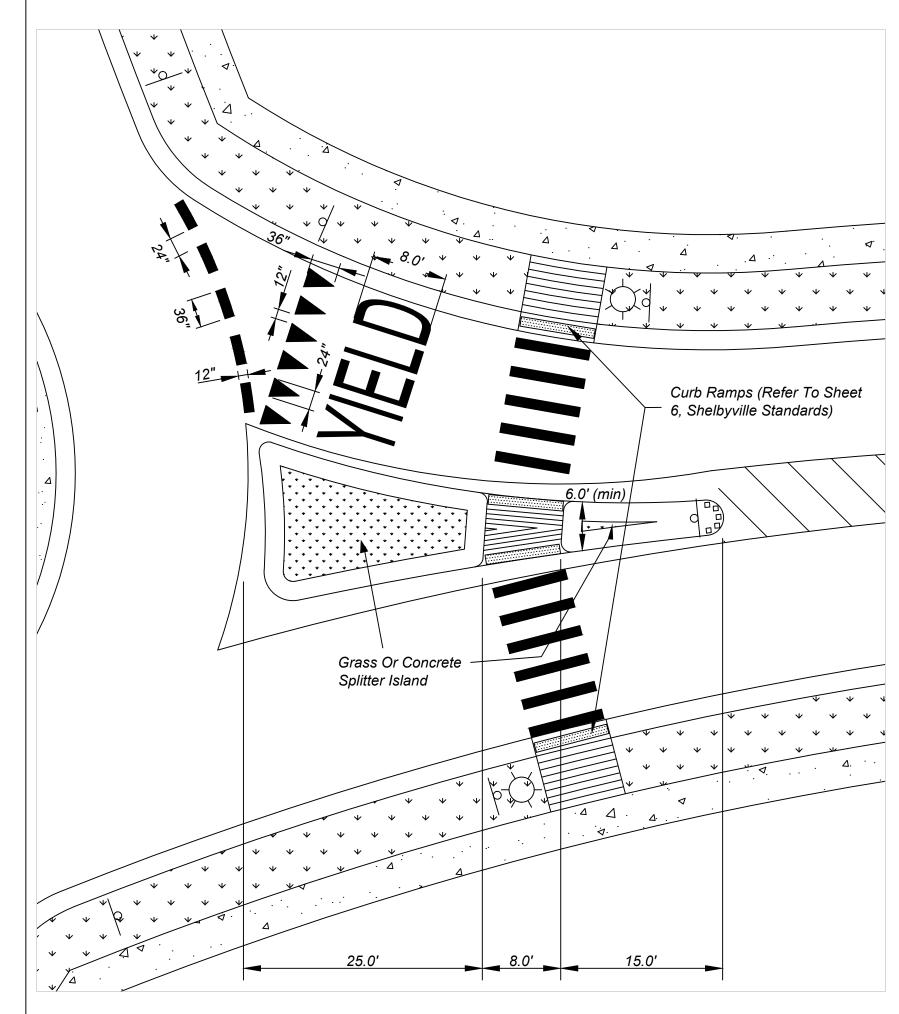




CITY OF SHELBYVILLE

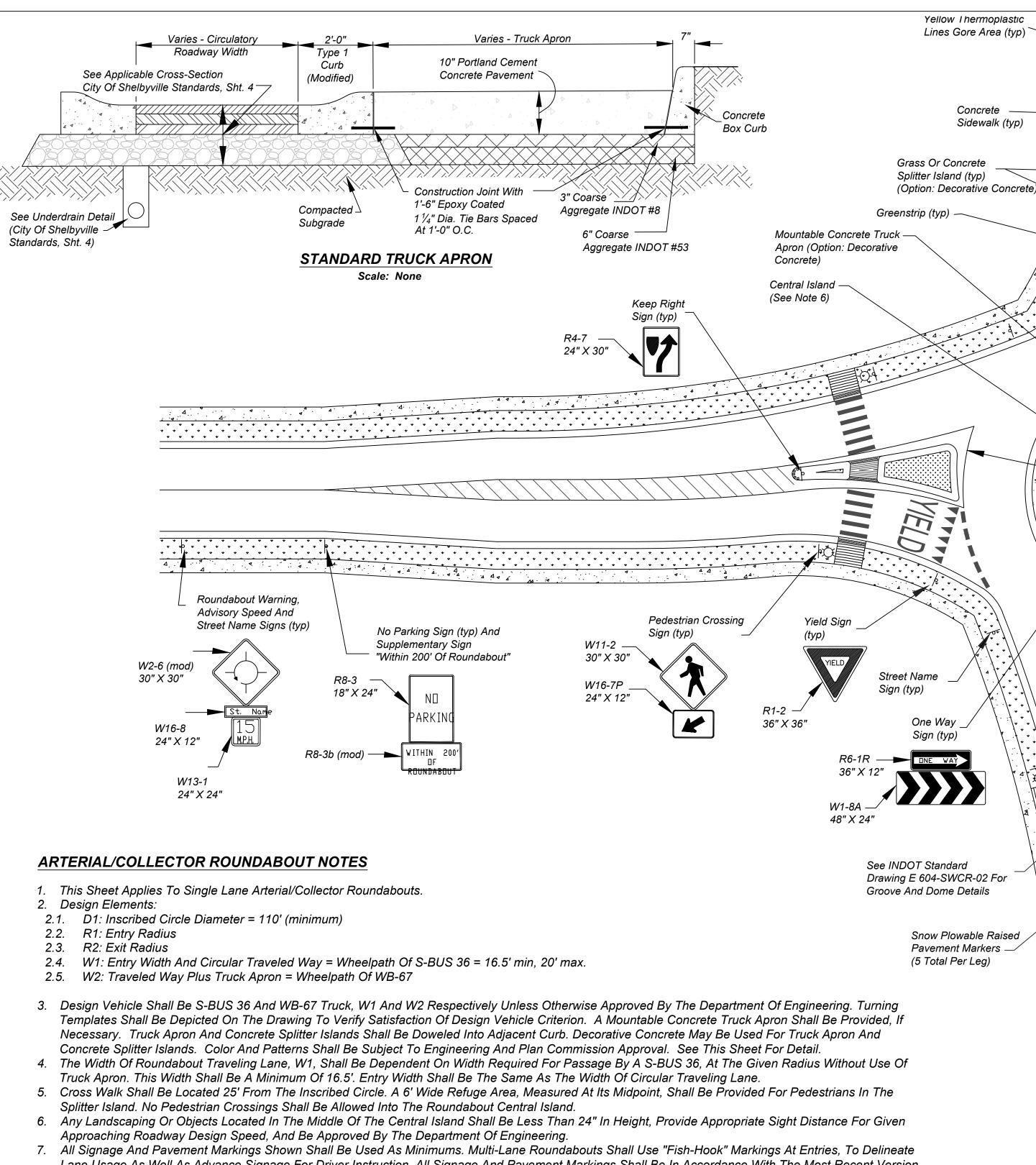
SIGNS AND MARKINGS **DETAILS** 





SPLITTER ISLAND AND APPROACH DETAILS

Scale: None



Lane Usage As Well As Advance Signage For Driver Instruction. All Signage And Pavement Markings Shall Be In Accordance With The Most Recent Version Of The Indiana MUTCD And Are Subject To Approval By The Department Of Engineering.

8. Use Of "Radial Design" For Roundabout Is Discouraged. Off-Set Right Design Is Not Acceptable.

9. No Drainage Structures Shall Be Located Within Circumference Of Inscribed Circle Of Single-Lane Roundabouts.

10. All Pavement Markings Shall Be Thermoplastic.

11. Snowplowable Raised Pavement Markers (RPM) Shall Be Placed At Each Gore Area Entering The Roundabout, Prior To Pedestrian Crossings In A V-Shaped Pattern. One RPM Shall Be Placed At The Point Of The Gore Area, With Two More Placed On Either Side Of The Perimeter Of The Gore Area At Equal Distances Up To The Crossing Location, For A Total Of Five (5) RPM's.

12. All Signs Shall Be High Intensity, High Reflectivity And In Accordance With The Most Recent INDIANA MANUAL ON UNIFORM TRAFFIC CONTROL

DEVICES. See This Sheet For Sign Codes And Sizes.

13. For Cross-Sections For Which Curb Is Poured On Asphalt, Asphalt Is To Be Paved Through Entire Splitter Island.

14. All Other Appropriate City Of Shelbyville Standards Apply.

15. Street Lighting Is Required On The Approach Side Of All Pedestrian Crossings At The Roundabout Intersection.

16. All Roundabout Designs Must Be Approved By The Departments Of Engineering And Plan Commission.

NOTICE: CERTIFICATION IS LIMITED TO THOSE STANDARDS AND GUIDELINES PER THIS SHEET. CONSTRUCTION IS SUBJECT TO CONSTRUCTION DRAWINGS, SHOP DRAWINGS, AND DESIGN ENGINEER'S CERTIFICATION SHEET.

REVISIONS	
Description	Date
Entire Set	07/26/2011
Reformatted Sheet	01/10/2014
Updated Entire Set	02/11/2020
	Description  Entire Set  Reformatted Sheet





ARTERIAL/COLLECTOR

ROUNDABOUT DETAIL

# CITY OF SHELBYVILLE

Type I Curb

Type I Roll Curb

See Detail This Sheet

Modified (typ)

Type V Box Curb (typ)

Shelbyville Standards

Shelbyville Standards

Type II Curb & Gutter (typ)

See Sheet 5,

See Sheet 5.

Street Lights (8) (typ)

4" Yellow Thermoplastic

White Circulatory Roadway Delineation Line (typ)

White Thermoplastic

Pedestrian Crossing

24" X 12"

INDOT #53 Compacted

Type I Curb

Stone Base Or Asphalt Base

Sidewalk Ramp (typ)

Standards

Pedestrian Crossing

TYPE I MODIFIED 2' CONCRETE

ROLL CURB & REVERSE

**GUTTER** 

Scale: None

Standards, Sht. 4)

Varies

Decorative Concrete. See Note 3.

TYPICAL SPLITTER ISLAND

**CROSS-SECTION DETAIL** 

Scale: None

NOTE: Splitter Island May Be

See Collector Cross-Section For

- Concrete (City Of Shelbyville

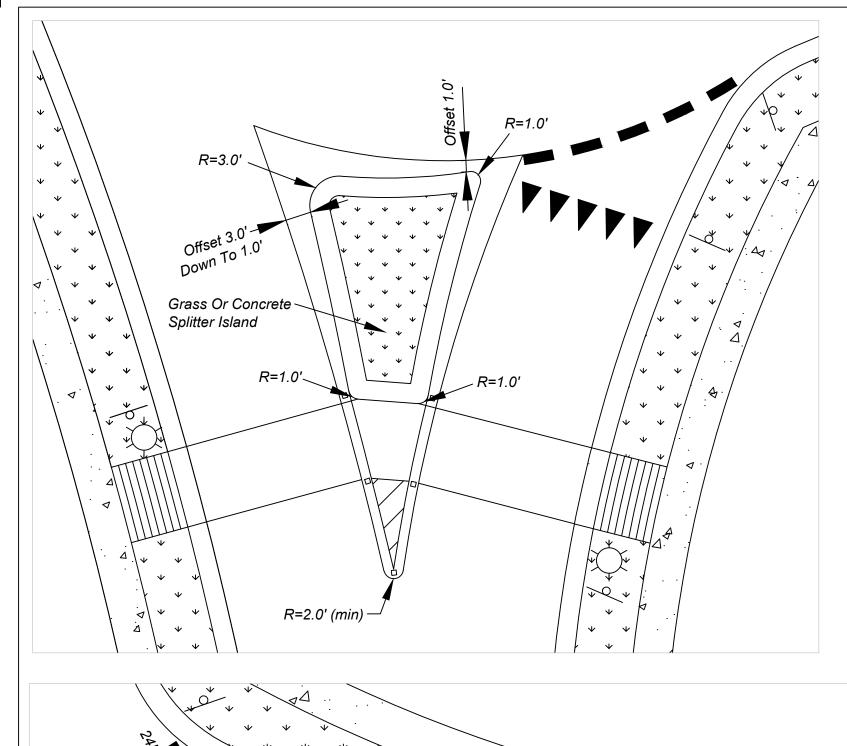
See Sheet 6, Shelbyville

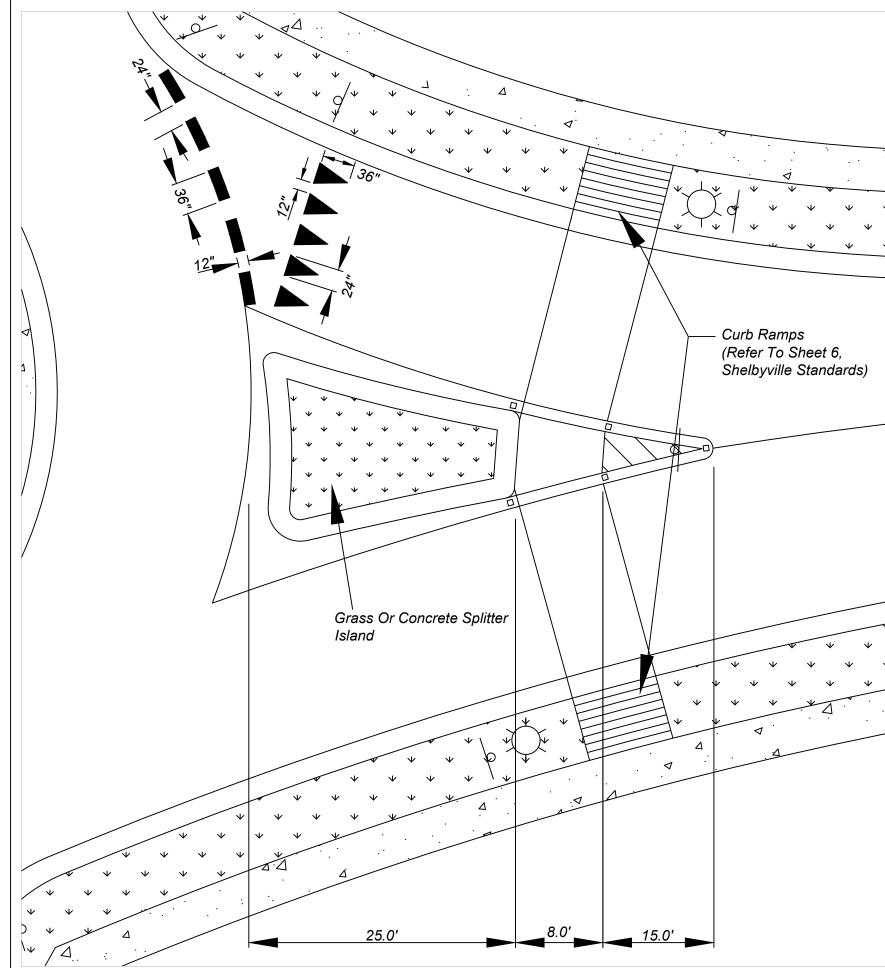
Edge Lines

White "Sharks Teeth" Yield Bar (typ)

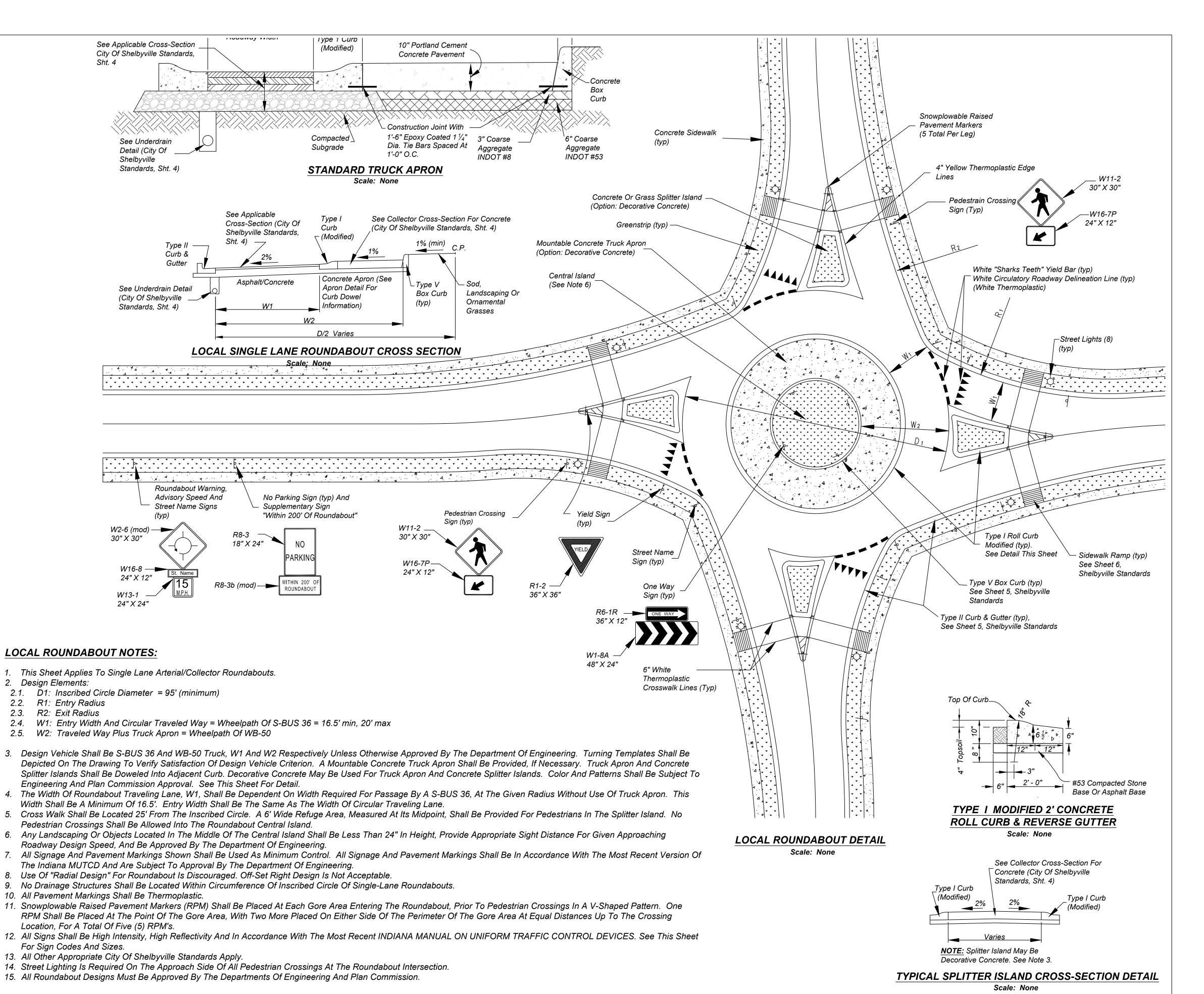
White Painted "Yield" (typ)

ARTERIAL/COLLECTOR ROUNDABOUT STANDARDS & DETAILS





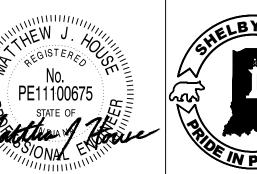
Scale: None



NOTICE:

CERTIFICATION IS LIMITED TO THOSE STANDARDS AND GUIDELINES PER THIS SHEET. CONSTRUCTION IS SUBJECT TO CONSTRUCTION DRAWINGS, SHOP DRAWINGS, AND DESIGN ENGINEER'S CERTIFICATION SHEET.

	REVISIONS	
Rev. No.	Description	Date
1	Entire Set	07/26/2011
2	Reformatted Sheet	01/10/2014
3	Updated Entire Set	02/11/2020





CITY OF SHELBYVILLE

LOCAL ROUNDABOUT STANDARDS & DETAILS SHEET 18 OF