

TOWN OF AVON HENDRICKS COUNTY, INDIANA

CONSTRUCTION STANDARDS



UPDATED OCTOBER 2017

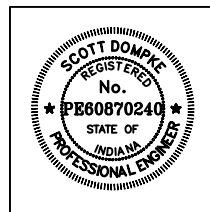
TOWN OF AVON - STAFF

TOWN MANAGER - TOM KLEIN
 PUBLIC WORKS DIRECTOR - RYAN CANNON
 ASSISTANT PUBLIC WORKS DIRECTOR - SAM PALEDINO
 PLANNING AND BUILDING DIRECTOR - JODI DICKEY

TOWN OF AVON - COUNCIL

WARD #3, COUNCIL PRES. - AARON TEVEBAUGH
 AT-LARGE COUNCIL V.P. - STEVE EISENBARTH
 WARD #2 - BEVERLEY AUSTIN
 WARD #1 - GREG ZUSAN
 MEMBER AT-LARGE - MARCUS TURNER

DRAWING INDEX	
SHEET NO.	DRAWING TITLE
--	COVER
ROADWAYS	
1	PAVEMENT DESIGN NOTES AND DIAGRAM
2	ROADWAY DETAILS
3	ROADWAY, CURBS, TRAILS, AND SIDEWALK DETAILS
4	PUBLIC ROAD ENTRANCE DETAILS
STORMWATER MANAGEMENT	
5	STORMWATER NOTES
6	STORMWATER PIPING AND TRENCH DETAILS
7	STORM MANHOLE AND INLET DETAILS
8	STORM INLET AND CASTING DETAILS
SIGNS AND LIGHTING	
9	SIGNS AND LIGHTING DETAILS AND NOTES



Scott Dompke

SCOTT DOMPKE, P.E.
 INDIANA REG. NO. PE60870240



engineering | architecture | geospatial

TOWN HALL - (317) 272-0948

GENERAL NOTES FOR ROADS

- The Right-of-Way widths, pavement widths, and easement widths are found in the Avon Subdivision Control Ordinance. Greater widths may be provided. The Contractor shall review the plat and the plans to confirm the various widths indicated on the plans and shall report any discrepancy to the Town Building Official prior to proceeding with construction.
- All benchmarks and elevations shall be per the National Geodetic Vertical Datum 1988 (NAVD 88).
- Current Indiana Department of Transportation (INDOT) Standard Specifications, Sections 105.04, 105.06, 108.04, and 200-900 shall be followed for all projects. Sections 502 through 508, 604, 605, and 610 are of specific relevance to all projects. See applicable details following this section. Current INDOT Standard Drawings shall be used for all materials and structures where applicable and as shown on the plans.
Wherever in the Specifications "Indiana Department of Transportation", or "Department" are referenced, it shall be interpreted to mean "Town of Avon".
Wherever there is a conflict between the Town of Avon Construction Standards and INDOT Standard Specifications, the Town of Avon Construction Standards shall hold over the INDOT Standard Specifications.
Whenever there is a conflict between Standards and Contract Documents, the following order shall govern:
 - Town of Avon Contract Documents
 - Town of Avon Construction Standards
 - Avon Subdivision Control Ordinance
 - INDOT Standards and Specifications
 - Developer Plans and Specifications
- Wherever proprietary brands are specified, all proposals for substitution shall be submitted to the Town and shall be subject to the approval of the Town Building Official.
- EXISTING UTILITIES: Contractor shall verify the exact location of all existing utilities at least 24 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 Town of Avon and the owner of the affected utility.
- The location of proposed utilities is based upon the experience of the Town of Avon to ensure the orderly development of the land. Strict adherence to the designated location is required. Requests to change the location of the proposed utilities shall be submitted in writing to the Town Building Official. Utilities not meeting these requirements shall be removed and replaced as directed by the Town Building Official.
- Compacted granular backfill in accordance with the most recent INDOT Standard Specifications shall be required whenever the trench opening encroaches within 5-feet of an existing or proposed street or sidewalk. Approved backfill may be used under proposed sidewalks provided sidewalks are constructed 6 months after backfilling of trench. See detail, Sheet 2.
- 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 pavement.
- All construction activities shall comply with the Erosion Control Requirements of the Indiana Department of Environmental Management (IDEM), Indiana Department of Natural Resources (IDNR), and all other jurisdictional government agencies. This includes, but is not limited to, the requirements of Indiana Rule 5 General Permit (327 IAC 15-5 Storm Water Run Off associated with construction activity) unless otherwise required by IDEM. Storm Water Pollution Prevention Plans shall be consistent with the current edition of the Indiana Storm Water Quality Manual (formerly the Indiana Handbook for Erosion Control) unless otherwise approved by IDEM.

PAVEMENT CONSTRUCTION

- Subgrade Treatment shall be Subgrade Treatment Type IB or IC as defined by INDOT specifications. Subbase and Subgrade fill material shall be at least 100 percent of the maximum dry density in accordance with ASTM D698. Compaction tests shall be performed by an INDOT approved independent laboratory on all fill sections at the Contractor's expense. Test results shall be submitted to the Town Building Official prior to placing any material on the subbase subgrade. One passing in-place density test shall be completed for each lift for every 400 linear feet of traffic lanes. The Contractor shall notify the inspecting engineer concerning the testing schedule at least 48 hours in advance.
- Adequacy of existing subgrades shall be determined solely by the Town, based on a Contractor performed proofroll with a fully loaded tri-axle dump truck. A proofroll shall be performed on all street subgrade prior to placing aggregate, installing curb, or placing pavement materials. Aggregate sections must be proofrolled prior to placing HMA pavement materials. All areas shall be retested if exposed to rain or freezing prior to placement of the next lift of material. All earthwork shall conform to the current INDOT Standard Specifications. Construction traffic is specifically prohibited from transversing the aggregate and HMA pavement areas except for the placement of said pavement materials. Alternate construction traffic access shall be provided.
- All materials shall come from INDOT certified plants and sources. INDOT Section 402 shall apply with the exceptions noted herein. The current version of INDOT Specifications, Recurring Special Provisions, and Supplemental Specifications are applicable. Binders shall be PG 64-22 for Local and Collector Streets' Intermediate and Base and for Arterial Base. Collector Street Surface and Arterial Street Surface and Intermediate shall be PG 70-22.
Recycled Asphalt Material (RAP): Recycled materials, up to 25%, may be used as a substitute for a portion of the new material required to produce HMA mixtures. When using greater than 15% RAP the PG Binders listed above shall be changed as follows:
PG 64-22 to PG 58-28
PG 70-22 to PG 64-28
PG 76-22 to PG 70-28
- Place Tack Coat in accordance with the most recent INDOT Standard Specifications for asphalt pavement sections.
- Wherever rigid pavement is to be used, the Contractor shall submit a detailed Paving Plan to the Town Building Official. The Paving Plan shall show the location and type of jointing to be used in the construction. Concrete materials and methods, including the location and type of jointing, shall meet the requirements of the most recent INDOT Standard Specifications and Details.
- Whenever subgrade stabilization is to be used, the Contractor shall submit a written plan detailing the application method. This plan must comply with INDOT Standard Specifications, State of Indiana Environmental Standards, and be approved by the Town Building Official.
- Shoulder pavement sections shall be the same as the road pavement sections.
- Road Classifications are based on the Avon Subdivision Control Ordinance.
- Pavement Fabric for pavement tie-in shall be GLASSGRID 8502 or approved equal.
- Concrete placed for rigid pavement and curbs shall be tested for compliance with the current INDOT Specifications. Tests shall be performed by an INDOT approved independent laboratory at the Contractor's expense. As a minimum, the testing shall include measurement for both slump and air entrainment. A minimum of 4 cylinders shall be taken to verify the concrete compressive strength at 7 days and 28 days.

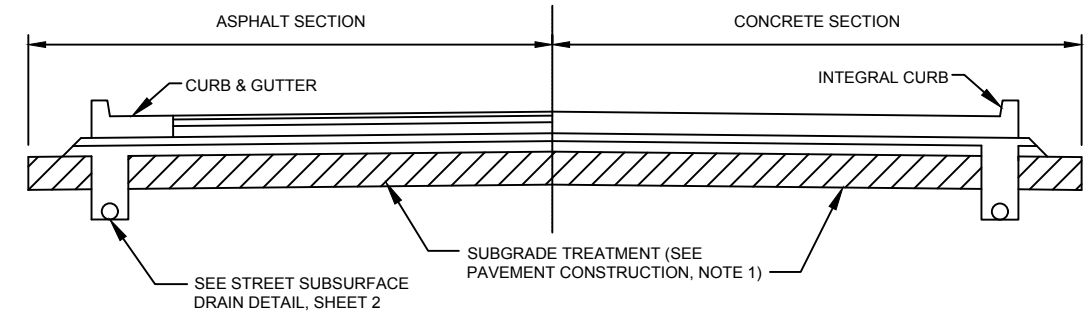
These tests shall be performed every 2,500 syms and at least once per day. In the event of non-conforming material, the Town Building Official may require repetition of these tests as necessary to verify the quality of material used.

RESIDENTIAL DRIVES

- The maximum algebraic difference in grade for any 10-foot interval shall not exceed 8% for crest vertical curves or 10% for sag vertical curves.
- All drives shall drain to adjacent streets except with the prior approval of the Town Building Official.
- Concrete drives require control joints at a maximum of every 10 feet each way.

HANDICAP RAMP CONSTRUCTION

- All handicap ramps shall meet the requirements of the Current American Disabilities Act (ADA) and the most recent INDOT Standard Specifications and Standards Drawings. Curb modifications required for handicap ramps shall be provided at time of initial construction.
- Curb ramp widths shall match the adjacent Sidewalk or Trail and be a minimum of 4 feet not including flares. Maximum slope of ramps and flares shall be 12:1.
- Handicap ramps are to be located as shown on the plans or as directed by the Town Building Official.
- All proposed new or reconstructed curb ramps shall be detailed by the designer as applicable to the specific curb ramp location for approval by the Town. INDOT Standard Drawings 604-SWCR-01 to 604-SWCR-14 shall be followed. At corners of street intersections with crossings in both directions, Paired Perpendicular type ramps (INDOT Standard Drawing 604-SWCR-03) are preferred where feasible. Paired Parallel type ramps (INDOT Standard Drawing 604-SWCR-07), and Blended Transition type ramps (INDOT Standard Drawing 604-SWCR-09) shall be acceptable when Paired Perpendicular ramps are not feasible. At "T" intersections with one crossing direction, One-Way Directional Perpendicular type ramps (INDOT Standard Drawings 604-SWCR-05 to 604-SWCR-06) shall be used. For Mid-Block Crossings, single Perpendicular (INDOT Standard Drawing 604-SWCR-04) or Parallel (INDOT Standard Drawing 604-SWCR-08) type ramps shall be used as applicable.
- Surface texture of the ramp shall be as delineated on the INDOT Standard Drawings and in accordance with the current ADA.
- Sidewalk transitions at driveway crossings shall follow INDOT Standard Drawings 604-SDWK-01 to 604-SDWK-03.
- Care shall be taken to assure a uniform grade on all ramps with no breaks in grade.
- 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.
- The normal gutter line profile shall be maintained through the area of the ramp.
- Expansion joints for the ramp shall be a maximum 1/2" wide. The top of the joint filler for all ramp types shall be flush with adjacent concrete.
- Crosswalk and stop line markings, if used, shall be so located as to stop traffic a minimum of 4-feet prior to a ramp crossing, or as directed by the Town Building Official.



LOCAL STREETS (ALLEY, NEIGHBORHOOD STREETS, OR LOCAL BOULEVARD)

- ASPHALT SECTION d=13"**
- 165 lb/SY HMA (1.5"), TYPE A, SURFACE, 9.5mm on
 - 385 lb/SY HMA (3.5"), TYPE A, BASE, 25.0mm on
 - 4" OF COMPACTED STONE, No. 8, BASE on
 - 4" OF COMPACTED STONE, No. 53, BASE

- ASPHALT SECTION d=10"**
- 165 lb/SY HMA (1.5"), TYPE A, SURFACE, 9.5mm on
 - 275 lb/SY HMA (2.5"), TYPE A, INTERMEDIATE, 19.0mm on
 - 220 lb/SY HMA (2"), TYPE B, INTERMEDIATE, OG, 25.0mm on
 - 440 lb/SY HMA (4"), TYPE A, BASE, 25.0mm

- CONCRETE SECTION d=13"**
- 7" PCCP on
 - 3" OF COARSE AGGREGATE, No. 8, BASE on
 - 3" OF COMPACTED AGGREGATE, No. 53, BASE

BUSINESS COLLECTORS AND COLLECTORS

- ASPHALT SECTION d=16.5"**
- 165 lb/SY HMA (1.5"), TYPE A, SURFACE, 9.5mm on
 - 275 lb/SY HMA (2.5"), TYPE A, INTERMEDIATE, 19.0mm on
 - 495 lb/SY HMA (4.5"), TYPE A, BASE, 25.0mm on
 - 4" OF COMPACTED STONE, No. 8, BASE on
 - 4" OF COMPACTED STONE, No. 53, BASE

- ASPHALT SECTION d=12"**
- 165 lb/SY HMA (1.5"), TYPE A, SURFACE, 9.5mm on
 - 275 lb/SY HMA (2.5"), TYPE A, INTERMEDIATE, 19.0mm on
 - 440 lb/SY HMA (4"), TYPE B, INTERMEDIATE, OG, 25.0mm on
 - 440 lb/SY HMA (4"), TYPE A, BASE, 25.0mm

- CONCRETE SECTION d=14"**
- 7" PCCP on
 - 3" OF COMPACTED STONE, No. 8, BASE on
 - 4" OF COMPACTED STONE, No. 53, BASE

ARTERIAL STREETS (PRIMARY AND SECONDARY)

- ASPHALT SECTION d=18"**
- 165 lb/SY HMA (1.5"), TYPE B, SURFACE, 9.5mm on
 - 275 lb/SY HMA (2.5"), TYPE B, INTERMEDIATE, 19mm on
 - 660 lb/SY HMA (6"), TYPE B, BASE, 25.0mm on
 - 4" OF COMPACTED STONE, No. 8, BASE on
 - 4" OF COMPACTED STONE, No. 53, BASE

- ASPHALT SECTION d=13"**
- 165 lb/SY HMA (1.5"), TYPE B, SURFACE, 9.5mm on
 - 275 lb/SY HMA (2.5"), TYPE B, INTERMEDIATE, 19.0mm on
 - 440 lb/SY HMA (4"), TYPE B, INTERMEDIATE, OG, 25.0mm on
 - 550 lb/SY HMA (5"), TYPE B, BASE, 25.0mm

- CONCRETE SECTION d=18"**
- 8" PCCP on
 - 3" OF COARSE AGGREGATE, No. 8, BASE on
 - 4" OF COMPACTED AGGREGATE, No. 53, BASE

CONSERVATION LOCAL STREETS

- CONCRETE SECTION d=13"**
- 7" PERVIOUS CONCRETE PAVEMENT (3 KSI COMP STRENGTH) on
 - 3" OF COMPACTED STONE, No. 8, BASE on
 - 3" OF COMPACTED STONE, No. 53, BASE

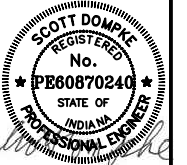
CONSERVATION COLLECTOR STREETS

- CONCRETE SECTION d=14"**
- 7" PERVIOUS CONCRETE PAVEMENT (3 KSI COMP STRENGTH) on
 - 3" OF COMPACTED STONE, No. 8, BASE on
 - 4" OF COMPACTED STONE, No. 53, BASE

PAVEMENT DESIGN DIAGRAM / SCHEDULE (FOR THOROUGHFARE AND/OR SUBDIVISION ROADS)

NOTES:

- PAVEMENT SECTIONS ABOVE ARE BASED ON MINIMUM RESILIENT MODULI OF 2,900 psi FOR NATURAL SUBGRADE, AND 7,400 psi FOR IMPROVED SUBGRADE (SUBGRADE TREATMENT). THESE SECTIONS MAY ONLY BE USED IF A GEOTECHNICAL ANALYSIS CONFIRMS THESE MODULI CAN BE MET WITH THE NATURAL SUBGRADE AND THE SUBGRADE TREATMENT RECOMMENDED BY THE GEOTECHNICAL ANALYSIS. IF THESE MODULI CANNOT BE ACHIEVED, A FULL PAVEMENT DESIGN MUST BE SUBMITTED TO THE TOWN FOR REVIEW.
- WIDENED ROADWAYS SHALL USE THE MATERIAL SECTION APPROPRIATE TO MATCH THE MATERIAL OF THE EXISTING ROAD BEING WIDENED. RECONSTRUCTED ROADWAYS SHALL USE THE MATERIAL SECTION APPROPRIATE TO MATCH THE MATERIAL OF THE EXISTING ROAD BEING RECONSTRUCTED. IF A NEW ROADWAY WILL BE OWNED AND MAINTAINED BY A PRIVATE ENTITY, THE DEVELOPER MAY CHOOSE BETWEEN THE MATERIAL SECTIONS ABOVE. IF A NEW ROADWAY WILL BE OWNED AND MAINTAINED BY THE TOWN, THE DEVELOPER OR CONTRACTOR SHALL REQUEST THE MATERIAL SECTION TO BE USED FROM THE TOWN.
- ALL CONCRETE SECTIONS ARE BASED ON 16' TRANSVERSE JOINT SPACING, WITH DOWEL BARS SPACED AT 12.0" ON CENTER THROUGH THE JOINTS. DOWEL BAR DIAMETER SHALL BE 1.25" FOR CONCRETE PAVEMENT THICKNESSES OF 9.0" AND BELOW. DOWEL BAR DIAMETER SHALL BE 1.50" FOR CONCRETE PAVEMENT THICKNESSES OVER 9.0".



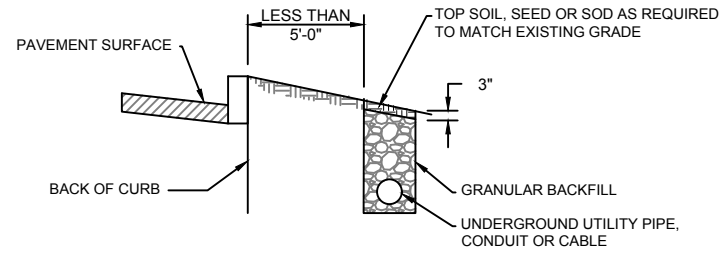
TOWN OF AVON CONSTRUCTION STANDARDS PAVEMENT DESIGN NOTES AND DIAGRAM

NO.	REVISIONS DESCRIPTION	DATE	BY

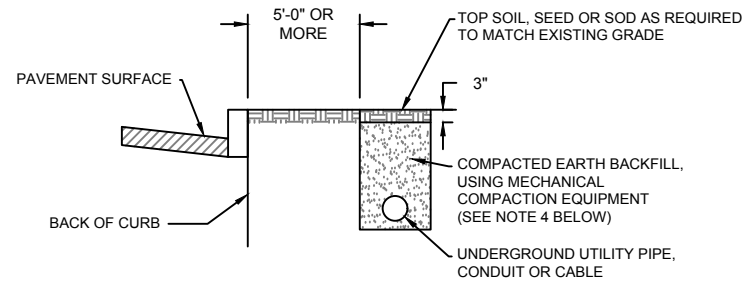
DATE: OCTOBER 2017
SCALE: N.T.S.
SHEET NO: 1

PRINTED: 10/26/2017 @ 2:10PM

FILE NAME: G:\234-Avon\Working Drawings\SubCAD\Avon Town Standards\Sheet_02.dwg



TYPICAL SECTION (WHERE GRANULAR BACKFILL IS REQUIRED)



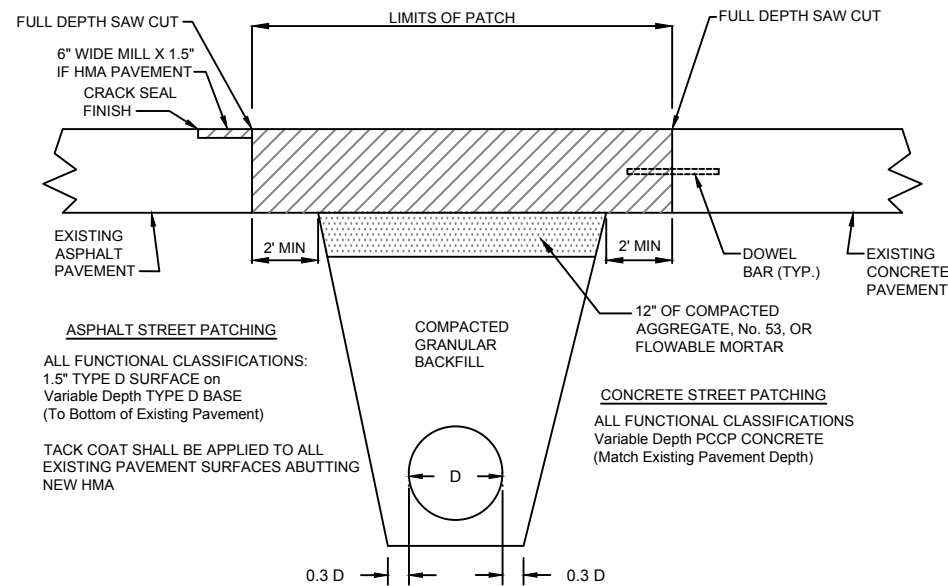
TYPICAL SECTION (WHERE GRANULAR BACKFILL IS NOT REQUIRED)

NOTES:

1. GRANULAR BACKFILL WILL NOT BE REQUIRED WHEN ENTIRE TRENCH AREA IS 5'-0" OR MORE BEYOND THE EDGE OF ROADWAY SURFACE.
2. ALL EXCAVATED AREAS UNDER PAVED ROADWAYS OR WITHIN 5'-0" OF THE PAVEMENT EDGE, OR BACK EDGE OF CURB SHALL BE BACKFILLED WITH GRANULAR MATERIAL TO WITHIN 3" OF THE TOP OF THE TRENCH (OR TO FINAL GRADE UNDER PAVEMENT). THIS GRANULAR BACKFILL SHALL BE PLACED IN 12" LIFTS AND EACH LAYER SHALL BE COMPACTED BY MECHANICAL MEANS TO AT LEAST 95% OF ITS STANDARD MAXIMUM DRY DENSITY. HOWEVER, GRANULAR BACKFILL MAY BE PLACED IN 24" LIFTS PROVIDED EACH LAYER IS COMPACTED TO 95% OF ITS MODIFIED MAXIMUM DRY DENSITY.
3. IF ANY PORTION OF TRENCH AREA IS NEARER THAN 5'-0" FROM THE EDGE OF THE ROADWAY SURFACE, THE ENTIRE TRENCH MUST BE BACKFILLED WITH GRANULAR MATERIAL.
4. EARTH BACKFILL COMPACTION PROCEDURE IS NOT REQUIRED FOR UNIMPROVED AREA OR WHERE PROBLEMS RELATED TO TRENCH SETTLEMENT IS NEGLIGIBLE.

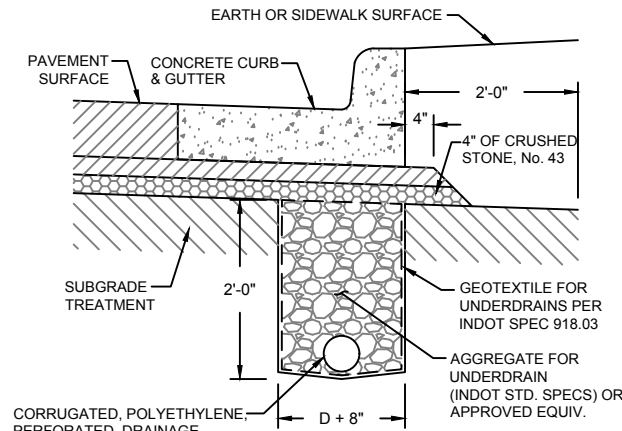
RESIDENTIAL STREET STANDARD TRENCH BACKFILL REQUIREMENTS

NOT TO SCALE



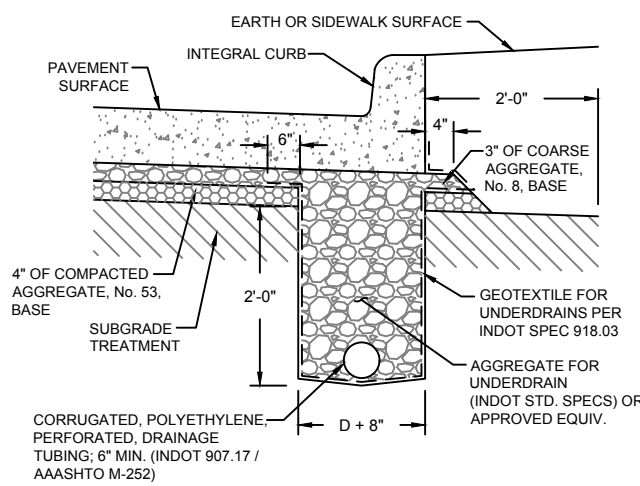
PAVEMENT REPAIR DETAIL

NOT TO SCALE



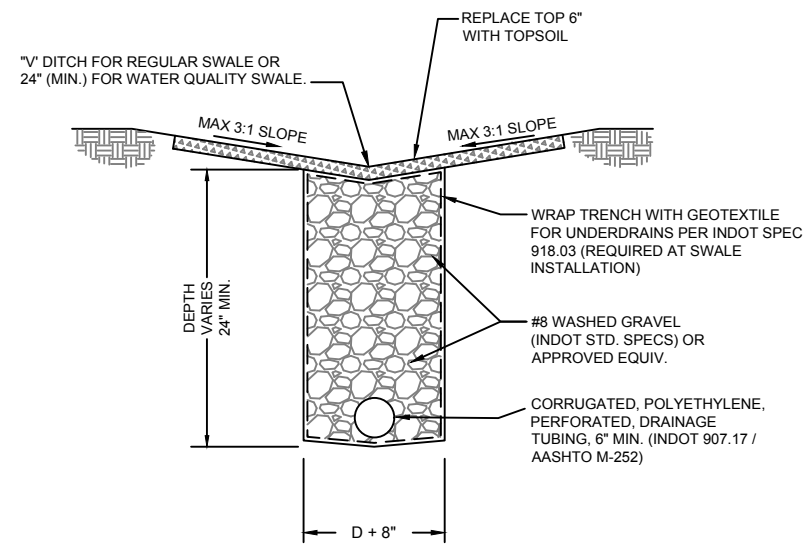
STREET SUB-SURFACE DRAIN DETAIL - ASPHALT

NOT TO SCALE



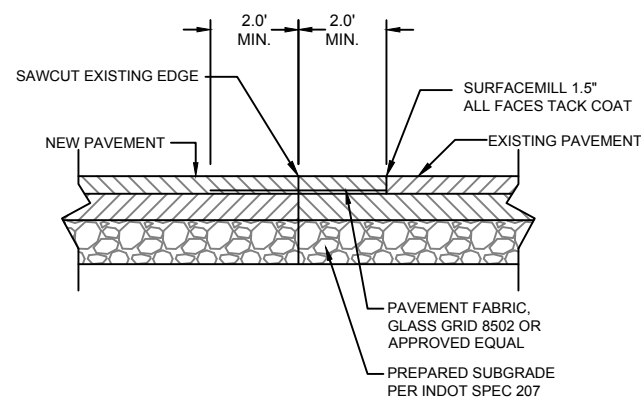
STREET SUB-SURFACE DRAIN DETAIL - CONCRETE

NOT TO SCALE



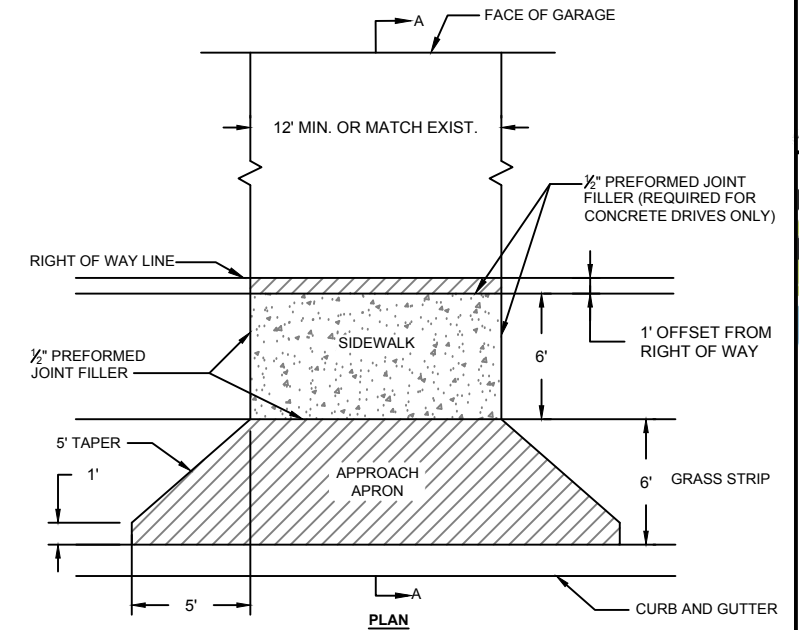
SWALE UNDERDRAIN DETAIL

NOT TO SCALE



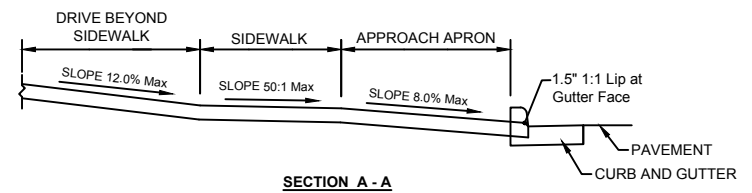
TYPICAL PAVEMENT TIE-IN

NOT TO SCALE



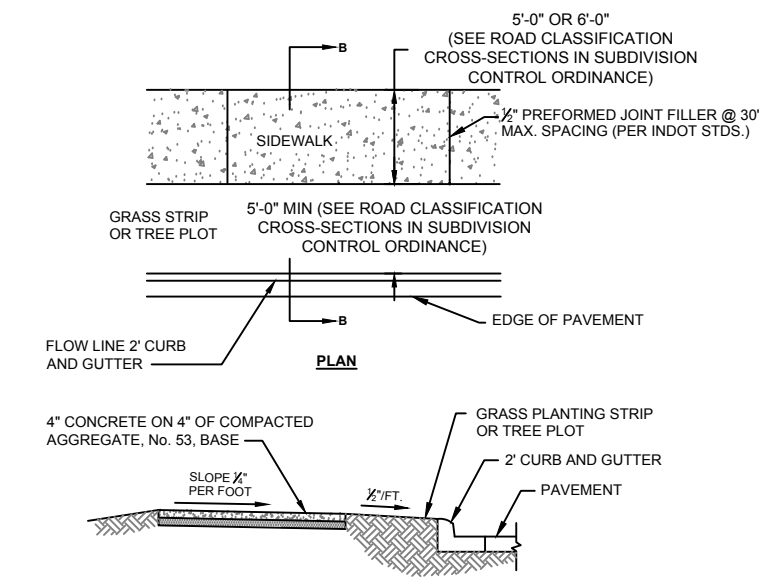
NOTES:

1. CROSS HATCHED AREAS SHALL BE EITHER 6" PCCP ON 4" OF COMPACTED AGGREGATE, No. 53, BASE OR 1.5" HMA SURFACE, TYPE A, ON 2.5" HMA INTERMEDIATE, TYPE A, ON 8" OF COMPACTED AGGREGATE, No. 53, BASE, EXTENDED MINIMUM OF 12" BEYOND FOOTPRINT OF SIDEWALK AND/OR DRIVEWAY TO ACCOUNT FOR SPREADING; EXTENDING TO THE R/W LINE AND INCLUDING THE SIDEWALK AS SHOWN ON THE PLANS.
2. SUBGRADE UNDER ALL CURBS, SIDEWALK AND DRIVES SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 207 OF CURRENT INDOT STANDARD SPECIFICATIONS.
3. SIDEWALKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH AVON AND INDOT STANDARDS AND SHALL BE CONTINUOUS ACROSS THE DRIVEWAY. SIDEWALK SECTION ACROSS DRIVEWAY SHALL BE SAME THICKNESS AS DRIVEWAY.



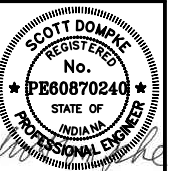
THOROUGHFARE ROAD PRIVATE DRIVEWAY APPROACH DETAILS

NOT TO SCALE



SIDEWALK WITH GRASS STRIP OR TREE PLOT

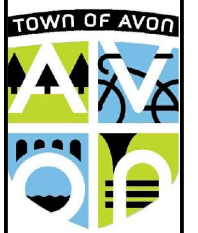
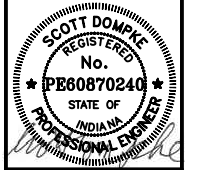
NOT TO SCALE



TOWN OF AVON CONSTRUCTION STANDARDS ROADWAY DETAILS

NO.	REVISIONS	DATE	BY

DATE: OCTOBER 2017
SCALE: N.T.S.
SHEET NO. 2



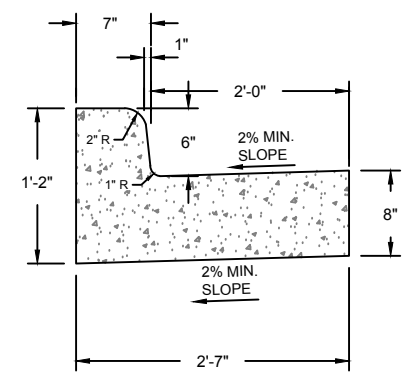
TOWN OF AVON CONSTRUCTION STANDARDS
ROADWAY, CURBS, TRAILS,
AND SIDEWALK DETAILS

REVISIONS	
NO.	DESCRIPTION

DATE: OCTOBER 2017

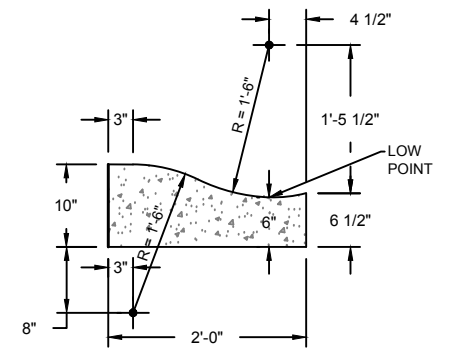
SCALE: N.T.S

SHEET NO.



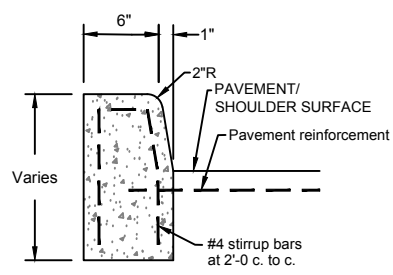
COMBINED VERTICAL CURB AND GUTTER

- NOT TO SCALE
- NOTES:
1. CURB DETAIL PER INDOT STANDARD DRAWING "E-605-CCCG-01"
 2. CURB TYPE TO BE INSTALLED ON ASPHALT COLLECTOR, INDUSTRIAL, OR ARTERIAL STREETS, OR AS DIRECTED BY THE TOWN BUILDING OFFICIAL.



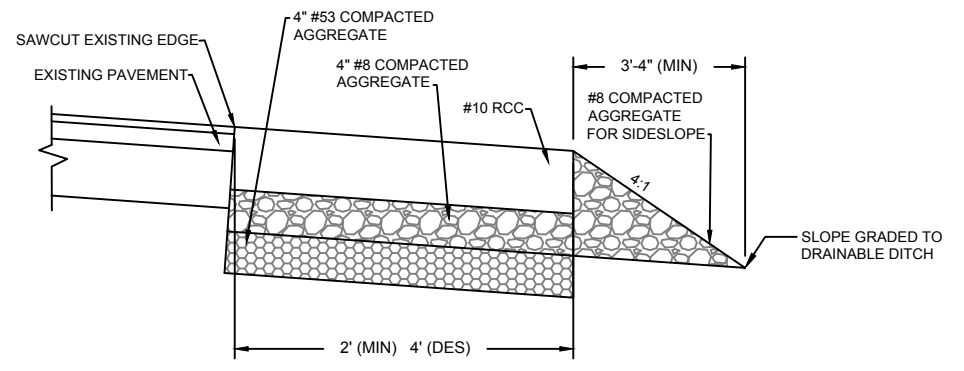
ROLL CURB AND GUTTER

- NOT TO SCALE
- NOTES:
1. CURB DETAIL PER INDOT STANDARD DRAWING "E-605-CCSJ-01"
 2. CURB TYPE TO BE INSTALLED ON ASPHALT LOCAL STREETS, OR AS DIRECTED BY THE TOWN BUILDING OFFICIAL.



INTEGRAL CURB

- NOT TO SCALE
- NOTES:
1. CURB DETAIL PER INDOT STANDARD DRAWING "E-605-CCIN-01"
 2. CURB TYPE TO BE INSTALLED ON CONCRETE COLLECTOR, INDUSTRIAL, OR ARTERIAL STREETS, OR AS DIRECTED BY THE TOWN BUILDING OFFICIAL.
 3. ALTERNATE REINFORCEMENT ALLOWED PER INDOT STANDARD DRAWING "E-605IN-01"



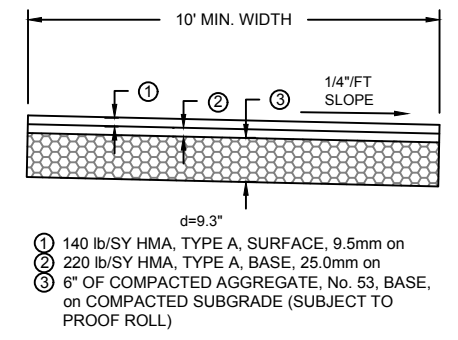
ROLLER COMPACTED CONCRETE PAVEMENT DETAIL FOR SHOULDERS

ROLLER COMPACTED CONCRETE (RCC) REQUIREMENTS

20-YEAR DESIGN LIFE

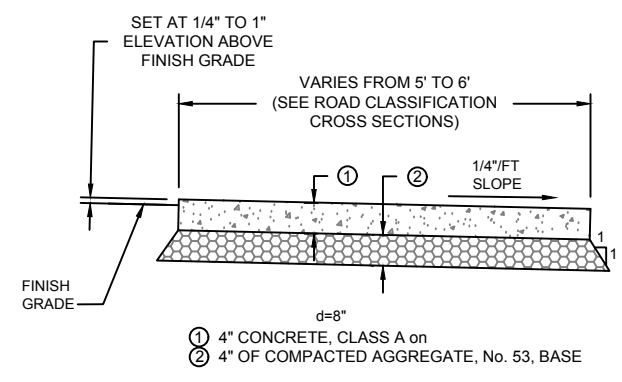
1. Allowance for use
Roller Compacted Concrete Pavement shall be allowed for use as the shoulder material for roadways within the Town limits of Avon, Indiana.
2. Description
RCC is a relatively stiff mixture of aggregate (maximum size not larger than 3/4") cementitious materials and water that is laid by a paving machine (usually a modified hot mix asphalt paver), compacted by vibratory rollers, and hardened into concrete. When RCC is used as a surface course, a minimum compressive strength of 4000 psi concrete shall be used.
The materials for RCC are blended in a mixing plant into a heterogeneous mass with a consistency of damp gravel or zero slump concrete. It is placed in layers not thicker than 10" compacted thickness. Longitudinal joints will not be placed for shoulder work; however, 30' wide non-doweled transverse joints shall be worked into the shoulder to control cracking. Placement of RCC pavement shall be performed by an asphalt paver modified as necessary by enlarging the gates between the feed hopper and screed. The spreading screws in front of the screed shall be adjusted to uniformly spread the material in front of the screed to ensure the concrete is uniformly across the width of the shoulder similar to the placement of hot mix asphalt. The paver shall be equipped with automatic grade control devices such as a traveling ski or electronic string line grade control device.
3. Materials
Aggregates shall comprise 75% to 85% of the volume of RCC pavement. Aggregates used in RCC pavement shall contain both fine (finer than No. 4 sieve) and coarse fractions pre-blended and stockpiled as a single aggregate. Coarse aggregate shall consist of crushed gravel. Fine aggregate shall consist of natural sand, manufactured sand, or a combination of both. Both coarse and fine aggregate fractions should be composed of hard durable particles tested per ASTM C33. The largest nominal size aggregate shall not exceed 3/4".
Cementitious materials used in RCC pavement shall be Type I or Type II portland cement, Class F or Class C Fly Ash, or blended hydraulic cement and may include Pozzolan or a ground granulated blast furnace slag. Hydraulic cements shall be selected per the conditions found in ACI 225R. Fly ash contents shall range from 15% to 20% of the total volume of the cementitious material. Pozzolan and other finely divided mineral admixtures for use in RCC pavement shall be selected for use based on ACI 226R. Cementitious material shall range in proportion from 10% to 17% by dry weight which corresponds to 350 to 600 lbs of cementitious material per cubic yard of RCC pavement.
Water quality requirements for RCC shall be the same as per the requirements for conventional concrete. Optimum moisture content shall be governed by pre-testing cylinder specimens of the aggregate and cementitious materials for strength at varying water-cement ratios until the optimum moisture content of the mixture is determined. A curve of the strength versus cementitious material content shall be given to the Town of Avon for their records prior to the placement of RCC pavement.
Admixtures for the air-entrainment or retarding setting shall not be used for RCC pavement.

4. Testing
Conventional ASTM testing methods used to fabricate test specimens shall not be used for RCC pavement testing. Specimen creation shall involve vibrating the fresh RCC sample on a vibrating table (VEBE table or those meeting the requirements of the relative density test for cohesionless soils using ASTM D-425 or D-4254 and meeting the requirements of ASTM C-192) under a surcharge of between 1 to 7 psi or compacting with a compaction hammer following the procedure in ASTM D-1557. Future testing requirements are being determined by ASTM subcommittee C09.45 and may change these testing procedures in the future. Flexural strength shall be determined by sawing beam specimens while compression strength shall be determined by coring the pavement at 7, 14, 28 and 90 days.
Gradation tests shall be run 3 times daily during operations or every 50 cubic yards. Aggregate moisture tests shall be taken daily using a microwave oven. Density tests shall be performed every 300 linear feet by nuclear density gages, and the nuclear density gage shall be checked against a standardized block of RCC pavement.
5. Compaction
RCC Pavement shall be compacted with a 10 ton drum vibratory roller immediately after the concrete is placed. The roller pattern involved making two static passes on the concrete surface to set the surface before vibratory rolling begins. Four or more vibratory passes are made until compaction is met. After vibratory compaction is complete, a 10 to 20 ton rubber tire roller may be used to tighten the surface texture per direction from the Town of Avon. If the rubber tire roller is used, a static roller shall be used to remove any roller marks left behind.
6. Joint Compaction
Transverse joints shall be sawed at a spacing of 30'. The depth of the sawed joint shall range from 1/4 to 1/3 of the pavement depth. The resulting joints shall be sealed. All completed joints shall have the same texture density and smoothness as the other sections of pavement. Sawing of joints shall be performed to the required alignment without chipping, spalling, tearing, or cracking of the concrete.
7. Base Course
Prior to paving operations, the base course shall be checked for density and grade. The grade shall be checked to ensure the proper thickness is laid for the RCC pavement, and the density is checked every 300'. The base course shall be moistened prior to grading.
8. Surface Smoothness
Surface smoothness shall be checked using a straightedge or profilometer. Tolerances shall range from 1/4" to 3/8" deviation from a 10' straight edge.



TYPICAL MULTI-USE PATH

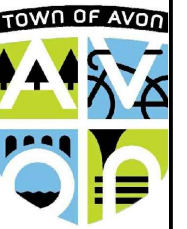
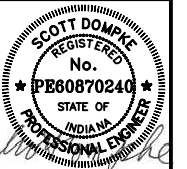
NOT TO SCALE



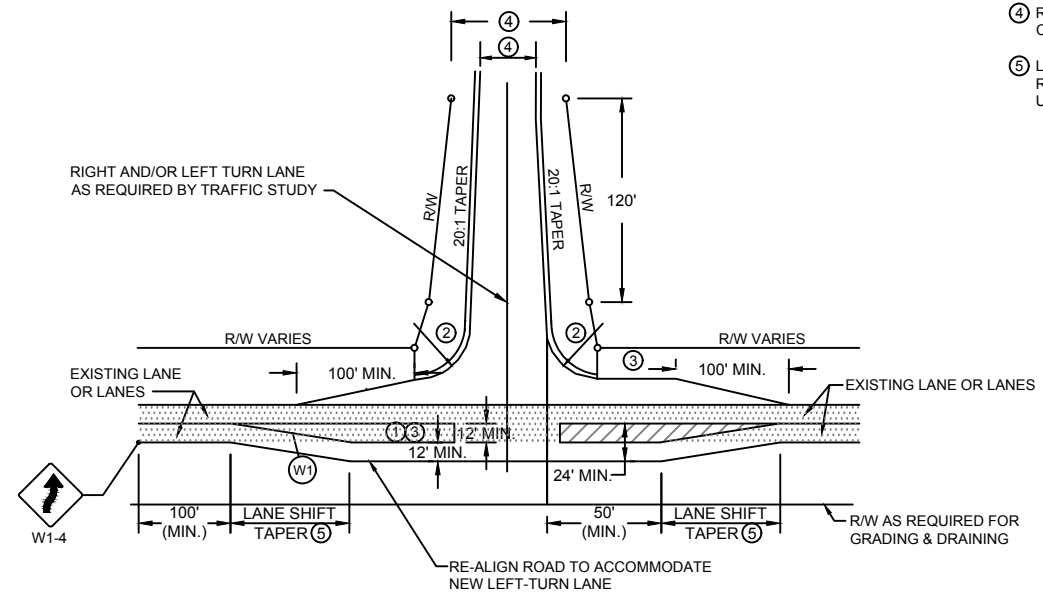
TYPICAL SIDEWALK

NOT TO SCALE

Note: Transverse joints shall be spaced at 8'-0" without dowels. Joints shall be saw cut 1/8" wide and 1" deep.



HOLD EXISTING CENTERLINE



NOTE:
 THIS DRAWING REPRESENTS THE MINIMUM REQUIREMENTS FOR A NEW PUBLIC ROAD ENTRANCE. LARGER AND/OR LONGER ACCELERATION AND DECELERATION LANES MAY BE REQUIRED WHEN DEEMED NECESSARY BY THE TOWN OF AVON TO ADEQUATELY SERVE THE ANTICIPATED TYPES AND VOLUMES OF TRAFFIC. LENGTH OF ACCELERATION AND DECELERATION LANES MAY BE MODIFIED WHEN WARRANTED AT THE DISCRETION OF THE TOWN.

LEGEND:
 (W1) LINE, WHITE DOTTED

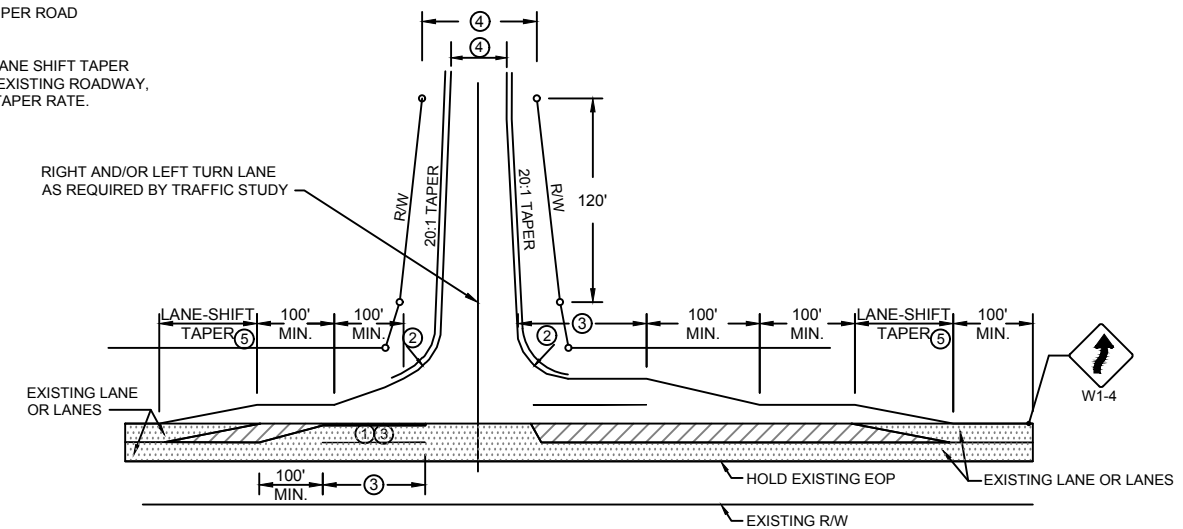
MINIMUM PUBLIC ROAD, INDUSTRIAL OR COMMERCIAL DRIVE TO PUBLIC ROAD ENTRANCE REQUIREMENTS - OPTION 1

NOT TO SCALE

NOTES:

- ① DEDICATED LEFT TURN LANE REQUIRED BY THE TOWN
- ② MINIMUM ENTRANCE RADIUS REQUIREMENTS:
 RESIDENTIAL = 40'
 COMMERCIAL/INDUSTRIAL = 50'
- ③ MINIMUM TURN/DECELERATION LANE REQUIREMENTS:
 WIDTH = 12'
 LENGTH (RESIDENTIAL) = 100'*
 LENGTH (COMMERCIAL/INDUSTRIAL) = 150'*
 * SUBJECT TO TOWN DISCRETION AND TO SPEED LIMIT
- ④ R/W AND ROAD WIDTH REQUIREMENTS PER ROAD CLASSIFICATION
- ⑤ LENGTH DEPENDENT ON APPLICABLE LANE SHIFT TAPER RATE FOR THE DESIGN SPEED OF THE EXISTING ROADWAY, USE INDOT CRITERIA FOR LANE SHIFT TAPER RATE.

HOLD EXISTING EDGE OF PAVEMENT



MINIMUM PUBLIC ROAD, INDUSTRIAL OR COMMERCIAL DRIVE TO PUBLIC ROAD ENTRANCE REQUIREMENTS - OPTION 2

NOT TO SCALE

**TOWN OF AVON CONSTRUCTION STANDARDS
 PUBLIC ROAD ENTRANCE DETAILS**

NO.	REVISIONS DESCRIPTION	DATE	BY

DATE: OCTOBER 2017

SCALE: N.T.S

SHEET NO.

FILE NAME: G:\234-Avon-P\Working Drawings\A\Avon Town Standards\SHEET_04.dwg
 PRINTED: 10/26/2017 @ 2:11PM

GENERAL NOTES

- 1. INDOT Standard Specifications shall be used unless otherwise noted in the Avon Town Standards. Generally, the applicable INDOT references are:
a. 715 Pipe Culverts and Storm and Sanitary Sewers
b. 718 Underdrains
c. 719 Tile Drains
d. 720 Manholes, Inlets, and Catch Basins
e. 901 PCC Materials
f. 903 Classification of Soils
g. 904 Aggregates
h. 907 Concrete, Clay, and Plastic Drainage Components
2. Acceptable materials are listed below.
3. Minimum storm sewer size shall be 12-inch. Minimum underdrain size shall be 6-inch.
4. Storm sewer pipe of other material or material not meeting these specifications shall require the prior written approval of the Town Building Official.
5. The Contractor shall submit information to the Town Building Official showing conformance with these specifications upon request.
6. As-Built electronic files shall be submitted to the Town of Avon in the latest AutoCad version and full-size PDF formats.
7. All construction activities shall comply with the erosion control requirements of the Indiana Departments of Environmental Management (IDEM) and Natural Resources (IDNR), and government agencies. This includes, but is not limited to, the requirements of Indiana Rule 5 General Permit (327 IAC 15-5 Storm Water Run Off associated with Construction Activity) unless otherwise required by IDEM. Stormwater Pollution Prevention Plans shall be consistent with the current edition of the Indiana Storm Water Quality Manual (formerly the Indiana Hand Book for Erosion Control) unless otherwise approved by IDEM.
8. Inspect pipe, fittings, structures, and appurtenances prior to installation and promptly remove damaged or unsuitable materials from the job site. Replace damaged or unsuitable materials with new and unused materials.
9. Install all pipes, fittings, structures, and appurtenances as shown on the standard details and as specified in this Section. Do not install pipe when, in the opinion of the Town Building Official, trench conditions are unsuitable.
10. Follow manufacturer's installation procedures when installing pipe, fittings, structures, and appurtenances.

EXAMINATION

VERIFY CONDITIONS

- 1. Before installing piping, verify location, depth, type of joint needed, and size of pipe to which connection is proposed.
2. Assure that lines can be run as proposed. Notify Town Building Official immediately for approval of any necessary deviation before lines are run.
3. Work all lengths of pipe into place without forcing.

MATERIALS AND STANDARDS

REINFORCED CONCRETE PIPE (RCP) (RIGID PIPE TRENCH)

- 1. RCP may be used in all stormwater conveyance applications.
2. Reinforced concrete pipe shall be Class III, Wall B, conforming with ASTM C-76, AASHTO M170, and INDOT Standard Specification 907.
3. Reinforced elliptical concrete pipe shall be Class HE-III or HE-IV as specified in ASTM C-507, AASHTO M207, and INDOT Standard Specification 907.
4. Lift holes are not allowed for pipe less than 24-inches in diameter. A maximum of 2 lift holes are allowed for pipe 24-inches in diameter or larger. Lift holes shall be repaired according to most recent INDOT Standard Specifications.
5. Fittings and specialties shall be in accordance with the Specifications for the type of pipe being used.
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.
8. Installation shall be in accordance with ASTM recommended practice C1479.

POLYVINYL CHLORIDE (PVC) PIPE (FLEXIBLE PIPE TRENCH)

- 1. PVC pipe may be used for stormwater conveyance systems in residential and commercial developments outside the public right-of-way.
2. Pipe diameters of 12-inches through 15-inches shall meet or exceed all the requirements of ASTM D-3034, and shall have a minimum cell classification of 12454-C. 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-C. PVC ribbed sewer pipe shall meet or exceed all requirements of ASTM F-794, and shall have a minimum cell classification of 12454-C.
3. The minimum wall thickness for pipes of 12-inches through 15-inches diameter shall conform to SDR 35, Type PSM, as specified in ASTM D-3034. The minimum wall thickness for pipe diameters greater than 15-inches shall conform to T-1 as specified in ASTM F-679.
4. PVC Pipe shall have a minimum pipe stiffness of 46 pounds per square inch for each diameter when measured at 5 percent deflection and tested in accordance with ASTM D-2412.
5. For installations where cover is less than 3 feet or greater than 10 feet, SDR 26 or SDR 21 pipe shall be used. SDR 26 or 21 pipe may be appropriate for low clearance utility conflicts.
6. 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 pipe manufacturers' recommendations and ASTM D-3212. No solvent cement joints shall be allowed. Gasket material shall be constructed of Styrene Butadiene or Butyl Rubber and meet the requirements of ASTM F-477.
7. Each pipe section shall be marked with name of manufacturer, trademark or trade school name, nominal pipe size, production/extrusion code, material and cell class designation and ASTM number.
8. Installation shall be in accordance with ASTM D-2321.
9. Installed pipe shall not exceed a deflection of 5%.

HIGH DENSITY POLYETHYLENE (HDPE) CORRUGATED PIPE (FLEXIBLE PIPE TRENCH)

- 1. HDPE pipe may be used for stormwater conveyance systems in residential and commercial developments outside the public right-of-way, except as noted.
2. HDPE Class I Pipe 12-inches through 36-inches in diameter may be used within the public right-of-way of local streets, subject to the bedding requirements for flexible pipe. HDPE pipe greater than 36-inches in diameter shall not be allowed for use within the public right-of-way in the Town of Avon.
3. Requirements for test methods, dimensions, and markings are those found in AASHTO specifications M-252 and M-294.
4. Pipe and fittings shall be made of Polyethylene Compounds which meet or exceed the requirements of Type III, Grade PE30 or PE33, per ASTM D-3350 with the applicable requirements defined in ASTM D-3350.
5. Minimum pipe stiffness values shall be in accordance with AASHTO specifications M-294.
6. The HDPE corrugated pipe shall have an internally formed smooth interior.
7. Male and female pipe ends which allow the construction of overlapping gasket joints shall be made in conformance with ASTM D-3212. Neoprene gaskets shall ASTM F-477.
8. Installation shall be in accordance with ASTM recommended practice D-2321.
9. Installed pipe shall not exceed a deflection of 5%.
10. HDPE Class III Pipe greater than 60-inches in diameter shall now be allowed for use in the Town of Avon.

ALUMINIZED TYPE 2 (AL2CMP) CORRUGATED METAL PIPE (FLEXIBLE PIPE TRENCH)

- 1. Aluminized Type 2 corrugated metal pipe may be used for culverts through embankments, driveway culverts in residential and commercial developments, and roadside ditch.
2. Aluminized Type 2 corrugated metal pipe intended for the use in the construction of storm sewers shall meet the applicable requirements of AASHTO M-36. Sheet material shall meet the latest revision of ASTM A525 and AASHTO M-274. The coils from which the pipe is produced shall be coated with 1.0 ounce per square foot of commercially pure aluminum.
3. Pipe shall be furnished circular or a pipe-arch shape as required and shall be fabricated with helical corrugation and a continuous welded seam extending from end to end of each length of pipe.
4. Each end of each pipe with a welded seam shall have two annular corrugations reformed to permit joining with hugger bands.

- 5. Coupling bands shall be hugger bands.
6. Installation shall be in accordance with ASTM recommended practice.

POLYPROPYLENE PIPE (PP) (FLEXIBLE PIPE TRENCH)

FOR PIPE SIZES 12-INCH TO 60-INCH:

- 1. PP pipe may be used for stormwater conveyance systems in residential and commercial developments outside the public right-of-way, except as noted.
2. PP pipe 12-inches through 30-inches in diameter may be used with in the public right-of-way of local streets, subject to the bedding requirements for flexible pipe. PP greater than 36-inches in diameter shall not be allowed for use with in the public right-of-way in the Town of Avon.
3. ADS N-12 HP polypropylene pipe is acceptable for use in the installation of gravity storm sewers for pipes sizes of 12-inch through less than 30-inch diameter. The pipe shall be double-wall corrugated polypropylene pipe with a co-extruded smooth interior liner. Single-wall pipe shall not be used. ADS Sanitite HP polypropylene triple wall is an acceptable storm sewer pipe for use in the installation of gravity sewers for pipe sizes of 30-inch through 60-inch diameter. The pipe shall be triple wall corrugated polypropylene pipe with an interior wall, exterior wall and an annular corrugated profile middle wall. Single-wall pipe shall not be used.
4. Pipe material and performance requirements shall conform to ASTM F2736, ASTM F2881 and/or ASTM F2764.
5. Pipe shall have a minimum pipe stiffness of 46 psi at 5% deflection.
6. Pipe shall be installed in accordance with ASTM D2321.
7. Minimum cover shall be 2 feet above the top of pipe
8. Maximum cover (installation depth) shall be per manufacturer's recommendations based on backfill material classification and compaction (recommended maximum cover depth varies from 16 to 40 feet).
9. Only manufactured fittings shall be used during original construction.
10. PP pipe joints shall be gasketed integral bell and spigot meeting the requirements of ASTM F2736 for ASTM F2764 and/or ASTM F2881.
11. Leakage testing, when requested, shall be performed in accordance with ASTM F1417 or ASTM F2487.
12. Installed pipe shall not exceed a deflection of 5%.
13. PP pipe greater than 60-inches in diameter shall not be allowed for use in the Town of Avon.

DUCTILE IRON PIPE (DIP) (FLEXIBLE PIPE TRENCH)

- 1. Ductile iron pipe may be used in gravity storm sewer applications where necessary to resolve utility conflicts or where lack of cover makes other materials undesirable.
2. Ductile Iron Pipe shall not be used without the written authorization of the Town Building Official.
3. Ductile iron pipe shall conform to the current requirements of AWWA C151, Pressure Class 350, with push_on joints unless otherwise noted on drawings.
4. The interior of the pipe shall be cement_mortar lined with bituminous seal coat in accordance with the current requirements of AWWA C104. The exterior of all pipe, unless otherwise specified, shall receive either coal tar or asphalt base coating a minimum of 1 mil thick.
5. Each piece of pipe shall bear the manufacturer's name or trademark, the year in which it was produced and the letters "DI" or the word "DUCTILE". Pipe manufacturer shall furnish notarized certificate of compliance to the above AWWA or ANSI specifications.
6. The cleaning and assembly of pipe and fitting joints shall be in accordance with the manufacturer's recommendations.
7. Installation shall be in accordance with ASTM D-2321.
8. Polyethylene encasement shall be used on all ductile iron pipe in accordance with ANSI/AWWA C105/A21.5, polyethylene encasement for ductile iron pipe systems.
9. Polyethylene encasement for use with ductile iron pipe systems shall consist of three layers of co-extruded Linear Low Density Polyethylene (LLDPE), fused into a single thickness of not less than 8 mils.
10. The inside surface of the polyethylene wrap to be in contact with the pipe exterior shall be infused with a blend of anti-microbial biocide to mitigate microbiologically influenced corrosion and a volatile corrosion inhibitor to control galvanic corrosion.

PIPE EMBEDMENT & BACKFILL MATERIALS (PER ASTM D2321)

- 1. Classes of Embedment and Backfill Materials are defined in

ASTM D2321. Embedment Materials are those used for bedding, haunching and initial backfill.

- 2. Class 1A and Class 2 materials are acceptable for pipe embedment. Included in this category are INDOT #8, #9, #11 and #12 crushed stone.
3. Class 1, 2, 3 and 4A materials are acceptable for Final Backfill, compacted 85% Standard Proctor Density except that Class 4A material must be compacted to 95% Standard Proctor Density and Class 4A material is not allowed for backfill under pavement or traffic areas or in trenches where water content may cause instability of uncontrolled water content.
4. No rocks larger than 3" shall be incorporated into the final backfill materials.
5. Class 1A Manufactured Aggregates: Open graded clean, angular, crushed stone or rock. These materials compact with little or no mechanical effort.
6. Class 1B Manufactured, Processed Aggregate: Dense graded clean, angular crushed stone. Compact to 85% Standard Proctor Density with hand tampers or vibratory compaction.
7. Class 2: Clean, coarse-grained materials, such as gravel, coarse sands, and gravel/sand mixtures (1-inch maximum size). The materials are classified by the Unified Soil Classification System as GW, GP, SW, SP, and GW-GC or SP-SM. Hand tamping or mechanical vibration is required to provide the necessary 85% Standard Proctor Density.
8. Class 3: Coarse-grained materials with fines including silty or clayey gravels or sands. Gravel or sand must comprise more than 50% of Class 3 materials (1-inch maximum size). Soils classified as GM, GC, SM or SC meets these requirements. Hand tamping or mechanical vibration is required to provide the necessary 90% Standard Proctor Density.
9. Class 4: Fine-grained materials, such as fine sands and soils, containing 50% or more clay or silt. Soils classified as Class 4A (ML or CL) have medium to low plasticity. Soils classified as Class 4B (MH or CH) have high plasticity and are NOT allowed as embedment or backfill materials.

STORM STRUCTURES AND APPURTENANCES

- 1. Swales shall be constructed with a minimum of 1.0 percent profile grade. A 6-inch diameter perforated underdrain is required for all swales. See swale underdrain detail, sheet 2.
2. End sections suitable for the pipe material shall be used for each pipe not connected to an inlet or manhole. Safety/trash guards shall be installed on all end sections greater than 18-inches and all end sections in ponds.
3. INDOT Type "J, K, L, M, & N" manholes as detailed on sheet 7 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.
4. 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 Town Building Official. Regardless of the type of casting used, the casting shall be positioned over the manhole steps for accessibility and set in a mortar bed.
5. Manhole steps shall be made from a steel reinforcing rod encapsulated in a copolymer polypropylene resin. The manhole steps shall equal or exceed OSHA requirements. PS-1-PF manhole steps manufactured by M.A. Industries, Inc. or equal are acceptable.
6. See compatibility of drainage structures and castings for appropriate structures and casting selections.

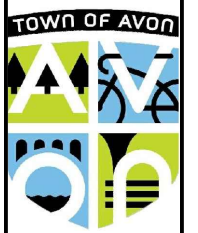
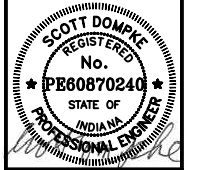
INSTALLATION

CULVERT PIPE, STORM SEWER PIPE, AND ACCESSORIES

- 1. Maintain 18 inches of vertical separation and 10 feet of horizontal separation between new storm sewer and new or existing water mains unless otherwise directed. Notify Town Building Official immediately of all instances where separation cannot be maintained.
2. Lay culvert pipe and storm sewer pipe uniformly to line and grade so that finished culvert or storm sewer will present a uniform conduit.
3. Minimum allowable cover shall be 24 inches over the top of culvert and storm sewer pipes in all locations. Cover shall be measured to the bottom of pavement where structures run under pavement. Shallower depth of cover may be considered by the Town Building Official under conditions where engineering design will alleviate concern for surface loadings and frost heave.
4. Set line and grade by means of laser beam and target for alignment and grade.
5. Place and rough grade bedding prior to pipe installations. Lay culvert pipe and storm sewer pipe progressively upgrade in a

manner to form close, concentric joints with smooth bottom inverts.

- 6. After joint is made, place and shovel slice sufficient haunching material to the spring line along each side of the pipe to prevent conditions that might tend to move the pipe off line or grade.
7. Repair any lift holes in a clean, workmanlike manner using a conical shaped precast concrete plug. Properly seal into place using non-shrink cement grout. Mastic sealer shall not be used.
8. Temporarily plug installed piping systems at end of each day's work or other interruption of progress on a given line. Plug shall be adequate to prevent entry of animals and entrance or insertion of deleterious materials and shall be installed in a manner satisfactory to the Town Building Official.
9. Securely attach fabricated branches for wyes and tees to wall of pipe in such a manner as to not restrict or otherwise interfere with flow characteristics of the pipe.
10. Install boot and saddle connectors for all taps to concrete and RCP pipe.
11. Complete all field-cutting of PVC pipe in a neat, trim manner using a hand or power saw. Field cutting of closed profile pipe requires any exposed channels be sealed in accordance with the manufacturer's recommendation.
12. Place the end of the connecting pipe in the concrete end section so that flow lines are flush. Fill the joint completely with mortar.
13. Transition from the specified fill slope to the slope of the end section to create a smooth transition approximately 10 feet in length.
14. Install trash guards on all pipe end sections 18-inches and larger in diameter.
15. If any existing drainage tile systems are encountered during construction, reconstruct the tile to its original conditions or connect tile to the new storm drainage system as approved by the Town Building Official.



TOWN OF AVON CONSTRUCTION STANDARDS
STORMWATER NOTES

Table with columns for REVISIONS, NO., DESCRIPTION, DATE, BY, and a vertical note: THIS MARK SHOULD BE ASURE EXACTLY 1" WHEN PLOTTED.

DATE: OCTOBER 2017
SCALE: N.T.S.
SHEET NO.

PRINTED: 10/26/2017 @ 2:11PM

FILE NAME: G:\234-Avon\PIV\Working Drawings\AutoCAD\Avon Town Standards\SHEET_05.dwg

Precast Concrete Manholes, Inlets, and Accessories

1. Install storm structures to provide a maximum structure spacing of 500 feet.
2. For new storm sewer construction, install storm manhole at locations where there is a change in storm sewer alignment, slope, size, or material.
3. Unless otherwise indicated, provide 0.1 foot sewer invert drop through manholes.
4. Keep structure excavations free from water during construction.
5. Fill all areas excavated below the depth required for the structure's base with No. 8 crushed stone at Contractor's expense.
6. Install precast concrete risers and adjusting rings in such combination that the manhole frame will be at the proper elevation. Structures shall be completely constructed to proper finished grade before curbs, asphalt, or other pavement may be installed. Patching and filling under frames will not be permitted.
7. Install manhole frame to grade and center.
8. Install steps beginning at approximately 8 inches below the top of the cone section (maximum 21 inches from top of casting). Install steps at 12 inches on center minimum to 16 inches on center maximum, continuous and spaced uniformly.
9. Install steps with minimum 3-inch wall embedment and minimum 4-inch clear distance projection from the wall as measured from the point of embedment.
10. Install precast concrete base, risers, cone, and flat top sections so that the axis of the manhole is vertical.
11. Install precast concrete inlets so that the axis of the structure is vertical.
12. Install gaskets for joints in accordance with the manufacturer's recommendations. Wrap riser joints with external joint seals in accordance with manufacturer's recommendations. Install external seal from 6 inches above joint to 6 inches below.
13. Prior to backfilling, fill all holes used for handling with rapid setting patch material or with precast concrete plugs secured with Portland cement mortar.
14. Unless otherwise indicated, set castings for all structures at finish grade level. Adjust castings to the satisfaction of the Town Building Official, at Contractor's expense.
15. No mortar or grout may be installed inside manhole, except for sealing annular space around pipe penetrations.
16. Storm sewer structures and castings must be inspected by the Town Building Official. Proper casting elevation will be verified. Adjustment and repairs shall be made prior to maintenance and final bond releases.

Pipe to Structure Connections

1. Core drill new pipe penetration into existing structure at the proper location where the pipe enters the structure.
2. For concrete pipe, fill the annular space between the pipe and structure interior and exterior walls with grout.
3. For HDPE and PVC pipe, install flexible neoprene molded boot or resilient seal to secure the pipe in the structure wall. Grouted connections may be acceptable w/ approval of town building official.
4. Connect street subsurface drains and swale underdrains to inlets, manholes or daylight to open ditches.

Connection to Existing Rear Yard Surface Drain

1. Where approved by Town Building Official, install new sump pump service connection to existing rear yard surface drain using appropriate leak proof fitting where shown and as specified.

Field Quality Control

General

1. Provide all necessary equipment and instrumentation required for proper completion of the testing of manholes and piping systems.
2. All tests shall be made in the presence of the Town Building Official. Preliminary tests made by the Contractor without being observed by the Town Building Official will not be accepted. Notify the Town Building Official at least 36 hours (not including holidays or weekends) before any work is to be inspected or tested.
3. All defects in piping systems shall be repaired and/or replaced and retested until acceptable to the Town Building Official. Repairs shall be made to the standard of quality specified for the entire system.
4. Sections of the system may be tested separately, but any defect which may develop in a section previously tested and

accepted shall be promptly corrected and retested at no additional cost to the Town of Avon.

5. All manholes and piping systems shall be tested in accordance with these test methods in addition to any test required by IDEM, State or Local plumbing codes and/or building authorities.

Testing and acceptance

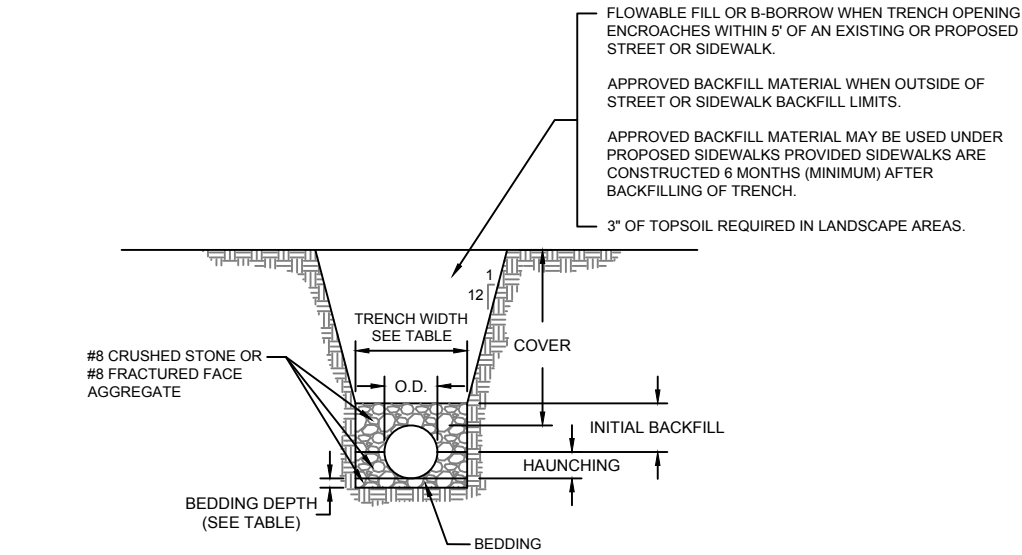
1. An in-place deflection test shall be performed on flexible pipe installed for storm sewers and culverts. Deflection testing is not required for underdrain piping.
2. Perform testing in presence of Town Building Official.
3. Deflection Test for Flexible Pipes.
4. Pipe materials considered flexible include the following:
 - a. PVC
 - b. PP
 - c. HDPE
5. Perform deflection testing on all flexible pipes after the final backfill has been in place for at least 30 days.
6. Perform deflection test using a mandrel pulled by hand.
7. The mandrel (go/no-go) device shall be cylindrical in shape and constructed with a minimum of 9 vanes evenly spaced. All vanes must be in place for the test. Larger diameter pipes may require mandrels with more than 9 Vanes. The number of vanes shall always be an odd number.
8. The pipe supplier or Contractor shall supply the mandrels and a proving ring for the specific pipe to get tested. Contractor must supply written verification of the mandrel and providing ring for the installed pipe.
9. No pipe shall exceed a vertical deflection of 5 percent of internal pipe diameter. Uncover, replace, and retest any pipe not passing the deflection test until achieving a satisfactory result. TV inspection may be requested prior to placement excavation to determine the nature of the failure.

Television Inspection

1. Televis all storm sewers in excess of 40 feet in length.
2. Perform all television inspection in presence of Town Building Official.
3. Clean all new storm sewers by "flooding" prior to television inspection. The image shall be clear so the interior condition of the pipe is easily evaluated.
4. Correct all unacceptable conditions found during the television inspection and re-televis until conditions are acceptable.
5. Unacceptable conditions are conditions that adversely affect the ability of the system to function as designed or to be properly maintained and may include, but are not limited to, the following:
 - a. Protruding taps
 - b. Cracked or faulty
 - c. Misaligned or deformed pipe
 - d. Debris in line
 - e. Infiltration/Exfiltration
 - f. Excessive gaps at joints
6. Bellies or sags with a depth greater than or equal to 10 percent of the pipe diameter (maximum of 3-inches) or a length greater than 25 feet
7. Submit copy of the televising recording (DVD or flash drive format) prior to acceptance. Submitted electronic file must contain appropriate viewing software of Town of Avon to use on its existing information technology system.

Cleaning

1. Provide all necessary equipment required for proper completion of the flushing of manholes and piping systems. Source, quality, and disposal of water shall be approved by the Town Building Official.
2. Remove all debris and excess soil from structures after installation and prior to flushing the storm sewer pipes, to the satisfaction of the Town Building Official.
3. Clean all new storm sewers with high pressure water jet after installation and before testing. All pipe interiors shall be kept clean until acceptance. Any foreign material discovered in the pipe during inspection shall be removed at the Contractor's expense.

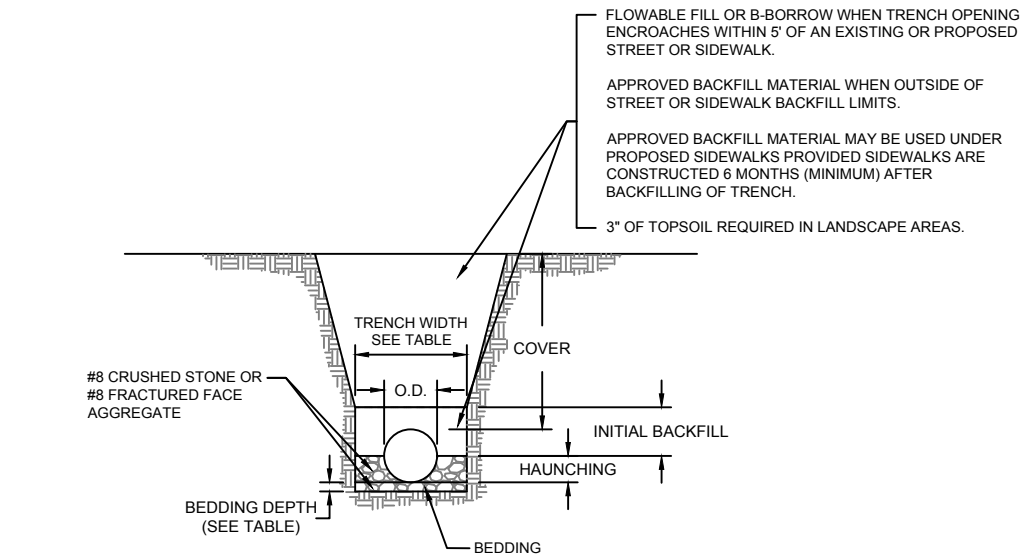


MINIMUM BEDDING, HAUNCHING, AND INITIAL BACKFILL			MINIMUM TRENCH WIDTHS	
PIPE SIZE	BEDDING (BELOW PIPE BARREL)	HAUNCHING AND INITIAL BACKFILL* (ABOVE TOP OF PIPE)	PIPE SIZE	MINIMUM WIDTH
12" TO 15"	4" MIN	6" MIN	12" TO 15"	O.D. + 16"
18" & OVER	8" MIN	6" MIN	18" & OVER	(O.D. x 1.25) + 12"

*NOTE: ALL INITIAL BACKFILL SHALL BE INSTALLED IN 6" TO 12" BALANCED LIFTS.

**FLEXIBLE PIPE TRENCH DETAIL
PVC, PP, HDPE, AL2CMP, AND DIP PIPE**

NOT TO SCALE

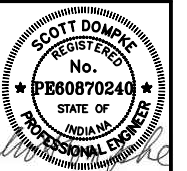


MINIMUM BEDDING, HAUNCHING, AND INITIAL BACKFILL			MINIMUM TRENCH WIDTHS	
PIPE SIZE	BEDDING (BELOW PIPE BARREL)	HAUNCHING AND INITIAL BACKFILL* (ABOVE TOP OF PIPE)	PIPE SIZE	MINIMUM WIDTH
12" TO 18"	4" MIN	1/2 O.D. PIPE (MIN)	12" TO 18"	O.D. + 16"
24" & OVER	8" MIN	1/2 O.D. PIPE (MIN)	24" & OVER	(O.D. x 1.25) + 12"

*NOTE: ALL INITIAL BACKFILL SHALL BE INSTALLED IN 6" TO 12" BALANCED LIFTS.

**RIGID PIPE TRENCH DETAIL
RCP**

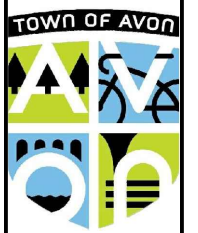
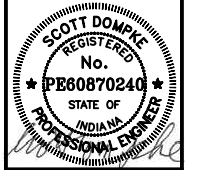
NOT TO SCALE



TOWN OF AVON CONSTRUCTION STANDARDS
STORMWATER PIPING AND TRENCH DETAILS
AND STORMWATER NOTES

NO.	REVISIONS	DESCRIPTION	DATE	BY

DATE: OCTOBER 2017
SCALE: N.T.S.
SHEET NO: 6

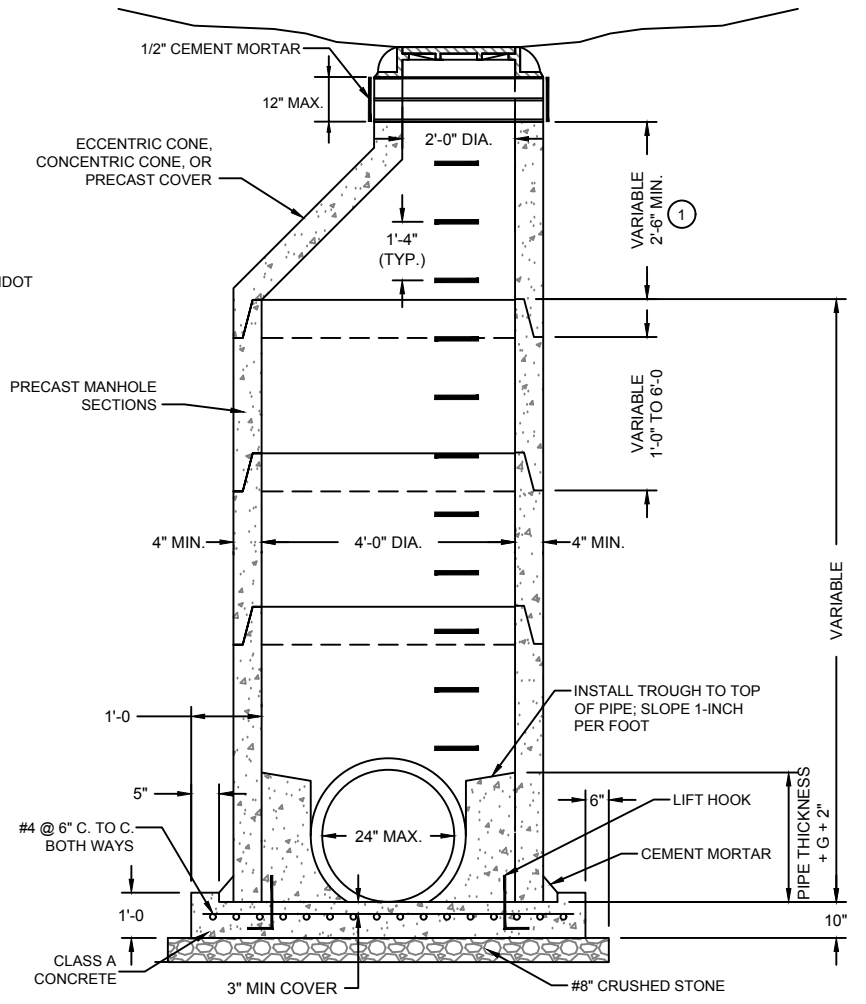


TOWN OF AVON CONSTRUCTION STANDARDS
STORM MANHOLE AND INLET DETAILS

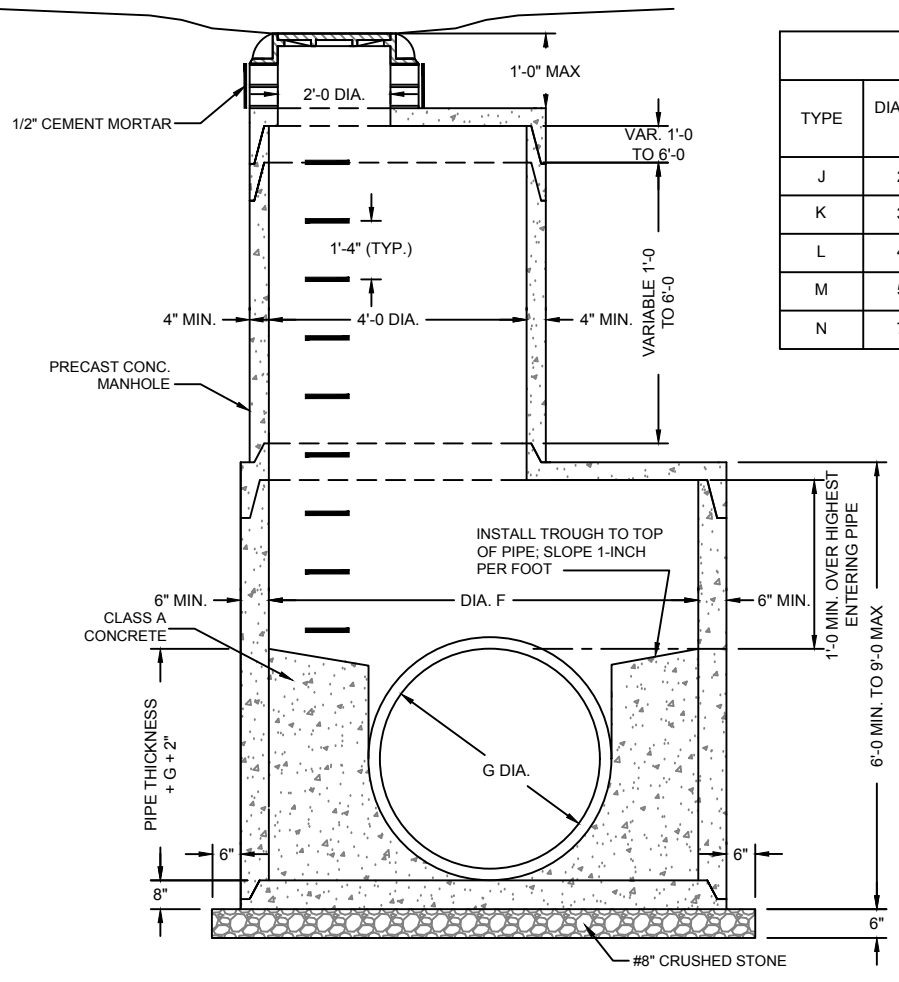
MANHOLE PIPE SIZES				
TYPE	DIAMETER "G" (IN.)	DIAMETER "F" (FT. IN.)	MAX. PIPE SIZE, RT. ANGLE TO MAINLINE (IN.)	MAX. PIPE SIZE FOR MAINLINE (IN.)
J	24 TO 36	5'-0"	30	36
K	36 TO 48	6'-0"	36	48
L	48 TO 54	8'-0"	48	54
M	54 TO 72	8'-0"	66	72
N	72 TO 84	9'-0"	72	84

- NOTES:**
- DROP PIPE MAY BE USED WITH MANHOLES TYPE "H", "J", "K", "L", "M", OR "N". SUCH MANHOLES SHALL BE REFERRED TO AS DROP MANHOLES TYPE "H", "J", "K", "L", "M", OR "N". FOR DETAILS OF CONSTRUCTION, SEE INDOT STANDARD DRAWING E 720-MHST-03.
 - SEE INDOT STANDARD DRAWING E 720-MHST-06 FOR DETAILS A, B AND C.
 - MANHOLES TYPE "C", "D", "E", OR "F" MAY BE SUBSTITUTED FOR MANHOLES TYPE "H", "J", "K", "L", "M", OR "N" FOR COMPARABLE PIPE SIZES. SEE INDOT STANDARD DRAWINGS E 720-MHST-02 AND -04 FOR MANHOLES TYPE "D", "E", "F", OR "G" DETAILS.

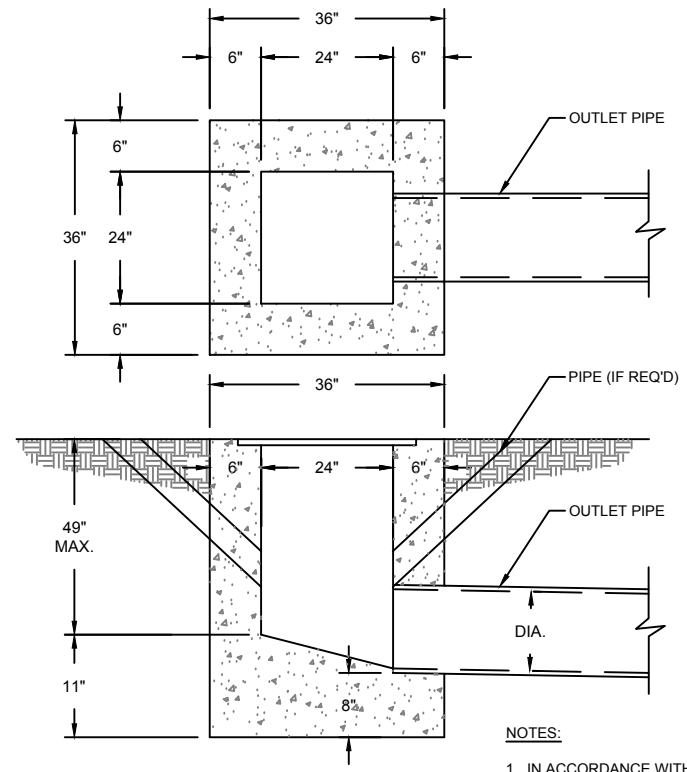
- NOTES:**
- FOR ECCENTRIC AND CONCENTRIC CONE HEIGHTS, SEE CONE HEIGHTS TABLE ON INDOT STANDARD DRAWING E 720-MHST-08



**PRECAST STORM MANHOLE
TYPE "C" MODIFIED**
NOT TO SCALE

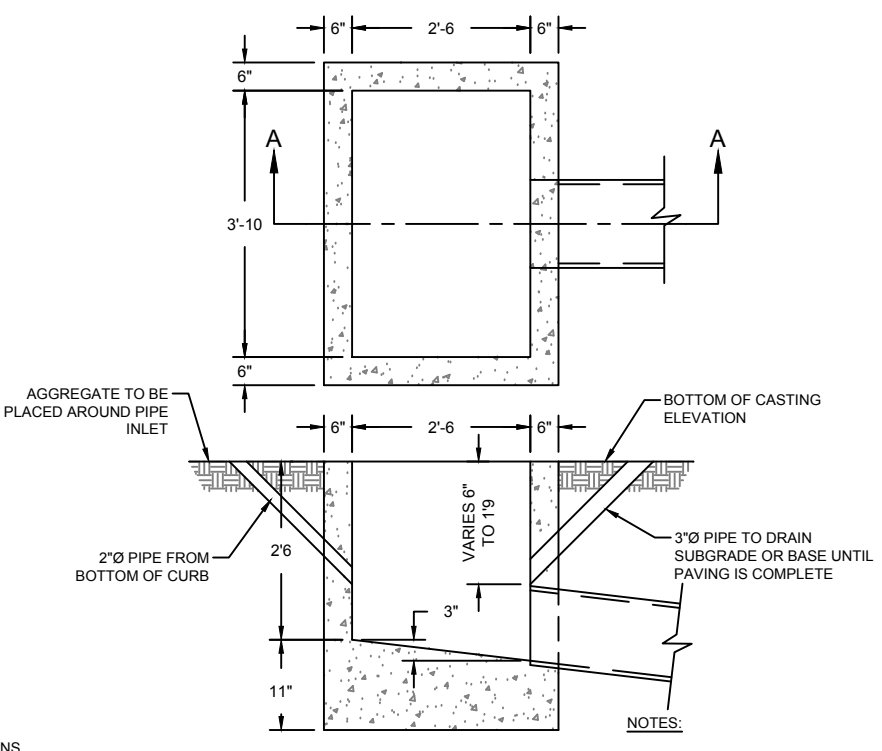


**PRECAST STORM MANHOLE
TYPES "J", "K", "L", "M", AND "N" MODIFIED**
NOT TO SCALE



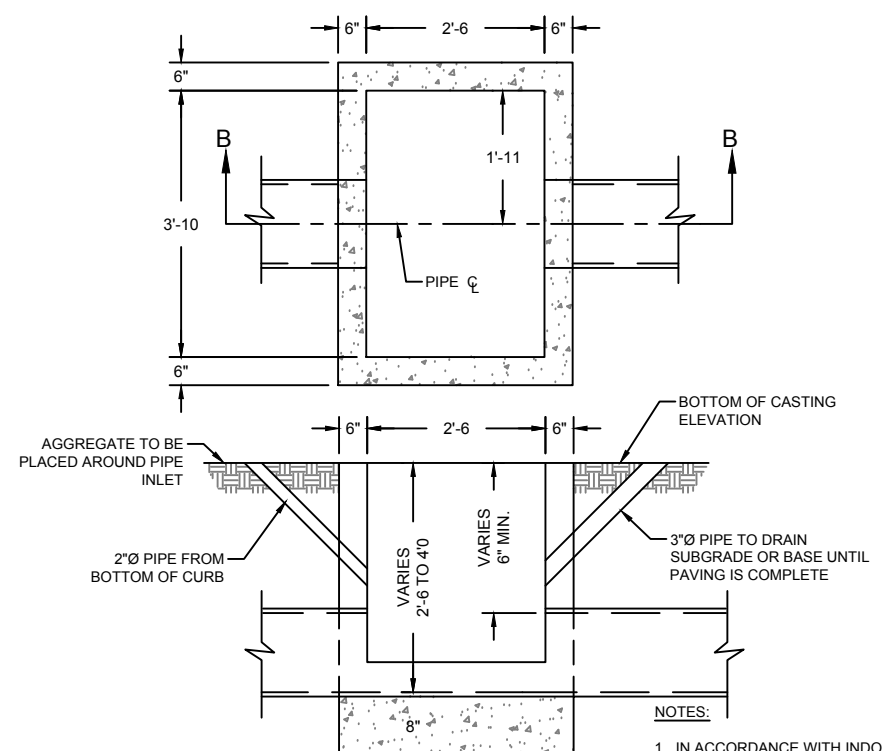
**PRECAST INLET
TYPE "A" (MODIFIED)**
NOT TO SCALE

- NOTES:**
- IN ACCORDANCE WITH INDOT SPECIFICATIONS
 - MINIMUM CONCRETE COMPRESSIVE STRENGTH 4000 PSI.
 - PRECAST ADJUSTING SECTIONS ONLY.



**PRECAST INLET
TYPE "B"**
NOT TO SCALE

- NOTES:**
- IN ACCORDANCE WITH INDOT SPECIFICATIONS
 - MINIMUM CONCRETE COMPRESSIVE STRENGTH 4000 PSI.
 - PRECAST ADJUSTING SECTIONS ONLY.



**PRECAST INLET
TYPE "C"**
NOT TO SCALE

- NOTES:**
- IN ACCORDANCE WITH INDOT SPECIFICATIONS
 - MINIMUM CONCRETE COMPRESSIVE STRENGTH 4000 PSI.
 - PRECAST ADJUSTING SECTIONS ONLY.

PRINTED: 10/26/2017 @ 2:11PM

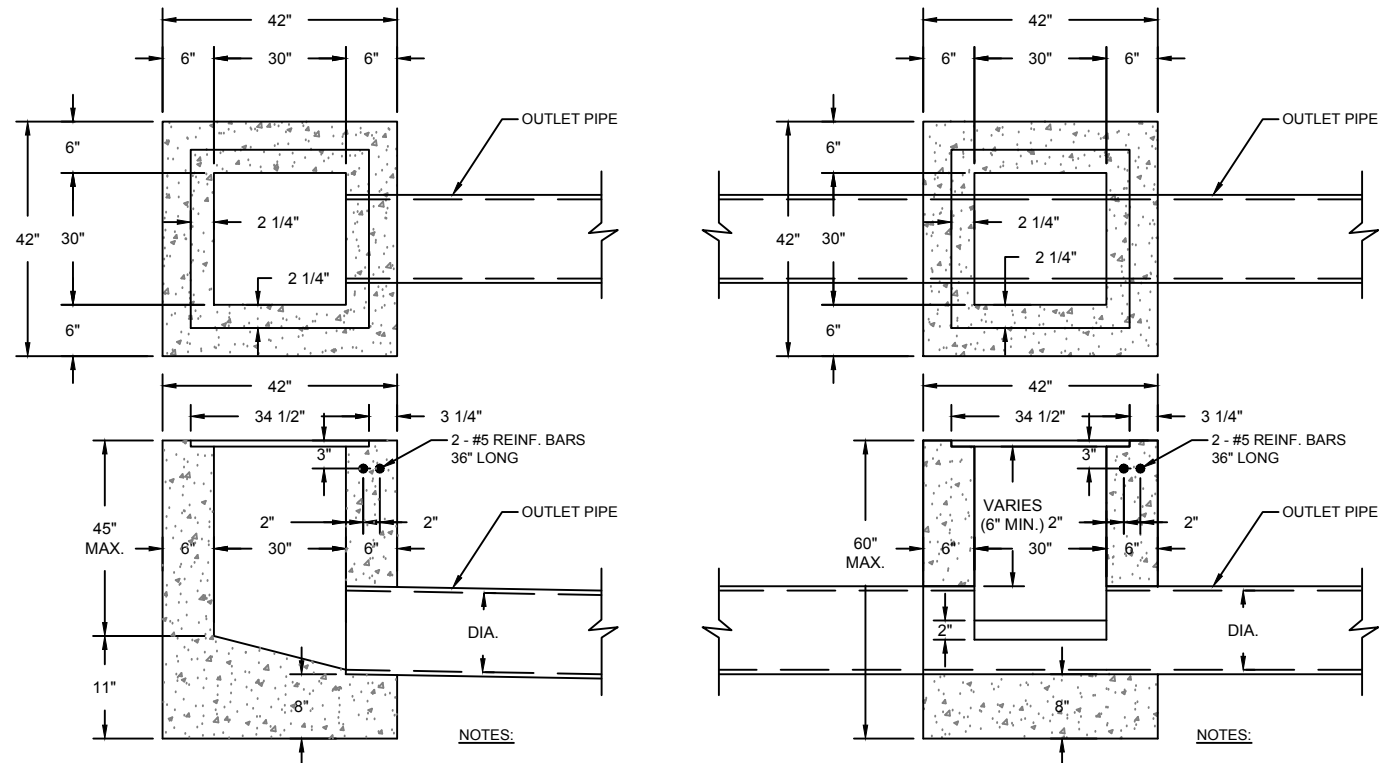
FILE NAME: G:\234-Avon\Working Drawings\Avon\Avon Town Standards\Sheet_07.dwg

NO.	REVISIONS	DATE	BY

DATE: OCTOBER 2017
SCALE: N.T.S.
SHEET NO: **7**

PRINTED: 10/26/2017 @ 2:11PM

FILE NAME: G:\234-Avon-P\Working Drawings\Avon\Avon Town Standards\Sheet_08.dwg

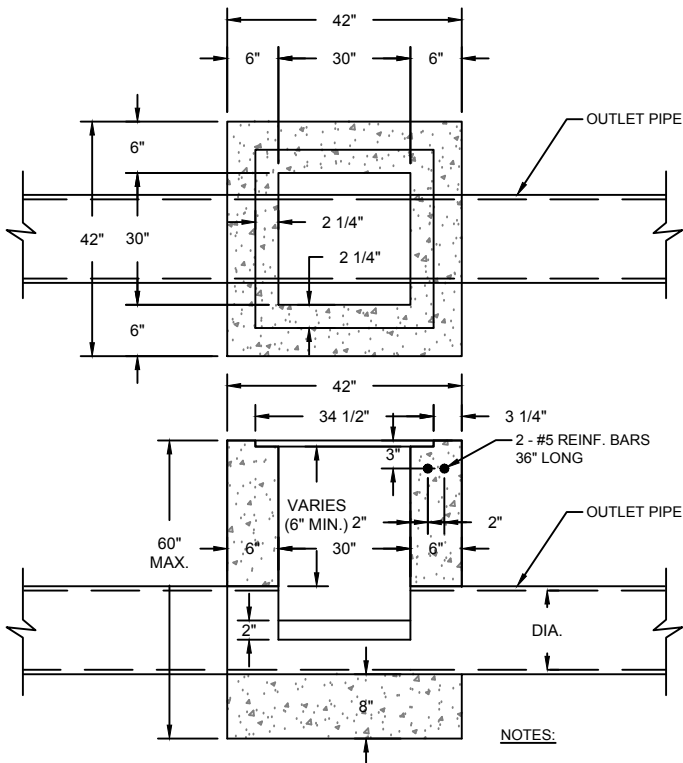


NOTES:

1. IN ACCORDANCE WITH INDOT SPECIFICATIONS
2. MINIMUM CONCRETE COMPRESSIVE STRENGTH 4000 PSI.
3. PRECAST ADJUSTING SECTIONS ONLY.

PRECAST INLET TYPE "E"

NOT TO SCALE

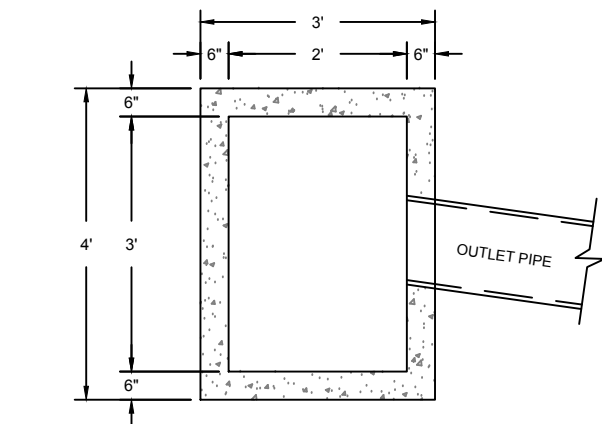


NOTES:

1. IN ACCORDANCE WITH INDOT SPECIFICATIONS
2. MINIMUM CONCRETE COMPRESSIVE STRENGTH 4000 PSI.
3. PRECAST ADJUSTING SECTIONS ONLY.

PRECAST INLET TYPE "F"

NOT TO SCALE

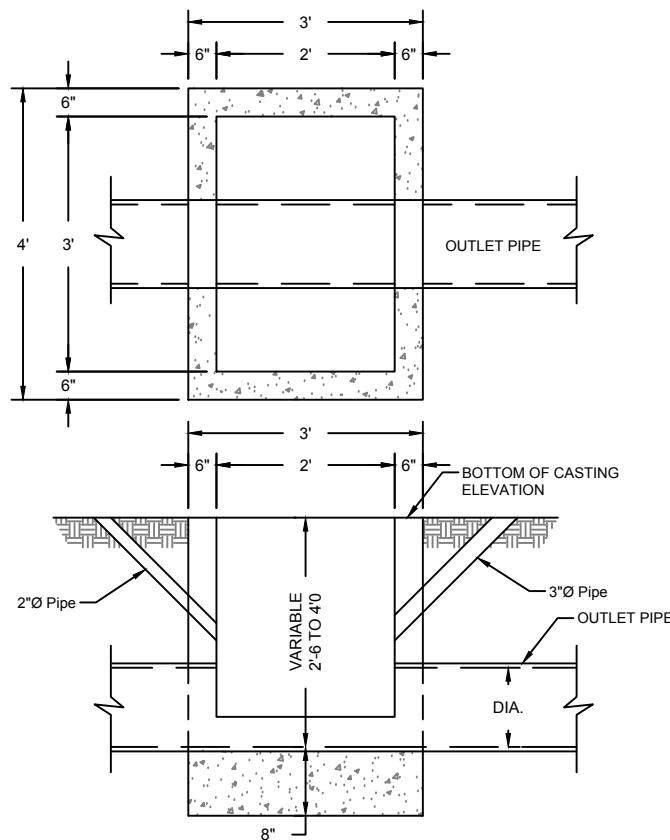


NOTES:

1. IN ACCORDANCE WITH INDOT SPECIFICATIONS
2. MINIMUM CONCRETE COMPRESSIVE STRENGTH 4000 PSI.
3. PRECAST ADJUSTING SECTIONS ONLY.

PRECAST INLET TYPE "J"

NOT TO SCALE



NOTES:

1. IN ACCORDANCE WITH INDOT SPECIFICATIONS
2. MINIMUM CONCRETE COMPRESSIVE STRENGTH 4000 PSI.
3. PRECAST ADJUSTING SECTIONS ONLY.

PRECAST INLET TYPE "M"

NOT TO SCALE

COMPATIBILITY OF DRAINAGE STRUCTURES AND CASTINGS

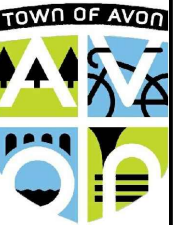
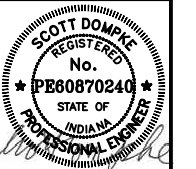
INLET TYPE	DESCRIPTION	CASTING FRAME OUTSIDE FLANGE DIMENSIONS (INCHES) [1]	EJ	NEENAH	CORRESPONDING INDOT STRUCTURE(S)	COMMENTS
ROLL CURB INLET	SUBDIVISION USE (On Tangent Grade)	38 X 29-3/4	7495 M1 (M2)	R-3501-TR (TL)	INLET TYPE J INLET TYPE M	EJ - TYPE M1 FOR RIGHT, TYPE M2 FOR LEFT NEENAH -TR for RIGHT, TL FOR LEFT
	SUBDIVISION USE (At Sag Location)	43 X 31-3/4	7495 M4	R-3501-TB	INLET TYPE J INLET TYPE M	
COMBINED CURB AND GUTTER INLET	INDOT CASTING TYPE 8 FRAME, VANE GRATE AND CURB BOX	33-5/8 X 33-3/8	7520 TYPE M2 GRATE AND T2 BACK	R-3286-8V	INLET TYPE A MANHOLE TYPE A-N CATCH BASIN TYPE A,W	
	INDOT CASING TYPE 10 FRAME, VANE GRATE AND CURB BOX	43-1/2 X 31-1/2	7505 TYPE M3 VANE GRATE AND T4 BACK	R-3287-10V	INLET TYPE J,M CATCH BASIN TYPE J,K	
	INDOT CASTING TYPE 15 FRAME, GRATE AND CURB BOX	55-1/2 X 35-1/2	7565 WITH TYPE 5425 M2 GRATE AND T3 BACK WITH "DUMP NO WASTE!"	R-3287-15	INLET TYPE B,C	
STORM MANHOLE (ROUND)	INDOT MANHOLE CASTING TYPE 4 RING AND COVER (SOLID)	33-1/4 (EJ) 33-15/32 (NEENAH)	1925	R-1714	ANY MANHOLE	"STORM SEWER" TEXT ON LID PREFERRED
	(SOLID)	36 DIA.	1045 TYPE A COVER	R-2501 WITH R-1642 SOLID LID, NON-ROCKING	ANY MANHOLE	
YARD INLET	BEEHIVE - 6-IN	36 DIA.	1045 TYPE O2 GRATE	R-2560-E1	INLET TYPE A ANY MANHOLE	
	BEEHIVE - 9-IN	36 DIA.	1045 FRAME W/ TYPE O3 GRATE	R-2560-E2	INLET TYPE A ANY MANHOLE	
DITCH INLET	INDOT TYPE 7 SQUARE GRATE	34 X 34	6610	R-4215-C	INLET TYPE E,F,G CATCH BASIN TYPE E	GRATE SITS DIRECTLY ON STRUCTURE, NO FRAME
	STOOL TYPE ROUND GRATE	33 DIA.	6489	R-4342	INLET TYPE A,G ANY MANHOLE CATCH BASIN TYPE A	GRATE SITS DIRECTLY ON STRUCTURE, NO FRAME
OPEN PAVEMENT NO CURBS	INDOT FLAT TOP GRATE CASTING TYPE 2, SQUARE INLET (OPEN)	34 X 34 (EJ) 30 X 30 (NEENAH)	5250	R-3402-E	INLET TYPE A ANY MANHOLE CATCH BASIN TYPE A	
		36 DIA.	1045 TYPE M1 GRATE	R-2501 TYPE C GRATE	INLET TYPE A ANY MANHOLE	STORM MANHOLE - OPEN

[1] FLANGE DIMENSIONS VARY SLIGHTLY BY MANUFACTURER

INLET CAPACITY OF SELECTED STORM CASTINGS

INLET TYPE	DESCRIPTION	EJ	NEENAH	GRATE OPEN AREA (SQ.FT) [1]	ORIFICE FLOW CAPACITY 6 INCHES OF PONDING (CFS)
ROLL CURB INLET		7495 M1 (M2)		1.7	5.3
			R-3501-TR (TL)	1.4	4.5
COMBINED CURB AND GUTTER INLET	INDOT TYPE 8 CASTING	7520 M2		1.0	3.4
	INDOT TYPE 10 CASTING	7505 M3		1.7	5.3
	INDOT TYPE 15 CASTING	7565 - 5425 M2 GRATE		2.1	7
STREET OR YARD INLET	OPEN	1022 TYPE M1		0.8	2.7
			R-2502 GRATE C	1.2	3.9
YARD INLET	BEEHIVE - 6-IN	1045 TYPE O2		1.3	4.1
	BEEHIVE - 9-IN	1045 TYPE O3		1.4	4.5
DITCH INLET	SQUARE GRATE	6610		1.1	3.6
			R-2560-E2	2.0	6.7
	ROUND GRATE	6489		3.0	10
OPEN PAVEMENT - NO CURBS	INLET	5250		3.3	11
			R-4342	1.5	4.7
	MANHOLE	1045 TYPE M1		2.0	6.7
			R-2501 GRATE C	1.2	3.9

[1] GRATE OPEN AREAS TAKEN FROM EJ CATALOG 18 AND NEENAH CATALOG 14TH EDITION. NO ALLOWANCE FOR VERTICAL OPENING IN CURB INLETS.



**TOWN OF AVON CONSTRUCTION STANDARDS
STORM INLET AND CASTING DETAILS**

NO.	REVISIONS	DATE	BY

DATE: OCTOBER 2017
SCALE: N.T.S.
SHEET NO. 8

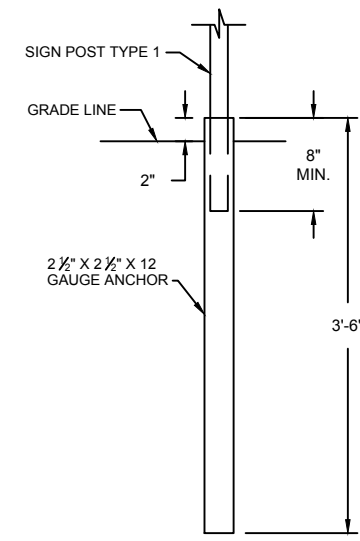
LIGHTING REQUIREMENTS

- Street Lighting shall consist of furnishing and installing street lighting per the following specifications and in accordance with INDOT Specification Section 807 and Duke Energy requirements.
- Poles shall be installed such that the luminaire is oriented perpendicular to the nearest curb line, and post door is positioned away from the roadway.
- Light poles shall have one luminaire arm, side mounted on the top of the pole. A photocell shall be included. Pole and luminaire exterior shall be finished with black polyester powder paint coating.
- Lighting Service Point equipment shall conform to INDOT requirements for a Type II Lighting Service Point, plus Duke Energy guidelines for customer-owned permanent underground service enclosure with a single meter position. The service enclosure shall be mounted on a single, aluminum post. Installation shall be in accordance with INDOT Specification Section 807 and Duke Energy recommendations.
- Materials shall be manufactured by Kim Lighting or approved equal.
 - Structural LED Series: 1A/STL3P70/80L4K240/BL/A25NFO/TR/PRA30-6188
 - Mounting: 1A
 - Fixture:
 - Housing Size: STL
 - Distribution: 3 = Type III
 - Optic: P = PicoPrism
 - Current: 70 = 700 mA
 - Electrical Module:
 - Source: 80L = 80 LED's
 - Color Temperature: 4K = 4000K
 - Voltage: 240 = 240V
 - Finish: BL = Black
 - Photocell Control: A-25
 - NFO = Neighbor Friendly Optic
 - Pole Mounted Structural Options
 - TR - Truss
 - Round Aluminum Non-Tapered Pole
 - PRA30-6188 => X=30', Y=6" x .188
- Street lights in the town's right of way or on town property shall be metered. Coordinate with town building official on case by case basis to set up new account.

SIGN REQUIREMENTS

- Stop sign:
 - Designation: Regulatory sign "STOP" R1-1 (MUTCD Table 2b-1)
 - Design: Stop signs shall be constructed of high-intensity reflectorized sheeting and shall comply with the urban standards established in the manual on uniform traffic control devices (AASHTO, Sect C2.4.2.3).
 - Retroreflectivity and Illumination:
 - Stop signs shall be retroreflective or illuminated to show the same shape and similar color by both day and night. The requirements for sign illumination shall not be considered to be satisfied by street or highway lighting (MUTCD Sect 2A.07).
 - Minimum retroreflectivity shall be at or above the minimum level for white on red per MUTCD manual (MUTCD Sect 2A.08, and table 2A-3).
 - Shape: Stop signs shall be octagon (MUTCD, Sect 2B.05) and the corners shall not be rounded (MUTCD Sect 2A.14).
 - Color and Border: Stop signs shall have a white legend and white border on a red background (MUTCD sect 2B.05, 2A.14).
 - Dimensions: Stop signs shall be 30"x30" (MUTCD, Table 2b-1).
 - Text: Stop sign lettering shall be all upper-case letters that are 10" tall (MUTCD).
 - Mounting Height: The minimum height of stop signs, measured vertically from the bottom of the sign to the top of the curb, or in the absence of curb, measured vertically from the bottom of the sign to the elevation of the near edge of the traveled way, shall be 7 feet (MUTCD Sect 2A.18).
 - Location: Stop signs shall be located on the right-hand side of the roadway where they are easily recognized and understood by road users. (MUTCD Sect 2A.16).
- Proximity to other signs: signs requiring separate decisions by the road user shall be spaced sufficiently far apart for the appropriate decisions to be made. one of the factors considered when determining the appropriate spacing shall be posted or 85th-percentile speed (MUTCD Sect 2A.16).
- Posts and Mountings:
 - Posts and Mountings: Post specifications shall be as follows: (Avon)
 - One square sign post 2 1/4" x 2 1/4" x variable height x 12 ga
 - One square anchor 2 1/2" x 2 1/2" x 3' x 12 ga
 - Three drive rivets
 - One corner bolt
 - One rain cap
 - One jam nut - optional
 - Sturdiness: Sign posts, foundations, and mountings shall be so constructed as to hold signs in a proper and permanent position, and to resist swaying in the wind or displacement by vandalism (MUTCD 2A.21).
 - Reflective Material on Sign Support: If a strip of reflective material is used on the sign support, it shall be at least 2" in width, it shall be placed for the full length of the support from the sign to within 2 feet above the edge of the roadway, and its color shall match the background color of the sign (MUTCD 2A.21).
- Other Regulatory Signs:
 - All other regulatory signs shall be as described in MUTCD.
- Street Name Sign:
 - Designation: Street name sign D3-1 (MUTCD Table 2D-1).
 - Design: Street name signs shall be constructed of high-intensity reflectorized sheeting and shall comply with the urban standards established in the Manual on Uniform Traffic Control Devices (AASHTO Sect C2.4.2.3).
 - Construction: Street name signs shall be single-sided, double blade. No two-sided street name signs will be permitted.
 - Retroreflectivity and Illumination: Street name signs shall be retroreflective or illuminated to show the same shape and similar color by both day and night. The requirements for sign illumination shall not be considered to be satisfied by street or highway lighting (MUTCD Sect 2D.43).
 - Shape: Street name signs shall be rectangular panels/blades with rounded corners.
 - Color and Border: Street name signs shall have a white legend on a green background without a border (Avon, MUTCD table 2A-5).
 - Dimensions: The height of the street name sign blades shall be based on the type of road as outlined below: (Avon, MUTCD Table 2D-1)
 - Multi-lane roads (oversized): on multi-lane streets with speed limits greater than 40 mph, sign blades shall be 18" tall and variable length.
 - Local Roads (minimum): On local roads with speed limits of 25 mph or less, sign blades shall be 8" tall and variable length.
 - All Other Roads (Conventional): On all other roads, sign blades shall be 12" tall and variable length.
 - Text:
 - Lettering: The lettering for names of streets shall be composed of a combination of lower-case letters with initial upper-case letters. Letter height shall be based on the type of road as outlined below (MUTCD Sect 2D.43 and table 2d-2):
 - Multi-Lane Roads: On multi-lane streets with speed limits greater than 40 mph, upper-case letters shall be at least 8" in height and lower-case letters shall be at least 6" in height (MUTCD Sect 2D.43).
 - Local Roads: On local roads with speed limits of 25 mph or less, upper-case letters shall be at least 4" in height and lower-case letters shall be at least 3" in height (MUTCD Sect 2D.43).
 - All Other Roads: Upper-case letters shall be at least 6" in height and lower-case letters shall be at least 4.5" in height (MUTCD sect 2D.43).
 - Abbreviations: When the word messages need to be abbreviated, the abbreviations shown in Table 1A-1 shall be used (MUTCD Sect 1A.15).
 - Mounting Height: The minimum height, measured vertically

- Location: Street name signs shall be located at all street intersections. Street name signs shall be mounted with their face parallel to the street they name. At intersection crossroads where the same road has two different street names for each direction of travel, both street names may be displayed on the same sign along with directional arrows (Avon, MUTCD Sect 2D.43).
 - Lateral Offset: The minimum lateral offset should be 12 feet from the edge of the traveled way. If a shoulder wider than 6 feet exists, the minimum lateral offset should be 6 feet from the edge of the shoulder (MUTCD Sect 2A.19).
- Posts and Mountings: Post specifications shall be as follows: (Avon)
 - One square sign post 2 1/4" x 2 1/4" x variable height x 12 ga.
 - One square anchor 2 1/2" x 2 1/2" x 12 ga.
 - Eight drive rivets (or 2 for each sign)
 - One corner bolt
 - One rain cap
 - One jam nut - optional
- Street speed limit signs are to be located only at the entrance(s) to the subdivisions. Speed limit shall be 25mph unless otherwise directed by the Town Building Official.

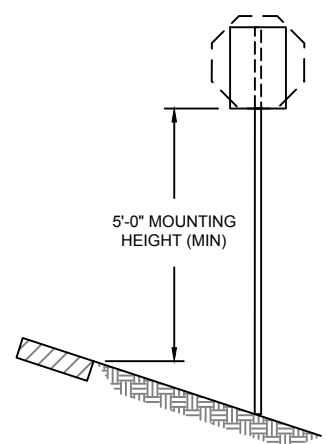


SIGN POST BASE DETAIL
NOT TO SCALE

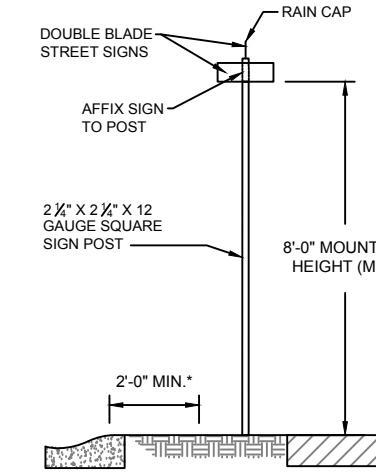
**TABLE 1A-1*
ACCEPTABLE ABBREVIATIONS**

WORD MESSAGE	STD. ABBREVIATION
AVENUE	Ave
BOULEVARD	Blvd
CIRCLE	Cir
COURT	Ct
DRIVE	Dr
LANE	Ln
PARKWAY	Pkwy
PLACE	Pl
ROAD	Rd
STREET	St
TERRACE	Ter
TRAIL	Tr

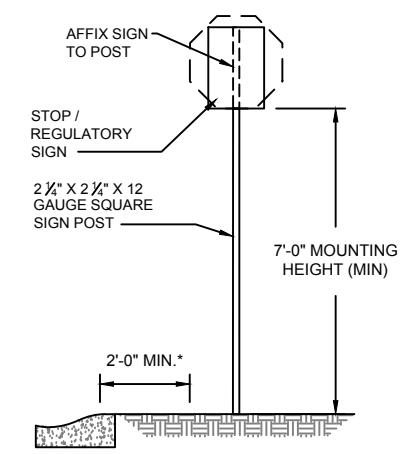
* TABLE SHOWN IS EXCERPTED FROM MUTCD, 2009 EDITION, PAGE 24. FOR ACCEPTABLE ABBREVIATIONS NOT SHOWN, REFER TO SAME.



ROADSIDE SIGN WITH SLOPE
NOT TO SCALE

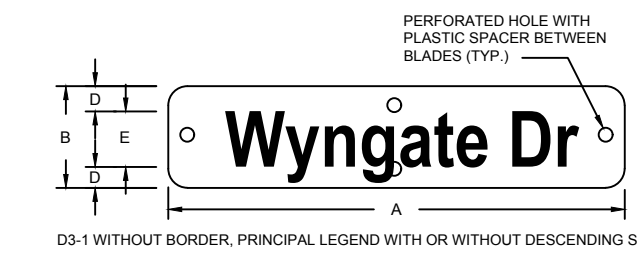


STREET SIGN AND POST DETAIL
NOT TO SCALE



REGULATORY SIGN AND POST DETAIL
NOT TO SCALE

* CONTRACTOR SHALL MAINTAIN APPROPRIATE SPACING BETWEEN SIDEWALK AND STREET BASED ON SIGN BLADE LENGTH.

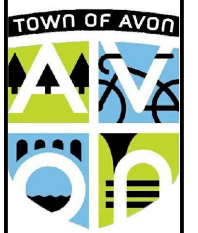
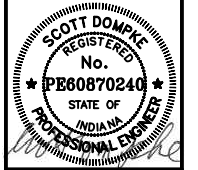


D3-1 WITHOUT BORDER, PRINCIPAL LEGEND WITH OR WITHOUT DESCENDING STROKES

ROAD TYPE	A	B	D	E
MINIMUM	VAR	8	2	4 D
CONVENTIONAL	VAR	12	3	6 D
OVERSIZED	VAR	18	5	8 D

COLORS:
LEGEND - WHITE (RETROREFLECTIVE)
BACKGROUND - GREEN (RETROREFLECTIVE)

STREET SIGN BLADE DETAIL
NOT TO SCALE



TOWN OF AVON CONSTRUCTION STANDARDS
SIGNS AND LIGHTING DETAILS AND NOTES

NO.	REVISIONS	DATE	BY

DATE: OCTOBER 2017

SCALE: N.T.S

SHEET NO.