DEVELOPMENT DEPARTMENT
PO Box 280
Clayton, OH 45315
P:(937) 836-3500 F:(937) 836-6773

PC Case# **PC25-05**	Date Received: **7/8/2025**
Reviewed By: **ES**	PC Meeting Date: **8/25/2025**
Council Meeting Date: **9/18/2025**	Date of Legal Publication: **8/13/2025**
Fee: $**1,080.00** ☐ Cash ☐ Credit Card	☒ Check # **21277**

Planning Commission Application

Applicant: ~~Oakes Tree Development~~ Northwoods Estates LLC Phone Number: 937-272-1100

Mailing Address: 8534 Yankee Street, Dayton, Ohio 45458

Applying for:

- ☐ Subdivision
- ☑ Subdivision/Planned Development Modification
- ☐ Zoning District Change
- ☐ Minor Subdivision - Lot Split & Replat
- ☐ Commercial Bldg. Architecture & Landscaping Review

Property Address: 4679 National Road, Clayton, Ohio 45315

Parcel ID#: M60030120022 Acreage: 33.7313

Subdivision: Northwood Estates Lot#: 1-58 (includes 2 open space lots)

Current Zoning District: PDD *If Applicable*, Proposed Zoning District: _____

Located in Flood Hazard: no Sewer: yes, MCES Water: yes, MCES

I hereby authorize and grant to the City of Clayton Officials and employees, members of the Planning Commission and City Council the right to come onto the above described property for the purpose of inspecting and evaluating the premises regarding this application. I further release said Board members, and City employees and officials from any and all liability during said inspection and related matters.

I swear that the above information and attached exhibits, to my knowledge, are true and correct. I understand that if the information on this application is not correct or complete, the result may be the invalidation of the approval and all subsequent permits issued in conjunction with this approval.

Applicant's Signature

7/8/2025
Date

DEVELOPMENT DEPARTMENT
PO Box 280
Clayton, OH 45315
P:(937) 836-3500 F:(937) 836-6773

Affidavit

State of Ohio; County of Montgomery

I (We) Northwoods Estates LLC after being first duly sworn, depose and say:

1. That I (We)are the owner(s) of the above described real estate;

2. That I (We) have read and examined the application and are familiar with its contents; and

3. That I (We) have no objections to, and consent to such request as set forth in the application.

Property Owner(s) Signature(s)

8534 YanKee Street Suite 1A, Dayton OH 45458
Mailing Address

(937) 272-1100
Phone Number

SARA BUSCHUR
Notary Public
State of Ohio
My Comm. Expires
January 4, 2028

Subscribed and sworn to be before me this 8 day of July 2025

Notary Public Signature

Name (Person to be contacted for details, if other than above signatory)

Mailing Address

Phone Number

Type: DEED
Kind: DEE
Recorded: 01/06/2023 at 11:54:39 AM
Fee Amt: $66.00 Page 1 of 6
Montgomery County, OH
Brandon C. McClain Recorder
File# 2023-00000787

TRANSFER
10:29:25 1/05/2023
Reg 0106 Receipt 17547 Cashier KC
Montgomery County Auditor
Karl L. Keith
CONV # 000114 $1,665.00

6

(2) **GENERAL WARRANTY DEED**

(File No. 2764776)

Mark E. Landes, married, and **Ann Landes**, widowed and not remarried, for valuable consideration paid, grant, with general warranty covenants, to **Northwood Estates, LLC**, an Ohio limited liability company, whose tax mailing address is 8534 Yankee Street, Dayton, OH 45458, the following real property:

See Exhibit "A."

Parcel No.:	M60-03012-0022, 03102-0002, combined M60-03102-0105
Prior Instrument Ref.:	Deed Inst. No. 2006-007431, and Survivorship Affidavit Inst. No. 2022-_____

THIS CONVEYANCE IS SUBJECT TO all legal highways, easements, zoning regulations, covenants, conditions and restrictions of record, all taxes and assessments not yet payable.

Executed and delivered this 12 day of December, 2022.

Mark E. Landes

Mark E. Landes

Clare Landes

Clare Landes (*wife of Mark E. Landes, signing solely to release dower*)

Ann Landes

Ann Landes

Me.
First American Title (2)

STATE OF OHIO
COUNTY OF Montgomery, SS:

The foregoing instrument was executed before me this 12 day of December, 2022, by Mark E. Landes and Clare E. Landes, husband and wife, who acknowledged the signing thereof to be their voluntary act and deed.

LSWendling
Notary Public

LINDA S WENDLING
Notary Public
State of Ohio
My Comm. Expires
March 8, 2023

STATE OF OHIO
COUNTY OF Montgomery, SS:

The foregoing instrument was executed before me this 12 day of December, 2022, by Ann Landes, who acknowledged the signing thereof to be her voluntary act and deed.

LSWendling
Notary Public

LINDA S WENDLING
Notary Public
State of Ohio
My Comm. Expires
March 8, 2023

This Document Prepared by: Cynthia P. McNamee, Esq., **McNAMEE & McNAMEE, PLL,** 2625 Commons Blvd., Beavercreek, Ohio 45431, (937) 427-1367

LGR

LUIS G. RIANCHO & ASSOCIATES, INC.

SURVEYING
GPS SERVICES
HIGHWAY & CONSTRUCTION STAKING
BOUNDARY & TOPOGRAPHIC SURVEYS

LUIS G. RIANCHO, PS

140 W. WENGER ROAD
ENGLEWOOD, OHIO
45322-2727

TEL (937) 836-1585
FAX (937) 836-9974
Email: lgriancho@woh.rr.com

D20034-2
September 16, 2020
Description of Parcel "B" Containing 33.7313 Acres
National Road
City of Clayton, Montgomery County, Ohio

M60-03012-0022
M60-03102-0002
M60-03102-0105

Located in Section 17 and in Section 20, Town 5, Range 5 E, City of Clayton, County of Montgomery, State of Ohio and being part of a 38.371 acre tract of land conveyed to Keith E. Landes & Mark E. Landes by deed recorded in Instrument Record Deed-06-007431 (Parcel Id: M60 03102 0002 & M60 03012 0022) and being part of a 9.326 acre tract of land conveyed to Keith E. Landes & Mark E. Landes by deed recorded in Instrument Record Deed-06-007431, Tract Two (Parcel Id: M60 03102 0105) and being more particularly described as follows:

BEGINNING at a railroad spike found at the northeast corner of the northwest quarter of said Section 20 in the centerline of Haber Road (33' Right-of-Way), said railroad spike being also at the southeast corner of the southwest quarter of said Section 17;

thence in southerly direction with the east line of the northwest quarter said Section 20 and centerline of said Haber Road, South zero degrees fourteen minutes forty-nine seconds (00° 14' 49") West for eight hundred fifteen and 52/100 (815.52) feet to a Mag Nail found at the intersection with the centerline of National Road (U.S. Route 40) (Right-of-Way Varies);

thence in a westerly direction with the centerline of said National Road, South eighty-four degrees seventeen minutes twenty-five seconds (84° 17' 25") West for six hundred fifty and 63/100 (650.63) feet to a Mag Nail set at the southeast corner of a 2.742 acre tract of land conveyed to Brandon A. Schaurer by deed recorded in Instrument Record Deed-18-038577;

thence in a northerly direction with the east line of said 2.742 acre Schaurer land, North zero degrees four minutes forty-three seconds (00° 04' 43") West, passing an iron pin set at fifty

and 24/100 (50.24) feet in the north right-of-way line of said National Road, for a total distance of four hundred fifty-nine and 82/100 (459.82) feet to an iron pin set at the northeast corner of said 2.742 acre Schaurer land;

thence in a westerly direction with the north line of said 2.742 acre Schaurer land, South eighty-five degrees thirty-one minutes fifty-five seconds (85° 31' 55") West for two hundred three and 95/100 (203.95) feet to an iron pin set;

thence in a northerly direction with a new dividing line, North zero degrees twenty-one minutes thirty-two seconds (00° 21' 32") East, passing an iron pin set at four hundred nine and 66/100 (409.66) feet in the north line of said Section 20 and south line of said Section 17, for a total distance of one thousand four hundred one and 73/100 (1401.73) feet to an iron pin set in the south line of a 63.07 acre tract of land conveyed to Glen R. Landes by deed recorded in D.M.F. 94-651E01 and Deed Book 1970, Page 742, said iron pin being also in the south right-of-way line of Fox Road (33' Right-of-Way);

thence in a easterly direction with the south line of said 63.07 acre Glen R. Landes land and with the south right-of-way line of said Fox Road, North eighty-eight degrees twenty-one minutes twenty-five seconds (88° 21' 25") East, passing an iron pin set at eight hundred thirty-four and 10/100 (834.10) feet in the west right-of-way line of said Haber Road, for a total distance of eight hundred fifty and 61/100 (850.61) feet to a Mag Nail set in the east line of the southwest quarter of said Section 17 and centerline of said Haber Road;

thence in a southerly direction with the east line of the southwest quarter of said Section 17 and centerline of said Haber Road, South zero degrees fourteen minutes twenty-eight seconds (00° 14' 28") West for nine hundred eighty-nine and 80/100 (989.80) feet returning to the **POINT OF BEGINNING**, containing 33.7313 acres more or less and subject to all legal highways, easements, restrictions and agreements of record, according to a survey of said premises by Luis G. Riancho, Registered Surveyor, State of Ohio #5287, dated September 2020.

The above described parcel being subject to an access easement fifteen (15) feet wide and fifteen (15) feet long reserved by grantor, his successors or assigns for the purposes of access and maintenance of an existing sign as now located, said access easement being more particularly described as follows:

commencing at the southeast corner of the above described 33.7313 acre parcel in the east line of the northwest quarter of Section 20, said corner being also at the intersection of the centerline of Haber Road with the centerline of National Road;

thence westerly with the centerline of said National Road, South 84° 17' 25" West for fifty-one and 37/100 (51.37) feet to a point;

thence northerly at right angles to the centerline of said National Road, North 05°42'35" West for fifty and 00/100 (50.00) feet to a point in the north right-of-way line of said National Road and the TRUE POINT OF BEGINNING of said sign access easement;

thence North 05°42'35" West for fifteen and 00/100 (15.00) feet to a point;

thence South 84° 17' 25" West for fifteen and 00/100 (15.00) feet to a point;

thence South 05°42'35" East for fifteen and 00/100 (15.00) feet to a point;

thence North 84° 17' 25" East for fifteen and 00/100 (15.00) feet returning to the TRUE POINT OF BEGINNING, containing 225 square feet more or less, said access easement to run with the land until such time that said grantor, his successors or assigns permanently removes or abandons said sign as now located;

Note: Basis of bearing: South eighty-four degrees seventeen minutes twenty-five seconds (84° 17' 25") West for the centerline of National Road (U.S. Route 40) from Survey 3-M-582.

Note: Of the above described 33.7313 acres, 1.4120 acres lie within the public right-of-way of National Road and Haber Road leaving a net of 32.3193 acres.

Note: Of the above described 33.7313 acres, 14.3689 acres are located in the northwest quarter of said Section 20 and 19.3624 acre are located in the southwest quarter of said Section 17.

Note: All deeds referenced are recorded in the Deed Records of Montgomery County, Ohio and all plats referenced are recorded in the Plat Records of Montgomery County, Ohio.

Note: All iron pins set are #5 rebars, capped and stamped "LGR & ASSOC, ENGLEWOOD, OHIO".

Note: A Plat of Survey is recorded with the Montgomery County Engineer's Office Record of Land Surveys Volume 2020 Page 0260.

Luis G. Riancho
Registered Surveyor
State of Ohio #5287
Date 9/23/2020

STATE OF OHIO
LUIS G. RIANCHO
5287
REGISTERED PROFESSIONAL SURVEYOR

PAUL W. GRUNER, P.E., P.S.
MONTGOMERY COUNTY ENGINEER
APPROVED FOR POINT OF BEGINNING, ACREAGE AND CLOSURE ONLY
DATE 9/29/20 FILE NO. 2020-0260
BY Wayne Bt

KARL KEITH
COUNTY AUDITOR
MONTGOMERY COUNTY DAYTON, OHIO
DESCRIPTION APPROVED FOR STRAIGHT TRANSFER CLOSURE
NOT CHECKED.
BY DATE 11/4/23
MAP DEPARTMENT

#
DATE APPROVED 9/25/2020
ZONING DEPARTMENT
MUNICIPALITY OF CLAYTON

PUBLIC MEETING NOTICE

Notice is hereby given that the Clayton City Planning Commission will hold a public hearing on Monday, August 25, 2025 at 7:00 p.m. Planning Commission will hear ***a request for a Preliminary & Final Subdivision Plan for the Northwood Estates Section 1 Subdivision, a proposed residential subdivision.*** The request was made by Northwood Estates, LLC (property owner). Planning Commission may pass a motion to recommend approval, approval with conditions, or disapproval to Clayton City Council at this public hearing.

The application and plans may be reviewed at the Clayton Government Center, 6996 Taywood Road, during regular business hours or online at https://www.clayton.oh.us/375/Planning-Commission-Agenda.

The hearing is open to the public. If you are unable to attend in person, you can submit a letter that will be forwarded to Clayton Planning Commission for consideration.

Development Department
City of Clayton
Ph. (937) 836-3500

August 11, 2025

«OWNER_NAME1» «OWNER_NAME2»:

Please be advised that Clayton City Planning Commission will hold a public hearing on **Monday, August 25, 2025 @ 7:00 p.m.** This meeting will be held at the City of Clayton's Council Chambers: 6996 Taywood Road, Englewood, OH 45322.

Clayton City Planning Commission will consider ***a request for a Preliminary & Final Subdivision Plan for the Northwood Estates Section 1 Subdivision, a proposed residential subdivision.*** The request was made by Northwood Estates, LLC (property owner). Clayton City Planning Commission may pass a motion to recommend approval, approval with conditions, or disapproval of the request to Clayton City Council at this public hearing.

You are receiving this letter because you own property within three hundred feet (300') of the subject property.

Your Affected Parcel: «CAMA_RECORD»

The application may be reviewed at the Clayton Government Center (6996 Taywood Road) during regular business hours (M-F 7:30 a.m. until 4:30 p.m.) or online at http://clayton.oh.us/375/Planning-Commission-Agendas.

The hearing is open to the public. If you are unable to attend in person, you can submit a letter that will be forwarded to Clayton City Council for consideration. Alternatively, the meeting will be livestreamed on the City's YouTube channel, which you can find on the City's webpage; Please be advised that Clayton City Council does not have the ability to receive comments from online viewers.

Sincerely,

Development Department
(937) 836-3500

From: Emmer-Lovell, Robert
To: Ellen Snyder
Subject: Re: PC25-05 - Northwood Estates LLC - Preliminary & Final Plan
Date: Wednesday, July 16, 2025 6:59:36 AM
Attachments: image001.png
Outlook-1wpfgh2q.png

Fire Department comments/concerns are the same as usual, hydrant locations to be determined and turning radius in the cul-de-sac able to accommodate a ladder truck.

Thank you

Robert Emmer-Lovell
Fire Inspector/Investigator
CEU Fire Department Collaborative
C: 937.776.1054
O: 937-540-1621
Emmer-lovell@englewood.oh.us

Station 98
333 West National Road
Englewood, Ohio 45322

From: Matt Hamlin
To: Ellen Snyder
Subject: RE: PC25-05 - Northwood Estates LLC - Preliminary & Final Plan
Date: Thursday, July 17, 2025 6:37:58 PM
Attachments: image001.png

Ellen,

No comments at this time.

Chief Matt Hamlin, CLEE
Clayton Police Department
6996 Taywood Road
Englewood, Ohio
mhamlin@clayton.oh.us
1-937-836-3500

From: Ellen Snyder <esnyder@clayton.oh.us>
Sent: Friday, July 11, 2025 10:07 PM
To: Amanda Zimmerlin <azimmerlin@clayton.oh.us>; Kevin Schweitzer <kschweitzer@clayton.oh.us>; Matt Hamlin <mhamlin@clayton.oh.us>; Brian Garver <bgarver@clayton.oh.us>; Randy Sanders <dsanders@clayton.oh.us>
Cc: Robert Emmer-Lovell <emmer-lovell@englewood.oh.us>; Barbara Seim <bseim@clayton.oh.us>
Subject: PC25-05 - Northwood Estates LLC - Preliminary & Final Plan

All,

Staff has received a Preliminary & Final Plan application from Northwood Estates LLC. The subject property is at the Northwest intersection of National Road and Haber Road (M60 03012 0022), contains 17.135 acres, and is currently zoned PDD with both Clayton Improvement District #1 & Special Area 1 Overlays. The expired Preliminary Plan previously approved for the property by both Planning Commission and City Council (https://clayton.oh.us/DocumentCenter/View/5363/O-06-22-17) will be addressed. The proposed Preliminary & Final Plan indicates 56 lots to be used as Residential Single-Unit Home Properties, and 2 lots to be used as Open Space Properties maintained by an HOA.

Please see the below linked plans and provide comments by the End of Day on 7/18/2025.

This will be case PC25-05 for Planning Commission, and will be heard at their meeting on 8/25/2025. If Planning Commission passes a motion at their meeting to make a recommendation to City Council,

From:	Randy Sanders
To:	Ellen Snyder; Amanda Zimmerlin; Kevin Schweitzer; Matt Hamlin; Brian Garver
Cc:	Robert Emmer-Lovell; Barbara Seim
Subject:	RE: PC25-05 - Northwood Estates LLC - Preliminary & Final Plan
Date:	Thursday, July 17, 2025 6:38:01 PM
Attachments:	image001.png

I have no additional comments...

Randy Sanders
Public Service Director,City of Clayton
P.O. Box 280
Clayton, Ohio 45315
937.836.3500 phone
937.836.6773 facsimile

From: Ellen Snyder <esnyder@clayton.oh.us>
Sent: Friday, July 11, 2025 10:07 PM
To: Amanda Zimmerlin <azimmerlin@clayton.oh.us>; Kevin Schweitzer <kschweitzer@clayton.oh.us>; Matt Hamlin <mhamlin@clayton.oh.us>; Brian Garver <bgarver@clayton.oh.us>; Randy Sanders <dsanders@clayton.oh.us>
Cc: Robert Emmer-Lovell <emmer-lovell@englewood.oh.us>; Barbara Seim <bseim@clayton.oh.us>
Subject: PC25-05 - Northwood Estates LLC - Preliminary & Final Plan

All,

Staff has received a Preliminary & Final Plan application from Northwood Estates LLC. The subject property is at the Northwest intersection of National Road and Haber Road (M60 03012 0022), contains 17.135 acres, and is currently zoned PDD with both Clayton Improvement District #1 & Special Area 1 Overlays. The expired Preliminary Plan previously approved for the property by both Planning Commission and City Council (https://clayton.oh.us/DocumentCenter/View/5363/O-06-22-17) will be addressed. The proposed Preliminary & Final Plan indicates 56 lots to be used as Residential Single-Unit Home Properties, and 2 lots to be used as Open Space Properties maintained by an HOA.

Please see the below linked plans and provide comments by the End of Day on 7/18/2025.

This will be case PC25-05 for Planning Commission, and will be heard at their meeting on 8/25/2025. If Planning Commission passes a motion at their meeting to make a recommendation to City Council, City Council will then hear the recommendation for the case for a first reading on 9/18/2025. If City Council passes a motion to accept the recommendation, City Council will have a second reading on 10/2/2025.

PC25-05 will be initially presented to Planning Commission on August 5, after it has undergone review and received comments from city staff / contracted departments. From August 5 – 15 The applicant will address the received comments and make changes to the originally submitted plans. Those plan changes and responses to comments will be included in the staff report presented to

THE KLEINGERS GROUP

CINCINNATI
COLUMBUS
LOUISVILLE
AKRON
TAMPA/ST. PETE
INDIANAPOLIS

6219 Centre Park Drive
West Chester, OH 45069
p 513.779.7851
f 513.779.7852
www.kleingers.com

July 21, 2025

Ellen Snyder
Zoning and GIS Manager
6996 Taywood Road
Clayton, Ohio 45315

RE: Review of Final Plan / Construction Drawings
Northwood Estates Subdivision – Section 1

Dear Ellen,

The Kleingers Group has reviewed the Final Plan / Construction Drawings for Northwood Estates Subdivision Section 1 by Choice 1 dated July 7, 2025 and have the following comments/observations:

Title Sheet (1)

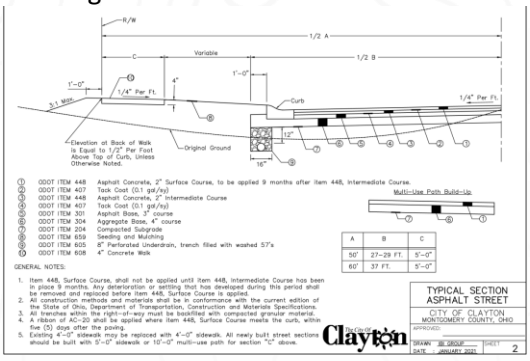
1. Vicinity Map should be noted as “Not to Scale”

Overall Plan

2. There are several text conflicts and overlapping data. Clean up display here and throughout plan set particularly for those that may not have the capability to print documents in color.

Typical Section and General Notes (3)

3. It does not appear that the typical section being used is that of Claytons. The Clayton typical section within their standard drawings dated January 2021 shows a roadway width to one foot behind the curb on either side. The Asphalt Section and Sidewalk width also does not match the Clayton Standard Drawings.



4. The Utility Statement Paragraph seems to be interrupted by the Existing Tile Hookups paragraph in the General Notes.
5. The Asphalt Walking Path Cross Section does not match the Multi-Use Path Build-Up shown in the Clayton Standard Drawings, see above, but does exceed the typical section in most cases.

Storm and Sanitary Sewer General Details (6)

6. An elevation reference is needed at the sump inlet.
7. Calculations indicate that a 5.1“ orifice is recommended for the sump and a 5.3” orifice is shown. Typically the cap and drilled hole is located at the other end of this pipe.

Street and Utility Plan (7)

8. There appears to be a conflict with an existing storm sewer within the right of way of US40. How is existing roadway swale being collected if a manhole is replacing the pipe opening prior to the driveway?
9. Previous reviews of the Traffic Impact study mention how the Multi Use Path should be addressed within the intersection of Haber and US40. Some thought should be given to showing an connection to the existing path on the south side of US40.
10. Add Major Roadway Names to the main drawing on the sheet.

Grading Plan (8)

11. There are two sheets in the set with this label.
12. Emergency Spillway cross section cuts off grading detail to creek.
13. The 999 elevation label on the west side of the detention pond is placed over the 998 contour line.
14. A detail should be given to the swale from the outlet of the pipe under Stillwater Way to the pipe invert receiving the flow.
15. Flood Routes and typical sections for those swales should be shown.

Intersection Details (9)

16. It appears that a ponding issue is being created on the north side of Stillwater Way at Haber Road.
17. Radius of Bolt Court cul-de-sac does not meet the minimum requirement of pavement radius of 38.5 feet, assuming pavement only includes asphalt and not curb.

Plan and Profile (10-19)

18. Add street centerline stationing
19. A temporary T-turnaround is needed to be shown at the stub of Stillwater Way.
20. The record plat indicates that the Utility Easements are 15’ while plan and profile sheets show the Utility Easement as 10’.
21. All waterline bends and valves need to be stationed.
22. Show pipe invert of 18-inch pipe under Haber Road on Sheet 12. Verify the condition of the pipe.
23. Extend the walk on either side of Stillwater Way to match the width of multi-use path.
24. Align services for Lot 50 with the building pad.
25. Water main on sheet 13 for Bolt Court shows it dipping to have 18” separation, but nothing is shown on the profile.
26. Move the North Arrow out of the hatching on sheet 14.
27. Move the Fire Hydrant out of the Sanitary Sewer easement on Bolt Court cul-de-sac.
28. There are 2 points labeled as Station 104 on Page 17.
29. CB 100, CB110, ST MH36, CB111 do not have the required cover over the pipe of 2 feet.

SWPPP Grading Plan and Drainage Calculations

30. Calculations not fully reviewed due to potential changes needed in storm sewer design
31. Clayton Subdivision regulations require a runoff coefficient to be 0.4 to be used in residential development.
32. The storm system from the basin to the stub of Stillwater Way is modeled differently than the design in the drawings please revise one or the other.
33. Revise Drainage area map showing matching current inlet locations. Label inlets on SWPPP Grading Plan to match drainage plan and Construction Drawings.
34. Provide an area calculation of the water area of the retention basin showing that it is at least ½ acre.
35. Provide a typical profile of the retention basin showing a safety ledge four to six feet in width approximately thirty to thirty-six inches below the permanent water level and a 5-foot berm at 2% slope beginning at least one foot above normal pond elevation. The slope between the two ledges should be stable and of a material which will prevent erosion due to wave action. Side slopes above the berm shall be 3 to one or flatter. Side slopes of the pool shall be two to one or flatter.
36. All ponds in residential subdivisions used for stormwater retention shall be designed with a fountain or aerator.

Sanitary and Water Notes

37. Please confirm that the plans have been submitted to and reviewed by Montgomery County Environmental Services (MCES).

Traffic Impact Study

38. Show that the comments from the previous review have been addressed.
39. An analysis of the intersection of US 40 and Haver Road under stop sign control needs to be added to the existing study.
40. Provide the volume calculations for the traffic signal warrant analysis and show that ODOT right turn reductions were incorporated in the analysis.

Please feel free to contact me if you have any questions regarding the above comments.

Sincerely,

William J Brock, P.E.
Senior Project Manager

8.5.2025

Ellen Snyder
Zoning & GIS Manager, City of Clayton

E. esnyder@clayton.oh.us

6996 Taywood Road
Englewood, OH 45322

R E: REQUEST FOR A PRELIMINARY & FINAL SUBDIVISION PLAN FOR NORTHWOOD ESTATES SECTION 1 SUBDIVISION

Dear Ellen:

We reviewed the submitted plans for the proposed Northwood Estates Subdivision for zoning compliance with the Codified Ordinances of Clayton, Part Eleven – Planning and Zoning Code and for consistency with Plan Clayton.

Please find our comments below for consideration of approval/denial of the plans:

Project Location and Zoning

Current Parcel: M60 03012 0022

Zoning District: PDD Planned Development District (Rezoned in 2022 from RSD), Clayton Improvement District #1 Overlay, and Special Area 1 Overlay (partial).

Project History

In July 2022, Clayton City Council approved both the rezoning of the property from Residential Single-Unit District (RSD) to Planned Development District (PDD), and a Preliminary Plan for Northwood Estates.

Per the Clayton Planning and Zoning Code, Section 1161.03(I) Approval Period. Preliminary Plans are valid for 12 months. If no sections are filed within three years from the recording of the previous sections, the approval of the remainder of the Preliminary Plan is no longer effective. *The 12 months have since expired, meaning the Preliminary Plan from 2022 is no longer valid.*

Section 1111.21(I)(1) Action by City Council states: "If the application is granted, the area of land involved shall be redesignated as a "Planned Development" District (PDD) by Code. Section 1111.21(N)(1) states "The City Council shall hold a public hearing on the Development Plan. If the application is granted, the area of land involved shall be redesignated as a "PD" District (PDD) by this Code." *The property was officially rezoned to PDD on August 20th, 2022.*

The status of the Rezoning is still valid, while the Preliminary Plan is not.

Additionally, the Rezoning to PDD was a requirement of the overlay Clayton Improvement District #1, and Section 1111.22 (C)(1)(i) states that "Any development of land, or assemblage of land, with an area of five (5) acres or more, or where more than five (5) lots will be created, shall be developed as part of a planned development under this Zoning Code." According to this Section the PDD rezoning was not only appropriate for the proposed development, but it was also required since the land area involved is five (5) acres or more and more than five lots would result.

Zoning Code and Subdivision Standards

Section 1111.21 – Planned Development District

Section 1111.21 (B) - Development Standards

(1) The Development Plan must comply with the following requirements unless specifically waived by the City Council with the recommendation of the Planning Commission.
   (i) The Planned Development can be substantially completed within the period of time specified in the schedule of development submitted by the developer. **The applicant has not indicated a schedule of development.**
   (ii) The Planned Development will not jeopardize public health, safety and morals. **It does not appear the proposed project will jeopardize public health, safety, and morals**
   (iii) The streets and driveways on the site will be adequate to serve the residents or occupants of the proposed development. **Yes, the applicant is proposing public streets to serve the development. Each of the 56 homes that will be built will have an asphalt or concrete driveway to provide vehicle parking.**
   (iv) The development will not impose an undue burden on public services and facilities, such as fire and police protection. **See public service, police, and fire departments' comments.**
   (v) The Development Plan contains such proposed covenants, easements, and other provisions relating to the proposed development standards, as reasonably are required for public health, safety and morals. **Covenants were not submitted.**
   (vi) The location and arrangement of structures, parking areas, walks, lighting, and appurtenant facilities shall be compatible with the surrounding land uses, and any part of the Planned Development not used for structures, parking and loading areas, or access ways, shall be landscaped or otherwise improved. **The location and arrangement of structures, parking areas, walks, lighting, and appurtenant facilities will be compatible with the surrounding land uses. The applicant is proposing approximately 22% of the overall area of the site to be open space, which includes the multi-use path and associated green space along Haber Road.**

Section 1111.21(D) - Planning Requirements

(1) The physical character of the site shall be suitable for development in the manner proposed, without hazards to persons or property on or off the site from possible flooding, erosion, subsidence (sink holes or cave-ins), or other dangers, annoyances, or inconveniences. **The Final Development Plan includes full engineered plans to address the utilities, stormwater run-off, and erosion control. These plans were reviewed by the City's consulting Engineer to make sure that the design complies with Federal, State and Local laws and Engineering Best Practices.**
(2) The site shall have direct access to a major street and not generate traffic on minor residential streets outside the district. **The proposed single-family residential development will have one access point from Haber Road, and will eventually have a secondary access point in Section 2.**

(3) Utilities and public facilities shall be developed at no cost to the public. **Development will be subject to the applicable impact fees. Clayton staff to provide additional information.**
(4) The development shall provide for efficient, safe, convenient, and harmonious grouping of structures, uses, and facilities. **The plans appear to comply with this planning requirement.**
(5) There shall be an appropriate relationship of space inside and outside buildings to intended uses and structural features. **The proposed lots will typically be 52′ wide x 125′ deep (variations to these exact dimensions will exist throughout especially on cul-de-sacs). The minimum lot area is 6,500 square feet or 0.15 acres. The relationship of space inside and outside the proposed homes will be appropriate for the area and consistent with current development in the City of Clayton.**
(6) Provision shall be made at points of ingress, egress and within the districts (developments) to insure a free and safe flow of vehicular and pedestrian traffic. **As mentioned, the proposed development will have one primary point from Haber Road in Section 1, with a secondary access point in Section 2. Each of the new streets will have 4′ wide sidewalks on both sides of the street and there will be a 10′ multi-use path along the entire Haber Road frontage. There will be 4′ wide paths in certain portions of the neighborhood tying the neighborhood park and certain cul-de-sacs to the multi-use path on Haber Road. All considered, the roads, walks and paths shown in the plan should ensure a free and safe flow of vehicular and pedestrian traffic throughout the development.**
(7) Common open space may be required. **Common open space is provided.**
(8) Off-street parking for more than three (3) cars, service areas for loading and unloading vehicles, and areas for storage and collection of trash and garbage shall be properly screened. **Each house will have a garage, and room on the driveway for additional car parking. Typically, the proposed Covenants will address some of the other items in this section, including trash can storage, etc.**

Section 1111.22 – Clayton Improvement District #1 Overlay (CID1-O)

Section 1111.22 (C) - General Provisions

(1) Planned Development Required. Any development of land, or assemblage of land, with an area of five (5) acres or more, or where more than five lots will be created, shall be developed as part of a planned development under this Zoning Code. **The overall area of the previously approved Preliminary Plan is 33 acres. The proposed Preliminary and Final Plan has an overall area of 17.135 acres. As such, the proposed Rezoning from RSD to PDD was and is not only required by this Code section but was and is appropriate for the proposed development.**
(2) Submittal Requirements. (no comments)
(3) Uses.
  (i) Uses shall be regulated by the underlying zoning district, planned development district, and any applicable regulations of this chapter. **Per planned development, the proposed use for this property is a single- family residential development.**
  (ii) *Unless otherwise modified by the planned development review process* in accordance with this chapter, *the maximum suggested gross density* of residential development shall be 2.5 units per acre. **The proposed density for this single-family residential development is 3.27 dwelling units per acre and is consistent with the formerly approved Preliminary Plans. If the 3.874 acres of open space are removed from the equation, the net density is 4.22 units per acre.**
  (iii) The Planning Commission and City Council may approve additional uses if they meet the purpose and intent of the City of Clayton Land Use Plan as it relates to the subject property. **The proposed development is strictly for 56 single-family residences, including public roads, sidewalks, multi-use path, and other neighborhood amenities.**

(4) General Design Standards.

(i) The entire land area of a development shall be divided into blocks, streets, lots, public spaces. The blocks, streets and lots should be organized into a network of interconnected streets to the maximum extent feasible. **The proposed single-family residential development is divided into blocks, streets, lots and public spaces that are served by interconnected streets and pedestrian paths.**

(ii) Similar land categories shall generally front across streets. Dissimilar categories shall abut at rear lot lines. Corner lots that front on streets of dissimilar use shall be setback the same as the adjacent use with the lesser setback. **The proposed development proposes only one land category (single-family residential) and therefore all lots and structures will front across the public streets.**

(iii) All uses shall be conducted within complete enclosed buildings unless otherwise specified. **The proposed development is for single-family residences, which is a use conducted completely within an enclosed building, but each lot will have room for outdoor enjoyment and recreation, including things like decks, porches, swimming pools, fences, and yard space.**

(iv) All setbacks shall be established though the planned development process. **As mentioned earlier, the proposed residential development is proposing a typical lot size with standard minimum setbacks, including twenty-five (25) foot front yard, five (5) foot side yard and thirty (30) foot rear yard.**

(v) All utilities shall be located underground to the maximum extent feasible. **For all new development in the City of Clayton, it is the expectation of the Development Department that all utilities will be installed underground, except for utility pedestals/boxes and meters that require location above ground for maintenance and servicing.**

(5) Anti-monotony Requirements. ***Applicant has not provided floor plans or elevations.***

(i) Single-family or two-family dwellings in proximity to each other on the same street shall not look alike. For the purposes of this requirement, "dwellings in proximity" shall mean the lot on either side of the subject property and the lots directly across the street from those three lots.

(ii) Residential dwellings shall differ from one another in two of the following:

a. Wall or siding materials;
b. Architectural style;
c. Major addition features such as porches or turrets;
d. Roof type or shape;
e. Building footprint; or
f. Window and door orientation.

(6) Floor Plan/Elevation Review. ***Applicant has not provided floor plans or elevations.***

(i) In addition to the anti-monotony standards above, the applicant shall submit illustrations and information on the floor plans, in particular, the building elevations for dwelling units as part of the submittal requirements.

(ii) The Planning Commission shall have the authority to review and approve or deny the use of certain floor plans and elevations for use in approved planned developments. However, such decision shall only be made based on the external appearance of the floor plan and not the internal layout of the dwelling.

(iii) Applicants may seek approval of additional floor plans, after initial approval of the planned development, by submitting the proposal floor plans to the Planning Commission for review in accordance with this section.

(iv) The Planning Commission shall review the floor plans:

a. To ensure compliance with the building material requirements of Clayton Improvement District;

b. To encourage building designs where garages are side entry, rear entry, or in the cases affront entry garages, ensure that the garages are flush with the front of the building or setback so they do not protrude in from the front facade line; and
c. To ensure a diversity of housing styles that will comply with the anti-monotony standards above.

Section 1111.22(D) - Provisions for Special Area 1 (Only the southern half of the subject property, nearest to National Road, is located within Special Area 1 of the Clayton Improvement District #1 Overlay)

(2) Permitted Uses and Density.
i. The maximum gross density of residential use permitted in this area shall be 2.5 units per acre if only the minimum public space requirements are met. **The proposed density for this single-family residential development is 3.27 dwelling units per acre and is consistent with the formerly approved Preliminary Plans. If the 3.874 acres of open space are removed from the equation, the net density is 4.22 units per acre.**
ii. The Planning Commission and Council may permit a maximum gross density of four units per acre provided that the applicant provides a minimum of 20% public space that meets the standards herein. **This section only applies to the southern half of the subject property, but overall, the proposed density is 3.27 dwelling units per acre with approximately 22% of open space, including the multi-use path. In any case, the Planning Commission and City Council, through the Planned Development process, can approve a density that is different than what this section suggests. It should be noted that Planning Commission and City Council have already approved this density.**
iii. The primary use of this area should be single-family detached dwellings. **The proposed use for this entire property is single-family detached dwellings.**
iv. A maximum of 20 percent of the dwelling units (in Special Area 1) may be attached housing provided the dwellings are attached through common walls with individual exterior entrances for each unit. Such units should be focused around the Towne Center (Village of North Clayton), Hoke Road and National Road. **Does not apply.**
v. Nonresidential uses may only be permitted when such use conforms with the City of Clayton Land Use Plan or any amendment thereto. **No nonresidential uses are proposed with the proposed development.**

(4) Landscaping and Buffering
v. A landscape plan shall be submitted with the planned development to illustrate compliance with these requirements and shall include indication of a maintenance plan. **A Landscape Plan has not been provided.**
vi. A lighting plan shall be submitted with the planned development to demonstrate that all outdoor lighting of buildings, parking areas, or signage shall not have a negative impact on adjacent properties. **A Lighting Plan has not been provided.**

(5) Fences
iii. The construction materials and colors of walls and fences on nonresidential properties shall be uniform and compatible with the architectural style, color, and building materials of the principal building and its surroundings unless the wall or fence is not visible from a public right of way. **The plan does not show an indication of fencing, but if fencing is proposed as part of the entry features or open space areas, details should be required as part of this submittal.**

(6) Public Space Requirement
i. For all planned developments with more than twenty-five (25) acres, a minimum of five percent (5%) of the project area shall be reserved as improved public spaces. Improved public spaces shall be approved by the Planning Commission and may include:

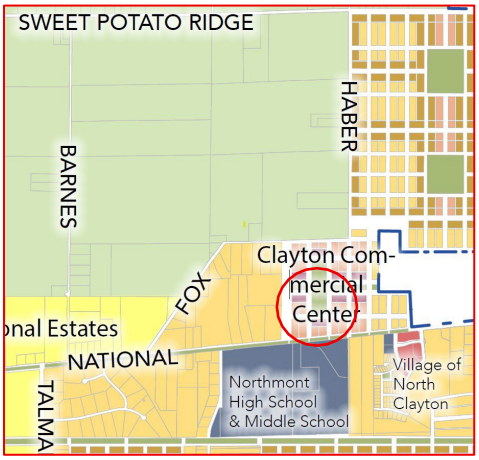
(a) Playgrounds and improved parks;
(b) Community centers;
(c) Swimming pools;
(d) Improved ponds;
(e) Picnic facilities;
(f) Public plazas that may serve as gathering places for residents;
(g) Other improved areas that may be used by the public as approved by the Planning Commission.

The proposed plan complies with this requirement; a total of 22% of the development (3+ acres) will be public spaces, including a multi-use path and linear park along Haber Road. In addition, all of the streets in the subdivision will have sidewalks on both sides of the street for residents to enjoy.

ii. For all planned developments with more than twenty-five (25) acres, an additional ten percent (10%) of the project area shall be reserved as common spaces that may include natural areas, common open spaces, or additional public spaces. **As mentioned above, the applicant has provided ample public space and common open space for the size of the development. About 22% of the property (3+ acres) will be common open spaces.**

Consistency with Plan Clayton

The proposed area is planned for what is called the "Clayton Commercial Center" – Parks, Mixed-Use, and Flex-Use designations are identified.



The New Regulating Plan (Page 38 of Plan Clayton).

The creation of 56 single-family residential lots and 2 open space lots is consistent with Plan Clayton. Plans are substantially similar to the Preliminary Plans from 2022, including the street layout and multi-use path location. The following goals from Plan Clayton emphasize the important elements of development to fulfill the vision set forth within the plan:

Goal 1. Creating Walkable Neighborhoods – The Northwood Estates development will be connected with sidewalks and a multi-use path that eventually can be connected to the existing bicycle path along National Road.

Goal 4. Great Streets and Infrastructure – Pages 86-87, PLAN Clayton summarizes four objectives of the goal area, including #2 Increase Multi-Modal Connectivity. The Northwood Estates development meets this objective by adding a multi-use path along the Haber Road frontage.

The current plans fall short of the plan's objectives to provide street trees as no landscaping plans are provided in the application. Additionally, no floor plans or elevations were provided.

Final Observations/Comments/Questions

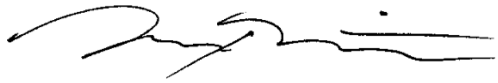
Overall, the development generally complies with all applicable standards. Further information is needed on the development schedule, open space, landscape, and lighting improvements to fulfill some of the remaining code requirements and to meet the city's larger goals for harmonious residential development, indicated in Plan Clayton.

- Provide sketches of the proposed structures and landscaping, including street trees per the requirements of Section 1111.22 and confirmation that the anti-monotony requirements will be followed.

- Provide Lighting Plan for the development that meets Section 1111.22.

Please let us know if you have any questions or need further clarification.

Sincerely,



Max Merritt, AICP

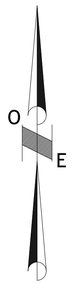
Planner, McBride Dale Clarion

RESERVED FOR PLAN COMMENT RESPONSES

RESERVED FOR UPDATED PLANS

NORTHWOOD ESTATES SUBDIVISION - SECTION 1

VICINITY MAP



CITY OF CLAYTON
MONTGOMERY COUNTY, OHIO

INDEX OF SHEETS

2023 SPECIFICATIONS

THE CONSTRUCTION STANDARDS AND DRAWINGS OF THE CITY OF CLAYTON, MONTGOMERY COUNTY ENVIRONMENTAL SERVICES, AND THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND GENERAL NOTES LISTED IN THE PLAN, SHALL GOVERN THIS IMPROVEMENT. THE MOST RESTRICTIVE SHALL APPLY.

PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF THE CONSTRUCTION OF STREETS, UTILITIES, AND GRADING FOR THE FIRST PHASE OF THE NORTHWOOD ESTATES SUBDIVISION IN THE CITY OF CLAYTON, MONTGOMERY COUNTY, OHIO.

UNDERGROUND UTILITIES
Contact Two Working Days Before You Dig
OHIO811.org Before You Dig
OHIO811, 8-1-1, or 1-800-362-2764
(Non-members must be called directly)

CONSTRUCTION PLANS

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA = 16.93 ACRES

ESTIMATED CONTRACTOR EARTH DISTURBED AREA = 0.50 ACRES

NOTICE OF INTENT (NOI) EARTH DISTURBED AREA = 17.43 ACRES

STANDARD CONSTRUCTION DRAWINGS		ODOT STANDARD CONSTRUCTION DRAWINGS	
4-H-1-3	09-08-2004	800	1-17-2025
4-H-1-4	07-27-1982		
		ODOT SUPPLEMENTAL SPECIFICATIONS	

Choice One Engineering

440 E. HOEWISHER ROAD • SIDNEY, OHIO 45365 • 937.497.0200
8956 GLENDALE MILFORD ROAD, SUITE 1 • LOVELAND, OHIO 45140 • 513.239.8554

www.CHOICEONEENGINEERING.com

JULY 7, 2025

Nicholas J. Selhorst 7/7/2025
NICHOLAS J. SELHORST P.E. DATE
P.E.-#79554

STATE OF OHIO · NICHOLAS J. SELHORST 79554 · REGISTERED PROFESSIONAL ENGINEER

Approved _____
Date _____ CITY ENGINEER

Approved _____
Date _____ CITY PLANNER

Approved _____
Date _____ MONTGOMERY COUNTY ENVIRONMENTAL SERVICES

Choice One Engineering

NORTHWOOD ESTATES SUBDIVISION - SECTION 1

REVISIONS:

FILE NAME GT
DRAWN BY KMM
CHECKED BY NNS
PROJECT No. MOTCLA2504
SHEET NUMBER 1 OF 19

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RECORD PLAN

NORTHWOOD ESTATES SECTION ONE.

SECTION 17 & 20, TOWN 5, RANGE 5 EAST
M.R.s.,
CITY OF CLAYTON
MONTGOMERY COUNTY, OHIO
CONTAINING 17.135 ACRES
MAY 2025

TYPICAL LOT

MINIMUM LOT
6,500 S.F.

LEGEND

- ● 5/8" X 30" REBAR W/CAP SET (C.O.E.C./AJB LS-8629)
- ○ IRON PIN FOUND (5/8" DIA.)
- MAG NAIL SET
- MAG NAIL FOUND
- MAG SPIKE SET
- EXISTING EASEMENT
- NEW EASEMENT LINE
- NEW SETBACK LINE

CURVE TABLE					
CURVE	RADIUS	LENGTH	DELTA	CH DIST	CH BEARING
C1	25.00'	39.32'	90°06'43"	35.39'	S45°20'54"W
C2	25.00'	39.22'	89°53'17"	35.32'	N44°39'06"W
C3	75.00'	117.81'	90°00'00"	106.07'	N44°35'45"W
C4	100.00'	157.08'	90°00'00"	141.42'	N44°35'45"W
C5	125.00'	44.18'	20°14'57"	43.95'	N79°28'16"W
C6	125.00'	35.95'	16°28'39"	35.82'	N61°06'28"W
C7	125.00'	43.55'	19°57'48"	43.33'	N42°53'15"W
C8	125.00'	43.55'	19°57'48"	43.33'	N22°55'26"W
C9	125.00'	29.12'	13°20'48"	29.05'	N06°16'09"W
C10	125.00'	196.35'	90°00'00"	176.78'	N44°35'45"W
C11	25.00'	39.27'	90°00'00"	35.36'	N44°35'45"W
C12	25.00'	39.27'	90°00'00"	35.36'	N45°24'15"E
C13	75.00'	117.81'	90°00'00"	106.07'	N44°35'45"W
C14	100.00'	157.08'	90°00'00"	141.42'	N44°35'45"W
C15	125.00'	5.00'	02°17'33"	5.00'	N00°44'31"W
C16	125.00'	43.55'	19°57'48"	43.33'	N11°52'12"W
C17	125.00'	43.55'	19°57'48"	43.33'	N31°50'00"W
C18	125.00'	43.55'	19°57'48"	43.33'	N51°47'48"W
C19	125.00'	43.55'	19°57'48"	43.33'	N71°45'36"W
C20	125.00'	17.12'	07°51'15"	17.12'	N85°40'07"W
C21	125.00'	196.34'	90°00'00"	176.78'	N44°35'45"W
C22	25.00'	21.03'	48°11'23"	20.41'	N65°30'03"W
C23	25.00'	21.03'	48°11'23"	20.41'	S66°18'34"W
C24	50.00'	12.33'	14°08'02"	12.30'	S49°16'53"W
C25	50.00'	45.99'	52°42'06"	44.39'	S82°41'57"W
C26	50.00'	35.40'	40°34'02"	34.67'	N50°39'59"W
C27	50.00'	35.40'	40°34'02"	34.67'	N10°05'57"W
C28	50.00'	35.40'	40°34'02"	34.67'	S30°28'04"W
C29	50.00'	35.80'	41°01'28"	35.04'	S71°15'49"W
C30	50.00'	40.86'	46°49'05"	39.73'	N64°48'55"W
C31	50.00'	241.18'	276°22'46"	66.67'	N00°24'15"E

THE BEARING OF S 84°20'08" W ALONG THE CENTERLINE OF U.S. ROUTE 40 WAS BASED ON NAD 83 CORS 2011 ADJUSTMENT, OHIO SOUTH ZONE, ORTN (OHIO REAL TIME NETWORK)

SCALE 1" = 50'
0 25 50 100

ALLEN J. BERTKE 8629

SUBMITTED FOR REVIEW

PREPARED BY:
ChoiceOne Engineering
SIDNEY, OHIO 937.497.0200
LOVELAND, OHIO 513.239.8554
www.CHOICEONEENGINEERING.com

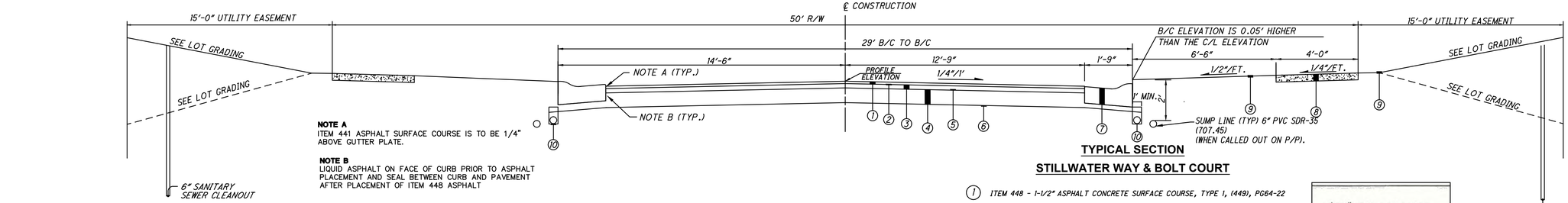
DATE:	05/28/2025
DRAWN BY:	RAP
JOB NUMBER:	MOTCLA2504
SHEET NUMBER	2 OF 2

ChoiceOne Engineering
SIDNEY, OHIO 937.497.0200
LOVELAND, OHIO 513.239.8554
www.CHOICEONEENGINEERING.com

NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
RECORD PLAT

REVISIONS:

FILE NAME	RECORD
DRAWN BY	KMM
CHECKED BY	NNS
PROJECT No.	MOTCLA2504
DATE	7-7-2025
SHEET NUMBER	2 OF 19

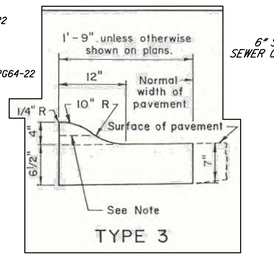


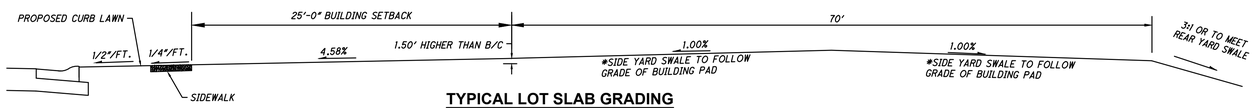
NOTE A
ITEM 441 ASPHALT SURFACE COURSE IS TO BE 1/4" ABOVE GUTTER PLATE.

NOTE B
LIQUID ASPHALT ON FACE OF CURB PRIOR TO ASPHALT PLACEMENT AND SEAL BETWEEN CURB AND PAVEMENT AFTER PLACEMENT OF ITEM 448 ASPHALT

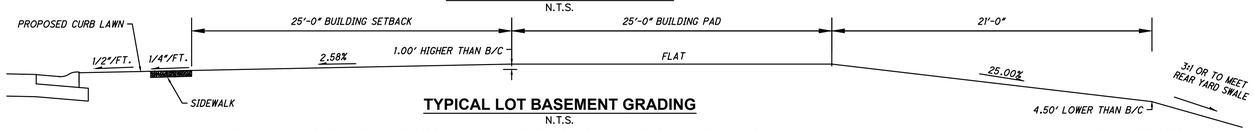
TYPICAL SECTION
STILLWATER WAY & BOLT COURT

1. ITEM 448 - 1-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG64-22
2. ITEM 407 - TACK COAT @ 0.10 GAL./S.Y.
3. ITEM 448 - 1-1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (449), PG64-22
4. ITEM 304 - 10" AGGREGATE BASE (2-5" LIFTS)
5. ITEM 408 - PRIME COAT @ 0.10 GAL./S.Y.
6. ITEM 204 - SUBGRADE COMPACTION
7. ITEM 609 - TYPE 3 COMBINED CURB & GUTTER
8. ITEM 608 - 4" CONCRETE WALK (BY HOMEBUILDER)
9. ITEM 659 - SEEDING AND MULCHING
10. ITEM 605, 4" PERFORATED PIPE UNDERDRAIN W/ WASHED 57'S BACKFILL





TYPICAL LOT SLAB GRADING
N.T.S.



TYPICAL LOT BASEMENT GRADING
N.T.S.

GENERAL NOTES

ALL CONSTRUCTION SHALL CONFORM TO THE STANDARDS OF THE CITY OF CLAYTON STORM STANDARDS, MONTGOMERY COUNTY ENIVRONMENTAL SERVICES, AND TO THE LATEST VERSION OF THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.

EXISTING UNDERGROUND UTILITIES AND SERVICES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS ACCORDING TO THE BEST INFORMATION AVAILABLE. THE LOCATIONS SHOWN ARE INTENDED ONLY AS A GUIDE AND CANNOT BE GUARANTEED ACCURATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR:

A. CONTACTING THE INDIVIDUAL UTILITY OWNERS TEN DAYS PRIOR TO CONSTRUCTION AND ADVISING THEM OF THE WORK TO TAKE PLACE.

B. SOLICITING THEIR AID IN LOCATING AND PROTECTING ANY UTILITY WHICH MAY INTERFERE WITH CONSTRUCTION.

C. EXCAVATING AND VERIFYING THE HORIZONTAL AND VERTICAL LOCATION OF EACH UTILITY.

D. ALL DAMAGE TO ANY EXISTING UTILITY.

THE FOLLOWING ARE OWNERS OF UNDERGROUND UTILITIES AND SHALL BE NOTIFIED 48 HOURS PRIOR TO CONSTRUCTION TO FIELD LOCATE SAID UTILITIES:

OHIO UTILITIES PROTECTION SERVICE (OUPS)
CONTACT 48 HOURS
"CALL BEFORE YOU DIG"
1-800-362-2764

ELECTRIC	*STORM*	*TELEPHONE*
AES OHIO	*CITY OF CLAYTON*	*AMERITECH*
BHAVYA KATTA	*6896 TAYWOOD RD,*	*4337 INTERPOINT*
1900 DRYDEN ROAD	*ENGLEWOOD, OH 45322*	*BLVD.*
DAYTON, OHIO	*937-836-3500*	*DAYTON, OH 45424*
45432		*937-233-2198*
937-331-4025	*WATER/SEWER*	
	MONTGOMERY	*GAS*
CABLE	*COUNTY*	*CENTERPOINT*
SPECTRUM	*ENVIRONMENTAL*	*ENERGY*
4333 DISPLAY	*SERVICES*	*6500 CLYO ROAD*
LANE	*INSPECTION*	*CENTERVILLE,*
KETTERING, OHIO	*1850 SPAULDING*	*OHIO 45459*
45429	*RD*	*937-3125-2533*
937-294-6400	*KETTERING,OH*	*ATTN: DON*
	45432	*SPECHT*
	937-781-2650	

ALL SANITARY MANHOLE, STORM MANHOLE, AND CATCH BASIN BOTTOMS SHALL BE FINISHED SMOOTH AND CHANNELED. MANHOLE LID AND FRAME CASTINGS SHALL BE EJIW 1590 OR NEENAH 1668 (LID SHALL BE VENTED UNLESS OTHERWISE SPECIFIED), STREET CATCH BASIN CASTING SHALL BE EJIW 7030 (1-2 BACK) OR NEENAH (MOUNTABLE CURB) 3246-E, AND 2-2B CASTING SHALL BE EJIW 5110-M3. ALL GRATES SHALL BE RATED AS "BICYCLE PROOF".

ALL UNDERGROUND UTILITY SERVICE LATERALS ARE TO BE INSTALLED BEFORE STREETS ARE SURFACED.

ANY MISCELLANEOUS DRAINS (FIELD TILE, ETC.) ENCOUNTERED DURING CONSTRUCTION SHALL BE TIED INTO THE STORM SEWER UPON INSPECTION BY THE CITY.

ALL STREET SURFACES, DRIVEWAYS, CULVERTS, ROADSIDE DRAINAGE DITCHES AND OTHER STRUCTURES THAT ARE DISTURBED OR DAMAGED IN ANY MANNER AS A RESULT OF CONSTRUCTION SHALL BE REPLACED IN KIND.

SAFETY REQUIREMENTS, STATED UNDER 29 CFR, OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION'S (OSHA) REGULATIONS FOR THIS TYPE OF WORK, WILL BE ENFORCED AND THE CONTRACTOR SHALL COMPLY WITH THESE PROVISIONS.

THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO CONTROL SOIL EROSION AND SEDIMENTATION THROUGHOUT THE COURSE OF THE WORK. THIS SHALL INCLUDE THE USE OF HAY BALES, DIKES, SEDIMENT PITS, MULCHES, FILTER FABRICS, AND OTHER DEVICES AND METHODS. PARTICULAR CARE SHALL BE TAKEN TO AVOID EROSION AND SEDIMENTATION ON PUBLIC STREETS AND NEIGHBORING PROPERTIES. SEE STORM WATER POLLUTION PREVENTION PLAN FOR MORE DETAILS.

TRAFFIC CONTROL ON ALL PUBLIC ROADS SHALL CONFORM TO THE "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".

THE CONTRACTOR SHALL ACQUIRE ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.

ALL NON-PAVED AREAS SHALL BE GRADED, SEEDED, AND MULCHED IN ACCORDANCE WITH ODOT ITEM 659. HIGHLY ERODIBLE AREAS, AS DESIGNATED BY THE COUNTY, SHALL BE SODDED IN ACCORDANCE WITH ODOT ITEM 660.

ELEVATION DATUM

ELEVATIONS ARE BASED ON NAVD 88 (ODOT VRS GEOID 18).

UTILITY INTERFERENCE

IF, DURING THE CONSTRUCTION, INTERFERENCE ARISES WITH EXISTING UTILITIES IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE UTILITY COMPANY INVOLVED. ANY AND ALL WORK REQUIRED FOR PUBLIC OR PRIVATE UTILITIES WILL BE DONE BY AND AT THE EXPENSE OF THEIR RESPECTIVE OWNERS, UNLESS OTHERWISE NOTED ON THESE PLANS. THE CONTRACTOR SHALL NOTIFY, AT LEAST 7 DAYS BEFORE BREAKING GROUND, ALL PUBLIC SERVICE CORPORATIONS HAVING WIRES, POLES, PIPES, CONDUITS, MANHOLES, OR OTHER STRUCTURES THAT MAY BE AFFECTED BY THIS OPERATION, INCLUDING ALL STRUCTURES WHICH ARE AFFECTED AND NOT SHOWN ON THESE PLANS.

UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. CHOICE ONE ENGINEERING CORPORATION MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA EITHER IN-SERVICE OR ABANDONED. FURTHER, CHOICE ONE ENGINEERING CORPORATION DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH CHOICE ONE ENGINEERING CORPORATION DID LOCATE AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. CHOICE ONE ENGINEERING CORPORATION

EXISTING TILE HOOKUPS

ANY DRAINAGE TILE DAMAGED BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR TO A CONDITION EQUAL TO OR BETTER THAN ITS ORIGINAL CONDITION. ALL TILE REMOVED, REPLACED AND/OR CONNECTED TO THE STORM SEWER SHALL BE NOTED ON THE RECORD DRAWINGS AND SHALL BE INSPECTED BY THE COUNTY BEFORE THEY ARE COVERED. ALL FIELD OR STORM DRAINS WHICH ARE ENCOUNTERED DURING CONSTRUCTION SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS OR PLUGGED AS APPROVED AND DIRECTED BY THE COUNTY.

HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

PROTECTION OF SUB-SURFACE TILE
BE ADVISED: A SUB-SURFACE DRAINAGE SYSTEM MAY EXIST ON THIS SITE. THE SYSTEM AND/OR OUTLET, IF LOCATED ON THIS PROPERTY, MUST BE MAINTAINED AT ALL TIMES AND CONNECTED TO STORM SYSTEM.

PRECONSTRUCTION MEETING

ONCE THE JOB IS AWARDED TO A CONTRACTOR THERE SHALL BE A PRECONSTRUCTION MEETING WITH THE FOLLOWING ATTENDING PRIOR TO THE START OF ANY WORK:

-OWNER	-AMERITECH
-CONTRACTOR	-SPECTRUM-CABLE
-DESIGN ENGINEER	-AES OHIO-ELECTRIC
-MONTGOMERY COUNTY ENVIRONMENTAL SERVICES	
-CITY OF CLAYTON	-CENTERPOINT ENERGY

SANITARY SEWER TESTING NOTES
SANITARY SEWER TESTING SHALL BE PER MONTGOMERY COUNTY ENVIRONMENTAL SERVICES DEPARTMENT SPECIFICATIONS.

GENERAL NOTES FOR ALL WORK

1. "MONTGOMERY COUNTY WATER SERVICES", "MONTGOMERY COUNTY ENVIRONMENTAL SERVICES" AND/OR MONTGOMERY COUNTY SANITARY ENGINEERING DEPARTMENT" AS REFERRED, ALL OR IN PART, ALL REFERRED TO AND ARE THE SAME AS MONTGOMERY COUNTY ENVIRONMENTAL SERVICES."
2. SAFETY- CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK IN ACCORDANCE WITH GENERAL CONDITIONS, ARTICLE 7 - "CONTRACTOR'S RESPONSIBILITIES".
3. PROJECT SPECIFICATIONS- CONTRACTOR SHALL CONSTRUCT ALL SANITARY SEWERS, WATER MAINS, FACILITIES, STORM SEWERS AND APPURTENANCES IN ACCORDANCE WITH MONTGOMERY COUNTY ENVIRONMENTAL SERVICES DEPARMENT STANDARDS AND SUPPLEMENTAL CONSTRUCTION SPECIFICATIONS (HEREIN CALLED "SPECIFICATION") EFFECTIVE 2019 OR THE LATEST REVISION.
4. REFERENCE STANDARDS/SPECIFICATIONS- CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND REFERENCE DOCUMENTS AND SPECIFICATIONS CITED BUT NOT INCLUDED IN THE PROJECT SPECIFICATIONS. THESE MAY INCLUDE THE FOLLOWING:

A. ENVIRONMENTAL SERVICES DEPARTMENT RULES AND REGULATIONS EFFECTIVE MAY 17, 2016 OR THE LATEST REVISION.
B. OHIO DEPARTMENT OF TRANSPORTATION (ODOT) CONSTRUCTION AND MATERIAL SPECIFICATIONS EFFECTIVE JANUARY 1, 2019 OR THE LATEST REVISION.
C. ODOT "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" EFFECTIVE APRIL 12, 2019 OR THE LATEST REVISION.
D. OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) PERMIT NUMBER OHC000005-*AUTHORIZATION FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM" EFFECTIVE APRIL 23, 2018.
E. FEDERAL, STATE, COUNTY, CITY, TOWNSHIP, PARK DISTRICT OR OTHER RELEVANT AGENCY RULES, REGULATIONS AND SPECIFICATIONS FOR WORK ON ASSETS UNDER THEIR JURISDICTION.
F. OTHER DOCUMENTS AND SPECIFICATIONS REFERENCED IN THE PLANS AND/OR PROJECT SPECIFICATIONS.

5. CONNECTIONS- ROOF DRAINS, FOUNDATION DRAINS, OR OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.
6. DITCHES AND EROSION CONTROL- CONTRACTOR SHALL MAINTAIN AND RESTORE ALL EXISTING DITCHES THROUGHOUT THE PERIOD OF CONSTRUCTION ACTIVITY AND THE MAINTENANCE PERIOD. CONTRACTOR SHALL PROVIDE SEDIMENT AND EROSION CONTROL FOR ALL DISTURBED AREAS.
7. PERMITS- CONTRACTOR SHALL OBTAIN PERMITS REQUIRED TO WORK WITHIN THE PUBLIC RIGHT-OF-WAY, AS REQUIRED BY THE APPROPRIATE JURISDICTIONS. ENVIRONMENTAL SERVICES PERMITS WILL NOT BE ISSUED UNTIL ALL PERMITS REQUIRED BY OTHER JURISDICTIONS HAVE BEEN ISSUED. CONTRACTOR SHALL NOT COMMENCE CONSTRUCTION UNTIL ENVIRONMENTAL SERVICES PERMITS HAVE BEEN ISSUED. CONTRACTOR SHALL PROCURE AND PAY ALL PERMITS, LICENSES, INSPECTIONS AND APPROVALS NECESSARY FOR CONSTRUCTION OF THE WORK. CONTRACTOR SHALL INCLUDE THE COST OF THE PERMITS IN THE BID UNLESS OTHERWISE SPECIFIED.
8. CHANGES- CONTRACTOR SHALL NOT INSTALL ADDITIONS, DELETIONS, OR REVISIONS TO THE SANITARY SEWERS, STORM WATER SEWERS, FACILITIES, WATER MAINS, OR APPURTENANCES WITHOUT PRIOR WRITTEN APPROVAL BY THE ENVIRONMENTAL SERVICES PROJECT ENGINEER.
9. UNDERGROUND UTILITIES LOCATIONS- CONTRACTOR SHALL NOTIFY ENVIRONMENTAL SERVICES AND OTHER UTILITY OWNERS MORE THAN TWO FULL WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION AND REQUEST ACCURATE FIELD LOCATIONS OF EXISTING UNDERGROUND UTILITIES. THE APPROXIMATE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES ARE AS SHOWN ON THE PLANS BASED ON THE BEST AVAILABLE INFORMATION.
10. TREE AND SHRUB PROTECTION AND TRIMMING- CONTRACTOR SHALL TAKE SPECIAL CARE TO AVOID DAMAGE TO TREE, SHRUBS AND THEIR ROOT SYSTEMS. CONTRACTOR SHALL MEET ALL REQUIREMENTS OF SPECIFICATION SECTION 02998.
11. BURNING AND BURYING- CONTRACTOR SHALL NOT BURN OR BURY TREES, STUMPS, OR OTHER CONSTRUCTION DEBRIS ON THE PROJECT SITE.
12. TRAFFIC CONTROL- CONTRACTOR SHALL PLAN AND EXECUTE TRAFFIC CONTROL IN ACCORDANCE WITH THE TRAFFIC CONTROL NOTES.
13. OPERATION OF ENVIRONMENTAL SERVICES UTILITIES- ONLY MONTGOMERY COUNTY ENVIRONMENTAL SERVICES PERSONNEL SHALL OPERATE MAIN LINE WATER VALVES, SEWER FORCE MAIN VALVES, AND ALL OTHER WATER AND SEWAGE FACILITIES AND APPURTENANCES.
14. NOTIFICATION TO OTHER AGENCIES- CONTRACTOR SHALL NOTIFY AGENCIES RESPONSIBLE FOR PUBLIC RIGHT-OF-WAY AND EASEMENT PRIOR TO PERFORMING WORK IN THEM. NOTIFICATION SHALL BE IN THE FORM AND THE LEAD TIME REQUIRED BY EACH AGENCY.
15. REPORT OF SPILLS AND SAMPLING- CONTRACTOR SHALL IMMEDIATELY REPORT TO THE ON-SITE ENVIRONMENTAL SERVICES INSPECTOR AND THE PROJECT ENGINEER ANY SPILL OF SANITARY SEWAGE. CONTRACTOR SHALL DOCUMENT THE TIME THE DISCHARGED BEGAN, THE TIME IT ENDED, ESTIMATED AMOUNT IN GALLONS THAT REACHED THE WATER OF THE STATE (ANY STREAM) AND THE REASON THE DISCHARGE OCCURRED, SUCH AS FAILED PIPE GASKET, BROKEN PUMP HOSE, OR OTHER REASONS. CONTRACTOR SHALL REMOVE SEWAGE THAT DOES NOT DRAIN TO THE WATERS OF OHIO AND DELIVER IT TO THE MONTGOMERY COUNTY SEPTAGE RECEIVING STATION AT 4257 DRYDEN ROAD FOR TREATMENT.
16. HISTORICAL OR ARCHEOLOGICAL EVIDENCE- CONTRACTOR SHALL IMMEDIATELY CEASE OPERATIONS WHEN EVIDENCE OF DEPOSITS OF HISTORICAL OR ARCHEOLOGICAL INTEREST IS FOUND. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENVIRONMENTAL SERVICES PROJECT ENGINEER. ENVIRONMENTAL SERVICES WILL NOTIFY THE HISTORIC PRESERVATION OFFICE. CONTRACTOR SHALL NOT PERMIT FURTHER DISTURBANCE OF THE EVIDENCE UNTIL CONTRACTOR HAS BEEN NOTIFIED IN WRITING BY THE PROJECT ENGINEER THAT HE/SHE SURVEYED THE FIND AND MADE A DETERMINATION OF VALUE AND EFFORT AND SUBMITTED SUCH DETERMINATION TO THE OWNER.
17. PLANNING- CONTRACTOR SHALL PLAN HIS OPERATION IN ORDER TO MINIMIZE DISRUPTION OF EXISTING FACILITIES. THE CONTRACTOR SHALL PREPARE AND SUBMIT A CONSTRUCTION SCHEDULE IN ACCORDANCE WITH THE SPECIFICATIONS.

WATER MAINS

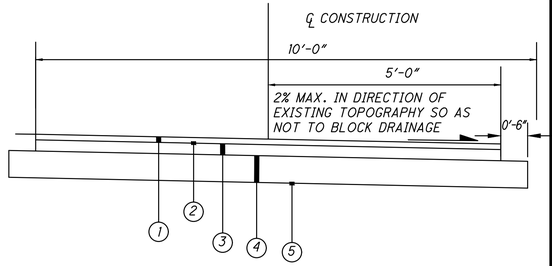
1. SERVICE CONNECTIONS- CONTRACTOR SHALL NOT CONNECT ANY WATER SERVICE TO THE WATER MAIN UNTIL THE MAINS HAVE BEEN INSPECTED, TESTED, DISINFECTED AND RELEASED FOR TAPS. ALL NEW OR REPLACEMENT WATER SERVICES SHALL BE A MINIMUM OF ONE INCH IN DIAMETER AND SHALL BE FABRICATED OF TYPE "K" COPPER FROM THE MAIN TO THE METER PIT OR CURB BOX.
2. SEVERED CONNECTION- CONTRACTOR SHALL REPLACE ALL SERVICE CONNECTIONS THAT ARE SEVERED OR DAMAGED DURING CONSTRUCTION.
3. MINIMUM COVER- WATER MAINS SHALL HAVE FOUR FEET SIX INCHES (4'6") MINIMUM COVER.
4. HYDRANT LOCATIONS- FIRE HYDRANTS SHALL BE LOCATED NO CLOSER THAN TWO FEET (2') OR FARTHER THAN FIVE FEET (5') FROM THE BACK OF CURB OR EDGE OF PAVEMENT. THE FOUR INCH (4") HYDRANT OPENING SHALL FACE THE STREET. ALL HYDRANTS SHALL BE ADJUSTED TO FINAL GRADE.
5. SEPARATION- WATER MAINS SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF TEN FEET (10') FROM ANY SANITARY OR STORM SEWER. THE SEPARATION DISTANCE SHALL BE MEASURED LEVEL BETWEEN THE OUTSIDE SURFACE OF THE WATER MAIN PIPE AND THE OUTSIDE SURFACE OF ANY SANITARY OR STORM SEWER PIPE. WATER MAINS SHALL HAVE A MINIMUM VERTICAL SEPARATION OF EIGHTEEN INCHES (18") MEASURED VERTICALLY BETWEEN THE OUTSIDE SURFACE OF THE WATER MAIN PIPE AND THE OUTSIDE SURFACE OF ANY SANITARY OR STORM SEWER PIPE. WHERE A WATER MAIN CROSSES A SANITARY OR STORM SEWER, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING SUCH THAT BOTH JOINTS WILL BE EQUIDISTANT, AND AS FAR AS POSSIBLE, FROM THE SEWER PIPE.
6. INSPECTIONS- WATER MAIN INSTALLATIONS WILL BE INSPECTED BY ENVIRONMENTAL SERVICES PERSONNEL AND MAY BE INSPECTED BY OTHER JURISDICTIONS HAVING AUTHORITY OVER WATER MAINS.
7. VALVE LOCATIONS- ALL GATE VALVES AT TEES/OR CROSSES SHALL BE LOCATED WITHIN THREE FEET (3') OF THE TEE OR CROSS. WHERE PLUGS ARE INSTALLED ON A BRANCH, THEY SHALL BE CONNECTED TO VALVES EXCEPT WHERE OTHERWISE SHOWN ON THE PLANS.
8. CONNECTIONS TO PRE-STRESSED- CONTRACTOR SHALL MEET WITH ENVIRONMENTAL SERVICES REPRESENTATIVE BEFORE ORDERING ANY WATER PIPE WHEN A CONNECTION TO PRE-STRESSED WATER MAIN IS INCLUDED IN THE WORK.
9. NOTICE TO SHUTDOWN WATER MAIN- CONTRACTOR SHALL PROVIDE A MINIMUM OF SEVENTY-TWO (72) HOURS NOTICE TO THE PROJECT ENGINEER (EXCLUSIVE OF WEEKENDS AND HOLIDAYS) FOR ANY PLANNED WATER MAIN SHUTDOWN.
10. DEFLECTIONS- PIPE DEFECTIONS AT A JOINT SHALL NOT EXCEED ONE HALF (1/2) OF THE MAXIMUM DEFECTION RECOMMENDED BY THE PIPE MANUFACTURER.
11. COMPRESSION (NOT PACKED) JOINTS ARE ACCEPTABLE FOR COPPER CONNECTIONS.
12. VALVE BOXES LOCATED IN THE ROADWAY SHALL BE OF A DOMESTIC MANUFACTURER AND BE "HEAVY DUTY".
13. STARTING JANUARY 1, 2014 EPA REQUIRES THAT MUNICIPAL WATER SYSTEMS USE LOW LEAD BRASS FITTINGS. THIS SHALL APPLY TO ALL BRASS COMPONENTS IN FIRE HYDRANTS.
14. ALL FITTINGS AND VALVES SHALL BE RESTRAINED JOINT.
15. THE DISCOVERY OF LEAD SERVICES SHALL BE COMMUNICATED TO THE MCES INSPECTOR IMMEDIATELY.
16. SHOULD A LEAD SERVICE BE DISTURBED, IT SHALL BE REPLACED WITH COPPER FROM THE OLD MAIN TO THE EXISTING CURB STOP THE SAME DAY IT IS DISTURBED, AT NO ADDITIONAL COST TO MCES.

SANITARY SEWERS

1. RELEASES AND CONNECTIONS- CONTRACTOR SHALL NOT MAKE ANY PHYSICAL CONNECTION TO AN EXISTING SANITARY SEWER UNTIL THE NEW SEWER, EXCLUDING THE CONNECTING SPAN, HAS BEEN INSPECTED, TESTED AND RELEASED.
2. BYPASS PUMPING- CONTRACTOR SHALL ENSURE THAT NO SEWAGE IS BYPASS PUMPED OR RELEASED FROM THE MONTGOMERY COUNTY SANITARY SEWER SYSTEM. SEE PROJECT SPECIFICATION SECTION 01046. SANITARY SEWAGE SPILLS SHALL BE REPORTED AND REMOVED IN ACCORDANCE WITH THE ℳGENERAL NOTES FOR ALL WORKℳ ABOVE.
3. MANHOLES- CONTRACTOR SHALL FURNISH AND INSTALL PRECAST CONCRETE MANHOLES CONFORMING TO ASTM C-478. JOINTS BETWEEN MANHOLE SECTIONS SHALL CONFORM TO ASTM C-443. MANHOLES SHALL BE VACUUM TESTED ALL IN ACCORDANCE WITH THE PROJECT SPECIFICATION SECTION 02722.
4. CHIMNEY SEALS- CONTRACTOR SHALL INSTALL AN APPROVED CHIMNEY SEAL BETWEEN THE CASTING AND CONE SECTION OF EACH MANHOLE.
5. MANHOLE BASE- BASE SECTIONS OF EACH MANHOLE SHALL BE CHANNELED TO TO ACCOMMODATE FLOW AND PROVIDE A BENCH FOR MAINTENANCE PERSONNEL. EACH BASE SHALL BE PRECAST CONCRETE UNLESS THE PLANS DIRECT OTHERWISE. PRECAST CONCRETE BASES SHALL HAVE TWO (2) CAGES OF REINFORCING STEEL IN THE WALL. EACH CAGE HAVING AN AREA OF STEEL EQUAL TO THAT REQUIRED IN THE RISER SECTIONS IN ACCORDANCE WITH PROJECT SPECIFICATION SECTION 02722.
6. MANHOLE STEPS- STEPS SHALL NOT BE INSTALLED IN MANHOLES.

CONSTRUCTION INSPECTION

1. NOTIFICATION- CONTRACTOR SHALL NOTIFY MONTGOMERY COUNTY ENVIRONMENTAL SERVICES TEN (10) CALENDAR DAYS PRIOR TO COMMENCEMENT OF PROJECT ACTIVITIES. THIS TIME IS NECESSARY TO LOCATE VALVES AND MANHOLES, CREATE WORK ORDERS AND PERFORM REPAIRS WHEN NECESSARY IN A NON-EMERGENCY MODE.
2. REPLACEMENT PARTS- PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL SCHEDULE A "PROJECT WALK THROUGH" WITH ENVIRONMENTAL SERVICES INSPECTION PERSONNEL AND RELEVANT SUBCONTRACTORS. CONTRACTOR SHALL IDENTIFY EXISTING ENVIRONMENTAL SERVICES UTILITIES THAT REQUIRE REPAIR OR REPLACEMENT. PARTS MAY INCLUDE BROKEN OR MISSING VALVE CAPS, VALVE BOXES, MANHOLE LIDS, MANHOLE CASTINGS, INOPERABLE FIRE HYDRANTS, AND OTHER SIMILAR ITEMS. ENVIRONMENTAL SERVICES WILL PROVIDE REPLACEMENT PARTS TO CONTRACTOR FOR INSTALLATION BY CONTRACTOR AT THE APPROPRIATE TIME.
3. NOTICE TO TEST OR TAP MAINS- CONTRACTOR SHALL NOTIFY PROJECT ENGINEER FORTY-EIGHT (48) HOURS PRIOR TO ANY PLANNED TESTING OR TAPPING OF MAIN LINE UTILITIES OR THEIR APPURTENANCES. CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS PRIOR TO BEGINNING WORK.
4. INSPECTOR DUTIES- INSPECTORS ARE AVAILABLE TO DISCUSS WITH CONTRACTOR THE CONSTRUCTION EVENTS ASSOCIATED WITH PROJECT PLANS, SPECIFICATIONS OR OTHER REQUIREMENTS OR REGULATIONS NECESSARY FOR COMPLETION OF THE PROJECT. ENVIRONMENTAL SERVICES INSPECTORS DO NOT HAVE AUTHORITY TO CHANGE ANY PORTIONS OF A PROJECT THAT WILL INCREASE OR DECREASE PROJECT COTS. ALL CHANGES IN WORK (WHICH COULD CAUSE AN INCREASE IN PROJECT COSTS) SHALL BE REVIEWED BY THE ENVIRONMENTAL SERVICES PROJECT ENGINEER. CONTRACTOR SHALL DISCUSS WITH THE PROJECT ENGINEER ANY ADDITIONS OR DELETIONS FOR THE PURPOSE OF SEEKING APPROVAL OF THE PROPOSED CHANGES.
5. MARKING AND ACCESSIBILITY- CONTRACTOR SHALL AT ALL TIMES PROTECT AND ENSURE THAT VALVES, HYDRANTS, AND MANHOLES OR OTHER APPURTENANCES ARE ACCESSIBLE AND VISIBLY MARKED DURING CONSTRUCTION. FAILURE TO MAINTAIN ACCESSIBILITY AND MARK FOR THESE ITEMS MAY REQUIRE ENVIRONMENTAL SERVICES TO PERFORM THESE TASKS AT A CONTRACTOR'S EXPENSE.
6. WORKING HOURS AND ADDITIONAL COSTS- CONTRACTOR SHALL PERFORM ALL WORK THAT REQUIRES INSPECTION, ATTENTION OR PRESENCE BY ENVIRONMENTAL SERVICES PERSONNEL DURING REGULAR WORKING HOURS WHICH ARE 7:30AM TO 4:00 PM MONDAY THROUGH FRIDAY. CONTRACTOR SHALL SUBMIT A WRITTEN NOTICE OF INTENT TO WORK AT TIMES OTHER THAN REGULAR WORKING HOURS. THE NOTICE SHALL BE SUBMITTED TO THE PROJECT ENGINEER AND CONSTRUCTION INSPECTOR FORTY-EIGHT (48) HOURS PRIOR TO BEGINNING WORK. THE PROJECT ENGINEER HAS THE RIGHT TO DENY PERMISSION WITH DUE CAUSE, FOR THE CONTRACTOR TO WORK AT TIMES OTHER THAN REGULAR WORKING HOURS. WHEN CONTRACTOR PERFORMS WORK AT TIME OTHER THAN REGULAR WORKING HOURS, EITHER BY CHOICE OR NECESSITY TO MEET CONTRACT REQUIREMENTS, CONTRACTOR SHALL PAY ENVIRONMENTAL SERVICES THE COST OF CONSTRUCTION INSPECTOR SERVICES AT RATES DEFINED BY ENVIRONMENTAL SERVICES AND AVAILABLE UPON REQUEST. PAYMENT TO ENVIRONMENTAL SERVICES SHALL BE FOR A MINIMUM OF TWO (2) HOURS AND SHALL BE PAID BY CHECK MADE PAYABLE TO "MONTGOMERY COUNTY ENVIRONMENTAL SERVICES".
7. CONTRACTOR ASSISTANCE- CONTRACTOR SHALL PROVIDE ASSISTANCE TO ENVIRONMENTAL SERVICES PERSONNEL IN CASE OF EMERGENCY, TO SHUT DOWN VALVES OR OTHER OPERATIONS REQUESTED BY ENVIRONMENTAL SERVICE PERSONNEL IN ORDER TO LIMIT DAMAGE OR LOSS.



ASPHALT WALKING PATH CROSS SECTION
NTS

LEGEND

1. *ITEM 441 - 1-1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22*
2. *ITEM 407 - NON-TRACKING TACK COAT APPLIED AT 0.06 GAL./S.Y.*
3. *ITEM 441 - 1-3/4" ASPHALT CONCRETE BASE, PG64-22*
4. *ITEM 304 - 6" AGGREGATE BASE*
5. *ITEM 204 - SUBGRADE COMPACTION*

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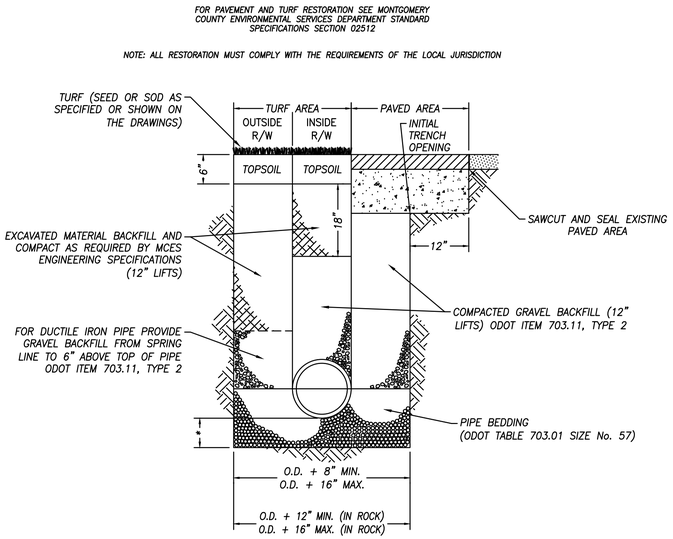
NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
TYPICAL SECTION AND GENERAL NOTES

REVISIONS:

FILE NAME	*GN001*
DRAWN BY	*KMM*
CHECKED BY	*NNS*
PROJECT No.	*MOTCLA2504*
DATE	*7-7-2025*
SHEET NUMBER	*3 OF 19*



* 6" OR $\frac{\text{PIPE O.D. (INCHES)}}{8}$ WHICHEVER IS LARGER

** RIGID PIPE = DUCTILE IRON, CONCRETE PRESSURE PIPE, PVC COMPOSITE (TRUSS), VITRIFIED CLAY PIPE, OR REINFORCED CONCRETE PIPE

TYPICAL TRENCH DETAIL FOR RIGID PIPE

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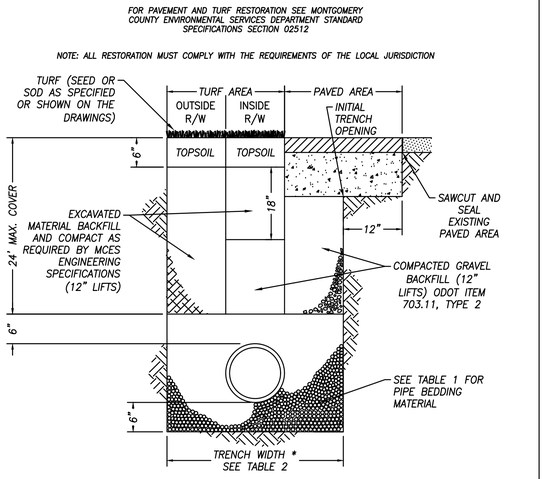


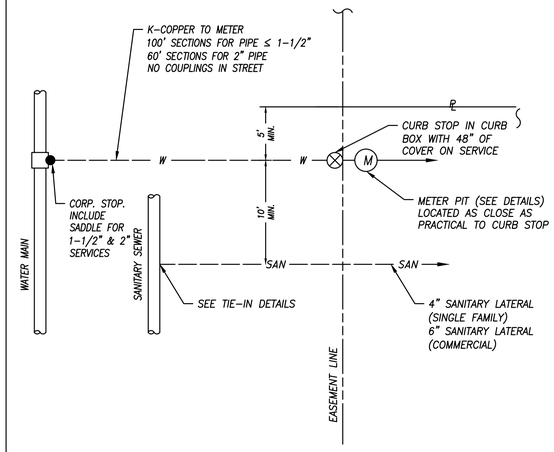
TABLE 1	
PIPE DIAMETER	ODOT TABLE 703.01 SIZE
LESS THAN 15"	#7 OR #8 – 100% CRUSHED
15"–30"	#67 – 100% CRUSHED
GREATER THAN 30"	#57 – 100% CRUSHED

TABLE 2	
PIPE DIAMETER	TRENCH WIDTH *
LESS THAN 15"	O.D. + 16"
GREATER THAN 15"	(O.D. x 1.25) + 12"

* TRENCH WIDTH MAY BE LESS IF APPROVED BY THE ENGINEER TRENCH WIDTH TO BE GREATER IN POOR OR UNSTABLE SOILS AS DETERMINED BY THE ENGINEER (REF. ASTM D 2321).

TYPICAL TRENCH DETAIL FOR THERMOPLASTIC PIPE

NTS



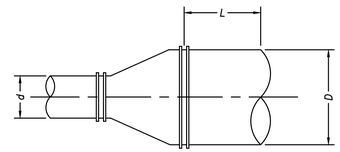
NOTES:
1. CONTACT MCES FOR COURSE OF ACTION FOR ANY SITUATION NOT COVERED IN HANDBOOK
2. SHUTOFF VALVE REQUIRED IMMEDIATELY AFTER SERVICE ENTERS BUILDING
3. PICKUP OF 1" SERVICE IS ONLY PERMITTED IF K-COPPER AND EXISTING STUB WERE INSTALLED AS PART OF A MAIN LINE EXTENSION

TYPICAL WATER AND SANITARY SERVICE INSTALLATION

NTS

MINIMUM LENGTH OF RESTRAINED JOINTS ("L")

DIAMETER OF LARGER PIPE ("D")	DIAMETER OF SMALLER PIPE ("d") 6"	8"	12"
8"	33'		
12"	82'	59'	
16"	122'	105'	61'



"L" = MINIMUM LENGTH OF RESTRAINED JOINTS
"D" = DIAMETER OF LARGER PIPE
"d" = DIAMETER OF SMALLER PIPE

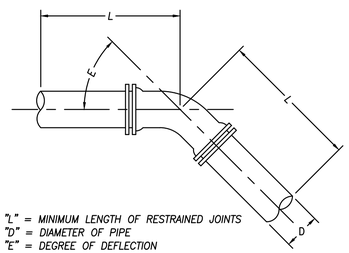
LENGTHS CALCULATED USING DIPRA THRUST RESTRAINT CALCULATOR WITH THE FOLLOWING ASSUMPTIONS:
POLYWRAPPED PIPE
PRESSURE = 150 PSI
SAFETY FACTOR = 1.5
SOIL TYPE = SILT 1
DEPTH OF COVER = 4.5 FEET
LAYING CONDITIONS = TYPE 4 BEDDING

JOINT RESTRAINT FOR REDUCERS

NTS

MINIMUM LENGTH OF RESTRAINED JOINTS ("L")

DEGREE OF DEFLECTION ("E")	DIAMETER OF PIPE ("D") 6"	8"	12"	16"
11 1/4°	6'	8'	12'	15'
22 1/2°	13'	17'	24'	31
45°	26'	35'	50'	65'
90°	64'	84'	120'	156'



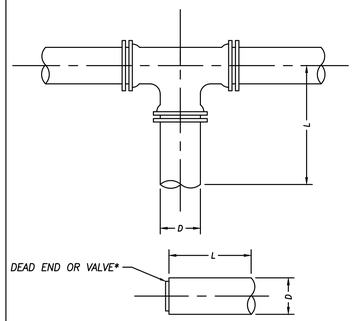
"L" = MINIMUM LENGTH OF RESTRAINED JOINTS
"D" = DIAMETER OF PIPE
"E" = DEGREE OF DEFLECTION

LENGTHS CALCULATED USING DIPRA THRUST RESTRAINT CALCULATOR WITH THE FOLLOWING ASSUMPTIONS:
VERTICAL BEND DOWN
POLYWRAPPED PIPE
PRESSURE = 150 PSI
SAFETY FACTOR = 1.5
SOIL TYPE = COHESIVE GRANULAR
DEPTH OF COVER = 4.5 FEET
LAYING CONDITIONS = TYPE 4 BEDDING

JOINT RESTRAINT FOR BENDS

NTS

DIAMETER OF PIPE ("D")	6"	8"	12"	16"
MINIMUM LENGTH OF RESTRAINED JOINTS ("L")	61'	79'	112'	145'



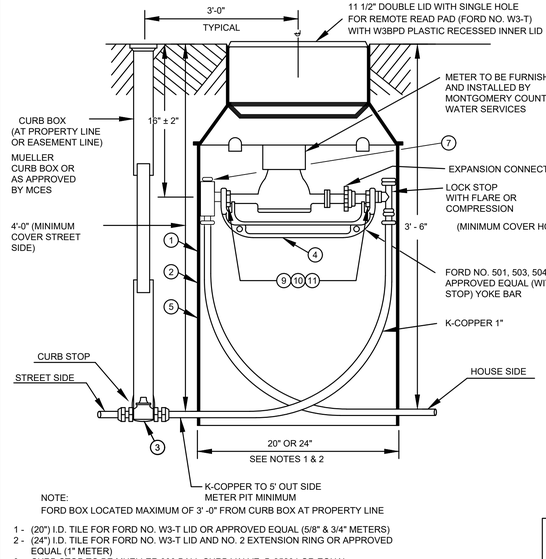
* MINIMUM LENGTH OF RESTRAINED JOINTS SHALL EXTEND FROM EACH SIDE OF AN INLINE VALVE.

"L" = MINIMUM LENGTH OF RESTRAINED JOINTS
"D" = DIAMETER OF PIPE

LENGTHS CALCULATED USING DIPRA THRUST RESTRAINT CALCULATOR WITH THE FOLLOWING ASSUMPTIONS:
POLYWRAPPED PIPE
PRESSURE = 150 PSI
SAFETY FACTOR = 1.5
SOIL TYPE = SILT 1
DEPTH OF COVER = 4.5 FEET
LAYING CONDITIONS = TYPE 4 BEDDING

JOINT RESTRAINT FOR DEAD ENDS, VALVES, PLUGS, CAPS, AND TEES

NTS



NOTE:
FORD BOX LOCATED MAXIMUM OF 3' -0" FROM CURB BOX AT PROPERTY LINE

FORD CATALOG YOKE NUMBER	SERVICE PIPE SIZE IN	OUT	METER	TILE SIZE
501 BAR	1"	1"	5/8"	20" DIA.
501 BAR	1"	3/4"	5/8"	20" DIA.
503 BAR	1"	1"	3/4"	20" DIA.
504 BAR	1"	1"	1"	24" DIA.
504 BAR	1 1/2" *	1 1/2"	1"	24" DIA.
504 BAR	1 1/2" *	1"	1"	24" DIA.

* NO BYPASS REQUIRED

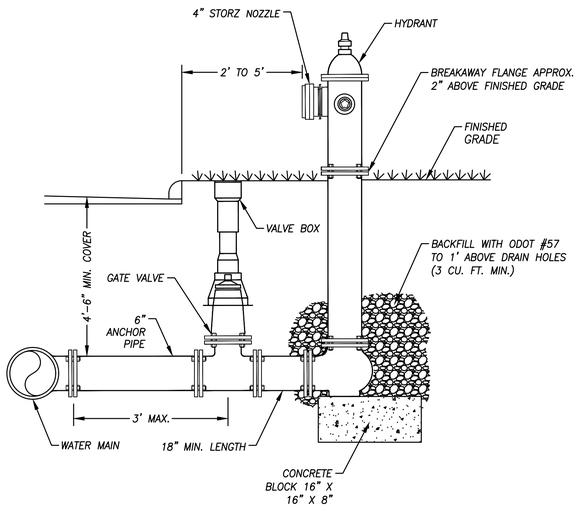
1 - (20") I.D. TILE FOR FORD NO. W3-T LID OR APPROVED EQUAL (5/8" & 3/4" METERS)
2 - (24") I.D. TILE FOR FORD NO. W3-T LID AND NO. 2 EXTENSION RING OR APPROVED EQUAL (1" METER)
3 - CURB STOP TO BE MUELLER 300 BALL CURB VALVE, B-25204 OR EQUAL
4 - FORD YOKE OR APPROVED EQUAL WITH LOCK STOP ON STREET SIDE AND DUAL CHECK (ASSE 1024) ON HOUSE SIDE OF YOKE
5 - TILE TO BE CONCRETE, VITRIFIED CLAY, OR HIGH DENSITY POLYETHYLENE METER BOXES (MS2030B OR MS2430B AS MANUFACTURED BY MID-STATES PLASTICS OR APPROVED EQUAL)
6 - ALTERNATE DESIGNS MAY BE SUBMITTED FOR APPROVAL TO WATER SERVICES, ENGINEERING SERVICES GROUP
7 - OHIO PLUMBING CODE; SECTION 608.3.2, "BACKFLOW PREVENTION DEVICE OR CHECK VALVE" SPECIFIES THAT "WHERE A BACKFLOW PREVENTION DEVICE, CHECK VALVE, OR OTHER DEVICE IS INSTALLED ON A WATER SUPPLY SYSTEM UTILIZING STORAGE WATER HEATING EQUIPMENT SUCH THAT THERMAL EXPANSION CAUSES AN INCREASE IN PRESSURE, A DEVICE FOR CONTROLLING PRESSURE SHALL BE INSTALLED."
9 - ALL YOKE NUTS FOR A 501 YOKE BAR MUST BE FOR A 5/8" METER ONLY
10 - ALL YOKE NUTS FOR A 503 YOKE BAR MUST BE FOR A 3/4" METER ONLY
11 - ALL YOKE NUTS FOR A 504 YOKE BAR MUST BE FOR A 1" METER ONLY

15099
Revised ~ 5/7/2015

MONTGOMERY COUNTY WATER SERVICES

STANDARD INSTALLATION FOR **RESIDENTIAL** 5/8", 3/4", & 1" WATER METER (FOR OFF ROAD USE ONLY)

SCALE : NONE | DATE : 11/01/06
FILE NAME: 1MTRPIT



FIRE HYDRANT INSTALLATION

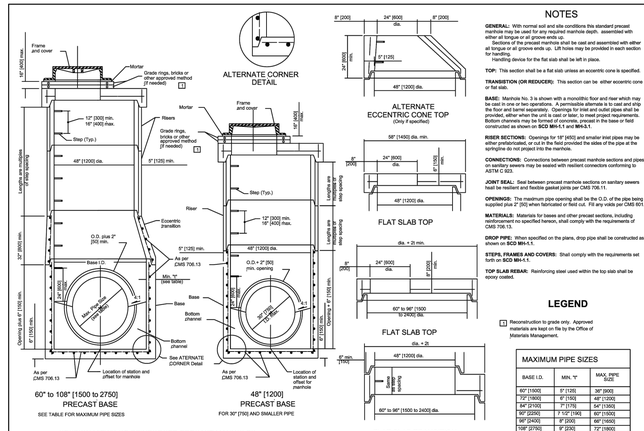
NTS

ChoiceOne Engineering
SIDNEY, OHIO 937.497.0200
LOVELAND, OHIO 513.239.8554
www.CHOICEONEENGINEERING.com

NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
WATER MAIN GENERAL DETAILS

REVISIONS:

FILE NAME: GN001
DRAWN BY: KMM
CHECKED BY: NNS
PROJECT No.: MOTCLA2504
DATE: 7-7-2025
SHEET NUMBER: 4 OF 19



SECTION VIEWS OF REINFORCED PRECAST MANHOLES

NOTES

GENERAL: With normal soil and site conditions this standard precast manhole may be used for any required manhole depth. assembled with either all tongue or all groove ends up.

Sections of the precast manhole shall be cast and assembled with either all tongue or all groove ends up. Lift holes may be provided in each section for handling.

Handling device for the flat slab shall be left in place.

TOP: This section shall be a flat slab unless an eccentric cone is specified.

TRANSISTION (OR REDUCER): This section can be either eccentric cone or flat slab.

BASE: Manhole No. 3 is shown with a monolithic floor and riser which may be cast in one or two operations. A permissible alternate is to cast and ship the floor and barrel separately. Openings for inlet and outlet pipes shall be provided, either when the unit is cast or later, to meet project requirements. Bottom channels may be formed of concrete, precast in the base or field constructed as shown on **SCD MH-1.1** and **MH-3.1**.

RISER SECTIONS: Openings for 18" [450] and smaller inlet pipes may be either prefabricated, or cut in the field provided the sides of the pipe at the springline do not project into the manhole.

CONNECTIONS: Connections between precast manhole sections and pipes on sanitary sewers may be sealed with resilient connectors conforming to ASTM C 923.

JOINT SEAL: Seal between precast manhole sections on sanitary sewers hsall be resilient and flexible gasket joints per CMS 706.11.

OPENINGS: The maximum pipe opening shall be the O.D. of the pipe being supplied plus 2" [50] when fabricated or field cut. Fill any voids per CMS 601.

MATERIALS: Materials for bases and other precast sections, including reinforcement no specified hereon, shall comply with the requirements of CMS 706.13.

DROP PIPE: When specified on the plans, drop pipe shall be constructed as shown on **SCD MH-1.1**.

STEPS, FRAMES AND COVERS: Shall comply with the requirements set forth on **SCD MH-1.1**.

TOP SLAB REBAR: Reinforcing steel used within the top slab shall be epoxy coated.

LEGEND

1 Reconstruction to grade only. Approved materials are kept on file by the Office of Materials Management.

MAXIMUM PIPE SIZES		
BASE I.D.	MIN. "t"	MAX. PIPE SIZE
60" [1500]	5" [125]	36" [900]
72" [1800]	6" [150]	48" [1200]
84" [2100]	7" [175]	54" [1350]
90" [2250]	7 1/2" [190]	60" [1500]
96" [2400]	8" [200]	66" [1650]
108" [2750]	9" [230]	72" [1800]

OHIO DEPARTMENT OF TRANSPORTATION
ENGINEER OF BRIDGES
DATE 7-20-01 7-19-02
HYDRAULIC ENGINEER J. Syar
All metric dimensions (in brackets []) are in millimeters unless otherwise noted.
OFFICE OF STRUCTURAL ENGINEERING
STANDARD HYDRAULIC CONSTRUCTION DRAWING MANHOLE No. 3
NUMBER MH-1.2
1/1

Montgomery County Subdivision
Regulations Drawing #4-H-1-8A
Sheet 1 of 1 Date 9-08-04

CATCH BASIN No. 2-2B

NOTES

CATCH BASINS 2-2A & B: This sheet depicts Catch Basin 2-2B. See Sheet 1 of 2 for Catch Basin 2-2A.

GRATE: The design shall be essentially the same and equally as strong as the one shown (see construction information table), or meet the requirements of CMS 711.14. Grate openings and dimensions shall not differ from those shown unless otherwise shown in the plans.

If necessary, bicycle safe grates shall be specifed in the plans. Bicycle safe grates shall be Neenah No. R-4859-C or East Jordan No. 5110 Type M3 or approved equals.

As of January 1, 2003, the following text shall be cast into the top of the grate:

"DUMP NO WASTE" and **"DRAINS TO WATERWAY"**

Text shall be printed in bold, capital letters with a minimum height of 1/2". "WATERWAY" may be substituted with "STREAM","RIVER","LAKE", etc. Actual placement and logo may vary per manufacturer.

WALLS: Brick or cast-in-place walls have a nominal thickness of 8" [200]. Precast walls shall have a minimum thickness of 6" [150] and be reinforced sufficiently to permit shipping and handling without damage.

CONCRETE: Cast-in-place concrete is to be Class C. All precast concrete shall meet the requirements of CMS 706.13 and be marked with the catch basin number.

PRECAST BASE: If a precast base is used, it shall be set deep enough so that the top can be placed on the base to provide the grate elevation specified in the plans. Layers of brick shall not be used to adjust the top elevation.

LOCATION AND ELEVATION: When given on the plans, location and elevation are at the top center of the grate. When side openings are provided, the elevation shall be at the flow line of the side inlet.

MINIMUM DEPTH: The minimum depth for CB No. 2-2B shall be the O.D. of the outlet pipe plus 4" [100].

2-2B GRATE ELEVATION: Grate elevation is to be placed 4" to 6" [100 to 150] below normal ditch returning to normal 10' to 15' [3 m to 5 m] each side of inlet.

OPENINGS: Pipe openings shall be the O.D. of the pipe being supplied plus 2" [50] when fabricated or field cut. The interstitial space shall be filled with grout per CMS 601.

PAYMENT: All materials and labor, including excavation and backfilling, shall be paid for under **Item 604 - Catch Basin, No. 2-2B.**

CONSTRUCTION INFORMATION
Minimum weight [mass] of grate, 120 lbs. [54 kg]

CATCH BASIN	OUTLET PIPE SIZE
2-2A	12" to 21" [300 to 525]
2-2B	12" to 21" [300 to 525]

OHIO DEPARTMENT OF TRANSPORTATION
ENGINEER OF BRIDGES
DATE 7-20-01 7-19-02
HYDRAULIC ENGINEER D. Gruver
All metric dimensions (in brackets []) are in millimeters unless otherwise noted.
OFFICE OF STRUCTURAL ENGINEERING
STANDARD HYDRAULIC CONSTRUCTION DRAWING CATCH BASINS No's 2-2A & B
NUMBER CB-1.1
2/2

Montgomery County Subdivision
Regulations Drawing # 4-H-1-9
Sheet 2 of 2 Date 9-08-04

CATCH BASINS No. 2-3 & No. 2-4

NOTES

GRATE: See details on **SCD CB-1.1**.
If necessary, bicycle safe grates shall be specified in the plans. Bicycle safe grates shall be Neenah No. R-4859-C or East Jordan No. 5110 Type M3 or approved equals.

As of January 1, 2003, the following text shall be cast into the top of the grate:

"DUMP NO WASTE" and **"DRAINS TO WATERWAY"**

Text shall be printed in bold, capital letters with a minimum height of ½". "WATERWAY" may be substituted with "STREAM", "RIVER", "LAKE", etc. Actual placement and logo may vary per manufacturer.

WALLS: Brick or cast-in-place walls shall have a nominal thickness of 8" [200]. Precast walls shall have a minimum thickness of 6" [150] and be reinforced sufficiently to permit shipping and handling without damage. Precast tops shall be 8" [200] thick.

STEPS: Steps shall be provided where the depth exceeds 6' [1.8 m] and shall meet the requirements of **SCD-MH1.1**.

CONCRETE: Cast-in-place concrete is to be Class C. All precast concrete shall meet the requirements of CMS 706.13 and be marked with the catch basin number.

REINFORCEMENT: Reinforcing in the top is to be #4 [#13M] bars spaced at 6" [150] center to center. For Catch Basin No. 2-3 use eight bars and for Catch Basin No. 2-4 use twelve bars.

INLETS OVER 12 FEET [3.5 m] IN DEPTH: Shall be precast of cast-in-place concrete; reinforced with #4 [#13M] bars on 12" [300] clearance from the inside wall face.

PRECAST BASE: If a precast base is used, it shall be set deep enough so that the to can be placed on the base to provide the grate elevation specified in the plans. Layers of brick shall not be used to adjust the top elevation.

LOCATION AND ELEVATION: When given on the plans, the location and the elevation are at the to center of the grate. When side openings are provided, the elevation shall be at the flow line of the side inlet.

MINIMUM DEPTH: The minimum depth of CB No. 2-3 and CB No. 2-4 shall be the outside diameter (O.D.) of the outlet pipe plus 7" [175].

OPENINGS: Pipe openings shall be the O.D. of the pipe being supplied plus 2" [50] when prefabricated or field cut. Fill any voids per CMS 601.

SIDE INLETS: Inlets shall be provided on both sides of the No. 2-3 and 2-4 catch basin in sags and on upstream side only where the ditch has continuous down grade past the catch basin. Catch basins with side inlets shall not be used within the Clear Zone.

PAYMENT: All materials and labor, including excavation and backfill, shall be paid for under **Item 604 - Catch Basin, No. 2-3** or **Item 604 - Catch Basin No. 2-4**.

CATCH BASIN	OUTLET PIPE SIZE
2-3	12" to 33" [300 to 825]
2-4	36" to 42" [900 to 1050]

OHIO DEPARTMENT OF TRANSPORTATION
ENGINEER OF BRIDGES
DATE 7-20-01 7-19-02
HYDRAULIC ENGINEER D. Gruver
All metric dimensions (in brackets []) are in millimeters unless otherwise noted.
OFFICE OF STRUCTURAL ENGINEERING
STANDARD HYDRAULIC CONSTRUCTION DRAWING CATCH BASINS No's 2-3 & 2-4
NUMBER CB-1.2
1/1

Montgomery County Subdivision
Regulations Drawing # 4-H-1-10
Sheet 1 of 1 Date 9-08-04

CATCH BASIN No. 3A

ELEVATION, STATION, AND OFFSET LOCATION FOR CATCH BASIN

NOTES

GRATE: The Grate "V" shall be provided unless the plans specifically require the diagonal grate. If the diagonal grate is specified, it shall be placed so that the diagonal bars direct drainage flow toward the curb. (See Sht. 2/2.)

CASTINGS: The design shall be essentially the same and equally as strong as those shown. Minimum weight [mass]:

Curb Casting . . . . . 170 lbs. [77 kg]
Standard Grate . . . . 127 lbs. [57 kg],
Frame . . . . 320 lbs. [145 kg], and
Grate "V" . . . . 105 lbs. [47 kg].

Lighter weight frames and grates that meet the requirements of CMS 711.14 may also be provided. Grate openings and dimensions shall not differ from those shown unless otherwise shown in the plans.

The following text shall be cast into the top of the curb casting:

"DUMP NO WASTE" AND **"DRAINS TO WATERWAY"**

Text shall be printed in bold, capital letters with a minimum height of ƒ". See example on Plan (Sht. 2/2). "WATERWAY" may be substituted with "STREAM","RIVER","LAKE", etc. Actual placement and logo may vary per manufacturer.

BEARING AREAS: The frame and grate shall be so fitted and finished as to provide a firm and even seat. No projections shall exist on bearing areas of either casting and the grate shall seat in its frame without rocking.

WALLS: When used in place of concrete, brick side walls shall be 8" [200] nominal thickness.

PRECAST CONSTRUCTION: Permitted, except for the apron. Concrete shall meet the requirements of CMS 706.13. Precast walls shall have a minimum thickness of 6" [150] and reinforcing shall be sufficient to permit shipping and placement without damage. The wall thickness reduction shall be from the outside.

MINIMUM DEPTH: The minimum depth is per the cover requirements for that pipe type.

OPENINGS: Pipe openings shall be the O.D. of the pipe being supplied plus 2" [50] when fabricated or field cut. The interstitial space shall be filled with grout per CMS 601.

DOWELS: Four 1"x18" [25x450] dowels are required for concrete pavement or gutter blockout. See **SCD BP-2.2** for dowel details.

BLOCKOUT: Blockouts shall be paved with Class C concrete in PCC pavement or gutter and paid for as a part of the pavement or gutter with no deduction in pavement, curb or gutter quanitities because of the castings. A Class C concrete apron the size of the 2'-0" [600] gutter shall be cast-in-place in asphalt pavement (no dowels required) with the cost included in the catch basin bid price. No deduction to be made in curb quantities.

PAYMENT: All materials and labor, including excavation and backfilling, shall be paid for under **Item 604 - Catch Basin, No. 3A**.

OHIO DEPARTMENT OF TRANSPORTATION
ENGINEER OF BRIDGES
DATE 7-20-01 7-19-02
HYDRAULIC ENGINEER D. Gruver
All metric dimensions (in brackets []) are in millimeters unless otherwise noted.
OFFICE OF STRUCTURAL ENGINEERING
STANDARD HYDRAULIC CONSTRUCTION DRAWING CATCH BASIN No. 3A
NUMBER CB-2.2
1/2

Montgomery County Subdivision
Regulations Drawing # 4-H-1-11
Sheet 1 of 2 Date 9-08-04

OHIO DEPARTMENT OF TRANSPORTATION
ENGINEER OF BRIDGES
DATE 7-20-01 7-19-02
HYDRAULIC ENGINEER D. Gruver
All metric dimensions (in brackets []) are in millimeters unless otherwise noted.
OFFICE OF STRUCTURAL ENGINEERING
STANDARD HYDRAULIC CONSTRUCTION DRAWING CATCH BASIN No. 3A
NUMBER CB-2.2
2/2

Montgomery County Subdivision
Regulations Drawing # 4-H-1-11
Sheet 2 of 2 Date 9-08-04

CATCH BASIN No. 3

See Sht. 2/2 for NOTES

OHIO DEPARTMENT OF TRANSPORTATION
ENGINEER OF BRIDGES
DATE 7-20-01 7-19-02
HYDRAULIC ENGINEER D. Gruver
All metric dimensions (in brackets []) are in millimeters unless otherwise noted.
OFFICE OF STRUCTURAL ENGINEERING
STANDARD HYDRAULIC CONSTRUCTION DRAWING CATCH BASIN No. 3
NUMBER CB-2.1
1/2

Montgomery County Subdivision
Regulations Drawing # 4-H-1-12
Sheet 1 of 2 Date 9-08-04

NOTES

GRATES: Two required. For details, see **SCD CB-2.2** Grate "V" shall be provided unless the plans specifically require the diagonal grate. If the diagonal grate is specified, it shall be placed so that the diagonal bars direct drainage flow toward the curb.

CASTINGS: The design shall be essentially the same and equally as strong as shown. Minimum weight [mass]:

Curb Casting . . . . . 305 lbs. [138 kg]
Two Grates . . . . . . 254 lbs. [115 kg],
Frame . . . . 590 lbs. [267 kg], and
Two Grate "V" . . . . 210 lbs. [95 kg].

Lighter weight frames and grates that meet the requirements of CMS 711.14 may also be provided. Grate openings and dimensions shall not differ from those shown unless otherwise shown in the plans.

The following text shall be cast into the top of the curb casting:

"DUMP NO WASTE" and **"DRAINS TO WATERWAY"**

Text shall be printed in bold, capital letters with a minimum height of ¾". See example on Plan & Section. "WATERWAY" may be substituted with "STREAM","RIVER","LAKE", etc. Actual placement and logo may vary per manufacturer.

BEARING AREAS: The frame and grate shall be so fitted and finished as to provide a firm and even seat. No projections shall exist on bearing areas and the grate shall seat in its frame without rocking.

WALLS: When used in place of concrete, brick side walls shall be 8" [200] nominal thickness.

PRECAST CONSTRUCTION: Permitted, except for the apron. Concrete shall meet requirements of CMS 706.13. Precast walls shall have a minimum thickness of 6" [150] and reinforcing shall be sufficient to permit shipping and placement without damage. The wall thickness reduction shall be from the outside.

MINIMUM DEPTH: The minimum depth is per the cover requirements for that pipe type.

OPENINGS: The maximum pipe opening shall be the O.D. of the pipe being supplied plus 2" [50] when fabricated or field cut. The interstitial space shall be filled with grout per CMS 601.

DOWELS: Four 1"x18" [25x450] dowels are required for concrete pavement or gutter blockout. See **SCD BP-2.2** for dowel details.

BLOCKOUT: Blockouts shall be paved with Class C concrete in PCC pavement or gutter and paid for as part of the pavement or gutter with no deduction in pavement, curb or gutter quantities because of castings. A Class C concrete apron the size of the 2'-0" [600] gutter blockout shall be cast-in-place in asphalt pavement (no dowels required) with the cost included in the catch basin bid price. No deduction to be made in curb quantities.

PAYMENT: All materials and labor, including excavation and backfilling, shall be paid for under **Item 604 - Catch Basin, No. 3**.

OHIO DEPARTMENT OF TRANSPORTATION
ENGINEER OF BRIDGES
DATE 7-20-01 7-19-02
HYDRAULIC ENGINEER D. Gruver
All metric dimensions (in brackets []) are in millimeters unless otherwise noted.
OFFICE OF STRUCTURAL ENGINEERING
STANDARD HYDRAULIC CONSTRUCTION DRAWING CATCH BASIN No. 3
NUMBER CB-2.1
2/2

Montgomery County Subdivision
Regulations Drawing # 4-H-1-12
Sheet 2 of 2 Date 9-08-04

OHIO DEPARTMENT OF TRANSPORTATION
ENGINEER OF BRIDGES
DATE 7-20-01 7-19-02
HYDRAULIC ENGINEER D. Gruver
All metric dimensions (in brackets []) are in millimeters unless otherwise noted.
OFFICE OF STRUCTURAL ENGINEERING
STANDARD HYDRAULIC CONSTRUCTION DRAWING HALF-HEIGHT HEADWALLS FOR CONCRETE PIPE
NUMBER HW-2.2
1/2

Montgomery County Subdivision
Regulations Drawing # 4-H-1-16A

Width of riprap and rock channel protection shall be equal to the width of headwall unless otherwise shown on the plans. (Minimum width 4'-0" [1.2 m].)

NOTES

GENERAL: If the pipe is depressed, a riprap reinforced concrete slab shall slope up to the channel bottom at a slope of 6 to 1 and terminate with a cutoff wall that has a depth of 6" [150] below the depression depth. Payment for the slab shall be made per square yard of **Item 601 Riprap using 6" Reinforced Concrete Slab** and shall include the cost of the cutoff wall. Reinforcing for the 6" reinforced concrete slab and cutoff wall shall be as shown on Standard Hydraulic Construction Drawing CB-3.1.

CONCRETE: Concrete for headwalls shall be Class C.

Concrete quantities are based on headwalls without the 6" [150] extension under the channel protection.

HEADWALL FOR CONCRETE PIPE (English)

CIRCULAR					ELLIPTICAL					
D	W	H	T	Conc. cu. yds.	Span	Rise	W	H	T	Conc. cu. yds.
12"	2'-0"	3'-0"	12"	0.20	23"	14"	3'-0"	3'-2"	12"	0.29
15"	2'-6"	3'-2"	12"	0.25	30"	19"	3'-7"	3'-4"	12"	0.35
18"	3'-0"	3'-3"	12"	0.31	34"	22"	3'-11"	3'-5"	12"	0.38
21"	3'-6"	3'-4"	12"	0.37	38"	24"	4'-6"	3'-6"	12"	0.44
24"	4'-0"	3'-6"	12"	0.43	42"	27"	4'-8"	3'-7"	12"	0.45
27"	4'-6"	3'-8"	12"	0.49	45"	29"	5'-2"	3'-8"	12"	0.49
30"	5'-0"	3'-9"	12"	0.56	49"	32"	5'-5"	3'-10"	12"	0.52
33"	5'-6"	3'-10"	12"	0.62	53"	34"	5'-11"	4'-0"	14"	0.66
36"	6'-0"	4'-0"	12"	0.69	60"	38"	6'-10"	4'-2"	14"	0.82
39"	6'-6"	4'-2"	12"	0.77	68"	43"	8'-0"	4'-4"	16"	1.01
42"	7'-0"	4'-3"	12"	0.84	76"	48"	9'-2"	5'-0"	16"	1.34
48"	8'-0"	4'-6"	14"	1.09	83"	53"	10'-4"	5'-2"	18"	1.65
54"	9'-3"	4'-9"	14"	1.32	91"	58"	11'-6"	5'-5"	18"	1.97
60"	10'-6"	5'-6"	16"	1.93	98"	63"	12'-7"	5'-7"	20"	2.38
66"	11'-9"	5'-9"	18"	2.42	106"	68"	13'-9"	5'-10"	20"	2.69
72"	13'-0"	6'-0"	18"	2.77	113"	72"	14'-9"	6'-0"	22"	3.14
78"	14'-3"	6'-3"	20"	3.37	121"	77"	15'-11"	6'-3"	22"	3.49
84"	15'-6"	6'-6"	22"	4.05	128"	82"	17'-0"	6'-5"	24"	4.04
90"	16'-9"	6'-9"	22"	4.51	136"	87"	18'-2"	6'-8"	24"	4.84
96"	18'-0"	7'-0"	24"	5.31	143"	92"	19'-4"	6'-10"	26"	5.12
102"	19'-3"	7'-3"	26"	6.20	151"	97"	20'-6"	7'-1"	26"	5.42
108"	20'-6"	7'-6"	26"	6.78	166"	106"	22'-7"	7'-5"	28"	6.60
114"	21'-9"	7'-9"	28"	7.81	180"	116"	24'-10"	7'-10"	30"	7.99
120"	23'-0"	8'-0"	30"	8.93	--	--	--	--	--	--
126"	24'-3"	8'-3"	30"	9.57	--	--	--	--	--	--
132"	25'-6"	8'-6"	32"	10.84	--	--	--	--	--	--
144"	28'-8"	9'-0"	34"	13.00	--	--	--	--	--	--

HEADWALL FOR CONCRETE PIPE (Metric)

CIRCULAR					ELLIPTICAL					
D (mm)	W (mm)	H (mm)	T (mm)	Conc. (m³)	Span (mm)	Rise (mm)	W (mm)	H (mm)	T (mm)	Conc. (m³)
300	600	925	300	0.15	575	365	925	975	300	0.22
375	750	975	300	0.19	770	490	1100	1025	300	0.27
450	900	1000	300	0.24	865	550	1200	1050	300	0.29
525	1050	1025	300	0.28	960	610	1375	1075	300	0.34
600	1200	1075	300	0.33	1055	670	1425	1100	300	0.34
675	1350	1125	300	0.37	1150	730	1575	1125	300	0.37
750	1500	1150	300	0.43	1250	795	1650	1175	300	0.40
825	1650	1175	300	0.47	1345	855	1800	1225	375	0.50
900	1800	1225	300	0.53	1535	975	2075	1275	375	0.63
975	1950	1275	300	0.59	1730	1095	2450	1325	400	0.77
1050	2100	1300	300	0.64	1920	1220	2800	1525	400	1.02
1200	2400	1375	350	0.83	2110	1340	3150	1575	450	1.26
1350	2775	1450	350	1.01	2305	1465	3500	1650	450	1.51
1500	3150	1675	400	1.48	2495	1585	3825	1700	500	1.82
1650	3525	1750	450	1.85	2690	1705	4200	1775	500	2.06
1800	3900	1825	450	2.12	2880	1830	4500	1825	550	2.40
1950	4275	1900	500	2.58	3070	1950	4850	1900	550	2.67
2100	4650	1975	550	3.10	3265	2075	5175	1950	600	3.09
2250	5025	2050	550	3.45	3455	2195	5525	2025	600	3.70
2400	5400	2125	600	4.06	3648	2315	5900	2075	650	3.91
2550	5775	2200	650	4.74	3840	2440	6250	2150	650	4.14
2700	6150	2275	650	5.18	4225	2680	6875	2250	700	5.05
2850	6525	2350	700	5.97	4610	2925	7575	2400	750	6.11
3000	6900	2450	750	6.83	--	--	--	--	--	--
3150	7275	2525	750	7.32	--	--	--	--	--	--
3300	7650	2600	825	8.29	--	--	--	--	--	--
3600	8400	2750	875	9.94	--	--	--	--	--	--

OHIO DEPARTMENT OF TRANSPORTATION
ENGINEER OF BRIDGES
DATE 7-20-01 7-19-02
HYDRAULIC ENGINEER D. Gruver
All metric dimensions (in brackets []) are in millimeters unless otherwise noted.
OFFICE OF STRUCTURAL ENGINEERING
STANDARD HYDRAULIC CONSTRUCTION DRAWING HALF-HEIGHT HEADWALLS FOR CONCRETE PIPE
NUMBER HW-2.2
2/2

Montgomery County Subdivision
Regulations Drawing # 4-H-1-16A
Sheet 2 of 2 Date 9-08-04

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NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
STORM SEWER GENERAL DETAILS

REVISIONS:

FILE NAME
GN001

DRAWN BY
KMM

CHECKED BY
NNS

PROJECT No.
MOTCLA2504

DATE
7-7-2025

SHEET NUMBER
5 OF 19

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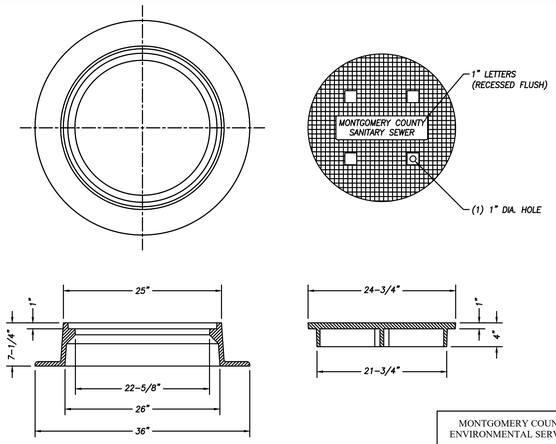
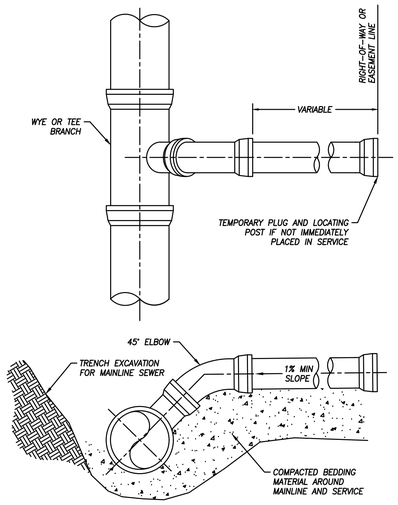


MONTGOMERY COUNTY ENVIRONMENTAL SERVICES

STANDARD MANHOLE FRAME AND COVER

SCALE : NONE | DATE : 11/21/2019

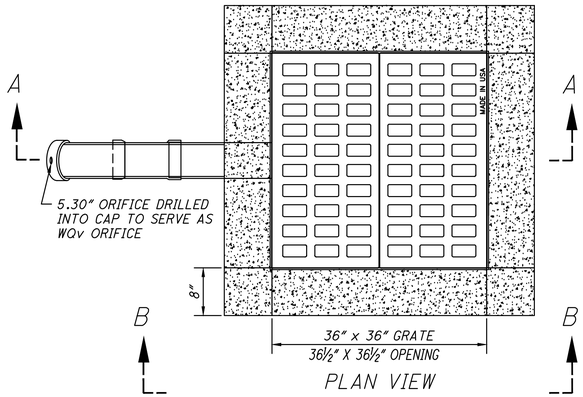


NOTES:
1. RISER PIPE LAID ON STEEP GRADE TO BE BEDDED SOLIDLY AGAINST UNDISTURBED GROUND, OTHERWISE BED AS SPECIFIED IN MONTGOMERY COUNTY ENVIRONMENTAL SERVICES STANDARD SPECIFICATIONS.
2. RISER PIPE TO BE INSTALLED SO THAT CONNECTING SERVICE SHALL HAVE A MINIMUM DEPTH OF 7 FEET AT THE PROPERTY LINE UNLESS A GREATER DEPTH IS DIRECTED.

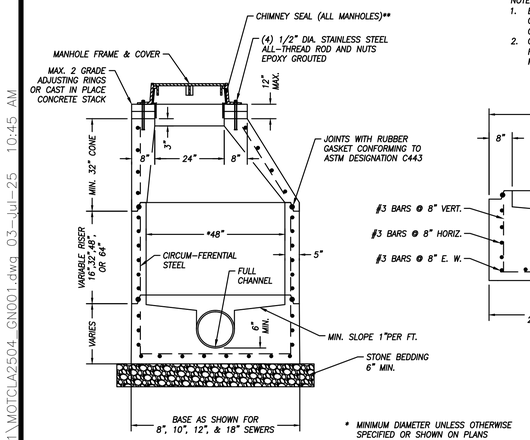
MONTGOMERY COUNTY ENVIRONMENTAL SERVICES

TYPICAL NEW SANITARY SERVICE INSTALLATION DETAIL

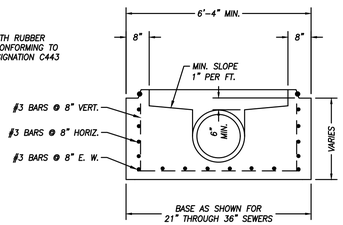
SCALE : NONE | DATE : 11/21/2019



PLAN VIEW



NOTES:
1. ECCENTRIC CONE IS STANDARD. (USE OF CONCENTRIC CONE BY WRITTEN APPROVAL OF ENGINEER ONLY.)
2. COAL TAR EPOXY INTERIOR COATING REQUIRED ON 5' DIAMETER AND LARGER MANHOLES



* MINIMUM DIAMETER UNLESS OTHERWISE SPECIFIED OR SHOWN ON PLANS

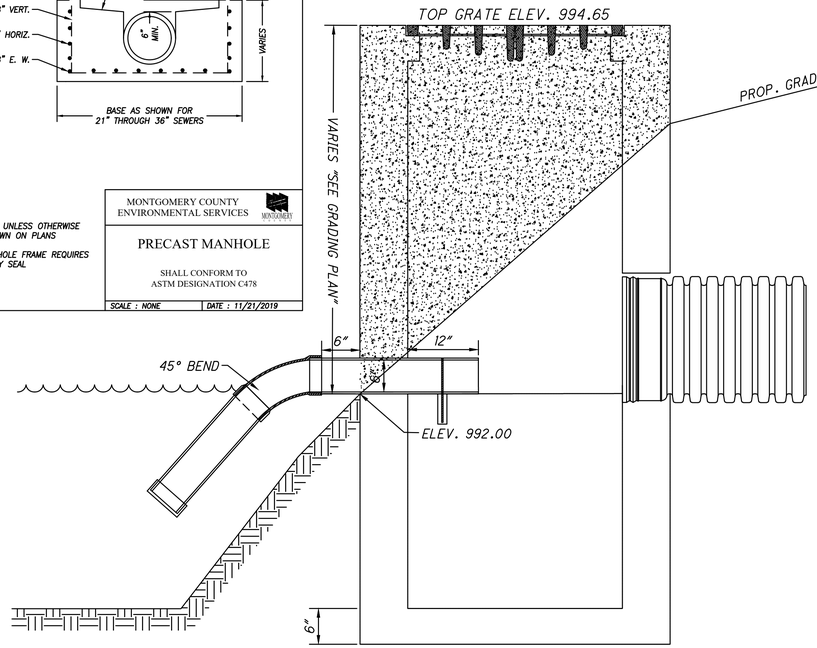
** LOW PROFILE MANHOLE FRAME REQUIRES SPRAY ON CHIMNEY SEAL

MONTGOMERY COUNTY ENVIRONMENTAL SERVICES

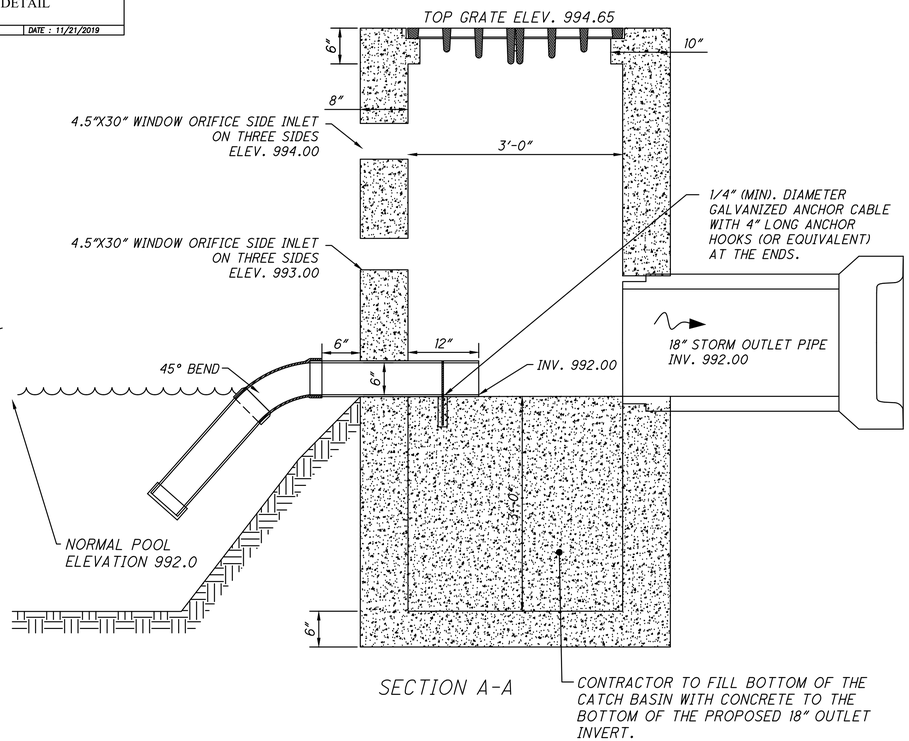
PRECAST MANHOLE

SHALL CONFORM TO ASTM DESIGNATION C478

SCALE : NONE | DATE : 11/21/2019



SECTION B-B



SECTION A-A

CONTRACTOR TO FILL BOTTOM OF THE CATCH BASIN WITH CONCRETE TO THE BOTTOM OF THE PROPOSED 18" OUTLET INVERT.

NOTES

A. GRATE SHALL BE NEENAH CATALOG NO. R-3437 (TYPE C GRATE) OR EQUIVALENT. CONTRACTOR SHALL FASTEN/BOLT DOWN GRATE TO STRUCTURE TO ENSURE GRATE IS SECURELY FASTENED IN PLACE.

B. PRECAST STRUCTURE CONSTRUCTION IS REQUIRED, UNLESS OTHERWISE APPROVED, AND CONCRETE SHALL MEET THE REQUIREMENTS OF 706.13. CAST-IN-PLACE CONCRETE IN THE FIELD WILL BE ALLOWED FOR SUMP ELIMINATION/ANTI-FLOATATION.

2-3 CATCH BASIN - DETENTION BASIN OUTLET STRUCTURE

NTS

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NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
STORM AND SANITARY SEWER GENERAL DETAILS

REVISIONS:

FILE NAME	GN001
DRAWN BY	KMM
CHECKED BY	NNS
PROJECT No.	MOTCLA2504
DATE	7-7-2025
SHEET NUMBER	6 OF 19

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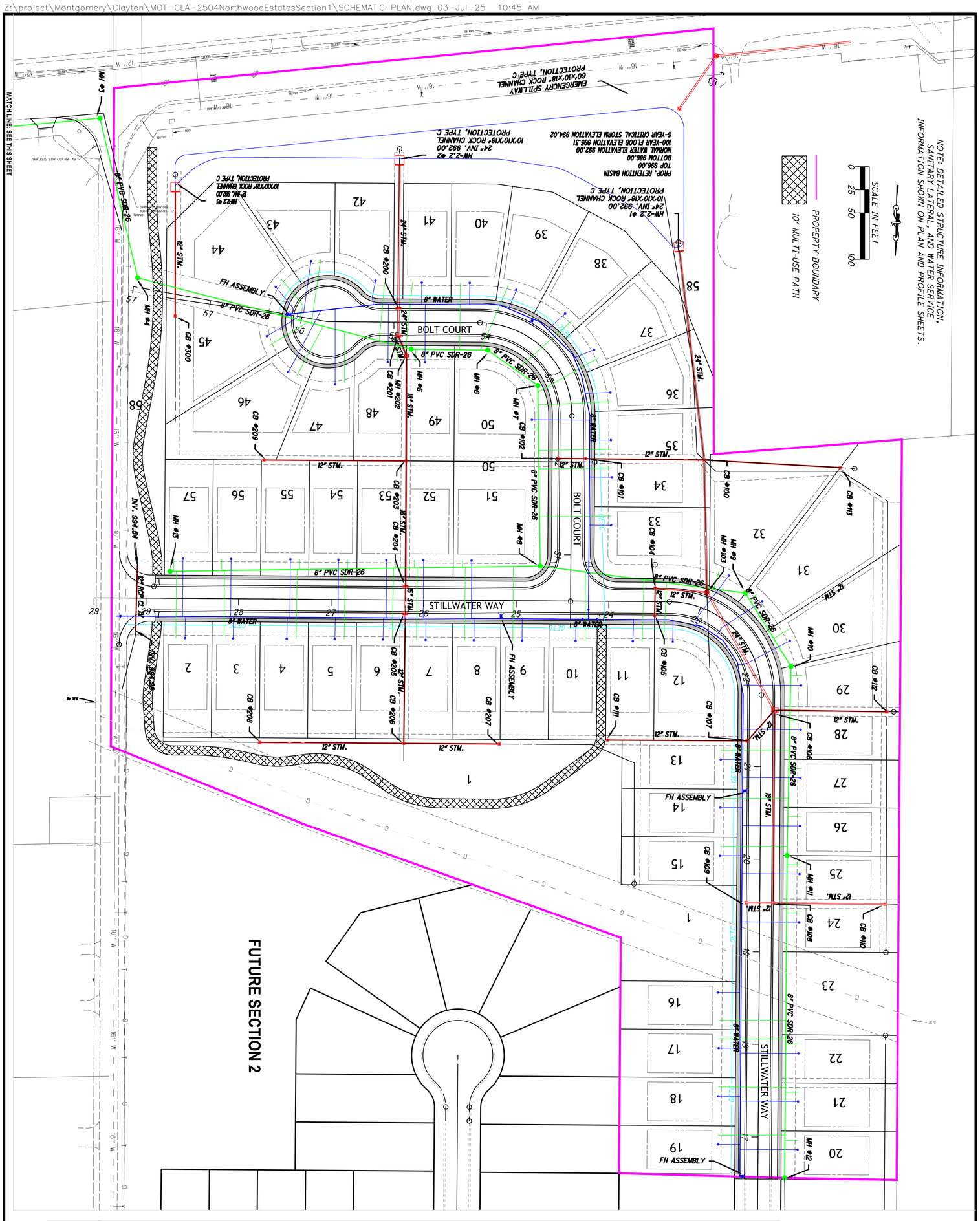
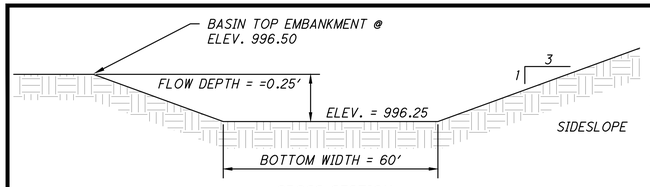


7 OF 19	7-7-2025	MOT-CLA-2504	KMS	KMM	S&U	REVISIONS:	NORTHWOOD ESTATES SUBDIVISION - SECTION 1 CITY OF CLAYTON STREET AND UTILITY PLAN	SIDNEY, OHIO 937.497.0200 LOVELAND, OHIO 513.239.8554 www.CHOICEONEENGINEERING.com	ChoiceOne Engineering
SHEET NUMBER	DATE	PROJECT No.	CHECKED BY	DRAWN BY	FILE NAME				



CROSS SECTION

EMERGENCY SPILLWAY

NTS

PROP. RETENTION BASIN
TOP 996.00
BOTTOM 986.00
NORMAL WATER ELEVATION 992.00
100-YEAR FLOOD ELEVATION 995.31
5-YEAR CRITICAL STORM ELEVATION 994.02

EMERGENCY SPILLWAY
BOTTOM 60' ROCK CHANNEL
PROTECTION, TYPE C

Ex. 18" INV. 994.05

Ex. 18" INV. 993.92

INV. 994.54

INV. 994.66

SCALE IN FEET

0 25 50 100

1026 EXISTING CONTOURS

1026 PROPOSED CONTOURS

PROPOSED STORM SEWER

PROPOSED CURB & GUTTER

GP-XXX.XX GARAGE PAD ELEVATION

10' MULTI-USE PATH

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NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
GRADING PLAN

REVISIONS:

FILE NAME GRADING

DRAWN BY KMM

CHECKED BY NNS

PROJECT No. MOTCLA2504

DATE 7-7-2025

SHEET NUMBER 8 OF 19

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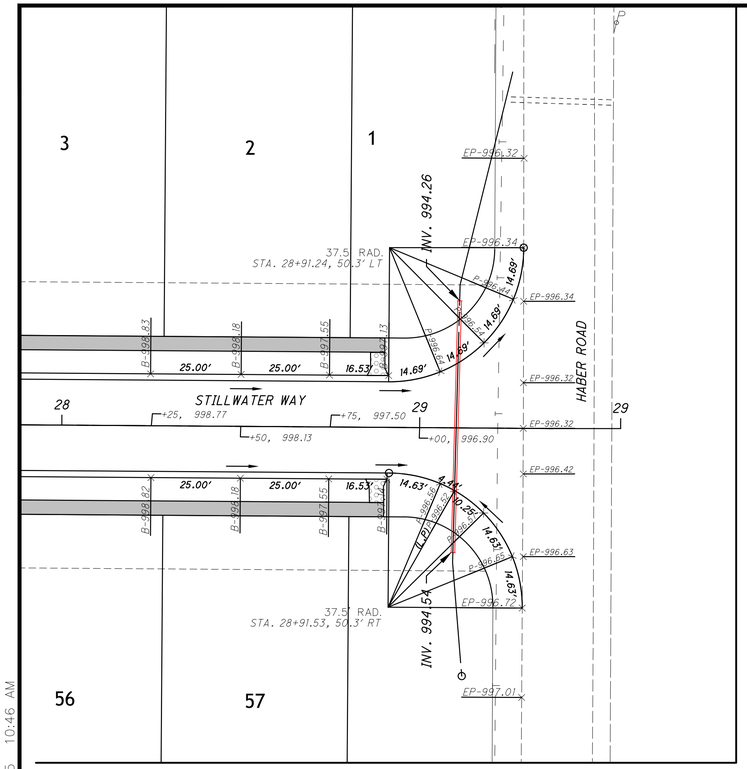
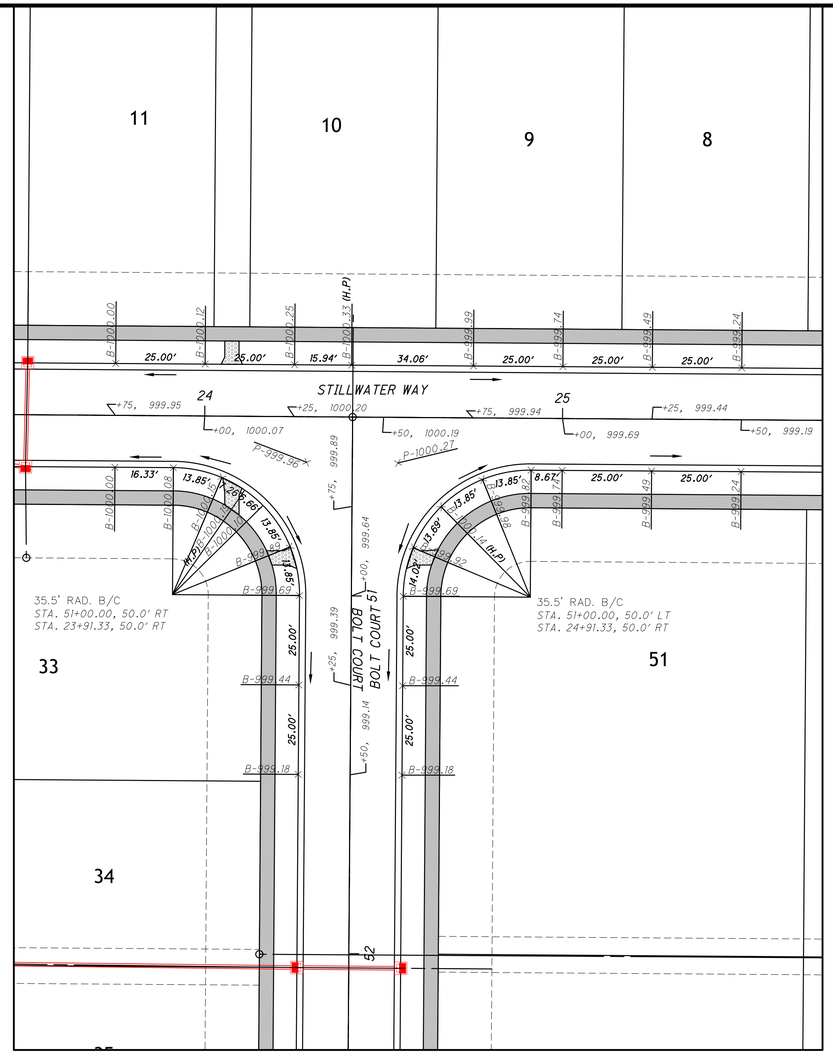
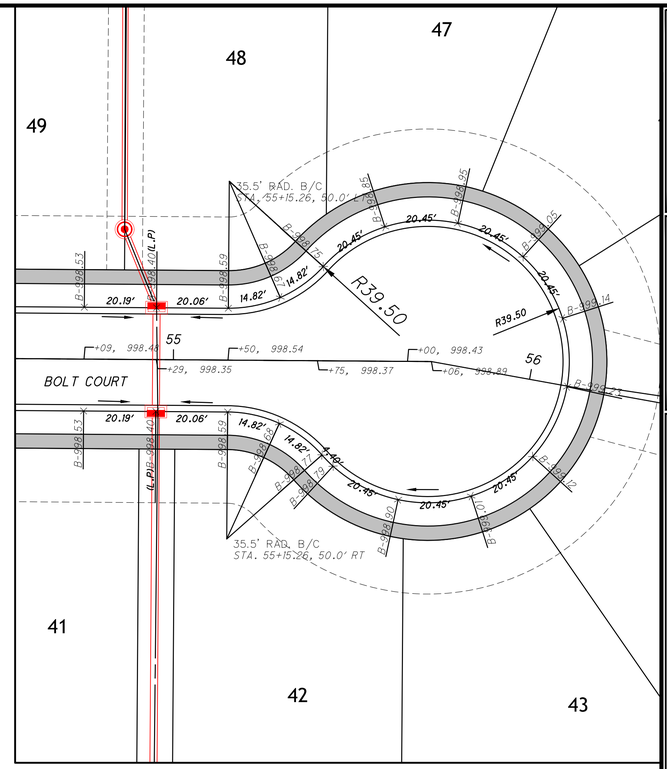


STILLWAY WAY AND HABER RD INTERSECTION



STILLWAY WAY AND BOLT COURT INTERSECTION



BOLT COURT CUL-DE-SAC

SCALE IN FEET
0 10 20 40

B - BACK OF CURB
C/L - CENTERLINE
H.P - HIGH POINT
L.P - LOW POINT
EP - EXISTING PAVEMENT
→ - FLOW ARROW

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NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
INTERSECTION DETAILS

REVISIONS:

FILE NAME: INTX
DRAWN BY: KMM
CHECKED BY: NNS
PROJECT No.: MOTCLA2504
DATE: 7-7-2025
SHEET NUMBER: 9 OF 19

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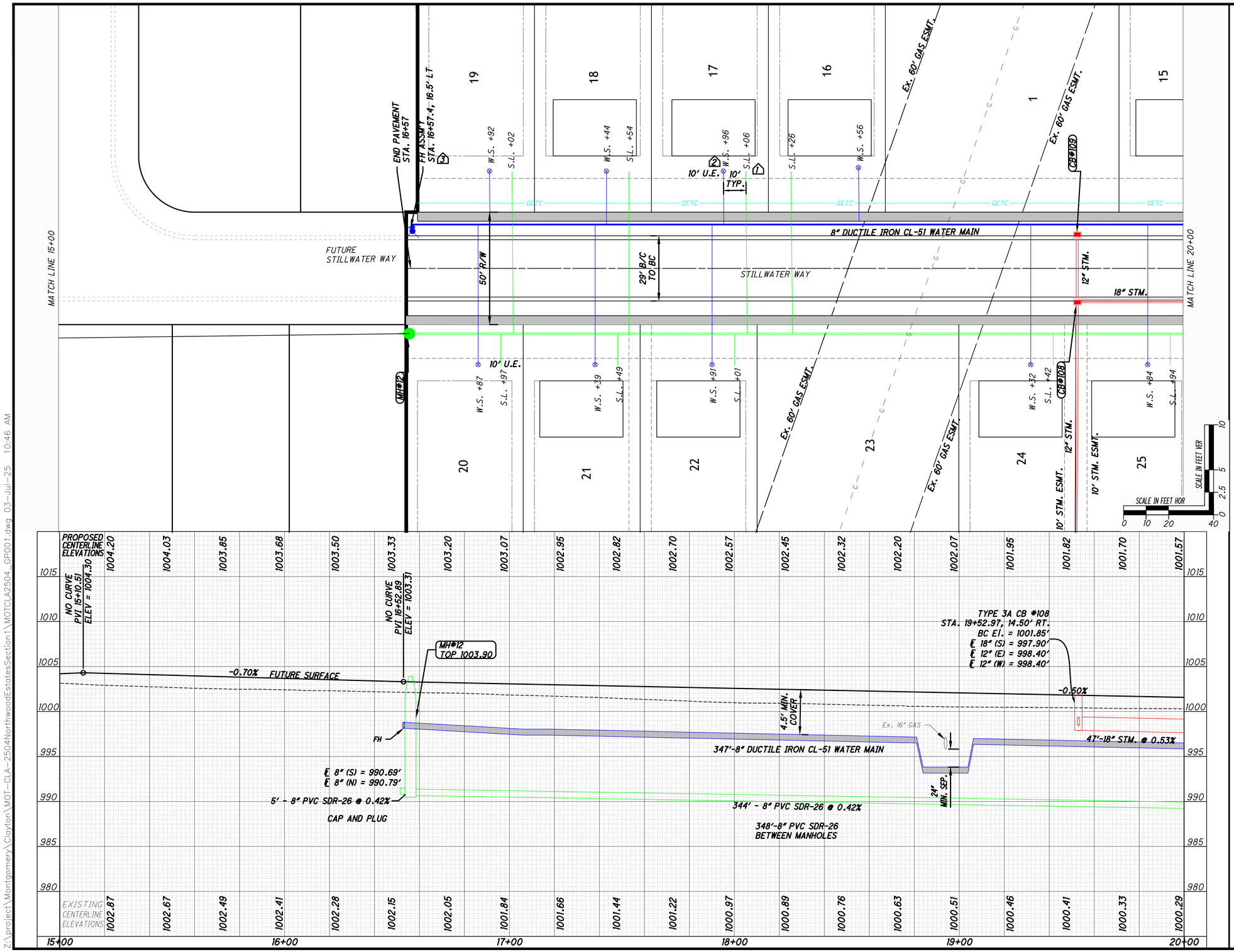

1. 1" CURB STOP (TYP.)
2. PLACE TEMPORARY PLUG AT END OF SANITARY SERVICE LINE. (TYP.)
3. ENSURE 6" FIRE HYDRANT VALVE IS PLACED OUTSIDE OF SIDEWALK.

LEGEND:

S.L. = 6" SAN LAT.

W.S = 3/4" WAT. SERVICE

PROPOSED STORM STRUCTURES
#108 TYPE 3A CB STA. 19+52.97, 14.50' *RT* B/C 1001.85 18" S INV. 997.90 12" E INV. 998.40 12" W INV. 998.40
#109 TYPE 3A CB STA. 19+52.97, 14.50' *LT* B/C 1001.85 12" W INV. 998.70
PROPOSED SANITARY STRUCTURES
#12 TYPE 3 SAN MH STA. 16+55.98, 29.00' *RT* TOP. 1003.90 8" S INV. 990.69 8" N INV. 990.79

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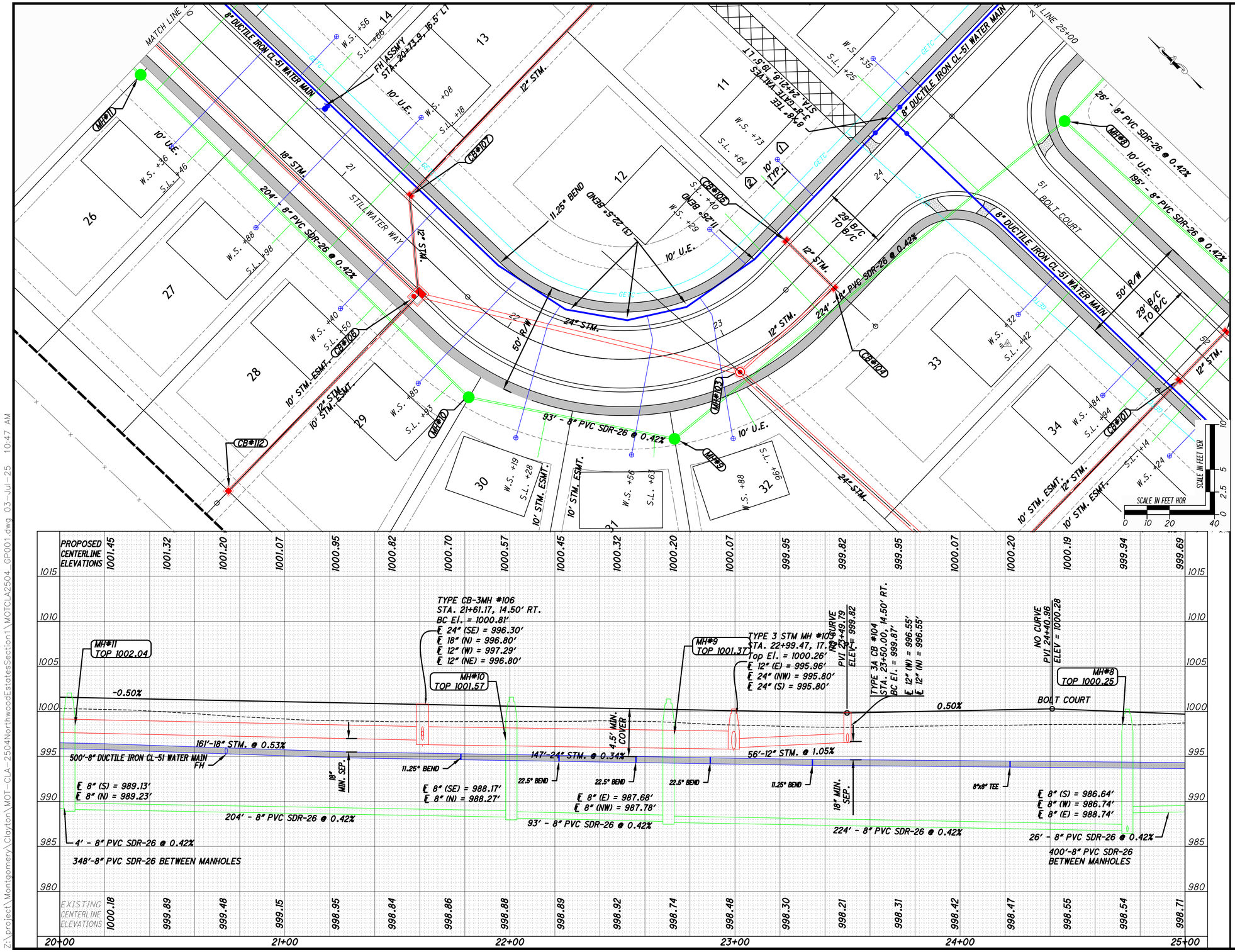
NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
STILLWATER WAYPLAN AND PROFILE STA. 15+00.00 TO STA. 20+00.00

REVISIONS:

FILE NAME	GP001
DRAWN BY	KMM
CHECKED BY	NNS
PROJECT No.	MOTCLA2504
DATE	7-7-2025
SHEET NUMBER	10 OF 19



1 1" CURB STOP (TYP.)

2 PLACE TEMPORARY PLUG AT END OF SANITARY SERVICE LINE. (TYP.)

3 ENSURE 6" FIRE HYDRANT VALVE IS PLACED OUTSIDE OF SIDEWALK.

10' MULTI-USE PATH

LEGEND:

S.L. = 6" SAN LAT.

W.S = ¾" WAT. SERVICE

PROPOSED STORM STRUCTURES
#103 TYPE 3 STM MH STA. 22+99.47, 17.72' *RT* TOP 1000.26 12" E INV. 995.96 24" NW INV. 995.80 24" S INV. 995.80
#104 TYPE 3A CB STA. 23+50.00, 14.50' *RT* B/C 999.87 12" W INV. 996.55 12" N INV. 996.55
#105 TYPE 3A CB STA. 23+50.41, 14.50' *LT* B/C 999.87 12" S INV. 996.77
#106 TYPE CB-3MH STA. 21+61.17, 14.50' *RT* TOP 1000.81 24" SE INV. 996.30 18" N INV. 996.80 12" W INV. 997.29 12" NE INV. 996.80
#107 TYPE 3A CB STA. 21+27.85, 14.50' *LT* B/C 1000.98 12" SW INV. 996.99 12" E INV. 996.99

PROPOSED SANITARY STRUCTURES
#8 TYPE 3 SAN MH STA. 24+74.34, 37.65' *RT* TOP. 1000.25 8" S INV. 986.64 8" W INV. 986.74 8" E INV. 988.74
#9 TYPE 3 SAN MH STA. 22+70.49, 37.22' *RT* TOP. 1001.37 8" E INV. 987.68 8" NW INV. 987.78
#10 TYPE 3 SAN MH STA. 22+00.67, 35.53' *RT* TOP. 1001.57 8" SE INV. 988.17 8" N INV. 988.27
#11 TYPE 3 SAN MH STA. 20+04.29, 29.11' *RT* TOP. 1002.04 8" S INV. 989.13 8" N INV. 989.23

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NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
STILLWATER WAYPLAN AND PROFILE STA. 20+00.00 TO STA. 25+00.00

REVISIONS:

FILE NAME	GP001
DRAWN BY	KMM
CHECKED BY	NMS
PROJECT No.	MOTCLA2504
DATE	7-7-2025
SHEET NUMBER	11 OF 19

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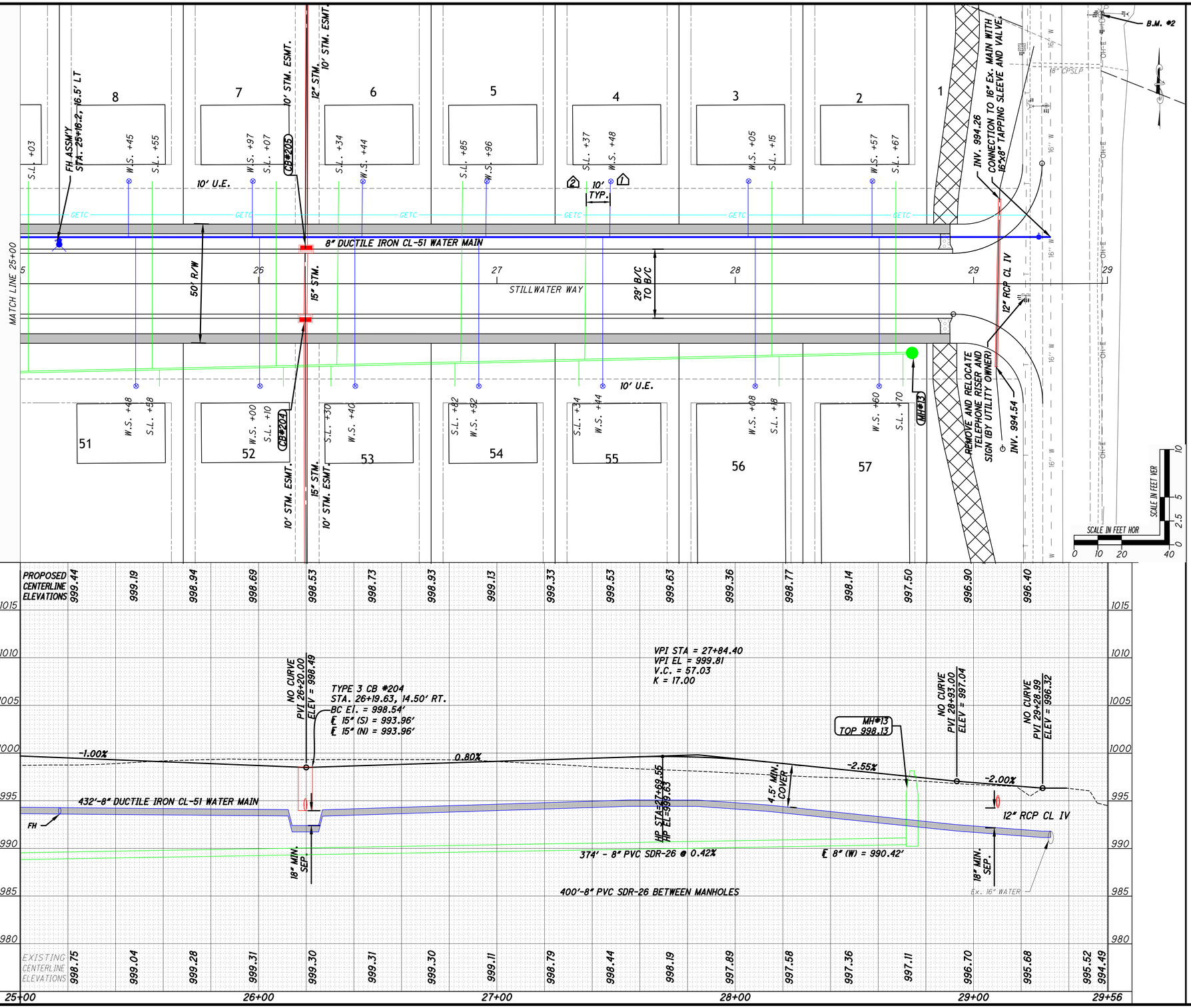

PROPOSED STORM STRUCTURES
#204 TYPE 3 CB STA. 26+19.63, 14.50' *RT* B/C 998.54 15" S INV. 993.96 15" N INV. 993.96
#205 TYPE 3 CB STA. 26+20.00, 14.50' *LT* B/C 998.54 15" S INV. 994.05 12" N INV. 994.05
PROPOSED SANITARY STRUCTURES
#13 TYPE 3 SAN MH STA. 28+74.22, 29.04' *RT* TOP. 998.13 8" W INV. 990.42

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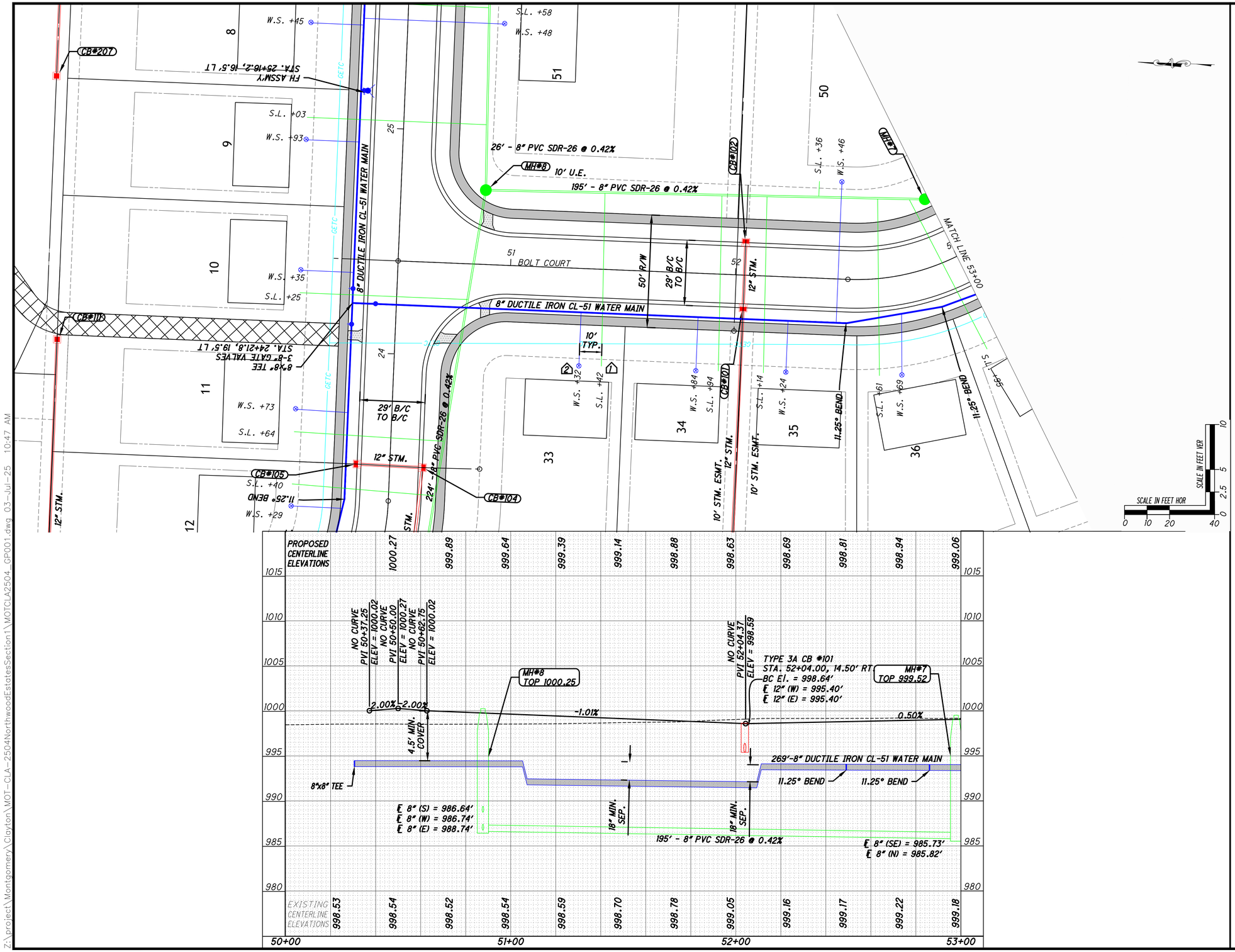
NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
STILLWATER WAYPLAN AND PROFILE STA. 25+00.00 TO STA. 29+50.00

REVISIONS:

FILE NAME	GP001
DRAWN BY	KMM
CHECKED BY	NNS
PROJECT No.	MOTCLA2504
DATE	7-7-2025
SHEET NUMBER	12 OF 19



1. 1" CURB STOP (TYP.)
2. PLACE TEMPORARY PLUG AT END OF SANITARY SERVICE LINE. (TYP.)
3. ENSURE 6" FIRE HYDRANT VALVE IS PLACED OUTSIDE OF SIDEWALK.

10' MULTI-USE PATH

LEGEND:

S.L. = 6" SAN LAT.

W.S = 3/4" WAT. SERVICE

PROPOSED STORM STRUCTURES
#101 TYPE 3A CB STA. 52+04.00, 14.50' *RT* B/C 998.64 12" W INV. 995.40 12" E INV. 995.40
#102 TYPE 3A CB STA. 52+04.00, 14.50' *LT* B/C 998.64 12" W INV. 995.62

PROPOSED SANITARY STRUCTURES
#7 TYPE 3 SAN MH STA. 52+97.86, 29.00' *LT* TOP. 999.52 8" SE INV. 985.73 8" N INV. 985.82
#8 TYPE 3 SAN MH STA. 24+74.34, 37.65' *RT* TOP. 1000.25 8" S INV. 986.64 8" W INV. 986.74 8" E INV. 988.74

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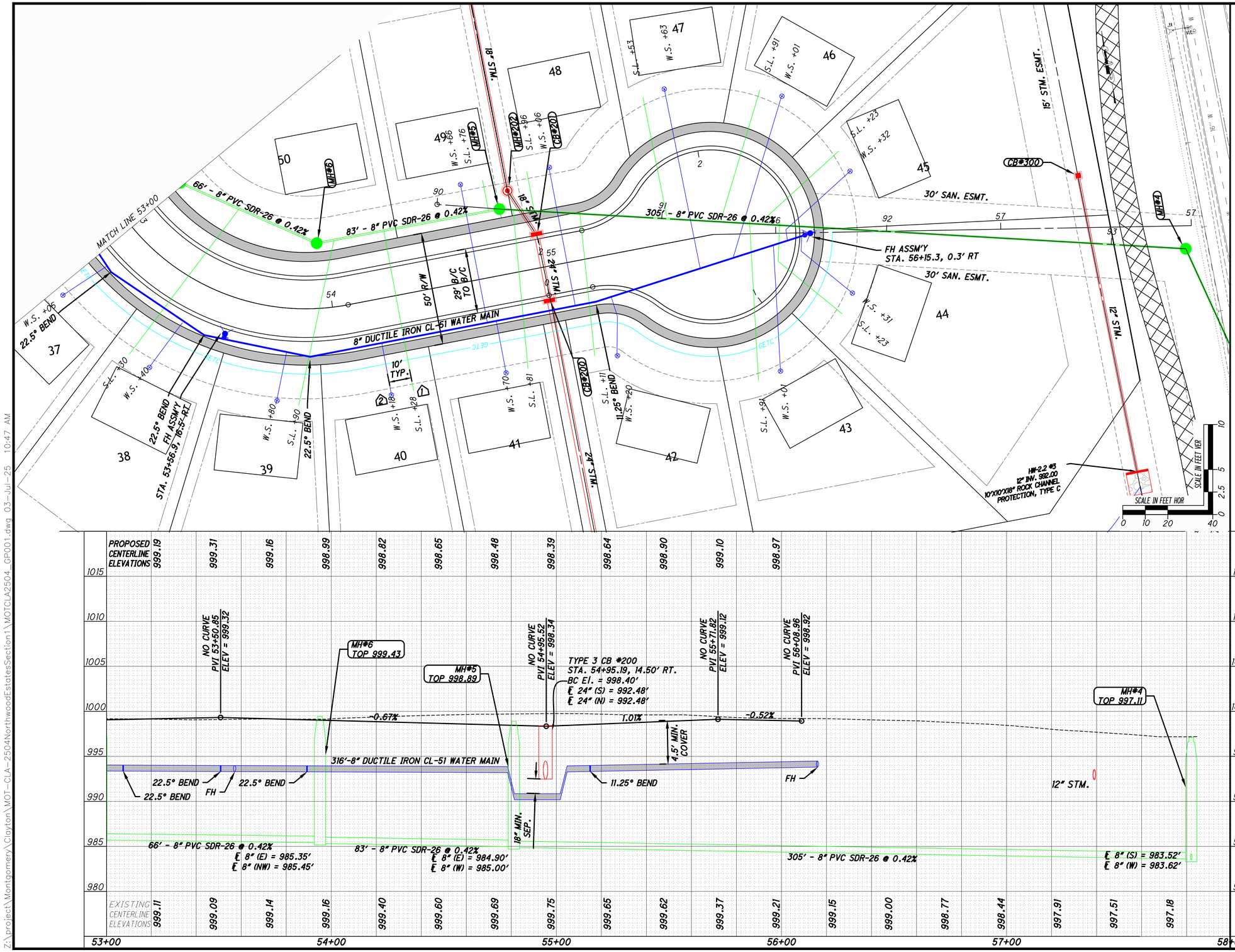
NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
BOLT COURT PLAN AND PROFILE STA. 50+00.0 TO STA. 53+00.00

REVISIONS:

FILE NAME GP001
DRAWN BY KMM
CHECKED BY NNS
PROJECT No. MOTCLA2504
DATE 7-7-2025
SHEET NUMBER 13 OF 19



PROPOSED STORM STRUCTURES
#200 TYPE 3 CB STA. 54+95.19, 14.50' *RT* B/C 998.40 24" S INV. 992.48 24" N INV. 992.48
#201 TYPE 3 CB STA. 54+95.19, 14.50' *LT* B/C 998.40 24" S INV. 992.58 18" N INV. 993.08
#202 TYPE 3 STM MH STA. 54+86.11, 36.37' *LT* TOP 998.93 18" S INV. 993.14 18" N INV. 993.14

PROPOSED SANITARY STRUCTURES
#4 TYPE 3 SAN MH STA. 57+82.02, 10.22' *RT* TOP. 997.11 8" S INV. 983.52 8" W INV. 983.62
#5 TYPE 3 SAN MH STA. 54+81.12, 29.03' *LT* TOP. 998.89 8" E INV. 984.90 8" W INV. 985.00
#6 TYPE 3 SAN MH STA. 53+95.00, 29.00' *LT* TOP. 999.43 8" E INV. 985.35 8" NW INV. 985.45

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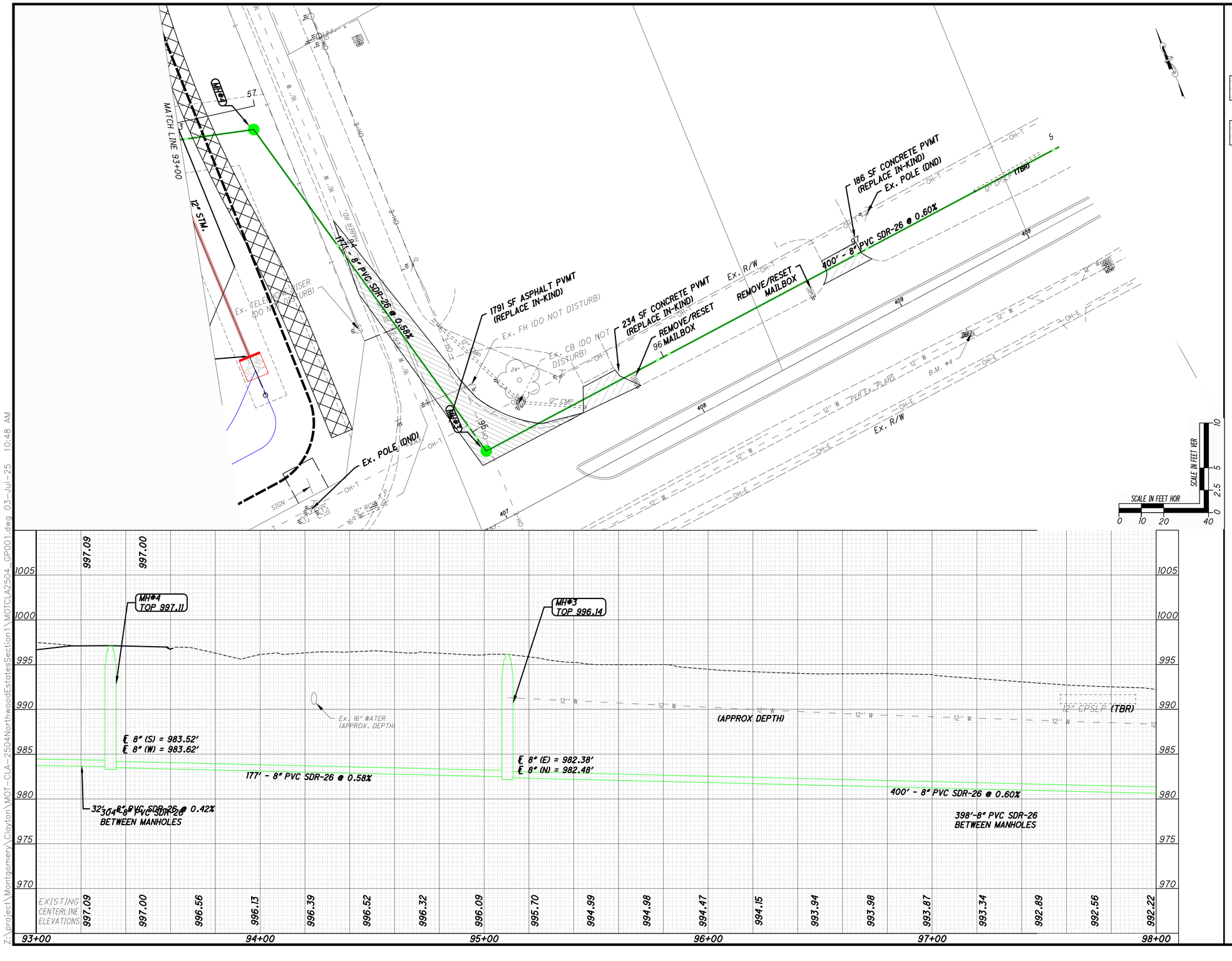
NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
BOLT COURT PLAN AND PROFILE STA. 53+00.00 TO STA. 57+50.00

REVISIONS:

FILE NAME	GP001
DRAWN BY	KMM
CHECKED BY	NNS
PROJECT No.	MOTCLA2504
DATE	7-7-2025
SHEET NUMBER	14 OF 19



-ASPHALT PAVEMENT REPAIR

-CONCRETE PAVEMENT REPAIR

PROPOSED SANITARY STRUCTURES
#3 TYPE 3 SAN MH STA. 95+10.41, 0.00' TOP. 996.14 8" E INV. 982.38 8" N INV. 982.48
#4 TYPE 3 SAN MH STA. 57+82.02, 10.22' *RT* TOP. 997.11 8" S INV. 983.52 8" W INV. 983.62

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NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
OFFSITE SANITARY PLAN AND PROFILE STA. 93+00.00 TO STA. 98+00.00

REVISIONS:

FILE NAME	GP001
DRAWN BY	KMM
CHECKED BY	NNS
PROJECT No.	MOTCLA2504
DATE	7-7-2025
SHEET NUMBER	15 OF 19

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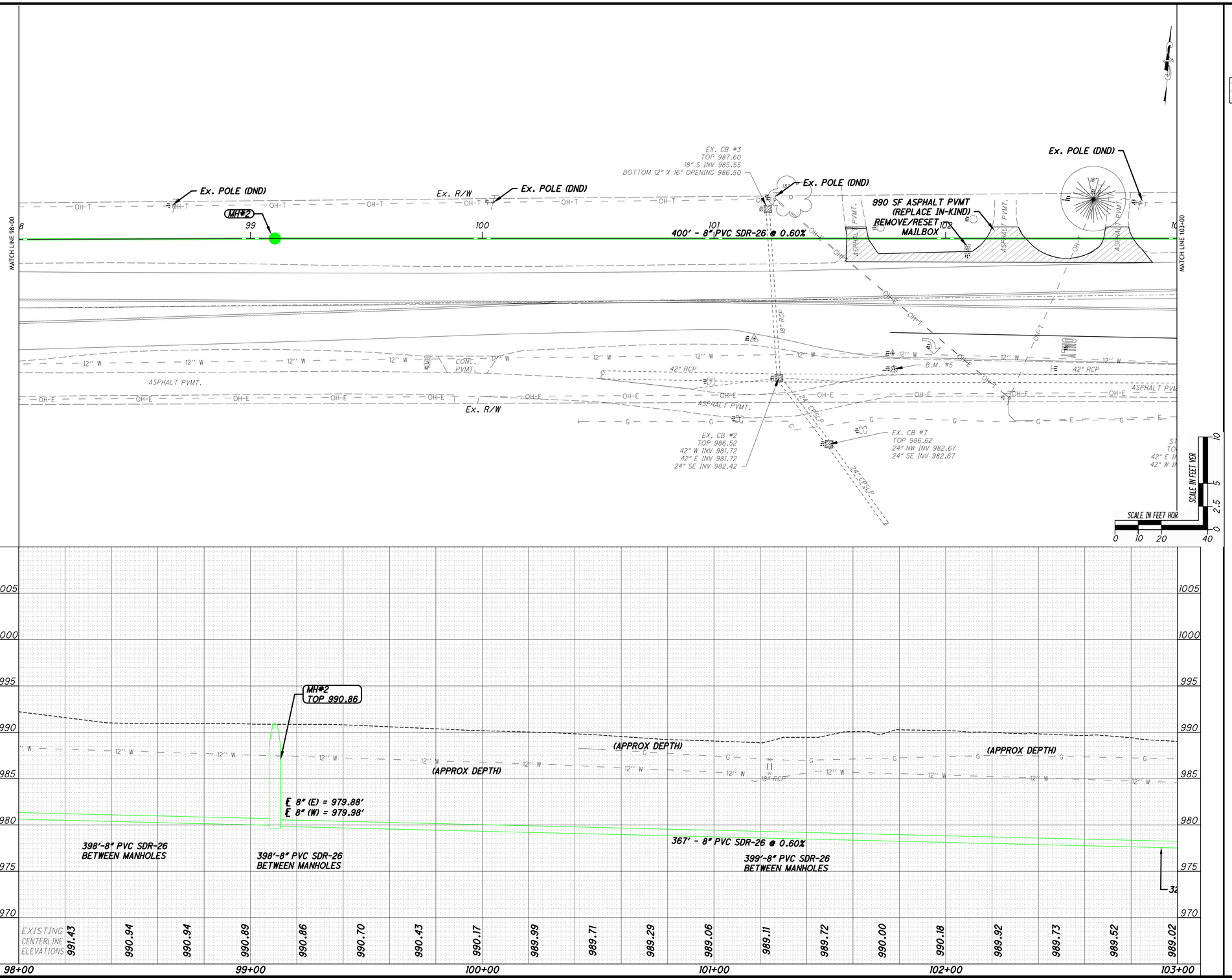

-ASPHALT PAVEMENT REPAIR

PROPOSED SANITARY STRUCTURES
#2 TYPE 3 SAN MH STA. 99+10.54, 0.00' TOP. 990.86 8" E INV. 979.88 8" W INV. 979.98

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NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
OFFSITE SANITARY PLAN AND PROFILE STA. 98+00.00 TO STA. 103+00.00

REVISIONS:

FILE NAME	GP001
DRAWN BY	KMM
CHECKED BY	NNS
PROJECT No.	MOTCLA2504
DATE	7-7-2025
SHEET NUMBER	16 OF 19

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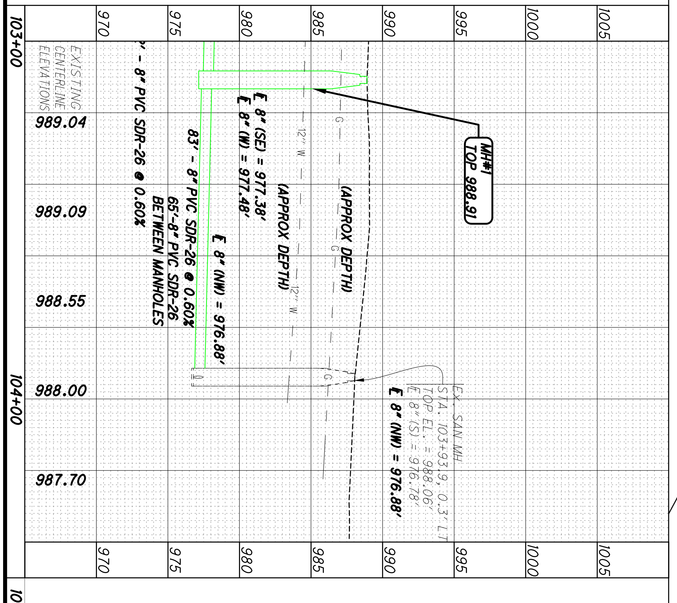

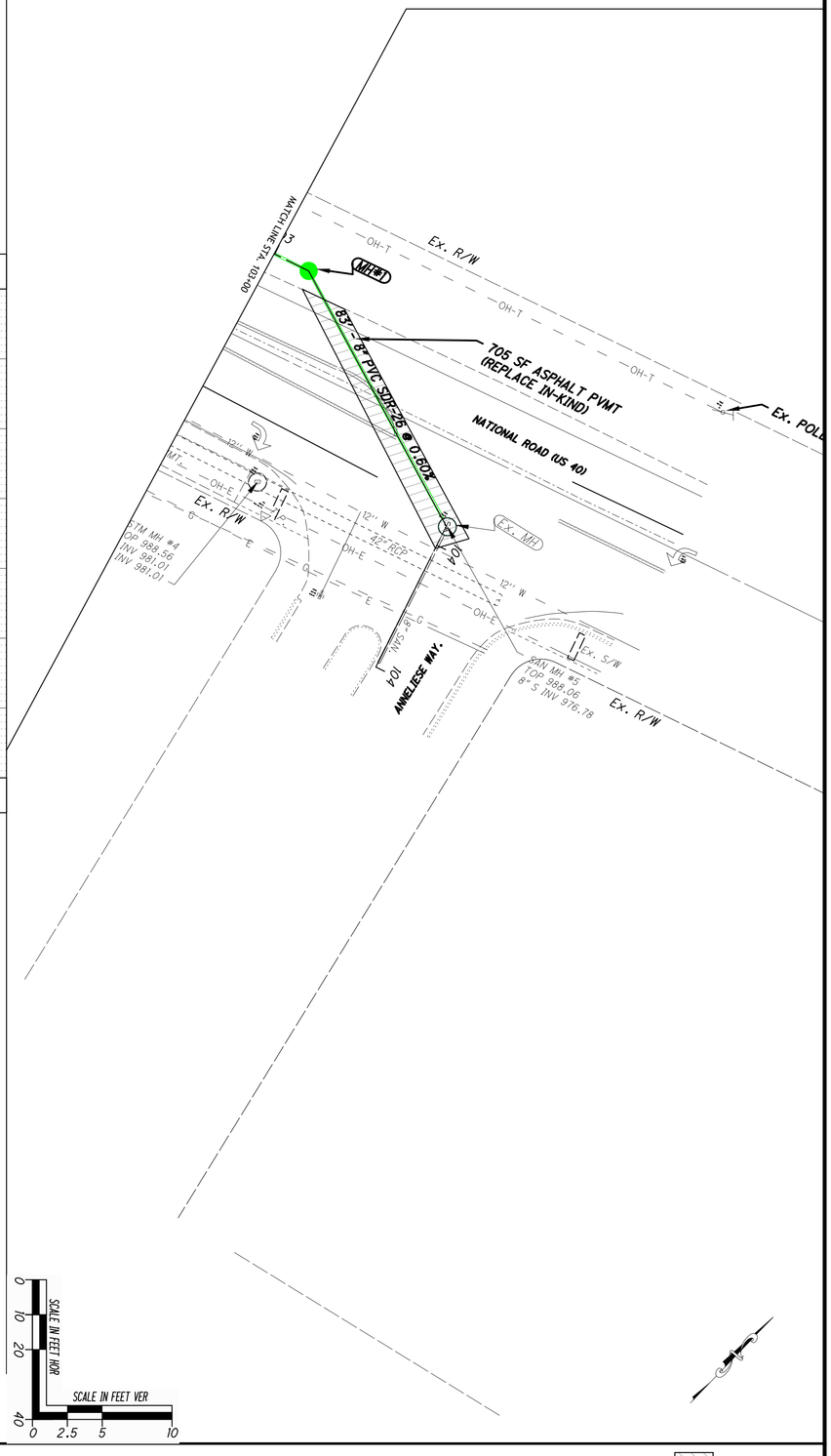

PROPOSED SANITARY STRUCTURES
#1 TYPE 3 SAN MH STA. 103+10.82, 0.00' TOP: 988.91 8" SE INV. 977.38 8" W INV. 977.48

-ASPHALT PAVEMENT REPAIR

REVISIONS:	
FILE NAME	GP001
DRAWN BY	KMM
CHECKED BY	MNS
PROJECT No.	MOTCLA2504
DATE	7-7-2025
SHEET NUMBER	17 OF 19

NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
OFFSITE SANITARY PLAN AND PROFILE STA. 103+00.00 TO STA. 104+50.00

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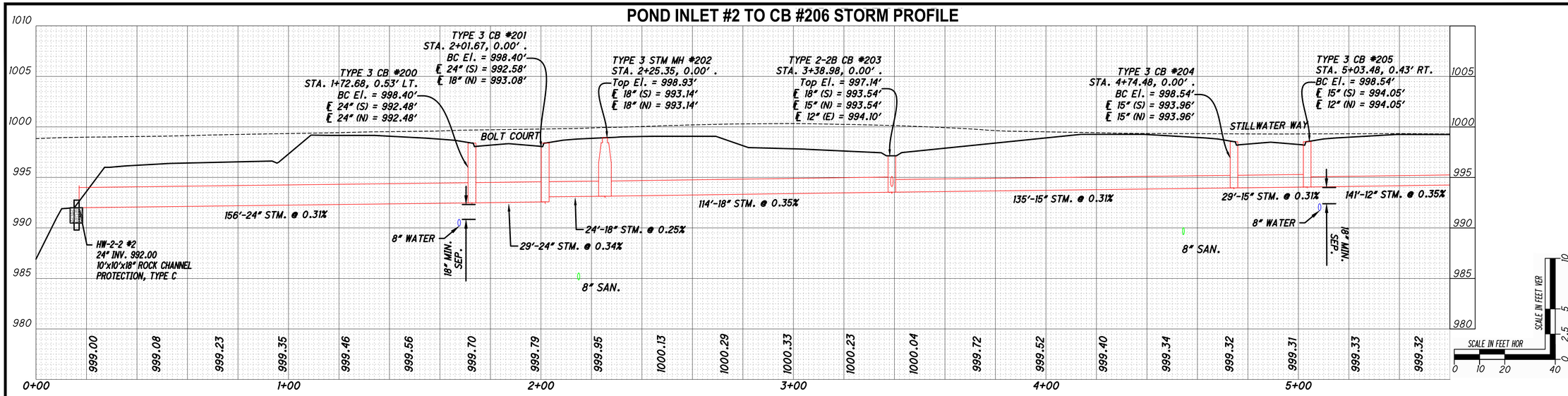
POND INLET #2 TO CB #206 STORM PROFILE



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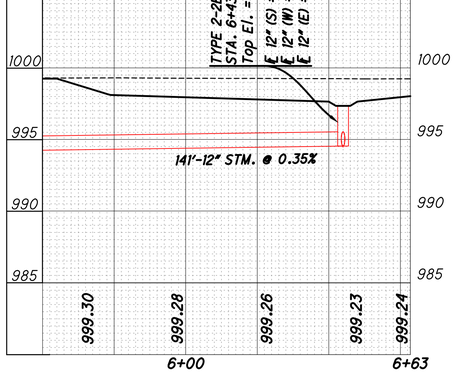
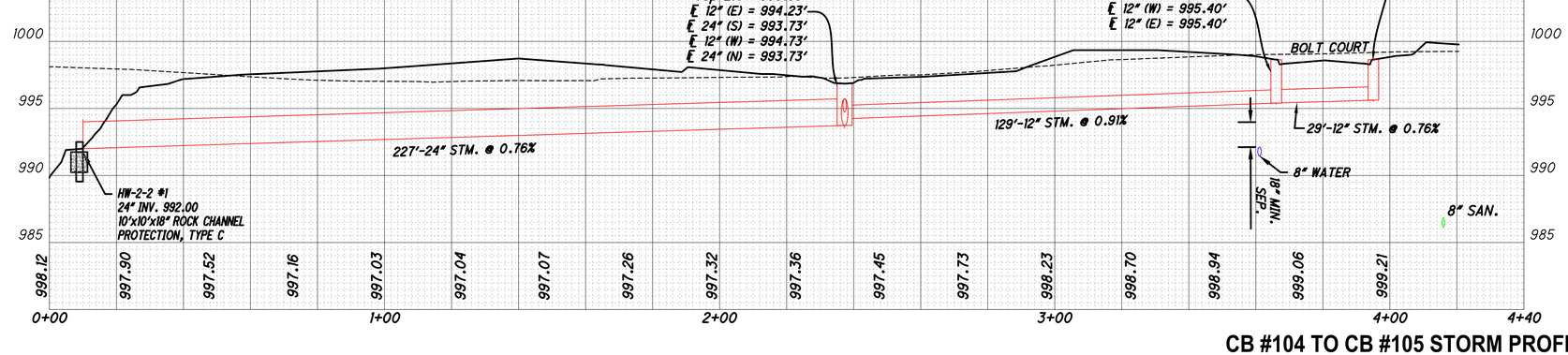
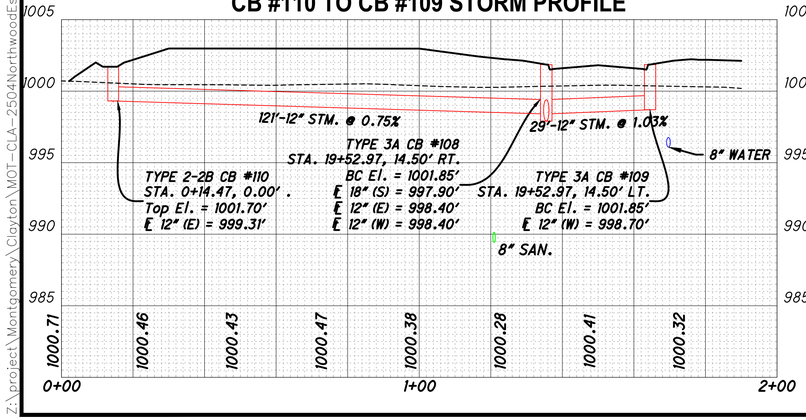


POND INLET #1 TO CB #102 STORM PROFILE



CB #110 TO CB #109 STORM PROFILE



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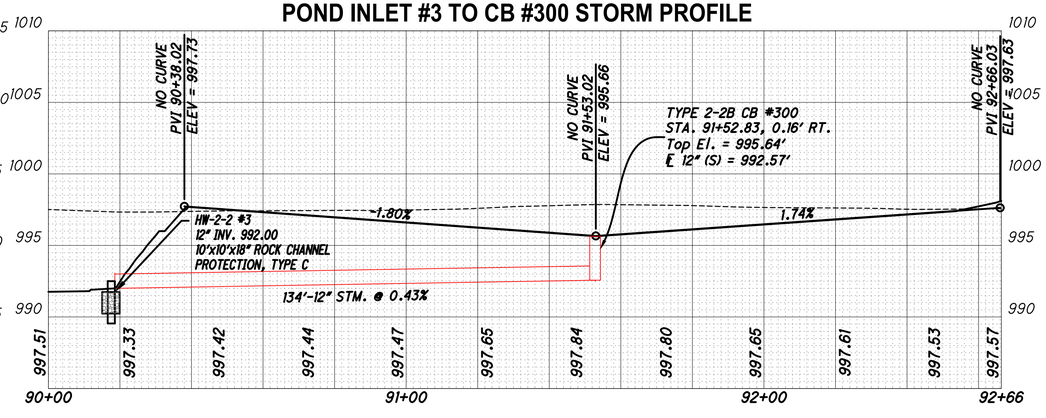
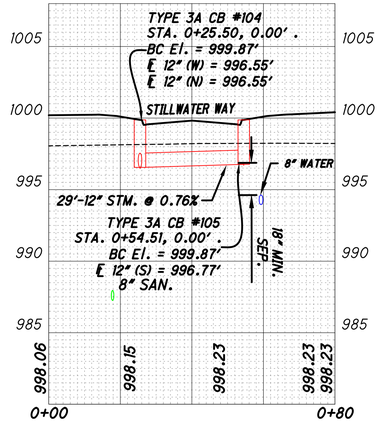


CB #104 TO CB #105 STORM PROFILE



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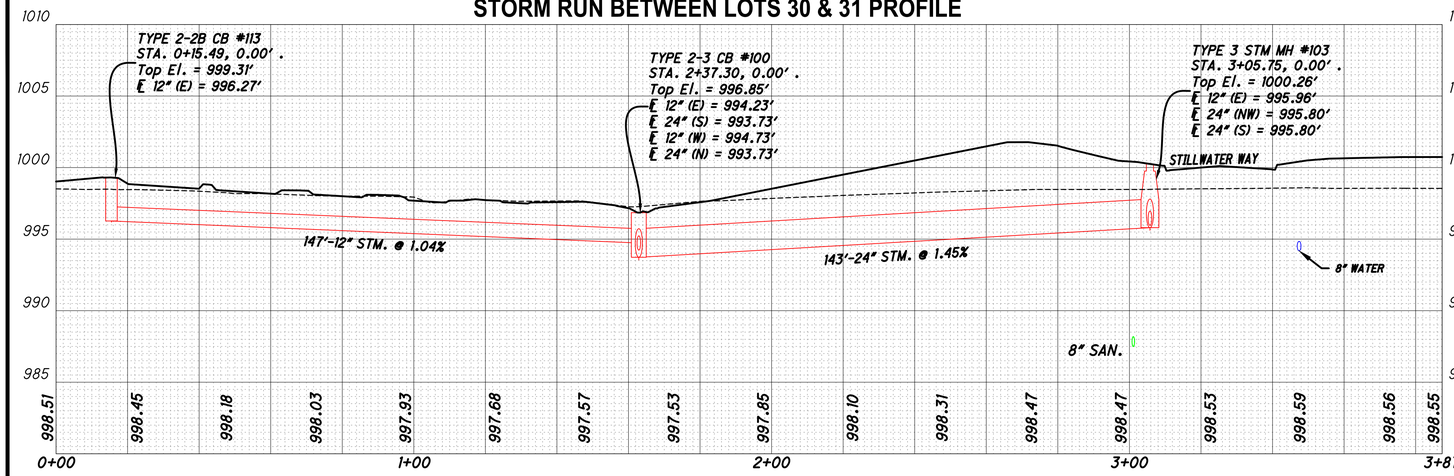
NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
OFFROAD PROFILES

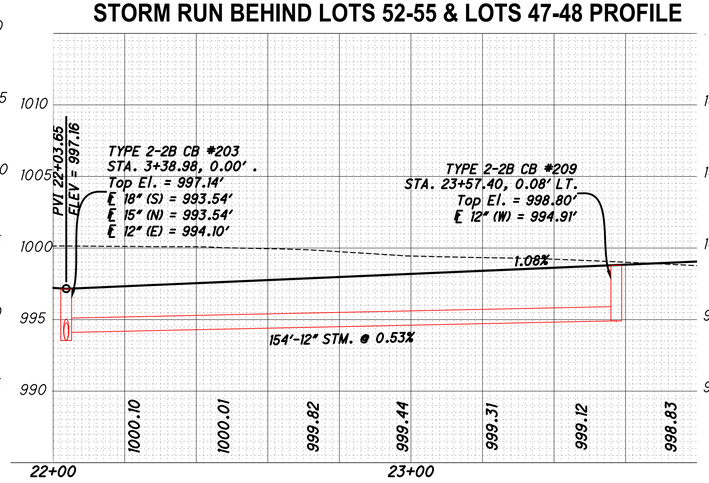
REVISIONS:

FILE NAME	GP001
DRAWN BY	KMM
CHECKED BY	NNS
PROJECT No.	MOTCLA2504
DATE	7-7-2025
SHEET NUMBER	18 OF 19

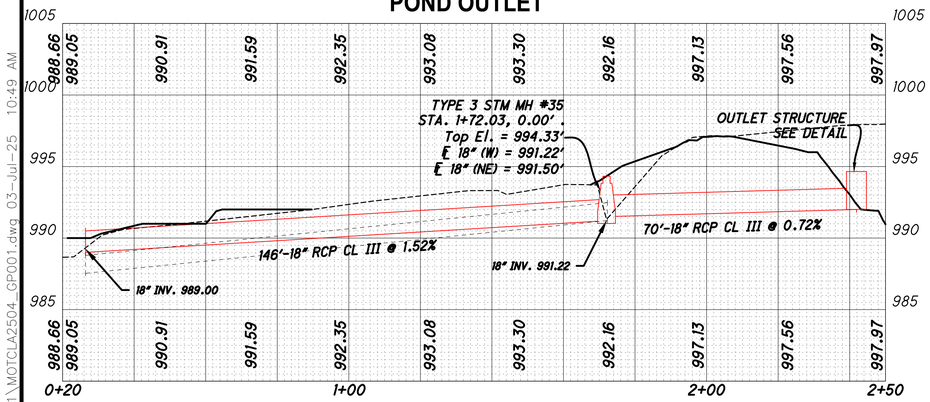
STORM RUN BETWEEN LOTS 30 & 31 PROFILE



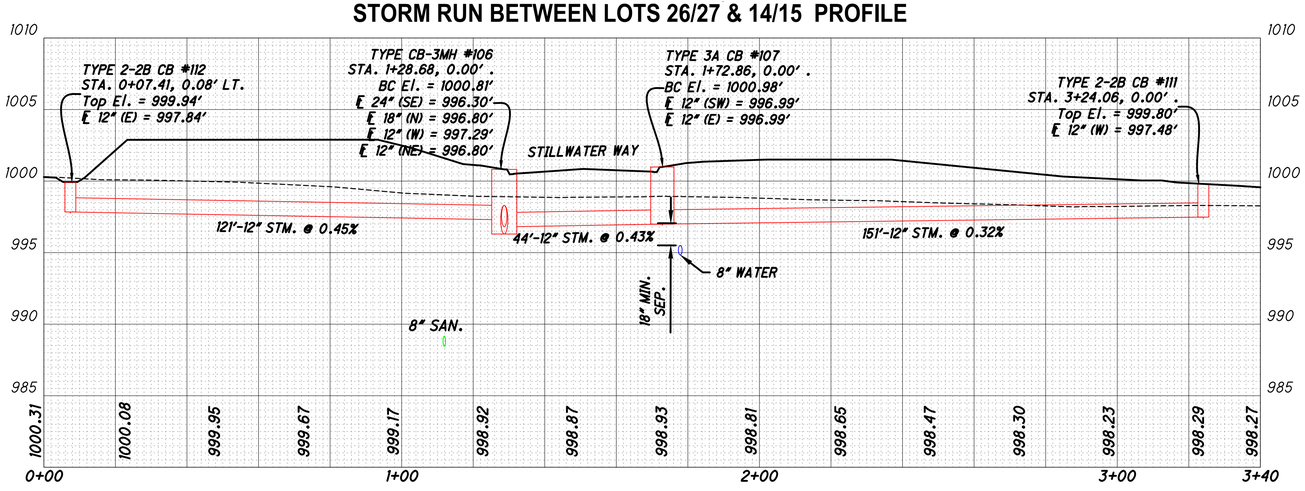
STORM RUN BEHIND LOTS 52-55 & LOTS 47-48 PROFILE



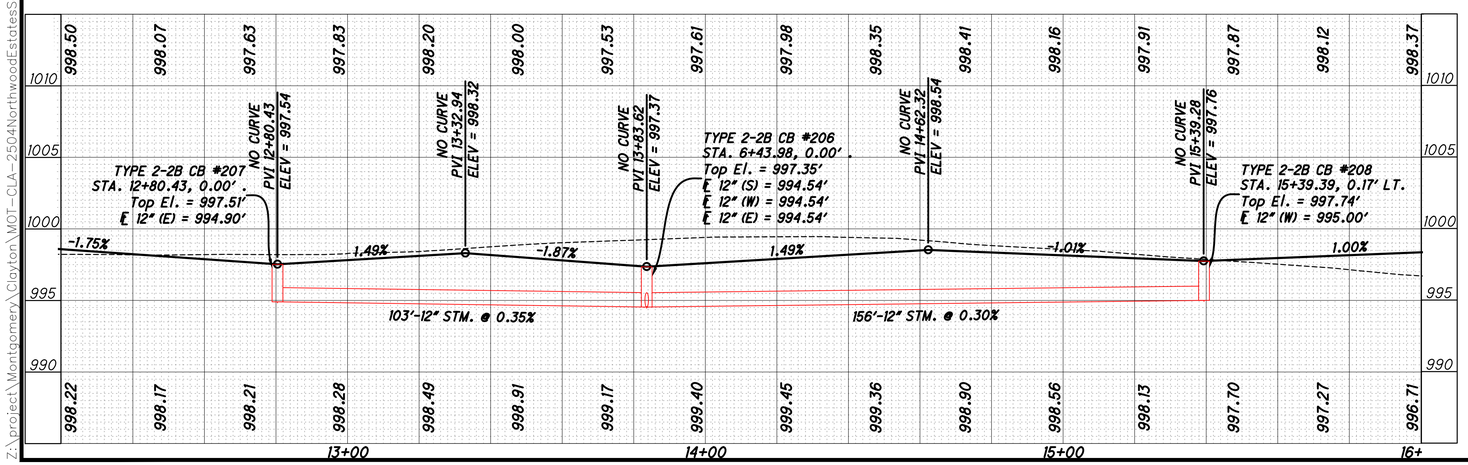
POND OUTLET



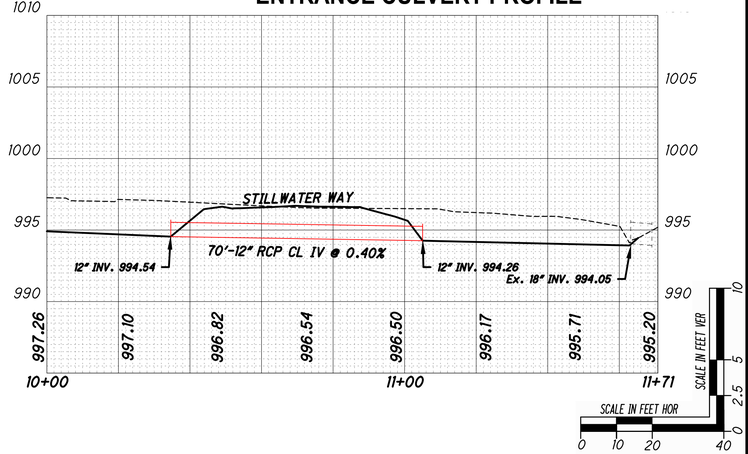
STORM RUN BETWEEN LOTS 26/27 & 14/15 PROFILE



STORM RUN BEHIND LOTS 4-8 PROFILE



ENTRANCE CULVERT PROFILE



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NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
OFFROAD PROFILES

REVISIONS:

FILE NAME	GP001
DRAWN BY	KMM
CHECKED BY	NNS
PROJECT No.	MOTCLA2504
DATE	7-7-2025
SHEET NUMBER	19 OF 19

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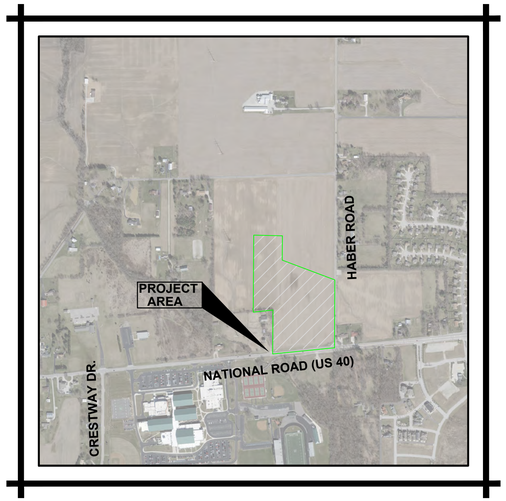
NORTHWOOD ESTATES SUBDIVISION - SECTION 1- SWPPP

CITY OF CLAYTON

MONTGOMERY COUNTY, OHIO



VICINITY MAP

SWPPP NOTE

THIS STORMWATER POLLUTION PREVENTION PLAN (SWPPP) HAS BEEN PREPARED FOR OAKES DEVELOPMENT FOR THE PERFORMANCE OF NORTHWOOD ESTATES IN MONTGOMERY COUNTY, OHIO. ALL WORK SHALL BE PER AND COMPLY WITH THE OEPA CONSTRUCTION SITE STORM WATER GENERAL PERMIT, PERMIT #OHC000006. THIS INCLUDES FILING A CO-PERMITTEE NOI FORM WITH THE OEPA FOR ALL OPERATORS ENGAGED IN SITE WORK ON THE SITE. CONTRACTOR SHALL FOLLOW THE SPECIFICATIONS, INSTALLATION, MAINTENANCE AND REQUIREMENTS OF ODOT'S CURRENT SUPPLEMENTAL SPECIFICATION 832 "TEMPORARY SEDIMENT AND EROSION CONTROL." COMPLIANCE WITH SUPPLEMENTAL SPECIFICATION 832 SHALL INCLUDE THE STANDARD CONSTRUCTION DRAWING REFERENCES LISTED IN SECTION 832.03, BUT SHALL NOT INCLUDE SECTION 832.11 "INSPECTIONS AND SWPPP UPDATES." ALL INSPECTIONS AND SWPPP UPDATES SHALL BE PER THE OEPA CONSTRUCTION SITE STORM WATER GENERAL PERMIT, PERMIT #OHC000006. ALL WORK SHALL ALSO BE PER THE CURRENT ODOT CMS 107.19. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH LOCAL STORMWATER AND EROSION CONTROL REGULATIONS. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH AND INSTALLING ALL ITEMS NOTED AND AS REQUIRED BY OEPA AND LOCAL AUTHORITIES FOR MEETING ALL STORM WATER POLLUTION PREVENTION REQUIREMENTS. OAKES DEVELOPMENT AND THE SELECTED CONTRACTOR SHALL BE THE RESPONSIBLE PARTY IN CHARGE OF THE SWPPP AND ASSOCIATED BMP'S.

SITE DATA

LOCATION SOIL TYPES_____MIAMIAN SILT LOAM
EARTH DISTURBED AREA_____16.94 ACRES
PROPOSED IMPERVIOUS AREA ADDED:_____ 6.75 ACRES
PRE-CONSTRUCTION RUNOFF COEFFICIENT:___0.40
POST-CONSTRUCTION RUNOFF COEFFICIENT:___0.60
DESCRIPTION OF PRIOR LAND USE_____AGRICULTURAL LAND
EXISTING QUALITY OF DISCHARGE FROM SITE___UNTREATED RUNOFF
IMMEDIATE RECEIVING WATERS:_____ON-SITE RETENTION BASIN
SUBSEQUENT RECEIVING WATERS:_____TRIBUTARY TO STILLWATER RIVER
LATITUDE 39.906952° LONGITUDE -84.310421°

WATERS EDGE NOTE

ALL MATERIAL AND EQUIPMENT STAGING OR STORAGE AREAS, DEWATERING AREAS, CONCRETE TRUCK WASH OUT AREAS, CONSTRUCTION ACCESS LOCATIONS, AND VEHICLE FUELING AND REFUELING LOCATIONS MUST BE LOCATED A MINIMUM OF 100' FROM ANY CREEK/RIVER/STREAM WATERS EDGE.

CLEAN STORM SYSTEM NOTE

IMMEDIATELY PRIOR TO FINAL COMPLETION OF THE PROJECT, CONTRACTOR SHALL ENSURE THE ENTIRE STORM SYSTEM, INCLUDING BUT NOT LIMITED TO, THE DETENTION/RETENTION BASIN(S), CATCH BASINS, MANHOLES, PIPING, UNDERDRAINS AND UNDERDRAIN TRENCHES ARE FREE FROM SEDIMENTATION AND OTHER POLLUTANTS AND FOREIGN MATERIALS AND ARE TO BE CLEANED AS NEEDED TO ENSURE MAXIMUM STORMWATER QUALITY AND FULL FUNCTIONALITY.

OFFSITE CONSTRUCTION ACTIVITIES

IT IS EXPECTED ALL CONSTRUCTION ACTIVITIES WILL TAKE PLACE ON SITE.

SPILL REPORTING REQUIREMENTS

IN THE EVENT OF A SMALL RELEASE (LESS THAN 25 GALLONS) OF PETROLEUM WASTE, SPECIAL HANDING PROCEDURES MUST BE USED. IN THE EVENT OF A LARGE RELEASE (25 GALLONS OR MORE) OF PETROLEUM WASTE, YOU MUST CONTACT THE OHIO EPA (AT 1-800-282-9378), THE LOCAL FIRE DEPARTMENT, AND THE LOCAL EMERGENCY PLANNING COMMITTEE (LEPC) WITHIN 30 MINUTES OF A SPILL OF 25 OR MORE GALLONS.

VEHICLE FUELING

VEHICLE FUELING AND MAINTENANCE WILL BE PERFORMED VIA A SMALL REFUEL TANK ON THE BACK OF A PICK-UP TRUCK.

OPEN BURNING NOTE

OPEN BURNING IS NOT PERMITTED IN THE CORPORATION LIMIT.

CONTACT INFORMATION

FACILITY SITE LOCATION: NORTHWEST OF HABER ROAD AND US 40 INTERSECTION, CLAYTON, OHIO 45315
OAKES TREE DEVELOPMENT, LANCE OAKES, 937-272-1100, 8534 YANKEE STREET, DAYTON, OH 45458,
lance.oakes@oakstreedev.com
SWPPP CONTACT/CONTRACTOR CONTACT - TBD

SWPPP AND INSPECTION REPORTS LOCATION

NOTE: THE SWPPP AND INSPECTION REPORTS WILL BE KEPT ON-SITE IN THE JOB TRAILER/FOREMAN'S PICK-UP.

WASTE DISPOSAL NOTE

CONTAINERS (e.g. DUMPSTERS, DRUMS) MUST BE AVAILABLE FOR THE DISPOSAL OF DEBRIS, TRASH, HAZARDOUS MATERIAL AND PETROLEUM WASTES. ALL CONTAINERS MUST BE COVERED AND LEAK-PROOF.

CLEAN HARD FILL NOTE

NO CLEAN CONSTRUCTION WASTES SHALL BE DISPOSED OF INTO THE PROPERTY.

FUELING AND STAGING NOTE

CONTRACTOR'S STAGING AND STORAGE AREA WILL BE LOCATED WITHIN CONSTRUCTION LIMITS OF THE PROJECT. FUEL TANKS AND OTHER HAZARDOUS MATERIALS TO BE SAFELY STORED, PROTECTED, AND PROPERLY HANDLED BY CONTRACTOR. CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO ENSURE NO POLLUTANTS FROM THE STAGING/STORAGE AREA LEAVE THE SITE OR ENTER ADJACENT SURFACE WATERS OR THE STORM SYSTEM. CONTRACTOR SHALL CLEAN UP AND PROPERLY DISPOSE OF ANY WASTE MATERIALS.

SOIL STOCKPILE NOTE

CONTRACTOR'S SHALL LOCATE SOIL STOCKPILE AREAS WITHIN THE PROJECT AREA SO AS NOT TO BE WITHIN THE IMMEDIATE PROXIMITY OF ANY SURFACE WATERS OR STORM INLET STRUCTURES. CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO ENSURE NO POLLUTANTS FROM THE STOCKPILE AREA LEAVE THE SITE OR ENTER ADJACENT SURFACE WATERS OR THE STORM SYSTEM. THESE MEASURES MAY INCLUDE BUT SHALL NOT BE LIMITED TO INSTALLING FILTER FABRIC FENCE AROUND STOCKPILE, TEMPORARILY COVERING THE STOCKPILE AND/OR TEMPORARILY SEEDING THE STOCKPILE.

DEWATERING NOTE

PUMPING OF SEDIMENT LADEN WATER FROM TRENCHES OR ANY OTHER EXCAVATIONS DIRECTLY INTO ANY SURFACE WATERS, DITCH OR STREAM CORRIDORS, ANY WETLANDS OR STORM SEWERS IS PROHIBITED. ALL SUCH WATER SHALL BE PROPERLY FILTERED OR SETTLED TO REMOVE SOIL PARTICLES PRIOR TO ITS RELEASE. IF AN AREA OF THE SITE OR TRENCH NEEDS DEWATERED, IT SHOULD BE PUMPED FROM A SUMP PIT WITH A SOCK FILTER OR OTHER TYPE OF FILTERING DEVICE ON THE DISCHARGE OF THE HOSE. DO NOT ALLOW DISCHARGED WATER TO PASS OVER DISTURBED GROUND. IF THE DISCHARGE WATER IS BEING PUMPED INTO A SEDIMENT POND THEN NO FILTER IS REQUIRED AT THE END OF THE HOSE. IF THE GROUNDWATER MUST BE LOWERED, THE WATER MAY BE FREELY DISCHARGED AS LONG AS THE WATER REMAINS CLEAN. DO NOT CO-MINGLE CLEAN GROUND WATER WITH SEDIMENT LADEN WATER OR DISCHARGE IT BY ALLOWING IT TO PASS OVER DISTURBED GROUND.

LOG/DOCUMENTATION SHEETS

AS PART OF THE SWPPP, THE CONTRACTOR SHALL MAINTAIN LOG/DOCUMENTATION SHEETS FOR THE FOLLOWING:
1) A SIGNATURE LOG CONTAINING THE SIGNATURES OF ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED IN THE IMPLEMENTATION OF THE SWPPP AS PROOF ACKNOWLEDGING THAT THEY REVIEWED AND UNDERSTAND THE CONDITIONS AND RESPONSIBILITIES OF THE SWPPP.
2) A GRADING AND STABILIZATION LOG DOCUMENTING THE PROJECTS GRADING AND STABILIZATION ACTIVITIES AND
3) A SWPPP AMENDMENT LOG DOCUMENTING CHANGES/AMENDMENTS TO THE SWPPP, WHICH OCCUR AFTER CONSTRUCTION ACTIVITIES COMMENCE.

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JULY 7, 2025

PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF THE CONSTRUCTION OF STREETS, UTILITIES, AND GRADING FOR NORTHWOOD ESTATES SUBDIVISION IN THE CITY OF CLAYTON, MONTGOMERY COUNTY, OHIO.

PROJECT WORK CONSTRUCTION DATES

START: SPRING 2026
ESTIMATED COMPLETION: SPRING 2027

EROSION CONTROL NOTES

A. INSTALL AND MAINTAIN FILTER FABRIC FENCE AND INLET PROTECTION WHERE SHOWN AND AS NEEDED TO MINIMIZE SEDIMENT LADEN WATER FROM LEAVING THE SITE OR ENTERING ANY STORM SYSTEM, ADJACENT DITCHES, STREAMS ETC. IF STORMWATER RUNOFF CONTAINING SEDIMENTS IS FOUND TO BE LEAVING THE PROJECT SITE IN AN AREA WHERE NO BMP/CONTROL MEASURE IS SHOWN OR IN PLACE, CONTRACTOR SHALL IMMEDIATELY INSTALL THE APPROPRIATE BMP/CONTROL MEASURE AS NEEDED TO REMEDY THE SITUATION (TYP. INLET PROTECTION, FILTER FABRIC FENCE, ETC.).

B. INSTALL INLET PROTECTION ON ALL STORM INLET STRUCTURES (YARD DRAINS, CATCH BASINS, MANHOLES WITH GRATED LIDS, ETC.) AND TO ANY EXISTING STORM STRUCTURES WITHIN THE PROJECT AREA WHICH MAY RECEIVE RUNOFF FROM THE CONSTRUCTION SITE AS NEEDED. INLET PROTECTION MAY CONSIST OF DEVICES SUCH AS SEDCAGE (WWW.SEDCATCH.COM), DANDY BAGS, SEDIGUARD FILTERS, FLEXSTORM INLET FILTERS, SEDIMENT FENCE OR OTHER DEVICES WHICH ARE EFFECTIVE AT MINIMIZING THE AMOUNT OF SEDIMENT ENTERING THE STRUCTURE.

C. CONTRACTOR IS RESPONSIBLE FOR IMMEDIATELY CLEANING UP ANY MUD, DIRT AND DEBRIS WHICH IS TRACKED OR SPILLED ONTO THE ROADWAYS.

D. PRE CONSTRUCTION - CONTRACTOR IS RESPONSIBLE TO INSTALL A CONSTRUCTION ENTRANCE AS NEEDED TO MINIMIZE ANY MUD, DIRT AND DEBRIS TRACKED ONTO THE ROADWAYS.

E. DURING CONSTRUCTION - THE CONTRACTOR MUST MAINTAIN EROSION CONTROL UNTIL AREA IS STABILIZED INCLUDING TEMPORARY SEEDING AS NEEDED. CONTRACTOR SHALL TEMPORARYILY SEED ALL CRITICAL EXPOSED SLOPES TO MINIMIZE SEDIMENT RUNOFF.

F. FINAL/POST CONSTRUCTION - CONTRACTOR SHALL SEED AND MULCH ALL DISTURBED AREAS. CONTRACTOR SHALL ENSURE GRASS IS PERMANENTLY AND PROPERLY ESTABLISHED IN ALL AREAS WHERE GRASS IS SPECIFIED. ALL SEDIMENT AND EROSION CONTROL STRUCTURES, INCLUDING SEDIMENT FENCE, SHALL REMAIN IN PLACE UNTIL GRASS IS IN PLACE AND SITE IS STABILIZED. ONCE SITE IS STABILIZED AND ALL CONSTRUCTION IS COMPLETE, ALL SEDIMENT FENCE, INLET PROTECTION AND ANY OTHER TEMPORARY BMP'S SHALL BE REMOVED FROM THE SITE.

BMP NOTES

FOR ALL BMP'S INSTALLED, ENSURE THAT THE PONDING OF WATER BEHIND THE BMP WILL NOT DAMAGE PROPERTY OR POSE A SAFETY THREAT. IF PERIODIC INSPECTIONS OR OTHER INFORMATION INDICATES A CONTROL MEASURE/BMP HAS BEEN USED INAPPROPRIATELY, THE CONTRACTOR MUST REPLACE AND ADJUST THE CONTROL/BMP TO MEET SITE CONDITIONS AS REQUIRED. THE CONTRACTOR SHALL ADJUST THE SWPPP AND ITS CONTROLS/BMPS AND THEIR QUANTITIES TO MEET FIELD CONDITIONS AND THE OHIO EPA'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) CONSTRUCTION ACTIVITIES GENERAL PERMIT.

MAINTENANCE NOTE

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE TO ENSURE ALL TEMPORARY AND PERMANENT CONTROL PRACTICES SHALL BE MAINTAINED AND REPAIRED AS NEEDED TO ENSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. ALL SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED IN A FUNCTIONAL CONDITION UNTIL ALL UP-SLOPE AREAS THEY CONTROL ARE PERMANENTLY STABILIZED. THE SWP3 SHALL BE DESIGNED TO MINIMIZE MAINTENANCE REQUIREMENTS. THE APPLICANT SHALL PROVIDE A DESCRIPTION OF MAINTENANCE PROCEDURES NEEDED TO ENSURE THE CONTINUED PERFORMANCE OF CONTROL PRACTICES.

SWPPP AND INSPECTION AVAILABILITY AND UPDATES NOTE

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE TO ENSURE THE IMMEDIATE AVAILABILITY OF THE SWPPP AND INSPECTION REPORTS ON-SITE. THE CONTRACTOR SHALL ALSO BE SOLELY RESPONSIBLE TO PERFORM AND DOCUMENT ALL REQUIRED SWPPP INSPECTIONS AND ALL UPDATES AND AMENDMENTS TO THE SWPPP.

DOCUMENTATION AND GOVERNMENT INSPECTION NOTE

CONTRACTOR(S) SHALL PROVIDE THE OWNER'S REPRESENTATIVE A WRITTEN COPY OF THEIR CO-PERMITTEE APPLICATION AND ANY OTHER DOCUMENTATION THE CONTRACTOR(S) MAY SEND OR RECEIVE FROM THE OEPA OR ANY OTHER GOVERNING AUTHORITIES.

IF AN INSPECTOR OR REPRESENTATIVE FROM THE OEPA OR ANY OTHER GOVERNING AUTHORITY IS ON-SITE, THE CONTRACTOR SHALL IMMEDIATELY CONTACT AND NOTIFY THE OWNER'S REPRESENTATIVE.

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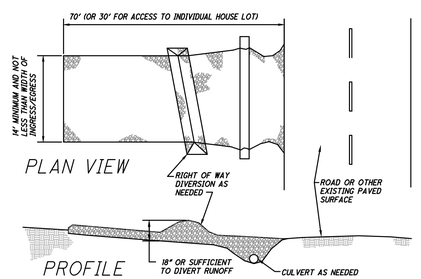
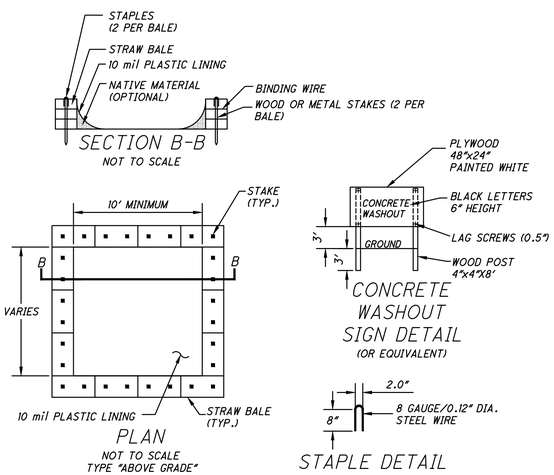
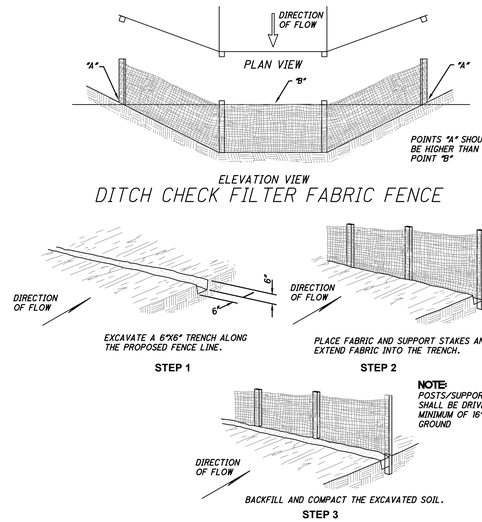
NORTHWOOD ESTATES SUBDIVISION - SECTION 1- SWPPP

REVISIONS:

FILE NAME: SWPPP COVER
DRAWN BY: KMM
CHECKED BY: NNS
PROJECT No.: MOTCLA2504
SHEET NUMBER: 1 OF 5







IMPLEMENTATION SCHEDULE (EROSION CONSTRUCTION SEQUENCE)

THE CONTRACTOR OR ITS APPOINTED REPRESENTATIVES WILL ASSUME RESPONSIBILITY FOR INSTALLATION, INSPECTION AND MAINTENANCE OF ALL SOIL EROSION CONTROL MEASURES DURING CONSTRUCTION. THE INSTALLATION OF THE SOIL EROSION CONTROL MEASURES WILL BE COMPLETED, AS FOLLOWS:

A. PRIOR TO ANY GRADING OR EARTHWORK:
A-1. SILT FENCE AND INLET PROTECTION (ON EX. STORM STRUCTURES) TO BE INSTALLED AS SHOWN ON SWPPP
A-2. INSTALL CONSTRUCTION ENTRANCE(S) IF NEEDED AS SHOWN ON SWPPP. INSTALLATION OF ALL OTHER EROSION AND SEDIMENT CONTROL MEASURES, E.G. ROCK CHECK DAMS, CONCRETE WASHOUT PIT, SEDIMENT BASIN, ETC.
B. PERFORM ROUGH GRADING, INSTALL UTILITIES, BUILDINGS, PAVEMENT:
B-1. CLEAR AND GRUB AREA AS NEEDED
B-2. PERFORM SITE GRADING. INSTALL BUILDING(S)
B-3. INSTALL SANITARY, STORM, WATER LINES, OTHER UTILITIES, GRAVEL BASE, AND CURB AND GUTTER, AS PER PLAN(S), INSTALL INLET PROTECTION ON ALL PROPOSED STORM INLET STRUCTURES AS INDICATED ON THE PLANS AS SOON AS THEY ARE INSTALLED.
B-4 PERFORM TEMPORARY SEEDING AS NEEDED ON ANY DISTURBED AREAS PER THE TIME REQUIREMENTS FOR TEMPORARY SEEDING SPECIFIED ON THIS DRAWING.
B-5 INSTALL PAVEMENT.
C. PERFORM FINAL GRADING:
C-1. PLACE TOPSOIL AND PERFORM FINAL RAKING AND GRADING ON ALL DISTURBED AREAS.
C-2. ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED (SEEDED AND/OR MULCHED).
C-3. CLEAN UP SITE, AND ONCE SITE HAS REACHED FINAL STABILIZATION REMOVE ALL TEMPORARY BMP'S.

NOTES: A) CARE WILL BE TAKEN NOT TO DISTURB ANY EXISTING NATURAL VEGETATION NOT INVOLVED IN THE CONSTRUCTION PROCESS, WHENEVER POSSIBLE. B) TIMELY INSPECTIONS OF THE EROSION CONTROL MEASURES WILL BE MADE, BY THE CONTRACTOR, EVERY 7 DAYS, AND/OR AFTER ANY RAINFALL OF AT LEAST 1/2" IN A 24-HOUR PERIOD. REPORTS MUST BE KEPT ON-SITE AND SUPPLIED TO THE GOVERNING AUTHORITY IF REQUESTED.

INSPECTION SCHEDULE

A. THE SITE WILL BE INSPECTED PER OHIO EPA PERMIT No. OHC000006:

PART III.G.2.i
INSPECTIONS. THE PERMITTEE SHALL ASSIGN QUALIFIED INSPECTION PERSONNEL TO CONDUCT INSPECTIONS TO ENSURE THAT THE CONTROL PRACTICES ARE FUNCTIONAL AND TO EVALUATE WHETHER THE SWP3 IS ADEQUATE AND PROPERLY IMPLEMENTED IN ACCORDANCE WITH THE SCHEDULE PROPOSED IN PART III.G.1.H OF THE OHC000006 PERMIT OR WHETHER ADDITIONAL CONTROL MEASURES ARE REQUIRED. AT A MINIMUM, PROCEDURES IN A SWP3 SHALL PROVIDE THAT ALL CONTROLS ON THE SITE ARE INSPECTED:
* AFTER ANY STORM EVENT GREATER THAN ONE-HALF INCH OF RAIN PER 24-HOUR PERIOD BY THE END OF THE NEXT CALENDAR DAY, EXCLUDING WEEKENDS AND HOLIDAYS UNLESS WORK IS SCHEDULED; AND
* ONCE EVERY SEVEN CALENDAR DAYS.

THE INSPECTION FREQUENCY MAY BE REDUCED TO AT LEAST ONCE EVERY MONTH FOR DORMANT SITES IF:
* THE ENTIRE SITE IS TEMPORARILY STABILIZED OR
* RUNOFF IS UNLIKELY DUE TO WEATHER CONDITIONS FOR EXTENDED PERIODS OF TIME (E.G. SITE IS COVERED WITH SNOW, ICE, OR THE GROUND IS FROZEN).

THE BEGINNING AND ENDING DATES OF ANY REDUCED INSPECTION FREQUENCY SHALL BE DOCUMENTED IN THE SWP3. ONCE A DEFINABLE AREA HAS ACHIEVED FINAL STABILIZATION, THE AREA MAY BE MARKED ON THE SWP3 AND NO FURTHER INSPECTION REQUIREMENTS SHALL APPLY TO THAT PORTION OF THE SITE.

FOLLOWING EACH INSPECTION, A CHECKLIST MUST BE COMPLETED AND SIGNED BY THE QUALIFIED INSPECTION PERSONNEL REPRESENTATIVE. AT A MINIMUM, THE INSPECTION REPORT SHALL INCLUDE:
i. THE INSPECTION DATE;
ii. NAMES, TITLES, AND QUALIFICATIONS OF PERSONNEL MAKING THE INSPECTION;
iii. WEATHER INFORMATION FOR THE PERIOD SINCE THE LAST INSPECTION (OR SINCE COMMENCEMENT OF CONSTRUCTION ACTIVITY IF THE FIRST INSPECTION) INCLUDING A BEST ESTIMATE OF THE BEGINNING OF EACH STORM EVENT, DURATION OF EACH STORM EVENT, APPROXIMATE AMOUNT OF RAINFALL FOR EACH STORM EVENT (IN INCHES), AND WHETHER ANY DISCHARGES OCCURRED;
iv. WEATHER INFORMATION AND A DESCRIPTION OF ANY DISCHARGES OCCURRING AT THE TIME OF THE INSPECTION;
v. LOCATION(S) OF DISCHARGES OF SEDIMENT OR OTHER POLLUTANTS FROM THE SITE;
vi. LOCATION(S) OF BMPS THAT NEED TO BE MAINTAINED;
vii. LOCATION(S) OF BMPS THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION;
viii. LOCATION(S) WHERE ADDITIONAL BMPS ARE NEEDED THAT DID NOT EXIST AT THE TIME OF INSPECTION; AND
ix. CORRECTIVE ACTION REQUIRED INCLUDING ANY CHANGES TO THE SWP3 NECESSARY AND IMPLEMENTATION DATES.

DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION SHALL BE INSPECTED FOR EVIDENCE OF OR THE POTENTIAL FOR POLLUTANTS ENTERING THE DRAINAGE SYSTEM. EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE SWP3 SHALL BE OBSERVED TO ENSURE THAT THOSE ARE OPERATING CORRECTLY. DISCHARGE LOCATIONS SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION AND SEDIMENT CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO THE RECEIVING WATERS. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE SHALL BE INSPECTED FOR EVIDENCE OF OFF-SITE VEHICLE TRACKING.

THE PERMITTEE SHALL MAINTAIN FOR THREE YEARS FOLLOWING THE SUBMITTAL OF A NOTICE OF TERMINATION FORM, A RECORD SUMMARIZING THE RESULTS OF THE INSPECTION, NAMES(S) AND QUALIFICATIONS OF PERSONNEL MAKING THE INSPECTION, THE DATE(S) OF THE INSPECTION, MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE SWP3 AND A CERTIFICATION AS TO WHETHER THE FACILITY IS IN COMPLIANCE WITH THE SWP3 AND THE PERMIT AND IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE. THE RECORD AND CERTIFICATION SHALL BE SIGNED IN ACCORDANCE WITH PART V.G. OF THIS PERMIT.

i. WHEN PRACTICES REQUIRE REPAIR OR MAINTENANCE. IF THE INSPECTION REVEALS THAT A CONTROL PRACTICE IS IN NEED OF REPAIR OR MAINTENANCE, WITH THE EXCEPTION OF A SEDIMENT SETTLING POND, IT SHALL BE REPAIRED OR MAINTAINED WITHIN 3 DAYS OF THE INSPECTION. SEDIMENT SETTLING PONDS SHALL BE REPAIRED OR MAINTAINED WITHIN 10 DAYS OF THE INSPECTION.

ii. WHEN PRACTICES FAIL TO PROVIDE THEIR INTENDED FUNCTION. IF THE INSPECTION REVEALS THAT A CONTROL PRACTICE FAILS TO PERFORM ITS INTENDED FUNCTION AND THAT ANOTHER, MORE APPROPRIATE CONTROL PRACTICE IS REQUIRED, THE SWP3 SHALL BE AMENDED AND THE NEW CONTROL PRACTICE SHALL BE INSTALLED WITHIN 10 DAYS OF THE INSPECTION.

iii. WHEN PRACTICES DEPICTED ON THE SWP3 ARE NOT INSTALLED. IF THE INSPECTION REVEALS THAT A CONTROL PRACTICE HAS NOT BEEN IMPLEMENTED IN ACCORDANCE WITH THE SCHEDULE CONTAINED IN PART III.G.1.H OF THIS PERMIT, THE CONTROL PRACTICE SHALL BE IMPLEMENTED WITHIN 10 DAYS FROM THE DATE OF THE INSPECTION. IF THE INSPECTION REVEALS THAT THE PLANNED CONTROL PRACTICE IS NOT NEEDED, THE RECORD SHALL CONTAIN A STATEMENT OF EXPLANATION AS TO WHY THE CONTROL PRACTICE IS NOT NEEDED.

B. VEGETATIVE PLANTINGS - SPRING PLANTINGS WILL BE CHECKED DURING SUMMER OR EARLY FALL.
C. REPAIRS - ANY EROSION CONTROL MEASURES, STRUCTURAL MEASURES, OR OTHER RELATED ITEMS IN NEED OF REPAIR WILL BE MADE WITHIN 7 DAYS.
D. MOWING - DRAINAGE WAYS, DITCHES, AND OTHER AREAS THAT SUPPORT A DESIGNED FLOW OF WATER WILL BE MOWED REGULARLY TO MAINTAIN THAT FLOW.
E. FERTILIZATION - SEEDED AREAS WHERE THE SEED HAS NOT PRODUCED A GOOD COVER WILL BE INSPECTED AND FERTILIZED AS NECESSARY.

CONSTRUCTION ENTRANCE

A. STONE SIZE - 2" STONE SHALL BE USED, OR RECYCLED CONCRETE EQUIVALENT.
B. LENGTH - THE CONSTRUCTION ENTRANCE SHALL BE AS LONG AS REQUIRED TO STABILIZE HIGH TRAFFIC AREAS, BUT NOT LESS THAN 70' (EXCEPT ON SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
C. THICKNESS - THE STONE LAYER SHALL BE AT LEAST 6" THICK.
D. WIDTH - THE ENTRANCE SHALL BE AT LEAST 10' WIDE, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
E. BEDDING - A GEOTEXTILE SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE. IT SHALL HAVE A GRAB TENSILE STRENGTH OF AT LEAST 200 LBS. AND A MULLEN BURST STRENGTH OF AT LEAST 190 LBS.
F. CULVERT - A PIPE OR CULVERT SHALL BE CONSTRUCTED UNDER THE ENTRANCE, IF NEEDED, TO PREVENT SURFACE WATER FLOWING ACROSS THE ENTRANCE FROM BEING DIRECTED OUT ONTO PAVED SURFACES (IF DRIVE IS PLACED ACROSS A DITCH).
G. WATER BAR - A WATER BAR SHALL BE CONSTRUCTED AS PART OF THE CONSTRUCTION ENTRANCE, IF NEEDED TO PREVENT SURFACE RUNOFF FROM FLOWING THE LENGTH OF THE CONSTRUCTION ENTRANCE AND OUT ONTO PAVED SURFACES (IF DRIVE IS PLACED ON A SLOPE).
H. MAINTENANCE - TOP DRESSING OF ADDITIONAL STONE SHALL BE APPLIED AS CONDITIONS DEMAND. MUD SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC ROADS, OR ANY SURFACE WHERE RUNOFF IS NOT CHECKED BY SEDIMENT CONTROLS, SHALL BE REMOVED IMMEDIATELY. REMOVAL SHALL BE ACCOMPLISHED BY SCRAPING OR SWEEPING.
I. CONSTRUCTION ENTRANCE SHALL NOT BE RELIED UPON TO REMOVE MUD FROM VEHICLES AND PREVENT OFFSITE TRACKING. VEHICLES THAT ENTER AND LEAVE THE CONSTRUCTION SITE SHALL BE RESTRICTED FROM MUDDY AREAS.
J. CONSTRUCTION ENTRANCES ARE INSTALLED TO MINIMIZE OFFSITE TRACKING OF SEDIMENTS. A STONE ACCESS DRIVE SHOULD BE INSTALLED AT EVERY POINT WHERE VEHICLES ENTER OR EXIT THE SITE. EVERY INDIVIDUAL LOT SHOULD ALSO HAVE ITS OWN DRIVE ONCE CONSTRUCTION ON THE LOT BEGINS.

NOTE: ALTERNATIVE STABILIZATION METHODS FOR CONSTRUCTION ENTRANCE/EXIT SUCH AS MANUFACTURED STEEL PLATES, GRID PLATES, ETC. OR STEEL PIPES/GRATINGS WILL ALSO BE CONSIDERED BUT WILL REQUIRE WRITTEN APPROVAL FROM THE OWNER PRIOR TO THE USE OF SUCH ALTERNATIVE METHODS AS ON-SITE CONSTRUCTION ENTRANCES/EXIT. ANY PROPOSED ALTERNATIVE METHODS SHALL SHALL BE SHOWN TO EFFECTIVELY REMOVE MUD AND DEBRIS FROM VEHICLE WHEELS PRIOR TO EXITING THE SITE.

CONSTRUCTION ENTRANCE DETAIL

NON-SEDIMENT POLLUTION CONTROL

A. CONSTRUCTION PERSONNEL, INCLUDING SUBCONTRACTORS WHO MAY USE OR HANDLE HAZARDOUS OR TOXIC MATERIALS, SHALL BE MADE AWARE OF THE FOLLOWING GENERAL GUIDELINES:

DISPOSAL AND HANDLING OF HAZARDOUS AND OTHER CONSTRUCTION WASTE

DO:
* PREVENT SPILLS
* USE PRODUCTS UP
* FOLLOW LABEL DIRECTIONS FOR DISPOSAL
* REMOVE LIDS FROM EMPTY BOTTLES AND CANS WHEN DISPOSING IN TRASH
* RECYCLE WASTE WHENEVER POSSIBLE

DON'T
* DON'T POUR INTO WATERWAYS, STORM DRAINS, OR ONTO THE GROUND
* DON'T POUR DOWN THE SINK, FLOOR DRAIN, OR SEPTIC TANKS
* DON'T BURY CHEMICALS OR CONTAINERS
* DON'T BURN CHEMICALS OR CONTAINERS
* DON'T MIX CHEMICALS TOGETHER

B. CONTAINERS SHALL BE PROVIDED FOR COLLECTION OF ALL WASTE MATERIAL INCLUDING CONSTRUCTION DEBRIS, TRASH, PETROLEUM, AND ANY HAZARDOUS MATERIALS TO BE USED ON SITE. ALL WASTE MATERIAL SHALL BE DISPOSED OF AT FACILITIES APPROVED FOR THAT MATERIAL.

C. NO WASTE MATERIALS SHALL BE BURIED ON SITE. SITE PERSONNEL, INCLUDING SUBCONTRACTORS, SHALL BE NOTIFIED THAT NO CONSTRUCTION-RELATED MATERIALS ARE TO BE BURIED ON SITE.

D. MIXING, PUMPING, TRANSFERRING, OR OTHERWISE HANDLING CONSTRUCTION CHEMICALS SUCH AS FERTILIZER, LIME, ASPHALT, CONCRETE DRYING COMPOUNDS, AND ALL OTHER POTENTIALLY HAZARDOUS MATERIALS SHALL BE PERFORMED IN AN AREA AWAY FROM ANY WATERCOURSE, DITCH, OR STORM DRAIN.

E. EQUIPMENT FUELING AND MAINTENANCE, OIL CHANGING, ETC., SHALL BE PERFORMED AWAY FROM WATERCOURSES, DITCHES, OR STORM DRAINS, IN AN AREA DESIGNATED FOR THAT PURPOSE. THE DESIGNATED AREA SHALL BE EQUIPPED FOR RECYCLING OIL AND CATCHING SPILLS.

F. CONCRETE WASH WATER SHALL NOT BE ALLOWED TO FLOW TO STREAMS, DITCHES, STORM DRAINS, OR ANY OTHER WATER CONVEYANCE. A SUMP OR PIT SHALL BE CONSTRUCTED IF NEEDED TO CONTAIN CONCRETE WASH WATER.

G. IF HAZARDOUS SUBSTANCES SUCH AS OIL, DIESEL FUEL, HYDRAULIC FLUID, ANTIFREEZE, ETC. ARE SPILLED, LEAKED, OR RELEASED ONTO THE SOIL, THE SOIL SHOULD BE DUG UP AND DISPOSED OF WITH THE TRASH AT A LICENSED SANITARY LANDFILL (NOT A CONSTRUCTION/DEMOLITION DEBRIS LANDFILL). SPILLS ON PAVEMENT SHALL BE ABSORBED WITH SAWDUST OR KITTY LITTER AND DISPOSED OF WITH THE TRASH AT A LICENSED SANITARY LANDFILL. HAZARDOUS OR INDUSTRIAL WASTES SUCH AS MOST SOLVENTS, GASOLINE, OIL-BASED PAINTS, AND CEMENT CURING COMPOUNDS REQUIRE SPECIAL HANDLING. CONTACT OHIO EPA (1-800-282-9378),

H. SPILLS OF 25 GAL. OR MORE OF PETROLEUM PRODUCTS SHALL BE REPORTED TO OHIO EPA (1-800-282-9378), THE LOCAL FIRE DEPARTMENT, AND THE LOCAL EMERGENCY PLANNING COMMITTEE WITHIN 30 MIN. OF THE DISCOVERY OF THE RELEASE.

I. STREETS NEED TO BE SWEPT AS OFTEN AS NECESSARY TO KEEP THEM CLEAN AND FREE FROM SEDIMENT. SEDIMENT TO BE SWEPT BACK ONTO THE LOT - NOT DOWN THE STORM SEWER.

J. STOCKPILES OF SOIL AND OTHER MATERIALS SHALL BE STORED AWAY FROM WATERCOURSES, DITCHES, OR STORM DRAINS, AND SHALL HAVE EROSION CONTROL MATERIALS PLACED AROUND THEM.

K. ALL STREAM CROSSINGS SHALL BE CONSTRUCTED ENTIRELY OF NON-ERODIBLE MATERIAL.

PROCESS WASTEWATER/LEACHATE MANAGEMENT NOTE

ALL PROCESS WASTEWATERS (e.g. EQUIPMENT WASHING, LEACHATE ASSOCIATED WITH ON-SITE WASTE DISPOSAL, AND CONCRETE WASH-OUTS) MUST BE COLLECTED AND DISPOSED OF PROPERLY (e.g. TO A PUBLICLY-OWNED TREATMENT WORKS). THE NPDES CONSTRUCTION STORM WATER GENERAL PERMIT ONLY AUTHORIZES THE DISCHARGE OF STORM WATER AND CERTAIN UNCONTAMINATED NON-STORM WATERS. THE DISCHARGE OF NON-STORM WATERS TO WATERS OF THE STATE MAY BE IN VIOLATION OF LOCAL, STATE, AND FEDERAL LAWS OR REGULATIONS.

HANDLING OF TOXIC OR HAZARDOUS MATERIALS NOTE

NO SOLID, SANITARY, OR TOXIC WASTE IS TO BE DISPOSED OF ON THE PROJECT SITE. RECYCLING OF USED OR UNUSED HAZARDOUS MATERIALS SHALL NOT OCCUR ON SITE EITHER. AREAS DESIGNATED FOR CEMENT TRUCK WASHOUTS, AND VEHICLE FUELING SHALL NOT TAKE PLACE ON PARKING LOT BASE.

CONSTRUCTION CHEMICAL COMPOUNDS NOTE

NO MIXING OR STORAGE OF CHEMICAL COMPOUNDS SUCH AS FERTILIZERS, LIME, ASPHALT, OR CONCRETE ARE PERMITTED TO TAKE PLACE ON-SITE. ALL MIXING SHALL TAKE PLACE BEFORE ENTERING THE SITE.

CONSTRUCTION & DEMOLITION DEBRIS NOTE

ALL CONSTRUCTION AND DEMOLITION DEBRIS (C&DD) WASTE SHALL BE DISPOSED OF IN AN OHIO EPA APPROVED C&DD LANDFILL AS REQUIRED BY OHIO REVISED CODE (ORC) 3714. MATERIALS WHICH CONTAIN ASBESTOS MUST COMPLY WITH AIR POLLUTION REGULATIONS (SEE OHIO ADMINISTRATIVE CODE 3745-20).

CONTAMINATED SOILS NOTE

SOILS CONTAMINATED BY PETROLEUM OR OTHER CHEMICAL SPILLS SHALL BE HANDLED AND DISPOSED OF PROPERLY. ALL CONTAMINATED SOILS MUST BE TREATED AND/OR DISPOSED OF IN AN OHIO EPA APPROVED SOLID WASTE MANAGEMENT FACILITY OR HAZARDOUS WASTE TREATMENT, STORAGE OR DISPOSAL FACILITY (TSDFs). IF CONTAMINATION HAPPENS TO OCCUR, TARPS ARE TO BE USED TO PREVENT STORM WATER FROM COMING INTO CONTACT WITH THE MATERIAL.

CONCRETE WASHOUT NOTE

CONCRETE WASHOUT OPERATIONS SHALL TAKE PLACE WITHIN THE PROPOSED PROJECT AREA UTILIZING THE CONTRACTOR'S PORTABLE CONCRETE WASHOUT CONTAINER OR WITHIN A BERMED/CONTAINED AREA. CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO ENSURE WASHOUT MATERIAL DOES NOT LEAVE THE WASHOUT AREA OR ENTER THE STORM SYSTEM. CONTRACTOR SHALL CLEAN UP AND PROPERLY DISPOSE OF ALL LEFTOVER WASHOUT MATERIAL.

CONCRETE WASHOUT DETAIL

DUST CONTROL

DUST CONTROL SHALL BE PROVIDED AS NEEDED TO PREVENT SEDIMENT FROM BECOMING AIRBORNE. MEASURES SHALL INCLUDE WATERING VIA A WATER TRUCK OR OTHER WATERING DEVICE AS NEEDED TO REDUCE AND/OR ELIMINATE AIRBORNE DUST CREATED BY CONSTRUCTION AND CONSTRUCTION RELATED ACTIVITIES.

CONSTRUCTION OF A FILTER BARRIER (SILT FENCE)

A. SILT FENCE SHALL BE CONSTRUCTED BEFORE UPSLOPE LAND DISTURBANCE BEGINS.

B. ALL SILT FENCE SHALL BE PLACED AS CLOSE TO THE CONTOUR AS POSSIBLE SO THAT WATER WILL NOT CONCENTRATE AT LOW POINTS IN THE FENCE AND SO THAT SMALL SWALES OR DEPRESSIONS WHICH MAY CARRY SMALL CONCENTRATED FLOWS TO THE SILT FENCE ARE DISSIPATED ALONG ITS LENGTH.

C. TO PREVENT WATER PONDED BY THE SILT FENCE FROM FLOWING AROUND THE ENDS, EACH END SHALL BE CONSTRUCTED UPSLOPE SO THAT THE ENDS ARE AT A HIGHER ELEVATION.

D. WHERE POSSIBLE, SILT FENCE SHALL BE PLACED ON THE FLATTEST AREA AVAILABLE.

E. WHERE POSSIBLE, VEGETATION SHALL BE PRESERVED FOR 5' (OR AS MUCH AS POSSIBLE) UPSLOPE FROM THE SILT FENCE. IF VEGETATION IS REMOVED, IT SHALL BE REESTABLISHED WITHIN 7 DAYS FROM THE INSTALLATION OF THE SILT FENCE.

F. THE HEIGHT OF THE SILT FENCE SHALL BE A MINIMUM OF 16" ABOVE THE ORIGINAL GROUND SURFACE.

G. THE SILT FENCE SHALL BE PLACED IN A TRENCH CUT A MINIMUM OF 6" DEEP. THE TRENCH SHALL BE CUT WITH A TRENCHER, CABLE LAYING MACHINE, OR OTHER SUITABLE DEVICE WHICH WILL ENSURE AN ADEQUATELY UNIFORM TRENCH DEPTH.

H. THE SILT FENCE SHALL BE PLACED WITH THE STAKES ON THE DOWNSLOPE SIDE OF THE GEOTEXTILE AND SO THAT 8" OF CLOTH IS BELOW THE GROUND SURFACE. EXCESS MATERIAL SHALL LAY ON THE BOTTOM OF THE 6" DEEP TRENCH. THE TRENCH SHALL BE BACKFILLED AND COMPACTED.

I. SEAMS BETWEEN SECTIONS OF SILT FENCE SHALL BE OVERLAPPED WITH THE END STAKES OF EACH SECTION WRAPPED TOGETHER BEFORE DRIVING INTO THE GROUND.

J. MAINTENANCE - SILT FENCE SHALL ALLOW RUNOFF TO PASS ONLY AS DIFFUSE FLOW THROUGH THE GEOTEXTILE. ALL THE GAPS AND TEARS IN THE FENCE MUST BE ELIMINATED AND REPAIRED. IF RUNOFF OVERTOPS THE SILT FENCE, FLOWS UNDER OR AROUND THE ENDS, OR IN ANY OTHER WAY BECOMES A CONCENTRATED FLOW, ONE OF THE FOLLOWING SHALL BE PERFORMED, AS APPROPRIATE: 1) THE LAYOUT OF THE SILT FENCE SHALL BE CHANGED, 2) ACCUMULATED SEDIMENT SHALL BE REMOVED, OR 3) OTHER PRACTICES SHALL BE INSTALLED.

DITCH CHECK FILTER FABRIC FENCE

DITCH CHECK FILTER FABRIC FENCE

FILTER FABRIC FENCE DETAIL

CRITERIA FOR SILT FENCE MATERIAL

A. FENCE POSTS - THE LENGTH SHALL BE A MINIMUM OF 48" LONG. WOOD POSTS WILL BE 2"-BY-2" HARDWOOD OF SOUND QUALITY. THE MAXIMUM SPACING BETWEEN POSTS SHALL BE 5'. POSTS/SUPPORT STAKES SHALL BE DRIVEN A MINIMUM OF 16" INTO THE GROUND.

B. SILT FENCE FABRIC SHALL CONFORM TO THE AASHTO SILT FENCE SPECIFICATION 100X AND SHALL HAVE A MINIMUM 100# GRAB TENSILE. SILT FENCE SHALL ALSO CONFORM TO THE MOST RECENT ODOT STANDARD FOR SEDIMENT/SILT FENCE (TABLE 712.09-1)

C. SILT FENCE SHALL BE ATTACHED TO THE WOODEN POSTS WITH STAPLES, WIRE, ZIP TIES, OR NAILS.

PERMANENT STABILIZATION

ALL AREAS AT FINAL GRADE MUST BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF REACHING FINAL GRADE. THIS IS USUALLY ACCOMPLISHED BY USING SEED AND MULCH, BUT SPECIAL MEASURES ARE SOMETIMES REQUIRED. THIS IS PARTICULARLY TRUE IN DRAINAGE DITCHES/SWALES, LOW AREAS, DETENTION POND BOTTOMS AND SIDES OR ON STEEP SLOPES. THESE MEASURES INCLUDE, BUT ARE NOT LIMITED TO, THE INSTALLATION OF EROSION CONTROL BLANKETS AND/OR MATTING, ADDITION OF TOPSOIL, OR ROCK RIP-RAP. CONTRACTOR SHALL UTILIZE THESE AND ANY OTHER SPECIAL MEASURES AS NEEDED TO PERMANENTLY STABILIZE THE SITE. PERMANENT SEEDING SHOULD BE DONE MARCH 1 TO MAY 31 AND AUGUST 1 TO SEPTEMBER 30. DORMANT SEEDING CAN BE DONE FROM NOVEMBER 20 TO MARCH 15. AT ALL OTHER TIMES OF THE YEAR, THE AREA SHOULD BE TEMPORARILY STABILIZED UNTIL A PERMANENT SEEDING CAN BE APPLIED.

AREA REQUIRING PERMANENT STABILIZATION	TIME FRAME TO APPLY EROSION CONTROLS
ANY AREAS THAT WILL LIE DORMANT FOR ONE YEAR OR MORE.	WITHIN 7 DAYS OF THE MOST RECENT DISTURBANCE.
ANY AREAS WITHIN 50' OF A SURFACE WATER OF THE STATE (STREAM, WATERWAY, WATER BODY, ETC.) AND AT FINAL GRADE	WITHIN 2 DAYS OF REACHING FINAL GRADE
ANY OTHER AREAS AT FINAL GRADE.	WITHIN 7 DAYS OF REACHING FINAL GRADE WITHIN THAT AREA.

SOILS EXPOSED NOTE

CONTRACTOR SHALL PLAN AND IMPLEMENT CONSTRUCTION AND GRADING ACTIVITIES TO MINIMIZE THE AMOUNT OF SOIL EXPOSED DURING CONSTRUCTION ACTIVITIES.

TEMPORARY SEEDING SPECIES SELECTION			
SEEDING DATES	SPECIES	L.B./1000 SQ. FT.	PER ACRE
MARCH 1 TO AUGUST 15	OATS TALL FESCUE ANNUAL RYEGRASS	3 1 1	4 BUSHELS 40 LBS. 40 LBS.
	PERENNIAL RYEGRASS TALL FESCUE ANNUAL RYEGRASS	1 1 1	40 LBS. 40 LBS. 40 LBS.
AUGUST 16 TO NOVEMBER 1	RYE TALL FESCUE ANNUAL RYEGRASS	3 1 1	2 BUSHELS 40 LBS. 40 LBS.
	WHEAT TALL FESCUE ANNUAL RYEGRASS	1 1 1	2 BUSHELS 40 LBS. 40 LBS.
	PERENNIAL RYEGRASS TALL FESCUE ANNUAL RYEGRASS	1 1 1	40 LBS. 40 LBS. 40 LBS.
NOVEMBER 1 TO SPRING SEEDING	USE MULCH ONLY, SODDING PRACTICES OR DORMANT SEEDING		
NOTE: OTHER APPROVED SEED SPECIES MAY BE SUBSTITUTED.			

SPECIFICATIONS FOR TEMPORARY SEEDING

A. TO MINIMIZE COSTS OF TEMPORARY STABILIZATION, LEAVE NATURAL COVER IN PLACE FOR AS LONG AS POSSIBLE. ONLY DISTURB AREAS YOU INTEND TO WORK WITHIN THE NEXT 14 DAYS.

B. STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS AND SEDIMENT TRAPS SHALL BE INSTALLED AND STABILIZED WITH TEMPORARY SEEDING PRIOR TO GRADING THE REST OF THE CONSTRUCTION SITE.

C. THE SEEDBED SHOULD BE PULVERIZED AND LOOSE TO ENSURE THE SUCCESS OF ESTABLISHING VEGETATION. HOWEVER, TEMPORARY SEEDING SHALL NOT BE POSTPONED IF IDEAL SEEDBED PREPARATION IS NOT POSSIBLE.

D. SOIL AMENDMENTS - APPLICATIONS OF TEMPORARY VEGETATION SHALL ESTABLISH ADEQUATE STANDS OF VEGETATION WHICH MAY REQUIRE THE USE OF SOIL AMENDMENTS. SOIL TESTS SHOULD BE TAKEN ON THE SITE TO PREDICT THE NEED FOR LIME AND FERTILIZER.

E. SEEDING METHOD - SEED SHALL BE APPLIED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER. WHEN FEASIBLE, SEED THAT HAS BEEN BROADCAST SHALL BE COVERED BY RAKING OR DRAGGING AND THEN LIGHTLY PLACED USING A ROLLER OR CULTIPACKER. IF HYDROSEEDING IS USED, THE SEED AND FERTILIZER WILL BE MIXED ON SITE AND THE SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

MULCHING TEMPORARY SEEDING

A. APPLICATIONS OF TEMPORARY SEEDING SHALL INCLUDE MULCH WHICH SHALL BE APPLIED DURING OR IMMEDIATELY AFTER SEEDING. SEEDINGS MADE DURING OPTIMUM SEEDING DATES AND WITH FAVORABLE SOIL CONDITIONS AND ON VERY FLAT AREAS MAY NOT NEED MULCH TO ACHIEVE ADEQUATE STABILIZATION.

B. MATERIALS:
- STRAW - IF STRAW IS USED, IT SHALL BE UNROTTED SMALL GRAIN STRAW APPLIED AT THE RATE OF 2 TONS/ACRE OR 90 LBS./1,000 SQ. FT. (TWO TO THREE BALES). THE MULCH SHALL BE SPREAD UNIFORMLY BY HAND OR MECHANICALLY SO THE SOIL SURFACE IS COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000 SQ. FT. SECTIONS AND SPREAD TWO 45 LBS. BALES OF STRAW IN EACH SECTION.
- HYDROSEEDERS - IF WOOD CELLULOSE FIBER IS USED, IT SHALL BE USED AT 2,000 LB/AC. OR 46 LBS./1,000 SQ. FT.
- OTHER - OTHER ACCEPTABLE MULCHES INCLUDE MULCH MATTINGS APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS OR WOOD CHIPS APPLIED AT 6 TONS/AC.
- STRAW MULCH SHALL BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR WATER. ANCHORING METHODS:
  -MECHANICAL - A DISK, CRIMPER, OR SIMILAR TYPE TOOL SHALL BE SET STRAIGHT TO PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL. STRAW MECHANICALLY ANCHORED SHALL NOT BE FINELY CHOPPED, BUT GENERALLY, BE LEFT LONGER THAN 6".
  -MULCH NETTINGS - NETTINGS SHALL BE USED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. NETTING MAY BE NECESSARY TO HOLD MULCH IN PLACE IN AREAS OF CONCENTRATION RUN OFF AND ON CRITICAL SLOPES.
  -SYNTHETIC BINDERS - SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRI-TAC), DCA-70, PETROSET, TERRA TACK OR EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER.
  -WOOD CELLULOSE FIBER - WOOD-CELLULOSE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 LBS./AC. THE WOOD-CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LBS./1000 GAL.

AREA REQUIRING TEMPORARY STABILIZATION	TIME FRAME TO APPLY EROSION CONTROLS
ANY DISTURBED AREAS WITHIN 50' OF A SURFACE WATER OF THE STATE (STREAM, WATERWAY, WATER BODY, ETC.) AND NOT AT FINAL GRADE.	WITHIN 2 DAYS OF THE MOST RECENT DISTURBANCE IF THE AREA WILL REMAIN IDLE FOR MORE THAN 14 DAYS
ANY DISTURBED AREAS THAT WILL BE DORMANT FOR MORE THAN 14 DAYS BUT LESS THAN 1 YEAR, AND NOT WITHIN 50' OF A SURFACE WATER OF THE STATE (STREAM, WATERWAY, WATER BODY, ETC.)	WITHIN 7 DAYS OF THE MOST RECENT DISTURBANCE WITHIN THE AREA FOR RESIDENTIAL SUBDIVISIONS, DISTURBED AREAS MUST BE STABILIZED AT LEAST 7 DAYS PRIOR TO TRANSFER OF PERMIT COVERAGE FOR THE INDIVIDUAL LOT(S).
DISTURBED AREAS THAT WILL BE IDLE OVER WINTER	PRIOR TO THE ONSET OF WINTER WEATHER
WHERE VEGETATIVE STABILIZATION TECHNIQUES MAY CAUSE STRUCTURAL INSTABILITY OR ARE OTHERWISE UNOBTAINABLE, ALTERNATIVE STABILIZATION TECHNIQUES MUST BE EMPLOYED.	

PERMANENT STABILIZATION

ODOT ITEM 659 SEEDING AND MULCHING, CLASS 1 (LAWN MIXTURE), AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF THE WORK AS DESCRIBED IN OHIO DEPARTMENT OF TRANSPORTATION ITEM 659, SEEDING AND MULCHING, EXCEPT AS HEREIN MODIFIED.

ALL DISTURBED AREAS OR AREAS DESIGNATED FOR SEEDING SHALL BE GRADED AND SEEDED AND SHALL HAVE A MINIMUM OF 6'' OF TOPSOIL OVER THE ENTIRE AREA. TESTING THE PH OF ANY EXISTING OR IMPORTED TOPSOIL PER ODOT 659.02 SHALL BE WAIVED. THE AREA SHALL BE HAND-RAKED AND DRESSED READY FOR SEEDING. NO STONE OVER 1$\frac{9}{32}$ IN SIZE PERMITTED IN THE TOP 6''.

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL.

IT$\frac{5}{32}$S THE CONTRACTOR$\frac{5}{32}$S SOLE RESPONSIBILITY TO PROVIDE THE REQUIRED GERMINATION RATES AND ENSURE THE GRASS IS ESTABLISHED TO THE SATISFACTION OF THE OWNER WHICH MAY REQUIRE WATERING, REGRADING/ADDING TOPSOIL AND RESEEDING. ANY AREAS THAT HAVE ERODED OR WHERE NEW GRASS DID NOT GERMINATE SHALL BE ADDRESSED BY THE CONTRACTOR UNTIL THE AREAS ARE STABILIZED, SHAPED, AND DRAINED, AS INDICATED IN THE PLANS.

ANY DISTURBED AREA, OUTSIDE OF THE PROJECT WORK LIMITS, CAUSED BY THE CONTRACTOR$\frac{5}{32}$S WORK, SHALL BE RESTORED TO THE SATISFACTION OF THE PROPERTY OWNER AND PROJECT OWNER'S REPRESENTATIVE, AT THE CONTRACTOR$\frac{5}{32}$S SOLE EXPENSE.

THIS ITEM INCLUDES: TOPSOIL, SEEDING, MULCHING, COMMERCIAL FERTILIZER, WATER, AND REPAIR SEEDING AND MULCHING.

THE ABOVE SHALL BE INCIDENTAL TO THE PROJECT.

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NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON

SWPPP - EROSION CONTROL NOTES AND DETAILS

REVISIONS:

FILE NAME	SWPPP NOTES 1
DRAWN BY	KMM
CHECKED BY	NNS
PROJECT No.	MOTCLA2504
DATE	7-7-2025
SHEET NUMBER	2 OF 5

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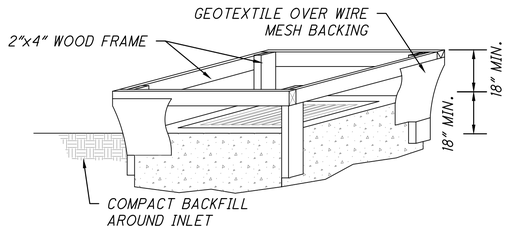
INLET PROTECTION FOR STORM STRUCTURES W/ GRATE

INLET PROTECTION MAY CONSIST OF SEDIMENT FENCE AND/OR DEVICES SUCH AS FLEX STORM INLET FILTERS, SEDCAGE (WWW.SEDCATCH.COM), DANDY BAGS, SEDIGUARD FILTERS, OR OTHER DEVICES (ALTERNATE PRODUCTS WHOSE PERFORMANCE IS EQUAL TO OR EXCEEDS THOSE LISTED) WHICH ARE EFFECTIVE AT MINIMIZING THE AMOUNT OF SEDIMENT ENTERING THE STRUCTURE . INSTALL INLET PROTECTION ON ALL PROPOSED YARD DRAINS, CATCH BASINS AND MANHOLES WITH GRATED LIDS AND TO ALL EXISTING STORM STRUCTURES WITH GRATED LIDS WITHIN THE PROJECT AREA WHICH MAY RECEIVE RUNOFF FROM THE CONSTRUCTION SITE.



NOTES

A. INLET PROTECTION SHALL BE CONSTRUCTED EITHER BEFORE UPSLOPE LAND DISTURBANCE BEGINS OR BEFORE THE STORM DRAIN BECOMES OPERATIONAL.

B. THE EARTH AROUND THE INLET SHALL BE EXCAVATED COMPLETELY TO A DEPTH OF AT LEAST 18".

C. THE WOODEN FRAME SHALL BE CONSTRUCTED OF 2" BY 4" CONSTRUCTION GRADE LUMBER. THE 2" BY 4" POST SHALL BE DRIVEN 1' INTO THE GROUND AT FOUR CORNERS OF THE INLET AND THE TOP PORTION OF 2" BY 4" FRAME ASSEMBLED USING THE OVERLAP JOINT SHOWN. THE TOP OF THE FRAME SHALL BE AT LEAST 6" BELOW ADJACENT ROAD, IF PONDED WATER WOULD POSE A SAFETY HAZARD TO TRAFFIC.

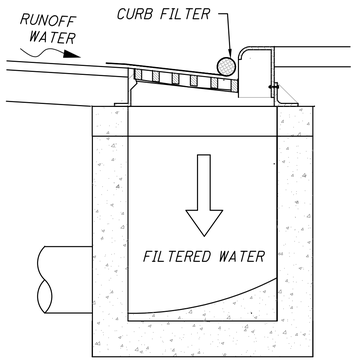
D. WIRE MESH SHALL BE OF SUFFICIENT STRENGTH TO SUPPORT FABRIC WITH WATER FULLY IMPOUNDED AGAINST IT. IT SHALL BE STRETCHED TIGHTLY AROUND THE FRAME AND FASTENED SECURELY TO THE FRAME.

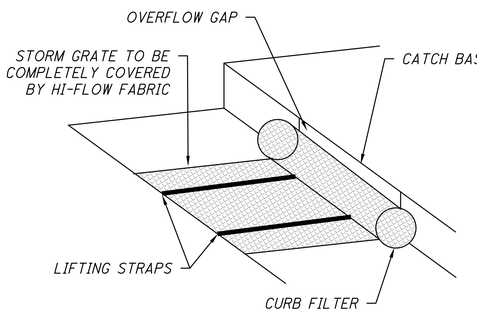
E. GEOTEXTILE SHALL HAVE AN EQUIVALENT OPENING SIZE OF 20-40 SIEVE AND BE RESISTANT TO SUNLIGHT. IT SHALL BE STRETCHED TIGHTLY AROUND THE FRAME AND FASTENED SECURELY. IT SHALL EXTEND FROM THE TOP OF THE FRAME TO 18" BELOW THE INLET NOTCH ELEVATION. THE GEOTEXTILE SHALL OVERLAY ACROSS ONE SIDE OF THE INLET SO THE ENDS OF THE CLOTH ARE NOT FASTENED TO THE SAME POST.

F. BACKFILL SHALL BE PLACED AROUND THE INLET IN COMPACTED 6" LAYERS UNTIL THE EARTH IS EVEN WITH NOTCH ELEVATION ON ENDS AND TOP ELEVATION ON SIDES.

G. A COMPACTED EARTH DIKE OR A CHECK DAM SHALL BE CONSTRUCTED IN THE DITCH LINE BELOW THE INLET IF THE INLET IS NOT IN A DEPRESSION, AND IF RUNOFF BY PASSING THE INLET WILL NOT FLOW TO A SETTING POND, THE TOP OF EARTH DIKES SHALL BE AT LEAST 6" HIGHER THAN THE TOP OF THE FRAME.

INLET PROTECTION IN SWALES, DITCH LINES OR YARD INLETS





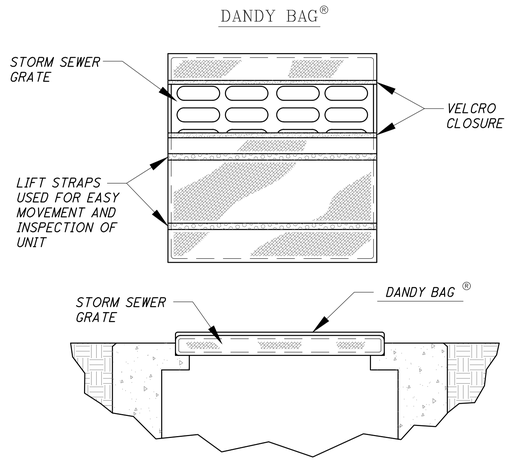
NOTES

A. DANDY CURB BAG, SEDIGUARDS, OR ALTERNATE PRODUCT WHOSE PERFORMANCE IS EQUAL TO OR EXCEEDS THOSE LISTED MAY BE USED.

B. REMOVE SEDIMENT FROM CURB INLET PROTECTION BEFORE IT HINDERS THE FILTERING CAPACITY.
- DANDY CURB BAG: LIFT GRATE AND REMOVE DANDY BAG, CLEAN ACCUMULATED SEDIMENT AND REPLACE BAG AS REQUIRED BY MANUFACTURER.
- SEDIGUARD: CLEAN SEDIGUARD ONCE IT IS DRY WITH A STIFF BROOM AFTER EVERY RAIN.
- ALTERNATE PRODUCTS: CLEAN AS REQUIRED PER MANUFACTURER'S RECCOMENDATIONS

C. INLET PROTECTION SHOULD NEVER INTERFERE WITH SAFETY OF ACTIVE TRAFFIC.

CURB INLET SEDIMENT FILTER DETAIL



DETAIL OF INLET SEDIMENT CONTROL DEVICE

DANDY BAG® SPECIFICATIONS

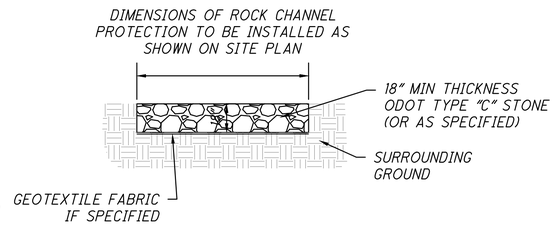
NOTE: THE DANDY BAG® WILL BE MANUFACTURED IN THE U.S.A. FROM A WOVEN MONOFILAMENT FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

HI-FLOW DANDY BAG® (SAFETY ORANGE)

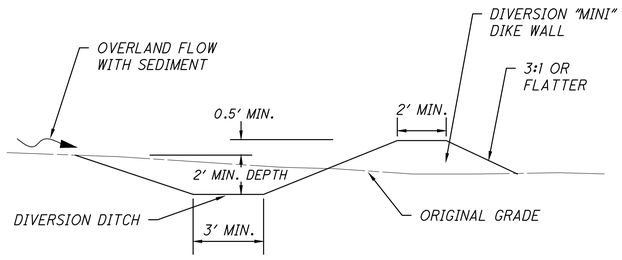
Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	1.62 (365) X 0.89 (200)
Grab Tensile Elongation	ASTM D 4632	%	24 X 10
Puncture Strength	ASTM D 4833	kN (lbs)	0.40 (90)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	3097 (450)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.51 (115) X 0.33 (75)
UV Resistance	ASTM D 4355	%	90
Apparent Opening Size	ASTM D 4751	Mm (US Std Sieve)	0.425 (40)
Flow Rate	ASTM D 4491	l/min/m²(gal/min/ft²)	5907 (145)
Permittivity	ASTM D 4491	Sec⁻¹	2.1

*Note: All Dandy Bags® can be ordered with optional oil absorbent pillows

INLET PROTECTION - DANDY BAG



ROCK CHANNEL PROTECTION DETAIL FOR PIPE OUTLET

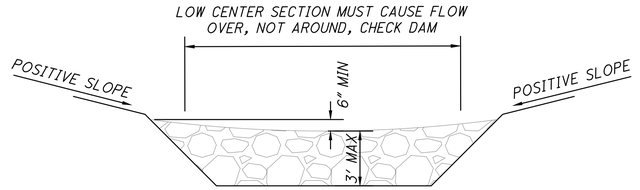


NOTES

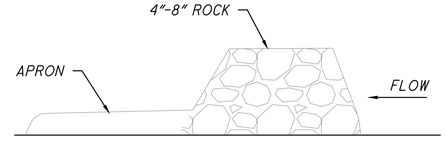
A. BERM CAN BE CONSTRUCTED AS DITCH OR DIKE WALL

B. PLACE DITCH ON A GRADE TO DRAIN TO SEDIMENT BASIN.

CROSS SECTION OF A DIVERSION BERM



CROSS SECTION



PROFILE

NOTES

A. THE CHECK DAM SHALL BE CONSTRUCTED OF 4-8 INCH DIAMETER STONE, PLACED SO THAT IT COMPLETELY COVERS THE WIDTH OF THE CHANNEL. ODOT TYPE D STONE IS ACCEPTABLE, BUT SHOULD BE UNDERLAIN WITH A GRAVEL FILTER CONSISTING OF ODOT No. 3 OR 4 OR SUITABLE FILTER FABRIC.

B. MAXIMUM HEIGHT OF CHECK DAM SHALL NOT EXCEED 3.0 FEET.

C. THE MIDPOINT OF THE ROCK CHECK DAM SHALL BE A MINIMUM OF 6 INCHES LOWER THAN THE SIDES IN ORDER TO DIRECT ACROSS THE CENTER AND AWAY FROM THE CHANNEL SIDES.

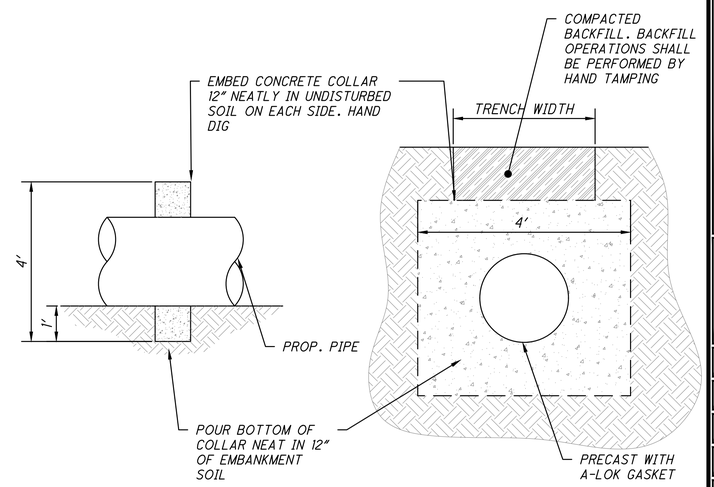
D. THE BASE OF THE CHECK DAM SHALL BE ENTRENCHED APPROXIMATELY 6 INCHES.

E. A STONE APRON SHALL BE CONSTRUCTED IMMEDIATELY DOWNSTREAM OF THE CHECK DAM TO PREVENT FLOWS FROM UNDERCUTTING THE STRUCTURE. THE APRON SHOULD BE 6 INCHES THICK AND ITS LENGTH TWO TIMES THE HEIGHT OF THE DAM.

F. STONE PLACEMENT SHALL BE PERFORMED EITHER BY HAND OR MECHANICALLY AS LONG AS THE CENTER OF CHECK DAM IS LOWER THAN THE SIDES AND EXTENDS ACROSS ENTIRE CHANNEL.

G. SIDE SLOPES SHALL BE A MINIMUM OF 2:1.

DITCH ROCK CHECK DAM



ANTI-SEEP COLLAR

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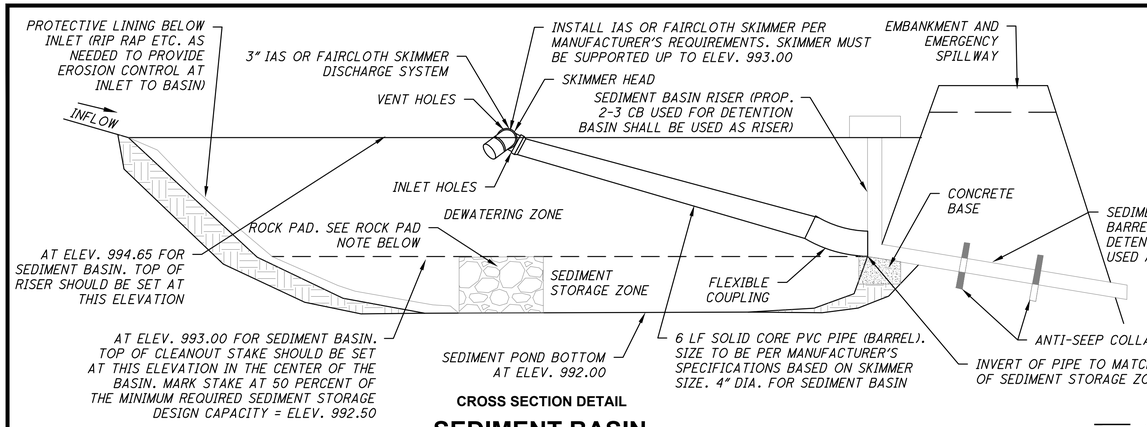
NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
SWPPP - EROSION CONTROL NOTES AND DETAILS

REVISIONS:

FILE NAME: SWPPP NOTES 2
DRAWN BY: KMM
CHECKED BY: NNS
PROJECT No.: MOTCLA2504
DATE: 7-7-2025
SHEET NUMBER: 3 OF 5

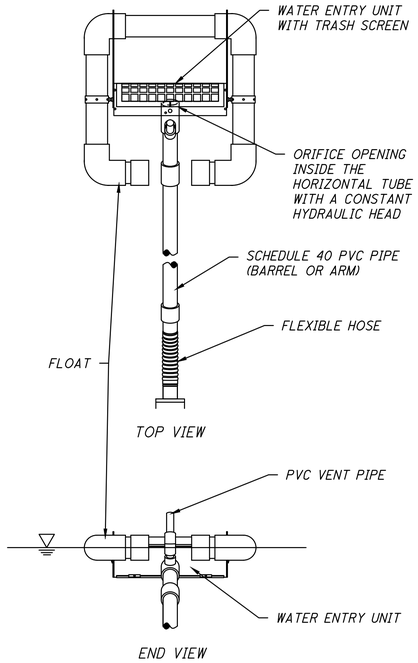


CROSS SECTION DETAIL

SEDIMENT BASIN

IAS SKIMMER

NTS



FAIRCLOTH SKIMMER

NTS

NOTES

A. SEDIMENT BASINS SHALL BE CONSTRUCTED AND OPERATIONAL BEFORE UPSLOPE LAND DISTURBANCE BEGINS.

B. SITE PREPARATION -THE AREA UNDER THE EMBANKMENT SHALL BE CLEARED, GRUBBED, AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED AS NEEDED TO FACILITATE SEDIMENT CLEANOUT. GULLIES AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1. THE SURFACE OF THE FOUNDATION AREA WILL BE THOROUGHLY SCARIFIED BEFORE PLACEMENT OF THE EMBANKMENT MATERIAL.

C. EMBANKMENT -THE FILL MATERIAL SHALL BE FREE OF ALL SOD, ROOTS, FROZEN SOIL, STONES OVER 6 IN. IN DIAMETER, AND OTHER OBJECTIONABLE MATERIAL. THE PLACING AND SPREADING OF THE FILL MATERIAL SHALL BE STARTED AT THE LOWEST POINT OF THE FOUNDATION AND THE FILL SHALL BE BROUGHT UP IN APPROXIMATELY 6 IN. HORIZONTAL LAYERS OR OF SUCH THICKNESS THAT THE REQUIRED COMPACTION CAN BE OBTAINED WITH THE EQUIPMENT USED. CONSTRUCTION EQUIPMENT SHALL BE OPERATED OVER EACH LAYER IN A WAY THAT WILL RESULT IN THE REQUIRED COMPACTION. SPECIAL EQUIPMENT SHALL BE USED WHEN THE REQUIRED COMPACTION CANNOT BE OBTAINED WITHOUT IT. THE MOISTURE CONTENT OF FILL MATERIAL SHALL BE SUCH THAT THE REQUIRED DEGREE OF COMPACTION CAN BE OBTAINED WITH THE EQUIPMENT USED. THE EMBANKMENTS OF THE SEDIMENT BASIN AND THE AREAS THAT LIE DOWNSTREAM OF THE POND MUST BE STABILIZED.

D. PIPE SPILLWAY -THE PIPE CONDUIT BARREL SHALL BE PLACED ON A FIRM FOUNDATION TO THE LINES AND GRADES SHOWN ON THE PLANS. CONNECTIONS BETWEEN THE RISER AND BARREL, THE ANTI-SEEP COLLARS AND BARREL AND ALL PIPE JOINTS SHALL BE WATERTIGHT. SELECTED BACKFILL MATERIAL SHALL BE PLACED AROUND THE CONDUIT IN LAYERS AND EACH LAYER SHALL BE COMPACTED TO AT LEAST THE SAME DENSITY AS THE ADJACENT EMBANKMENT. ALL COMPACTION WITHIN 2 FT. OF THE PIPE SPILLWAY WILL BE ACCOMPLISHED WITH HAND-OPERATED TAMPING EQUIPMENT.

E. RISER PIPE BASE -THE RISER PIPE SHALL BE SET A MINIMUM OF 6 IN. IN THE CONCRETE BASE.

F. TRASH RACKS -THE TOP OF THE RISER SHALL BE FITTED WITH TRASH RACKS FIRMLY FASTENED TO THE RISER PIPE.

G. SEED AND MULCH -THE SEDIMENT BASIN SHALL BE STABILIZED IMMEDIATELY FOLLOWING ITS CONSTRUCTION. IN NO CASE SHALL THE EMBANKMENT OR EMERGENCY SPILLWAY REMAIN BARE FOR MORE THAN 7 DAYS.

H. SEDIMENT CLEANOUT - ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE SEDIMENT STORAGE ZONE ONCE IT EXCEEDS 50 PERCENT OF THE MINIMUM REQUIRED SEDIMENT STORAGE DESIGN CAPACITY AND PRIOR TO THE CONVERSION TO THE POST-CONSTRUCTION PRACTICE UNLESS SUITABLE STORAGE IS DEMONSTRATED BASED UPON OVER-DESIGN. THIS ELEVATION SHALL BE MARKED ON A CLEANOUT STAKE NEAR THE CENTER OF THE BASIN. SEDIMENT REMOVED FROM THE BASIN SHALL BE PLACED SO THAT IT WILL NOT ERODE.

I. FINAL REMOVAL - SEDIMENT BASINS SHALL BE REMOVED AFTER THE UPSTREAM DRAINAGE AREA IS STABILIZED OR AS INDICATED IN THE PLANS. DEWATERING AND REMOVAL SHALL NOT CAUSE SEDIMENT TO BE DISCHARGED. THE SEDIMENT BASIN SITE AND SEDIMENT REMOVED FROM THE BASIN SHALL BE STABILIZED.

OPERATIONS AND MAINTENANCE

SEDIMENT BASINS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. NECESSARY ACTIVITIES ARE SHOWN AS FOLLOWS:

A. ESTABLISH VEGETATIVE COVER AND FERTILIZE AS NECESSARY TO MAINTAIN A VIGOROUS COVER IN AND AROUND THE SEDIMENT BASIN.

B. REMOVE UNDESIRABLE VEGETATION PERIODICALLY TO PREVENT GROWTH OF TREES AND SHRUBS ON THE EMBANKMENT AND SPILLWAY AREAS.

C. PROMPTLY REPAIR ERODED AREAS. REESTABLISH VEGETATIVE COVER IMMEDIATELY WHERE SCOUR EROSION HAS REMOVED ESTABLISHED SEEDING.

D. PROMPTLY REMOVE ANY BURROWING RODENTS THAT MAY INVADE AREAS OF THE EMBANKMENT.

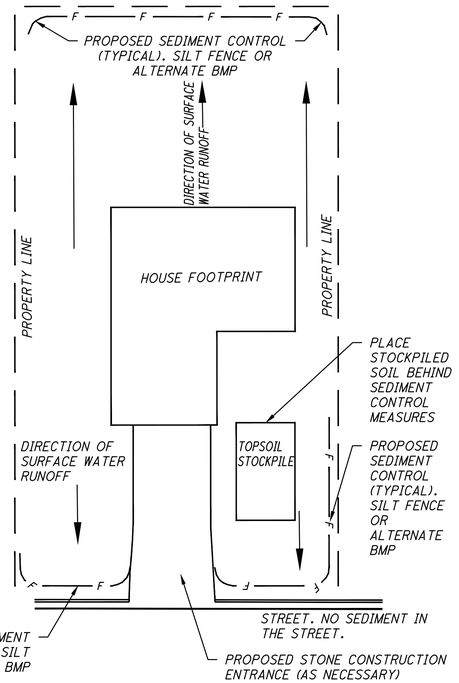
E. REMOVE TRASH AND DEBRIS THAT MAY BLOCK SPILLWAYS AND ACCUMULATE IN THE POND.

F. CHECK SPILLWAY OUTLETS AND POINTS OF INFLOW TO ENSURE DRAINAGE IS NOT CAUSING EROSION AND THAT OUTLETS ARE NOT CLOGGED. REPLACE DISPLACED RIPRAP IMMEDIATELY.

ROCK PAD NOTE

IT IS VERY IMPORTANT THAT A ROCK PAD BE CONSTRUCTED TO THE HEIGHT OF THE TOP OF THE SEDIMENT STORAGE ZONE. IF THIS IS NOT DONE OR IF THE PAD IS NOT BUILT TO THE SAME HEIGHT AS THE TOP OF THE SEDIMENT STORAGE ZONE, THE SKIMMER WILL NOT FUNCTION PROPERLY .

WHEN COMPLETE THE IAS FLEXIBLE COUPLING SHOULD BE LYING FLAT ON THE ROCK PAD. THE UNIT WILL BE TOUCHING AT TWO POINTS: THE TOP OF THE BARREL/MIDDLE OF THE SKIMMER HEAD AND THE POINT AT WHICH THE BARREL IS ATTACHED TO THE IAS FLEXIBLE COUPLING. SEE MANUFACTURER'S ASSEMBLY INSTRUCTIONS.



NOTES

A. THIS IS A TYPICAL DRAWING. APPLICANT IS RESPONSIBLE FOR MAKING THE CHANGES PERTINENT TO EACH LOT/SITE.

B. REDUCE SEDIMENT LEAVING THE SITE BY IMPLEMENTING BEST MANAGEMENT PRACTICES (BMPs) SUCH AS:

- LIMIT MUD TRACK-OUT ONTO PRIVATE OR PUBLIC STREETS BY PARKING ON PAVED STREETS OR DRIVEWAYS WHENEVER POSSIBLE. IF NECESSARY, UTILIZE A TEMPORARY GRAVEL DRIVE.
- CLEAN UP ANY MUD THAT HAS BEEN TRACKED OFF THE CONSTRUCTION SITE IN A THOROUGH AND TIMELY MANNER.
- IMPLEMENT SEDIMENT CONTROLS ALONG THE LOWER SIDES OF THE PROPERTY TO PROTECT ADJACENT WATERWAYS, STORM DRAINS OR NEIGHBORING PROPERTY FROM SEDIMENTATION.
- KEEP A CLEAN SITE. DISPOSE OF CONSTRUCTION WASTE MATERIALS AND DEBRIS IN A DUMPSTER OR CONTAINMENT DEVICE.
- HAVE YOUR PORTABLE TOILET STAKED AND ANCHORED AWAY FROM ANY STORM DRAIN INLETS.
- INSPECT YOUR SITE WEEKLY AND AFTER RAIN EVENTS TO FIND ANY POTENTIAL PROBLEMS AND KEEP YOUR BEST MANAGEMENT PRACTICES REPAIRED AND IN GOOD WORKING ORDER.
- MAINTAIN A VEGETATION BUFFER WHERE POSSIBLE AROUND THE PERIMETER OF THE SITE.
- A CONCRETE WASHOUT PIT OR WASHOUT CONTAINER SHOULD BE MAINTAINED AND USED UNTIL ALL CONCRETE WORK IS COMPLETE.

TYPICAL INDIVIDUAL LOT SWPPP

NTS.

SEDIMENT BASIN CALCULATIONS

REQUIRED SEDIMENT STORAGE VOLUME = 37 C.Y./ACRE * 16.94 ACRES = 626.8 C.Y.
TOP OF SEDIMENT STORAGE ZONE ELEVATION = 993.00 (1,201.9 C.Y.). SET CLEANOUT STAKE AT THIS ELEVATION.
REQUIRED DEWATERING ZONE VOLUME = 67 C.Y./ACRE * 16.94 ACRES = 1134.9 C.Y.
DEWATERING ZONE VOLUME (BETWEEN 993.00 AND 994.65) = 2,330 C.Y.
TOTAL BASIN VOLUME REQUIRED TO TOP OF DEWATERING ZONE = 626.8 C.Y. + 1134.9 C.Y. = 1761.7 C.Y.
TOP OF DEWATERING ZONE ELEVATION = 994.65 (3,531.9 C.Y.)
TOTAL SEDIMENT BASIN VOLUME PROVIDED TO ELEV. 996.50 = 6,611 C.Y.
RISER AND BARREL: PROPOSED 18" DETENTION OUTLET AND 2-3 CB ARE TO BE USED AS OUTLET FOR SEDIMENT BASIN.
EMERGENCY SPILLWAY: EMERGENCY SPILLWAY TO BE TRAPEZOIDAL WITH A BOTTOM WIDTH OF 60'.
DEWATERING TIME : 3.00 DAYS
1134.9 C.Y. * 27 = 30,642 C.F. VOLUME TO BE DEWATERED
USING A FAIRCLOTH/IAS WATER QUALITY SKIMMER WITH A 3" SKIMMER SIZE, IT DISCHARGES 10,205 CF PER 24 HOURS THEREFORE IT WILL TAKE 3.00 DAYS TO DEWATER THIS SEDIMENT BASIN.

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NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
SWPPP - EROSION CONTROL NOTES AND DETAILS

REVISIONS:

FILE NAME: SWPPP NOTES 3
DRAWN BY: KMM
CHECKED BY: NMS
PROJECT No.: MOTCLA2504
DATE: 7-7-2025
SHEET NUMBER: 4 OF 5

PROP. 2-3 CB WITH TOP AT 994.65. 18" OUTLET PIPE INV. 992.00. INSTALL 3" IAS WATER QUALITY SKIMMER IN SEDIMENT BASIN PER MANUFACTURER'S REQUIREMENTS. CONNECT TO RISER AT ELEVATION 993.00. CONNECT TO WINDOW ORIFICE OPENING.
FINAL 18" OUTLET PIPE AND 2-3 CB ARE TO BE USED AS THE OUTLET FOR THE SEDIMENT BASIN. THE SKIMMER SHALL BE CONNECTED TO THE CB AT INV 993.00. SKIMMER TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED AND SITE IS STABILIZED.

PROP. SEDIMENT BASIN
TOP 996.50
BOTTOM 992.00
A CLEANOUT STAKE SHOULD BE PLACED NEAR THE CENTER OF THE BASIN SO THAT THE TOP OF THE STAKE'S ELEVATION IS AT 993.00. ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE BASIN WHENEVER IT REACHES 50% OF THE TOP ELEVATION OF THE CLEANOUT STAKE.

PROP. RETENTION BASIN
TOP 996.00
BOTTOM 990.00
NORMAL WATER ELEVATION 992.00
100-YEAR FLOOD ELEVATION 995.31
5-YEAR CRITICAL STORM ELEVATION 994.02

PROP. FILTER FABRIC FENCE (TYP.)

PROP. INLET PROTECTION (TYP.)

PROP. CONSTRUCTION ENTRANCE

PROP. STAGING AND STORAGE AREA

THIS AREA IS TO BE USED FOR VEHICLE FUELING AND MAINTENANCE. AN ABOVE GROUND STORAGE TANK OF LESS THAN 500 GALLONS WILL BE USED AS THE FUEL SOURCE. THIS AREA WILL ALSO BE USED FOR RECEIVING CONCRETE CHUTE AND OTHER CONCRETE WASH WATERS. THIS SHALL NOT OCCUR ON STREET SUBGRADE OR BASE.

LEGEND

- 830 — EXISTING CONTOURS
- 830 — PROPOSED CONTOURS
- PROPOSED STORM SEWER
- PROPOSED CONSTRUCTION LIMITS
- F — PROPOSED FILTER FABRIC FENCE MEASURE
- PROPOSED INLET PROTECTION
- PROPOSED DITCH CHECK/ROCK CHECK DAM
- PROPOSED CONSTRUCTION ENTRANCE
- PROPOSED DIVERSION BERM

WATER QUALITY AND POST CONSTRUCTION STORM WATER MANAGEMENT AND TREATMENT:

THE FIRST 0.90" OF STORMWATER RUNOFF FOR THE SITE WILL BE CONTROLLED VIA FILTRATION (AND SOME INFILTRATION) BY THE GRASSED AREAS IN AND AROUND THE PROPOSED IMPERVIOUS AREAS, GRASSED SWALES, AND GRASSED BOTTOM OF THE DETENTION BASIN. ADDITIONAL POLLUTANTS WILL ALSO SETTLE OUT OVER TIME IN THE DETENTION BASIN.
THE ON-SITE DETENTION BASIN HAS BEEN DESIGNED TO TREAT THE WATER QUALITY VOLUME (WQv) USING A REDUCED SIZED ORIFICE FOR AN OUTLET AS FOLLOWS:
-RELEASE THE RUNOFF FROM A 0.90" RAIN EVENT ON THE SITE DRAINAGE AREA OVER 48 HOURS OR LONGER AND
-THE FIRST HALF OF THE TOTAL VOLUME GENERATED BY THE RUNOFF FROM A 0.90" RAIN EVENT IS RETAINED FOR GREATER THAN 16 HOURS.

POST-CONSTRUCTION STORM WATER MANAGEMENT WATER QUALITY VOLUME FOR DEVELOPMENT USING 0.90 INCHES OF RAIN:
DETENTION BASIN:
WQv=0.59*0.90*15.38/12=29,645 CU FT
32,452 CU FT PROVIDED TO ELEV. 993.00
THE DETENTION BASIN HAS AN OUTLET WITH A 5.10" DIA. ORIFICE THAT RELEASES APPROX. 32% OF THE WQv AT 8 HOURS AND APPROX. 96% AT 24 HOURS

SEE SEPARATE STORMWATER CALCS. FOR ADDITIONAL DETAILS IF NEEDED

SCALE IN FEET
0 25 50 100

- 1026 — EXISTING CONTOURS
- 1026 — PROPOSED CONTOURS
- PROPOSED STORM SEWER
- PROPOSED CURB & GUTTER
- GP-XXX.XX GARAGE PAD ELEVATION

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NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
GRADING PLAN

REVISIONS:

FILE NAME: GRADING
DRAWN BY: KMM
CHECKED BY: NNS
PROJECT No.: MOTCLA2504
DATE: 7-7-2025
SHEET NUMBER: 5 OF 5

RESERVED FOR UPDATED STORMWATER PLANS

City of Clayton, Montgomery County

Northwood Estates
Storm Water Detention Calculations

May 20th, 2025

Site Description:
Site is an existing open row crop field that currently has no onsite detention to control the storm water runoff. The proposed site will increase the impervious area and require a retention basin on site to control the runoff. This basin will be sized to control the existing and additional runoff that will be produced by the increased impervious area and will serve as water quality measures.

Hydrologic Methodologies:
The hydrologic methodology used for this design was the Soil Conservation Service (SCS) TR-55 Method, which was computed via the Bentley PondPack program.

Existing Hydrologic Conditions:
The storm water on the existing site moves via overland flow through row crop farm field to the south where it enters an existing swale and flows into a under drive culvert into a tributary to the Stillwater River.

Developed Hydrologic Conditions:
The proposed site will move the rain water via proposed swales and storm sewer. Once the storm water has entered the storm sewer it will then be carried to the proposed retention basin. The basin will allow the water to pool, sediment to settle, and keep the allowable rates determined by the critical storm calculation.

Storm Water Management Plan:
The proposed site will move the runoff through the site by having the proposed pavement and ground sloped towards proposed trench drains and catch basins. Once the water enters the storm structures, it will then travel through proposed storm sewer to the retention basin.

Applicable Permits:
The Ohio Environmental Protection Agency, Notice of Intent.

Calculation Sheets:
Below is a summary of the storm water detention calculations. Please see the attached computer printouts for additional details.

Hydrologic Soil Group C/D was used for these calculations based upon soil in the surrounding area. A soil map from the USDA's Web Soil Survey website was utilized to determine this Soil Group.

Proposed Detention Basin

- Time of Concentration (Tc)
  - Pre-developed drainage area = 20 minutes (0.333 hrs)
  - Post-developed drainage area = 15 minutes (0.250 hrs)
- CN Number
  - Pre-developed = 85 – see page 5 of 32 of computer calculations
  - Post-developed = 90.3 – see page 4 of 32 of computer calculations
- Pre-Drainage Area = 16.03 acres
- Post-Drainage Area = 15.38 acres

Pre-developed Hydrograph Volume		Post-developed Hydrograph Volume	
Storm	Peak Volume	Storm	Peak Volume
1 year	1.557 ac-ft	1 year	1.995 ac-ft
2 year	1.880 ac-ft	2 year	2.301 ac-ft
5 year	2.668 ac-ft	5 year	3.129 ac-ft
10 year	3.254 ac-ft	10 year	3.933 ac-ft
25 year	3.969 ac-ft	25 year	4.460 ac-ft
50 year	4.457 ac-ft	50 year	4.953 ac-ft
100 year	5.074 ac-ft	100 year	5.573 ac-ft

- Critical Storm Calculation using Hydrograph Volumes. Volume provides a 5-year critical storm. On page 2 of the Pond Pack calculations it shows the Hydrograph volumes. The calculation would be as follows: ((1.995-1.557)/1.557) = 0.2813 = 28.13%. Therefore a 6-year critical storm shall be used.
- Storm Requirements = Control runoff from a 1, 2 and 5-year storm on the post developed site to the runoff from a 1-year storm on the pre developed site. Then control the runoff from the 10, 25, 50 and 100-year storm on the post-developed site to the runoff from their respective storms for the pre-developed site.
- Detention Volume provided to an elevation of 996.50 = 4.098 acre-feet – see page 6 of 32

Proposed Detention Basin Summary:

STORM	PEAK INFLOW	PEAK OUTFLOW	ALLOWABLE FLOW	STORAGE	PEAK BASIN ELEVATION
1 YEAR	28.34 cfs	4.07 cfs	19.83 cfs	1.030 ac-ft	993.35
2 YEAR	33.26 cfs	5.74 cfs	19.83 cfs	1.186 ac-ft	993.54
5 YEAR	44.54 cfs	8.16 cfs	19.83 cfs	1.603 ac-ft	994.02
10 YEAR	52.68 cfs	10.38 cfs	41.25 cfs	1.891 ac-ft	994.34
25 YEAR	62.53 cfs	12.46 cfs	50.20 cfs	2.260 ac-ft	994.74
50 YEAR	69.32 cfs	13.71 cfs	56.30 cfs	2.512 ac-ft	995.00
100 YEAR	77.12 cfs	14.91 cfs	63.56 cfs	2.821 ac-ft	995.31

NOTE: The post developed release rates for the 1 through 100-year storms are less than the 1-year pre-developed release rates. This exceeds the critical storm method requirements.

Water Quality Calculations per OEPA Requirements

Below is a summary of the storm water runoff water quality calculations that are needed to meet the OEPA water quality requirements for the development.

- Retention Pond:
  - Release the runoff from a 0.90" rain event on the drainage area over 48 hours or longer.
  - The first half of the total volume generated by the runoff from a 0.90" rain event must be detained for greater than 16 hours.

Water Quality Volume Calculations

- Post-Construction storm water management water quality volume for development using 0.90 inches of rain:
  - WQ_v= 0.59*0.90*15.38/12=0.6806 AC-FT
  - 0.745 AC-FT Provided to elev. 993.00. Therefore 0.745>0.6806 and water quality volume is detained.

Water Quality Release Rate Calculations

Detention Outlet Structure consists of:

- A 5.00" diameter orifice at invert 992.00 would be required to hold back the water quality runoff from the site.
- Per the draw down calculation we satisfy the requirement of not releasing more than 50% before 8 hours and not more than 100% by 24 hours. Per the calculations the pond releases about 31% at 8 hours and about 95% at 24 hours.

NORTHBROOK ESTATES

Project Summary	
Title	NORTHBROOK ESTATES
Engineer	MSK
Company	Choice One Engineering
Date	5/20/2025

Notes

NORTHBROOK ESTATES

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
PRE DEVELOPED 1	Montgomery - 1 yr	1	1.557	12.100	19.83
PRE DEVELOPED 1	Montgomery - 2 yr	2	1.880	12.100	24.01
PRE DEVELOPED 1	Montgomery - 5 yr	5	2.668	12.100	33.98
PRE DEVELOPED 1	Montgomery - 10 yr	10	3.254	12.100	41.25
PRE DEVELOPED 1	Montgomery - 25 yr	25	3.969	12.100	50.20
PRE DEVELOPED 1	Montgomery - 50 yr	50	4.457	12.100	56.30
PRE DEVELOPED 1	Montgomery - 100 yr	100	5.074	12.100	63.56
POST AREA 1	Montgomery - 1 yr	1	1.955	12.050	28.34
POST AREA 1	Montgomery - 2 yr	2	2.301	12.050	33.26
POST AREA 1	Montgomery - 5 yr	5	3.129	12.050	44.54
POST AREA 1	Montgomery - 10 yr	10	3.733	12.050	52.68
POST AREA 1	Montgomery - 25 yr	25	4.460	12.050	62.53
POST AREA 1	Montgomery - 50 yr	50	4.953	12.050	69.32
POST AREA 1	Montgomery - 100 yr	100	5.573	12.050	77.12

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
PRE DEVELOPED 1	Montgomery - 1 yr	1	1.557	12.100	19.83
PRE DEVELOPED 1	Montgomery - 2 yr	2	1.880	12.100	24.01
PRE DEVELOPED 1	Montgomery - 5 yr	5	2.668	12.100	33.98
PRE DEVELOPED 1	Montgomery - 10 yr	10	3.254	12.100	41.25
PRE DEVELOPED 1	Montgomery - 25 yr	25	3.969	12.100	50.20
PRE DEVELOPED 1	Montgomery - 50 yr	50	4.457	12.100	56.30
PRE DEVELOPED 1	Montgomery - 100 yr	100	5.074	12.100	63.56
POND 1 OUTLET	Montgomery - 1 yr	1	1.241	12.600	4.07
POND 1 OUTLET	Montgomery - 2 yr	2	1.568	12.450	5.74
POND 1 OUTLET	Montgomery - 5 yr	5	2.378	12.450	8.16
POND 1 OUTLET	Montgomery - 10 yr	10	2.973	12.450	10.38
POND 1 OUTLET	Montgomery - 25 yr	25	3.695	12.400	12.46
POND 1 OUTLET	Montgomery - 50 yr	50	4.182	12.400	13.71
POND 1 OUTLET	Montgomery - 100 yr	100	4.793	12.450	14.91

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
POND 1 (IN)	Montgomery - 1 yr	1	1.955	12.050	28.34	(N/A)	(N/A)

NORTHBROOK ESTATES

Subsection: Master Network Summary

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
POND 1 (OUT)	Montgomery - 1 yr	1	1.241	12.600	4.07	993.35	1.030
POND 1 (IN)	Montgomery - 2 yr	2	2.301	12.050	33.26	(N/A)	(N/A)
POND 1 (OUT)	Montgomery - 2 yr	2	1.568	12.450	5.74	993.54	1.186
POND 1 (IN)	Montgomery - 5 yr	5	3.129	12.050	44.54	(N/A)	(N/A)
POND 1 (OUT)	Montgomery - 5 yr	5	2.378	12.450	8.16	994.02	1.603
POND 1 (IN)	Montgomery - 10 yr	10	3.733	12.050	52.68	(N/A)	(N/A)
POND 1 (OUT)	Montgomery - 10 yr	10	2.973	12.450	10.38	994.34	1.891
POND 1 (IN)	Montgomery - 25 yr	25	4.460	12.050	62.53	(N/A)	(N/A)
POND 1 (OUT)	Montgomery - 25 yr	25	3.695	12.400	12.46	994.74	2.260
POND 1 (IN)	Montgomery - 50 yr	50	4.953	12.050	69.32	(N/A)	(N/A)
POND 1 (OUT)	Montgomery - 50 yr	50	4.182	12.400	13.71	995.00	2.512
POND 1 (IN)	Montgomery - 100 yr	100	5.573	12.050	77.12	(N/A)	(N/A)
POND 1 (OUT)	Montgomery - 100 yr	100	4.793	12.450	14.91	995.31	2.821

NORTHBROOK ESTATES

Subsection: Runoff CN-Area
Label: POST AREA 1
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft^2)	C (%)	UC (%)	Adjusted CN
1/8 acre type C	90.000	640,037.000	0.0	0.0	90.000
impervious (pond)	98.000	30,000.000	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	670,037.000	(N/A)	(N/A)	90.358

NORTHBROOK ESTATES

Subsection: Runoff CN-Area
Label: PRE DEVELOPED 1
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft^2)	C (%)	UC (%)	Adjusted CN
Straight Row, Row Crops - Good Condition Type C Soil	85.000	695,271.200	0.0	0.0	85.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	695,271.200	(N/A)	(N/A)	85.000

NORTHBROOK ESTATES

Subsection: Elevation-Area Volume Curve
Label: POND 1
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

Elevation (ft)	Planimeter (ft^2)	Area (ft^2)	A1+A2+sqr(A1*A2) (ft^2)	Volume (ac-ft)	Volume (Total) (ac-ft)
992.00	0.0	30,424.590	0.000	0.000	0.000
993.00	0.0	34,480.720	97,294.533	0.745	0.745
994.00	0.0	38,593.410	109,553.282	0.838	1.583
995.00	0.0	42,762.650	121,980.640	0.933	2.516
996.00	0.0	46,988.430	134,576.851	1.030	3.546
996.50	0.0	49,122.530	144,154.592	0.552	4.098

NORTHBROOK ESTATES

Subsection: Volume Equations
Label: POND 1
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

Pond Volume Equations
* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2 - El1) * (Area1 + Area2 + sqr(Area1 * Area2))

where:	EL1, EL2	Lower and upper elevations of the increment
	Area1, Area2	Areas computed for EL1, EL2, respectively
	Volume	Incremental volume between EL1 and EL2

NORTHBROOK ESTATES

Subsection: Outlet Input Data
Label: Pond 2 Outlet Structure
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

Requested Pond Water Surface Elevations	
Minimum (Headwater)	992.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	996.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Area	Orifice - 3	Forward	24" Culvert	993.00	996.50
Orifice-Area	3-Side Inlets	Forward	24" Culvert	994.00	996.50
Inlet Box	2-3 CB RISER	Forward	24" Culvert	994.65	996.50
Orifice-Circular	WQv Orifice	Forward	24" Culvert	992.00	996.50
Culvert-Circular	24" Culvert	Forward	TW	992.00	996.50
Rectangular Weir	Overflow Weir	Forward	TW	996.25	996.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

NORTHBROOK ESTATES

Subsection: Outlet Input Data
Label: Pond 2 Outlet Structure
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

Structure ID: WQv Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	992.00 ft
Orifice Diameter	5.0 in
Orifice Coefficient	0.600

NORTHBROOK ESTATES

Subsection: Outlet Input Data
Label: Pond 2 Outlet Structure
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

Structure ID: 24" Culvert Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	18.0 in
Length	30.00 ft
Length (Computed Barrel)	30.02 ft
Slope (Computed)	0.033 ft/ft

Outlet Control Data	
Manning's n	0.013
Ke	0.200
Kb	0.018
Kr	0.000
Convergence Tolerance	0.00 ft

Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	1.079
T2 ratio (HW/D)	1.181
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	993.62 ft	T1 Flow	7.58 ft³/s
T2 Elevation	993.77 ft	T2 Flow	8.66 ft³/s

Structure ID: 2-3 CB RISER Structure Type: Inlet Box	
Number of Openings	1
Elevation	994.65 ft
Orifice Area	2.4 ft²
Orifice Coefficient	2.700
Weir Length	9.10 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	False

Structure ID: Overflow Weir Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	996.25 ft
Weir Length	60.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: 3-Side Inlets Structure Type: Orifice-Area	
Number of Openings	3
Elevation	994.00 ft
Orifice Area	1.0 ft²
Top Elevation	0.00 ft
Datum Elevation	0.00 ft
Orifice Coefficient	0.600

Structure ID: Orifice - 3 Structure Type: Orifice-Area	
Number of Openings	3
Elevation	993.00 ft
Orifice Area	1.0 ft²
Top Elevation	0.00 ft
Datum Elevation	0.00 ft
Orifice Coefficient	0.600

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft^3/s
Flow Tolerance (Maximum)	10.000 ft^3/s

NORTHBROOK ESTATES

Subsection: Individual Outlet Curves
Label: Pond 2 Outlet Structure
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = WQv Orifice (Orifice-Circular)

Upstream ID = (Pond Water Surface)
Downstream ID = 24" Culvert (Culvert-Circular)

Water Surface Elevation (ft)	Device Flow (ft^3/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft^3/s)	Downstream Channel Tailwater (ft)	Tailwater Error (ft)	Message
992.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
992.50	0.30	992.50	992.29	992.29	0.00	0.00	(N/A)	0.00	H =.21
993.00	0.52	993.00	992.38	992.38	0.00	0.00	(N/A)	0.00	H =.62
993.50	0.24	993.50	993.37	993.37	0.00	0.00	(N/A)	0.00	H =.13
994.00	0.35	994.00	993.72	993.72	0.00	0.00	(N/A)	0.00	H =.28
994.50	0.25	994.50	994.35	994.35	0.00	0.00	(N/A)	0.00	H =.15
994.65	0.27	994.65	994.48	994.48	0.00	0.00	(N/A)	0.00	H =.17
995.00	0.18	995.00	994.92	994.92	0.00	0.00	(N/A)	0.00	H =.08
995.50	0.00	995.50	995.50	995.50	0.00	0.00	(N/A)	0.00	FLOW PRECEDENCE SET TO DOWNSTREAM CONTROLLING STRUCTURE
996.00	0.00	996.00	996.00	996.00	0.00	0.00	(N/A)	0.00	FLOW PRECEDENCE SET TO DOWNSTREAM CONTROLLING STRUCTURE
996.25	0.00	996.25	996.25	996.25	0.00	0.00	(N/A)	0.00	FLOW PRECEDENCE SET TO DOWNSTREAM CONTROLLING STRUCTURE
996.50	0.00	996.50	996.50	996.50	0.00	0.00	(N/A)	0.00	

NORTHBROOK ESTATES

Subsection: Individual Outlet Curves
Label: Pond 2 Outlet Structure
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = WQv Orifice (Orifice-Circular)

Upstream ID = (Pond Water Surface)
Downstream ID = 24" Culvert (Culvert-Circular)

Message
FLOW PRECEDENCE SET TO DOWNSTREAM CONTROLLING STRUCTURE

NORTHBROOK ESTATES

Subsection: Individual Outlet Curves
Label: Pond 2 Outlet Structure
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = 24" Culvert (Culvert-Circular)

Mannings open channel maximum capacity: 20.63 ft³/s
Upstream ID = Orifice - 3, 3-Side Inlets, 2-3 CB RISER, WQv Orifice
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)	Tailwater Error (ft)	Message
992.00	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
992.50	0.30	992.29	Free Outfall	Free Outfall	0.00	0.00	(N/A)	0.00	CRIT.DEPTH CONTROL Vh= .070ft Dcr= .203ft CRIT.DEPTH Hev= .00ft
993.00	0.52	992.38	Free Outfall	Free Outfall	0.00	0.00	(N/A)	0.00	CRIT.DEPTH CONTROL Vh= .093ft Dcr= .266ft CRIT.DEPTH Hev= .00ft
993.50	5.54	993.37	Free Outfall	Free Outfall	0.00	0.00	(N/A)	0.00	CRIT.DEPTH CONTROL Vh= .381ft Dcr= .908ft CRIT.DEPTH Hev= .00ft
994.00	8.00	993.72	Free Outfall	Free Outfall	0.00	0.00	(N/A)	0.00	CRIT.DEPTH CONTROL Vh= .520ft Dcr= 1.096ft CRIT.DEPTH Hev= .00ft
994.50	11.49	994.35	Free Outfall	Free Outfall	0.00	0.02	(N/A)	0.00	INLET CONTROL... Submerged: HW =2.35
994.65	12.04	994.48	Free Outfall	Free Outfall	0.00	0.22	(N/A)	0.00	INLET CONTROL... Submerged: HW =2.48
995.00	13.73	994.92	Free Outfall	Free Outfall	0.00	0.01	(N/A)	0.00	INLET CONTROL... Submerged: HW =2.92
995.50	15.66	995.50	Free Outfall	Free Outfall	0.00	5.73	(N/A)	0.00	INLET CONTROL... Submerged: HW =3.50
996.00	17.16	996.00	Free Outfall	Free Outfall	0.00	25.66	(N/A)	0.00	
996.25	17.86	996.25	Free Outfall	Free Outfall	0.00	37.39	(N/A)	0.00	
996.50	18.54	996.50	Free Outfall	Free Outfall	0.00	50.15	(N/A)	0.00	

NORTHBROOK ESTATES

Subsection: Individual Outlet Curves
Label: Pond 2 Outlet Structure
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = 24" Culvert (Culvert-Circular)

Mannings open channel maximum capacity: 20.63 ft^3/s
Upstream ID = Orifice - 3, 3-Side Inlets, 2-3 CB RISER, WQv Orifice
Downstream ID = Tailwater (Pond Outfall)

Message
INLET CONTROL...
Submerged: HW =4.00
INLET CONTROL...
Submerged: HW =4.25
INLET CONTROL...
Submerged: HW =4.50

NORTHBROOK ESTATES

Subsection: Individual Outlet Curves
Label: Pond 2 Outlet Structure
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = 2-3 CB RISER (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = 24" Culvert (Culvert-Circular)

Water Surface Elevation (ft)	Device Flow (ft^3/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft^3/s)	Downstream Channel Tailwater (ft)	Tailwater Error (ft)	Message
992.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
992.50	0.00	0.00	0.00	992.29	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
993.00	0.00	0.00	0.00	992.38	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
993.50	0.00	0.00	0.00	993.37	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
994.00	0.00	0.00	0.00	993.72	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
994.50	0.00	0.00	0.00	994.35	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
994.65	0.00	0.00	0.00	994.48	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
995.00	5.65	995.00	994.92	994.92	0.00	0.00	(N/A)	0.00	FULLY CHARGED RISER: ADJUSTED TO WEIR: H =0.35ft
995.50	21.39	995.50	995.50	995.50	0.00	0.00	(N/A)	0.00	FULLY CHARGED RISER, DOWNSTREAM CONTROL: Kev=0. Hev=0.000
996.00	42.82	996.00	996.00	996.00	0.00	0.00	(N/A)	0.00	
996.25	55.25	996.25	996.25	996.25	0.00	0.00	(N/A)	0.00	
996.50	68.69	996.50	996.50	996.50	0.00	0.00	(N/A)	0.00	

NORTHBROOK ESTATES

Subsection: Individual Outlet Curves
Label: Pond 2 Outlet Structure
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = 2-3 CB RISER (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = 24" Culvert (Culvert-Circular)

Message
FULLY CHARGED RISER, DOWNSTREAM CONTROL: Kev=0. Hev=0.000
FULLY CHARGED RISER, DOWNSTREAM CONTROL: Kev=0. Hev=0.000
FULLY CHARGED RISER, DOWNSTREAM CONTROL: Kev=0. Hev=0.000

NORTHBROOK ESTATES

Subsection: Individual Outlet Curves
Label: Pond 2 Outlet Structure
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Overflow Weir (Rectangular Weir)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
992.00	0.00	(N/A)	0.00
992.50	0.00	(N/A)	0.00
993.00	0.00	(N/A)	0.00
993.50	0.00	(N/A)	0.00
994.00	0.00	(N/A)	0.00
994.50	0.00	(N/A)	0.00
994.65	0.00	(N/A)	0.00
995.00	0.00	(N/A)	0.00
995.50	0.00	(N/A)	0.00
996.00	0.00	(N/A)	0.00
996.25	0.00	(N/A)	0.00
996.50	22.50	(N/A)	0.00

Computation Messages
WS below an invert; no flow.
WS below an invert; no flow.
WS below an invert; no flow.
WS below an invert; no flow.
WS below an invert; no flow.
WS below an invert; no flow.
WS below an invert; no flow.
WS below an invert; no flow.
WS below an invert; no flow.
WS below an invert; no flow.
H=.25; Htw=.00; Qfree=22.50;

NORTHBROOK ESTATES

Subsection: Individual Outlet Curves
Label: Pond 2 Outlet Structure
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = 3-Side Inlets (Orifice-Area)

Upstream ID = (Pond Water Surface)
Downstream ID = 24" Culvert (Culvert-Circular)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)	Tailwater Error (ft)	Message
992.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
992.50	0.00	0.00	0.00	992.29	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
993.00	0.00	0.00	0.00	992.38	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
993.50	0.00	0.00	0.00	993.37	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
994.00	0.00	0.00	0.00	993.72	0.00	0.00	(N/A)	0.00	CHARGED RISER: Orifice Equation Control to TW; H=.15
994.50	5.61	994.50	994.35	994.35	0.00	0.00	(N/A)	0.00	CHARGED RISER: Orifice Equation Control to TW; H=.17
994.65	5.93	994.65	994.48	994.48	0.00	0.00	(N/A)	0.00	CHARGED RISER: Orifice Equation Control to TW; H=.08
995.00	3.95	995.00	994.92	994.92	0.00	0.00	(N/A)	0.00	FLOW PRECEDENCE SET TO DOWNSTREAM CONTROLLING STRUCTURE
995.50	0.00	995.50	995.50	995.50	0.00	0.00	(N/A)	0.00	
996.00	0.00	996.00	996.00	996.00	0.00	0.00	(N/A)	0.00	
996.25	0.00	996.25	996.25	996.25	0.00	0.00	(N/A)	0.00	
996.50	0.00	996.50	996.50	996.50	0.00	0.00	(N/A)	0.00	

NORTHBROOK ESTATES

Subsection: Individual Outlet Curves
Label: Pond 2 Outlet Structure
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = 3-Side Inlets (Orifice-Area)

Upstream ID = (Pond Water Surface)
Downstream ID = 24" Culvert (Culvert-Circular)

Message
FLOW PRECEDENCE SET TO DOWNSTREAM CONTROLLING STRUCTURE
FLOW PRECEDENCE SET TO DOWNSTREAM CONTROLLING STRUCTURE
FLOW PRECEDENCE SET TO DOWNSTREAM CONTROLLING STRUCTURE

NORTHBROOK ESTATES

Subsection: Individual Outlet Curves
Label: Pond 2 Outlet Structure
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Orifice - 3 (Orifice-Area)

Upstream ID = (Pond Water Surface)
Downstream ID = 24" Culvert (Culvert-Circular)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)	Tailwater Error (ft)	Message
992.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
992.50	0.00	0.00	0.00	992.29	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
993.00	0.00	0.00	0.00	992.38	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
993.50	5.30	993.50	993.37	993.37	0.00	0.00	(N/A)	0.00	CHARGED RISER: Orifice Equation Control to TW; H=.13
994.00	7.66	994.00	993.72	993.72	0.00	0.00	(N/A)	0.00	CHARGED RISER: Orifice Equation Control to TW; H=.28
994.50	5.61	994.50	994.35	994.35	0.00	0.00	(N/A)	0.00	CHARGED RISER: Orifice Equation Control to TW; H=.15
994.65	5.93	994.65	994.48	994.48	0.00	0.00	(N/A)	0.00	CHARGED RISER: Orifice Equation Control to TW; H=.17
995.00	3.95	995.00	994.92	994.92	0.00	0.00	(N/A)	0.00	CHARGED RISER: Orifice Equation Control to TW; H=.08
995.50	0.00	995.50	995.50	995.50	0.00	0.00	(N/A)	0.00	
996.00	0.00	996.00	996.00	996.00	0.00	0.00	(N/A)	0.00	
996.25	0.00	996.25	996.25	996.25	0.00	0.00	(N/A)	0.00	
996.50	0.00	996.50	996.50	996.50	0.00	0.00	(N/A)	0.00	

NORTHBROOK ESTATES

Subsection: Individual Outlet Curves
Label: Pond 2 Outlet Structure
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Orifice - 3 (Orifice-Area)

Upstream ID = (Pond Water Surface)
Downstream ID = 24" Culvert (Culvert-Circular)

Message
FLOW PRECEDENCE SET TO DOWNSTREAM CONTROLLING STRUCTURE
FLOW PRECEDENCE SET TO DOWNSTREAM CONTROLLING STRUCTURE
FLOW PRECEDENCE SET TO DOWNSTREAM CONTROLLING STRUCTURE
FLOW PRECEDENCE SET TO DOWNSTREAM CONTROLLING STRUCTURE

NORTHBROOK ESTATES

Subsection: Composite Rating Curve
Label: Pond 2 Outlet Structure
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
992.00	0.00	(N/A)	0.00
992.50	0.30	(N/A)	0.00
993.00	0.52	(N/A)	0.00
993.50	5.54	(N/A)	0.00
994.00	8.00	(N/A)	0.00
994.50	11.49	(N/A)	0.00
994.65	12.04	(N/A)	0.00
995.00	13.73	(N/A)	0.00
995.50	15.66	(N/A)	0.00
996.00	17.16	(N/A)	0.00
996.25	17.86	(N/A)	0.00
996.50	41.04	(N/A)	0.00

Contributing Structures

(no Q: Orifice - 3,3-Side Inlets,2-3 CB RISER,WQv Orifice,24" Culvert,Overflow Weir)
WQv Orifice,24" Culvert (no Q: Orifice - 3,3-Side Inlets,2-3 CB RISER,Overflow Weir)
WQv Orifice,24" Culvert (no Q: Orifice - 3,3-Side Inlets,2-3 CB RISER,Overflow Weir)
Orifice - 3,WQv Orifice,24" Culvert (no Q: 3-Side Inlets,2-3 CB RISER,Overflow Weir)
Orifice - 3,WQv Orifice,24" Culvert (no Q: 3-Side Inlets,2-3 CB RISER,Overflow Weir)
Orifice - 3,3-Side Inlets,WQv Orifice,24" Culvert (no Q: 2-3 CB RISER,Overflow Weir)
Orifice - 3,3-Side Inlets,WQv Orifice,24" Culvert (no Q: 2-3 CB RISER,Overflow Weir)
Orifice - 3,3-Side Inlets,2-3 CB RISER,WQv Orifice,24" Culvert (no Q: Overflow Weir)

NORTHBROOK ESTATES

Subsection: Composite Rating Curve
Label: Pond 2 Outlet Structure
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

Composite Outflow Summary

Contributing Structures
2-3 CB RISER,24" Culvert (no Q: Orifice - 3,3-Side Inlets,WQv Orifice,Overflow Weir)
2-3 CB RISER,24" Culvert (no Q: Orifice - 3,3-Side Inlets,WQv Orifice,Overflow Weir)
2-3 CB RISER,24" Culvert (no Q: Orifice - 3,3-Side Inlets,WQv Orifice,Overflow Weir)
2-3 CB RISER,24" Culvert,Overflow Weir (no Q: Orifice - 3,3-Side Inlets,WQv Orifice)

NORTHBROOK ESTATES

Subsection: Level Pool Pond Routing Summary
Label: POND 1 (IN)
Scenario: Montgomery - 1 yr

Return Event: 1 years
Storm Event: Type II 24hr 1 yr (2.5 in)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	992.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	28.34 ft³/s	Time to Peak (Flow, In)	12.050 hours
Flow (Peak Outlet)	4.07 ft³/s	Time to Peak (Flow, Outlet)	12.600 hours

Elevation (Water Surface, Peak)	993.35 ft
Volume (Peak)	1.030 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	1.955 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	1.241 ac-ft
Volume (Retained)	0.712 ac-ft
Volume (Unrouted)	-0.003 ac-ft
Error (Mass Balance)	0.2 %

NORTHBROOK ESTATES

Subsection: Level Pool Pond Routing Summary
Label: POND 1 (IN)
Scenario: Montgomery - 2 yr

Return Event: 2 years
Storm Event: Type II 24hr 2 yr (2.80 in)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	992.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	33.26 ft³/s	Time to Peak (Flow, In)	12.050 hours
Flow (Peak Outlet)	5.74 ft³/s	Time to Peak (Flow, Outlet)	12.450 hours

Elevation (Water Surface, Peak)	993.54 ft
Volume (Peak)	1.186 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	2.301 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	1.568 ac-ft
Volume (Retained)	0.731 ac-ft
Volume (Unrouted)	-0.003 ac-ft
Error (Mass Balance)	0.1 %

NORTHBROOK ESTATES

Subsection: Level Pool Pond Routing Summary
Label: POND 1 (IN)
Scenario: Montgomery - 5 yr

Return Event: 5 years
Storm Event: Type II 24hr 5 yr (3.50 in)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	992.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	44.54 ft³/s	Time to Peak (Flow, In)	12.050 hours
Flow (Peak Outlet)	8.16 ft³/s	Time to Peak (Flow, Outlet)	12.450 hours

Elevation (Water Surface, Peak)	994.02 ft
Volume (Peak)	1.603 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	3.129 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	2.378 ac-ft
Volume (Retained)	0.749 ac-ft
Volume (Unrouted)	-0.003 ac-ft
Error (Mass Balance)	0.1 %

NORTHBROOK ESTATES

Subsection: Level Pool Pond Routing Summary
Label: POND 1 (IN)
Scenario: Montgomery - 10 yr

Return Event: 10 years
Storm Event: Type II 24hr 10 yr (4.00 in)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	992.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	52.68 ft³/s	Time to Peak (Flow, In)	12.050 hours
Flow (Peak Outlet)	10.38 ft³/s	Time to Peak (Flow, Outlet)	12.450 hours

Elevation (Water Surface, Peak)	994.34 ft
Volume (Peak)	1.891 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	3.733 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	2.973 ac-ft
Volume (Retained)	0.757 ac-ft
Volume (Unrouted)	-0.003 ac-ft
Error (Mass Balance)	0.1 %

NORTHBROOK ESTATES

Subsection: Level Pool Pond Routing Summary
Label: POND 1 (IN)
Scenario: Montgomery - 25 yr

Return Event: 25 years
Storm Event: Type II 24hr 25 yr (4.60 in)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	992.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	62.53 ft³/s	Time to Peak (Flow, In)	12.050 hours
Flow (Peak Outlet)	12.46 ft³/s	Time to Peak (Flow, Outlet)	12.400 hours

Elevation (Water Surface, Peak)	994.74 ft
Volume (Peak)	2.260 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	4.460 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	3.695 ac-ft
Volume (Retained)	0.762 ac-ft
Volume (Unrouted)	-0.004 ac-ft
Error (Mass Balance)	0.1 %

NORTHBROOK ESTATES

Subsection: Level Pool Pond Routing Summary
Label: POND 1 (IN)
Scenario: Montgomery - 50 yr

Return Event: 50 years
Storm Event: Type II 24hr 50 yr (5.00 in)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	992.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	69.32 ft³/s	Time to Peak (Flow, In)	12.050 hours
Flow (Peak Outlet)	13.71 ft³/s	Time to Peak (Flow, Outlet)	12.400 hours

Elevation (Water Surface, Peak)	995.00 ft
Volume (Peak)	2.512 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	4.953 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	4.182 ac-ft
Volume (Retained)	0.767 ac-ft
Volume (Unrouted)	-0.004 ac-ft
Error (Mass Balance)	0.1 %

NORTHBROOK ESTATES

Subsection: Level Pool Pond Routing Summary
Label: POND 1 (IN)
Scenario: Montgomery - 100 yr

Return Event: 100 years
Storm Event: Type II 24hr 100 yr (5.50 in)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	992.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	77.12 ft³/s	Time to Peak (Flow, In)	12.050 hours
Flow (Peak Outlet)	14.91 ft³/s	Time to Peak (Flow, Outlet)	12.450 hours

Elevation (Water Surface, Peak)	995.31 ft
Volume (Peak)	2.821 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	5.573 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	4.793 ac-ft
Volume (Retained)	0.775 ac-ft
Volume (Unrouted)	-0.005 ac-ft
Error (Mass Balance)	0.1 %

WATER QUALITY CALCULATIONS

Project: Northbrook Estates WQv Calculations
Location: City of Clayton, Montgomery County

Job No:
Date: 05/20/2025

OEPA REQUIREMENTS :
1) Release the runoff from a 0.90" rain event on the drainage area over 24 hours or longer
2) The first half of the total volume generated by the runoff from a 0.90" rain event must be detained for greater than 8 hours

WQv VOLUME CALCULATIONS USING 0.9" OF RAIN - WQv = Rv*P(0.90 inches)*A(acres)/12

Precipitation (Inches)	**0.9**		
Area (Acres)	**15.38**	←	
Impervious %	**60%**	←	
Rv	**0.59**		
WQv (CF)	**29,645.41**	**0.6806**	**AC-FT**

WQv = 0.59*0.9*15.38/12 = 0.6806 AC-FT = 29,645 CF
DETENTION BASIN HOLDS 32,452 CF AT ELEV. OF 993.00. 32,452 CF > 29,645 CF THEREFORE WQv SATISFIED. THEREFORE MUST RELEASE WQv THRU PROPERLY SIZED ORIFICE UNTIL 993.00 TO ENSURE WQv IS PROPERLY DETAINED AND RELEASED.

WQv DRAW DOWN CALCULATIONS

INSTALL 5.1" ORIFICE IN OUTLET STRUCTURE AT INV. ELEVATION 992.00 WILL RELEASE WQv AT REQUIRED RATE

Per the OEPA Method 1 Maximum Hydraulic Head WQv orifice draw down calculations below, we satisfy the requirement of not releasing more than 50% before 8 hours and not more than 100% by 24 hours for a wet detention basin. Per the calculations a 5.1" orifice or smaller will adequately detain the WQv longer than the required 24 hours timeframe.

SITE DETENTION BASIN

Basin Invert:.....	992.00	ft.
Orifice Opening.....	5.00	In.
Orifice Coefficient...	0.60	
Maximum Head...	1	ft.
Discharge Rate	0.328	cfs
Discharge Volume	590.87	cu. ft. per 30 minutes

Time (hour)	Time (min)	Starting Volume (CF)	Total Discharged Volume (CF)	Percentage Volume Discharged (%)
0.0	0	29,645.41	0	0.00%
0.5	30		590.87	1.99%
1.0	60		1,181.74	3.99%
1.5	90		1,772.61	5.98%
2.0	120		2,363.48	7.97%
2.5	150		2,954.35	9.97%
3.0	180		3,545.21	11.96%
3.5	210		4,136.08	13.95%
4.0	240		4,726.95	15.94%
4.5	270		5,317.82	17.94%
5.0	300		5,908.69	19.93%
5.5	330		6,499.56	21.92%
6.0	360		7,090.43	23.92%
6.5	390		7,681.30	25.91%
7.0	420		8,272.17	27.90%
7.5	450		8,863.04	29.90%
8.0	480		9,453.91	31.89%
8.5	510		10,044.77	33.88%
9.0	540		10,635.64	35.88%
9.5	570		11,226.51	37.87%
10.0	600		11,817.38	39.86%
10.5	630		12,408.25	41.86%
11.0	660		12,999.12	43.85%
11.5	690		13,589.99	45.84%
12.0	720		14,180.86	47.83%
12.5	750		14,771.73	49.83%
13.0	780		15,362.60	51.82%
13.5	810		15,953.47	53.81%
14.0	840		16,544.33	55.81%
14.5	870		17,135.20	57.80%
15.0	900		17,726.07	59.79%
15.5	930		18,316.94	61.79%
16.0	960		18,907.81	63.78%
16.5	990		19,498.68	65.77%
17.0	1020		20,089.55	67.77%

17.5	1050	20,680.42	69.76%
18.0	1080	21,271.29	71.75%
18.5	1110	21,862.16	73.75%
19.0	1140	22,453.03	75.74%
19.5	1170	23,043.90	77.73%
20.0	1200	23,634.76	79.72%
20.5	1230	24,225.63	81.72%
21.0	1260	24,816.50	83.71%
21.5	1290	25,407.37	85.70%
22.0	1320	25,998.24	87.70%
22.5	1350	26,589.11	89.69%
23.0	1380	27,179.98	91.68%
23.5	1410	27,770.85	93.68%
24.0	1440	28,361.72	95.67%
24.5	1470	28,952.59	97.66%
25.0	1500	29,543.46	99.66%
25.5	1530	30,134.32	101.65%
26.0	1560	30,725.19	103.64%
26.5	1590	31,316.06	105.64%
27.0	1620	31,906.93	107.63%
27.5	1650	32,497.80	109.62%
28.0	1680	33,088.67	111.61%
28.5	1710	33,679.54	113.61%
29.0	1740	34,270.41	115.60%
29.5	1770	34,861.28	117.59%
30.0	1800	35,452.15	119.59%
30.5	1830	36,043.02	121.58%
31.0	1860	36,633.88	123.57%
31.5	1890	37,224.75	125.57%
32.0	1920	37,815.62	127.56%
32.5	1950	38,406.49	129.55%
33.0	1980	38,997.36	131.55%
33.5	2010	39,588.23	133.54%
34.0	2040	40,179.10	135.53%
34.5	2070	40,769.97	137.53%
35.0	2100	41,360.84	139.52%
35.5	2130	41,951.71	141.51%
36.0	2160	42,542.58	143.50%
36.5	2190	43,133.44	145.50%
37.0	2220	43,724.31	147.49%
37.5	2250	44,315.18	149.48%
38.0	2280	44,906.05	151.48%
38.5	2310	45,496.92	153.47%
39.0	2340	46,087.79	155.46%
39.5	2370	46,678.66	157.46%
40.0	2400	47,269.53	159.45%
40.5	2430	47,860.40	161.44%
41.0	2460	48,451.27	163.44%
41.5	2490	49,042.14	165.43%
42.0	2520	49,633.00	167.42%
42.5	2550	50,223.87	169.42%
43.0	2580	50,814.74	171.41%
43.5	2610	51,405.61	173.40%
44.0	2640	51,996.48	175.39%
44.5	2670	52,587.35	177.39%
45.0	2700	53,178.22	179.38%
45.5	2730	53,769.09	181.37%
46.0	2760	54,359.96	183.37%
46.5	2790	54,950.83	185.36%
47.0	2820	55,541.70	187.35%
47.5	2850	56,132.57	189.35%
48.0	2880	56,723.43	191.34%
48.5	2910	57,314.30	193.33%
49.0	2940	57,905.17	195.33%
49.5	2970	58,496.04	197.32%
50.0	3000	59,086.91	199.31%
50.5	3030	59,677.78	201.31%
51.0	3060	60,268.65	203.30%
51.5	3090	60,859.52	205.29%
52.0	3120	61,450.39	207.28%
52.5	3150	62,041.26	209.28%
53.0	3180	62,632.13	211.27%
53.5	3210	63,222.99	213.26%
54.0	3240	63,813.86	215.26%
54.5	3270	64,404.73	217.25%
55.0	3300	64,995.60	219.24%
55.5	3330	65,586.47	221.24%
56.0	3360	66,177.34	223.23%

GLEN R. LANDES
D.M.F. 98-027 C02
56.252 ACRES
SUR 97-011

FOX ROAD (33' R/W)

MARK A. SPILKER
D.M.F. 94-738 A07
1.0 ACRES

WILLIAM B. & SHANNON N. BECHLER
I.R. DEED 07-029672
4.16 ACRES

DONALD DENLINGER
D.B. 2267, PG. 146
0.771 ACRES

LEEANNE AND MAURICE BUSTOS
I.R. DEED 21-020933
3.949 ACRES
SUR 87-011

MICHELLE L. HATTON
I.R. DEED 20-063168
3.265 ACRES
SUR 87-011

ROBERT C. III & MARIA BOMGEE
I.R. DEED 09-045A1A
2.75 ACRES
SUR 3-M-582

EMILY ANN & MARC HANSEN-PALMUS
I.R. DEED 21-034695
14.003 ACRES
SUR 2020-0260A

EMILY ANN & MARC HANSEN-PALMUS
I.R. DEED 24-017745
5.792 ACRES
SUR 2024-0010

NORTHWOOD ESTATES LLC
I.R. DEED 23-000787
33.7313 ACRES
SUR 2020-0260A
16.596 REMAINING

HABER ROAD (33' R/W)

MICHAEL S. & NANCY L. BURTON
D.M.F. 98-585 E02
14.471 ACRES

CHAD W. & CHRISTINA CRAWFORD
I.R. DEED 21-033486
3.9519 ACRES
SUR 3-M-582
SUR 2019-0266
SUR 2022-0249

PRE-DEVELOPED
AREA 1
15.96 acres
CN = 85

LUAN M. DIEN & SOPHEA THACH
I.R. DEED 21-073010
4.0884 ACRES
SUR 3-M-751
SUR 2017-0064

BRANDON A. SCHAURER
I.R. DEED 18-038577
2.742 ACRES
SUR 1999-0280

PAMELA A. & THOMAS H. AYERS
I.R. DEED 21-056730
0.80 ACRES

JOSEPH P. LOFINO
I.R. DEED 13-041585
0.66 ACRES

CHRISTINA CRAWFORD
I.R. DEED 21-080339
1.0481 ACRES
SUR 3-M-582
SUR 2019-0266
SUR 2022-0249

NORTHMONT BOARD OF EDUCATION
D.M.F. 98-595 A05
7.048 ACRES

QUIET CREEK DEVELOPMENT LLC
I.R. DEED 18-010981
1.27 ACRES

SCALE IN FEET
0 50 100 200

Z:\project\Montgomery\Clayton\MOT-CLA-2504NorthwoodEstatesSection1\MOTCLA2504_DR002.dwg 20-May-25 2:58 PM

ChoiceOne Engineering
SIDNEY, OHIO 937.497.0200
LOVELAND, OHIO 513.239.8554
www.CHOICEONEENGINEERING.com

NORTHBROOK ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
PRE-DRAINAGE AREA

REVISIONS:

FILE NAME	DRAINAGE
DRAWN BY	KMM
CHECKED BY	NNS
PROJECT No.	MOTCLA2504
DATE	6-9-2025
SHEET NUMBER	1 OF 1

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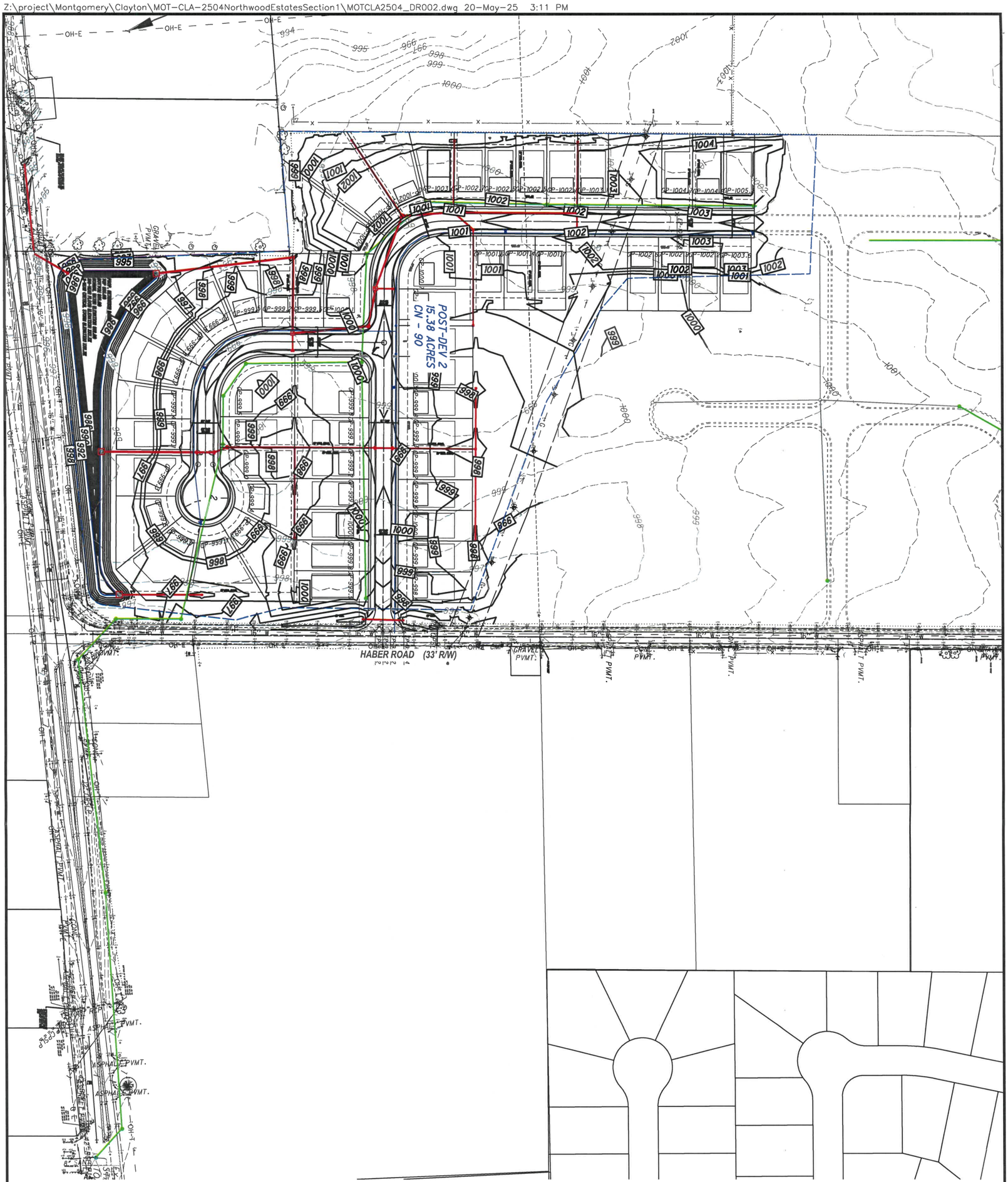

0 40 80 160
SCALE IN FEET

NORTHBROOK ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
POST DRAINAGE AREA

SHEET NUMBER	1 OF 1
DATE	6-9-2025
PROJECT No.	MOTCLA2504
CHECKED BY	NMS
DRAWN BY	KMM
FILE NAME	SCHEMATIC
REVISIONS:	

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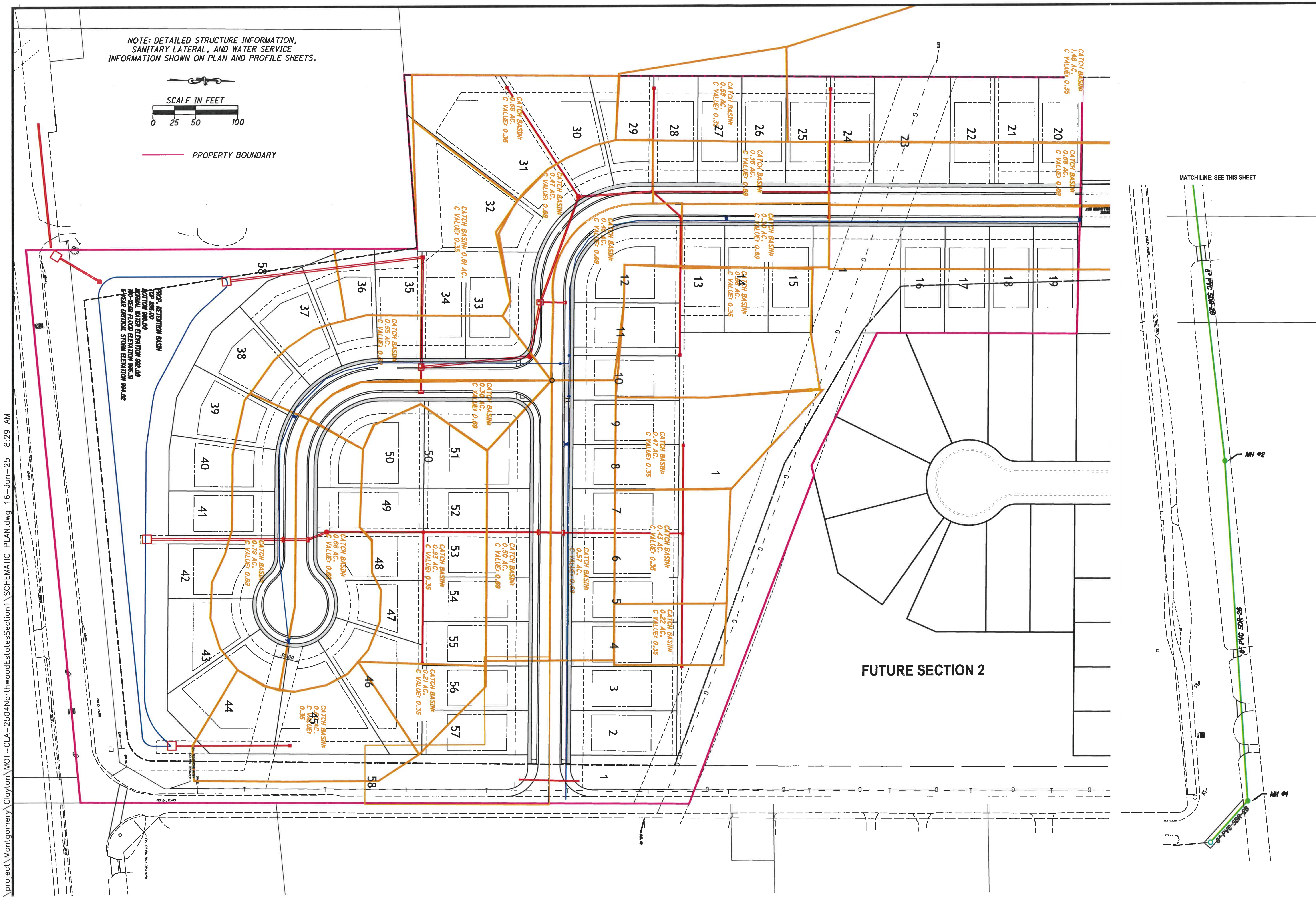
Choice One Engineering



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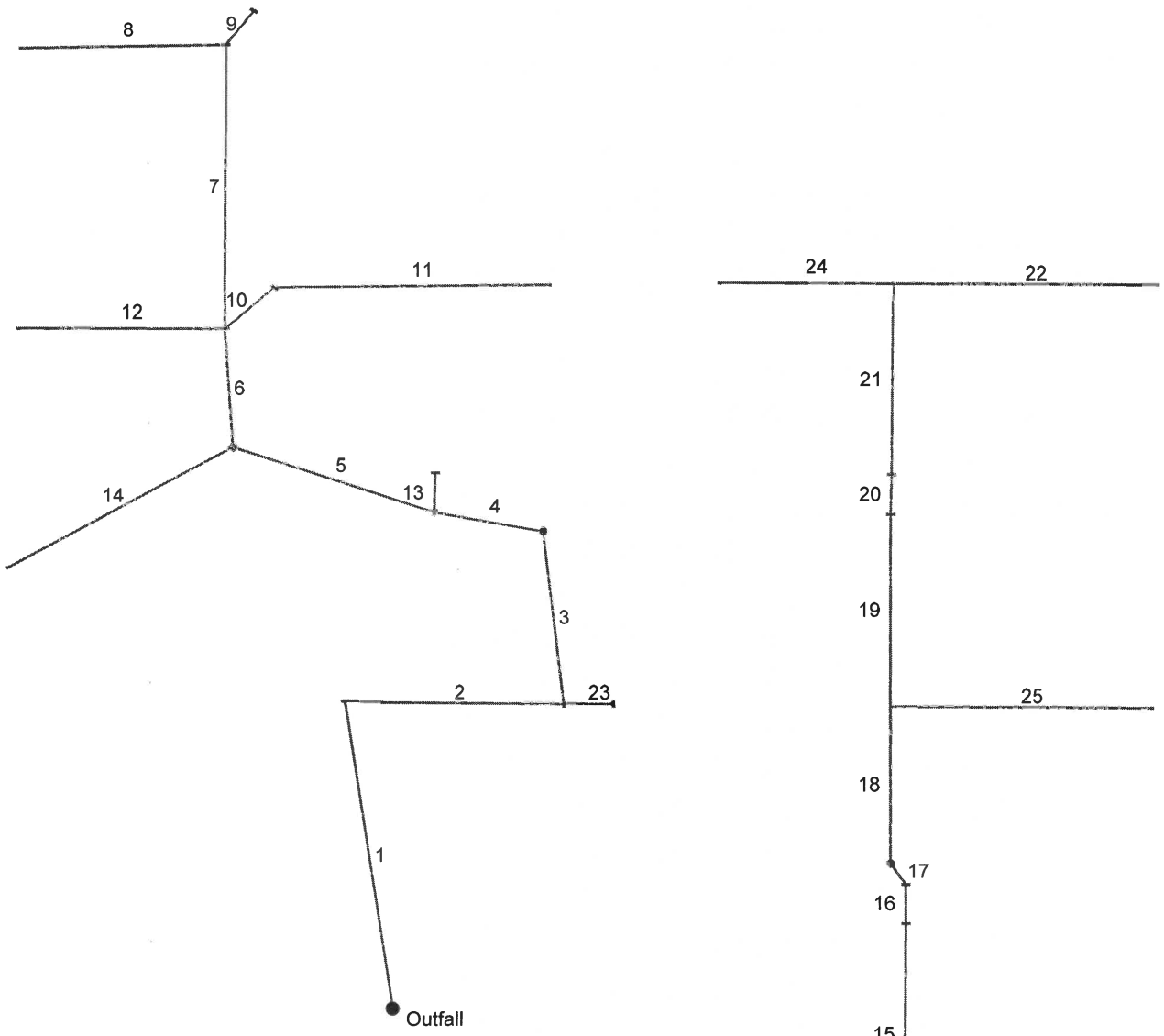
LOVELAND, OHIO 513.239.8554
www.CHOICEONEENGINEERING.com

NORTHWOOD ESTATES SUBDIVISION - SECTION 1
CITY OF CLAYTON
STREET AND UTILITY PLAN

REVISIONS:

FILE NAME: S&U
DRAWN BY: KMM
CHECKED BY: NNS
PROJECT No.: MOTCLA2504
DATE: 7-7-2025
SHEET NUMBER: 7 OF 19

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: 2025-05-07_Hydraflow_nogascrossing_msk.stm	Number of lines: 26	Date: 6/16/2025

COEC RPT2 25-year storm

Line No.	Inlet ID	Drng Area (ac)	Total Area (ac)	Runoff Coeff (C)	Total CxA	Inlet Time (min)	Tc (min)	Flow Rate (cfs)	Capac Full (cfs)	Line Size (in)	Line Slope (%)	Invert Up (ft)	Invert Dn (ft)	HGL Up (ft)	HGL Dn (ft)	Gnd/Rim El Up (ft)	Gnd/Rim El Dn (ft)	Cover Up (ft)	Cover Dn (ft)
1	#22	0.61	7.92	0.35	3.78	15.0	34.4	12.33	15.95	24	0.50	993.13	992.00	994.43	993.34	996.85	0.00	1.72	n/a
2	#21	0.55	7.31	0.60	3.57	10.0	33.8	11.76	17.49	24	0.60	993.90	993.13	995.46	995.19	998.62	996.85	2.72	1.72
3	#30	0.00	6.46	0.00	3.06	0.0	33.2	10.20	18.99	24	0.60	994.66	993.90	996.06	995.93	1000.22	998.62	3.56	2.72
4	#9	0.47	6.46	0.60	3.06	10.0	32.8	10.26	17.45	24	0.60	995.05	994.66	996.20	996.34	999.86	1000.22	2.81	3.56
5	#10	0.00	5.54	0.00	2.50	0.0	32.4	8.48	8.71	18	0.59	996.30	995.55	997.50	996.75	1001.00	999.86	3.20	2.81
6	#11	0.36	4.98	0.60	2.31	10.0	32.1	7.86	7.96	18	0.57	996.80	996.30	998.43	997.95	1000.79	1001.00	2.49	3.20
7	#12	0.68	2.97	0.60	1.38	10.0	30.8	4.81	7.63	18	0.53	997.90	996.80	999.30	998.90	1001.83	1000.79	2.43	2.49
8	#29	1.61	1.61	0.35	0.56	30.0	30.0	2.00	3.09	12	0.75	999.31	998.40	999.96	999.55	1001.71	1001.83	1.40	2.43
9	#13	0.68	0.68	0.60	0.41	10.0	10.0	2.45	3.56	12	1.00	998.70	998.40	999.68	999.55	1001.83	1001.83	2.13	2.43
10	#15	0.54	1.22	0.60	0.56	10.0	22.0	2.37	2.40	12	0.45	996.99	996.80	999.08	998.90	1000.96	1000.79	2.97	2.99
11	#28	0.68	0.68	0.35	0.24	20.0	20.0	1.06	1.96	12	0.30	997.48	996.99	999.39	999.24	999.65	1000.96	1.17	2.97
12	#14	0.43	0.43	0.35	0.15	15.0	15.0	0.77	2.39	12	0.45	997.84	997.29	998.95	998.90	999.94	1000.79	1.10	2.50
13	#17	0.45	0.45	0.60	0.27	10.0	10.0	1.62	2.29	12	0.41	996.77	996.65	997.39	997.27	999.86	999.86	2.09	2.21
14	#16	0.56	0.56	0.35	0.20	15.0	15.0	1.00	1.79	12	0.25	997.17	996.77	998.06	997.95	999.15	1001.00	0.98	3.23
15	#2	0.79	4.78	0.60	2.30	10.0	22.9	9.52	12.29	24	0.30	992.48	992.00	993.92	993.10	998.38	0.00	3.90	n/a
16	#3	0.66	3.99	0.60	1.83	10.0	22.7	7.59	13.29	24	0.35	992.58	992.48	994.06	994.04	998.38	998.38	3.80	3.90
17	#4	0.00	3.33	0.00	1.43	0.0	22.6	5.96	6.63	18	0.34	993.14	993.08	994.25	994.19	998.92	998.38	4.28	3.80
18	#5	0.93	3.33	0.35	1.43	15.0	22.1	6.03	6.19	18	0.35	993.54	993.14	994.77	994.41	997.14	998.92	2.10	4.28
19	#6	0.50	2.19	0.60	1.03	10.0	21.3	4.44	5.74	18	0.30	993.96	993.54	995.35	995.12	998.52	997.14	3.06	2.10
20	#7	0.57	1.69	0.60	0.73	10.0	21.1	3.17	3.59	15	0.31	994.05	993.96	995.47	995.40	998.52	998.52	3.22	3.31
21	#8	0.43	1.12	0.35	0.39	15.0	20.2	1.73	2.10	12	0.35	994.54	994.05	995.85	995.52	997.35	998.52	1.81	3.47
22	#27	0.22	0.22	0.35	0.08	15.0	15.0	0.39	1.93	12	0.30	995.00	994.54	995.99	995.97	997.74	997.35	1.74	1.81
23	#23	0.30	0.30	0.60	0.18	10.0	10.0	1.08	3.56	12	1.00	995.12	994.83	995.94	995.93	998.62	998.62	2.50	2.79

Project File: 2025-05-07_Hydraflow_nogascrossing_msk.stm | Number of lines: 26 | Date: 6/16/2025

NOTES: ** Critical depth

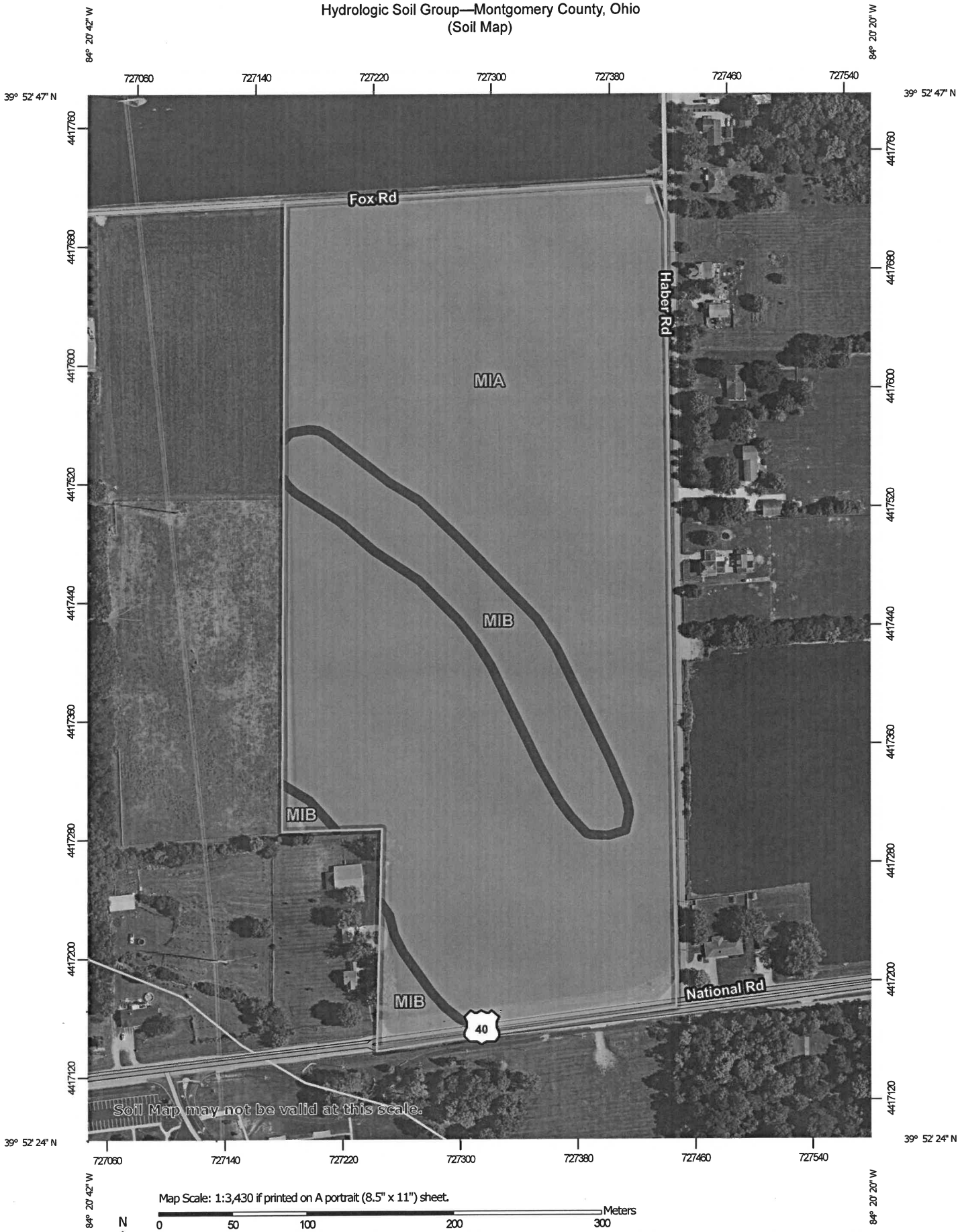
COEC RPT2

Line No.	Inlet ID	Drng Area (ac)	Total Area (ac)	Runoff Coeff (C)	Total CxA	Inlet Time (min)	Tc (min)	Flow Rate (cfs)	Capac Full (cfs)	Line Size (in)	Line Slope (%)	Invert Up (ft)	Invert Dn (ft)	HGL Up (ft)	HGL Dn (ft)	Gnd/Rim El Up (ft)	Gnd/Rim El Dn (ft)	Cover Up (ft)	Cover Dn (ft)
24	#26	0.47	0.47	0.35	0.16	15.0	15.0	0.84	2.10	12	0.35	994.90	994.54	996.02	995.97	997.52	997.35	1.62	1.81
25	#18	0.21	0.21	0.35	0.07	15.0	15.0	0.37	2.59	12	0.53	994.91	994.10	995.24	995.12	998.80	997.16	2.89	2.06
26	#25	0.60	0.60	0.35	0.21	10.0	10.0	1.26	2.25	12	0.40	992.57	992.00	993.18	992.47	995.64	0.00	2.07	n/a

Project File: 2025-05-07_Hydraflow_nogascrossing_msk.stm | Number of lines: 26 | Date: 6/16/2025

NOTES: ** Critical depth

Hydrologic Soil Group—Montgomery County, Ohio
(Soil Map)



Map Scale: 1:3,430 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Montgomery County, Ohio
Survey Area Data: Version 23, Aug 28, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 18, 2023—Aug 4, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
MIA	Miamian silt loam, 0 to 2 percent slopes	C	30.1	87.0%
MIB	Miamian silt loam, 2 to 6 percent slopes	C	4.5	13.0%
Totals for Area of Interest			**34.6**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher