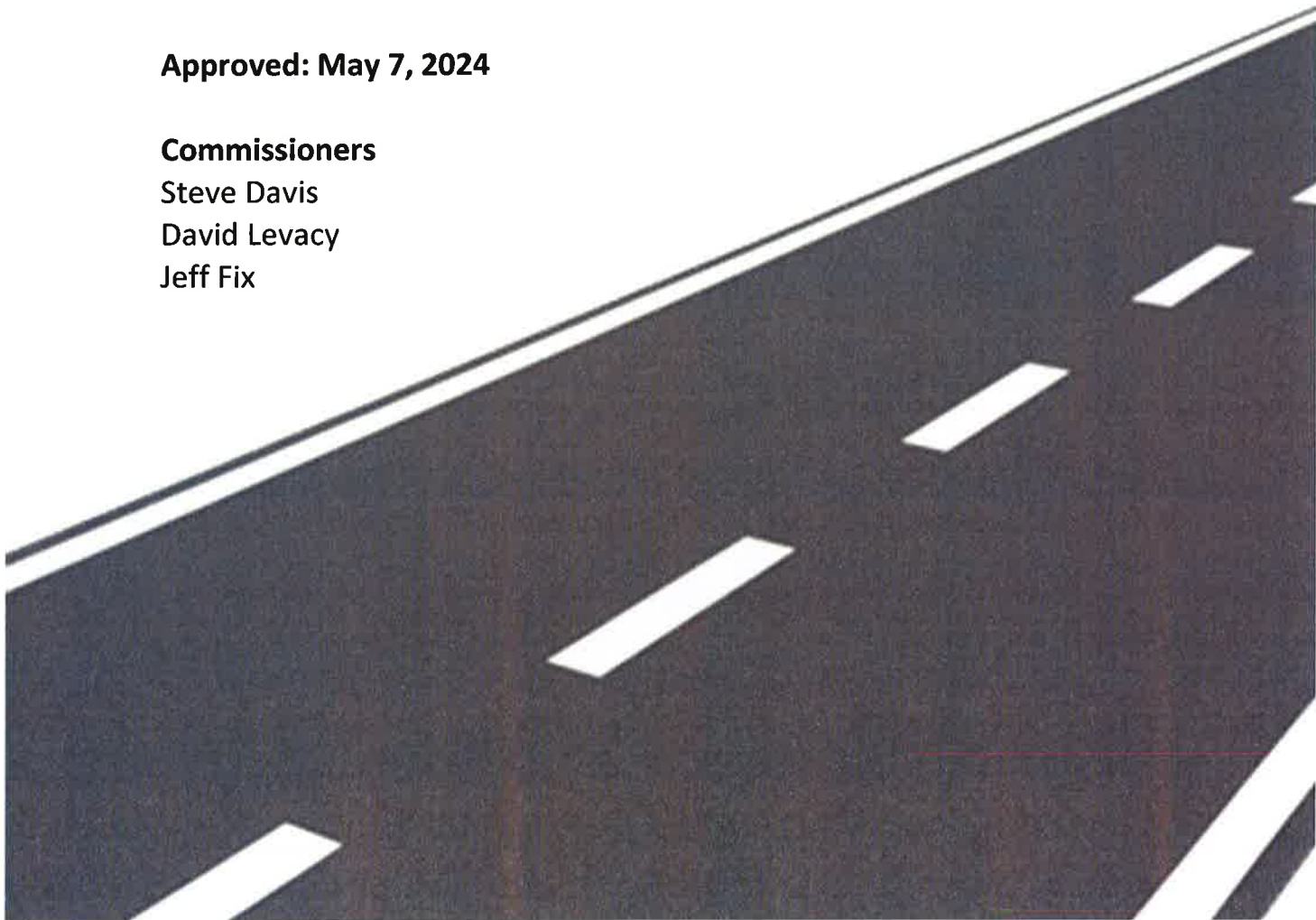




FAIRFIELD COUNTY, OHIO
ROADWAY DESIGN MANUAL
FOR UNINCORPORATED AREAS OF FAIRFIELD COUNTY, OHIO
Final Version-Effective **June 7, 2024**

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Appendices

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References

City of Lancaster. Street and Grading Design Manual. September 2019.

City of Pickerington. Traffic Impact Study Requirements. June 2021.

Delaware Co., Ohio. Delaware Co. Engineer’s Design, Construction & Surveying Standards. January 2008.

Fairfield County, Ohio. Construction and Material Specifications. March 2022.

Fairfield County, Ohio. Stormwater Design Manual. August 2022.

Fairfield County, Ohio. Subdivision Regulations. September 2019.

Fairfield County, Ohio. Traffic Impact Study Requirements. January 2017.

Ohio Department of Transportation. Construction and Material Specifications. January 2023.

Ohio Department of Transportation. Location and Design Manual, Volume 1, Roadway Design. July 2023.

Ohio Department of Transportation. Survey and Mapping Specifications. January 2023.

U.S. Access Board. Public Right-of-Way Accessibility Guidelines. 2013.

1 GENERAL CONSIDERATIONS

1.1 TITLE

These rules, guidelines, and standards contained herein shall be known and may be cited and referred to as the “Fairfield County, Roadway Design Manual” and shall hereinafter be referred to as “this Manual”.

1.2 PURPOSE

The purpose of the rules, guidelines, and standards set forth in this Manual and adopted by the Fairfield County Board of Commissioners is to provide engineering standards governing the design and construction of roadway infrastructure in the unincorporated areas of Fairfield County.

1.3 AUTHORITY

The rules, guidelines, and standards set forth in this Manual are adopted by the Fairfield County Board of County Commissioners in accordance with and pursuant to the legal grant of authority of Chapter 711 of the Ohio Revised Code (ORC) 711.101, to establish standards for the design and construction of improvements shown on the plats and plans within their jurisdiction.

1.4 JURISDICTION

The rules, guidelines, and standards set forth in this Manual shall be applicable to work within all public right-of-way and subdivisions of land as defined by Chapter 711 of the ORC hereinafter within the unincorporated areas of Fairfield County.

1.5 ADMINISTRATION

The Fairfield County Engineer’s Office (FCEO) and its staff are herein delegated the authority on behalf of the Fairfield County Board of Commissioners to administer and enforce the provisions of this Manual, with technical assistance and support from the Fairfield County Regional Planning Commission (FCRPC).

1.6 ADOPTION

This Manual shall become effective after adoption by the Fairfield County Board of Commissioners in accordance with Chapter 711 of the ORC. All or any previous Fairfield County Roadway Design Manuals shall be deemed to be repealed upon the adoption of the standard contained herein.

1.7 AMENDMENT

This Manual may be amended in accordance with the same procedure as stated in Section 1.6 of this Manual. The County Engineer, with input and collaboration with the Regional Planning Commission, may put forth requests regarding amendments to the Fairfield County Board of Commissioners for their review and adoption in the manner prescribed under Ohio Revised Code 711.

1.8 INTERPRETATION

In their interpretation and application, the provisions of this Manual shall be held to be minimum requirements for the promotion of health, safety, and general welfare of the people of Fairfield County. As such, in the development process, the Fairfield County Engineer's Office shall be entitled to apply reasonable interpretation of this Manual as is necessary to give force and effect to the purpose and intent of this Manual.

It is not intended by this Manual to interfere with, or abrogate, or annul any easements, covenants, or other agreements between parties unless they violate this Manual. When two specific provisions of this Manual conflict, or a provision of this Manual conflicts with any other lawfully adopted rules, regulations, ordinances, or resolutions, the most restrictive, or that imposing the higher standards shall apply.

1.9 SEPARABILITY

The invalidation of any clause, sentence, paragraph, or section of this Manual by a court of competent jurisdiction shall not affect the validity of the remainder of this Manual either in whole or in part.

1.10 DISCLAIMER

Neither submission of a plan under provisions of this Manual nor compliance with the provisions of this Manual shall relieve any person from responsibility for damage to any person or property otherwise imposed by law and shall not impose any liability upon Fairfield County for damage to any person or property.

1.11 CONSTRUCTION REQUIREMENTS

The latest edition of the Ohio Department of Transportation (ODOT) Construction and Materials Specifications (CMS), ODOT Standard Construction Drawings (SCD), Fairfield County Engineer's Office Forms and Permits, and portions of The City of Columbus CMS and SCD's shall govern the construction of roadways described in this Manual.

1.12 DESIGN EXCEPTIONS

Accepted procedures and requirements related to roadway design within the unincorporated areas of Fairfield County are provided in this Manual and supplemented by reference materials identified herein. The County recognizes that there may be individual projects involving special or unusual design challenges and the County's standards, as expressed in this Manual, may not provide solutions to all design problems. The County Engineer may consider and grant design exceptions on a project-by-project basis. All design exceptions must have the written approval of the County Engineer and comply with Section 1.12.1 of this Manual. Intended design exceptions must be requested during the preliminary engineering phase. These design exception requests shall be submitted in writing and, if approved by the County Engineer, documented (showing approval date and assigned ID number) on the title sheet of the final construction drawings that contain roadway improvements. Any approved design exceptions are not to be considered as precedent for future projects. The County Engineer does not have the authority to grant variances to state or federal regulations.

1.12.1. Procedures for Design Exceptions:

- A. Developers/engineers requesting design exceptions from standards associated with this Manual shall utilize Appendix B – Design Exception Request Form. It is encouraged to discuss the design exception request with the FCEO early in the subdivision process or preliminary design process.
- B. If the developer/engineer design exception(s) request is denied, the applicant may appeal to the Fairfield County Regional Planning Commission.

1.13 ROADWAY NAMING REQUIREMENTS:

The name of new roadways shall not duplicate existing roadway names, except where a roadway is extended, or when the new right-of-way is in alignment with an existing one. All new roads shall be named in accordance with the following requirements:

<u>General Direction</u>	<u>Designation</u>
<u>North and South</u>	<u>Avenue, Strip, or Way</u>
<u>East and West</u>	<u>Street or Trail</u>
<u>Curving</u>	<u>Drive</u>
<u>Dead End, North and South</u>	<u>Lane or Court</u>
<u>Dead End, East or West</u>	<u>Place or Terrace</u>
<u>Circular</u>	<u>Circle or Loop</u>
<u>Circular Divided Pavement, Any Direction</u>	<u>Boulevard, or Parkway</u>

2 ROADWAY DESIGN STANDARDS

2.1 PURPOSE

These Standards shall be used as minimum standards for designing all roadways/streets being approved through the major subdivision process plus for all roadways under jurisdiction of the County Engineer. These standards shall not be reduced without written approval (Design Exception) of the County Engineer. The arrangement of roadways/streets shall provide for the appropriate extension of existing streets and connectivity for future growth. The Fairfield County Engineer shall make the final determination as to the classification of any new roadway/street based on potential development of the site (existing and future ADT), the character of the surrounding area, and the thoroughfare plan.

2.2 ROADWAY DESIGN

2.2.1. Right-Of-Way Dedication Requirements

A. Existing Roadway Classification

1. The currently adopted Fairfield County Thoroughfare Plan shall be utilized to determine the appropriate ROW dedication or half-width dedication on existing roadways. See **Table 1**.

B. Proposed Roadway Classification

1. New public roadways shall dedicate right-of-way according to **Table 2**. Additionally, please find the requirements below for establishing the ADT of the proposed roadway.

Requirements for establishing ADT:

Average daily traffic (ADT) on residential streets shall be based on a calculation of ten (10) vehicle trips per dwelling unit plus other related factors such as schools, recreational facilities, and commercial facilities. This factor includes related residential-commercial trips.

The developer in determining the classification of their streets shall develop a traffic assignment network within his plat which realistically assigns trip data on the basis of least distance to plat exit. Trips for minor local and local streets will be assigned at point of connection to other streets.

In developing the traffic network, the developer shall assign additional trips for the following situations.

- A. Through Streets.
- B. Schools.
- C. Recreational Areas.
- D. Commercial Facilities.
- E. Terminals of streets to be continued in future subdivision activity.

The number of additional trips assigned due to the above factors will vary with the size and use of the facility involved.

If the terminals of any one street dedicates that a street shall be a certain classification, the total length of any such street shall be the same classification.

In the case where the traffic volumes indicate a street could be of one or two separate classifications, due to overlap of volumes within the classifications, the lesser classification shall be used when there is no influence on the traffic count by factors such as through streets, schools, recreational areas, etc.

The County Engineer shall consider the entrance street of subdivision a collector with respect to pavement width to the first intersection or a specified length as determined necessary. Left turn storage on all entrance streets shall be a minimum of 100 feet with a 50-foot divergent taper. Longer storage length shall be as established by an analysis. A minimum pavement width of 36 feet to accommodate turn lanes is required for all entrance streets (curbed and non-curbed). Curb and gutter shall be provided for all entrance street intersections with existing County, Township or State Highways, if the entrance street is curbed. The curb shall terminate at the end of the radius and taper to 0" in height at both curb ends. The minimum taper length is 10-feet. For non-curbed streets, a modified shoulder section shall be used.

2.2.2. Roadway Design Criteria

2.2.2.1 Vertical Alignment

A. Existing Roads:

Shall conform to the current version of the ODOT L&D manual. The current version of the AASHTO Geometric Design of Low-Volume Road may be used at the direction of the County Engineer.

B. Proposed Subdivision Roads:

Shall conform to **Table 3** contained within this manual.

2.2.2.2 Horizontal Alignment

A. Existing Roads:

Shall conform to the current version of the ODOT L&D manual. The current version of the AASHTO Geometric Design of Low-Volume Road may be used at the direction of the County Engineer.

B. Proposed Subdivision Roads:

Shall conform to **Table 3** contained within this manual.

- A 100-foot tangent shall be placed between reverse curves.
- Street jogs shall be discouraged. Where such jobs are unavoidable, in no case shall the centerline offsets be less than one hundred twenty-five (125) feet.

2.2.2.3 Pavement Width

A. Existing Roads:

Shall conform to the current version of the ODOT L&D manual. The current version of the AASHTO Geometric Design of Low-Volume Road may be used at the direction of the County Engineer.

B. Proposed Subdivision Roads:

Shall conform to **Table 2** contained within this manual.

2.2.2.4 Cross Section Design

A. Existing Roads:

Shall conform to the current version of the ODOT L&D manual. The current version of the AASHTO Geometric Design of Low-Volume Road may be used at the direction of the County Engineer.

B. Proposed Subdivision Roads:

Shall conform to the appropriate **Appendix A – Standard Drawing** located in this manual or as approved by the County Engineer.

2.2.2.5 Medians and Boulevards

A. Design of median width and/or boulevard shall be approved by the County Engineer on a case-by-case basis. The developer and/or engineer shall submit a preliminary design of the proposed median or boulevard for review and approval by the FCEO.

2.2.2.6 Curb and Gutter Underdrains or Pavement Underdrains

A. Underdrains shall outlet into structures for curb and gutter streets, and at the low point of the roadway profile for all open ditch streets. Precast reinforced concrete outlets are required for all Type F outlets. The pipe material for Type F outlets must comply with the current ODOT CMS.

2.2.2.7 Intersection Design Criteria

A. Existing Roads:

a. Shall conform to the current version of the ODOT L&D manual. The current version of the AASHTO Geometric Design of Low-Volume Road may be used at the direction of the County Engineer.

B. Proposed Subdivision Roads:

a. Horizontal Alignment at the Intersection: Streets should be laid out to intersect at ninety (90) degrees and no street shall intersect any other street at an angle of less than eighty-five (85) degrees. The horizontal approach tangent to an intersection shall be maintained for 100 feet from the edge of pavement of the intersecting street.

b. Vertical Alignment at the intersection: Roadways shall maintain a grade no greater than three percent (3%). The vertical alignment approach grade (3% or less) shall be maintained for 100 feet from the edge of pavement of the intersecting street. Intersection vertical alignments shall also be designed to comply with current ADA requirements.

c. Edge of Pavement Minimum Radius at Public Road Intersections:

i. Residential Development

1. 25-foot radius

ii. Industrial/Commercial Developments

1. Based on wheel tracking design of proposed trucks.

iii. Arterial Roadways (Major, Minor)

1. As required by the Fairfield County Engineer

2.2.2.8 Pavement Thickness

A. Existing Roads:

The Fairfield County Engineer shall determine the appropriate pavement build-up of existing roadways.

B. Proposed Subdivision Roads:

Shall be designed as per **Table 4A.**

3 ACCESS MANAGEMENT

3.1 PURPOSE

This section establishes procedures and standards to protect the utility, function, capacity, and safety of the roadway system located in Fairfield County. Unless otherwise specified in this Manual, refer to the current version of the ODOT State Highway Access Management Manual (SHAMM). Driveway access onto County Roadways shall follow permit guidelines and appropriate standard drawings and/or permit drawings. Additionally, driveways may also be required to follow the standards set forth in the current version of the ODOT Location and Design Manual, Volume 1, Roadway Design.

3.2 PUBLIC ROAD AND DRIVEWAY ACCESS ONTO A COUNTY ROAD OR TOWNSHIP ROAD

A. Public Road intersections

1. All new public road intersections shall meet intersection and stopping sight distance requirements per the ODOT L&D Manual.
2. See Section 4, Traffic Impact Study (TIS) standards for additional requirements when proposing to create another public road.
3. If access is made to a township road, the applicant/developer/engineer shall follow township rules/regulations. (Example: Violet Twp Access Management Plan).

B. Commercial and/or Industrial Driveways

1. The Developer/Property Owner shall apply for a driveway permit for access onto a County Roadway. The applicant shall comply with all permit approval guidelines and any FCEO standard drawings or permit drawings.
2. See Section 4, Traffic Impact Study (TIS) standards for additional requirements when proposing to access a county road with a commercial and/or industrial development.
3. If access is made to a township road, the applicant/developer/engineer shall follow township rules/regulations. (Example: Violet Twp Access Management Plan).

C. Residential Driveways

1. The Developer/Property Owner shall apply for a driveway permit for access onto a County Roadway. The applicant shall comply with all permit approval guidelines and any FCEO standard drawings or permit drawings.
2. If access is made to a township road, the applicant/developer/engineer shall follow township rules/regulations. (Example: Violet Twp Access Management Plan).

4 TRAFFIC IMPACT STUDY (TIS) STANDARDS

4.1 PURPOSE

The Fairfield County Engineer's Office's (FCEO) objectives for a Traffic Impact Study (TIS) are to:

- Determine the appropriate location, spacing, and design of the access connection(s) necessary to minimize traffic operational and safety impacts to the County roadway system according to the roadway function and in accordance with the standard and guidelines of ODOT, FHWA, Fairfield County and other appropriate standards and guidance.
- Determine the need for any improvements to the adjacent and nearby roadway system to maintain a satisfactory level of service and safety and to protect the function of the roadway system while providing appropriate and necessary access to the proposed development.
- Assure that the internal traffic circulation of the proposed development is designed to provide safe and efficient access to and from the adjacent and nearby roadway system consistent with County requirements.

4.2 REQUIREMENT

TIS reports are required to be prepared by the site developer in the following situations:

- Developments of any single type, or mixed-use types, that can be expected to generate more than 100 new peak hour vehicle trips on the adjacent street per ITE Trip Generation Manual (latest edition).
- Expansion of an Existing Development or a new Development of less than 100 new peak-hour trips in problem areas such as high crash locations, congested areas, or other areas of local concern to the County.
- Any change to the previously approved development plans or plats that will increase the site traffic generation by more than 15% if more than 100 peak-hour trips are involved will:
 - Void any previously approved TIS document.
 - Require submission and approval of a new TIS document.
- Any change to the directional distribution of traffic to change by more than 20% where the site traffic generation can be expected to ultimately be over 100 peak-hour trips.
- Any incomplete project/development when the original TIS is more than two (2) years old.
- Any of the following special circumstances would require a new TIS or updates to a previously approved TIS:
 - Any agreement between the developer and County that requires cost-sharing contributions to major roadway improvements.
 - Any other situations where the County Engineer believes it is important to understand the impact of traffic from the new development on the surrounding area.

4.3 STUDY GUIDANCE

A TIS submitted to the FCEO should generally follow the guidance in the Institute of Transportation Engineer's most recent version of *Transportation Impact Analysis for Site Development* and other generally accepted industry methodologies and procedures.

4.3.1. Pre-Study Meeting

Prior to the start of the TIS, a meeting is to be scheduled with the appropriate County staff and the TIS preparer. This meeting will establish the following issues and needs that the TIS will address:

- Study Area
- Opening and Design Year
- Field Data Collection
- Source of Background Traffic Growth Rates
- Analysis Required:
 - Capacity Analysis
 - Signal Warrant Analysis
 - Turn Lane Warrant Analysis
 - Intersection Safety Sight Distance Analysis
- Existing Safety Issues (high crashes, visibility concerns, etc.)

The TIS preparer shall submit a Memorandum of Understand (MOU) which details the assumptions and methodologies agreed upon at the pre-study meeting. The MOU should be submitted to the County within one week of the pre-study meeting.

4.3.2. Study Area

The Study Area for a TIS will be determined in cooperation with the Fairfield County Engineer's Office based on the size and potential impacts of the proposed change in land use. Typically, the study area will consist of:

- All intersections of proposed site driveways with county roadways
- At least one major¹ intersection on either side of the site
- Other intersections that could be significantly impacted by the traffic induced by the development (as determined by the FCEO)

The county retains the right to modify the minimum study area based on local or site-specific issues.

4.3.3. Design Year Traffic

The TIS is to analyze the opening year of the proposed development and the horizon year which is 10-years from the opening year. The County may require different horizon years based on the complexity and phasing of the proposed development. Acceptable methods for future traffic forecasting are outlined later in this document.

4.3.4. Traffic Counts

Traffic counts shall be performed using manual or automated collection devices that have been documented to produce accurate results.

¹ A "major intersection" is typically considered the next signalized intersection and/or the next roadway classified on the current version of the Fairfield County Thoroughfare plan as a Collector or higher classification.

All traffic counts must be taken on an average day (no holidays, inclement weather, special events, etc.) when nearby schools are in full session, unless otherwise directed by the FCEO.

24-hour counts to determine local peak hours are encouraged. These counts can be taken from other recent studies or MORPC's traffic count database. 24-hour counts should be less than 5 years old, and more recent if significant changes have occurred in growth and development in the study area since the count.

Intersection turning movement counts will be performed at all study intersections (that currently serve traffic) for the hours agreed to by the FCEO. Typical traffic count time and duration requirements are:

- Weekday morning peak period (2 hours)
- Weekday evening peak period (2 hours)
- If traffic within the study area is significantly influenced by a school, additional peak periods coinciding with the school peak hours may also be required.
- If the location is in an area that is primarily commercial, recreational, or of another use that generates significant Saturday traffic, Saturday peak period (2 hours typical) traffic volumes may also be required.
- If the site involves a church or is located near a large church, Sunday peak period (2 hours typical) may also be required.

Intersection turning movement counts should include separate accounting for heavy vehicles (B&C classifications as defined by ODOT). Cyclist and pedestrian movement volumes should also be collected in built-up areas or if specifically requested by the FCEO.

4.3.5. Traffic Forecasts

An appropriate background growth rate shall be applied to existing traffic volumes on study area roadways to estimate future traffic volumes on the roadways without the proposed development ("no-build" traffic volumes). The applicant is encouraged to request a growth rate from the Mid-Ohio Regional Planning Commission (MORPC), which is based on their regional travel demand model. If a MORPC generated rate is not available or inappropriate to use for other reasons, a rate can be developed from other data and proposed to the FCEO for use.

Additionally, any significant increase in vehicle trips due to other anticipated (approved or likely to occur) development in the study area shall be calculated using the current edition of and added to the background growth. The additional development to be included shall be agreed upon with the FCEO. If appropriate, a reduction in the background growth rate supplied by MORPC may be appropriate since some or all of the additional development may already be accounted for in the MORPC model.

Daily, peak hour of the adjacent street, and peak hour for the land use, trips for all development proposed by the applicant shall be calculated using the *ITE Trip Generation Manual*.

Estimates for Pass-by, Diverted Linked, and/or Internal Capture trips should be produced based on the procedures and information provided in the *ITE Trip Generation Manual, Volume 1: Users Guide and Handbook, NCHRP Report 684 – Enhancing Internal Trip Capture Estimation for Mixed-Use Developments*, or other applicable and defensible data and methods.

4.3.6. Operational Analysis

The analysis must include the design years of opening day of the full development and ten years after. Additional analysis years may be required if a phased approach is planned to implement the development.

All analyses shall examine the peak hour traffic volume for the adjacent roadway and the peak hour traffic volume of the proposed development. The analysis shall be prepared for the morning and afternoon (AM and PM) peak hours. School, Saturday, and/or Sunday peak hours should also be analyzed if appropriate. Land use classifications which experience high trip generations during periods outside of weekday street peak hours (schools, special events, recreational uses, etc.) shall require additional analyses of these off-peak hours.

The desirability of access locations shall be evaluated based on the requirements of the *Ohio Department of Transportation State Highway Access Management Manual* and other appropriate industry accepted access guidelines (*TRB Access Management Manual*). Intersection sight distance shall also be considered when locating new or modifying existing access locations and be in accordance with the latest version of ODOT L&D Manual Volume 1.

The TIS shall examine “before and after” conditions to evaluate traffic impacts associated with the proposed development. The impacts of all access alternatives on roadway capacity and throughput shall be calculated for the opening year Build and No-Build conditions and for the 10-year (from opening-day) Build and No-Build conditions. Analysis shall be performed using *Highway Capacity Software*, *Synchro*, or other software as agreed to and acceptable to the County, which calculates results based on the current version of the *Highway Capacity Manual*. Should the analysis indicate that the degradation below levels of service for either the opening day or design years for the build condition but not the no build conditions, then mitigation measures must be recommended to improve the levels of service to the desired threshold.

For all proposed access points or access modifications, an overall intersection level of service (LOS) of “C” shall be obtained for the 10-year analysis, with no single movement being worse than LOS E or having a volume to capacity ratio of more than 0.90. At adjacent, off-site, intersections and access points, the LOS calculated for each intersection approach in the proposed condition shall be the same or better than achieved by the existing intersections, with no individual movement being worsened by more than one LOS grade. For example, a left turn movement may not be degraded from a “C” to an “E.” Recommendations shall be made in the TIS for access points and external roadway improvements such as the addition/extension of turn lanes and through lanes as well as traffic control devices necessitated by the construction of the proposed development. The developer is responsible for mitigating the impacts of traffic generated by the project.

All improvements shall be constructed to provide adequate traffic queuing storage based on the ODOT Location and Design Manual, Vol. 1. Before and after traffic queuing lengths at each existing intersection shall also be calculated, tabulated, and compared to available storage lengths. Queuing storage deficiencies and improvements needed to correct these deficiencies shall be identified for opening year and 10-year conditions.

Existing and potential pedestrian and bicycle traffic flows shall be considered. If appropriate, a pedestrian and/or bicycle flow and access plan (sidewalks, paths, bike lanes roadway crossings, signal improvements, etc.) shall be included in the study.

Signal warrant analyses shall be conducted at all multi-movement access points considered in each alternative scheme. Any access which meets signal warrant thresholds but does not otherwise meet spacing requirements and standards as established for the roadway per the *State Highway Access Management Manual* may be required to be redesigned, reconstructed, and/or relocated. The study should evaluate the feasibility of coordinating any proposed signals with other existing signals within the study area to achieve desired traffic progression.

Left and right turn lane warrant analysis shall be conducted at each site access point. The turn lanes warrants shall be evaluated based on ODOT Location and Design Manual. If a turn lane is warranted, the length of the turn lane shall be calculated based on the criteria contained in ODOT Location and Design Manual, Volume 1, current version.

The study should recommend adoption of the access scheme which provides the safest design and most efficient level of service consistent with the purpose, requirements, and design standards of the *State Highway Access Management Manual*, the *ODOT Location and Design Manual*, and County requirements. The recommended access scheme should not aggravate an existing safety problem or create a potential new safety problem. All sight distances and other roadway geometry shall meet these established standards and guidelines.

4.3.7. ODOT Requirements

It should be noted that if ODOT review and approval of the traffic study is also required, the applicant should coordinate with ODOT District 5 to determine additional Traffic Impact Study requirements.

4.3.8. Memorandum of Understanding (MOU)

A MOU shall be prepared to define and clarify the above requirements in writing. The County shall approve the MOU prior to the completion and submission of the TIS. A typical MOU shall include the following:

- A preliminary site plan showing:
 - the proposed location, land use type, and size of all development components
 - the locations of all existing access points to the public roadway system
 - the proposed site's internal traffic circulation system (conceptual)
 - existing and proposed property lines and ownership
- Proposed Study Area with adjacent intersections identified will be included in the study
- Other development within the study area that is proposed, planned, in construction, or not yet completely occupied
- A table showing calculated Daily, Peak Hour of the Adjacent Street Traffic, and Peak Hour of the Generator trips for all development
- Proposed traffic count locations and times and justification
- Estimated daily and peak hour trips to be generated by each development component. Saturday and/or Sunday trips should be included if appropriate
- The assumed background growth rates (and the methodology for obtaining) for all existing roadways in the study area
- Assumed percentage distributions of generated traffic to the local roadway system.
- Assessment of the need for a pedestrian/bicycle flow plan
- Estimated schedule for construction and opening of development or phases of the development and the Design Year or Years of the study

5 TRANSPORTATION ALTERNATIVES

5.1 PURPOSE

This section serves as a source for planners and designers implementing pedestrian and bicycle facilities within Fairfield County right-of-way. Unless otherwise shown in this manual, planners and designers shall refer to the following manuals and design criteria:

5.2 PLANNING AND DESIGN MANUALS

- A. ODOT Multimodal Design Guide (MDG) both planning and design guidelines.
- B. U.S. Access Board Public Right-of-Way Accessibility Guidelines (PROWAG) design standards.

6 TRAFFIC CONTROL DESIGN GUIDELINES (SIGNING AND PAVEMENT MARKINGS)

6.1 PURPOSE

This section serves as a source for designers implementing traffic control devices within Fairfield County right-of-way.

6.2 STREET SIGNS

All necessary street name signs and locations are to be included in the Final Engineering and Construction Plan. These details shall be provided on the same plan sheet as the traffic control devices, pavement markings, etc. The street name signs are to be installed prior to opening any street to traffic, before approving the subdivision for maintenance by the Owner and releasing the subdivision for Building Permits. Written approval by the township trustees is required for all special street name signs before building permits will be issued. The standards for the street name signs shall be in accordance with the requirements of the County Engineer. All special street sign installations are to be maintained by the Owner or the property owners' (homeowners) association. All street name signs to be used shall be approved for use by the County Engineer and/or Township. Street signs (including bases) at the entrance to a subdivision from a County, Township, or State highway (within County or State right of way) shall be designed to current FHWA and ODOT standards.

6.3 TRAFFIC CONTROL DEVICES AND PAVEMENT MARKINGS

The Final Engineering and Construction Plan shall include all necessary traffic control signs, devices, and pavement markings, etc. These items shall be designed to meet the requirements of the current edition of the ODOT Manual of Uniform Traffic Control Devices (OMUTCD). These details shall be provided on a separate plan sheet in the Final Engineering and Construction Plan.

All pavement markings shall comply with these ODOT specifications for all roads. *Thermoplastic pavement markings shall be used on all roads.* Pavement markings for existing County/Township Road widenings must match the existing markings at the project limits.

The Owner is required to provide speed limit signs on existing County, Township or State Highways where the proposed subdivision entrance street(s) intersects the public highway. These signs shall state the posted speed limit for the intersecting County, Township, or State Highway.

Speed limit signs shall be placed on all subdivision streets. Spacing of signs shall comply with the ODOT MUTCD, current edition. School zone signs (e.g., pavement markings, cross walks. signs, etc.) shall be provided for all subdivision streets located within school zone limits as defined in the ODOT MUTCD. No parking signs shall be provided, if required based on street width.

A concrete right-in/right-out island (pork chop) shall be included with the Final Engineering, and if required, as part of the approved traffic study or preliminary plan. Details for the island shall be designed to deter illegal left-hand movements to the furthest extent possible. The final design of the pork chop will be on a case-by-case basis and final approval shall be issued through the FCEO.

These traffic control signs, devices and pavement markings shall be installed prior to approving the subdivision to maintenance by the Owner or releasing the subdivision for building permits.

7 TRAFFIC SIGNAL DESIGN GUIDELINES

7.1 PURPOSE

This section serves as a source for designers implementing traffic control signals, pedestrian signals, hybrid beacons, emergency-vehicle signals, traffic control signals for one-lane, two-way facilities, flashing beacons, lane-use control signals, and in-roadway lights within Fairfield County right-of-way.

7.1.1. Signal Plans

Traffic Signal plans shall be shown on separate plan sheet(s). Refer to the current version of the Ohio Manual of Uniform Traffic Control Devices (OMUTCD), Part 4.

7.1.2. Street Lighting

The County Engineer shall approve all street lighting details (e.g., poles, luminaries, conduit, etc.). These details shall be included in the Final Engineering and Construction Plan.

The appropriate Township shall be contacted to determine if street lighting is required and who will be responsible for future maintenance including energy cost.

Tables

Table 1 – Existing County and Township Road Right-of-way Dedication

Table 2 – Subdivision Roadway Classification - Right-of-way Dedication and Road Width Requirements

Table 3 – Subdivision Roadway Classification – Alignment Requirement

Table 4A – Subdivision Roadway Classification – Asphalt Concrete Composition

Table 4B – Subdivision Roadway Classification – Concrete Base with Asphalt Surface Composition

Table 4C – Subdivision Roadway Classification – Concrete Pavement Composition

TABLE 1
RIGHT-OF-WAY WIDTH DEDICATION
[REFERENCE: FCRPC - THOROUGHFARE PLAN]

TABLE 1 - EXISTING COUNTY AND TOWNSHIP ROAD RIGHT-OF-WAY DEDICATION

Functional Class	Right-of-way Dedication (ft)
Interstate/Expressway	Agency Requirements
Principal Arterial	150
Minor Arterial	120
Major Collector	100
Minor Collector	80
Local	60 Minimum*

* Public dedication shall follow ADT range found in Table 2, but in no case shall be less than 60 feet.

**TABLE 2 AND TABLE 3
SUBDIVISION ROAD - DESIGN CRITERIA**

TABLE 2 - SUBDIVISION ROADWAY CLASSIFICATION - ROW AND ROAD WIDTH REQUIREMENT

Subdivision Street Classification	ADT Range	Minimum Right-of-way Dedication (ft)		Minimum Pavement Width (ft)	
		With Curb and Gutter	Without Curb and Gutter	with Curb and Gutter	without Curb and Gutter
Major Arterial	>6000	100	100	27 & 27	24 & 24
Minor Arterial	3,000-5,999	80	80	51	48
Collector	1,500-2,999	60	72	36	28
Local	1-1,499	50	60	28	24
Commercial - Industrial	-	72	72	36	28
Alley	-	20	20	15	15

TABLE 3 - SUBDIVISION ROADWAY CLASSIFICATION - ALIGNMENT REQUIREMENT

Subdivision Street Classification	ADT Range	Maximum Grade (%)	Design Speed (mph)	Minimum Centerline Radius (feet)	Maximum Grade Break Without Curve (%)	Minimum K Value for Crest Vertical Curve	Minimum K Value for Sag Vertical Curve
Major Arterial	>6000	5	60	1275	0.3	207	123
Minor Arterial	3,000-5,999	5	55	955	0.4	152	103
Collector	1,500-2,999	7	45	600	0.55	79	69
Local	1-1,499	8	30	250	1.3	30	36
Commercial - Industrial	-	6	45	600	0.55	79	69
Alley	-	8	10	50	1.3	30	36

TABLE 4 (A,B,C)
SUBDIVISION ROADWAY - PAVEMENT COMPOSITION REQUIREMENTS

TABLE 4A - SUBDIVISION ROADWAY CLASSIFICATION - ASPHALT CONCRETE THICKNESS

Subdivision Street Classification	304 (in)	301 (in)	Intermediate Course (in)	Surface Course (in)
Major Arterial	6	8	1.75	1.25
Minor Arterial	6	7	1.75	1.25
Collector	6	6	1.75	1.25
Local	6	5	1.75	1.25
Commercial - Industrial	6	9	1.75	1.25
Alley	6	5	1.75	1.25

TABLE 4B* - SUBDIVISION ROADWAY CLASSIFICATION - CONCRETE BASE WITH ASPHALT SURFACE THICKNESS

Subdivision Street Classification	304 (in)	305 (in)	Intermediate Course (in)	Surface Course (in)
Major Arterial	4	7	1.75	1.25
Minor Arterial	4	7	1.75	1.25
Collector	4	7	1.75	1.25
Local	4	6	1.75	1.25
Commercial - Industrial	4	7	1.75	1.25
Alley	4	6	1.75	1.25

* Table 4B can be utilized with prior approval from the County Engineer and/or Township (if Twp Road).

TABLE 4C* - SUBDIVISION ROADWAY CLASSIFICATION - CONCRETE PAVEMENT THICKNESS

Subdivision Street Classification	304 (in)	452 (in)
Major Arterial	4	9
Minor Arterial	4	8
Collector	4	8
Local	4	7
Commercial - Industrial	4	9
Alley	4	7

* Table 4C can be utilized with prior approval from the County Engineer and/or Township (if Twp Road).

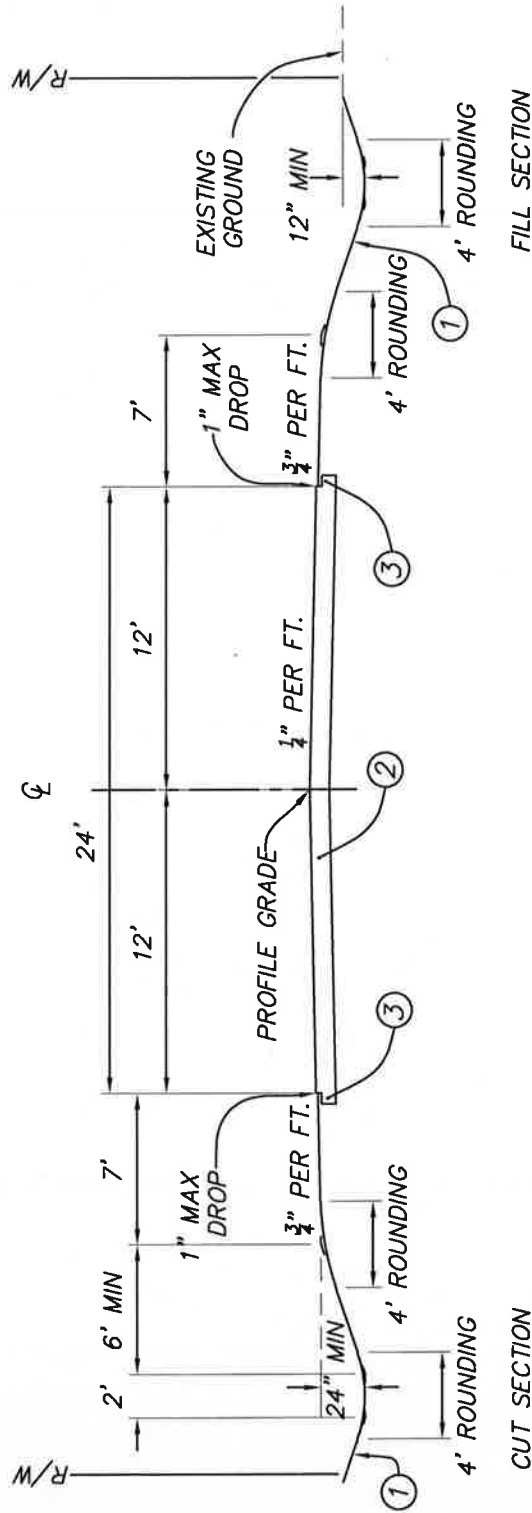
Appendices

Appendix A Roadway Standard Construction Drawings

- Exhibit R-1 24' Pavement Section; Local Street – 60' Right of Way
- Exhibit R-2 28' Pavement Section; Collector Street – 72' Right of Way
- Exhibit R-3 48' Pavement Section; Minor Arterial – 80' Right of Way
- Exhibit R-4 28' Pavement Section; Industrial Street – 72' Right of Way
- Exhibit R-5 28' Pavement Section with Curb and Gutter; Local Street – 50' Right of Way
- Exhibit R-6 36' Pavement Section with Curb and Gutter; Collector Street – 60' Right of Way
- Exhibit R-7 51' Pavement Section with Curb and Gutter; Minor Arterial – 80' Right of Way
- Exhibit R-8 27' & 27' Pavement Section with Curb and Gutter; Major Arterial – 100' Right of Way
- Exhibit R-9 36' Pavement Section with Curb and Gutter; Industrial Street – 72' Right of Way
- Exhibit R-10 Concrete Combined Curb and Gutter
- Exhibit R-11 Mountable Curb
- Exhibit R-12 Edge of Pavement Deep Strength Asphalt w/Underdrain
- Exhibit R-13 Edge of Pavement Deep Strength Asphalt w/Aggregate Drain
- Exhibit R-14 Typical Pavement Section
- Exhibit R-15 Backfill within ROW (influence line)
- Exhibit R-16 Roadway Termination

Appendix B Design Exception Request Form

APPENDIX A
ROADWAY STANDARD CONSTRUCTION DRAWINGS



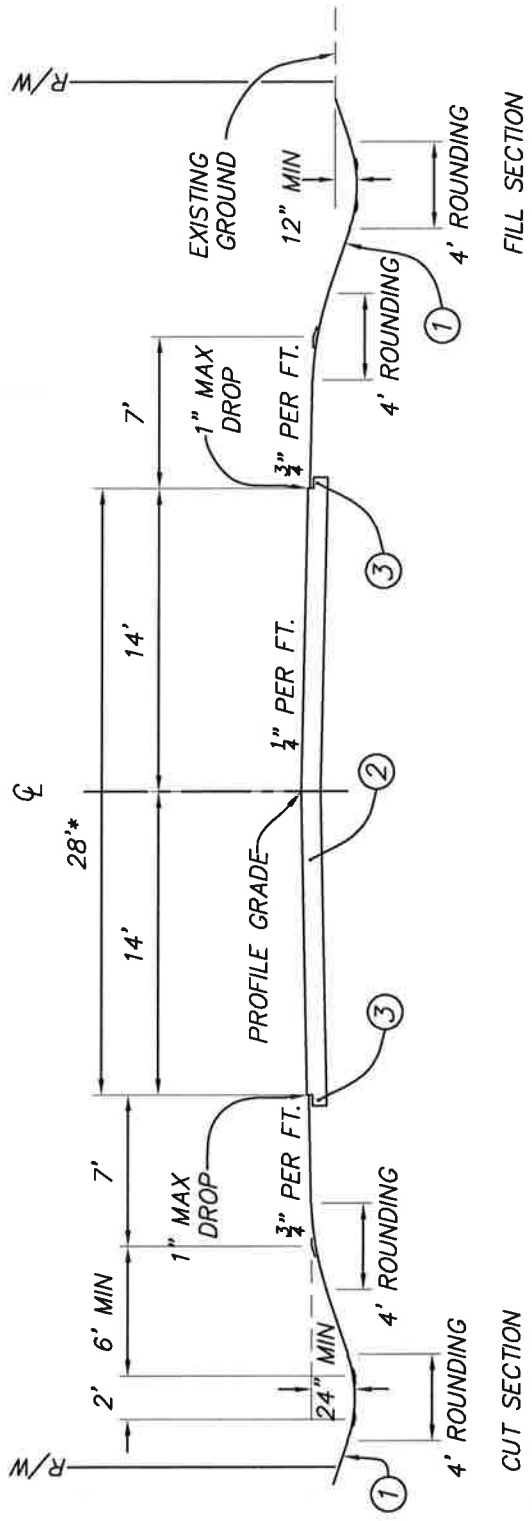
- ① CUT SECTION 5' AND UNDER - 3:1
CUT SECTION OVER 5' - 2½:1
FILL SECTION 5' AND OVER - 2½:1
FILL SECTION UNDER 5' - 4:1

② SEE "MINIMUM PAVEMENT COMPOSITION" TABLE FOR DESIGN THICKNESS - TABLE 4A AND EXHIBIT R-14

③ SEE EXHIBITS R-12 AND R-13

24' PAVEMENT SECTION
LOCAL STREET - 60' RIGHT OF WAY

EXHIBIT R-1
REV. 5-07-24



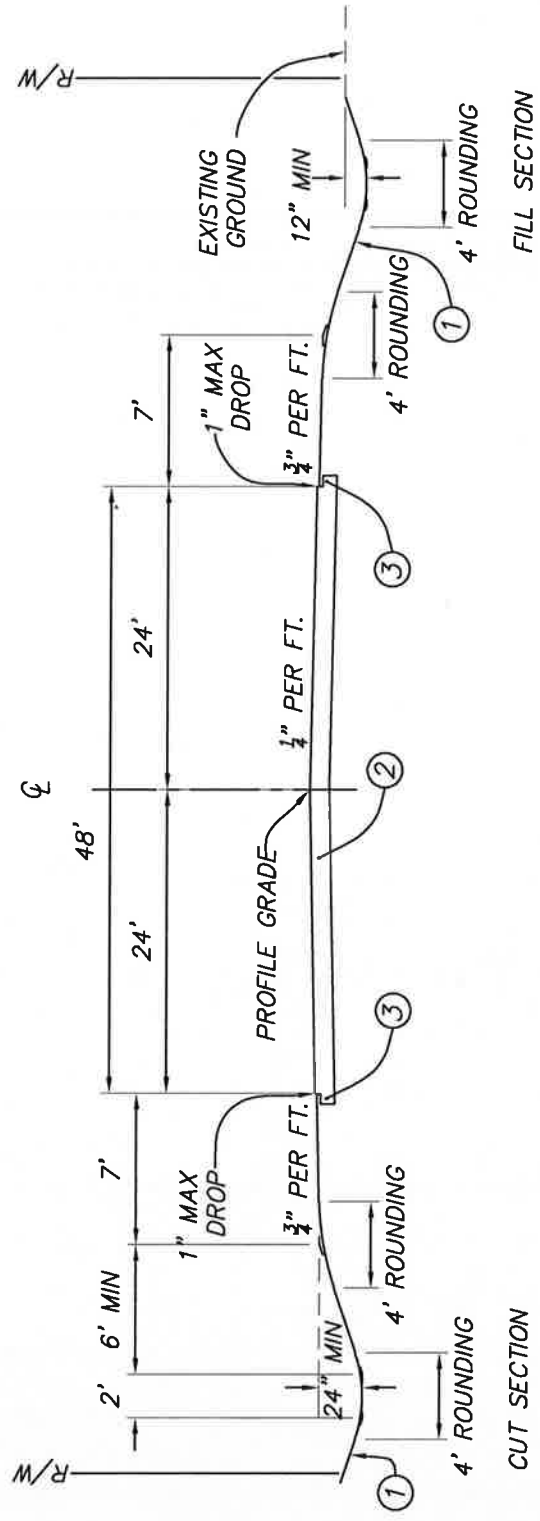
- ① CUT SECTION 5' AND UNDER - 3:1
CUT SECTION OVER 5' - 2½:1
FILL SECTION 5' AND OVER - 2½:1
FILL SECTION UNDER 5' - 4:1

② SEE "MINIMUM PAVEMENT COMPOSITION" TABLE FOR DESIGN THICKNESS - TABLE 4A AND EXHIBIT R-14

③ SEE EXHIBITS R-12 AND R-13

28' PAVEMENT SECTION
COLLECTOR STREET - 72' RIGHT OF WAY

EXHIBIT R-2
REV. 5-07-24



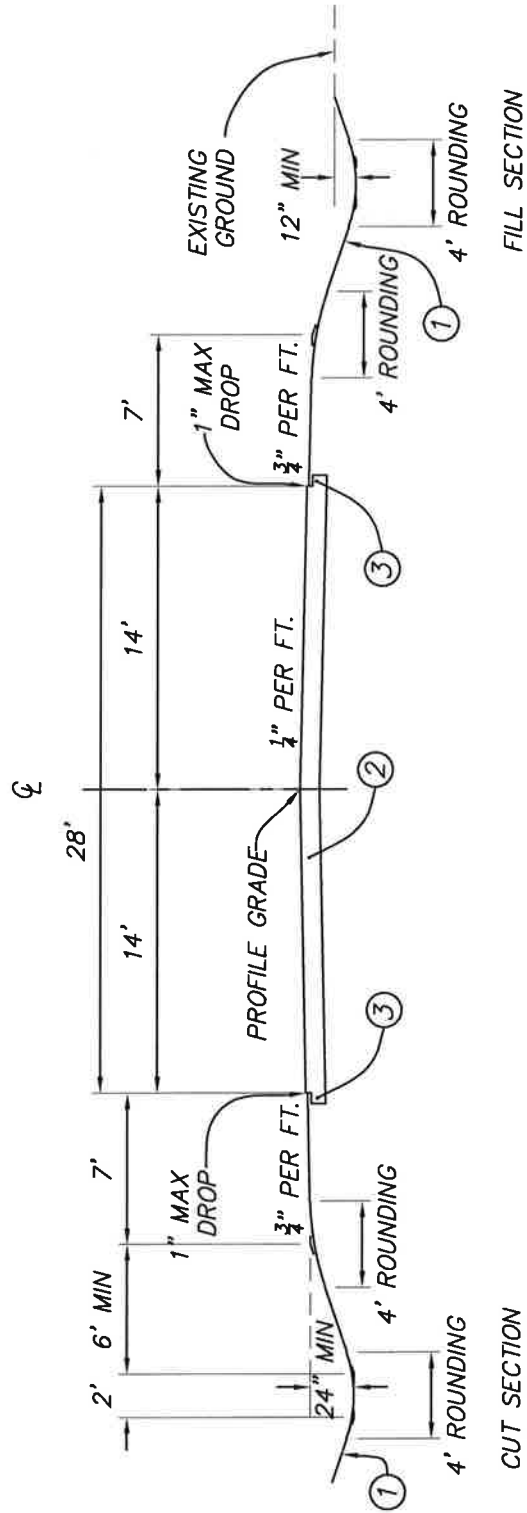
- ① CUT SECTION 5' AND UNDER - 3:1
 CUT SECTION OVER 5' - 2 1/2:1
 FILL SECTION 5' AND OVER - 2 1/2:1
 FILL SECTION UNDER 5' - 4:1

② SEE "MINIMUM PAVEMENT COMPOSITION" TABLE FOR DESIGN THICKNESS - TABLE 4A AND EXHIBIT R-14

③ SEE EXHIBITS R-12 AND R-13

48' PAVEMENT SECTION
 MINOR ARTERIAL - 80' RIGHT OF WAY

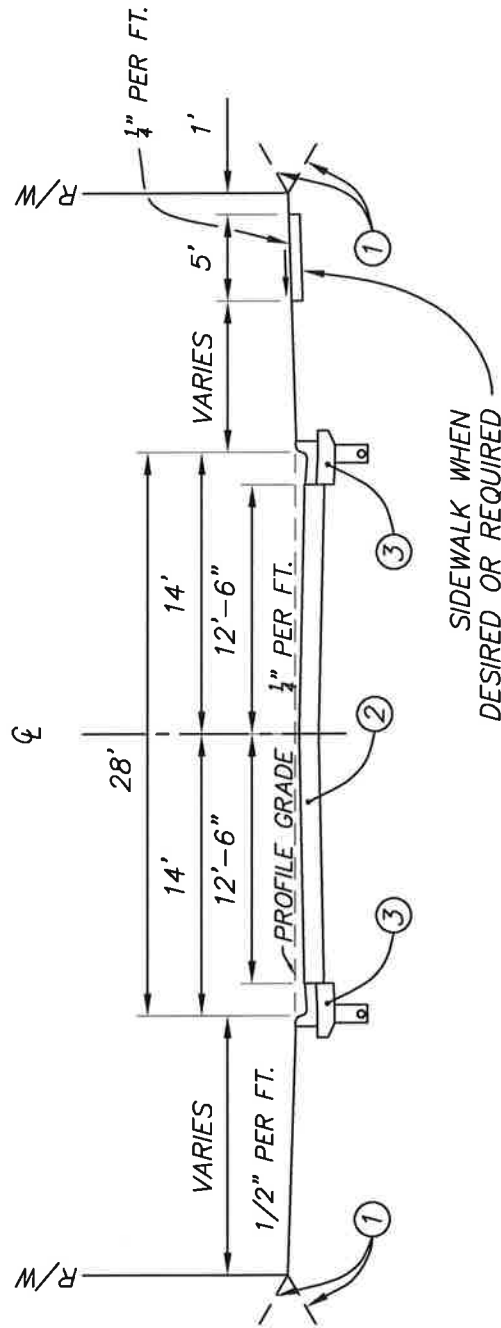
EXHIBIT R-3
 REV. 5-07-24



- ① CUT SECTION 5' AND UNDER - 3:1
 CUT SECTION OVER 5' - 2½:1
 FILL SECTION 5' AND OVER - 2½:1
 FILL SECTION UNDER 5' - 4:1
- ② SEE "MINIMUM PAVEMENT COMPOSITION" TABLE FOR
 DESIGN THICKNESS - TABLE 4A AND EXHIBIT 4-14
- ③ SEE EXHIBITS R-12 AND R-13

28' PAVEMENT SECTION
 INDUSTRIAL STREET - 72' RIGHT OF WAY

EXHIBIT R-4
 REV. 5-07-24

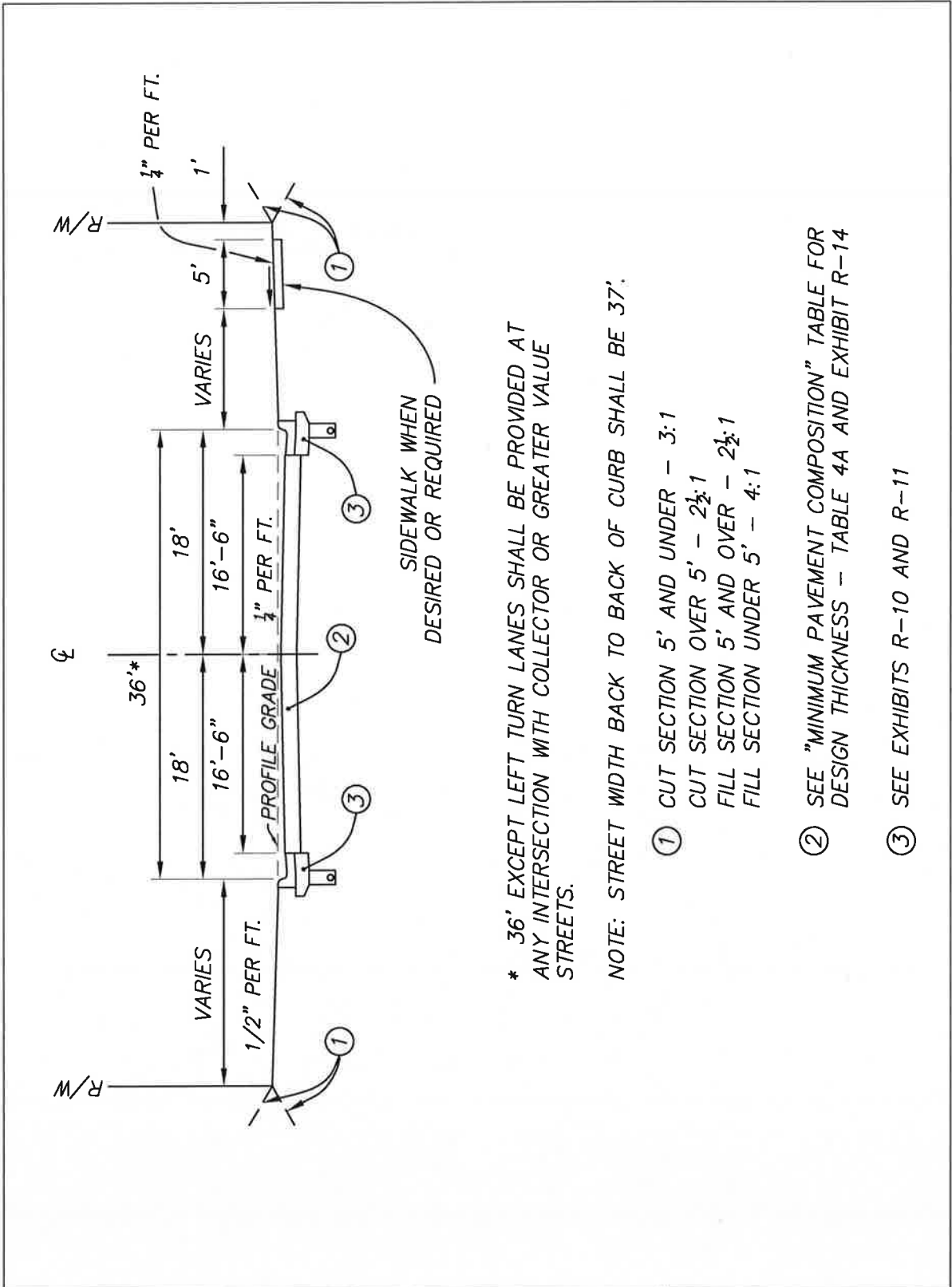


NOTE: STREET WIDTH BACK TO BACK OF CURB SHALL BE 29'.

- ① CUT SECTION 5' AND UNDER - 3:1
CUT SECTION OVER 5' - 2½:1
FILL SECTION 5' AND OVER - 2½:1
FILL SECTION UNDER 5' - 4:1
- ② SEE "MINIMUM PAVEMENT COMPOSITION" TABLE FOR DESIGN THICKNESS - TABLE 4A AND EXHIBIT R-14
- ③ SEE EXHIBITS R-10 AND R-11

28' PAVEMENT SECTION WITH CURB AND GUTTER
LOCAL STREET - 50' RIGHT OF WAY

EXHIBIT R-5
REV. 5-07-24



* 36' EXCEPT LEFT TURN LANES SHALL BE PROVIDED AT ANY INTERSECTION WITH COLLECTOR OR GREATER VALUE STREETS.

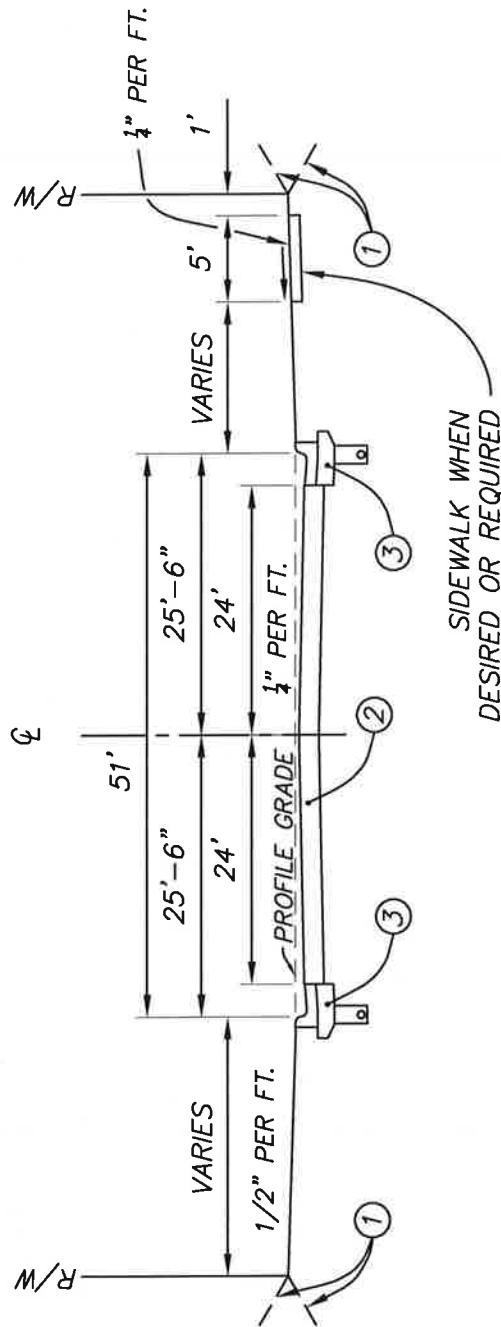
NOTE: STREET WIDTH BACK TO BACK OF CURB SHALL BE 37'.

- ① CUT SECTION 5' AND UNDER - 3:1
CUT SECTION OVER 5' - 2½:1
FILL SECTION 5' AND OVER - 2½:1
FILL SECTION UNDER 5' - 4:1

② SEE "MINIMUM PAVEMENT COMPOSITION" TABLE FOR DESIGN THICKNESS - TABLE 4A AND EXHIBIT R-14

③ SEE EXHIBITS R-10 AND R-11

36' PAVEMENT SECTION WITH CURB AND GUTTER COLLECTOR STREET - 60' RIGHT OF WAY

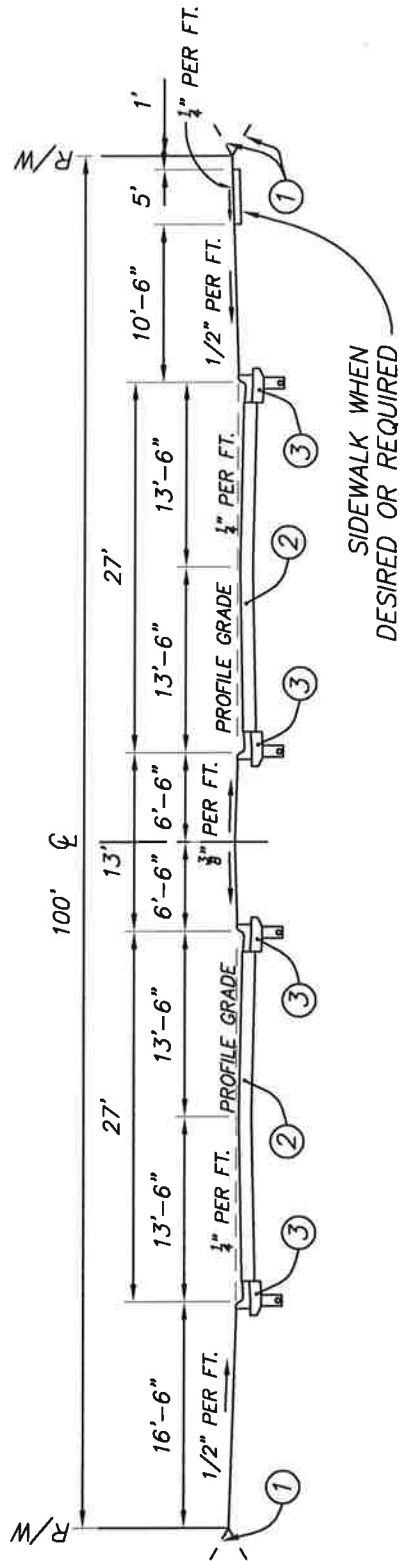


NOTE: STREET WIDTH BACK TO BACK OF CURB SHALL BE 52'.

- ① CUT SECTION 5' AND UNDER - 3:1
 CUT SECTION OVER 5' - 2½:1
 FILL SECTION 5' AND OVER - 2½:1
 FILL SECTION UNDER 5' - 4:1
- ② SEE "MINIMUM PAVEMENT COMPOSITION" TABLE FOR DESIGN THICKNESS - TABLE VI AND EXHIBIT 2E
- ③ SEE EXHIBITS 2A AND 2B

51' PAVEMENT SECTION WITH CURB AND GUTTER
 MINOR ARTERIAL - 80' RIGHT OF WAY

EXHIBIT R-7
 REV. 5-07-24



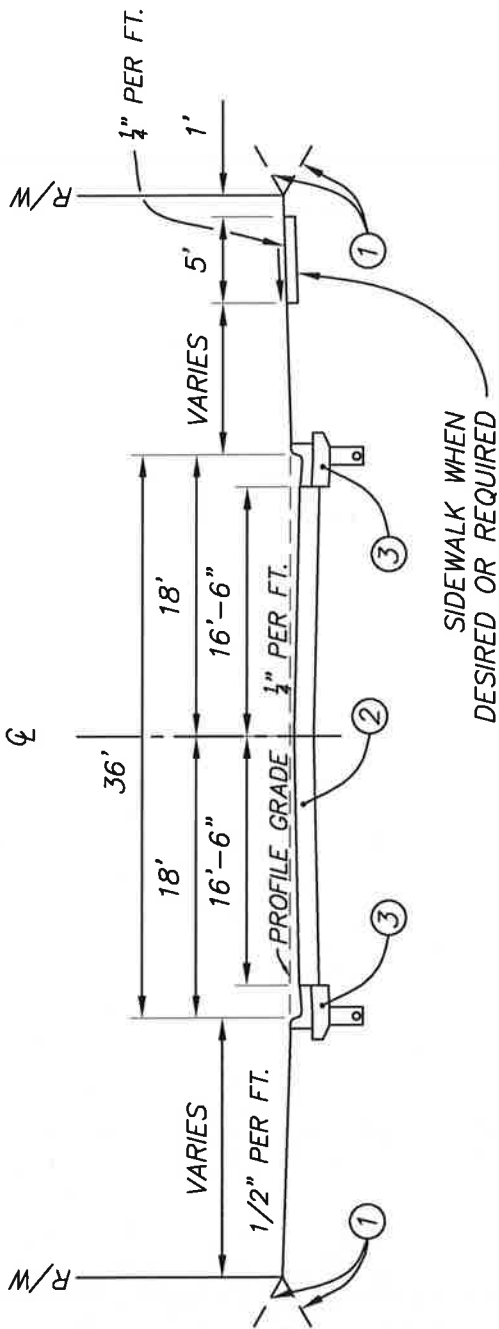
- ① CUT SECTION 5' AND UNDER - 3:1
 CUT SECTION OVER 5' - 2½:1
 FILL SECTION 5' AND OVER - 2½:1
 FILL SECTION UNDER 5' - 4:1

② SEE "MINIMUM PAVEMENT COMPOSITION" TABLE FOR DESIGN THICKNESS - TABLE 4A AND EXHIBIT R-14

③ SEE EXHIBITS R-10 AND R-11

27' & 27' PAVEMENT SECTION WITH CURB AND GUTTER
 MAJOR ARTERIAL - 100' RIGHT OF WAY

EXHIBIT R-8
 REV. 5-07-24



NOTE: STREET WIDTH BACK TO BACK OF CURB SHALL BE 37'.

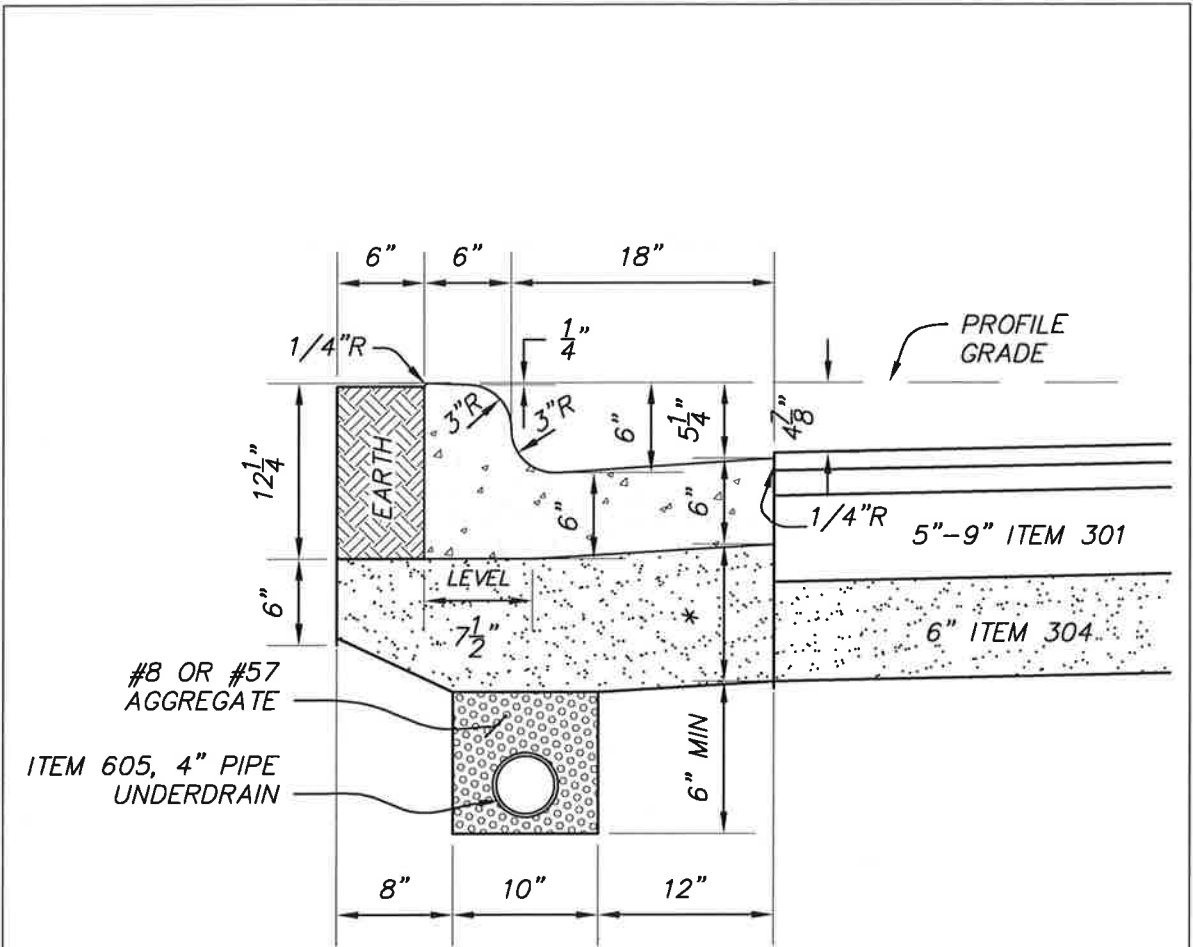
- ① CUT SECTION 5' AND UNDER - 3:1
CUT SECTION OVER 5' - 2½:1
FILL SECTION 5' AND OVER - 2½:1
FILL SECTION UNDER 5' - 4:1

② SEE "MINIMUM PAVEMENT COMPOSITION" TABLE FOR DESIGN THICKNESS - TABLE 4A AND EXHIBIT R-14

③ SEE EXHIBITS R-10 AND R-11

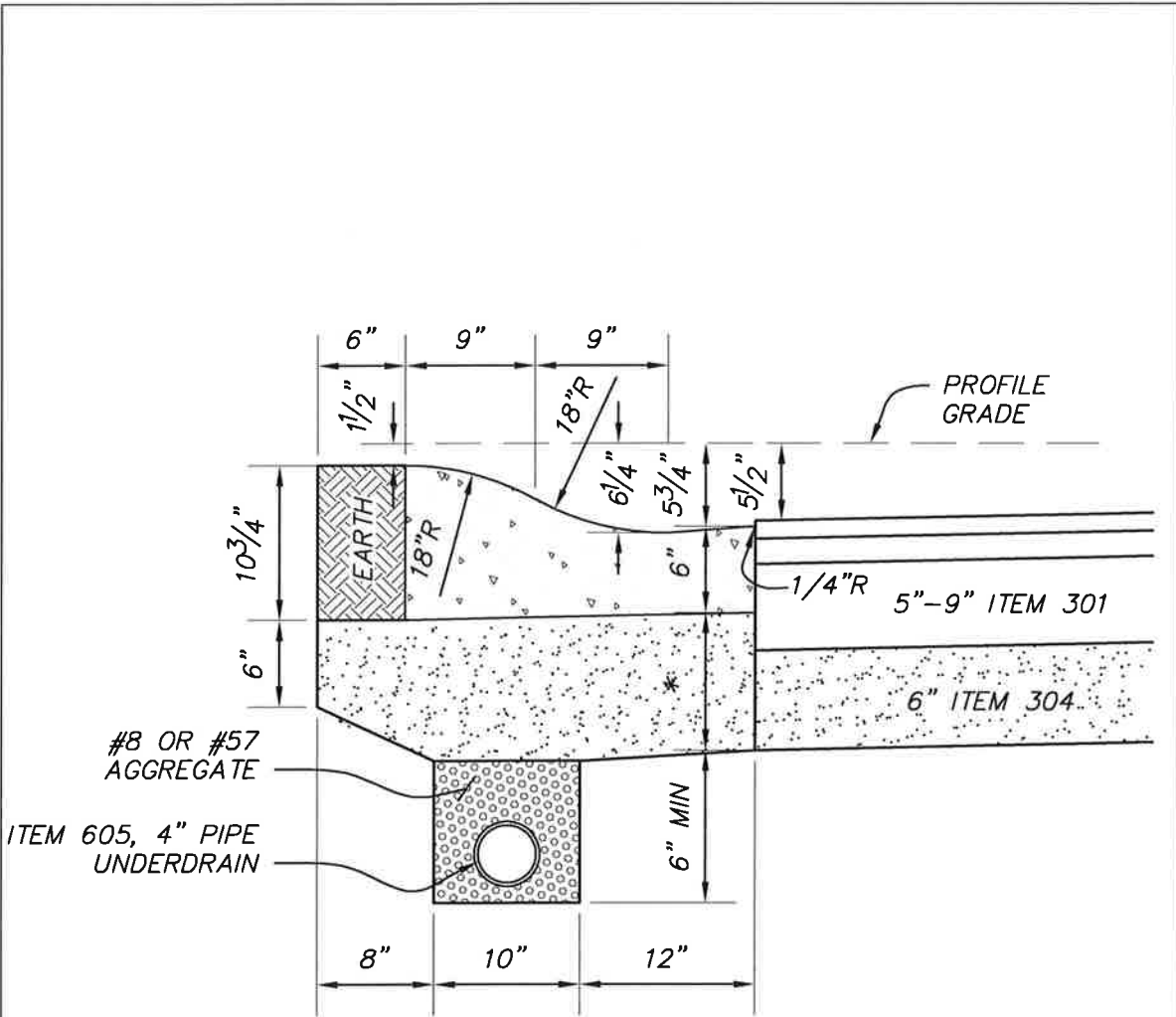
36' PAVEMENT SECTION WITH CURB AND GUTTER
INDUSTRIAL STREET - 72' RIGHT OF WAY

EXHIBIT R-9
REV. 5-07-24



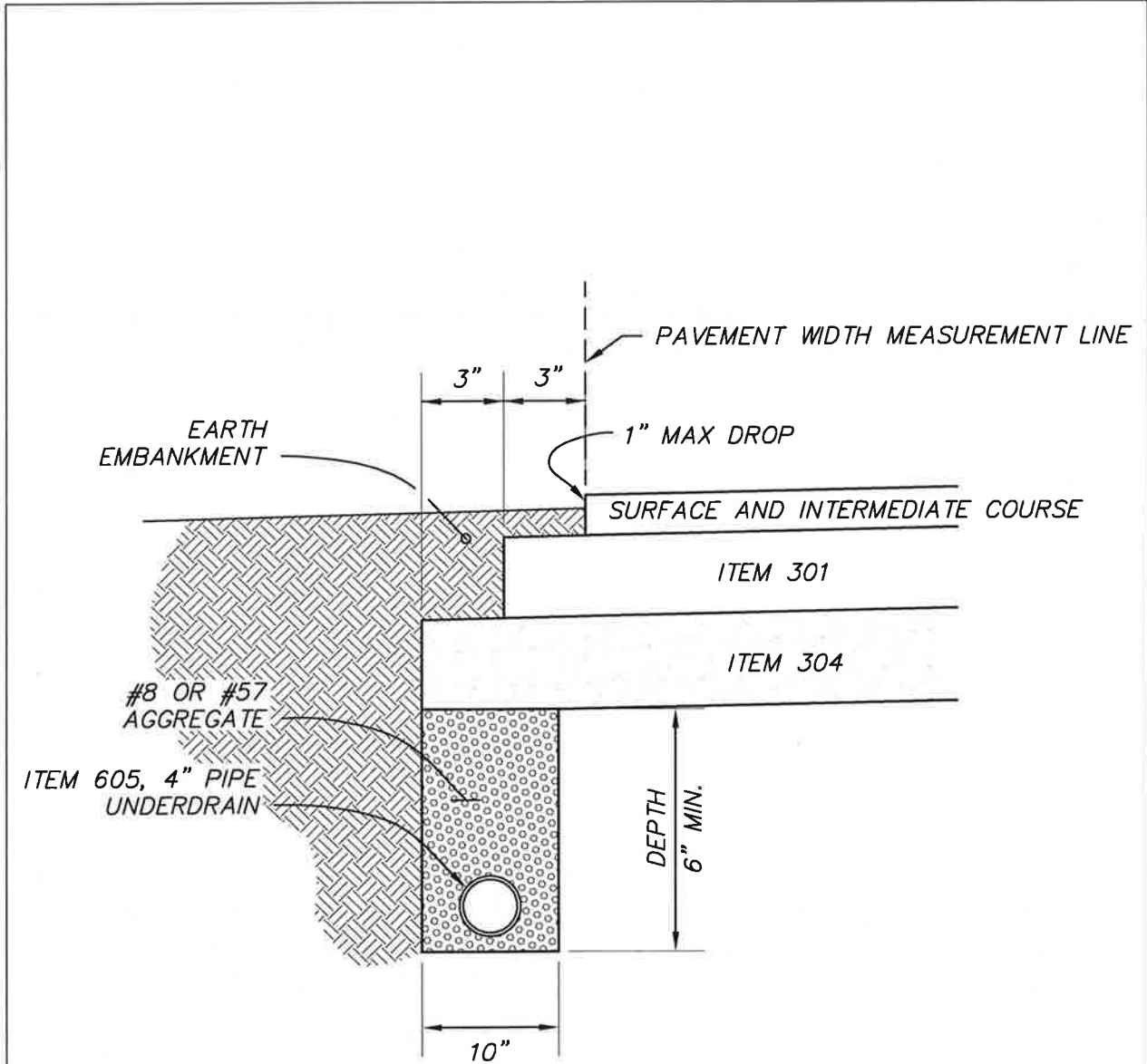
* ITEM 304, DEPTH VARIES 8"-12"
(MATCH DEPTH OF SUBGRADE)

ODOT SPEC. (4,000 PSI), 6 1/2 BAG MIX, 7% TO 9% AIR
ENTRAINMENT.



* ITEM 304, DEPTH VARIES 8"-12"
(MATCH DEPTH OF SUBGRADE)

ODOT SPEC. (4,000 PSI), 6 ½ BAG MIX, 7% TO 9% AIR
ENTRAINMENT.



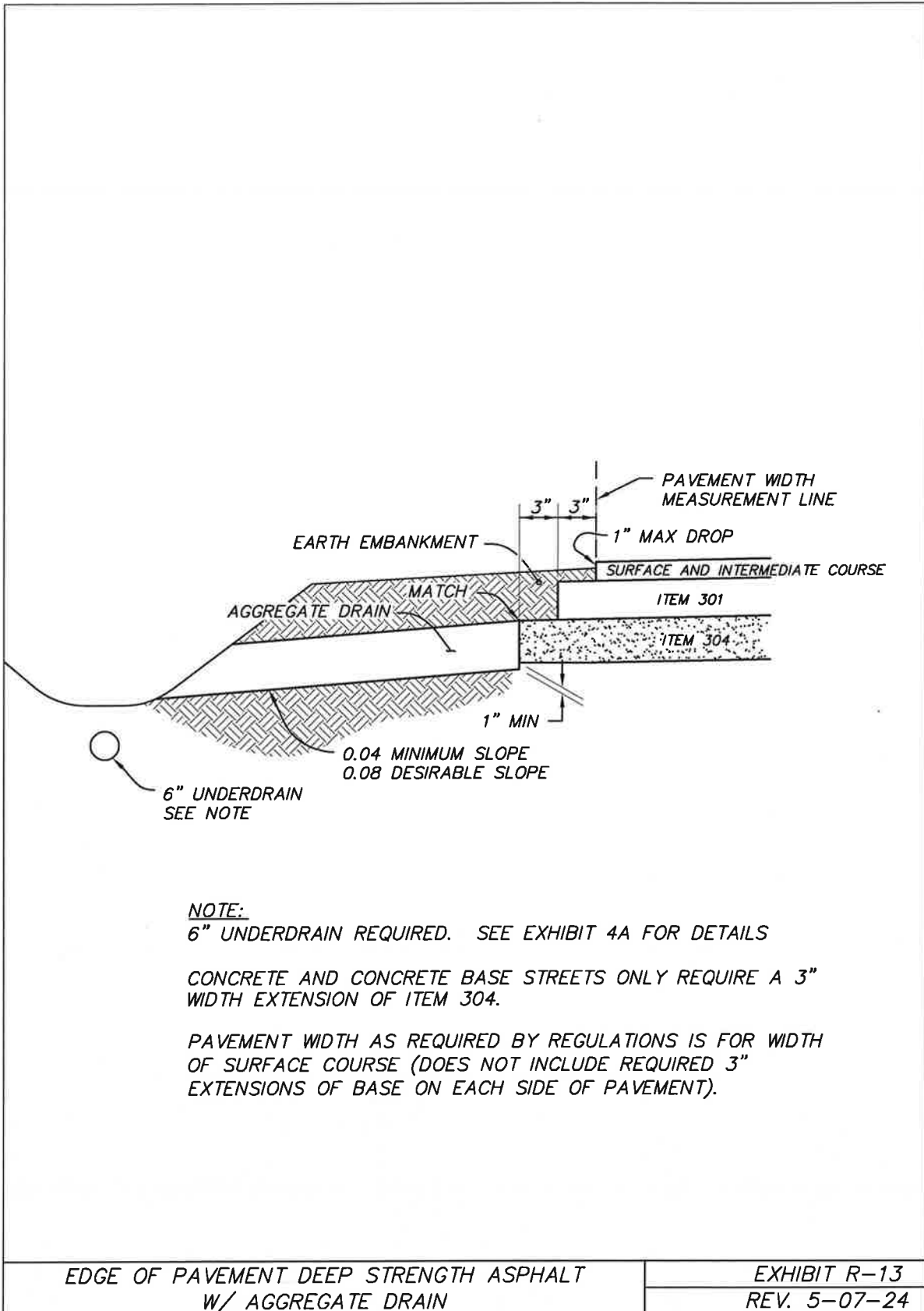
NOTE:

CONCRETE AND CONCRETE BASE STREETS ONLY REQUIRE A 3" WIDTH EXTENSION OF ITEM 304.

PAVEMENT WIDTH AS REQUIRED BY REGULATIONS IS FOR WIDTH OF SURFACE COURSE (DOES NOT INCLUDE REQUIRED 3" EXTENSIONS OF BASE ON EACH SIDE OF PAVEMENT).

EDGE OF PAVEMENT DEEP STRENGTH ASPHALT
W/ UNDERDRAIN

EXHIBIT R-12
REV. 5-07-24



NOTE:

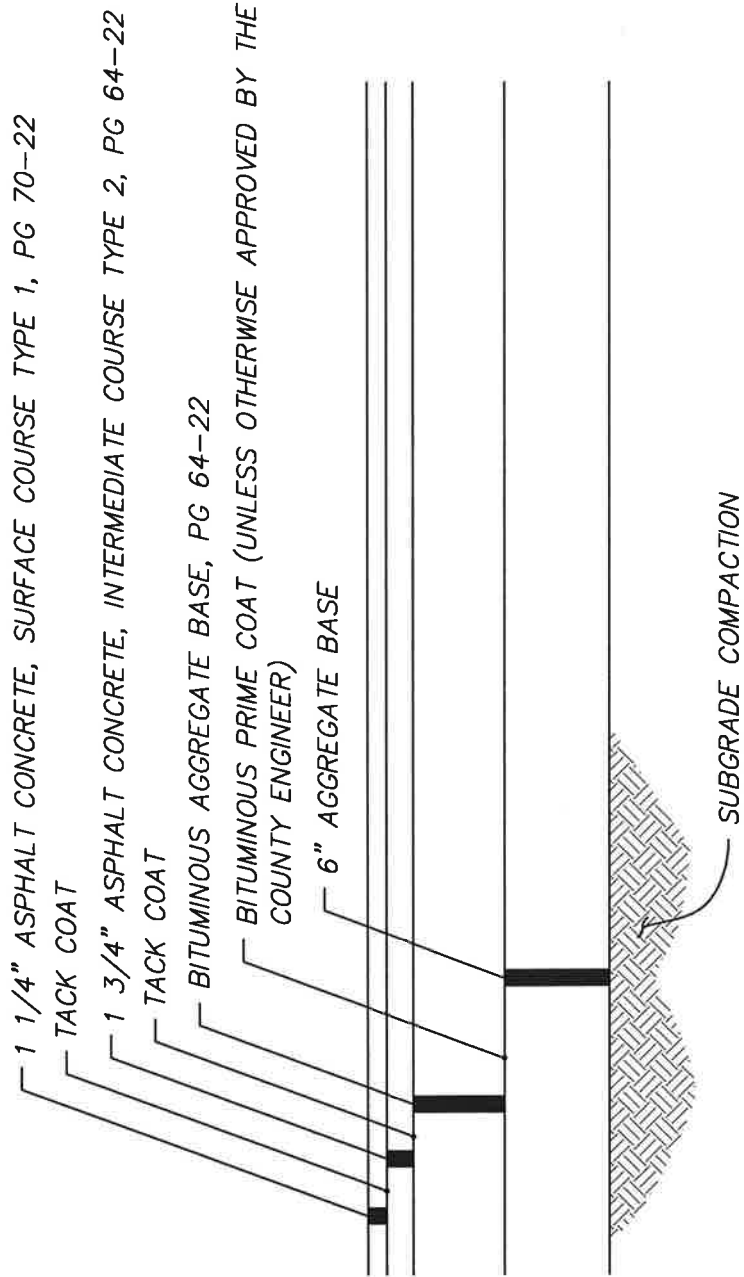
6" UNDERDRAIN REQUIRED. SEE EXHIBIT 4A FOR DETAILS

CONCRETE AND CONCRETE BASE STREETS ONLY REQUIRE A 3" WIDTH EXTENSION OF ITEM 304.

PAVEMENT WIDTH AS REQUIRED BY REGULATIONS IS FOR WIDTH OF SURFACE COURSE (DOES NOT INCLUDE REQUIRED 3" EXTENSIONS OF BASE ON EACH SIDE OF PAVEMENT).

EDGE OF PAVEMENT DEEP STRENGTH ASPHALT
W/ AGGREGATE DRAIN

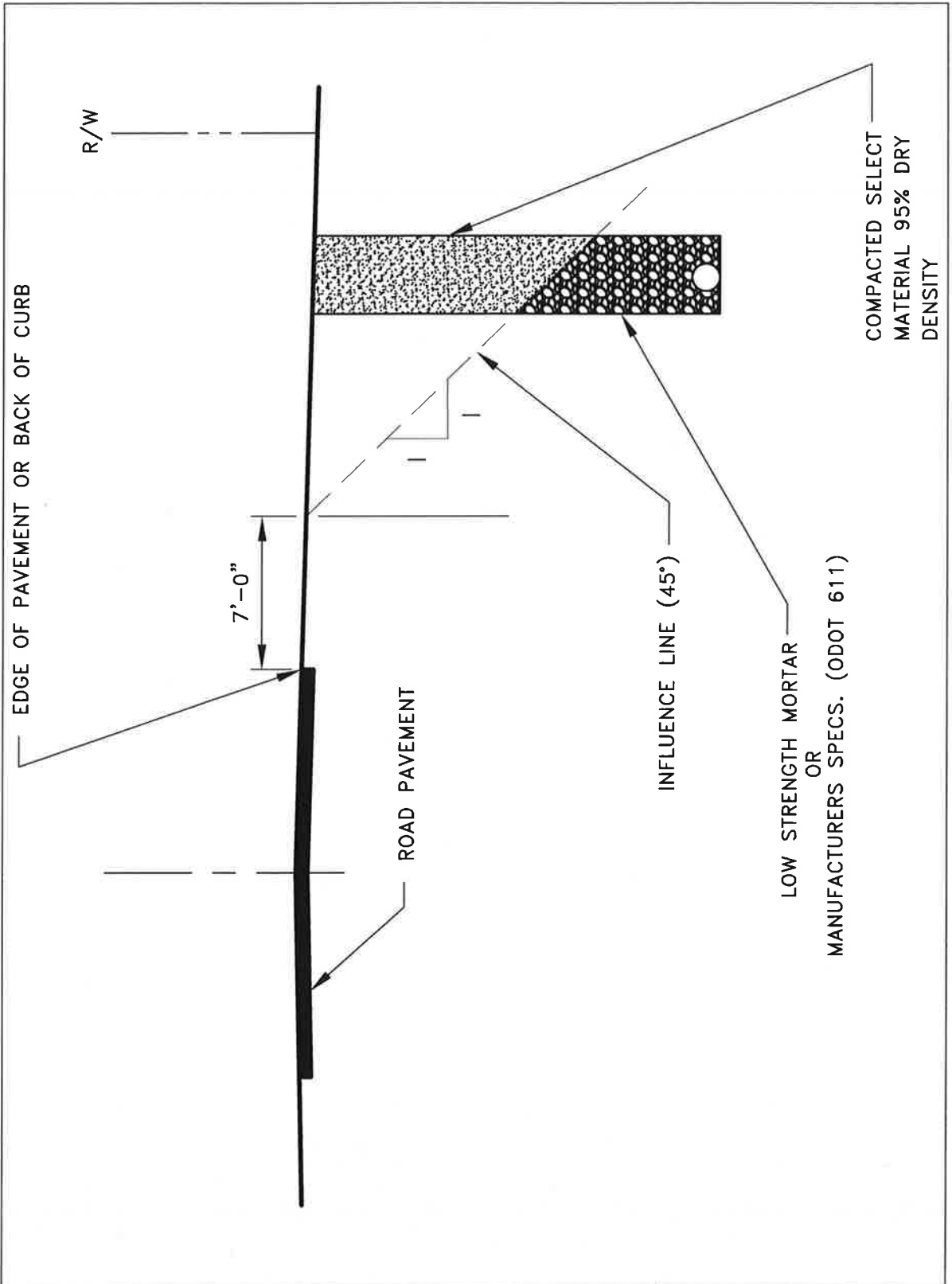
EXHIBIT R-13
REV. 5-07-24



CURRENT ODOT ITEM NUMBERS SHALL APPLY ABOVE.

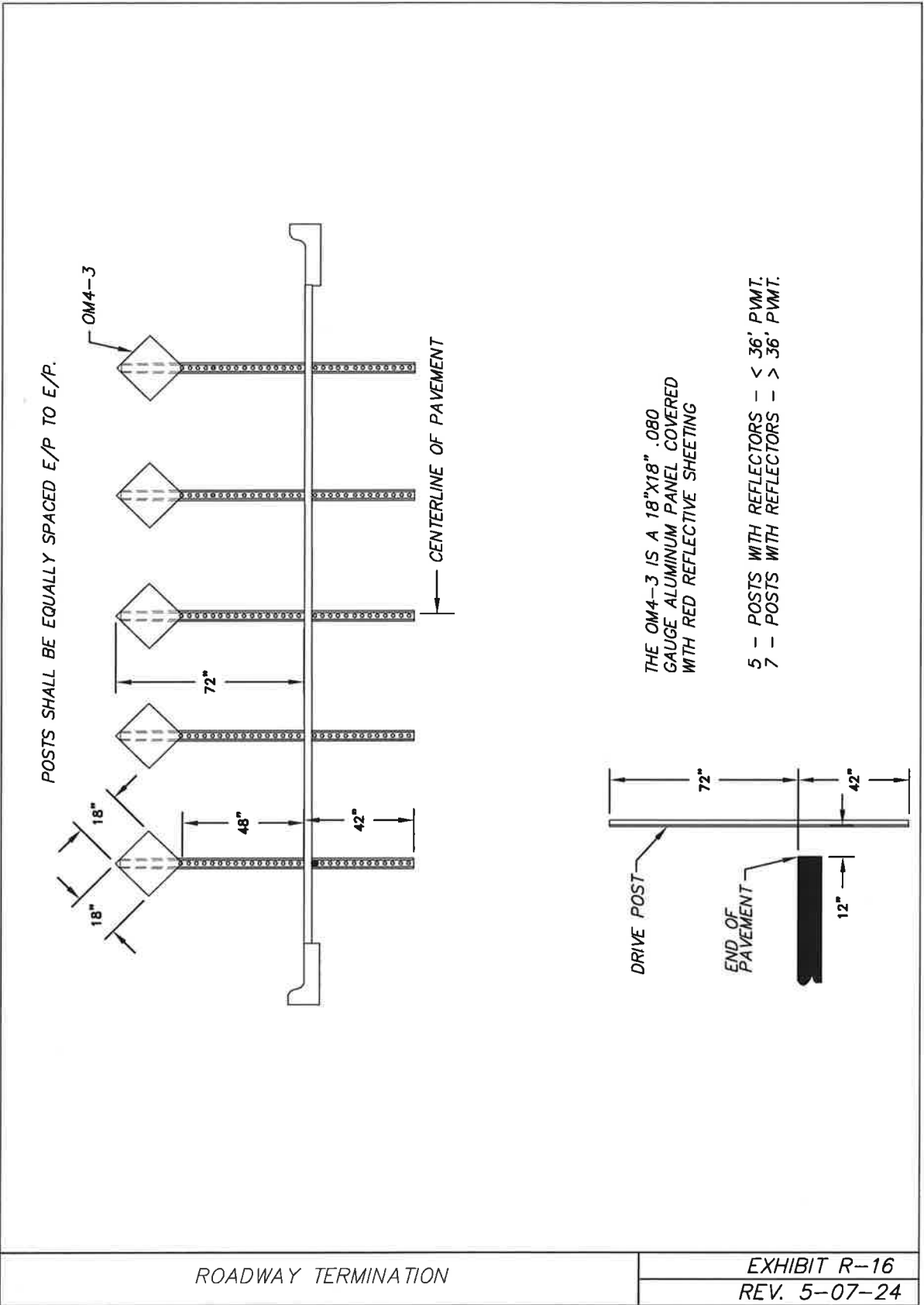
TYPICAL PAVEMENT SECTION

EXHIBIT R-14
REV. 5-07-24



BACKFILL REQUIREMENTS
WITHIN RIGHT-OF-WAY

EXHIBIT R-15
REV. 5-07-24



ROADWAY TERMINATION

EXHIBIT R-16
REV. 5-07-24

APPENDIX B
DESIGN EXCEPTION REQUEST FORM



FAIRFIELD COUNTY DESIGN EXCEPTION REQUEST FORM

Submit to Fairfield County Engineer for Processing

I.D. NUMBER

Assigned by
County
Engineer's
Office.

Date: _____

Check here if this is a resubmitted request

Project Name & Location:

Project Description:

List SWDM Section and Title for which a D.E. is requested:

Provide a detailed description of D.E. along with justification and any effects on other requirements:

List Documents Attached. Include appropriate plans, typical sections, cross sections, alignments, and/or details.

Engineer of Record

Engineer of Record Name & P.E. Registration #		
Title:	Date:	
Company Name:		
Company Address:		
City:	State:	Zip:
Email Address:	Phone:	

Disposition of Review by County Engineer:

Denied More information necessary

Reason for Denial or Description of Additional Information Needed:
--

Approved by Fairfield County Engineer

County Engineer Name:	Date:
Comments:	