

**CONSTRUCTION METHODS &
TECHNICAL SPECIFICATIONS OF THE
CLINTON COUNTY ENGINEER**

Adopted by:
BOARD OF CLINTON COUNTY COMMISSIONERS
David R. Stewart, President
Michael Curry
Randy Riley



Adopted: May 13, 2009

Prepared By:
CLINTON COUNTY ENGINEER'S OFFICE
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ADOPTION

Jeffrey B. Linkous, County Engineer

THE FOLLOWING RULES AND REGULATIONS AND CONSTRUCTION SPECIFICATIONS SHALL APPLY TO ALL SUBDIVISIONS LOCATED IN THE UNINCORPORATED TERRITORY OF CLINTON COUNTY AND HEREIN APPROVED BY THE CLINTON COUNTY REGIONAL PLANNING COMMISSION IN ACCORDANCE WITH THE OHIO ENABLING LEGISLATION FOR THE SUBDIVISION OF LAND SET FORTH IN CHAPTER 711 OF THE OHIO REVISED CODE:

BE IT CERTIFIED BY THE BOARD OF COUNTY COMMISSIONERS OF CLINTON COUNTY, OHIO, AND IT IS HEREBY CERTIFIED BY AUTHORITY OF THE SAME:

CLINTON COUNTY BOARD OF COUNTY COMMISSIONERS

- 1) David A. Stewart
- 2) [Signature]
- 3) Nancy Kiley

Date: 5-13, 2009

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ARTICLE 1

Title, Purpose, Authority, and General Provisions

SECTION 1.01 PURPOSE.

The purpose of these rules, guidelines, and standards as adopted by the Clinton County Board of Commissioners, hereinafter referred to as the "County Commissioners", is to provide engineering and surveying standards for subdivision development in Clinton County, Ohio and to define the minimum requirements for surveying, engineering and construction as applied to land development.

There shall be no variance from these rules, guidelines, and standards without the written consent of the Clinton County Engineer.

SECTION 1.02 TITLE.

These rules, guidelines, and standards shall be known as and may be cited and referred to as *THE CONSTRUCTION METHODS and TECHNICAL SPECIFICATIONS OF THE CLINTON COUNTY ENGINEER* and shall hereinafter be referred to as these "Standards".

SECTION 1.03 AUTHORITY.

The County Commissioners are authorized to adopt general rules and regulations setting standards and requiring and securing the construction of improvements shown on the plats and plans within their jurisdictions by virtue of Chapter 711 of the Ohio Revised Code.

SECTION 1.04 JURISDICTION.

These Standards shall be applicable to all subdivisions hereinafter made of land within the unincorporated territory of Clinton County and hereinafter approved by the Clinton County Regional Planning Commission in accordance with the Chapter 711 of the Ohio Revised Code.

SECTION 1.05 INTERPRETATION OF TEXT.

In the interpretation and application of the provision of these Standards, they shall be held to be minimum requirements. It is not intended by these Standards to interfere with, or abrogate or annul any easements, covenants, or other agreements between parties unless they violate these Standards. When two specific provisions of these Standards conflict with each other, or when a provisions of these Standards conflicts with any other lawfully adopted rule, regulations, standard, ordinance, or resolution, the most restrictive, or that imposing the higher standard shall apply.

SECTION 1.06 ADMINISTRATION.

These Standards shall be administered by the Clinton County Engineer, hereinafter referred to as the "County Engineer", for the County Commissioners.

SECTION 1.07 ADOPTION.

These Standards shall become effective after: 1) the necessary public hearings, 2) adoption by the County Commissioners, and 3) certification to the Clinton County Recorder in accordance with Section 711.101 of the Ohio Revised Code.

SECTION 1.08 AMENDMENTS.

These Standards may be amended from time to time in accordance with the same procedure as stated in *ADOPTION*, above.

SECTION 1.09 SEPARABILITY.

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

SECTION 1.10 INTERPRETATION OF TERMS.

For the purpose of these Standards, certain terms or words used herein shall be interpreted as follows:

- A. The word "person" includes a firm, association, organization, partnership, trust, company, or corporation as well as and individual.
- B. The word "shall" is a mandatory requirement, the word "may" is a permissive requirement, and the word "should" is a preferred requirement.
- C. The present tense includes the future tense, the singular number includes the plural, and the plural number includes the singular.

SECTION 1.11 DEFINITIONS.

As used herein:

County: Clinton County, State of Ohio

County Commissioners: The Board of Clinton County Commissioners, or its designated representative.

Developer: Any individual, developer, firm, association, syndicate, partnership, corporation, trust, or any other legal entity commencing proceedings under these Standards to effect a subdivision of land hereunder for himself or for another.

Easement: A grant by the property owner for the use of a strip of land by the public, a corporation, or another individual for specific purposes.

O.D.O.T.: The Ohio Department of Transportation

Professional Engineer: A registered engineer, authorized to practice professional engineering by the Ohio State Board of Registration, as specified under Section 4733 of the Ohio Administrative Code.

Professional Surveyor: A registered surveyor, authorized to practice professional surveying by the Ohio Board of Registration, as specified under Section 4733 of the Ohio Administrative Code.

Public Utility: Any firm, corporation, governmental agency, or board having a Public Utility Commission of Ohio permit to furnish to the public, under regulations, electricity, gas, sewer, telephone, transportation, water, or other similar public services.

Street, Public: A right-of-way, dedicated to public use, which provides vehicular and pedestrian access to adjacent properties.

SECTION 1.12 REVIEW.

Any request for a review of the text of these Standards shall be made in writing to the County Commissioners with the reason for the review being stated. Any such request will be reviewed by the County Commissioners and if they feel it is necessary, they will conduct a public hearing.

ARTICLE 2

General Specifications

SECTION 2.01 STANDARD SPECIFICATIONS.

All construction pertaining to roads, drainage and underground utilities shall conform to the latest edition of the State of Ohio, Department of Transportation *Construction and Material Specifications*, except as modified or otherwise specified herein.

SECTION 2.02 CONSTRUCTION SCHEDULE.

Construction drawings shall be submitted to the County Engineer for approval. After approval of the construction drawings by the County Engineer and before starting any construction work, the developer shall submit a construction schedule to the Clinton County Engineer for approval. The schedule shall show starting and completion date for each phase of construction work, including a date for the completion of the entire project.

During the progress of the work, the Developer may request a change in the schedule to be reviewed by the County Engineer. The Engineer may revise the project completion date given in the construction schedule, but is not obligated to do so.

SECTION 2.03 ESTIMATED COST.

Upon approval of the construction drawings by the County Engineer and before starting any construction work, the Developer shall submit to the County Engineer for approval, an estimated cost by item for the surveying and engineering, inspection, as well as the construction of roads, storm sewers, drainage structures, underground utilities, erosion control, etc.

SECTION 2.04 INSURANCE.

The Developer shall agree to indemnify and save harmless the County against and from any and all loss, cost, damage, liability and expense on account of damage to property of, or injury to or death of, the County and any of its employees, agents or representative or third person, caused by, growing out of or in any way whatsoever attributable to the construction of said Improvements and the use of the street delineated on the subdivision plat during construction. The Developer shall further agree, but without limiting its liability to indemnify the County, to carry liability insurance contracts with any insurance company or companies acceptable to the County Commissioners during the period of said construction in the sum of \$100,000 to \$300,000 for injury to property, which insurance contracts shall include the County as a named insured. The Developer agrees to maintain on file with the County during the period of said construction, certificates or memoranda of insurance evidencing that said insurance contracts are in force.

SECTION 2.05**SURVEYING AND ENGINEERING.**

As prescribed by the Engineers and Surveyors Registration Law of Ohio, all drawings must be prepared by or under the supervision of a Registered Professional Engineer in the State of Ohio, and bear his signature and stamp of the seal prescribed by the State Board of Registration for Professional Engineers and Surveyors. All surveys must be prepared by or under the supervision of a Registered Professional Surveyor in the State of Ohio, and bear his signature and stamp of the seal prescribed by the State Board of Registration for Professional Engineers and Surveyors.

Monuments must meet all of the "Requirements for Recorded Plats and Filing Surveys" as approved by the Clinton County Auditor, Engineer, Recorder and Board of County Commissioners. Before final acceptance of a plat, the Subdivider shall plat at the corner of the public ground or lot, if there is such, and if there is none, then at the corner of one of the in-lots and at the corner of each out-lots, a monument of such a material as to satisfy the requirements of Section 4733-37-03 of the Ohio Administrative Code and set in such a manner as the surveyor provided for under Section 711.01 of the Revised Code directs, for a corner from which to make future surveys, and the point at which it may be found shall be designated on the plat. Such Developer shall also set iron pins at all lot corners.

Monuments and iron pins that could be disturbed by the grading work shall be set after the grading work has been completed.

All monuments and iron pins shall be identified on the final plat, and shall be in place at the time the roads and other improvements have final acceptance by the Board of County Commissioners.

ARTICLE 3

Engineering Drawings

SECTION 3.01 PLAN PREPARATION.

Subdividers of private property shall submit to the County Engineer for review and preliminary approval, two (2) prints of construction drawings showing engineering details of all existing and proposed facilities and utilities. After the drawings have received the final approval, three (3) copies shall be furnished to the County Engineer.

SECTION 3.02 PLAN SHEETS.

Each set of plans shall be prepared in ink on 22"x34" sheets (out to out trimmed edges) and shall include the following sheets or information:

- A. A title page that identifies the plans, and includes a vicinity sketch; the Owner, Developer, and Engineer's names; a table of contents; a line legend; OUPS logo; and signature blocks for approval by the County Engineer and the design Engineer.
- B. A title block in the lower right-hand corner of each sheet.
- C. A table of estimated quantities.
- D. The following General Notes shall be included in the plans:
 1. "All construction materials and methods shall be in accordance with the most recent edition of the *Ohio Department Of Transportation, Construction and Material Specifications* (ODOT CMS) and the most recent edition of the *Construction Methods and Technical Specifications for Subdivisions in Clinton County, Ohio*. Where in conflict, the *Construction Methods and Technical Specifications for Subdivisions in Clinton County, Ohio* shall govern."
 2. "The Contractor shall cause notice to be given to the Ohio Utilities Protection Service (OUPS) (telephone 1-800-362-2764) and to the Owners of the utility facilities shown on the plans who are not members of the registered underground utility protection service in accordance with Section 3781 of the Revised Code. The above mentioned notice shall be given at least 48 hours prior to the start of construction."
 3. "The Clinton County Engineer's Office may be contacted at 1326 Fife Ave., Wilmington, OH 45177, (937) 382-2078 (phone), (937) 382-5318 (fax)."
 4. "The Contractor shall provide the Clinton County Engineer's Office with 48 hours notice prior to any required inspections."
 5. "Trenches within five (5) feet of the edge of and under the pavement shall be backfilled with granular material in accordance with the ODOT CMS and the *Construction Methods and Technical Specifications for Subdivisions in Clinton County Standard Details*."

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6. "A preconstruction meeting shall be scheduled and held prior to the start of any construction activities. Attendees should include: Clinton County Engineer's Office personnel, a representative of the Developer, a representative of the design Engineer, a representative of the Contractor, representatives of any effected utility companies, a representative of the Clinton County Soil & Water Conservation District, the Township Trustees of the township where the project is located, other attendees as required by the Clinton County Engineer's Office."
 7. "Construction signing, traffic control, and permanent signing shall be in accordance with the latest edition of the *Ohio Manual for Uniform Traffic Control Devices* and shall be the responsibility of the Developer."
 8. "All rough grading shall be completed prior to the installation of utilities."
 9. "All utility installation (including services) within the right-of-way or utility easement shall require a utility permit from the Clinton County Engineer's Office."
 10. "The Contractor shall be solely responsible for all federal, state, and local safety requirements, together with exercising precautions at all times for the protection of persons (including employees) and property. It is also solely the responsibility of the Contractor to initiate, maintain, and supervise all safety requirements and programs in connection with the work."
- E. A proposed typical section(s). The Clinton County Typical Sections are provided in Appendix "A".
1. Typical sections shall be included in all sets of construction drawings without exception.
 2. Limiting stations shall be identified.
 3. Any required typical sections (widening, boulevards, etc.), which are not provided in Appendix "A" shall be provided in the plans.
- F. Plan and profile sheets for all proposed improvements.
1. Plan shall show:
 - a. Centerlines, edge of pavement (with radii labeled), stations, ditch lines (with direction of flow and breaks shown), right-of-way lines and names of all streets, alleys, and easements.
 - b. Station and angle of all intersection streets.
 - c. Station of all PC's, PI's and PT's, and other stations necessary for a complete review and construction of the plans.
 - d. All structures, bridges, culverts, underground utilities, guard rails, trees and other obstructions within the right-of-way and easements.
 - e. Bearings, length and location of all lines including all curve data (which may be shown in table form).
 - f. All existing and proposed utilities.
 - g. Partial lot lines shall be shown where they intersect the street right-of-way lines and shall be numbered consistent with the Record Plat.
 - h. Proposed drive locations / stations.
 - i. Permanent signing.
 - j. Locations of any curtain drains.

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2. Profile shall show:
 - a. Centerlines stations and elevations of existing ground and proposed finish grades at intervals not to exceed 50-feet.
 - b. Sewer (sanitary and storm) and water line profiles.
 - c. Vertical curve data including elevations at 25-foot intervals and the stations of all P.V.C.'s, P.V.I.'s, and P.V.T.'s shall be shown.
 - d. All street grades shall be top of curb or centerline grade.
 - e. Percent grades and sight distance at each intersection and vertical curve.
 - f. Structures, bridges, culverts and notes.
 - g. Profiles of cul-de-sacs shall be the centerline of the roadway extended through the radius point of the cul-de-sac continuing to the edge of pavement.
 - h. Proposed left and right ditch grade lines and grade break elevations.
 - i. Extents and type of ditch erosion protection.

 - G. A complete set of cross sections generated at a minimum interval of 50 feet shall be included as part of the detailed plans. Each section shall show, as a minimum, existing and proposed centerline elevations, edge of pavement, right-of-way, proposed ditch elevations and slopes (unless curb and gutter is proposed), pavement buildup, curb and gutter type (where used), utilities, sewers and any other details pertinent to a thorough review of the plans.

 - H. Intersections and cul-de-sac detail sheets.
 1. Details should be presented at a scale of 1"=20' or larger.
 2. Details should show edge of pavement elevations, ditch elevations, and pavement radii.

 - I. Drainage drawings. (See Drainage Design standards)
 1. Plans shall contain profiles showing existing and proposed ground and a typical cross-section for all open drainage channels.
 2. Plans shall contain profiles for proposed storm sewer lines showing existing and proposed ground as well as sewer grades.
 3. Plans should contain limits and sizes of structures, outlet protection, etc.
 4. Where a curb and gutter section is proposed, underdrains shall be provided in accordance with the provided Typical Section.
 5. Where a boulevard section is proposed, underdrains shall be included to provide for drainage of the median.

 - J. Structures and Special Construction.
 1. Include detail drawings of any structure or special construction such as bridges, outlet structures, headwalls, concrete aprons, and other construction not otherwise included in the plans or as an ODOT Standard Drawing.

- K. Grading & Storm Water Pollution Prevention Plan (SWPPP)
 - 1. Include a plan showing existing and proposed contours within all right-of-way and easement areas.
 - 2. Include a plan showing the existing and proposed contours for all detention / retention areas.
 - 3. Plan shall show the size and locations all proposed temporary and permanent sediment and erosion control devices.

- L. Utility Plan
 - 1. A plan shall be provided detailing the horizontal location and depth of all proposed utilities and utility crossovers, including but not limited to:
 - a. Water lines and services
 - b. Electric lines and services
 - c. Telephone lines and services
 - d. Cable lines and services
 - e. Gas lines and services
 - f. Sanitary sewer lines and services
 - g. Curtain drains and services

SECTION 3.02 DRAWING SCALES.

The plans shall be drawn using the following minimum scales:

	Horizontal	Vertical
Plan View	1" = 50'	N/A
Profile	1" = 50'	1" = 5'
Cross Sections	1" = 10'	1" = 5'
Typical Sections	As required.	
Intersections	1" = 20'	N/A
Cul-de-Sac	1" = 20'	N/A
Structures	1" = 10'	1" = 5'

SECTION 3.03 BENCH MARKS.

All elevations shall be on U.S.G.S. Datum and a complete description, location, and elevation of the Bench Mark used shall be shown on the plans. Identify at least two temporary bench marks used on site.

SECTION 3.04 EXISTING OFF-SITE FACILITIES.

Utilities that are to be extended to the subdivision shall be shown to the point of connection to the existing facility.

Existing driveways, buildings, etc. located within 150 feet of the subdivision shall be shown.

SECTION 3.05 AS-BUILT DRAWINGS.

After the subdivision development has been completed two (2) sets of "as-built" drawings shall be furnished to the County Engineer. These plans shall show any and all deviations from the Construction Drawings and should be signed and stamped by a Professional Engineer currently licensed in the State of Ohio. Additionally, the design engineer shall furnish an electronic copy of the as-built drawings to the County Engineer.

ARTICLE 4

Street Design Standards

SECTION 4.01 REFERENCE STANDARDS.

All streets shall be designed and constructed in accordance with the State of Ohio, Department of Transportation *Construction and Material Specifications*, most recent edition, and the State of Ohio, Department of Transportation *Location and Design Manual, Volumes I, II, III*, most current edition, except as modified or otherwise specified herein. Additional standards, not necessarily repeated herein, may be found in the *Subdivision Regulations for Clinton County, Ohio*.

SECTION 4.02 DESIGN SPEED.

- 1) The design speed for residential and local streets shall be 35 mph.
- 2) The design speed for all other roads shall be 55 mph.

SECTION 4.03 TYPICAL SECTIONS.

All streets and roadways shall have a section build-up that is in compliance with one of the details shown in the Standard Typical Sections in the Appendices. These sections are for residential and local streets only. Major Collectors, Minor Collectors, Arterials as well as commercial local streets shall be designed to engineering standards pertaining to location, present and future traffic, soil conditions, ultimate use, or other factors that may influence the design. The designer shall consult with the County Engineer to determine acceptable section details when modifications are required to be made to an existing County or Township Road

These specifications, including attached drawings, are for average to good soil condition. Where in the opinion of the County Engineer, soil conditions are below average, the County Engineer may require a soil study and adjustments in design to conform to the conditions. The County Engineer may also require adjustments in design to conform with special conditions inherent within a particular subdivision, such as, but not limited to swamps, quicksand, and landslips.

Deviations from the provided typical sections shall be submitted to the County Engineer prior to approval of the proposed roadway. The design of the pavement shall be based on CBR (California Bearing Ratio) values for the area. Where more than one soil type of varying CBR values occurs on a proposed street, design shall be made on the basis of the lowest CBR. CBR values which were established through the cooperation with the State Conservation Service soil scientist and engineer may be obtained from the County Engineer.

Concrete surface is acceptable, but specific design must be approved by the County Engineer.

When the Developer is required to upgrade existing streets or roads within or bordering the subdivision, the upgrades shall be consistent with the provided typical sections.

Other items to be considered by the Designer include:

- A. Shoulders shall have a minimum width of two feet and shall be shaped as shown on the typical cross sections included with these specifications. The shoulders shall be seeded, fertilized, limed and mulched as shown on typical sections and in accordance with the State of Ohio, Department of Transportation *Construction and Material Specifications* (Item 659 in 2008 edition). Inspection shall be performed at the time of final acceptance. For any area identified with erosion, or without a uniform density of at least 70 percent grass cover, repair seeding and mulching will be required in accordance with State of Ohio, Department of Transportation *Construction and Material Specifications*.
- B. Ditches and slopes shall be shaped as shown on typical cross-sections except the depth of ditches shall be increased where necessary to obtain the minimum grade of 0.50% for drainage. Underdrains may be required where ditch grades are less than 1.0%.

All ditches and slopes shall be seeded, fertilized, limed and mulched in accordance with the State of Ohio, Department of Transportation *Construction and Material Specifications* (Item 659 in 2008 edition). Inspection shall be performed at the time of final acceptance. For any area identified with erosion, or without a uniform density of at least 70 percent grass cover, repair seeding and mulching will be required in accordance with State of Ohio, Department of Transportation *Construction and Material Specifications*.

Ditch velocities should be calculated and erosion protection shall be per the following chart.

ALLOWABLE DITCH VELOCITIES			
(Ft. per Sec.)			
Soil Type	Seed Lining	Sod Lining	Jute Matting
Sand	1.5	3.5	3.0
Firm Loam	2.0	4.0	4.0
Clay	2.5	5.0	4.0
Gravel	3.5	6.0	5.0
Weathering Shale	4.5	6.0	5.0

Any alterations to the ditch design shall be designed by the Design Engineer, included in the improvement plans, and shall be submitted to and approved by the Clinton County Engineer's Office.

- C. When a Developer decides or is required to construct any sidewalks or trail system, a preliminary drawing shall be filed with the County Engineer for approval. The drawing shall show the location of the sidewalk, the width and the cross-section of

the thickness, material and proportions. A Standard Drawing for sidewalks is included in Appendix "A".

- D. Storm sewer lines shall be located within the right-of-way line, or within easements shown on the final plan and approved by the County Engineer.
- E. Curbs may be required based upon lot size or Clinton County Regional Planning Commission directive. If the Developer elects to install curbs he shall conform to the Standard Drawings included in Appendix "A" of these specifications.
- F. Where site conditions warrant, the County Engineer may require that under-drains be installed.

SECTION 4.04 GRADIENT.

Vertical curve design shall conform to the State of Ohio, Department of Transportation *Location and Design Manual* for crest and sag vertical curves.

Minimum longitudinal grades shall conform to the State of Ohio, Department of Transportation *Location and Design Manual*.

The maximum grade shall be in accordance with latest edition of the *Clinton County Subdivision Regulations* (section 700.08 in the 2006 edition) or the State of Ohio, Department of Transportation *Location and Design Manual*, whichever is most restrictive.

SECTION 4.05 MISCELLANEOUS PROVISIONS.

Concrete curb and gutter and sidewalk, where required, shall be constructed in accordance with Standard Drawings in Appendix "B" of these Standards. Water and sewer lateral locations shall be stenciled into the back of curb by impressing an "S" or "W" in the fresh concrete.

Curb cuts and concrete aprons shall conform to the details provided in the *Ohio Department of Transportation, Standard Construction Drawings*.

The grade of all existing and proposed manhole lids, water valve boxes, gas valve boxes, catch basin grates, or other structures located within the paved area, must be constructed flush with the final street surface.

SECTION 4.06 DRIVES & DRIVEWAY PIPES.

No driveways or driveway pipes shall be installed without a permit from the County Engineer's Office. No driveway permits or house numbers will be issued until the stone base for the roadway has been installed to a point of termination (cul-de-sac, turnaround, or intersection) beyond the proposed lot frontage and the Final Plat has been recorded.

Driveways and driveway pipe shall be installed in accordance with the issued driveway permit. The Developer shall be responsible to have all drive pipe previously installed in the subdivision in good condition for final acceptance of the roads, even though the drive pipes may have been installed by the home owners or their contractors.

All drive locations shall meet State of Ohio, Department of Transportation *Location and Design Manual* Stopping Sight Distance criteria.

SECTION 4.07 PRIVATE STREETS.

Private street rights-of-way and pavement, which must be approved by the Clinton County Regional Planning Commission, shall be constructed in conformity with the minimum street specifications prescribed in *The Subdivision Regulations for Clinton County, OH* and as set forth these *Construction Specifications for Local or Residential Streets*, except as otherwise recommended by the Board of County Commissioners.

At or near the entrance to each private street on a dedicated public street, the Developer or the private organization shall maintain a signpost carrying a sign, having an area of at least 15-inches by 21-inches, on which is printed and clearly legible in at least 2-inch letters the name of the private street and the words "PRIVATE STREET" and, in at least 1-inch letters, the words "NOT DEDICATED FOR PUBLIC USE OR MAINTAINED BY THE PUBLIC". The material on the sign shall be arranged substantially as follows:

(NAME OF STREET)
PRIVATE STREET
NOT DEDICATED FOR PUBLIC USE OR MAINTAINED BY THE PUBLIC

Private streets shall be maintained by the owners of contiguous or adjacent property, or by the private organizations, so that fire, police, health, school, or sanitation vehicles and public utility vehicles have adequate access and shall include an adequate turning area.

SECTION 4.08 DESIGN REFERENCES.

State of Ohio, Department of Transportation, *Construction and Material Specifications*, most recent edition.

State of Ohio, Department of Transportation, *Location and Design Manual, Volumes I, II, and III.*

State of Ohio, Department of Transportation, *Bureau of Location and Design, Standard Construction Drawings.*

Ohio Manual of Uniform Traffic Control Devices.

Ohio Manual of Traffic Control for Construction and Maintenance Operations.

Clinton County Subdivision Regulations.

ARTICLE 5

Drainage Design Standards

SECTION 5.01 STORMWATER RUNOFF POLICY.

In addition to the specifications provided herein, all drainage designs shall meet all of the Clinton County Soil & Water Conservation District specifications and requirements.

This runoff control policy applies to all land developments not specifically exempted below.

SECTION 5.02 GENERAL DRAINAGE CONCEPTS.

The design principles set forth herein emphasize control of stormwater on-site, through the use of retention, detention, storage, and other measures. Application of control measures on the individual development level are expected to have beneficial downstream effects by increasing infiltration, and reducing both peak runoff and total short term runoff, and to reduce erosion and flooding on-site and downstream.

SECTION 5.03 DRAINAGE DESIGN.

The Engineer planning a subdivision must consider the following four factors to properly address the drainage both within, and adjacent to, the proposed subdivision: the internal collection system, major drainage ways, storage and maintenance responsibility.

A. Collection System

The stormwater collection system consists of those elements that collect storm runoff at the points where initial flow originates. The preliminary lot layout and the drainage plan shall be developed concurrently, utilizing existing drainage patterns in conjunction with the planned collection system, such that the two systems function as a complete and effective method to intercept and transport storm runoff to existing waterways and streams.

B. Major Drainageways

Since it is not economically feasible to size the storm sewer system, culverts, and open channels to accommodate more than the design storm, the plat shall be designed to provide a route in which to convey the excess runoff from a larger storm. The street rights-of-way and side or rear lot lines are acceptable locations to route the excess runoff.

C. Storage Locations

The designer shall investigate the capacity of the downstream drainage facilities to determine if they will be adequate to handle the design flow from this particular subdivision. If the downstream facilities are inadequate, it may be necessary to provide on-site retention / detention basins to limit the flow to an amount which the downstream system can accept.

When required, proposed storm runoff storage locations shall be shown on the construction plans. Information shall be presented defining the area, storage capacity, temporary and permanent uses, and ultimate ownership, including maintenance responsibility.

D. Maintenance Responsibilities

It is strongly suggested that all drainage facilities within a development be enrolled in the Ditch Maintenance program as administered by the Clinton County Soil and Water District.

SECTION 5.04 PRELIMINARY PLANS.

The preliminary map as submitted to the Clinton County Regional Planning Commission shall include the following items in addition to any items required by the *Clinton County Subdivision Regulations*:

- 1) Preliminary locations for all culverts,
- 2) Preliminary type and size for all culverts,
- 3) Any proposed changes in topography,
- 4) Boundaries of all drainage areas tributary to the project site and a minimum of 1000 feet downstream beyond the limits of the project site,
- 5) The limits of the 100-yr flood plain per the current FEMA FIRM or a statement indicating that no flood plain exists on the project site,
- 6) An indication of any known underground field tile systems or County Maintenance Ditches as provided by the Clinton County Soil & Water Conservation District or a statement that no such systems are known to exist on the project site.

SECTION 5.05 DESIGN CRITERIA.

A. Hydrologic Design

1. Design flows shall be computed using *Urban Hydrology for Small Watersheds (Technical Release No. 55)* published by the United States Department of Agriculture, Soil Conservation Service, Engineering Division. The TR-55 methodology shall be used for all retention / detention calculations.
2. For small drainage areas, (usually less than 5 acres) the Rational Formula ($Q=CiA$) may be utilized.

Where Q = Runoff in cubic feet per second
 C = Runoff coefficient
 i = Rainfall intensity, in inches per hour
 A = Watershed area in acres.

Values for "C" shall be determined by the design engineer, however, the minimum values for "C" shall be:

- Single family residential – 0.40
- Multi-family residential – 0.60
- Commercial and industrial - 0.90

Values for "i" can be obtained from utilizing the Steele formula:

$$i = K / (Tc + b)$$

Where Tc = Time of Concentration (TR-55 worksheet 3 or *ODOT Location and Design Manual, Volume II* Figure 1101-1), and

Storm Frequency (years)	"K"	"b"
2	106	17
5	131	19
10	170	23
25	230	30
50	250	27
100	290	31

B. Hydraulic Design

1. Bridges (as defined by ODOT) shall be designed such that the structure clears the water surface profile for a 25-yr storm and the water surface profile shall not exceed the nearest edge-of-pavement elevation for a 50-year storm.
2. Culverts shall be designed such that the headwater from a 25-yr storm shall not exceed the nearest edge-of-pavement elevation and shall not create headwater conditions off-site which are higher than pre-developed conditions for any design storm.
3. Closed storm sewer systems shall be designed to carry a 10-year storm under free-flow (non-pressure) conditions.
4. Side ditches shall be designed such that the water surface profile from a 10-yr storm shall not exceed either the edge-of-pavement or the backslope elevation.
5. Drive pipes shall be designed such that the headwater elevation resulting from a 5-yr storm does not exceed the nearest edge-of-pavement or backslope elevation.
6. Within a subdivision with curb and gutter, catch basins shall be spaced so that the width of flow will not exceed 6-feet for a 2-year recurrence interval. The maximum spacing for catch basins shall not exceed 400-feet.

C. Structural Design

1. Waterways. All waterways enrolled in the Ditch Maintenance program shall be designed to Clinton County Soil & Water Conservation District specifications. All other constructed waterways shall be designed to meet the following:
 - a. The minimum bottom width of constructed waterways shall be 2'-0"
 - b. Side slopes shall be 4H:1V or flatter to accept proper bank stabilization.
 - c. The top bank shall be graded to direct surface flow to points where rock chutes or other erosion control measures are constructed.
 - d. Ditch velocities should be calculated and erosion protection shall be per the following chart:

ALLOWABLE DITCH VELOCITIES			
(Ft. per Sec.)			
Soil Type	Seed Lining	Sod Lining	Jute Matting
Sand	1.5	3.5	3.0
Firm Loam	2.0	4.0	4.0
Clay	2.5	5.0	4.0
Gravel	3.5	6.0	5.0
Weathering Shale	4.5	6.0	5.0

2. Storm manholes and inlets and catch basins shall meet State of Ohio, Department of Transportation standards. Manholes, catch basins, or inlets shall be required at all changes in grade, alignment, and at intervals of not greater than 400-feet.
3. Outlet protection shall be provided for all storm sewer outlets and culverts if velocities exceed the maximum allowable, as set forth in the *Ohio Department of Transportation, Location and Design Manual, Volume II*, Figure 1107-1.
4. Structures having greater than a 60-inch diameter or span, or having a depth of bury greater than 8-feet shall be reinforced concrete.

D. Stormwater Runoff Control Criteria for Retention / Detention Basins

Land uses and developments which increase the runoff rate and / or volume shall be required to control the discharge rate of runoff prior to its release to its off-site outlet per Clinton County Soil & Water Conservation District specifications.

The storage indication method shall be used to analyze the detention / retention pond design response to inflow from each design storm.

SECTION 5.06 REQUIRED CALCULATIONS.

The calculations shall include sufficient data for the County Engineer to completely review the drainage system as proposed by the Developer. The following data shall be provided:

- A. Hydrologic Calculations (At all critical points within the subdivision including but not limited to all locations where surface water enters or leaves the subdivision):
 - 1. Tributary drainage areas delineated on a map.
 - 2. Times of concentrations.
 - 3. Runoff coefficients / CN numbers / Intensity.
 - 4. Design flow.

- B. Hydraulic Calculations
 - 1. Bridge and culvert calculations should include headwater calculations (inlet / outlet control) and outlet velocities. Account for tailwater effects as applicable.
 - a. Designer shall provide a table for all culverts. See example table in Appendix "B".
 - 2. Ditch capacity and velocity calculations including extent and type of erosion control required.
 - 3. Depth of ponding at catch basin grates.
 - 4. Capacity of pavement gutters.
 - 5. Drive pipe calculations should include headwater calculations (inlet / outlet control) and outlet velocities. Account for tailwater effects as applicable.
 - a. Designer shall provide a table for all driveway pipes. See example table in Appendix "B".

- C. Drainage Area Maps
 - 1. A pre-development drainage area map showing the boundaries of all drainage areas tributary to the project site and a minimum of 1000 feet downstream beyond the limits of the project site.
 - 2. A post-development drainage area map showing the boundaries of all drainage areas tributary to all ditches, swales, catch basins and culverts located within the project site and a minimum of 1000 feet downstream beyond the limits of the project site.

SECTION 5.07 CONSTRUCTION PLANS.

The construction plans shall include and shall have appended to it sufficient data for the County Engineer to completely review the drainage system as proposed by the Developer. The following data shall be provided:

- A. Plan Details
 - 1. Sizes and types of drainage improvements, including special structures, typical sections, right-of-way widths and fencing.
 - 2. Sufficient contours and grading details to indicate proposed street grades and elevations throughout the subdivision.

3. Detailed drawings of all bridges, headwalls, catch basins, manholes and other stormwater structures shall be provided. Where possible, standard State of Ohio, Department of Transportation structures shall be used and the State of Ohio, Department of Transportation *Standard Construction Drawings* shall be referenced.
4. The plan, profile and cross sections (or typical section as applicable) of all drainage ways shall be provided.
5. Plan sheet showing all existing contour lines and proposed contour lines within the project limits.

Construction plans for drainage shall be approved by the County Engineer prior to construction of any drainage facilities within the subdivision.

SECTION 5.08 MISCELLANEOUS DESIGN CRITERIA.

The 24-hour total rainfall (SCS method) for Clinton County is as follows:

Recurrence Interval (years)	24-Hour Rainfall Total (inches)
1-year	2.5
2-year	2.8
5-year	3.5
10-year	4.0
25-year	4.6
50-year	5.0
100-year	5.4

SECTION 5.09 DESIGN REFERENCES.

State of Ohio, Department of Transportation, Construction and Material Specifications, most recent edition.

State of Ohio, Department of Transportation, Location and Design Manual, Volumes I, II, and III.

State of Ohio, Department of Transportation, Bureau of Location and Design, Standard Construction Drawings.

Clinton County Soil and Water Conservation District, Clinton County Water Management and Sediment Control Regulations

United States Department of Agriculture, Soil Conservation Service Engineering Division, Technical Release 55, Urban Hydrology for Small Watersheds

ARTICLE 6

Miscellaneous Design Standards

SECTION 6.01 GUARDRAIL.

Guardrail shall be installed where required by and in accordance with current State of Ohio, Department of Transportation specifications where hazards or slopes within the clear zone warrant.

The minimum acceptable width between the faces of the guardrail is 24-feet for a two-lane roadway. Additional width between the faces of guardrail shall be required where additional roadway lanes exist or are required.

SECTION 6.02 UTILITIES.

No utilities shall be installed within the right-of-way or utility easement without a utility permit from the Clinton County Engineer's Office.

A 15-foot utility easement shall be required to run parallel to and adjoining the right-of-way of all dedicated roadways. Around cul-de-sacs, the utility easement shall be increased to 25-feet.

Utilities running parallel to the roadway shall be installed within a utility easement outside of the right-of-way. Crossings shall require a permit.

Crossover conduits shall be installed prior to approval of the roadway sub-grade. If not installed prior to this time, crossovers shall be required to be bored.

The Developer shall submit a utility design plan as part of the construction plans for all utilities that are designed by the design engineer. Plan shall show proposed locations of all lines, connections, crossovers, boxes, etc.

SECTION 6.03 SIGNING & TRAFFIC CONTROL.

All roadway and construction signing shall be designed and constructed in accordance with *Ohio Manual of Uniform Traffic Control Devices (OMUTCD)*, most current edition.

All permanent signing shall be installed immediately upon placement of stone base. The Developer shall be liable for all accidents resulting from the absence of such signage. The Developer shall be responsible to construct and maintain all signing (permanent and construction) until such time as the Board of Clinton County Commissioners accepts the development for maintenance. Exact placement of permanent signing is to be field determined by the Clinton County Engineer's Office.

All permanent signing shall be shown on the construction plans.

All construction and/or detour signage required on existing roadways shall be shown on the construction plans and shall be approved by the Clinton County Engineer's Office.

Stop signs, warning signs, and regulatory signs shall, at a minimum, be a Type VIII. See Standard Drawing in Appendix "A".

Road name signs shall be green, Type II (or greater) material with white reflective letters. Sign shall display road name, road type, and road number (to be assigned by County Engineer). See Standard Drawing in Appendix "A".

Any proposed pavement markings shall be shown on the plans and shall be the responsibility of the Developer. Markings shall be designed and constructed in accordance with the O.M.U.T.C.D. and shall be polyester based materials in accordance with the materials specifications of the State of Ohio, Department of Transportation *Construction and Material Specifications*, latest edition (Item 643 in 2008 edition).

Any damage to existing pavement markings shall be repaired by the Developer.

SECTION 6.04 MAILBOXES.

Mailboxes shall be installed in accordance with the "Clinton County Mailbox Construction and Installation Guidelines" as published by the Clinton County Engineer's Office.

SECTION 6.05 DESIGN REFERENCES.

State of Ohio, Department of Transportation, Construction and Material Specifications, most recent edition.

State of Ohio, Department of Transportation, Location and Design Manual, Volumes I, II, and III.

State of Ohio, Department of Transportation, Bureau of Location and Design, Standard Construction Drawings.

Ohio Manual of Uniform Traffic Control Devices.

Ohio Manual of Traffic Control for Construction and Maintenance Operations.

Clinton County Mailbox Construction and Installation Guidelines

ARTICLE 7

Construction Methods and Inspection

SECTION 7.01 PRECONSTRUCTION MEETING.

A preconstruction meeting shall be scheduled by the Clinton County Engineer's Office prior to the start of construction. The Developer, the Contractor, the Designer, representatives of any affected utilities, a representative of the Clinton County Soil & Water Conservation District, the Township Trustees of the township where the project is located, a representative of the Clinton County Engineer's Office, and other persons as dictated by the project should be in attendance. No work shall commence on the project prior to this meeting.

SECTION 7.02 NOTIFICATION.

The County Engineer, the Township Trustees of the township where the project is located, or other persons having jurisdiction shall be notified at least 48 hours in advance of the start of construction, and no work shall be started without the permission of any federal, state, or local regulatory agencies having jurisdiction.

Improvements may be installed prior to Final Plat approval, but only after submission and approval of construction drawings and any required bonds, and after inspection fees have been paid.

SECTION 7.03 INSPECTIONS.

The County Engineer, shall be notified at least 48 hours in advance of any required inspections.

The Developer or his contractor shall notify the County Engineer prior to starting construction on each individual phase of the project (excavation, storm sewers, street base, etc.).

If the required inspection procedure is not followed the County Engineer may require that the streets be cored (at the expense of the Developer), or removal of uninspected work to verify adherence to the plans, specifications, and regulations.

SECTION 7.04 TESTING METHODS.

Clinton County reserves the right to require, at the Developer's expense, any commonly used standard methods of testing to determine the suitability of materials proposed for incorporation into the work or to determine acceptance of construction methods or finished construction.

The County Engineer will determine the amount of inspection and testing required to assure that the Developer and his contractors will comply with the specifications and approved drawings.

The Contractor shall complete sections of roadway full-width prior to calling for inspection. Incomplete construction will not be given an inspection.

-
- A. With respect to subgrade compaction, the Contractor will be required to compact the subgrade and furnish a 15-ton load (minimum) on a tandem axle dump truck for proof rolling prior to acceptance. Subgrade will be deemed acceptable when the subgrade does not exhibit excessive deflections, rutting, cracking, etc. during the proof roll. No base material shall be placed until the subgrade has been approved and logged.
 - B. With respect to stone compaction, the Contractor will be required to compact the stone and may be required to furnish a 15-ton load (minimum) on a tandem axle dump truck for proof rolling at the discretion of the County Engineer prior to acceptance. No pavement course shall be placed until the stone has been approved and logged.

SECTION 7.05 LAYOUT STAKES.

The Developer shall be required to place and maintain grade stakes at 50-foot intervals along tangents and at 25-foot intervals along horizontal and vertical curves. Stakes shall be placed on even stations located at a 3-foot (or other clearly-marked) offset to the proposed edge-of-pavement and shall be clearly marked with station and centerline grade.

Stakes left over a freeze-thaw cycle or which have been torn out shall be checked / reset by the layout surveyor to ensure their accuracy prior to using them for construction activities.

Construction layout stakes relative to the item scheduled for inspection shall be complete and in place prior to requesting an inspection by the County.

SECTION 7.06 MATERIALS.

All materials shall at a minimum meet State of Ohio, Department of Transportation material and supplier specifications unless otherwise approved or altered by these specifications.

The contractor shall provide a list of material suppliers to the Clinton County Engineer's Office at the pre-construction meeting.

SECTION 7.07 SAFETY REQUIREMENTS.

The Contractor shall be solely responsible for all federal, state, and local safety requirements, together with exercising precautions at all times for the protection of persons (including employees) and property. It is also solely the responsibility of the Contractor to initiate, maintain, and supervise all safety requirements and programs in connection with the work.

SECTION 7.08 CONSTRUCTION METHODS.

- A. The subgrade shall be graded and shaped as shown on the approved profile drawings and typical cross section included with these specifications for the type of road being built. The subgrade shall be compacted in accordance with the State of

Ohio, Department of Transportation *Construction and Materials Specifications*, latest edition. All boulders, organic material, soft clay, spongy material, and any other objectionable material shall be removed and replaced with material suitable for compaction.

Final subgrade shall not vary more than three-quarters ($\frac{3}{4}$) of an inch from the plan grades for cross sections utilizing stone base. Final sub grade shall not vary more than one-half ($\frac{1}{2}$) inch from the plan grades for cross section utilizing full-depth pavement.

Backfills and bedding for storm sewers, culverts and underground utilities shall be compacted by vibratory or mechanical tamping in 6-inch layers as specified by the Standard Trench details.

Subgrade stabilization methods shall conform to acceptable standard construction practices and State of Ohio, Department of Transportation *Construction and Materials Specifications*, latest edition.

Where site conditions warrant, the County Engineer may require that under-drains be installed.

- B. The stone base shall be constructed on a prepared and approved subgrade in accordance with these specifications and in conformity with the lines, grades, and typical cross-sections as shown on the accepted drawings.

Material shall be deposited in two (2), five (5) inch (maximum) lifts. The material shall consist of crushed limestone aggregate material or crushed gravel in accordance with the State of Ohio, Department of Transportation *Construction and Material Specifications*, latest edition (Item 304 in 2008 edition). The second lift may be final graded with not more than two (2) inches of material consisting of crushed limestone aggregate material or crushed gravel in accordance with State of Ohio, Department of Transportation *Construction and Material Specifications*, latest edition (Item 411 in 2008 edition).

Final stone grade shall not vary more than one-half ($\frac{1}{2}$) inch from the plan grades.

Immediately following final spreading and smoothing of each lift, all material placed shall be compacted to the full width by rolling with a smooth wheel power roller weighing a minimum of ten (10) tons. Any irregularities or depressions that develop under such rolling shall be corrected by loosening the material at these places and adding or removing material until the surface is smooth and uniform. Blading and rolling shall be performed alternately as required to maintain a uniform compacted base. Along curbs and walls and at all places not accessible to the roller, the base course material shall be tamped thoroughly with mechanical or hand tampers.

The base course material shall not be deposited or shaped on a frozen or thawing subgrade or during unfavorable weather conditions.

- C. The base shall be free of all mud and foreign matter and shall be thoroughly dry before any bituminous material is applied. Bituminous materials for the prime coat shall be applied uniformly at the rate specified. Traffic shall not be permitted on the primed base until the bitumen has penetrated, dried, and will not pick up under traffic.

Primed base shall be left to cure for a minimum of twenty-four (24) hours prior to placing any asphalt course.

- D. Asphalt material shall only be placed when the weather conditions are in accordance with current ODOT *Construction and Materials Specifications*, latest edition.

A job mix formula shall be submitted to the Clinton County Engineer's office at the pre-construction meeting.

Asphalt courses shall be staggered four (4) to six (6) inches with the joint of the final course being at the plan centerline.

Trucks transporting asphalt material shall be tarped at all times.

Rolling equipment and methods shall conform to ODOT *Construction and Material Specifications*, latest edition.

The Developer shall provide the Clinton County Engineer with original copies of the delivery tickets for all asphalt material placed.

- E. The surface course shown on the standard typical sections shall not be placed on any street until a minimum of 12 months have elapsed after construction of the base / intermediate / leveling course. Prior to placement of the surface course, the County Engineer shall inspect the base / intermediate / leveling course and shall require repairs where needed.

The joint of the final course shall be at the plan centerline.

- F. Bridge and special drainage structures shall be constructed in accordance with the construction drawings approved by the County Engineer. Placing of concrete, compaction of backfill and all other work shall be in accordance with the State of Ohio, Department of Transportation *Construction and Material Specifications*, latest edition.

- G. All materials and workmanship for the construction of culverts, storm sewers and appurtenances shall be as shown on the approved construction plans and shall be in accordance with State of Ohio, Department of Transportation *Construction and Material Specifications*, latest edition.

All storm sewer materials are to be secured from approved sources.

The laying of pipes in finished trenches shall be commenced at the lowest point, and shall be laid so that the spigot ends point in the direction of flow (bell upstream).

All joints in storm sewer shall be soil-tight. Reinforced concrete pipe shall either be furnished with a gasket or shall have bituminous pipe joint filler in accordance with State of Ohio, Department of Transportation *Construction and Materials Specifications*, latest edition, applied to both the bell and spigot prior to the spigot being placed in the bell.

No construction equipment shall be permitted to pass over the pipe until the trench has been backfilled to a height as specified in the State of Ohio, Department of Transportation *Construction and Material Specifications* (Item 603 in the 2008 edition).

The backfilling of the trench shall be carried on simultaneously on both sides of the pipes in such a manner that excessive side pressures do not occur. Care shall be taken to ensure installation in accordance with the manufacturer's recommendations. Excessive deflections in either line, grade, or shape shall considered as reason for removal and replacement.

- H. Storm sewer manholes and catch basins and all necessary appurtenances shall conform with the details as shown on the accepted drawings and shall be in accordance with State of Ohio, Department of Transportation *Construction and Material Specifications*, latest edition.

Excavation for storm sewer manholes and catch basins shall be made to the required depth and the base upon which the manhole or catch basin is to be constructed shall be compacted to a firm even surface.

Where manufactured joints are not provided, pre-cast catch basin or manhole top slab sections shall be set on full mortar beds in order to form a soil-tight connection.

Prefabricated manholes and catch basins are encouraged. Masonry and brick catch basins, inlets, and manholes are permitted when constructed in accordance with State of Ohio, Department of Transportation *Construction and Materials Specifications*, latest edition.

- I. All construction of underground utilities, including utility pipe, conduit, cable, wires, vaults, and pertinent equipment shall comply with the current regulations of the Public Utilities Commission of Ohio and with the requirements of the public utility involved. No installation of utilities shall commence within the right-of-way or parallel utility easement until a permit has been issued by the Clinton County Engineer's Office. All location and detail drawings of the utilities prepared by the Developer and or the

utilities companies shall be submitted to the County Engineer for approval. All trenches shall conform to the standard details provided in Appendix "A".

- J. Guardrail posts shall be driven or placed in holes, plumbed, and backfilled in lifts thoroughly compacted. The minimum depth of bury for the posts shall be three feet, five inches (3'-5") per State of Ohio Department of Transportation *Standard Construction Drawings*, latest edition.

The tops of the guardrail posts shall be treated with an approved water sealer.

- K. Sign locations shall be field approved by the Clinton County Engineer's Office prior to installation of the sign. Sign posts shall not be set in concrete.

All construction and maintenance of traffic signs required for the safety of the driving public shall be provided by the Developer and shall conform to the *Ohio Manual for Uniform Traffic Control Devices*, latest edition. Concurrence with the County Engineer as to specific sign requirements, size, spacing, etc. is necessary prior to installation. Permanent signs, (specifically stop signs) shall be installed as soon as the stone base is placed.

- L. Damage to existing roadway along the frontage or adjacent work limits of the Development caused by the Contractor's activities, shall be the responsibility of the Developer. Where designated by the Clinton County Engineer, haul routes shall be utilized to transport materials and equipment to the project.

ARTICLE 8

Fees

SECTION 8.01 FEES.

The Developer shall be required to cover the cost of review and inspections according to the following schedule. Fees are to be submitted to the Clinton County Engineer's Office prior to any review or inspection work being performed by the Clinton County Engineer's Office. No review comments will be provided to the Clinton County Regional Planning Commission or the Clinton County Building Department until required fees have been paid. The Development will not be recommended for acceptance until all required fees have been paid.

- | | |
|--|------------------------------------|
| A. Preliminary Plat Review (Line, Grade, Typical) | \$20.⁰⁰ per lot |
| B. Construction Plan Review / Construction Inspection | \$180.⁰⁰ per lot |
| 1. Includes an initial review / inspection with comments and a subsequent review of revisions / repairs required as part of the initial review / inspection. Fee covers the following items: | |
| a. Construction Plan review; | |
| b. Final Plat review; | |
| c. Sub-grade Proof-roll and Logging; | |
| d. Stone Proof-roll and Logging; | |
| e. 1-yr Pavement Punch List; and, | |
| f. Final Punch List. | |
| C. Special Structures (Bridges, Dams, Retaining Walls, etc.) | Actual Cost |
| D. Fees for additional Reviews / Inspections: | |
| 1. Construction Plan Review | \$50.⁰⁰ per lot |
| 2. Final Plat | \$10.⁰⁰ per lot |
| 3. Sub-grade Proof-roll & Logging | \$20.⁰⁰ per lot |
| 4. Stone Proof-roll & Logging | \$15.⁰⁰ per lot |
| 5. 1-yr Pavement Punch List | \$10.⁰⁰ per lot |
| 6. Final Punch List | \$40.⁰⁰ per lot |
| 7. Outside Consultants | Actual Cost + 15% |

In accordance with the Clinton County Zoning Resolution, certain types of Developments may require a site plan review. The following fees apply in addition to fees that may or may not be required above. Fees are to be submitted prior to any review or inspection work being performed by the Clinton County Engineer's Office. No review comments will be provided to the Clinton County Regional Planning Commission or the Clinton County Building Department until required fees have been paid.

- A. Site Plan Review **\$250.⁰⁰ per ac.**
 - 1. Fee not to exceed \$5000.⁰⁰. Site Plan Reviews as required by Clinton County Zoning Resolution for all Developments other than single-family residential. Includes an initial review with comments and a subsequent review of revisions required as part of the initial review.

- B. Special Structures (Bridges, Dams, Retaining Walls, etc.) **Actual Cost**

- C. Fees for additional Reviews / Inspections:
 - 1. Outside Consultants **Actual Cost + 15**

APPENDIX A

Standard Details

TS-1: Typical Section, Stone Base, No Curb

TS-2: Typical Section, Full Depth Asphalt, No Curb

TS-3: Typical Section, Stone Base, Curb and Gutter

TS-4: Typical Section, Full Depth Asphalt, Curb and Gutter

SW-1: Sidewalk Detail

UT-1: Standard Utility Trench Under New Pavement

UT-2: Standard Utility Trench Under Existing Pavement

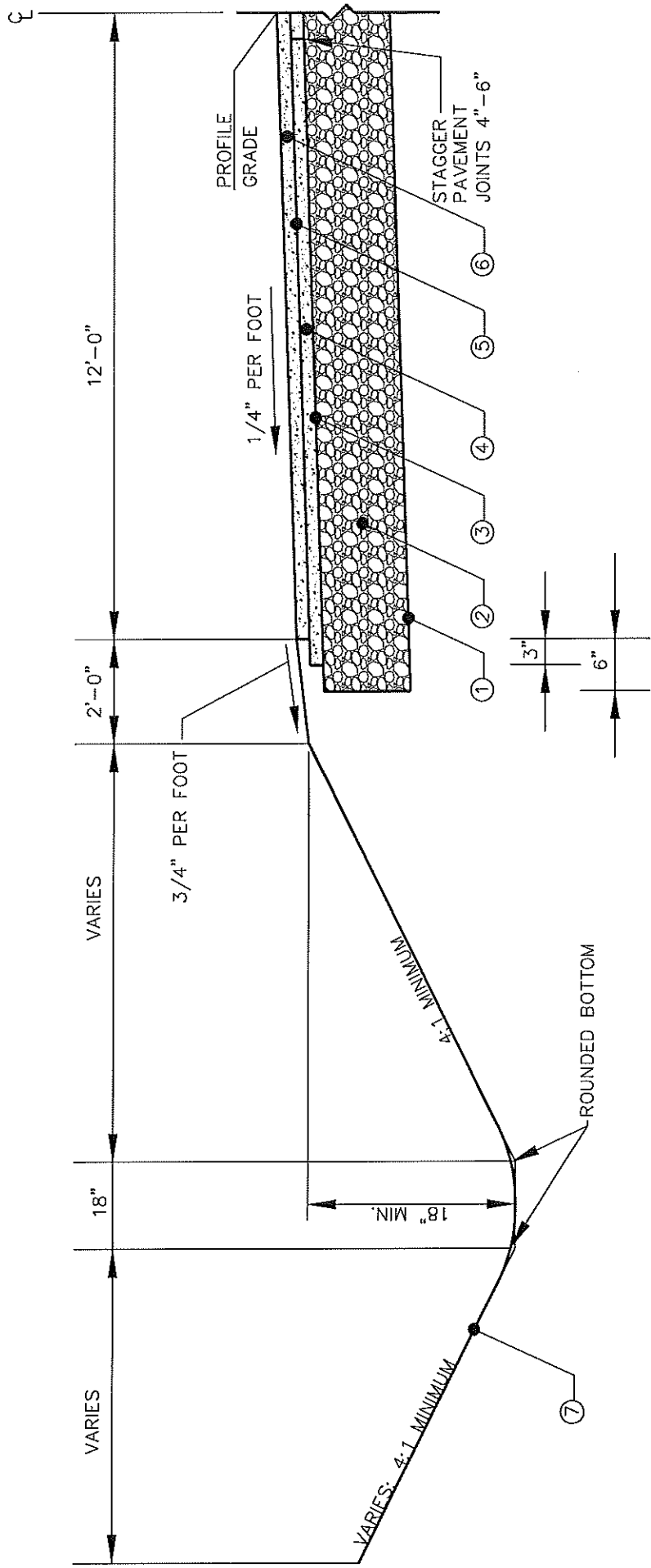
UT-3: Standard Utility Trench More than 5-Feet from Pavement

T-1: Standard Trench Under Pavement (New Construction)

T-2: Standard Trench Under Pavement (Existing Pavement)

T-3: Standard Trench Outside of Pavement

S-1: Typical Signs

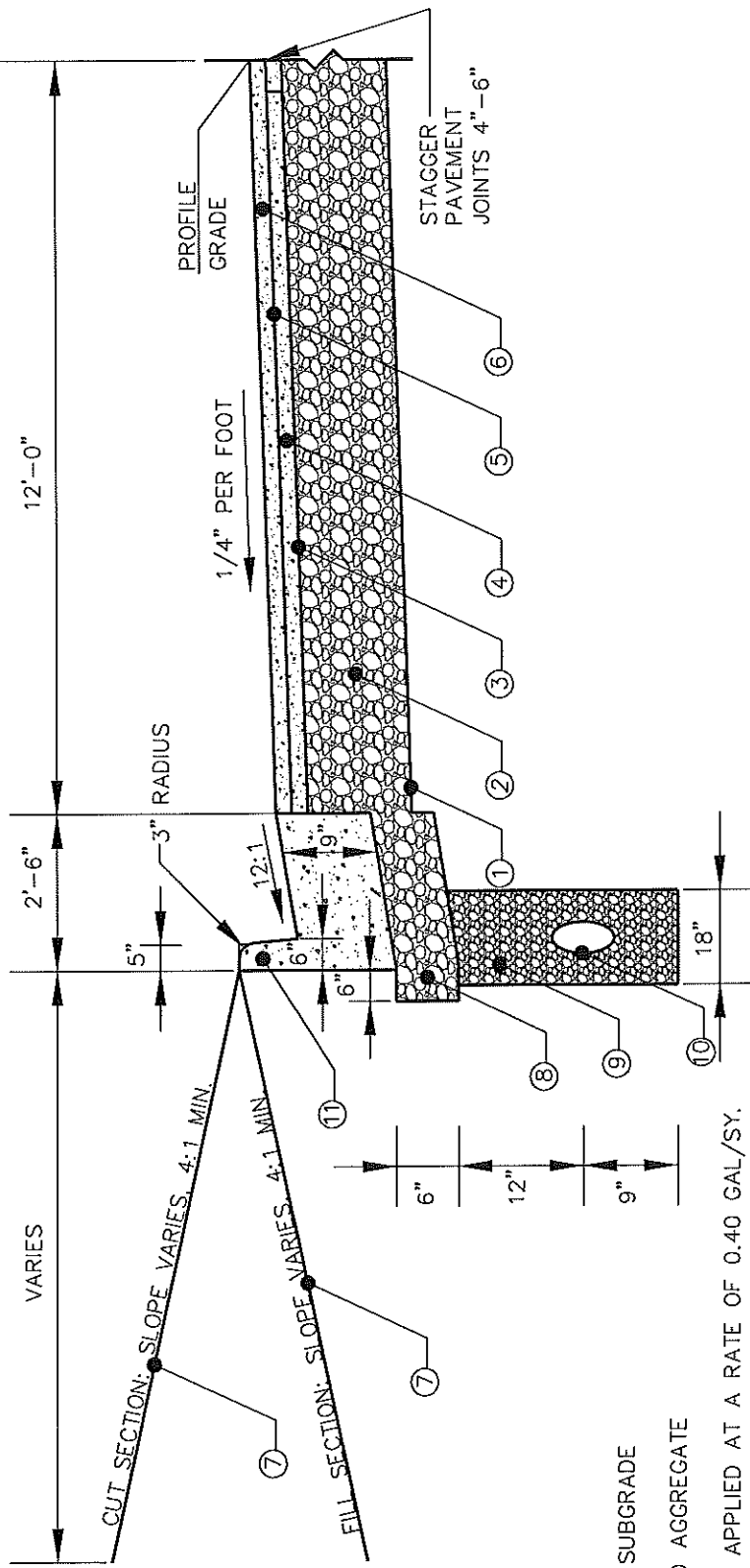


- ① ITEM 204, COMPACTED SUBGRADE
- ② 10" ITEM 304 CRUSHED AGGREGATE
- ③ ITEM 408, PRIME COAT APPLIED AT A RATE OF 0.40 GAL/SY.
- ④ 2" ITEM 448 TYPE 1 ASPHALTIC CONCRETE SURFACE COURSE (MEDIUM GRADATION).
- ⑤ 407 TACK COAT APPLIED AT A RATE OF 0.10 GAL/SY.
- ⑥ 1½" ITEM 448 TYPE 1 ASPHALTIC CONCRETE SURFACE COURSE (MEDIUM GRADATION) (TO BE APPLIED ONE YEAR AFTER FIRST COURSE HAS BEEN PLACED. FOR WIDENING PROJECTS, APPLY IMMEDIATELY).
- ⑦ ITEM 659, MULCH, FERTILIZER, LIME AND SEED.

TS-1
TYPICAL SECTION
STONE BASE, NO CURB

HORIZONTAL SCALE N.T.S.	VERTICAL SCALE N.T.S.	APPROVED JBL <small>DATE</small> N/A	CHECKED AJF <small>DATE</small> N/A
DESIGN IN CHARGE AJF <small>DATE</small> APRIL 09	SUBMITTED IN CHARGE N/A <small>DATE</small> N/A		

CLINTON COUNTY ENGINEER
JEFFREY B. LINKOUS, P.E., P.S.
 1326 FIFE AVENUE
 WILMINGTON, OHIO 45377

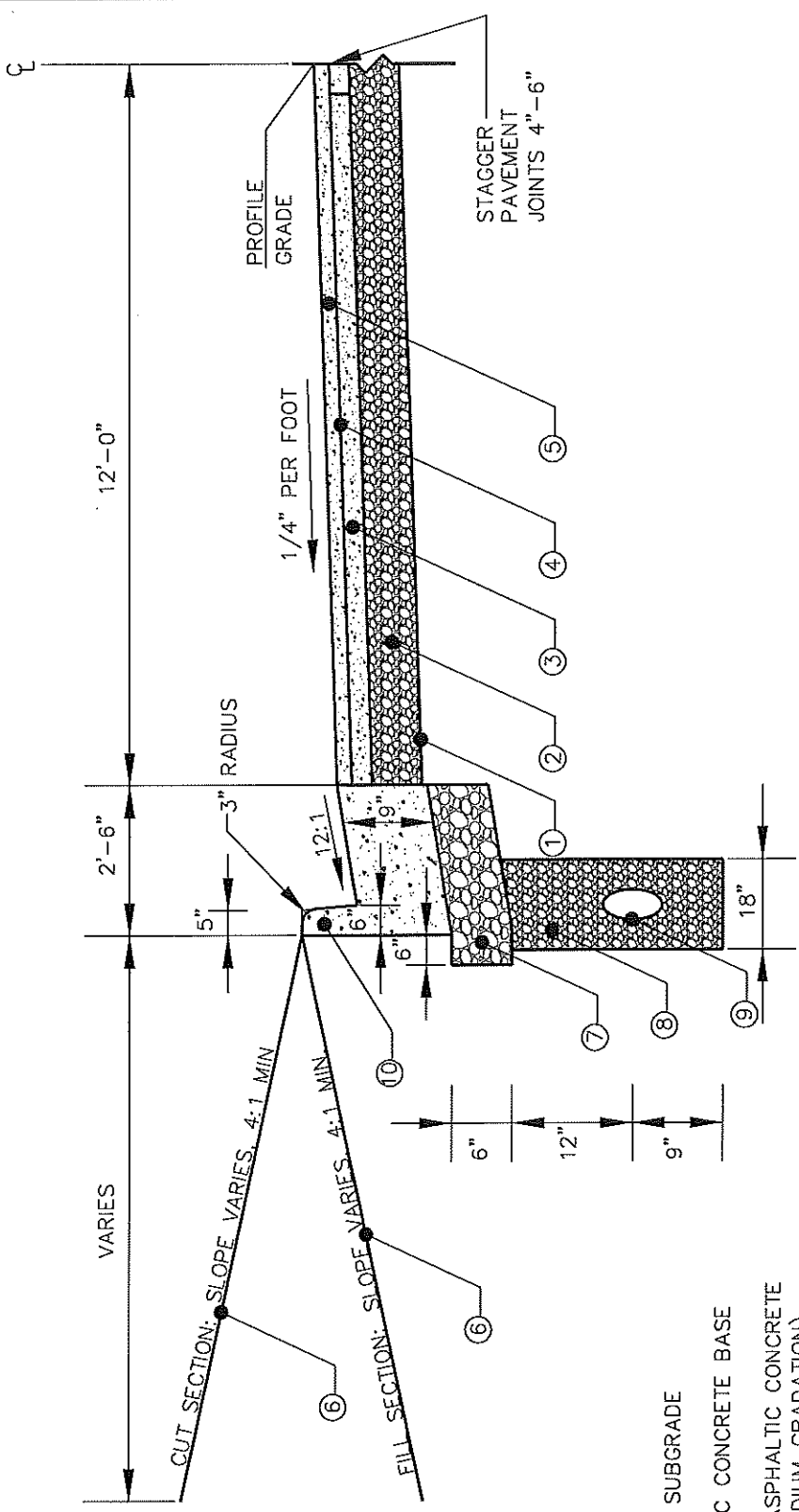


- ① ITEM 204, COMPACTED SUBGRADE
- ② 10" ITEM 304 CRUSHED AGGREGATE
- ③ ITEM 408, PRIME COAT APPLIED AT A RATE OF 0.40 GAL/SY.
- ④ 2" ITEM 448 TYPE 1 ASPHALTIC CONCRETE SURFACE COURSE (MEDIUM GRADATION).
- ⑤ ITEM 407 TACK COAT APPLIED AT A RATE OF 0.10 GAL/SY.
- ⑥ 1½" ITEM 448 TYPE 1 ASPHALTIC CONCRETE SURFACE COURSE (MEDIUM GRADATION) (TO BE APPLIED ONE YEAR AFTER FIRST COURSE HAS BEEN PLACED. FOR WIDENING PROJECTS, APPLY IMMEDIATELY).
- ⑦ ITEM 659, MULCH, FERTILIZER, LIME AND SEED.
- ⑧ 6" ITEM 304 CRUSHED AGGREGATE
- ⑨ No. 57 STONE BEDDING
- ⑩ ITEM 605 6" PERFORATED TILE
- ⑪ ITEM 609 ODOT TYPE 2 COMBINATION CURB AND GUTTER

NOTES:
 DRAINAGE THROUGH THE CURB IS PROHIBITED.
 UNDERDRAIN SHALL BE CONNECTED TO A CATCH BASIN OR TO A NATURAL DRAINAGE WAY IN MANNER APPROVED BY THE COUNTY ENGINEER.

TS-3
TYPICAL SECTION
STONE BASE, CURB AND GUTTER

HORIZONTAL SCALE N.T.S. VERTICAL SCALE N.T.S.	DESIGNED A/JF CHECKED N/A	APPROVED JBL DATE N/A	DRAWN BY A/JF SUBMITTED BY N/A
CLINTON COUNTY ENGINEER JEFFREY B. LINKOUS, P.E., P.S. 4326 FIFE AVENUE WILMINGTON, OHIO 45377			DATE APRIL 09 DATE N/A



- ① ITEM 204, COMPACTED SUBGRADE
- ② 5" ITEM 301 ASPHALTIC CONCRETE BASE
- ③ 2" ITEM 448 TYPE 1 ASPHALTIC CONCRETE SURFACE COURSE (MEDIUM GRADATION).
- ④ 407 TACK COAT APPLIED AT A RATE OF 0.10 GAL/SY.
- ⑤ 1 1/2" ITEM 448 TYPE 1 ASPHALTIC CONCRETE SURFACE COURSE (MEDIUM GRADATION) (TO BE APPLIED ONE YEAR AFTER FIRST COURSE HAS BEEN PLACED. WIDENING PROJECTS, APPLY IMMEDIATELY).
- ⑥ ITEM 659, MULCH, FERTILIZER, LIME AND SEED.
- ⑦ 6" ITEM 304 CRUSHED AGGREGATE
- ⑧ No. 57 STONE BEDDING
- ⑨ ITEM 605 6" PERFORATED TILE
- ⑩ ITEM 609 ODOT TYPE 2 COMBINATION CURB AND GUTTER

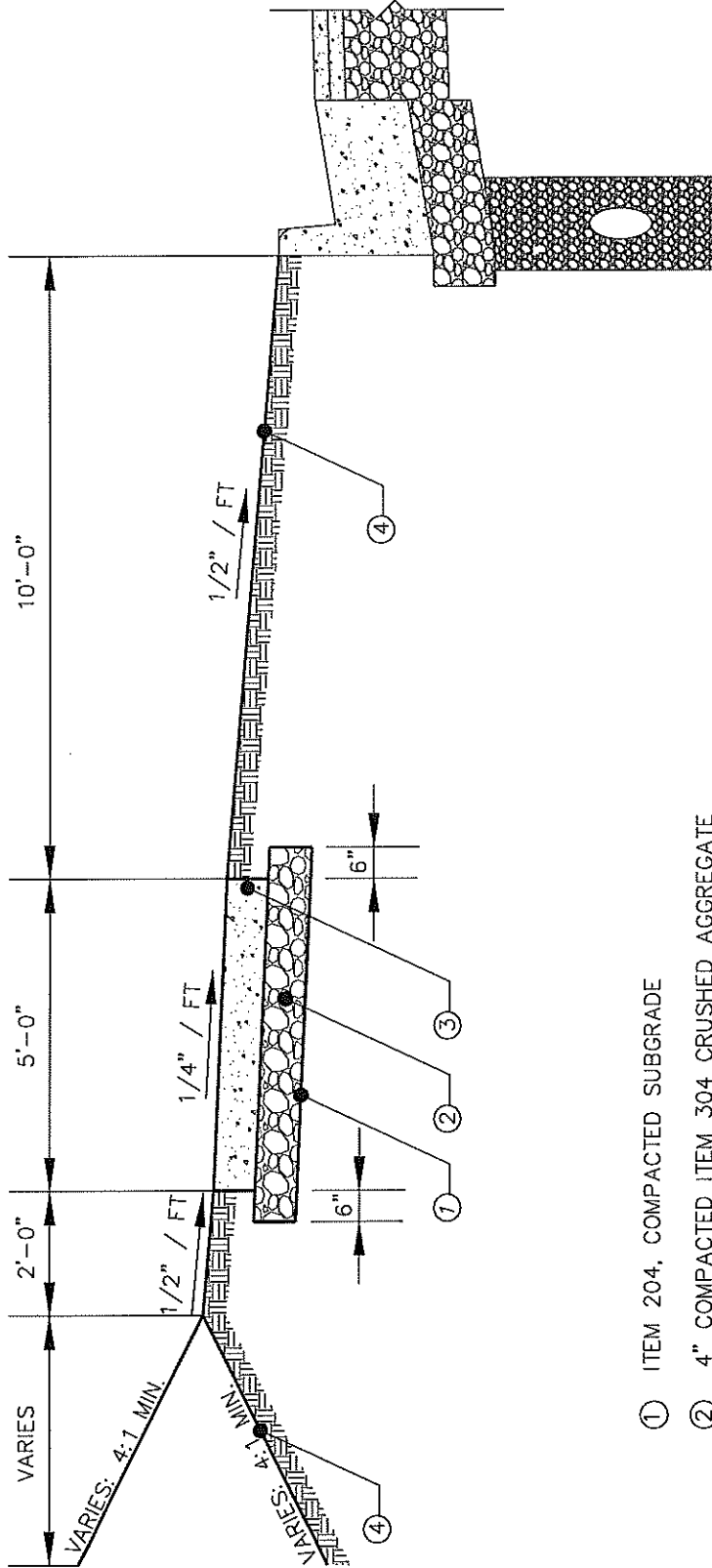
NOTES:
 DRAINAGE THROUGH THE CURB IS PROHIBITED.
 UNDERDRAIN SHALL BE CONNECTED TO A CATCH BASIN OR TO A NATURAL DRAINAGE WAY IN MANNER APPROVED BY THE COUNTY ENGINEER.

TS-4
TYPICAL SECTION
FULL DEPTH ASPHALT BASE, CURB AND GUTTER

CLINTON COUNTY ENGINEER
JEFFREY B. LINKOUS, P.E., P.S.
 1326 FIFE AVENUE
 WILMINGTON, OHIO 45177

DESIGNED BY	DATE	CHECKED BY	DATE
JBL	APRIL 09	AJF	APRIL 09
REVISIONS	DATE	BY	DATE
N/A	N/A	N/A	N/A

1	1
---	---



- ① ITEM 204, COMPACTED SUBGRADE
- ② 4" COMPACTED ITEM 304 CRUSHED AGGREGATE
- ③ 4" ITEM 608 PORTLAND CEMENT SIDEWALK
- ④ ITEM 659, MULCH, FERTILIZE, LIME AND SEED.

NOTES:

1. ALL SIDEWALKS AND RAMPS TO BE CONCRETE, 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
2. ALL CONCRETE TO HAVE 5%-6% AIR ENTRAINMENT, PROVIDED BY:
 - IF READY-MIX, SPECIFY 5% -6% AIR TO SUPPLIER
 - IF JOB MIX, USE BAGS OF AIR-ENTRAINMENT TYPE CEMENT
3. RECOMMEND USE OF MESH REINFORCEMENT, 6x6, 10/10 (21 LB. MESH)
4. ALL SUBGRADE TO BE WELL COMPACTED,
5. PROVIDE BROOM FINISH TO ALL EXPOSED SURFACES. KEEP WORKING OF SURFACES TO ABSOLUTE MINIMUM
6. PROVIDE A MINIMUM OF TWO-INCHES EDGING AROUND ALL EXPOSED SURFACES.
7. PROVIDE CONTROL JOINTS AT FIVE-FOOT INTERVALS, ONE-INCH DEEP WITH A 3/8" RADIUS.

SW-1
SIDEWALK DETAIL



CLINTON COUNTY ENGINEER
 JEFFREY B. LINKOUS, P.E., P.S.
 1326 RIFE AVENUE
 WILMINGTON, OHIO 45177

HORIZONTAL SCALE
 N.T.S.
 VERTICAL SCALE
 N.T.S.

DESIGNED BY
 AJF
 CHECKED BY
 N/A

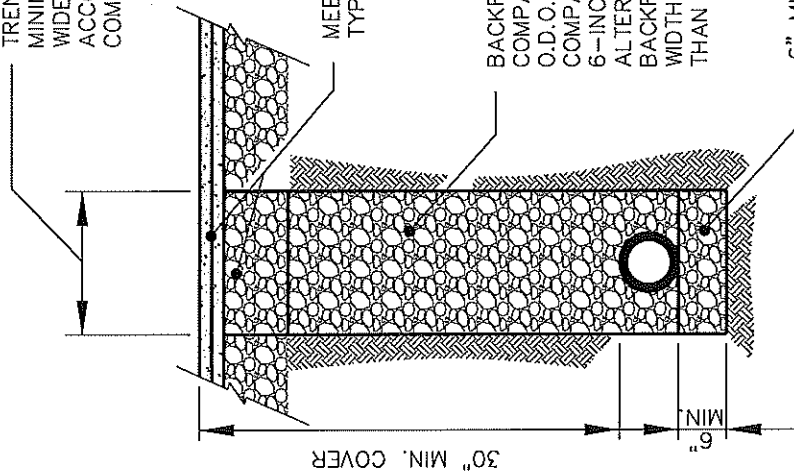
DATE
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NOTES:

1. ALL WORK AND MATERIALS TO BE PER THE LATEST EDITION OF THE O.D.O.T. CONSTRUCTION AND MATERIAL SPECIFICATIONS, UTILITY OWNER REQUIREMENTS, AND PIPE MANUFACTURER'S RECOMMENDATIONS.
2. PIPE UNDER PAVEMENT TO BE HIGHWAY GRADE, NON-PERFORATED. SPECIFIC MATERIALS TO BE REVIEWED AND APPROVED BY THE CLINTON COUNTY ENGINEER'S OFFICE AS PART OF A UTILITY PERMIT REVIEW.
3. COMPACTED GRANULAR MATERIAL SHALL BE USED FOR ALL AREAS OF THE TRENCH LOCATED WITHIN 5' OF THE PAVEMENT. OUTSIDE OF THE PAVEMENT, GRANULAR MATERIAL SHALL BE COVERED WITH APPROX. 6" OF TOPSOIL, GRADED, SEEDED AND MULCHED.
4. ALL SIGNING / FLAGGING FOR TRAFFIC CONTROL DURING CONSTRUCTION TO BE PER LATEST EDITION OF O.M.U.T.C.D.
5. NOTIFY CLINTON COUNTY ENGINEER'S OFFICE 2 DAYS PRIOR TO PIPE INSTALLATION.
6. NO WORK SHALL BE PERFORMED IN ROAD RIGHT-OF-WAY PRIOR TO ISSUANCE OF A RIGHT-OF-WAY PERMIT FROM THE CLINTON COUNTY ENGINEER'S OFFICE. (PERMITS ARE REQUIRED IN NEW SUBDIVISION CONSTRUCTION.)
7. CONTRACTOR SHALL NOTIFY THE OHIO UTILITIES PROTECTION SERVICE AT 1-800-362-2764 (TOLL FREE) AT LEAST 48 HOURS PRIOR TO A EXCAVATION.
8. NO ROAD CLOSURES WILL BE PERMITTED WITHOUT PRIOR APPROVAL BY THE CLINTON COUNTY ENGINEER'S OFFICE AND NOTIFICATION OF CENTRAL DISPATCH, CLINTON CO. SHERIFF'S DEPT., THE LOCAL SCHOOL DISTRICT, THE LOCAL FIRE DISTRICT, THE LOCAL POST OFFICE AND THE BOARD OF M.R./D.D.
9. BACKFILL MATERIALS SHALL BE PER ODOT REQUIREMENTS OR AS SHOWN UNLESS SPECIFIC ALTERNATE MATERIALS ARE APPROVED BY THE CLINTON COUNTY ENGINEER'S OFFICE.
10. BEDDING AND BACKFILL WITHIN 6-INCHES OF THE TOP OF THE UTILITY CONDUIT TO BE AS SHOWN UNLESS SPECIFIC ALTERNATE MATERIALS ARE APPROVED BY THE CLINTON COUNTY ENGINEER'S OFFICE.
11. WHERE NEW ROADS ARE BEING CONSTRUCTED, ALL UTILITIES SHALL BE CONSTRUCTED PRIOR TO ANY PAVEMENT BEING PLACED.
12. NO UTILITY TRENCHES PARALLEL TO THE ROAD WILL BE PERMITTED WITHIN 5- FEET OF THE PAVEMENT.

TRENCH WIDTH TO BE MINIMUM POSSIBLE BUT WIDE ENOUGH TO ACCOMMODATE COMPACTION EQUIPMENT.



BACKFILL MATERIAL TO BE COMPACTED GRANULAR MATERIAL O.D.O.T. ITEM 304 OR 411. COMPACT PER O.D.O.T. ITEM 603 IN 6-INCH MAX. LIFTS. ALTERNATIVELY, #9 GRANULAR BACKFILL MAY BE USED WHERE THE WIDTH OF THE TRENCH IS LESS THAN 12-INCHES.

6" MIN. BEDDING. GRANULAR MAT'L TO BE O.D.O.T. ITEM 304 OR 411 COMPACTED PER O.D.O.T. ITEM 603. WHERE TRENCH WIDTH IS LESS THAN 12-INCHES, #9 GRANULAR MATERIAL MAY BE USED.

**UT-1
STANDARD UTILITY TRENCH
UNDER NEW PAVEMENT**



CLINTON COUNTY ENGINEER
JEFFREY B. LINKOUS, P.E., P.S.
1326 RIFE AVENUE
WILMINGTON, OHIO 45377

REVISIONS
N.T.S.
N.T.S.

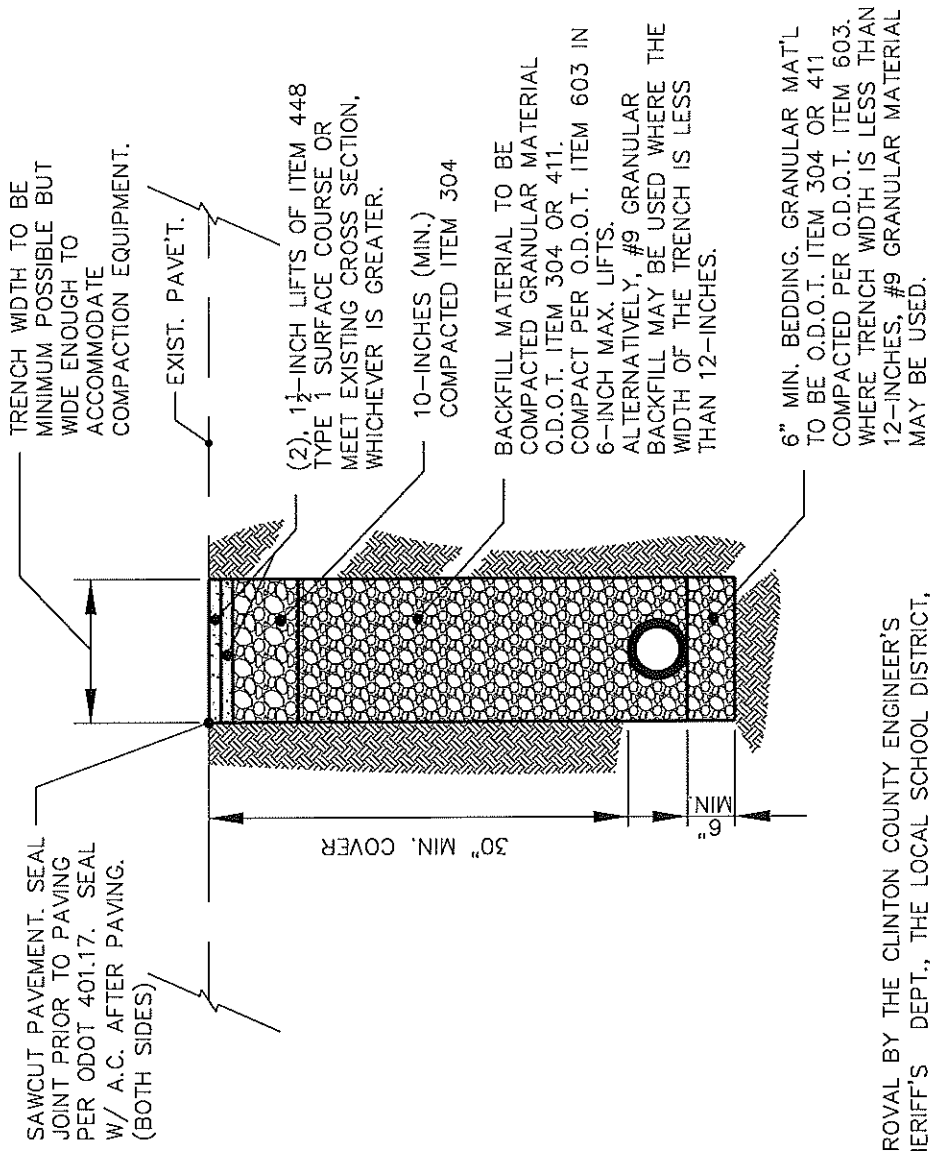
APPROVED
JBL
DATE
N/A

DATE
APRIL 09
DATE
N/A

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11. WHERE NEW ROADS ARE BEING CONSTRUCTED, ALL UTILITIES SHALL BE CONSTRUCTED PRIOR TO ANY PAVEMENT BEING PLACED.
12. NO UTILITY TRENCHES PARALLEL TO THE ROAD WILL BE PERMITTED WITHIN 5- FEET OF THE PAVEMENT.



CLINTON COUNTY ENGINEER
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 1326 FIFE AVENUE
 WILMINGTON, OHIO 45177

**UT-2
 STANDARD UTILITY TRENCH
 UNDER EXISTING PAVEMENT**



CLINTON COUNTY ENGINEER
JEFFREY B. LINKOUS, P.E., P.S.
 1326 FIFE AVENUE
 WILMINGTON, OHIO 45177

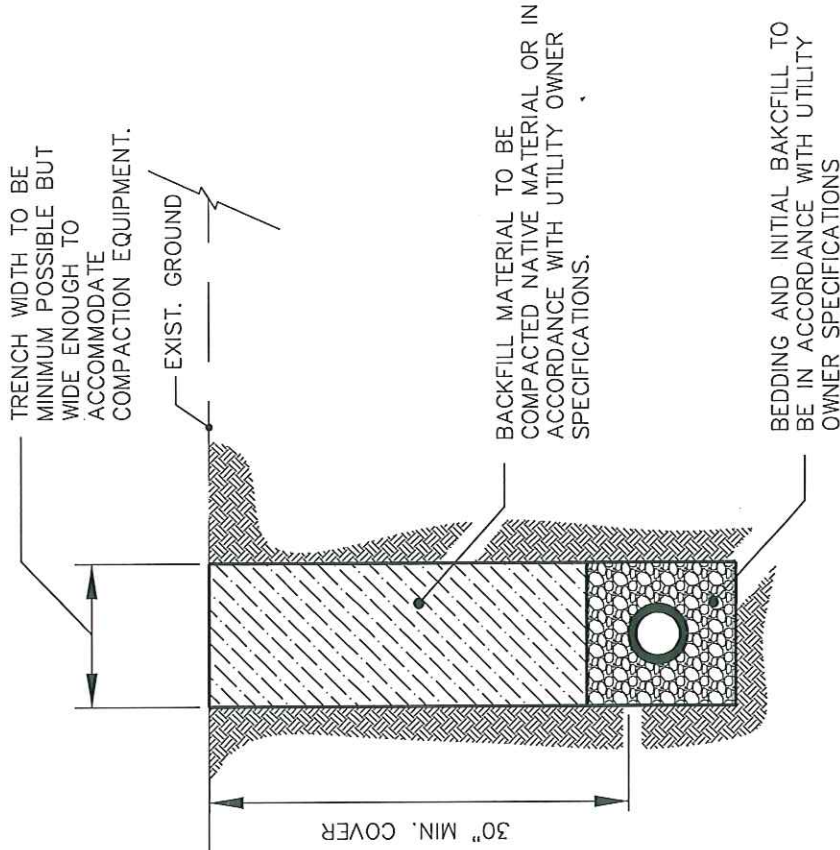
HORIZONTAL SCALE	N.T.S.
VERTICAL SCALE	N.T.S.

DESIGNED	A/JF	DATE	N/A
APPROVED	JBL	DATE	N/A
CHECKED BY	A/JF	SUBMITTED BY	N/A
DATE			

DATE	APRIL 09
DATE	N/A

NOTES:

1. ALL WORK AND MATERIALS TO BE DONE PER THE LATEST EDITION OF THE O.D.O.T. CONSTRUCTION AND MATERIAL SPECIFICATIONS, UTILITY OWNER REQUIREMENTS, AND PIPE MANUFACTURER'S RECOMMENDATIONS.
2. PIPE UNDER PAVEMENT TO BE HIGHWAY GRADE. NON-PERFORATED. SPECIFIC MATERIALS TO BE REVIEWED AND APPROVED BY THE CLINTON COUNTY ENGINEER'S OFFICE AS PART OF A UTILITY PERMIT REVIEW.
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4. ALL SIGNING / FLAGGING FOR TRAFFIC CONTROL DURING CONSTRUCTION TO BE PER LATEST EDITION OF O.M.U.T.C.D.
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6. NO WORK SHALL BE PERFORMED IN ROAD RIGHT-OF-WAY PRIOR TO ISSUANCE OF A RIGHT-OF-WAY PERMIT FROM THE CLINTON COUNTY ENGINEER'S OFFICE. (PERMITS ARE REQUIRED IN NEW SUBDIVISION CONSTRUCTION.)
7. CONTRACTOR SHALL NOTIFY THE OHIO UTILITIES PROTECTION SERVICE AT 1-800-362-2764 (TOLL FREE) AT LEAST 48 HOURS PRIOR TO A EXCAVATION.
8. NO ROAD CLOSURES WILL BE PERMITTED WITHOUT PRIOR NOTIFICATION OF CENTRAL DISPATCH, CLINTON CO. SHERIFF'S DEPT., THE LOCAL SCHOOL DISTRICT, THE LOCAL FIRE DISTRICT, THE LOCAL POST OFFICE AND THE BOARD OF M.R./D.D.
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12. NO UTILITY TRENCHES PARALLEL TO THE ROAD WILL BE PERMITTED WITHIN 5- FEET OF THE PAVEMENT.
13. EXCEPT FOR CROSSING LOCATIONS. UTILITIES ARE TO BE LOCATED WITHIN UTILITY EASEMENTS (WHERE PROVIDED) UNLESS SPECIFICALLY AUTHORIZED BY THE CLINTON COUNTY ENGINEER'S OFFICE.



**UT-3
STANDARD UTILITY TRENCH
MORE THAN 5- FEET FROM PAVEMENT**



CLINTON COUNTY ENGINEER
JEFFREY B. LINKOUS, P.E., P.S.
1326 FIFE AVENUE
WILMINGTON, OHIO 45177

HORIZONTAL SCALE	N.T.S.
VERTICAL SCALE	N.T.S.

DESIGNED	APPROVED
AJF	JBL
DATE	DATE
N/A	N/A

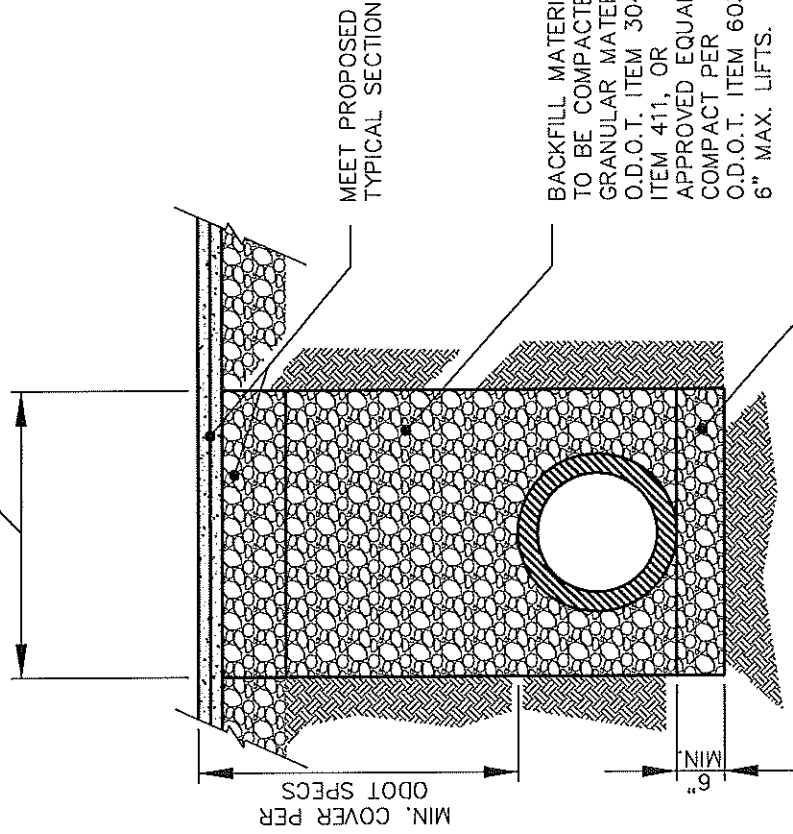
OWNER BY	DATE
AJF	APRIL 09
ISSUED BY	DATE
N/A	N/A



NOTES:

1. ALL WORK TO BE DONE PER THE LATEST EDITION OF THE O.D.O.T. CONSTRUCTION AND MATERIAL SPECIFICATIONS AND PIPE MANUFACTURER'S RECOMMENDATIONS.
2. PIPE UNDER PAVEMENT TO BE HIGHWAY GRADE, NON-PERFORATED CONFORMING TO ODOT ITEM 603 SPECIFICATIONS.
3. COMPACTED GRANULAR MATERIAL SHALL BE USED FOR ALL AREAS OF THE TRENCH LOCATED WITHIN 5' OF THE PAVEMENT. OUTSIDE OF THE PAVEMENT, GRANULAR MATERIAL SHALL BE COVERED WITH APPROX. 6" OF TOPSOIL, GRADED, SEEDED AND MULCHED.
4. ALL SIGNING / FLAGGING FOR TRAFFIC CONTROL DURING CONSTRUCTION TO BE PER LATEST EDITION OF O.M.U.T.C.D.
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9. IN SOME CASES, WITH PRIOR APPROVAL FROM THE CLINTON COUNTY ENGINEER'S OFFICE, #9 GRANULAR MATERIAL MAY BE USED TO THE TOP OF THE CONDUIT IN LIEU OF ITEM 304 AND/OR 411 BEDDING AND BACKFILL.

TRENCH WIDTH TO BE MINIMUM POSSIBLE BUT WIDE ENOUGH TO ACCOMMODATE COMPACTION EQUIPMENT.



BACKFILL MATERIAL TO BE COMPACTED GRANULAR MATERIAL O.D.O.T. ITEM 304, ITEM 411, OR APPROVED EQUAL. COMPACT PER O.D.O.T. ITEM 603 IN 6" MAX. LIFTS.

6" MIN. BEDDING. GRANULAR MAT'L TO BE O.D.O.T. ITEM 304, ITEM 411, OR APPROVED EQUAL COMPACTED PER O.D.O.T. ITEM 603.

**T-1
STANDARD TRENCH UNDER PAVEMENT
(NEW CONSTRUCTION)**



CLINTON COUNTY ENGINEER
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1326 FIFE AVENUE
WILMINGTON, OHIO 45377

HORIZONTAL SCALE	N.T.S.
VERTICAL SCALE	N.T.S.

DESIGNED	AJF	DATE	N/A
APPROVED	JBL	DATE	N/A
CHECKED BY	AJF	DATE	N/A
DATE			

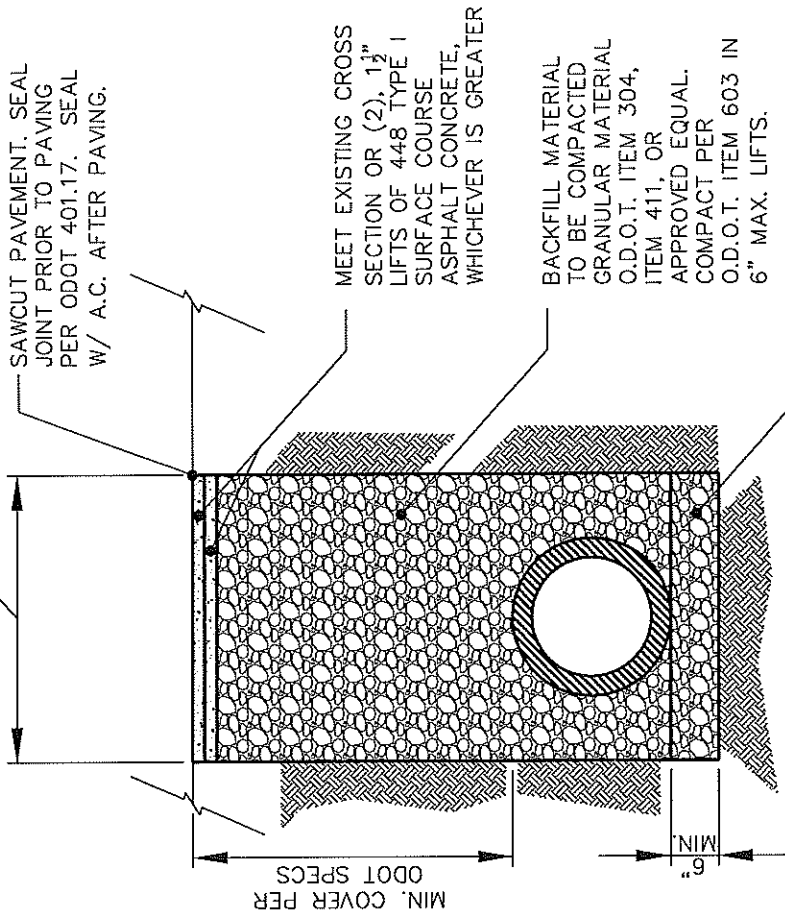
DATE	APRIL 09
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TRENCH WIDTH TO BE MINIMUM POSSIBLE BUT WIDE ENOUGH TO ACCOMMODATE COMPACTION EQUIPMENT.

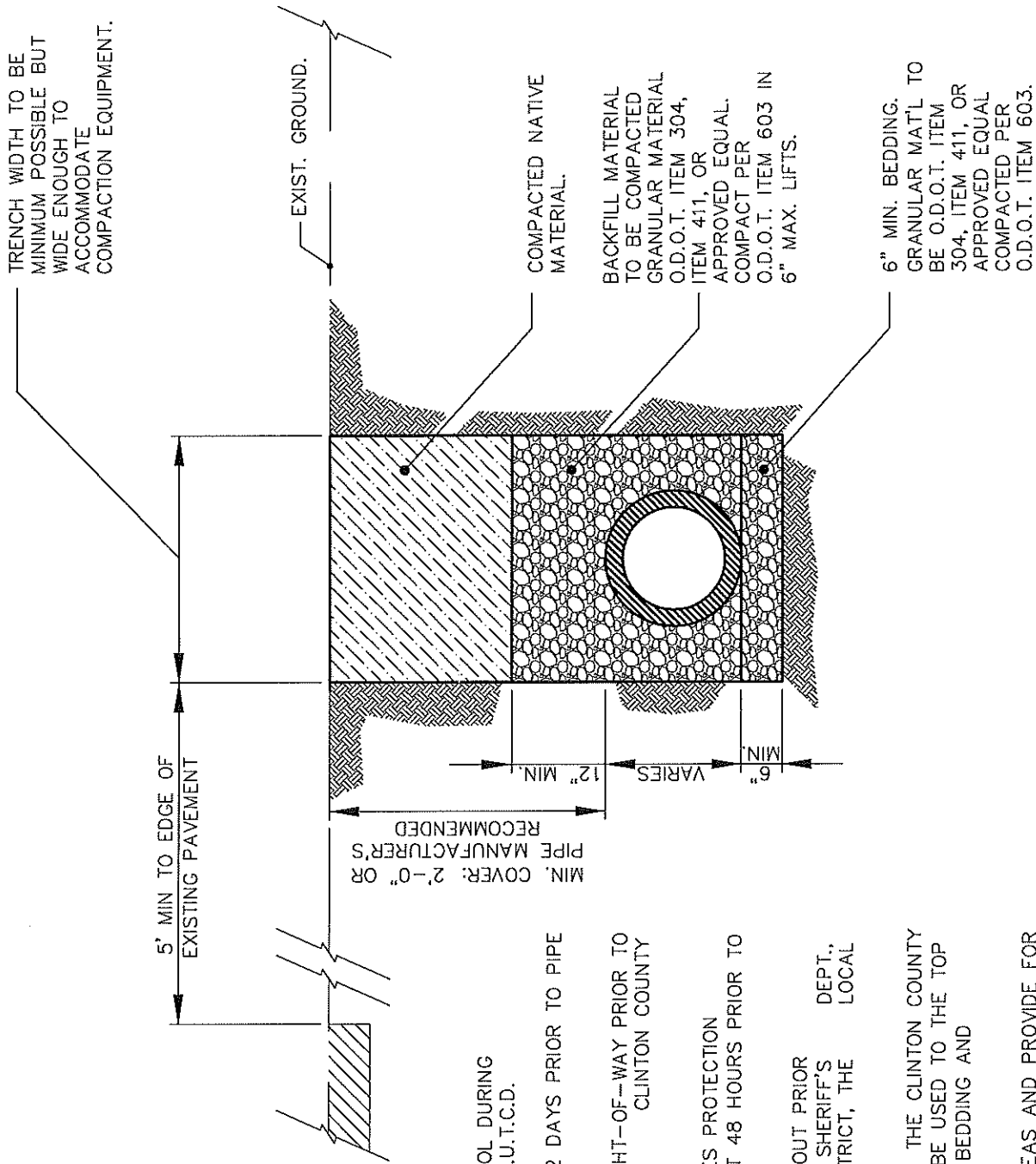


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REVISION	DATE	DATE
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9. IN SOME CASES, WITH PRIOR APPROVAL FROM THE CLINTON COUNTY ENGINEER'S OFFICE, #9 GRANULAR MATERIAL MAY BE USED TO THE TOP OF THE PIPE IN LIEU OF ITEM 304 AND / OR 411 BEDDING AND BACKFILL.
10. GRADE, SEED AND MULCH ALL DISTURBED AREAS AND PROVIDE FOR EROSION CONTROL PER O.D.O.T. SPECIFICATIONS.



**T-3
STANDARD TRENCH OUTSIDE OF PAVEMENT**

CLINTON COUNTY ENGINEER
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 WILMINGTON, OHIO 45177

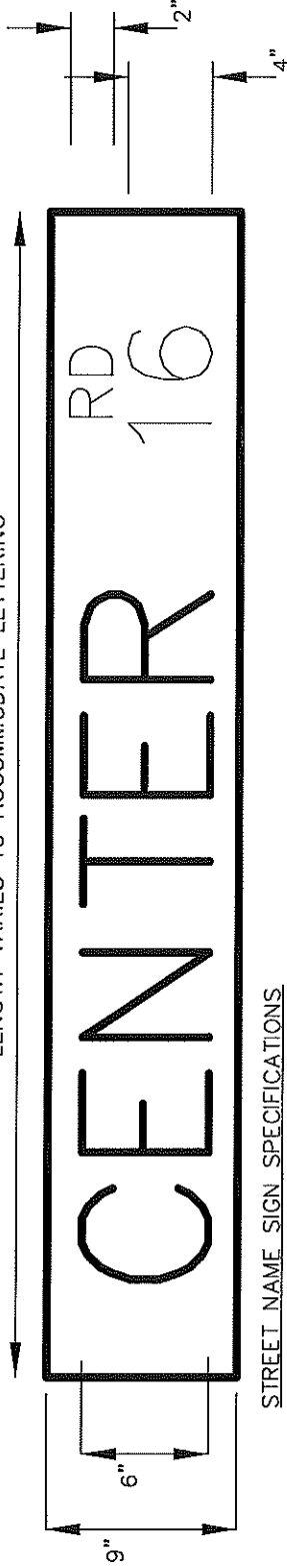
DESIGNED	DATE
AJF	APRIL 09
CHECKED	DATE
N/A	N/A

APPROVED	DATE
JBL	APRIL 09
REVISION	DATE
N/A	N/A

DATE	DATE
APRIL 09	APRIL 09
DATE	DATE
N/A	N/A



LENGTH VARIES TO ACCOMMODATE LETTERING



STREET NAME SIGN SPECIFICATIONS

1. SIGN BLANK TO BE 9-INCHES WIDE MADE OF EXTRUDED 5052 H37 ALUMINUM, 0.80 GA.
2. HEIGHT OF LETTERS AND NUMBERS TO BE AS SHOWN.
3. LETTER AND NUMBERS TO BE OF STANDARD BLOCK FORM.
4. MATERIAL FOR SIGN COATING AND LETTERS TO BE REFLECTIVE, TYPE II (OR GREATER). BACKGROUND COLOR TO BE GREEN; LETTER AND NUMBERS TO BE WHITE.
5. SIGN POST TO BE STEEL U-CHANNEL, 3#/LF; GREEN (OR GALVANIZED)
6. HEIGHT OF SIGN (BOTTOM OF SIGN TO PAVEMENT EDGE) TO BE 8- FEET MINIMUM.
7. DISTANCE FROM PAVEMENT EDGE TO SIGN TO BE DETERMINED IN FIELD BY CLINTON COUNTY ENGINEER'S OFFICE PERSONNEL.
8. POST DEPTH OF BURY TO BE 3'-6" MINIMUM.

STOP SIGN SPECIFICATIONS

1. POST DEPTH OF BURY TO BE 3'-6" MINIMUM.
2. SIGN POST TO BE STEEL U-CHANNEL, 3#/LF; GREEN OR GALVANIZED.
3. HEIGHT OF SIGN (BOTTOM OF SIGN TO PAVEMENT EDGE) TO BE 5'-6" MINIMUM.
4. EXACT LOCATION OF SIGN TO BE DETERMINED IN FIELD BY CLINTON COUNTY ENGINEER'S OFFICE PERSONNEL.
5. SIGNS TO BE MANUFACTURED USING TYPE VIII MATERIAL.

SPECIFICATION FOR OTHER WARNING AND REGULATORY SIGNS

1. ALL SIGNS AND PAVEMENT MARKINGS ARE TO BE IN ACCORDANCE WITH THE OHIO MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
2. DEPTH OF BURY TO BE 3'-6" MINIMUM.
3. SIGN POST TO BE STEEL U-CHANNEL, 3#/FT; GREEN OR GALVANIZED.
4. HEIGHT OF SIGN (BOTTOM OF SIGN TO PAVEMENT EDGE) TO BE PER THE OHIO MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
5. DISTANCE FROM PAVEMENT EDGE TO SIGN TO BE DETERMINED IN FIELD BY CLINTON COUNTY ENGINEER'S OFFICE PERSONNEL.
6. SIGNS TO BE MANUFACTURED USING TYPE VIII MATERIAL.
7. WARNING SIGNS TO BE A MINIMUM SIZE OF 30" BY 30".

SPECIFICATIONS FOR OBJECT MARKERS

1. ALL SIGNS AND PAVEMENT MARKINGS ARE TO BE IN ACCORDANCE WITH THE OHIO MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
2. THE SIZE, NEED, AND LOCATION TO BE DETERMINED BY CLINTON COUNTY ENGINEER'S OFFICE PERSONNEL.
3. HEIGHT OF SIGN (BOTTOM OF SIGN TO PAVEMENT EDGE) TO BE 4'-0" MINIMUM.
4. SIGN POST TO BE STEEL U-CHANNEL, 3#/FT; GREEN OR GALVANIZED.

S-1
TYPICAL SIGNS



CLINTON COUNTY ENGINEER
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N.T.S.
VERTICAL SCALE
N.T.S.

DESIGNED
AUF
N/A

APPROVED
JBL
DATE
N/A

CONTRACT BY
AUF
N/A

DATE
APRIL 09
N/A



APPENDIX B

Sample Stormwater Calculations

