

MINUTES
WORCESTER TOWNSHIP PLANNING COMMISSION
WORCESTER TOWNSHIP COMMUNITY HALL
1031 VALLEY FORGE ROAD, WORCESTER, PA 19490
THURSDAY, DECEMBER 12th, 2024 - 7:00 PM

1. CALL TO ORDER

The meeting was called to order at 7:02 PM

2. ATTENDANCE

All members were present.

3. APPROVAL OF MEETING MINUTES

A motion to approve the minutes from the November 21, 2024 Planning Commission meeting was made by Mr. Koch and seconded by Mr. Sherr. They were approved unanimously with the following modifications:

- Correction of the vote result from "4, 1, 0" to "4, 0, 1" to recommend the approval of the Bradford Smith Subdivision, with Mr. Andorn abstaining.
- Removal of the word "by" from the phrase "the motion was approved by unanimously."
- Correction of the spelling of resident Winnie Hayes' name.

4. LAND DEVELOPMENT

Consider Recommendation for approval of LD 2024-01 Wangia Minor Subdivision at 1205 Hollow Road

John Evarts, Township Engineer, provided his review letter and stated that the majority of the items have to do with the building process rather than the actual subdivision itself. Mr. Evarts also followed up on a concern that Mr. Andorn raised at a prior meeting regarding prior subdivisions of this property and has concluded that due to the age of prior subdivisions, the current plan is in compliance with our ordinances. Lastly, Mr. Evarts addressed the request of continuing access to a barn on the property which will be address through an access easement.

Waivers were discussed regarding sidewalks, road widening and traffic impact fees.

The applicant's engineer stated that applicant is willing to comply with all staff and engineering comments before recording plan.

Mr. Sherr asked if there was any public comment on the matter.

Mr. Koch made a motion to recommend approval of the subdivision with the requested waivers, Ms. Greenawalt seconded the motion, and the motion passed 5-0.

Review of LD 2024-04 - Cathcart Investment Partners Sketch Plan – 1507 Potshop Rd

Tom Bentley of Bentley Homes made a general presentation of the plan, a 11-unit subdivision with lots of an average of 7 acres. The homes are planned to sell for \$1.7 million to start.

Mr. Koch asked who would be maintaining the stormwater basin, Mr. Bentley responded that they weren't sure yet.

Mr. Bentley also mentioned that they support a deed restriction for the lots that would prevent additional subdivision in the future. Mr. Sherr supports that option. Ms. Greenawalt commented that the plan was beautiful.

General discussion on potential waivers, who would own the road, lot size and topography. The lots are also planned to be private wells and on-site septic.

General reaction from Planning Commission was positive and Mr. Bentley stated they will take the feedback and come back in the future.

5. OTHER BUSINESS

Mr. DeMeno requested feedback on merging the November and December meeting in 2025 to one meeting to be held in early December to avoid the holiday season overlap. Planning Commission was well received. Mr. DeMeno will incorporate that into the proposed meeting schedule for 2025.

6. PUBLIC COMMENT

None

7. ADJOURNMENT

The meeting was adjourned at 7:34 PM.

Planning Commission Meeting Minutes
Worcester Township Community Hall – 1031 Valley Forge Rd., Worcester, PA 19490
January 24th, 2025

Attendees:

Tony Sherr, Chairman
Bob Andorn
Lee Koch

1. Call to Order

- The meeting was called to order by Chairman Sherr at 7:01 PM.

2. Appointment of Chairperson and Officers

- **Motion:** Mr. Andorn proposed a motion to appoint a temporary chairman.
- **Discussion:**
 - Mr. Andorn wanted input from absent members.
 - Manager DeMeno noted that Ms. Greenawalt had sent an email favoring the current structure.
- **Outcome:** Motion did not receive a second. Motion fails.
- **New Motion:** Lee Koch moved to keep the current chairperson, vice chairperson, and secretary.
 - Chairman Sherr seconded the motion.
 - Vote: **2 in favor (Sherr, Koch), 1 opposed (Andorn)** - Motion passed.

3. Meeting Minutes

- Chairman Sherr mentioned that previous meeting minutes were not available with enough time for appropriate review.
- **Action:** Approval postponed until next month.

4. Land Development Proposals

- No new land development proposals for review.

5. Discussion of Draft Accessory Structure Zoning Amendment

- **General Updates:**

- Manager DeMeno incorporated feedback from the last meeting.
- Definitions added for barns, greenhouses, silos, and agricultural products.
- **Key Changes & Discussions:**
 - **Greenhouses:** Initially defined as glass structures; updated to include PVC and other modern materials.
 - **Silos:** Defined traditionally as cylindrical structures but with flexibility for different shapes.
 - **Accessory Structures:** Need for precise definition to distinguish between accessory uses and buildings.
 - **Setbacks:** Discussed five-foot vs. ten-foot minimums based on lot sizes.
 - **Lot Sizes & Accessory Structure Limits:** Merged requirements to ensure self-limiting design without unnecessary complexity.
- **Outstanding Issues:**
 - Clarifying the distinction between accessory buildings and accessory structures.
 - Handling of accessory dwelling units (ADUs) and their potential inclusion within existing structures.
 - Addressing buildings with bathrooms that do not meet full dwelling unit requirements.
 - Potential ordinance updates to avoid unnecessary zoning hearing board processes.

6. Additional Business

- **Accessory Dwelling Units (ADUs):**
 - Discussion on allowing ADUs for family members while preventing misuse.
 - Current requirement: Special exception application to the zoning hearing board.
 - Proposal: Streamline approval with deed restrictions instead of a full hearing.
- **Non-Residential Structures on Vacant Lots:**

- Question raised: Can a garage or storage structure exist before a primary dwelling is built?
- Zoning laws currently prohibit non-residential structures as primary uses in residential areas.

7. Public Comment

- Mr. McGrane had a number of comments on the usage of Township owned open space and questioned why the Township is a landowner at all. Discussion on the topic by all members of Commission.

7. Adjournment

- Meeting concluded at 8:22 PM.

REGISTERED
JAN 13 2025
RECEIVED

ERECTED INTO A TOWNSHIP IN 1733
TOWNSHIP OF WORCESTER
AT THE CENTER POINT OF MONTGOMERY COUNTY
PENNSYLVANIA

1721 Valley Forge Road
P.O. Box 767
Worcester, PA 19490

Phone (610) 584-1410
Fax (610) 584-8901

APPENDIX

SUBDIVISION AND LAND DEVELOPMENT APPLICATION

Date of Application: _____ Fee Paid: _____ W.T.P.C File No _____

Application for:

Preliminary Review _____

Final Review _____

- 1.) Property: Address 2991 Mohill Road
Location/Parcel Number 67-00-02449-00-4
- 2.) Owner of record of land: Name Khira Ruthrauff Tel. # _____
Address: 2991 Mohill Road, Norristown, PA 19403 Email _____
- 3.) Applicant: Name SAME AS OWNER Tel. # _____
Address _____ Email _____
- 4.) Agent or Attorney, (if any): Name _____ Tel # _____
Address _____ Email _____
- 5.) Registered Engineer or Surveyor: Name Timothy P. Woodrow, P.E Tel # 215-542-5648
1108 N Bethlehem Pk, Suite 5
Address Lower Gwynedd, PA 19002 Email twoodrow@woodrowinc.com
- 6.) Name of Subdivision or Development: 2991 Mohill Road
- 7.) Where deed is recorded: Book No. 6005 Page No. 2277
- 8.) No. of Lots or Dwelling Units: Two
- 9.) Average Lot Size: 1.71 acres
- 10.) Density (dwelling units per acre): _____
- 11.) Total Area to be developed or subdivided: _____
*Gross 3.42 Acres **Net 3.42 Acres
Area in flood plain (if any) _____
- 12.) Water Supply: Public system --- On lot system Well
- 13.) Sewage System: Public system --- On lot system Septic
- 14.) List of all Encumbrances:
- | <u>Amount</u> | <u>Name & Address of Person/Firm</u> | <u>Bk.No.</u> | <u>Pg. No</u> |
|-------------------|--|---------------|---------------|
| <u>None Known</u> | | | |
- 15.) Zoning classification of subject land: R-175 Residential District

16.) Explanatory statement of plan to be reviewed:

17.) Linear feet of new streets: none

Attached

19.) Statement fixing period requested for completion of all items in Paragraph 18 above:

20.) Improvements to be made by applicant to subject land with approximate estimate of cost of each:

	Unit Cost	No. of Units	Total
a. Curbs.....			
b. Sidewalks.....			
c. Widening of Existing Streets.....			
d. Park Land.....			
e. Street Lighting.....			
f. Storm Drainage.....			
g. Water Supply & Fire Hydrants....			
h. Sewage Disposal.....			
i. Monuments.....	\$500.00	4	\$2,000.00
j. Landscaping.....			
k. Etc.			

Signature of Owner

Date:

Net Area – area calculated to the right of way. Net areas are to be used for density and land area requirements.

ERECTED INTO A TOWNSHIP IN 1733
TOWNSHIP OF WORCESTER
AT THE CENTER POINT OF MONTGOMERY COUNTY
PENNSYLVANIA

1721 Valley Forge Road
P.O. Box 767
Worcester, PA 19490

Phone (610) 584-1410
Fax (610) 584-8901

EXTENSION OF TIME

Date: _____

Attn: Township Manager
Worcester Township
1721 Valley Forge Road
P.O. Box 767
Worcester, PA 19490

Dear Township Manager:

RE: SUBDIVISION PLAN/LAND DEVELOPMENT PLAN OF 2991 Mohill Road

On _____, I (we) submitted the referenced plan for official filing.

Please be advised that notwithstanding any contrary provision of the Pennsylvania Municipalities Planning Code or the Worcester Township Subdivision and Land Development Ordinance, this letter will serve as notice to Worcester Township that the requirement that action be taken on this Plan within ninety (90) days, is hereby waived, without limitation as to time.

This waiver is granted to permit us to make such adjustments or revisions to the Plan as may be required during the Plan review process.

If we ever deem it necessary to limit the time of the subdivision or land development review process, we may revoke this extension of time in writing, sent certified mail, return receipt requested, and the Township shall be obligated to render a decision on our plans within sixty (60) days after the date on which the written revocation notice was received.

If the township determines that insufficient progress is being made towards concluding the subdivision or land development review process, the Township may revoke this extension of time in writing, sent regular mail and certified mail, return receipt requested. For purposes of this provision, the Township's written notice shall be deemed received, if sent regular mail and certified mail, on the date of the written receipt on the certified mail return receipt, or, three (3) days after the date indicated on the Township's notification letter in the event the certified mail is return as "refused", "unclaimed", or is otherwise returned without indication of receipt, if addressed as follows (or to a subsequent address specifically provided to the Township by us for the purpose of notice):

At any time sixty (60) days after our receipt of such notice from the Township, we understand that the Township may take (but shall not be obligated to take) such action with regard to our plans as the Township deems necessary and appropriate.

We further understand that nothing herein shall be construed to prevent us from offering, and the Township from accepting, additional extensions of time in the future, but neither party shall be obligated to do so by the terms of the Agreement.

Very truly yours,

By: Khira Ruthrauff
Signature
Khira Ruthrauff, owner
Print Name, Title

Date: 1/7/2025

Accepted by: _____
Chairman, Board of Supervisors

Attest: _____
Manager/Secretary

Applicant Request for County Review

This request should be filled out by the applicant and submitted to the municipality where the application is being filed along with digital copies of all plan sets/information. Municipal staff will electronically file the application with the county, and a notice for the prompt payment of any fees will be emailed to the Applicant's Representative.



MONTGOMERY COUNTY PLANNING COMMISSION

MCPC

P.O. Box 311, Norristown, PA 19404-0311

Phone: 610-278-3722

Business Hours: 8:30 A.M. to 4:15 P.M.

www.planning.montcopa.org

Date: _____

Municipality: Worcester Township

Proposal Name: 2991 Mohill Road

Applicant Name: Jeff and Khira Ruthrauff

Address: 2991 Mohill Road

City/State/Zip: Norristown, PA 19403

Phone: 561-703-0596

Email: j_ruthrauff@hotmail.com

Applicant's Representative: Woodrow & Associates, inc.

Address: 1108 N Bethlehem Pk, Suite 5

City/State/Zip: Lower Gwynedd, PA 19002

Business Phone (required): 215-542-5648

Business Email (required): twoodrow@woodrowinc.com

Type of Review Requested:

(Check All Appropriate Boxes)

- ☐ Land Development Plan
- ☒ Subdivision Plan
- ☐ Residential Lot Line Change
- ☐ Nonresidential Lot Line Change
- ☐ Zoning Ordinance Amendment
- ☐ Zoning Map Amendment
- ☐ Subdivision Ordinance Amendment
- ☐ Curative Amendment
- ☐ Comprehensive / Other Plan
- ☐ Conditional Use
- ☐ Special Review*

* (Not included in any other category - includes parking lot or structures that are not associated with new building square footage)

Type of Plan:

- ☒ Tentative (Sketch)
- ☒ Preliminary / Final

Type of Submission:

- ☐ New Proposal
- ☐ Resubmission*

* A proposal is NOT a resubmission if A) The proposed land use changes, or B) The amount of residential units or square footage proposed changes more than 40%, or C) The previous submission was over 5 years ago.

Zoning:

Existing District: R-175 Residential District

Special Exception Granted ☐ Yes ☒ No

Variance Granted ☐ Yes ☒ No For _____

Plan Information:

Tax Parcel Number(s) 67-00-02449-00-4

Location (address or frontage) 2991 Mohill Road

Nearest Cross Street Water Street Road

Total Tract Area 3.4205 Acres

Total Tract Area Impacted By Development 3.4205 Acres

(If the development is a building expansion, or additional building on existing development, or only impacts a portion of the tract, please provide a rough estimate of the land impacted, including associated yards, drives, and facilities.)

Land Use(s)	Number of New		Senior Housing		Open Space Acres*	Nonresidential New Square Feet
	Lots	Units	Yes	No		
Single-Family	1					
Townhouses/Twins						
Apartments						
Commercial						
Industrial						
Office						
Institutional						
Other						

*Only indicate Open Space if it will be on a separate lot or deed restricted with an easement shown on the plan.

Additional Information: _____

Print Date: 07/23/2025 11:22:24 AM Plot Scale: 1" = 30.00'
File Name: C:\Users\jason\OneDrive\Desktop\250525\250525.dwg



PROJECT SOILS DATA				
Soils Type:	Slopes:	Depth to Restrictive Feature:	Depth to Water Table:	Hydrologic Soil Group:
ABA Abbottstown silt loam	0 to 3 percent	18-22" to Fragipan 46-50" to Lithic Bedrock	6 to 18"	D
ReB Reading silt loam	3 to 8 percent	20-36" to Fragipan 40-60" to Lithic Bedrock	18 to 36"	C

GENERAL PLAN NOTES

EXISTING FEATURES and SURVEY NOTES:

- A field metes and bounds survey was performed by Charles E. Shoemaker, Inc. under the supervision of Gary Tilford, PLS, and plan prepared by Woodrow & Associates, Inc. Survey performed without the benefit of a full title Report. Bearings shown reflect a rotation of -10 deg 38 Min. 01 Sec. from Deed Bearing Basis to match Pennsylvania South Zone 3702 State Plane Coordinate Bearing Basis. Survey prepared during the month of October 2024.
- A topographic and existing features survey was performed for this site by Charles E. Shoemaker, Inc. and plan prepared by Woodrow & Associates, Inc. Site elevation datum is referenced per note 3 below. Site Benchmark is the top of cut nail in utility pole #32135 in front of 2991 Mohill Road having an elevation of 466.37. Survey prepared during the month of October 2024.
- Vertical datum references provided by the PA Spatial Data Access system (PASDA). PAMAP data is based on PA State Plane (South) NAD83 horizontal, NAVD83 vertical datum. Site Vertical Datum using Topcon Topnet Live Virtual Network System.
- This plan was prepared utilizing the following references:
 - Tax maps and deeds of record as obtained from the Recorder of Deeds online resources.
 - Existing Soils classifications and mapping has been plotted from maps obtained from the USDA Web Soil Survey website (<http://websoilsurvey.sc.egov.usda.gov/>) unless otherwise noted.
 - Aerial imagery used for base plan reference provided by Nearmap, Inc. Imagery from flight dated September 16, 2023, updated March 11, 2024.
- Plan entitled Subdivision Plan Sheet 3 of 3 of The Stables prepared for Bell Kumpf, LP by Stout, Taconelli & Associates, Inc. dated Aug. 7, 2003, last revised Aug. 27, 2005. Recorded at the Montgomery County office of the Recorder of Deeds plan book 0025 page 00322 dated Oct. 21, 2005.
- There has been NO field investigation performed to verify any existence of any wetlands, waters of the U.S., or Commonwealth or Alluvial Soils at the time of the site survey.
- This site is located within Flood Plain Zone "X" (areas determined to be outside the 0.2% annual chance floodplain) as illustrated on Community Panel Number 42091-C-0261-G, effective date March 2, 2016 as prepared by the Federal Emergency Management Agency. No computational floodplain study has been performed for this plan.
- All persons digging on this site shall comply with the requirements of Section 5 of PA Act 287 as amended by PA Act 181. State law requires a three (3) business day notice prior to any digging (does not include state holidays or weekends). Dial 8-1-1 or go to www.pacouncil.org.

COMMONWEALTH OF PENNSYLVANIA COUNTY OF MONTGOMERY

On this, _____ day of _____, 20____, before me, the undersigned Officer, personally appeared _____ known to me (or satisfactory proven) to be the persons whose names are subscribed to the within instrument, and acknowledged that for the purposes therein contained.

In witness whereof, I hereunto set my hand and official seal.

Owner(s): _____

Notary Public: _____

My commission expires on: _____

OWNER'S CERTIFICATE

We, _____, hereby certify that we are the owners of the land herein subdivided and that we consent to the approval of this plan that has been granted and that I desire the same to be Recorded.

Owner(s): _____

Date Signed: _____

PLANNING COMMISSION

Reviewed this, the _____ day of _____, 20____, by the Planning Commission of Worcester Township, Montgomery County, PA.

ATTEST: _____
Signature, Chairman

Date Signed: _____

BOARD OF SUPERVISORS

Approved on this, the _____ day of _____, 20____, by the Board of Supervisors of Worcester Township, Montgomery County, PA.

ATTEST: _____
Signature, Chairman

Date Signed: _____

Signature, Secretary

Date Signed: _____

(Township Notary Seal)

TOWNSHIP ENGINEER

Reviewed by the Township Engineer of Worcester Township, Montgomery County, PA.

ATTEST: _____
Township Engineer

Date Signed: _____

ZONING and SITE DATA SCHEDULE

Zoning District: R-175 RESIDENTIAL DISTRICT				
Item	Section	Requirement	Proposed LOT 01	Proposed LOT 02
Permitted Use	150-35.B	(1) Single-Family Detached Dwelling	(1) Single-Family Detached Dwelling	(1) Single-Family Detached Dwelling
(Min) Lot Area	150-36.A	60,000 Sq. Ft.	66,854 Sq. Ft.	75,338 Sq. Ft.
(Min) Lot Width	150-36.B	175 Ft.	203.1 Ft.	258.6 Ft.
(Min) Front Yard	150-37.A	60 Ft.	89.6 Ft.	>60 Ft.
(Min) Rear Yard	150-37.B(1)	75 Ft.	61.9 Ft. 98.5 Ft.	>75 Ft.
(Min) Side Yard	150-37.C(1)	35 Ft.	121.0 Ft.	>35 Ft.
(Max) Bldg Coverage	150-38.A	15 %	4.2% (2,750 Sq. Ft.)	<15 %
(Max) Lot Impervious	150-38.B(1)	20 %	11.1% (7,380 Sq. Ft.)	<20 %
(Max) Bldg Height	150-39	35 Ft. 2.5 Stories	<35 Ft. 1 Story	<35 Ft. 2.5 Stories
(Max) Accessory Height	150-39.A	15 Ft. 1.5 Stories	<15 Ft. 1 Story	<15 Ft. 1.5 Stories
Required Parking Quantity	150-40.A(1)	2 Space per Unit	2 Space per Unit	2 Space per Unit

- 150-178 FRONTAGE:
 - Each and every lot shall abut a public street for not less than 50 Ft. at the right-of-way line, except lots which shall abut the right-of-way and provide a Min. continuous access of not less than 25 Ft.
- 150-179 FLAG LOTS:

For any flag lot, the Min. lot area requirement for such lot shall be calculated without including any area of the lot within the narrow access portion of the property by which the major part of the property (containing the building envelope) is connected to a street. The narrow access portion of a flag lot shall maintain a Min. width of 25 Ft. along its entire length.

SURVEYOR'S CERTIFICATION

I, _____, do hereby certify that I am a Registered Professional Surveyor, licensed in compliance with the laws of the Commonwealth of Pennsylvania; that this plan correctly represents a survey made by myself or under my supervision and that all dimensional and geodetic details shown are correct.

Signature _____ Date Signed: _____
LIC. No: _____

RECORDER OF DEEDS

Recorded in the Montgomery County Court House this _____ day of _____, 20____, in Plan Book _____ Page _____

Recorder of Deeds: _____

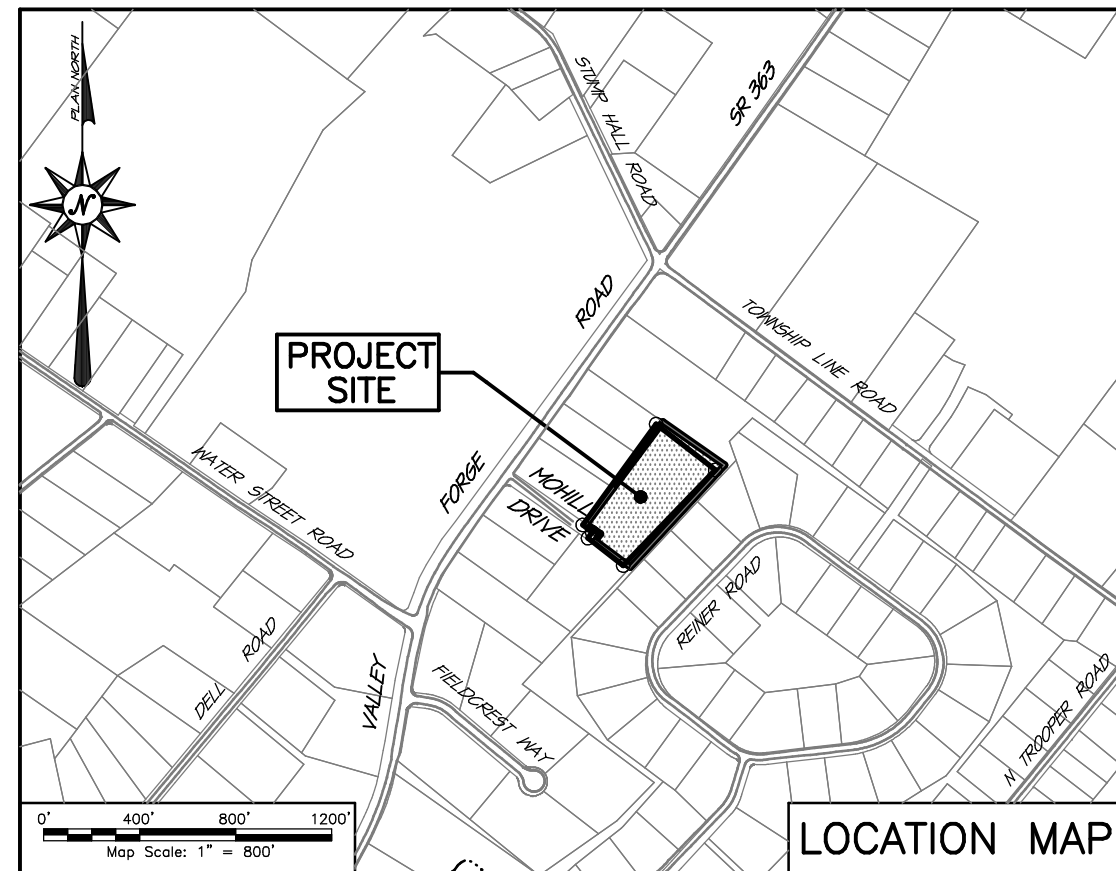
Township File No.:

MCPC No.:

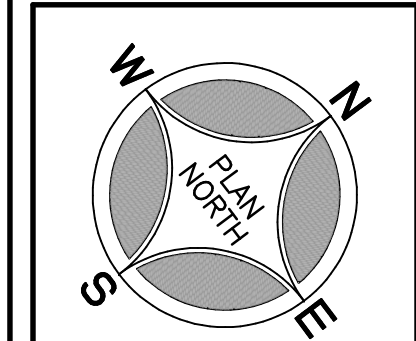
PROCESSED and REVIEWED. A report has been prepared by the Montgomery County Planning Commission in accordance with the Municipalities Planning Code.

Certified this date: _____

For the Director
Montgomery County Planning Commission



REVISIONS	
No.	DESCRIPTION
1	07/02/25 ADDED ON-LOT SEPTIC TESTING LOCATIONS



SEAL

SEAL

PROJECT SERIAL NUMBER FOR DESIGN:
2024 2692070 (SEPT 25, 2024)

Pennsylvania 811

Parcel Information:

N/F: RUTHRAUFF KHIRA
67-00-02449-00-4
Block 6 Unit 32
D.B.: 6005 Pg. 2277
2991 MOHILL ROAD

Survey Tract Area:
148,994.89 Sq. Ft.
3.4205 Ac.

Applicant:

KHIRA RUTHRAUFF
2991 MOHILL ROAD
NORRISTOWN, PA 19403

15' 0' 30'
Scale in Feet (1" = 30')
© COPYRIGHT 2025
WOODROW & ASSOCIATES, INC.
ALL RIGHTS RESERVED

PRELIMINARY PLAN (Not To Be Recorded)
RECORD PLAN - MINOR SUBDIVISION
and EXISTING FEATURES PLAN
2991 MOHILL ROAD
WORCESTER TOWNSHIP - MONTGOMERY COUNTY - PENNSYLVANIA
WOODROW & ASSOCIATES, INC.
MUNICIPAL / CIVIL CONSULTING ENGINEERS
1108 North Bethlehem Pike / Suite 5 - Lower Gwynedd - PA 19002
Phone: (215) 242-2444 Web: www.woodrowinc.com

Layer List:
Exh_Record
Job No.: 24-0503 D
Plan Date: OCT. 16, 2024
Sheet No.: 1 of 1

Proposal Number

107674

Proposal Type

Plan Only

Proposal Status

Received

Name

2991 Mohill Rd Minor Subdivision

MCPC Number**Applicant**

Jeff & Khira Ruthrauff

Submit Date

1/16/2025 3:17:33 AM

[View](#)

**MONTGOMERY COUNTY
BOARD OF COMMISSIONERS**

NEIL K. MAKHIJA, CHAIR
JAMILA H. WINDER, VICE CHAIR
THOMAS DIBELLO, COMMISSIONER



**MONTGOMERY COUNTY
PLANNING COMMISSION**

MONTGOMERY COUNTY COURTHOUSE • PO Box 311
NORRISTOWN, PA 19404-0311
610-278-3722
FAX: 610-278-3941 • TDD: 610-631-1211
WWW.MONTGOMERYCOUNTYPA.GOV

SCOTT FRANCE, AICP
EXECUTIVE DIRECTOR

January 24, 2025

Mr. Dan DeMeno, Township Manager
Worcester Township
1721 South Valley Forge Road
PO Box 767
Worcester, Pennsylvania 19490

Re: MCPC #25-0009-001
Plan Name: 2991 Mohill Road Minor Subdivision
(2 lots, approximately 3.42 acres)
Situate: 2991 Mohill Road, near Valley Forge Road
Worcester Township

Dear Mr. DeMeno:

We have reviewed the above-referenced preliminary subdivision and land development proposal in accordance with Section 502 of Act 247, "The Pennsylvania Municipalities Planning Code," as you requested on January 15, 2025. We forward this letter as a report of our review.

BACKGROUND

Jeff and Khira Ruthrauff have submitted a minor subdivision plan to subdivide the existing parcel at 2991 Mohill Road into 2 residential buildable lots. The existing parcel measures 148,995 square feet; the existing home will be on the new Lot 1 which will measure 66,854 square feet (greater than the minimum 60,000 square feet lot size required by the R-175 Residential zoning district), while the remaining largely undeveloped 82,141 square feet of land will be placed in Lot 2, with a 25 foot wide access lane measuring 6,803 square feet provided from Mohill Drive to the remainder of the lot. A shed that currently exists near the front of the property but will now straddle the access lane property line is to be removed. Additional zoning requirements will all be met regarding setbacks, impervious coverage, and building heights on both lots. No additional development is currently shown for Lot 2.

COMPREHENSIVE PLAN COMPLIANCE

Montgomery County's 2015 Comprehensive Plan, *Montco 2040: A Shared Vision*, identifies this parcel as part of the Rural Resource Area on its future land use map, which includes primary uses of "scattered single-family detached homes". The plan supports infill development that respects the character of existing residential



communities while minimizing any impacts of new development on neighboring developed properties. We believe that the land development application is compliant with *Montco 2040*.

Worcester Township's 2008 Comprehensive Plan shows this property in the "countryside" area on its Future Land Use Map, and as an area with a "potential home" dot on the Potential Ultimate Residential Buildout Map. It is not included as part of any priority areas for parks, agricultural preservation, or historic resources. We believe that this proposal is compliant with the 2008 Comprehensive Plan.

RECOMMENDATION

The Montgomery County Planning Commission (MCPC) generally supports the applicant's proposal, however, in the course of our review we have identified the following issue that the applicant and municipality may wish to consider prior to final plan approval. Our comments are as follows.

REVIEW COMMENTS

ENVIRONMENTAL

The plan shows an existing septic tank on Proposed Lot 1 and septic beds on Proposed Lot 1 and Proposed Lot 2. Percolation test results for these proposed systems were not included in the submission. The plan notes that the soil where the systems are proposed is Readington silt loam, which the USDA Web Based Soil Survey describes as moderately well drained, with moderate limitations for on-lot systems. The applicant or the Township should provide guidance to the property owners on inspection and maintenance requirements for these systems to ensure their continued effective operation.

CONCLUSION

We wish to reiterate that MCPC generally supports the proposal but we believe that our comments will better achieve Worcester Township's planning objectives for residential development.

Please note that the review comments and recommendations contained in this report are advisory to the municipality and final disposition for the approval of any proposal will be made by the municipality. Should the governing body approve a final plat of this proposal, the applicant must present the plan to our office for seal and signature prior to recording with the Recorder of Deeds office. A paper copy bearing the municipal seal and signature of approval must be supplied for our files. Please print the assigned MCPC number (#25-0009-001) on any plans submitted for final recording.

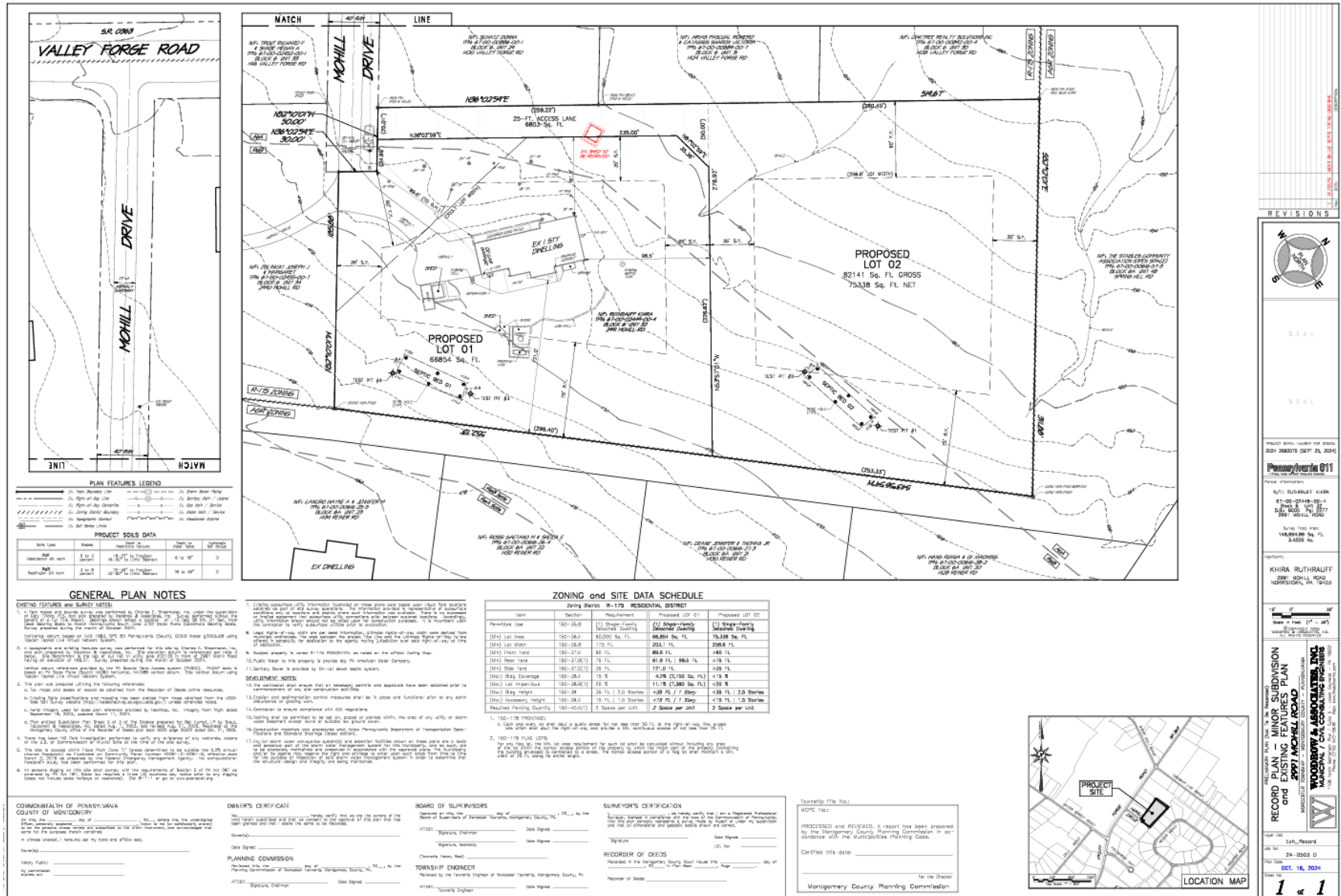
Sincerely,



Matthew Popek, AICP
Transportation Planning Assistant Manager II
Matthew.Popek@montgomerycountypa.gov - 610-278-3730

c: Christian Jones, Assistant Township Manager
Jessica Buck, District Manager, MCCD
Tim Woodrow, Woodrow & Associates, Inc., Applicant's Representative

Attachments: (1) Site Plan
(2) Aerial



Aerial - 2991 Mohill Road, Worcester Township



2991 Mohill Road Minor Subdivision
MCPC#250009001

Montgomery
County
Planning
Commission

Montgomery County Courthouse - Planning Commission
PO Box 311, Norristown, PA 19384-0311
(p) 610-278-3722 (f) 610-278-3941
www.montcopa.org/pln.com
Aerial photography provided by Viewmap

0 50 100 200 Feet





February 10, 2025

Mr. Dan Demeno
Township Manager
Worcester Township
1721 Valley Forge Road
P.O. Box 767
Worcester, PA 19490

Attention: Christian R. Jones, Assistant Township Manager
Mr. Robert D'Hulster, Public Works Director

RE: **Traffic Review #1 – Minor Subdivision Plan**
2991 Mohill Drive – Two single family lots
Worcester Township, Montgomery County, PA
Project No. 313982-25-002

Dear Dan:

In response to the Township's request, Bowman Consulting Group (Bowman) has completed our initial traffic engineering review associated with the proposed subdivision to be located at 2991 Mohill Drive in Worcester Township, Montgomery County, PA. It is our understanding that the proposed subdivision involves subdividing Parcel 67-00-02449-00-4 into two lots (Lots 1 and 2). The existing single-family home at 2991 Mohill Drive will remain on Lot 1 while there is currently no development proposed for Lot 2. Access to Lot 1 will continue to be provided via the existing full-movement driveway to Mohill Drive. Access to the future development of Lot 2 will be provided along Mohill Drive via a 25-foot-wide access easement along the westernmost part of Lot 1.

The following document was received and reviewed in preparation of our comments:

- Minor Subdivision Plan – 2991 Mohill Drive, prepared by Woodrow and Associates, Inc., last revised January 2, 2024.

Based on our review of the document listed above, Bowman offers the following comments for consideration by the Township and action by the applicant:

1. Access to Lot 2 is proposed to be provided through Lot 1 via provision of an access easement once the overall property is subdivided. The metes and bounds description and paperwork for the access easement to be conveyed for access must be provided in subsequent submissions.
2. Since access to the proposed two-lot subdivision is ultimately provided through the intersection of Valley Forge Road (S.R. 0363) and Mohill Drive, vehicle sight distances must be provided on the plan for a vehicle exiting Mohill Drive and looking in both directions at 14.5 feet back from the edge of the closest travel lane on Valley Forge Road (S.R. 0363), as well as the sight distance looking ahead and to the rear for a vehicle making a left-turn from Valley Forge Road (S.R. 0363) onto Mohill Drive. It appears that the egressing sight distance looking to the left may be restricted due to a dense line of vegetation. The sight distances must be confirmed and if the clear and minimum

safe stopping sight distance is physically prohibited due to the vegetation along Valley Forge Road (S.R. 0363), it must be resolved to meet at least the minimum safe stopping sight distances for the posted speed in this area. Furthermore, Valley Forge Road (S.R. 0363) in this area has been under design for a future roadway widening project, and that must be taken into consideration, as well. Progress plans may be obtained by contacting our office and speaking to the project manager, Stephanie Butler, P.E.

3. According to **Section 130-16.C(1)(a)[4]** of the **Subdivision and Land Development Ordinance**, Mohill Drive should have an ultimate right-of-way width of 50 feet. The plan currently shows a 40-foot ultimate right-of-way width along the Mohill Drive site frontage, thereby not satisfying the ordinance requirement. The plan should be revised to show a 50-foot ultimate right-of-way width along the Mohill Drive site frontage, or a waiver needs to be requested from this ordinance requirement and approved by the Board of Supervisors.
4. According to **Section 130-16.C(1)(a)[4]** of the **Subdivision and Land Development Ordinance**, Mohill Drive should have a cartway width of 32 feet, which may be reduced to as low as 28 feet when conditions may be unreasonable for this widening. The plan currently shows an approximate 18-foot cartway width along the Mohill Drive site frontage, thereby not satisfying the ordinance requirement. The plan should be revised to show a at least a 28-foot cartway width along the Mohill Drive site frontage, or a waiver needs to be requested from this ordinance requirement and approved by the Board of Supervisors.
5. Again, we note that Mohill Drive currently provides an approximate 18-foot cartway width along its entire length from Valley Forge Road (S.R. 0363) to the properties, and currently serves access to three existing properties. The proposed subdivision would add a fourth property. The public works director and Township engineer should weigh in on any need to widen the road between Valley Forge Road (S.R. 0363) and its terminus at the subject property and 2990 Mohill Drive to satisfy the ordinance, especially if Mohill Drive is maintained by the Township as a public street versus a private street and shared driveway. We note some additional challenges to widening to a 28-foot width with utility poles lining the north side of Mohill Drive that would be impacted by the widening and require pole/utility relocations. Referencing **Section 130-17.C(2)**, if it has applicability, is that driveways to be used as private streets shall conform to the minimum design standards for public streets and that **the width of the cartway shall not be in any event less than 20 feet**. Possibly this could be done using both sides of the current roadway. We also note that widening this roadway would also then require that a highway occupancy permit (HOP) be obtained from PennDOT for work within the Valley Forge Road (S.R. 0363) legal right-of-way to modify the road.
6. According to **Section 130-17.B(7)** of the Subdivision and Land Development Ordinance, all new flag lots shall share driveway access with the lot between the flag and the street when driveway access is proposed to a primary, secondary feeder or secondary collector street.
7. According to **Section 130-18.A** of the **Subdivision and Land Development Ordinance**, sidewalk should be provided along the site frontage of Mohill Drive. The plan currently does not show any sidewalk along the Mohill Drive site frontage, thereby not satisfying the ordinance requirement. The plan should be revised to show sidewalk along the Mohill Drive site frontage, or a waiver needs to be requested from this ordinance requirement and approved by the Board of Supervisors. The Board of Supervisors may decide to consider deferring this sidewalk obligation that is required of the applicant until such a time as may be required by the Township along the subject property,

whether under present or future land ownership, and at no cost to Worcester Township. However, if the Board of Supervisors grants this waiver, we recommend to them and the Township Solicitor that the applicant then provide a contribution in an escrow to the Township in an amount similar to the cost to install said improvements to be used for similar improvements in the vicinity of the site or within the Township.

8. According to **Section 130-18.B** of the **Subdivision and Land Development Ordinance**, curbing should be provided along the site frontage of Mohill Drive. The plan currently does not show any curbing along the Mohill Drive site frontage, thereby not satisfying the ordinance requirement. The plan should be revised to show curbing along the Mohill Drive site frontage, or a waiver needs to be requested from this ordinance requirement and approved by the Board of Supervisors. The Board of Supervisors may decide to consider deferring this curbing obligation that is required of the applicant until such a time as may be required by the Township along the subject property, whether under present or future land ownership, and at no cost to Worcester Township. However, if the Board of Supervisors grants this waiver, we recommend to them and the Township Solicitor that the applicant then provide a contribution in an escrow to the Township in an amount similar to the cost to install said improvements to be used for similar improvements in the vicinity of the site or within the Township.
9. The Township Fire Marshal should review the proposed subdivision for accessibility and circulation needs of emergency apparatus. Ensure that any correspondence, including any review comments and/or approvals, is included in subsequent submissions.
10. The plan must be signed and sealed by a Professional Engineer licensed to practice in the Commonwealth of Pennsylvania that was in responsible charge of the work as required by **Section 130-35.1.A(2)(c)** of the **Subdivision and Land Development Ordinance**.
11. According to the Township's Roadway Sufficiency Analysis, the proposed development is located in Transportation Service Area South, which has a corresponding impact fee of \$3,125 per "new" weekday afternoon peak hour trip and the applicant will be required to pay a Transportation Impact Fee in accordance with the Township's Transportation Impact Fee Ordinance. Based on Land Use Code 210 (Single-Family Detached Housing) in the Institute of Transportation Engineers publication, *Trip Generation, 11th Edition*, a single-family home on Lot 2 would generate **one "new" trip** during the weekday afternoon peak hour resulting in a **transportation impact fee of \$3,125**. However, should the Board of Supervisors with input from the Township solicitor consider this use and its peak hour trip generation to be a de minimus traffic-generating application, the transportation impact fee may be waived. To qualify for the exemption, the applicant must place a waiver request on their final plan and submit information to support the request for review and approval by the Board.
12. A more detailed review of the site and all transportation-related engineering elements on the plan can be conducted, as the Township deems necessary, if/when new residential development is proposed on either Lot 1 or Lot 2 and a land development plan is submitted to the Township. Additional comments may follow at that phase of the parcel development.
13. Based on our review, the applicant should address the aforementioned comments and provide revised plans to the Township and our office for further review and approval recommendations. **The applicant's engineer must provide a response letter that describes how each specific**

review comment has been addressed, where each can be found in the plan set or materials, as opposed to general responses. This will aid in the detailed review and subsequent review timeframes.

We trust that this review letter responds to your request. If you or the Township have any questions, or require clarification, please contact me, Michelle Eve, P.E., or Brian Jones, PTP, TOPS.

Sincerely,



Casey A. Moore, P.E.
EVP/Regional Manager - Transportation

CAM/MEE/BMJ

cc: John Evarts, P.E., CKS Engineers (Township Engineer)
Wendy Feiss McKenna, Esq. (Township Solicitor)
Khira Ruthrauff (Applicant)
Tim Woodrow, P.E., Woodrow & Associates, Inc. (Applicant's Engineer)

\\Pa-ftwa-gfe-vm\fastdata\TALONFAST_CORE\SAN\shared_projects\313982 - Worcester Twp PA\313982-25-002 (TRA) - 2991 Mohill Road\Engineering\Submissions\2025-01-15
Subdivision Plans\Review\2025-02-10 Review Letter #1 - 2991 Mohill Drive (finalized).docx



CKS Engineers
4259 West Swamp Road, Suite 410
Doylestown, PA 18902
P: 215.340.0600
www.cksengineers.com

February 13, 2025
Ref: #7201-174

Township of Worcester
1721 Valley Forge Road
PO Box 767
Worcester, PA 19490-0767

Attention: Dan DeMeno, Township Manager

Reference: 2991 Mohill Road
Parcel No. 67-00-02449-00-4
Minor Subdivision Plan Review
Worcester Twp. LD

Dear Dan:

Our office is in receipt of your request for review of a minor subdivision plan for the above-referenced site. The submission consists of one sheet prepared by Woodrow & Associates, Inc. dated October 11, 2024, with a revision date of January 2, 2024, and a completed copy of the Worcester Township Subdivision and Land Development Application.

The applicant proposes the subdivision of an existing 3.42-acre parcel in the R-175 Residential Zoning District to create two lots as follows: Lot 1, a 66,854-sf lot to contain an existing single-family detached dwelling with two sheds, greenhouse, and fire pit. Lot 2 will be a 82,141-sf (gross)/75,338-sf (net) flag lot for the future development of a single-family detached dwelling. The existing and future proposed dwelling are to be served by private (well) water service and private sanitary sewage disposal (on-lot systems).

We offer the following comments for consideration by the Township:

I. **ZONING ORDINANCE**

The following comments are based upon the Worcester Township Zoning Ordinance (ZO):

1. The proposed use of Lot 2, single-family detached dwelling, is permitted by-right in the R-175 District if development is in accordance with the regulations of the R-175 District.
2. As per the definition of "front yard", the front yard on Lot 2 should be from the southwesterly lot line. (150-9)

II. **SUBDIVISION AND LAND DEVELOPMENT ORDINANCE**

The following comments are based upon the Worcester Township Subdivision and Land Development Ordinance (SLDO):

1. Note 10 indicates that public water to this property is provided by PA American Water Company; however, no existing water mains are shown on the plan and an existing well has been shown on Proposed Lot 1. In accordance with Section 130-14.F, if no public water supply is available for the proposed subdivision, the Supervisors shall require the developer or builder to obtain from the Montgomery County Department of Health certificates of approval as to the quality and adequacy of the water supply to be utilized and approval of the type and construction methods to be employed in the installation of the individual water supply system.
2. Septic beds are shown on both Lots 1 and 2. In accordance with Section 130-14.G, the Supervisors shall require the subdivider, developer, or builder to obtain from the Montgomery County Department of Health certificates of approval of the sewage disposal facilities to be provided.

No portion of an on-site sewage disposal system shall be within the area between 10 feet and 30 feet of any property line. It appears that the useable area shown for the septic bed on Lot 1 is less than 30 feet from the southerly property line. (Section 130-26.B.2.c)

In addition, no disseminating system shall be located uphill from a drilled well and not closer than 100 feet to it. (Section 130-26.B.2d)

3. Applicants shall observe the ultimate rights-of-way for continuous existing streets. The ultimate right-of-way for Mohill Drive is 50 feet as per Chapter 126. The plan shows the right-of-way to be 40 feet and therefore, an additional 5 feet (1/2 width) should be shown across the lot frontages and this additional right-of-way offered to the Township. Applicable building setback lines shall be delineated as measured from the ultimate right-of-way street line. (Section 130-14.H).
4. The minimum paved width of Mohill Road should be 28 feet. The plans indicate a 17-foot-wide cartway. (Section 130-16.C.1.a.4) Alternatively, the existing Mohill Road serves three existing parcels. Section 130-17.C(2) notes that driveways used as private streets must be a minimum of 20 feet. It is our understanding that the Township does not maintain Mohill Road and it is not eligible for liquid fuels.
5. Concrete curb and sidewalk should be constructed along residential streets. We note there is no curbing or sidewalks in the vicinity of the existing driveway. (Sections 130-18.A and B)
6. Monuments shall be located on the right-of-way lines at corners and angle points. (Section 130-23A)
7. All lot corner markers shall be permanently located and pinned. (Section 130-23C)
8. Lots 1 and 2 must provide a softening buffer along its side and rear lot lines. The buffer shall consist of a minimum of one evergreen tree for each 35 linear feet; one ornamental or shade tree for each 50 linear feet; and one shrub for each 10 linear feet of property line. Informal groupings of more closely spaced plants which reflect the natural character of the site are encouraged. Existing vegetation of appropriate species and quantities on the property can be considered in the fulfillment of these requirements. The plan does not propose any buffer plantings. (130-28.G.5.b)

9. A minimum of three deciduous or evergreen trees must be proposed to be planted on Lot 2, unless an equivalent number of existing trees are already on the lot. (130-28.9.A)
10. The future well on proposed Lot 2 must be constructed in accordance with PADEP and Township requirements. (130-31.C)
11. Areas of steep slopes on the lot must be defined. If none are present, this condition should be stated as a general plan note. (130-32.1)

III. GENERAL CONSIDERATIONS

The following are general comments and considerations generated during the course of our review:

1. The applicant should confirm that there are no deed restrictions or covenants which would otherwise prohibit the subdivision of the lot as proposed. (130-34.J.2.h)
2. The application must be reviewed by the Montgomery County Planning Commission.
3. The applicant should provide evidence of the feasibility of on-lot sewer service for Lots 1 and 2 per PA Title 25 Chapter 73. A primary disposal area and secondary reserve area should be conceptually sized and located on the plan. Only one septic area is shown on Lot 2 at this time. Additionally, a septic area is proposed on Lot 1, but approximately 30 feet from the rear of Lot 1. Approval of the PADEP and Montgomery County Health Department will be required for any future system to be installed.
4. Legal descriptions, to be reviewed under separate cover following plan approval, must be supplied for the following:
 - a. Area between the title line and ultimate right-of-way being offered for dedication to Worcester Township or the authority having jurisdiction.
5. A copy of the deed should be submitted.
6. The revision date on the plan should be corrected to 01/02/25.
7. It should be determined if any of the Development Notes shown on the plan are applicable to this subdivision.
8. Lot 1 and Block 6, Unit 34 share an existing driveway. The existing driveway easement must be shown or a new easement proposed.
9. The applicant is made aware that any improvements to Lot 2 that result in an increase of more than 1,200 s.f. of impervious area will require stormwater management.

The above represents all comments on the proposed minor subdivision.

Very truly yours,
CKS ENGINEERS
Township Engineers



John W. Evarts, P.E.

JWE/klk

cc: Christian Jones, Assistant Township Manager (via email)
Wendy F. McKenna, Esq., Township Solicitor (via email)
Khira Ruthrauff, Owner (via email)
Woodrow & Associates (via email)
File



YOUR GOALS. OUR MISSION.

January 7, 2025

Mr. Dan DeMeno, Township Manager
Worcester Township
1721 South Valley Forge Road
PO Box 767
Worcester, PA 19490

Re: Preliminary Land Development Plan Submission for
Trooper Ridge - 1035 Trooper Road
Worcester Township, Montgomery County

Dear Mr. DeMeno,

Attached please find the following items comprising the Preliminary Land Development Plan submission for the above referenced project:

1. A completed Subdivision/Land Development Application
2. Completed MCPC Act 247 form
3. A Waiver Request letter
4. Eighteen (18) full size sets of the Preliminary Plans
5. Five (5) copies of the PCSM and E&S Control Report
6. A Letter of Service from Pennsylvania American Water Company
7. A copy of the PNDI receipt
8. A check for the application fee of \$10,950
9. A check for the review escrow of \$24,500

The Traffic Impact Assessment Report and Sewage Facilities Planning Module will be submitted to the Township under separate cover.

This Preliminary Plan is based on the sketch plan for this property previously submitted and reviewed by the Township. It depicts 45 townhouses accessed via private streets with primary access to Trooper Road. An emergency access is proposed onto West Germantown Pike. All open space and private infrastructure within the property will be owned and maintained by a Planned Community Association. The existing house and outbuilding at the northeast corner of the property will remain and a 1.5 acre lot will be subdivided around these structures. Water service will be provided by Pennsylvania American Water Company and sanitary sewer service from Worcester Township.

Please accept this Preliminary Plan submission for review by the Township's professional consultants and Planning Commission. Thank you very much and please contact me with any questions.

Very truly yours,

T&M Associates

Barry G. Stingel, PLA
Supervising Landscape Architect
bstingel@tandmassociates.com | 302-540-1651

Cc: Brian McKenzie, Commerce Pursuit Capital, LLC

ERECTED INTO A TOWNSHIP IN 1733
TOWNSHIP OF WORCESTER
AT THE CENTER POINT OF MONTGOMERY COUNTY
PENNSYLVANIA

1721 Valley Forge Road
P.O. Box 767
Worcester, PA 19490

Phone (610) 584-1410
Fax (610) 584-8901

APPENDIX

SUBDIVISION AND LAND DEVELOPMENT APPLICATION

Date of Application: 01-07-2025 App. fee: \$10,950
Fee Paid: Escrow: \$24,500 W.T.P.C File No _____

Application for:

Preliminary Review X

Final Review _____

1.) Property: Address 1035 Trooper Road, Norristown, PA 19403

Location/Parcel Number 67-00-01540-004

2.) Owner of record of land: Name James O'Donnell Tel. # _____

Address: 1035 Trooper Road, Norristown, PA 19403 Email _____

3.) Applicant: Name Commerce Pursuit Capital, LP c/o Brian McKenzie Tel. # 215-283-2190

Address 1300 VIRGINIA DR #215, FORT WASHINGTON, PA 19034 Email bmckenzie@westrum.com

4.) Agent or Attorney, (if any): Name Robert Gundlach Tel # 215-918-3636

Address _____ Email rgundlach@foxrothschild.com

5.) Registered Engineer or Surveyor: Name T&M Associates c/o Barry Stingel Tel # 215-282-7839

Address 1018 W 9th Ave, Suite 110, King of Prussia, PA 19406 Email bstingel@tandmassociates.com

6.) Name of Subdivision or Development: Trooper Ridge

7.) Where deed is recorded: Book No. 5085 Page No. 0048

8.) No. of Lots or Dwelling Units: 45

9.) Average Lot Size: N/A

10.) Density (dwelling units per acre): 3.8 units per acre (based on 11.82 developable acres in townhouse lot)

11.) Total Area to be developed or subdivided: _____

*Gross 15.11 acres **Net 13.32 acres

Area in flood plain (if any) N/A

12.) Water Supply: Public system PAWC (public) On lot system _____

13.) Sewage System: Public system Worcester Twp. (public) On lot system _____

14.) List of all Encumbrances:

Amount	Name & Address of Person/Firm	Bk.No.	Pg. No
--------	-------------------------------	--------	--------

N/A			
-----	--	--	--

15.) Zoning classification of subject land: R-100 and C with MR Multi-residential overlay district

16.) Explanatory statement of plan to be reviewed: _____

Based on the sketch plan reviewed by the Township during the spring of 2024, a Preliminary Land Development Plan for 45 single family attached units (townhouses) is submitted. The plan depicts a proposed Uniform Planned Community with all on-site improvements (streets, sewer, water, stormwater management facilities, open space, etc.) to be owned and maintained by a Planned Community Association.

17.) Linear feet of new streets: 1,630 LF

18.) Copy of all restrictions, covenants, etc. If any, under which lots are to be sold.

Attached ^{To be submitted}
under separate cover

None _____

19.) Statement fixing period requested for completion of all items in Paragraph 18 above:

To be determined

20.) Improvements to be made by applicant to subject land with approximate estimate of cost of each:

	<u>Unit Cost</u>	<u>No. of Units</u>	<u>Total</u>
a. Curbs.....			
b. Sidewalks.....			
c. Widening of Existing Streets.....			
d. Park Land.....			
e. Street Lighting.....			
f. Storm Drainage.....			
g. Water Supply & Fire Hydrants....			
h. Sewage Disposal.....			
i. Monuments.....			
j. Landscaping.....			
k. Etc.			

This information to be provided
prior to Final Plan Approval

21.) A copy of the description of the land as set forth in the deed shall be attached.

Signature of ^{Applicant}~~Owner~~ Brian D. McKenzie, VP

Date: 1/6/25

* Gross Area – area calculated to center of street

** Net Area – area calculated to the right of way. Net areas are to be used for density and land area requirements.

ERECTED INTO A TOWNSHIP IN 1733
TOWNSHIP OF WORCESTER
AT THE CENTER POINT OF MONTGOMERY COUNTY
PENNSYLVANIA

1721 Valley Forge Road
P.O. Box 767
Worcester, PA 19490

Phone (610) 584-1410
Fax (610) 584-8901

EXTENSION OF TIME

Date: 01-07-2025

Attn: Township Manager
Worcester Township
1721 Valley Forge Road
P.O. Box 767
Worcester, PA 19490

Dear Township Manager:

RE: SUBDIVISION PLAN/LAND DEVELOPMENT PLAN OF Trooper Ridge

On 01-07-2025, I (we) submitted the referenced plan for official filing.

Please be advised that notwithstanding any contrary provision of the Pennsylvania Municipalities Planning Code or the Worcester Township Subdivision and Land Development Ordinance, this letter will serve as notice to Worcester Township that the requirement that action be taken on this Plan within ninety (90) days, is hereby waived, without limitation as to time.

This waiver is granted to permit us to make such adjustments or revisions to the Plan as may be required during the Plan review process.

If we ever deem it necessary to limit the time of the subdivision or land development review process, we may revoke this extension of time in writing, sent certified mail, return receipt requested, and the Township shall be obligated to render a decision on our plans within sixty (60) days after the date on which the written revocation notice was received.

If the township determines that insufficient progress is being made towards concluding the subdivision or land development review process, the Township may revoke this extension of time in writing, sent regular mail and certified mail, return receipt requested. For purposes of this provision, the Township's written notice shall be deemed received, if sent regular mail and certified mail, on the date of the written receipt on the certified mail return receipt, or, three (3) days after the date indicated on the Township's notification letter in the event the certified mail is return as "refused", "unclaimed", or is otherwise returned without indication of receipt, if addressed as follows (or to a subsequent address specifically provided to the Township by us for the purpose of notice):

At any time sixty (60) days after our receipt of such notice from the Township, we understand that the Township may take (but shall not be obligated to take) such action with regard to our plans as the Township deems necessary and appropriate.

We further understand that nothing herein shall be construed to prevent us from offering, and the Township from accepting, additional extensions of time in the future, but neither party shall be obligated to do so by the terms of the Agreement.

Very truly yours,

By: Brian D. McKenzie, VP
Signature
Brian D. McKenzie, Vice President
Print Name, Title

Accepted by:

Date: _____

Chairman, Board of Supervisors

Attest:

Manager/Secretary

PRELIMINARY LAND DEVELOPMENT PLANS FOR TROOPER RIDGE SUBDIVISION

WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

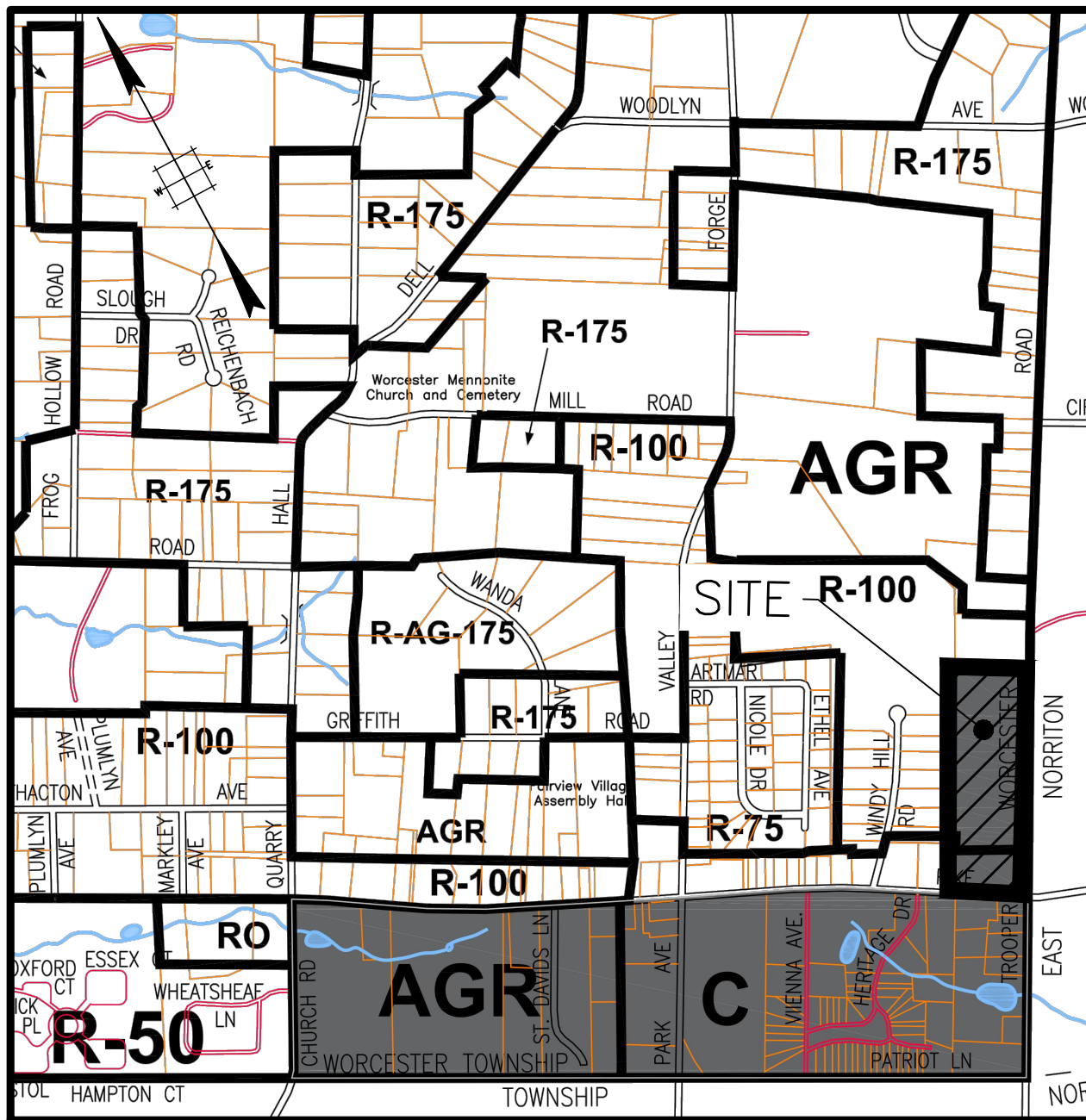
SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
1	COVER SHEET
2	LEGEND AND NOTES SHEET
3	EXISTING CONDITIONS PLAN
4	EXISTING RESOURCES PLAN
5	DEMOLITION PLAN
6	SITE PLAN
7	GRADING PLAN
8	UTILITY PLAN
9	DRAINAGE PLAN
10	LANDSCAPE & LIGHTING PLAN
11	EROSION AND SEDIMENT CONTROL PLAN
12	NATURAL RESOURCES PROTECTION PLAN
13	POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
14	STORM PROFILE-1
15	STORM PROFILE-2
16	STORM PROFILE-3
17	STORM PROFILE-4
18	SANITARY PROFILE-5
19	SANITARY PROFILE-6
20	ROAD PROFILE- CENTERLINE
21	ROAD PROFILE- NORTH LOOP
22	ROAD PROFILE- SOUTH LOOP
23	CONSTRUCTION SITE DETAILS-1
24	CONSTRUCTION SITE DETAILS-2
25	STORM SEWER DETAILS-1
26	STORM SEWER DETAILS-2
27	UTILITY DETAILS-1
28	UTILITY DETAILS-2
29	UTILITY DETAILS-3
30	LANDSCAPE DETAILS
31	LANDSCAPE SCHEDULE
32	EROSION AND SEDIMENT CONTROL DETAILS-1
33	EROSION AND SEDIMENT CONTROL DETAILS-2
34	EROSION AND SEDIMENT CONTROL DETAILS-3
35	POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS-1
36	POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS-2
37	FIRETRUCK TURNING TEMPLATE



CONTEXT MAP
SCALE: 1"=400'

LEGAL OWNER:

JAMES O'DONNELL
1035 TROOPER ROAD
NORRISTON, PA 19403



ZONING MAP
SCALE: 1"=1,000'

EQUITABLE OWNER/APPLICANT:

COMMERCIAL PURSUIT CAPITAL, LLC
1300 VIRGINIA DRIVE, SUITE 215
FORT WASHINGTON, PA 19034
(901) 755-4737

SITE & ADJACENT ZONING DISTRICT		
	DESIGNATION	ZONING CLASSIFICATION
	AGR	AGRICULTURAL
	R-175	RESIDENTIAL
	R-150	RESIDENTIAL
	R-100	RESIDENTIAL
	R-75	RESIDENTIAL
	R-50	RESIDENTIAL
	RO	RESIDENTIAL OFFICE
	R-AG-175	RESIDENTIAL AGRICULTURAL
	R-AG-200	RESIDENTIAL AGRICULTURAL
	C	COMMERCIAL
	LI	LIMITED INDUSTRIAL
	LPD	LAND PRESERVATION DISTRICT
	SC	SHOPPING CENTER
	MH	MOBILE HOME DEVELOPMENT
		MULTI-RESIDENTIAL USE OVERLAY DISTRICT
	AQRC	AGE QUALIFIED RESIDENTIAL COMMUNITY

WAIVERS REQUESTED

§129-18 - A PARTIAL WAIVER IS REQUESTED FROM THIS SECTION TO ALLOW FOR HDPE STORM PIPE IN LIEU OF CONCRETE

APPROVED

APPROVED THIS _____ DAY OF _____ 20____, BY THE BOARD OF SUPERVISORS OF
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

ATTEST: _____
SIGNATURE, CHAIRMAN

DATE SIGNED _____

SIGNATURE, SECRETARY

DATE SIGNED _____

(TOWNSHIP NOTARY SEAL) _____

REVIEWED

REVIEWED THIS _____ DAY OF _____, 20____, BY THE PLANNING COMMISSION OF
WORCESTER TOWNSHIP, MONTGOMERY COUNTY PA,

ATTEST: _____
SIGNATURE

DATE SIGNED _____

REVIEWED BY THE TOWNSHIP ENGINEER OF WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

TOWNSHIP ENGINEER: _____ DATE: _____

UTILITY USER LIST ACT NUMBER 287 OF 1974 AS AMENDED	
COMCAST 1250 HADDENFIELD-BERLIN RD CHERY HILL, NJ 08034 CONTACT: WYATT FARRISH EMAIL: WYATT_PARISH@CABLE.COMCAST.COM PHONE: 484-368-4391	PECO ENERGY C/O USIC LLC 450 S HENDERSON RD SUITE B KING OF PRUSSIA, PA 19406 CONTACT: NEKKIA SIMPKINS EMAIL: NIKKASIMP@NSUSCLLC.COM PHONE: 484-681-5720
MONTGOMERY COUNTY - PA 1. MONTGOMERY PLZ- ASST & INF-RD & BRG TO BOX 311 - SUITE 612 NORRISTOWN, PA. 19404 CONTACT: MORGAN ROUSCHER EMAIL: MORGAN.ROUSCHER@MONTGOMERYPA.GOV PHONE: 610-278-5173	VERIZON BUSINESS FORMERLY MCI 700 WESTON PKWY CARY, NC. 27513 CONTACT: VICTOR WOOD EMAIL: VICTOR.S.WOOD@VERIZON.COM PHONE: 919-414-2782
PENNSYLVANIA AMERICAN WATER 171 W JOHNSON HIGHWAY NORRISTOWN, PA 19401 CONTACT: SITI YEAKWOOD EMAIL: SITI.YEAKWOOD@AMWATER.COM PHONE: 610-292-3575	WORCESTER TOWNSHIP 1721 SOUTH VALLEY FORGE ROAD P.O. BOX 767 WORCESTER, PA 19490 CONTACT: ROBERT DHULSTER EMAIL: BDHULSTER@WORCESTERTWP.COM PHONE: 610-584-1410 EXT. 114

COMMONWEALTH OF PENNSYLVANIA, COUNTY OF MONTGOMERY:

ON THIS THE _____ DAY OF _____, 20_____, BEFORE ME, THE SUBSCRIBER, PERSONALLY APPEARED
COMMERCE PURSUIT CAPITAL, LP, AND THAT AS MUCH TO DO SO, HE/SHE EXECUTED THE FOREGOING PLAN BY SIGNING THE
NAME OF SAID CORPORATION BY HIMSELF/HERSELF AS _____, THAT THE SAID CORPORATION
IS THE OWNER OF THE DESIGNATED LAND, THAT ALL NECESSARY APPROVAL OF THE PLAN HAS BEEN OBTAINED AND
ENDORSED THEREON AND THAT THE SAID CORPORATION DESIRES THAT THE FOREGOING PLAN MAY BE DULY RECORDED.

BY: _____
OWNER
COMMERCE PURSUIT CAPITAL, LP


NOTARY PUBLIC

MY COMMISSION EXPIRES ON THIS _____ DAY OF _____, 20 ____.

CERTIFICATE OF CONFORMANCE – P.E.

I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE, THESE PLANS ARE IN CONFORMITY WITH
ENGINEERING, ZONING, BUILDING, SANITATION AND OTHER APPLICABLE TOWNSHIP ORDINANCES AND REGULATIONS.

CHRISTOPHER W. JENSEN, P.E.
LICENSE NO. PE076464



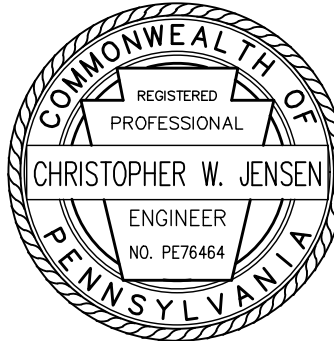
 ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR FIELD SURVEY. INSPECTION OF THE SITE COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 121 OF 2008. CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES PRIOR TO START OF WORK.

 SPECIAL NO.

2024337817

[illegible]

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER



12/19/2024
LICENSED PROFESSIONAL ENGINEER
STATE OF PA LICENSE No. PE076464

COMMERCE PURSUIT CAPITAL

TROOPER RIDGE SUBDIVISION
1035 NORTH TROOPER ROAD, WORCESTER TOWNSHIP,
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

COVER SHEET



1700 MARKET STREET, SUITE 3110
PHILADELPHIA, PA 19103
TEL 215-282-7850
FAX 215-627-3459

OFFICES LOCATED IN:
CALIFORNIA, INDIANA, KENTUCKY,
MASSACHUSETTS, MICHIGAN, NEW JERSEY,
OHIO AND PENNSYLVANIA

DESIGNED BY PK/CKS/CMR/ROP/ZHR	DRAWING CVR
CHECKED BY BGS/ZHR	SHEET 1 OF 37
DRAWN BY SCR/CKS/RAM	
DATE 12/19/2024	
SCALE AS NOTED	
PROJ. NO. WDEV00004	

PROJECT INFORMATION:
FILE PATH: G:\Projects\WDEV\00004\Plans\
FILE NAME: WDEV00004_CVR.dwg
LAST SAVED DATE AND TIME: 18 Dec 2024, 7:02PM
LAST SAVE BY: ShRoberts

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PROJECT INFORMATION:
FILE PATH: G:\Projects\WDEVA\0000A\Plans\
FILE NAME: WDEVA0000A-LEG.dwg
LAST SAVE BY: SJBorbits
LAST SAVE DATE: 17 Dec 2024, 6:01PM

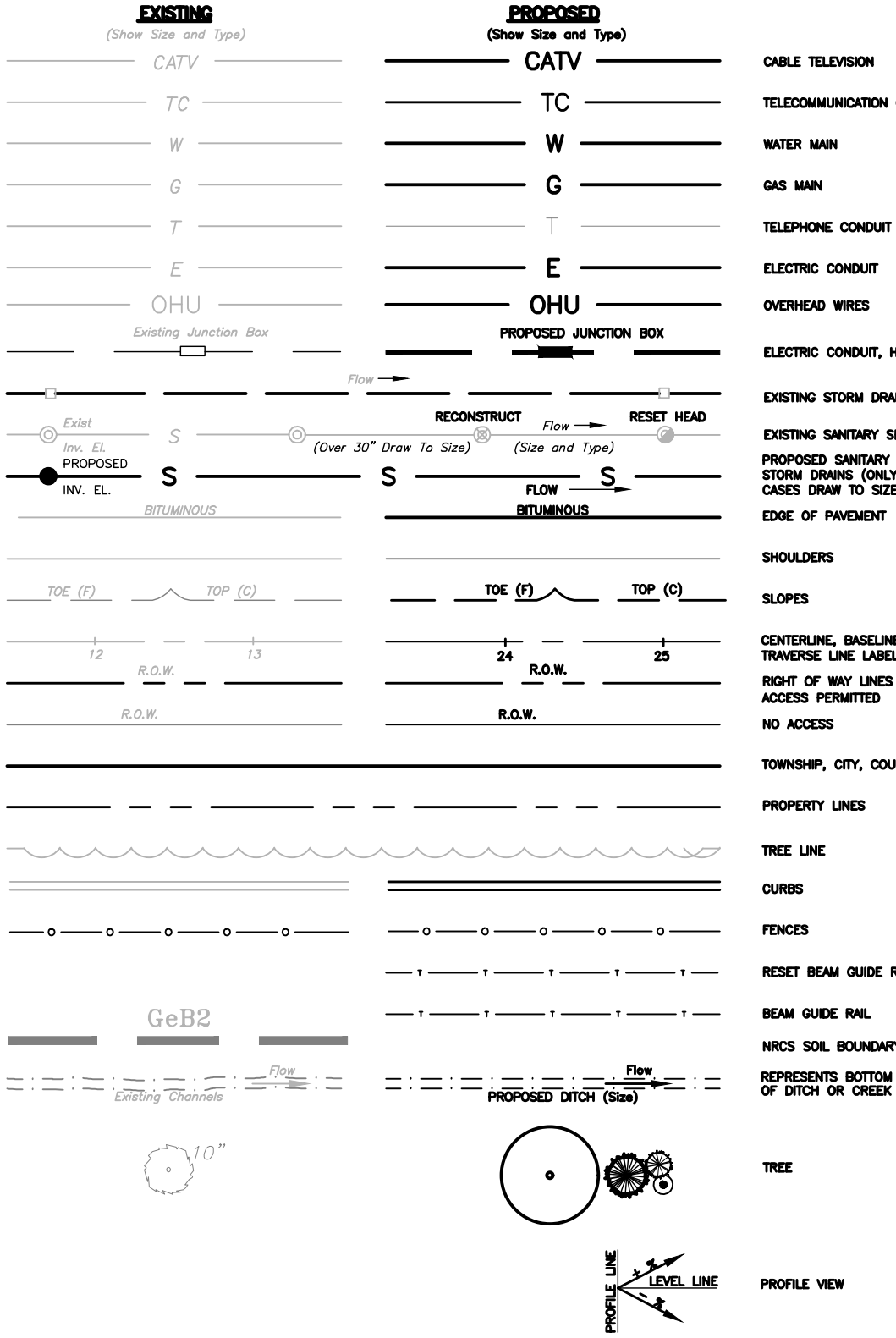
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ZONING DATA					
EXISTING ZONING DISTRICT CLASSIFICATION: R-100 AND C WITH MULTI-RESIDENTIAL USE OVERLAY DISTRICT (MR)					
EXISTING USE: ONE SINGLE-FAMILY DETACHED DWELLING					
PROPOSED USE: MULTI-FAMILY RESIDENTIAL					
ZONING REQUIREMENTS:					
ZONING (BY DISTRICT):					
	REQUIRED	PROPOSED	REQUIRED	PROPOSED	
MINIMUM LOT AREA	5.0 ACRES	11.82 ACRES	N/A	1.5 ACRES	
MINIMUM LOT WIDTH	300 FEET	958+ FEET	N/A		
MAXIMUM BUILDING COVERAGE	20%	14.00%	20%	6.3%	
MAXIMUM IMPERVIOUS COVERAGE	50%	30.12	40%	20.8%	
SETBACK BUFFER	75 FEET	75 FEET	N/A		
MINIMUM FRONT YARD SETBACK	N/A		75 FEET	0 FEET**	
MINIMUM SIDE YARD SETBACK	N/A		75 FEET	108 ± FEET	
MINIMUM REAR YARD SETBACK	N/A		75 FEET	135 ± FEET	
MAXIMUM BUILDING HEIGHT / STORIES	30 FEET / 2 STORIES	30 FEET*	N/A		
MAXIMUM BUILDING SIZE (LENGTH)	200 FEET	<200 FEET	N/A		
MAXIMUM ACCESSORY STRUCTURE SETBACK	N/A		10 FEET FROM REAR OR SIDE YARDS	25 FEET	
MAXIMUM DENSITY	4 UNITS PER NET ACRE (11.82 X 4 = 47 UNITS)	3.8 UNITS PER NET ACRE (45 UNITS)	N/A		
MINIMUM BUILDING TO BUILDING SEPARATE	30 FEET	30 FEET	N/A		
MINIMUM PARKING SETBACK FROM BOUNDARY	75 FEET	<75 FEET	N/A		
NUMBER PARKING SPACES PER UNIT	2 SPACES	4 SPACES**	N/A		
GUEST PARKING SPACES	0.53 SPACES PER UNIT	0.53 SPACES PER UNIT	N/A		
TRAIL SETBACK	40 FEET	40 FEET	N/A		
DETENTION BASIN SETBACK	25 FEET FROM PROPERTY LINES, 30 FEET FROM UNITS	25 FEET FROM PROPERTY LINES, 30 FEET FROM UNITS	N/A		
DETENTION BASIN MAX. % OF YARD AREA	<5%	<35%	N/A		
SCREEN PLANTING STRIP	20 FEET WIDE	20 FEET WIDE	N/A		
* - UNITS WILL HAVE BASEMENTS WITH A MAJORITY OF BASEMENT WALL AREA BELOW FINISHED GRADE					
** - EACH UNIT WILL HAVE A TWO CAR GARAGE AND TWO DRIVEWAY SPACES					
*** - EXISTING NON-CONFORMITY					

SITE STATISTICS

- APPLICANT:
COMMERCE PURSUIT CAPITAL, LLC
1300 VIRGINIA DRIVE #215
FORT WASHINGTON, PA 19034
- LEGAL OWNER:
JAMES O'DONNELL
1035 TROOPER ROAD
NORRISTOWN, PA 19403
- EXISTING PROPERTY IDENTIFICATION:
APN #: 67-00-01540-004
TRACT LOCATION:
1035 TROOPER ROAD,
NORRISTOWN, PA 19034
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA
- GROSS TRACT AREA:
15.11 ACRES

STANDARD LEGEND



GENERAL NOTES

- TWO HIGHWAY OCCUPANCY PERMITS (PENNDOT AND COUNTY) ARE REQUIRED FOR THIS PROJECT BEFORE ACCESS IS GRANTED TO THE (PENNDOT) STATE ROAD (SR3002) AND THE COUNTY ROAD (WEST GERMANTOWN PIKE)
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS, SPECIFICATIONS, AND REFERENCED DOCUMENTS ASSOCIATED WITH THE PROJECT NOT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT OR DISCREPANCY WITH THE DRAWINGS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER IMMEDIATELY IN WRITING PRIOR TO THE START OF CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE CONSTRUCTION MEETS ALL APPLICABLE CODE REQUIREMENTS.
- ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVEGROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UTILITIES SHOWN IN UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF THE PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974, AS AMENDED BY ACT 181 OF 2006, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. PA LAW REQUIRES THREE WORKING DAYS NOTICE FOR CONSTRUCTION PHASE. CALL THE PA ONE CALL SYSTEM AT 1-800-242-1776. SERIAL NO. 20243371817 WAS PLACED FOR DESIGN PURPOSES ONLY.
- PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BE INITIATED UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED ALL PLANS AND OTHER DOCUMENTS BY ALL OF THE PERMITTING AUTHORITIES.
- ALL PROPOSED IMPROVEMENTS SHALL COMPLY WITH "THE AMERICAN DISABILITIES ACT," "ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES," AND "THE PENNSYLVANIA UNIVERSAL ACCESSIBILITY ACT".
- THIS PLAN SHALL NOT BE USED FOR BUILDING STAKEOUT PURPOSES. PROPOSED BUILDING LOCATION AS DEPICTED IS WITHIN ACCEPTABLE TOLERANCES FOR SITE WORK ONLY. PLEASE REFER TO ARCHITECTURAL/STRUCTURAL PLANS FOR EXACT BUILDING PLACEMENT.
- THE BUILDING FOOTPRINTS DEPICTED HEREON HAVE BEEN TRANSPOSED FROM ARCHITECTURAL PLANS. FINAL BUILDING DIMENSIONS MAY VARY SLIGHTLY FROM THOSE DEPICTED HEREON BUT SHALL ULTIMATELY COMPLY WITH ALL APPLICABLE ZONING SETBACKS, IMPERVIOUS SURFACE COVERAGE RATIOS, ETC. CONTRACTOR SHALL NOTIFY PROJECT ENGINEER IF FINAL BUILDING FOOTPRINTS SUBSTANTIALLY VARY FROM THE FOOTPRINTS HEREON.
- CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH PENNDOT "PUBLICATION 408", LATEST EDITION, MUNICIPAL STANDARDS AND SPECIFICATIONS, AND UTILITY AUTHORITY/CO. STANDARDS AND SPECIFICATIONS, WHICHEVER ARE MORE RESTRICTIVE.
- SIGNED/SEALED STRUCTURAL DESIGN CALCULATIONS AND CONSTRUCTION DETAILS OF PROPOSED RETAINING WALL(S) SHALL BE SUBMITTED BY THE CONTRACTOR TO THE PROJECT ENGINEER AND MUNICIPALITY FOR APPROVAL PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS AND COMPLETE ALL WORK INDICATED OR IMPLIED ON THE PROJECT PLANS AND/OR SPECIFICATIONS THAT ARE NOT EXISTING ON THE PROJECT SITE AND THAT ARE NOT SPECIFICALLY NOTED AS "FUTURE" OR "NOT IN CONTRACT (NOC)," "BY OTHERS," "BY OTHER CONTRACTORS," "BY EC," "BY PC," "BY MC".
- THE CONTRACTOR SHALL BE FAMILIAR WITH AND RESPONSIBLE FOR ANY/ALL CERTIFICATIONS, INSPECTIONS, ETC. REQUIRED BY ALL GOVERNING JURISDICTIONAL AGENCIES DURING AND AFTER CONSTRUCTION FOR SIGN-OFF AND CERTIFICATE OF OCCUPANCY ISSUANCE INCLUDING BUT NOT LIMITED TO PROCUREMENT OF SERVICES, SCHEDULING OF FIELD OBSERVATIONS AND COORDINATION WITH REPRESENTATIVES OF THE APPROPRIATE PARTIES. CONTRACTOR IS RESPONSIBLE TO COORDINATE CERTIFICATIONS, SIGN-OFFS, ETC. NECESSARY FOR JOB CLOSEOUT AND ISSUANCE OF CERTIFICATE OF OCCUPANCY.
- THE GEOTECHNICAL REPORT AND RECOMMENDATIONS SET FORTH THEREIN ARE A PART OF THE REQUIRED CONSTRUCTION DOCUMENTS AND IN CASE OF CONFLICT SHALL TAKE PRECEDENCE UNLESS SPECIFICALLY NOTED OTHERWISE ON THE PLANS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING OF ANY SUCH DISCREPANCY BETWEEN GEOTECHNICAL REPORT AND PLANS, ETC.
- THE PROPERTY SURVEY AS CERTIFIED SHALL BE CONSIDERED A PART OF THESE PLANS.
- THESE PLANS ARE BASED ON INFORMATION PROVIDED TO OUR OFFICE AT THE TIME OF PLAN PREPARATION. CONTRACTOR SHALL VERIFY ALL INFORMATION, CONDITIONS AND NOTIFY THE ENGINEER IN WRITING IF ACTUAL SITE CONDITIONS DIFFER FROM THAT SHOWN ON THE PLAN, OR IF THE PROPOSED WORK WOULD BE INHIBITED BY ANY OTHER EXISTING SITE FEATURES.
- ALL DIMENSIONS SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING IF ANY DISCREPANCIES EXIST PRIOR TO THE INITIATION OF CONSTRUCTION. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK DUE TO DISCREPANCIES OR CONFLICTS ON THE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN PRIOR TO THE START OF WORK AND MATERIALS PROCUREMENT.
- ADA RAMPS ARE SHOWN WITH RAMP TYPE.
- THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL/MEFP PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF ENTRY/EXIT POINTS, ELEVATIONS, PRECISE BUILDING DIMENSIONS, EXACT BUILDING UTILITY SERVICE LOCATIONS AND SITE ELECTRICAL DESIGN.
- DEBRIS SHALL NOT BE BURIED ON THE SUBJECT SITE. ALL EXCAVATED MATERIAL AND DEBRIS (SOLID WASTE) SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, COUNTY, STATE AND FEDERAL LAWS AND APPLICABLE CODES. CONTRACTOR SHALL PROPERLY REMOVE AND DISPOSE OF HAZARDOUS/UNSUITABLE MATERIAL IN ACCORDANCE WITH ALL APPLICABLE CODES, ORDINANCES AND LAWS.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL SHORING REQUIRED DURING EXCAVATION AND SHALL BE PERFORMED IN ACCORDANCE WITH CURRENT OSHA STANDARDS, AS WELL AS ANY ADDITIONAL REQUIREMENTS OF THE STATE OF PENNSYLVANIA. CONTRACTOR SHALL PROVIDE MATERIALS TO WITHIN THE LIMITS OF DISTURBANCE IN ACCORDANCE WITH DIRECTION BY OWNER'S GEOTECHNICAL ENGINEER.
- EXPLOSIVES SHALL NOT BE USED WITHOUT PRIOR WRITTEN CONSENT OF THE OWNER. ALL THE REQUIRED PERMITS AND EXPLOSIVE CONTROL MEASURES THAT ARE REQUIRED BY THE FEDERAL, STATE, AND LOCAL GOVERNMENTS SHALL BE IN PLACE PRIOR TO STARTING AN EXPLOSIVE PROGRAM. THE CONTRACTOR IS ALSO RESPONSIBLE FOR ALL INSPECTION AND SEISMIC VIBRATION TESTING THAT IS REQUIRED TO MONITOR THE EFFECTS ON ALL LOCAL STRUCTURES.
- CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL AND GENERALLY ACCEPTED SAFE PRACTICES IN CONFORMANCE WITH: THE "MANUAL ON UNIFORM TRAFFIC CONTROL," AS WELL AS FEDERAL, STATE, AND LOCAL REGULATIONS WHEN DEMOLITION RELATED ACTIVITIES IMPACT ROADWAYS OR ROADWAY RIGHT-OF-WAYS.
- CONDUCT DEMOLITION ACTIVITIES IN SUCH A MANNER TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, SIDEWALKS, WALKWAYS, AND OTHER ADJACENT FACILITIES. STREET CLOSURE PERMITS MUST BE RECEIVED FROM THE APPROPRIATE GOVERNMENTAL AUTHORITY.
- DEMOLITION ACTIVITIES AND EQUIPMENT SHALL NOT USE AREAS OUTSIDE THE DEFINED PROPERTY LINES, WITHOUT WRITTEN PERMISSION OF THE OWNER, AND/OR APPROPRIATE GOVERNMENT AGENCY.
- USE DUST CONTROL MEASURES TO LIMIT THE AMOUNT OF AIRBORNE DUST AND DIRT RISING AND SCATTERING IN THE AIR TO WITHIN FEDERAL, STATE, AND/OR LOCAL STANDARDS. AFTER THE DEMOLITION IS COMPLETE, ALL EXISTING STRUCTURES AND IMPROVEMENTS SHALL BE CLEANED OF ALL DUST AND DEBRIS CAUSED BY THE DEMOLITION OPERATIONS. THE CONTRACTOR IS RESPONSIBLE FOR RETURNING ALL ADJACENT AREAS TO THEIR "PRE-DEMOLITION" CONDITION.
- THE DEMOLITION CONTRACTOR IS RESPONSIBLE TO SAFEGUARD SITE AS NECESSARY TO PERFORM THE DEMOLITION IN SUCH A MANNER AS TO PREVENT THE UNAUTHORIZED ENTRY OF PERSONS AT ANY TIME.
- THIS DEMOLITION PLAN IS INTENDED TO IDENTIFY THOSE EXISTING ITEMS/CONDITIONS WHICH ARE TO BE REMOVED. IF IT IS NOT INTENDED TO PROVIDE DIRECTION OTHER THAN THAT ALL METHODS AND MEANS ARE TO BE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS AND REQUIREMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OSHA AND OTHER SAFETY PRECAUTIONS NECESSARY TO PROVIDE A SAFE WORK SITE.
- THE DEMOLITION CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS OF DAMAGE TO ALL ITEMS THAT ARE TO REMAIN AS A RESULT OF HIS ACTIVITIES. ALL REPAIRS SHALL USE NEW MATERIAL. THE REPAIRS SHALL RESTORE THE ITEM TO THE PRE-DEMOLITION CONDITION.
- DEBRIS SHALL NOT BE BURIED ON THE SUBJECT SITE. ALL EXCAVATED MATERIAL AND DEBRIS (SOLID WASTE) SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, COUNTY, STATE, AND FEDERAL LAWS AND APPLICABLE CODES. CONTRACTOR SHALL PROPERLY REMOVE AND DISPOSE OF HAZARDOUS/UNSUITABLE MATERIAL IN ACCORDANCE WITH ALL APPLICABLE CODES, ORDINANCES, AND LAWS.
- T&M ASSOCIATES SHALL REVIEW AND COMMENT OR TAKE OTHER APPROPRIATE ACTION ON THE CONTRACTOR SUBMITTALS, SUCH AS SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND OTHER DATA, WHICH THE CONTRACTOR IS REQUIRED TO SUBMIT, BUT ONLY FOR THE LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH THE DESIGN CONCEPT AND THE INFORMATION SHOWN ON THE CONSTRUCTION MEANS OR METHODS. COORDINATION OF THE WORK WITH OTHER TRADES AND CONSTRUCTION SAFETY PRECAUTIONS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. T&M ASSOCIATES' REVIEW SHALL BE CONDUCTED WITH REASONABLE

- PROFESSORSHIP WHILE ALLOWING SUFFICIENT TIME TO PERMIT ADEQUATE REVIEW. REVIEW OF A SPECIFIC ITEM SHALL NOT INDICATE THAT T&M ASSOCIATES HAS REVIEWED THE ENTIRE ASSEMBLY OF WHICH THE ITEM IS A COMPONENT. T&M ASSOCIATES SHALL NOT BE RESPONSIBLE FOR ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS NOT BROUGHT TO THE ATTENTION OF T&M IN WRITING BY THE CONTRACTOR. T&M ASSOCIATES SHALL NOT BE REQUIRED TO REVIEW PARTIAL SUBMITTALS OR THOSE FOR WHICH SUBMISSIONS OR CORRELATED ITEMS HAVE NOT BEEN RECEIVED.
- THIS SHEET IS PART OF A LAND DEVELOPMENT PLAN SET ON RECORD AT THE MUNICIPALITY OF JURISDICTION.
- ALL CURB RADII SHALL BE MIN. 5' UNLESS OTHERWISE NOTED OR DIMENSIONED.
- AN AS-BUILT PLAN SHALL BE PREPARED FOR THE PROJECT INDICATING ACTUAL LOCATIONS, DIMENSIONS, AND ELEVATIONS OF ALL COMPLETED IMPROVEMENTS. THE PLAN SHALL BE PREPARED BY A PROFESSIONAL SURVEYOR REGISTERED IN THE STATE OF PENNSYLVANIA AND CERTIFIED BY THE ENGINEER WHO PREPARED THE FINAL PLAN. THE AS-BUILT PLAN SHALL BE FILED WITH THE TOWNSHIP NO LATER THAN NINETY (90) DAYS AFTER THE DATE OF SUBSTANTIAL COMPLETION OF THE DEVELOPMENT.
- THE OWNER/EQUITABLE OWNER OF THE PROPERTIES WILL BE RESPONSIBLE FOR THE ONGOING INSPECTIONS, OPERATION, REPAIR, AND MAINTENANCE OF THE STORMWATER MANAGEMENT BMP'S AND CONVEYANCE SYSTEMS AFTER COMPLETION OF CONSTRUCTION.
- A BLANKET STORMWATER MANAGEMENT EASEMENT OVER THE ENTIRE SITE IS PROPOSED TO BE GRANTED TO THE TOWNSHIP TO ALLOW LEGAL ACCESS AND MAINTENANCE VEHICLE ACCESS FOR MAINTENANCE OF ALL STORMWATER MANAGEMENT FACILITIES SHOULD THE NEED ARISE.
- ALL PROPOSED PEDESTRIAN FACILITIES WITHIN THE SITE AND WITHIN THE PUBLIC RIGHT-OF-WAY (INCLUDING CURB RAMPS AND PEDESTRIAN ACCESS ROUTES) SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE U.S. ACCESS BOARD, PUBLIC RIGHT-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG) OF THE ACCESSIBILITY GUIDELINES OF BUILDINGS AND FACILITIES (ADAAG), PENNDOT DESIGN MANUAL PART 2, CHAPTER 6, AND PENNDOT STANDARDS FOR ROADWAY CONSTRUCTION (PUBLICATION 72M, RC 67M), UNLESS SPECIFIED OTHERWISE THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO INSTALLATION.
- WORK ON SITE IS ALLOWED FROM 7AM TO 7PM, MONDAY THROUGH SATURDAY. NO WORK IS ALLOWED ON SUNDAY. WORK HOURS WILL BE STRICTLY ENFORCED BY THE TOWNSHIP.
- FIRE SPRINKLER SYSTEMS ARE PROPOSED TO BE INSTALLED WITHIN THE MULTI-FAMILY BUILDINGS

GENERAL DEMOLITION NOTES

- ALL DEMOLITION ACTIVITIES ARE TO BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AS WELL AS ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS. ANY DISCREPANCIES OR DEVIATIONS IDENTIFIED BY THE CONTRACTOR SHALL BE REPORTED TO THE ENGINEER IN WRITING FOR RESOLUTION PRIOR TO INITIATION OF ACTIVITY.
- THE FIRM OR ENGINEER OF RECORD IS NOT RESPONSIBLE FOR JOB SITE SAFETY OR SUPERVISION. CONTRACTOR IS TO PROCEED WITH THE DEMOLITION IN A SYSTEMATIC AND SAFE MANNER, FOLLOWING ALL THE OSHA STANDARDS, REQUIREMENTS AND OTHER FEDERAL, STATE, AND LOCAL REGULATIONS, TO ENSURE THE PUBLIC AND CONTRACTOR SAFETY.
- PRIOR TO STARTING ANY DEMOLITION, CONTRACTOR IS RESPONSIBLE FOR/TO:
 - ENSURE COPIES OF ALL PERMITS AND APPROVALS ARE ON SITE FOR REVIEW.
 - THE REQUIRED SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE PRIOR TO SITE DISTURBANCE.
 - ALL EXISTING UTILITIES AND SERVICES, INCLUDING BUT NOT LIMITED TO GAS, WATER, ELECTRIC, SANITARY AND STORM SEWER, TELEPHONE, CABLE, FIBER OPTIC CABLE, ETC. WITHIN THE LIMITS OF DISTURBANCE, SHALL BE VERTICALLY AND HORIZONTALLY LOCATED. THE CONTRACTOR SHALL USE AND COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY NOTIFICATION SYSTEM TO LOCATE ALL THE UNDERGROUND UTILITIES.
 - PROTECT AND MAINTAIN IN OPERATION, ALL ACTIVE SYSTEMS THAT ARE NOT BEING REMOVED DURING DEMOLITION ACTIVITIES.
 - FAMILIARIZE THEMSELVES WITH THE APPLICABLE UTILITY SERVICE PROVIDER REQUIREMENTS AND IS RESPONSIBLE FOR ALL COORDINATION REGARDING UTILITY DEMOLITION AND RELOCATION AS IDENTIFIED OR REQUIRED FOR PROJECT. THE CONTRACTOR SHALL PROVIDE THE OWNER WRITTEN NOTIFICATION THAT THE EXISTING UTILITIES AND SERVICES HAVE BEEN TERMINATED AND ABANDONED IN ACCORDANCE WITH JURISDICTION AND UTILITY COMPANY REQUIREMENTS.
 - COORDINATE WITH UTILITY COMPANIES AND TOWNSHIP REGARDING WORKING "OFF-PEAK" HOURS OR ON WEEKENDS AS MAY BE REQUIRED TO MINIMIZE THE IMPACT OF THE AFFECTED PARTIES.
 - ANY AND ALL CONTAMINANTS SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS. DOCUMENTATION OF ANY AND ALL ENVIRONMENTAL WORK INCLUDING HAZARDOUS MATERIAL, SOLS, ASBESTOS, OR OTHER WORK REFERENCED OR IMPLIED HEREIN IS SOLELY THE RESPONSIBILITY OF THE OWNER'S ENVIRONMENTAL CONSULTANT.
- THE CONTRACTOR SHALL PROVIDE ALL THE "MEANS AND METHODS" NECESSARY TO PREVENT MOVEMENT, SETTLEMENT, OR COLLAPSE OF EXISTING STRUCTURES AND ANY OTHER IMPROVEMENTS TO REMAIN ON OR OFF SITE.
- IN ABSENCE OF WRITTEN SPECIFICATION, THE CONTRACTOR SHALL PERFORM EARTH MOVING ACTIVITIES, DEMOLITION AND REMOVAL OF ALL FOUNDATION MATERIALS, AND OTHER MATERIALS WITHIN THE LIMITS OF DISTURBANCE IN ACCORDANCE WITH DIRECTION BY OWNER'S GEOTECHNICAL ENGINEER.
- EXPLOSIVES SHALL NOT BE USED WITHOUT PRIOR WRITTEN CONSENT OF THE OWNER. ALL THE REQUIRED PERMITS AND EXPLOSIVE CONTROL MEASURES THAT ARE REQUIRED BY THE FEDERAL, STATE, AND LOCAL GOVERNMENTS SHALL BE IN PLACE PRIOR TO STARTING AN EXPLOSIVE PROGRAM. THE CONTRACTOR IS ALSO RESPONSIBLE FOR ALL INSPECTION AND SEISMIC VIBRATION TESTING THAT IS REQUIRED TO MONITOR THE EFFECTS ON ALL LOCAL STRUCTURES.
- CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL AND GENERALLY ACCEPTED SAFE PRACTICES IN CONFORMANCE WITH: THE "MANUAL ON UNIFORM TRAFFIC CONTROL," AS WELL AS FEDERAL, STATE, AND LOCAL REGULATIONS WHEN DEMOLITION RELATED ACTIVITIES IMPACT ROADWAYS OR ROADWAY RIGHT-OF-WAYS.
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- USE DUST CONTROL MEASURES TO LIMIT THE AMOUNT OF AIRBORNE DUST AND DIRT RISING AND SCATTERING IN THE AIR TO WITHIN FEDERAL, STATE, AND/OR LOCAL STANDARDS. AFTER THE DEMOLITION IS COMPLETE, ALL EXISTING STRUCTURES AND IMPROVEMENTS SHALL BE CLEANED OF ALL DUST AND DEBRIS CAUSED BY THE DEMOLITION OPERATIONS. THE CONTRACTOR IS RESPONSIBLE FOR RETURNING ALL ADJACENT AREAS TO THEIR "PRE-DEMOLITION" CONDITION.
- THE DEMOLITION CONTRACTOR IS RESPONSIBLE TO SAFEGUARD SITE AS NECESSARY TO PERFORM THE DEMOLITION IN SUCH A MANNER AS TO PREVENT THE UNAUTHORIZED ENTRY OF PERSONS AT ANY TIME.
- THIS DEMOLITION PLAN IS INTENDED TO IDENTIFY THOSE EXISTING ITEMS/CONDITIONS WHICH ARE TO BE REMOVED. IF IT IS NOT INTENDED TO PROVIDE DIRECTION OTHER THAN THAT ALL METHODS AND MEANS ARE TO BE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS AND REQUIREMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OSHA AND OTHER SAFETY PRECAUTIONS NECESSARY TO PROVIDE A SAFE WORK SITE.
- THE DEMOLITION CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS OF DAMAGE TO ALL ITEMS THAT ARE TO REMAIN AS A RESULT OF HIS ACTIVITIES. ALL REPAIRS SHALL USE NEW MATERIAL. THE REPAIRS SHALL RESTORE THE ITEM TO THE PRE-DEMOLITION CONDITION.
- DEBRIS SHALL NOT BE BURIED ON THE SUBJECT SITE. ALL EXCAVATED MATERIAL AND DEBRIS (SOLID WASTE) SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, COUNTY, STATE, AND FEDERAL LAWS AND APPLICABLE CODES. CONTRACTOR SHALL PROPERLY REMOVE AND DISPOSE OF HAZARDOUS/UNSUITABLE MATERIAL IN ACCORDANCE WITH ALL APPLICABLE CODES, ORDINANCES, AND LAWS.

GRADING NOTES

- VERTICAL DATUM IS NAVD 1988 AND ESTABLISHED BY OBSERVATIONS REFERENCED TO THE NSS CORS NETWORK.
- THE MINIMUM SLOPE IN GRASSED AREAS SHALL NOT BE LESS THAN 2% AND THE MINIMUM IN PAVED AREAS SHOULD NOT BE LESS THAN 1%.
- RUNOFF FROM IMPERVIOUS AREAS SHALL NOT BE DIRECTED INTO THE SANITARY SEWER OR INTO ADJACENT PROPERTIES.
- WALLS IN EXCESS OF 30" IN HEIGHT REQUIRE A SAFETY FENCE A MINIMUM OF 42" IN HEIGHT. REFER TO DETAIL SHEETS.
- PAVEMENT SHALL BE SAW CUT IN STRAIGHT LINES TO THE FULL DEPTH OF THE EXISTING PAVEMENT. ALL DEBRIS FROM REMOVAL OPERATIONS SHALL BE REMOVED FROM THE SITE AT THE TIME OF EXCAVATION. STOCKPILING OF DEBRIS WILL NOT BE PERMITTED.
- IN CASE OF DISCREPANCIES BETWEEN PLANS, THE SITE / RECORD PLAN WILL SUPERSEDE IN ALL CASES. THE ENGINEER OF RECORD MUST BE IMMEDIATELY NOTIFIED IN WRITING OF ANY CONFLICTS.
- THE CONTRACTOR SHALL BE REQUIRED TO SECURE ALL NECESSARY PERMITS (INCLUDING DEP. ETC.) FOR ALL OFF-SITE AND/OR BORROW SITES. CONTRACTOR SHALL SUPPLY A COPY OF APPROVALS TO DESIGN ENGINEER AND OWNER PRIOR TO INITIATING WORK.
- EXISTING INLETS AND STORM SEWER INDICATED AS FILLED W/DEBRIS SHALL BE CLEANED AND FLUSHED. NEW INLETS AND PIPES SHALL BE CHECKED FOR SILT/DEBRIS AFTER CONSTRUCTION AND FLUSHED/CLEANED IF NECESSARY.
- DEPTH OF EXISTING UTILITIES IN PORTIONS OF THE SITE ARE UNKNOWN. WHERE EXISTING UTILITIES ARE TO REMAIN AND ARE FOUND TO HAVE INADEQUATE GROUND COVER AFTER FINAL PROPOSED GRADES HAVE BEEN ESTABLISHED, THE CONTRACTOR SHALL BE CONTACTED IMMEDIATELY AND PRIOR TO FURTHER CONSTRUCTION ACTIVITIES IN THE AREA OF SAID CONFLICT.
- ALL DESIGNERS AND CONTRACTORS UTILIZING THIS PLAN AND THE INFORMATION CONTAINED THEREON ARE CAUTIONED TO COMPLY WITH THE REQUIREMENTS OF PENNSYLVANIA ACT 287. LOCATION OF EXISTING AND PROPOSED UNDERGROUND UTILITIES AND FACILITIES SHOWN ON THE DRAWINGS HAVE BEEN DEVELOPED FROM INFORMATION MADE AVAILABLE. COMPLETENESS AND ACCURACY OF LOCATION AND DEPTH OF UTILITIES AND FACILITIES CANNOT BE GUARANTEED. THE CONTRACTOR IS TO VERIFY THE DEPTH AND LOCATION OF ALL UTILITIES AND FACILITIES BEFORE THE START OF WORK. UTILIZE HAND EXCAVATION AS REQUIRED. WORK IS ALSO TO BE DONE IN ACCORDANCE WITH THE STANDARDS OF THE UTILITY COMPANIES WHOSE FACILITIES ARE IN THE PROXIMITY OF THE WORK. OTHER UTILITIES MAY BE ENCOUNTERED DURING CONSTRUCTION. THE CONTRACTOR SHALL CONTACT THE PENNSYLVANIA ONE CALL SYSTEM AT 1-800-242-1776, AT LEAST 3 DAYS PRIOR TO EXCAVATION.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE FEDERAL, STATE AND LOCAL CODES, AND ALL REGULATIONS APPURTENANT TO THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENTLY APPLICABLE OSHA STANDARDS AND REQUIREMENTS. WHERE ANY STANDARDS SEEM IN CONFLICT WITH THESE DRAWINGS, NOTIFY THE DESIGN ENGINEER AND CONSTRUCTION MANAGER FOR DIRECTION PRIOR TO PROCEEDING WITH WORK.
- CONTRACTORS SHALL HAVE ALL REQUIRED SUBMITTAL APPROVALS PRIOR TO BEGINNING WORK OR ORDERING MATERIALS.
- CONTRACTORS SHALL VERIFY ALL DIMENSIONS, INVERTS, ELEVATIONS, AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH THE WORK OR PROCUREMENT OF MATERIALS. VARIATIONS BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND RESOLVED PRIOR TO PROCEEDING WITH THE WORK.
- CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY, PROCEDURES, MEANS AND METHODS, SEQUENCING, AND COORDINATION.
- ALL WORK SHALL BE PERFORMED BY QUALIFIED, EXPERIENCED PERSONNEL.
- CONTRACTOR SHALL NOTIFY THE OWNER OF PREEXISTING CONDITIONS OF DETEIORATION IN AREAS OF WORK THAT ARE UNCOVERED OR EXPOSED DURING THE WORK.
- FIELD CHANGES REQUIRE PRIOR DESIGN ENGINEERING REVIEW AND WRITTEN CONFIRMATION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR TO ANY SIDEWALKS, LAWN, TREES, PAVING, AND OTHER IMPROVEMENTS DISTURBED OR DAMAGED BY DEMOLITION ACTIVITIES PROPOSED HEREIN.
- CONTRACTOR SHALL PROVIDE PROPER TEMPORARY BRACING AND SHORING OF ALL CONSTRUCTION TO REMAIN OR DEMOLITION WORK IN PROGRESS.
- CONTRACTOR SHALL PROVIDE LAYOUT, LINE AND GRADE UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL NOTIFY THE OWNER OF ANY DISCREPANCIES WITHIN THE DRAWINGS, SPECIFICATIONS, CODES OR STANDARDS FOR CORRECTIVE ACTION PRIOR TO START OF WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND PROTECTION OF VEHICULAR AND PEDESTRIAN TRAFFIC. ALL TRAFFIC CONTROL MEASURES SHALL BE IN ACCORDANCE WITH LOCAL, PENNDOT & OSHA REGULATIONS.
- CONTRACTOR SHALL PROVIDE PROTECTION FOR EXISTING UTILITIES UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL IMMEDIATELY REPAIR ANY UTILITY LINE INTERRUPTION AT NO ADDITIONAL CONTRACT COST. THE CONTRACTOR SHALL PROVIDE ADEQUATE PROTECTION AND SUPPORT FOR ALL UTILITIES EXPOSED DURING THE WORK TO INSURE AGAINST DAMAGE AT NO ADDITIONAL COST.
- CONTRACTOR SHALL PROVIDE TEMPORARY DEWATERING OF EXCAVATIONS THROUGHOUT THE DURATION OF CONTRACT AT NO ADDITIONAL COST.
- EXISTING UTILITIES SHOWN ARE BASED ON AVAILABLE DATA. DUE TO THE POTENTIAL LACK OF COMPLETE OR ACCURATE DATA REGARDING EXISTING ONSITE AND OFFSITE UTILITIES, THE CONTRACTOR SHALL ASSESS AVAILABLE DATA, SHALL CONDUCT HAND EXCAVATIONS AND FIELD VERIFICATION OF EXISTING UTILITIES. THE CONTRACTOR SHALL COORDINATE WITH AFFECTED UTILITY COMPANIES, AND SHALL DIG TEST PITS AT ALL PROPOSED UTILITY CROSSING LOCATIONS SO THAT ELEVATIONS CAN BE TAKEN TO ASSESS POTENTIAL CONFLICTING PIPE UTILITIES PRIOR TO ANY PROPOSED UTILITY CONSTRUCTION. IF UNEXPECTED UTILITY LOCATIONS OR ELEVATIONS OR PIPE CONFLICTS ARE ENCOUNTERED DURING CONSTRUCTION, OR IF TEST PITS REVEAL POTENTIAL CONFLICT, DESIGN ENGINEER SHALL BE NOTIFIED SO THAT ELEVATIONS AND LOCATION (WHERE NECESSARY) OF AFFECTED UTILITIES CAN BE OBTAINED TO FACILITATE NECESSARY DESIGN ADJUSTMENTS.
- REMOVAL OF EXISTING UTILITIES SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANIES.
- REFER TO THE SITE / RECORD PLAN FOR ADDITIONAL NOTES.
- ALL SIDEWALKS, CROSSWALK, TRAILS, ENTRANCES, AND RAMPS TO BE BUILT IN ACCORDANCE WITH ADA STANDARDS. MAXIMUM LONGITUDINAL SLOPE TO BE 5%. MAXIMUM CROSS SLOPE TO BE 2%. IT IS RECOMMENDED TO ADDITIONAL CROSS SLOPES AT 1.5% AND LONGITUDINAL SLOPES AT 4.9% TO ALLOW FOR CONSTRUCTION TOLERANCE.
- REFER TO ADA CURB RAMP CONSTRUCTION DETAILS AND ADA ACCESSIBILITY PLAN FOR ADDITIONAL INFORMATION SPECIFIC TO CURB RAMP AND ACCESSIBLE ROUTE GRADING.

PLACEMENT OF FILL NOTES:

- BACKFILLING, TO THE SUBGRADE ELEVATION, SHALL BE DONE IN LAYERS OF SIX (6) TO EIGHT (8) INCHES AND EACH LAYER SHALL BE THOROUGHLY TAMPED BY AN APPROVED MECHANICAL TAMPER TO A MINIMUM DENSITY OF 95% AT OPTIMUM MOISTURE AS DETERMINED BY ASTM D-698 OR AASHTO T-99 WITH SUITABLE BACKFILL MATERIAL. BACKFILLING OR TAMPING WITH TRENCHING MACHINES IS PROHIBITED.
- THE FILL MATERIAL SHALL CONTAIN THE PROPER MOISTURE CONTENT TO OBTAIN THE REQUIRED COMPACTION. WETTING OR DRYING OF THE MATERIAL OR ANY OTHER MANIPULATION SHALL BE REQUIRED TO SECURE UNIFORM MOISTURE CONTENT THROUGHOUT THE LAYER. IF THE MATERIAL IS TOO WET TO PERMIT PROPER COMPACTION, ALL WORK ON PORTIONS THUS AFFECTED SHALL BE DELAYED UNTIL THE WET MATERIAL HAS EITHER DRIED TO THE MOISTURE CONTENT OR HAS BEEN REMOVED. LAYER SHALL NOT BE ADDED UNTIL THE PREVIOUS LAYER HAS ATTAINED THE REQUIRED PERCENT COMPACTION.
- SUITABLE BACKFILL MATERIAL IS MATERIAL CONTAINING NO DEBRIS, ORGANIC MATTER, FROZEN MATERIAL, OR LARGE ROCKS OR STONES WITH A DIAMETER OF GREATER THAN ONE-HALF THE THICKNESS OF THE COMPACTED LAYERS BEING PLACED. IN ADDITION, BACKFILL MATERIAL SHALL NOT CONTAIN VEGETATION, MASSES OF ROOTS, INDIVIDUAL ROCKS, CONCRETE, BRICKS, REFUSE, BOULDERS, AND ANY OTHER MATERIAL WHICH IN THE OPINION OF THE ENGINEER, IS UNSUITABLE.

ATTENTION: ALL CONTRACTORS LOCATING ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVEGROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UTILITIES SHOWN IN UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF THE PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974, AS AMENDED BY ACT 181 OF 2006, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. SERIAL NO. 20243371817 WAS PLACED FOR DESIGN PURPOSES ONLY.

BY	CHD
REVISIONS	
DATE	
NO.	

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER

12/19/2024
LICENSED PROFESSIONAL ENGINEER
STATE OF PA LICENSE NO. PE076404

COMMERCE PURSUIT CAPITAL

TROOPER RIDGE SUBDIVISION
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MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

LEGEND AND NOTES SHEET

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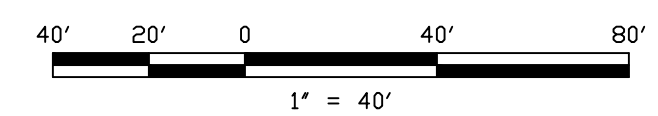
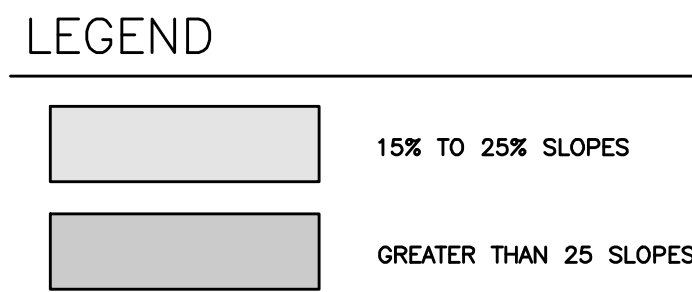
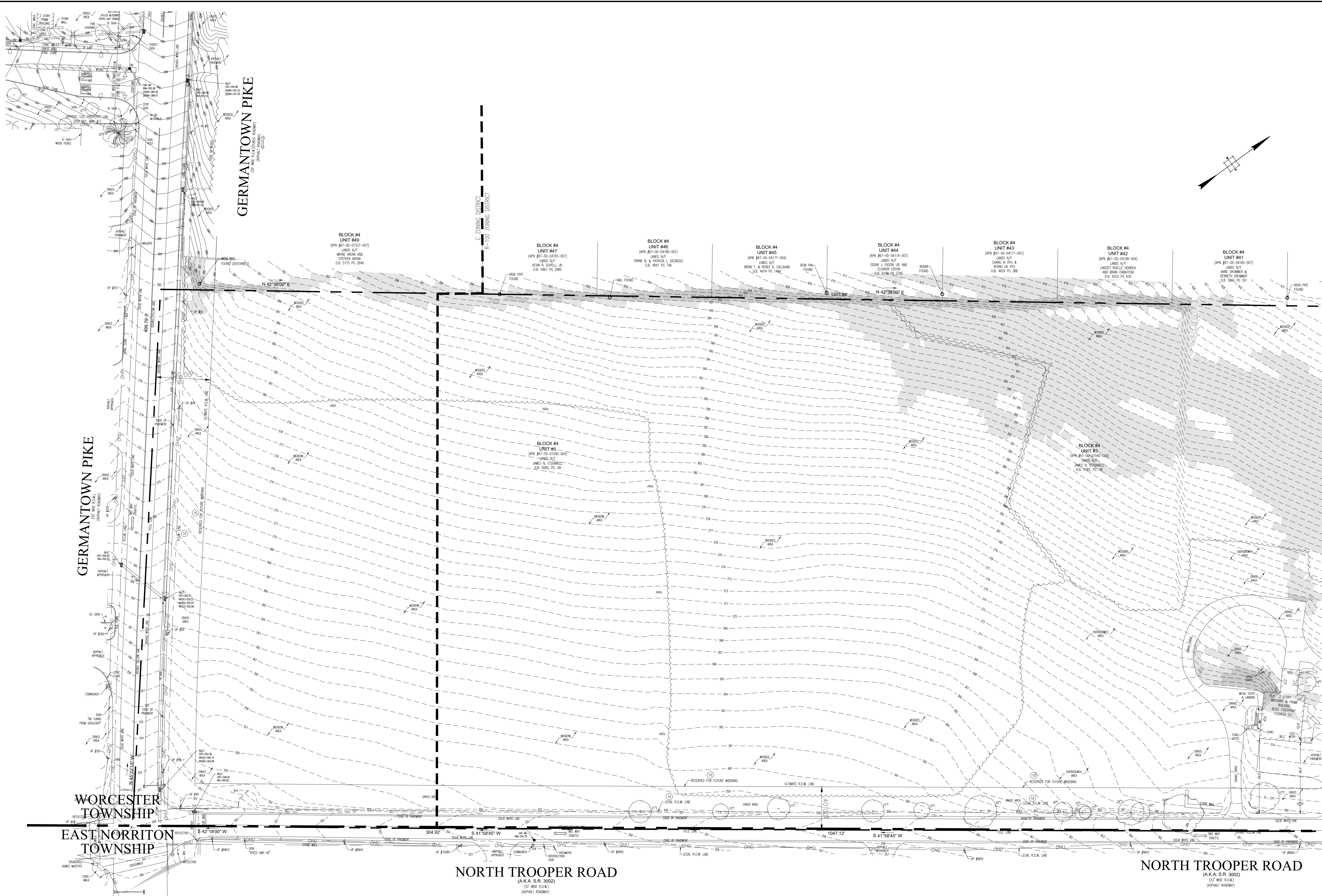
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DRAWN BY SCR/CMS/RAM	SHEET 2
DATE 12/19/2024	PROJ. NO. AS NOTED
SCALE WDEVA00004	OF 37

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CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER

12/19/2024
LICENSED PROFESSIONAL ENGINEER
STATE OF PA LICENSE NO. PE076464

COMMERCE PURSUIT CAPITAL

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MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

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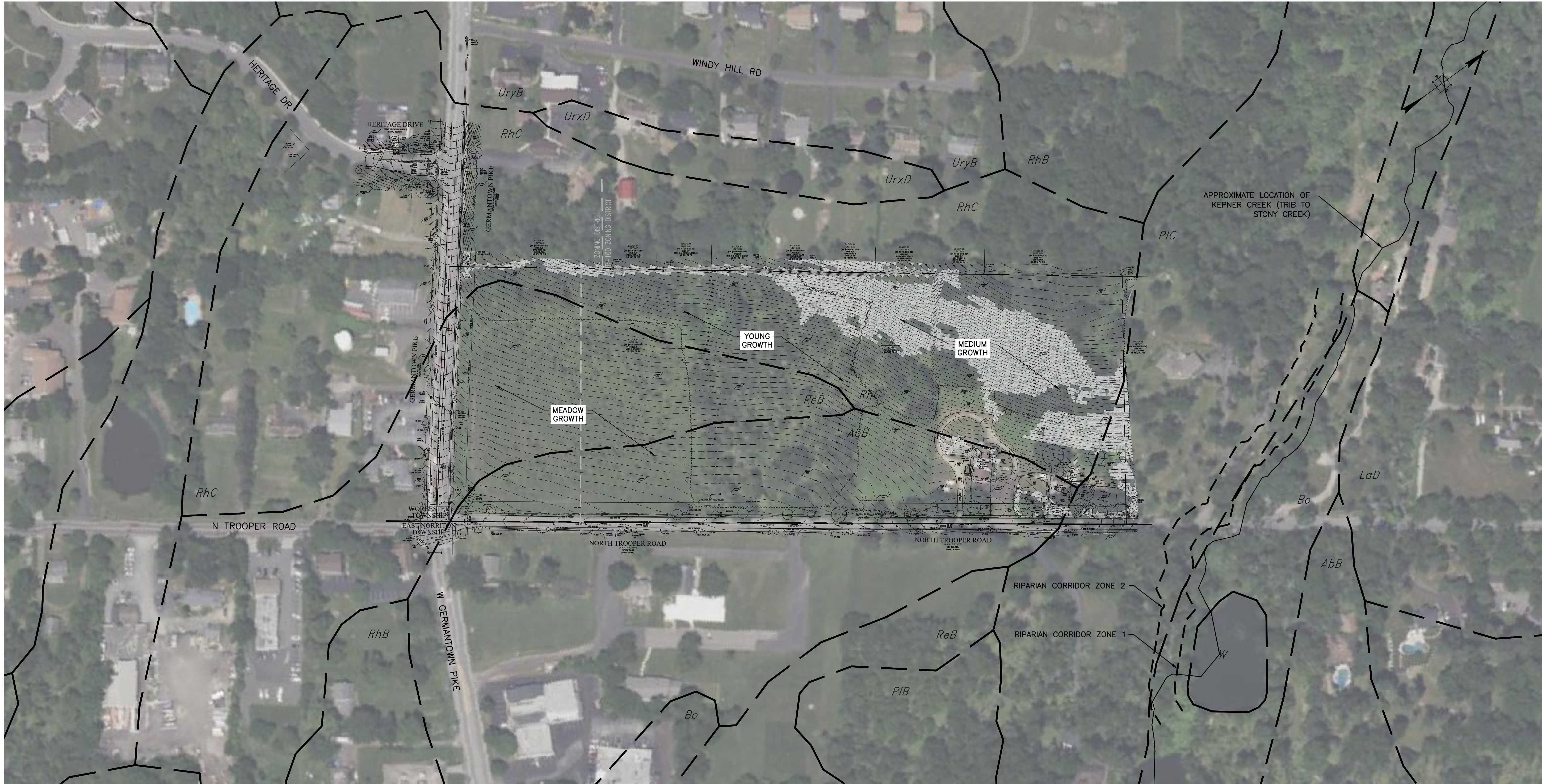
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PROPERTY INFORMATION

EQUITABLE OWNER: COMMERCIAL PURSUIT CAPITAL, LLC
TAX PARCELS: 67-00-01540-00-4
AREA TO TITLE LINE: 15.12 ACRES
AREA TO LEGAL R.O.W. LINE: 14.30 ACRES
SITUATE: 1035 N TROOPER ROAD, NORRISTOWN, PA

EXISTING DATA SOURCE NOTES:

- EXISTING FEATURES SHOWN ARE BASED ON A SURVEY PLAN PREPARED BY BLUE MARSH ASSOCIATES, INC., DATED MARCH 10, 2022. BOUNDARY INFORMATION SHOWN IS FROM ACTUAL FIELD SURVEYS PERFORMED BY BLUE MARSH ASSOCIATES, INC.
- ELEVATIONS ARE BASED UPON (NAV 88) DATUM ESTABLISHED ONSITE UTILIZING GLOBAL POSITIONING SYSTEM DATA COLLECTION.

GENERAL ERSA NOTES

- THE PENNSYLVANIA NATURAL DIVERSITY INVENTORY DICTATE A TREE REMOVAL AVOIDANCE MEASURE BETWEEN MAY 15 TO AUGUST 15 TO PRESERVE THE NORTHERN LONG-EARED BAT.
- THE PROPOSED SITE DOES NOT INCLUDE ANY SCENIC OR VIEW SHED AREAS AS SHOWN IN THE TOWNSHIP MASTER PLAN.
- THE PROPOSED SITE DOES HAVE VERIFIED WETLAND AREAS. WETLANDS ARE DELINEATED IN THE PLANS.
- THE PROPOSED SITE IS WITHIN THE FEMA FLOOD ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) OF THE FLOOD INSURANCE RATE MAP, MAP NO. 42091C0261G.

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AbB	Abbottstown silt loam, 3 to 8 percent slopes	15.8	25.9%
Bo	Bowmansville-Knauers silt loams	5.1	8.4%
LaD	Lansdale loam, 15 to 25 percent slopes	0.6	0.9%
PIB	Penn-Lansdale complex, 3 to 8 percent slopes	3.1	5.1%
PIC	Penn-Lansdale complex, 8 to 15 percent slopes	9.5	15.5%
ReB	Readington silt loam, 3 to 8 percent slopes	11.2	18.4%
RhB	Reaville silt loam, 3 to 8 percent slopes	1.5	2.5%
RhC	Reaville silt loam, 8 to 15 percent slopes	13.6	22.2%
UusD	Urban land-Udorhtents, shale and sandstone complex, 8 to 25 percent slopes	0.0	0.0%
W	Water	0.7	1.1%
Totals for Area of Interest		61.1	100.0%

LEGEND

	15% TO 25% SLOPES
	GREATER THAN 25 SLOPES

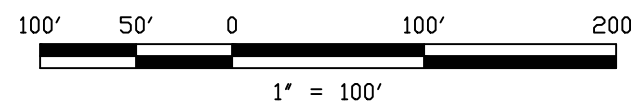


TABLE E.1 LIMITATIONS OF PENNSYLVANIA SOILS PERTAINING TO EARTHMOVING PROJECTS														
SOIL NAME	CUTBANKS CAVE	CORROSION TO CONCRETE/STEEL	BROUGHTY	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE/ SEASONAL HIGH WATER TABLE	HYBRIC/ HYDRIC INCLUSIONS	LOW STRENGTH / LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK - SWELL	POTENTIAL SINKHOLE
PENN-LANSDALE COMPLEX, 3% TO 8% SLOPES (PIB), 8% TO 15% SLOPES (PIC)	X	C	X				X	X		X	X	X		
ABBOTTSTOWN, 3% TO 6% SLOPES	X	C/S		X		X	X	X	X	X	X	X		X
LANSDALE, 15% TO 25% SLOPES	X	C	X				X	X		X	X	X		
READINGTON SILT LOAM, 3% TO 8% SLOPES	X	C/S		X		X	X	X	X	X	X	X		X
BOWMANVILLE	X	C/S			X	X	X	X	X	X	X	X		X
REAVILLE, 8% TO 15% SLOPES (RH), 3% TO 8% SLOPES (RH)	X	C/S	X	X		X	X		X	X	X	X	X	X

12/19/2024
LICENSED PROFESSIONAL ENGINEER
STATE OF PA LICENSE NO. PE076464

COMMERCIAL PURSUIT CAPITAL

TROOPER RIDGE SUBDIVISION
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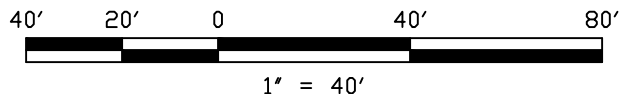
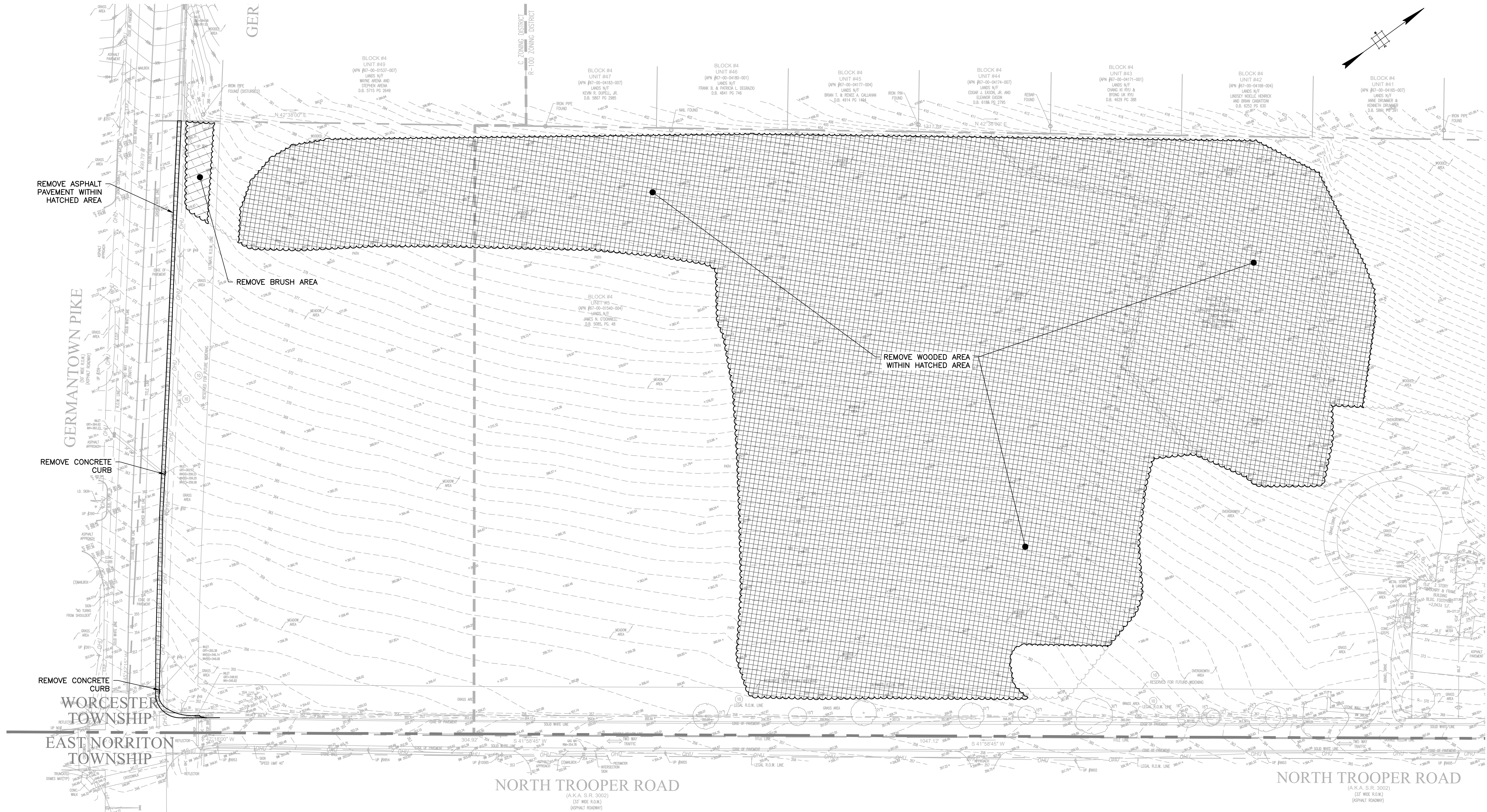
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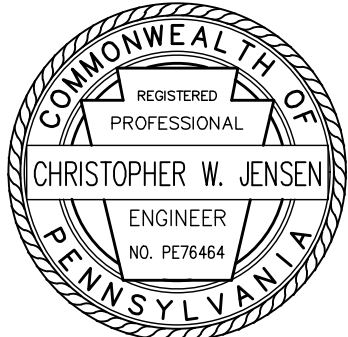
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COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL
LOCATION OF UNDERGROUND UTILITIES OR STRUCTURES CANNOT BE
GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO
OBTAIN ALL NECESSARY PERMITS AND TO VERIFY THE LOCATION AND
DEPTH OF ALL UTILITIES AND STRUCTURES PRIOR TO START OF WORK.
20243371817

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CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER



12/19/2024
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STATE OF PA LICENSE No. PE076464

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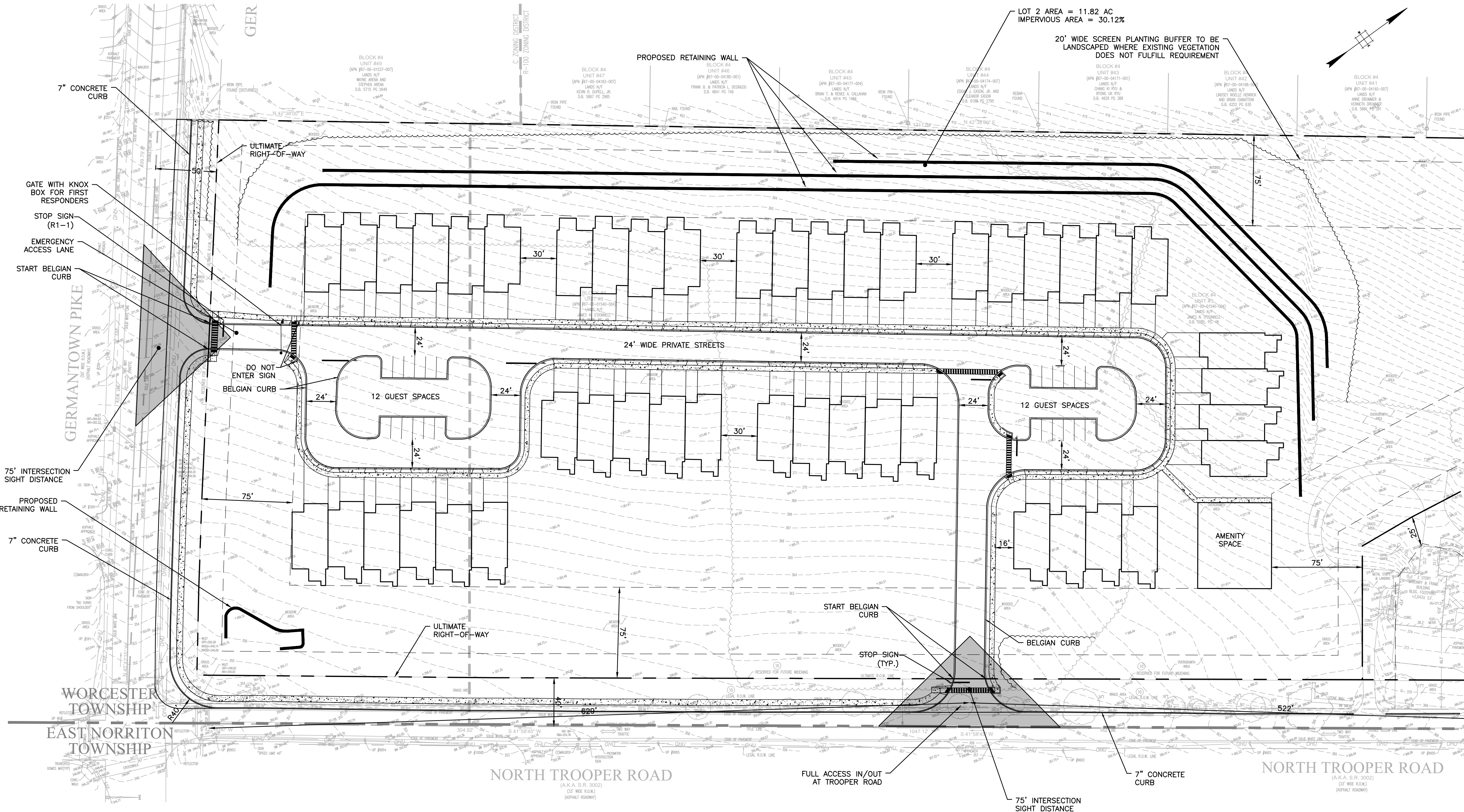
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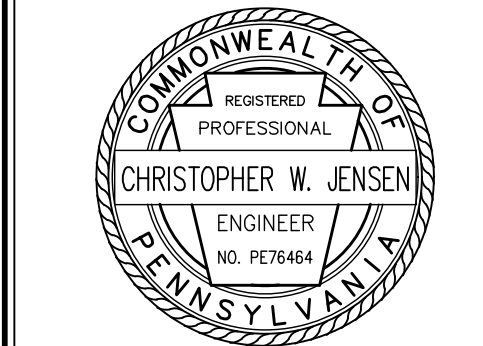
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COMPLETENESS OR ACCURACY OF THE SIZE, DEPTH OR HORIZONTAL
LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE
GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO
LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 121 OF
2004. CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL
UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK.
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NO.	DATE	REVISIONS	BY	CHKD

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER



12/19/2024
LICENSED PROFESSIONAL ENGINEER
STATE OF PA LICENSE NO. PE076464

COMMERCE PURSUIT CAPITAL
TROOPER RIDGE SUBDIVISION
1035 NORTH TROOPER ROAD, WORCESTER TOWNSHIP
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

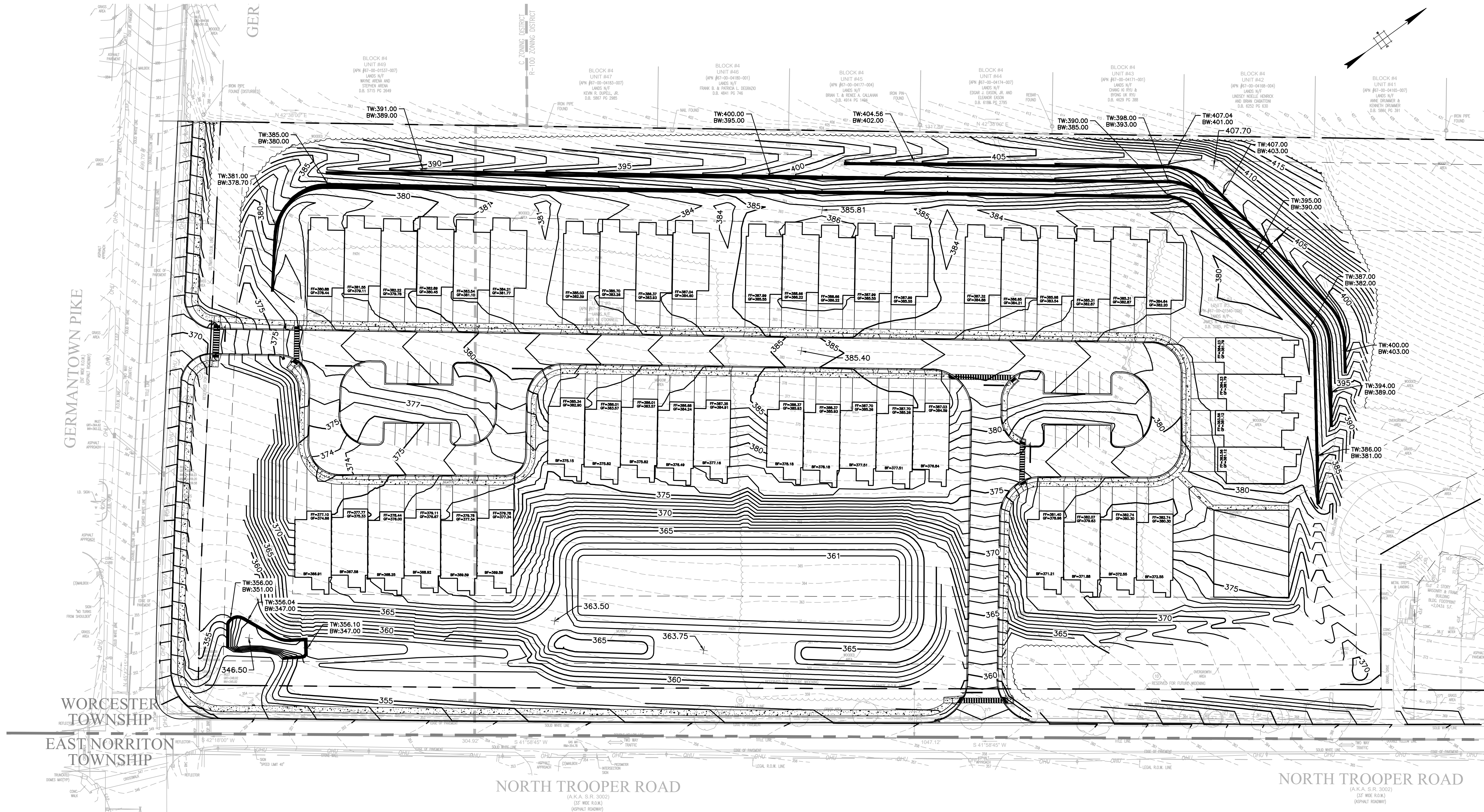
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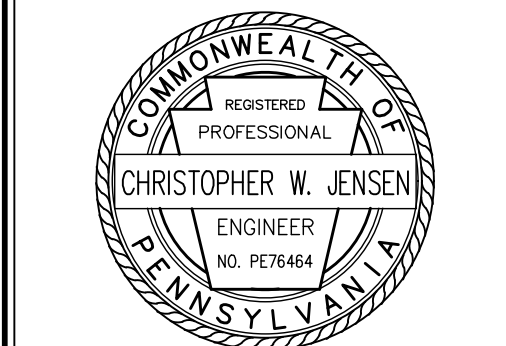
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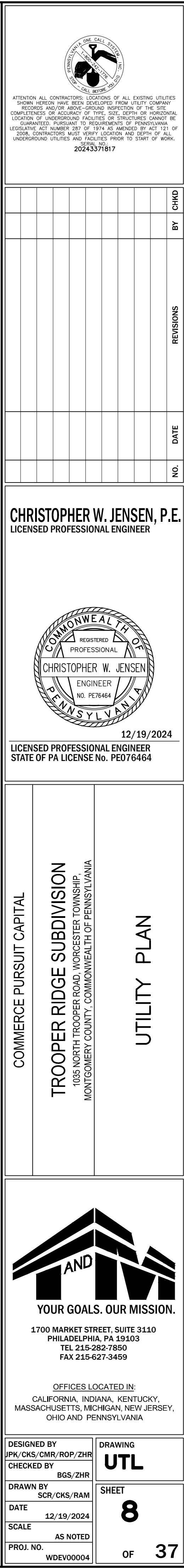
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DESIGNED BY JPK/CKS/CMR/ROP/ZHR	DRAWING GRD
CHECKED BY BGS/ZHR	SHEET 7
DRAWN BY SCR/CKS/RAM	OF 37
DATE 12/19/2024	
SCALE AS NOTED	
PROJ. NO. WDEV00004	



PROJECT INFORMATION:
FILE PATH: C:\Projects\WDEV\00004\Plans\
FILE NAME: WDEV00004_DRN.dwg
DATE: 12/19/2024
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STORM STRUCTURE TABLE				
NAME	STRUCTURE DETAILS	TG/RIM	INVERT	
A1	D-W EW	361.00	361.00	
A1.1	MH	???	361.10	
A2	MH	360.27	349.92	
A6	TYPE C	376.89	366.54	
A6.1	TYPE C	379.03	375.78	
A6.2	TYPE C	381.06	377.41	
A6.3	TYPE C	381.96	378.54	
A6.4	TYPE C	384.11	379.91	
A6.5	TYPE M	383.65	381.15	
A6.7	TYPE M	380.65	378.15	
A7	MH	374.73	367.35	
A7.1	TYPE C	374.25	371.50	
A7.2	TYPE C	378.19	375.51	
A8	TYPE C	373.81	367.61	
A8.1	TYPE S	373.58	370.83	
A9.1	TYPE M	377.05	372.75	
A9.2	TYPE M	377.92	375.60	
A10	TYPE C	372.40	368.50	
A11	TYPE C	371.59	368.64	
A12	TYPE C	371.10	368.84	

STORM STRUCTURE TABLE				
NAME	STRUCTURE DETAILS	TG/RIM	INVERT	
A13	TYPE C	372.00	368.95	
B1	D-W EW	361.00	361.00	
B2	TYPE C	365.65	361.33	
B3	TYPE C	365.66	361.90	
B3.1	TYPE M	365.80	363.37	
B4	TYPE C	366.87	363.62	
B4.1	TYPE C	366.89	363.39	
B5	MH	376.30	372.86	
B5.1	TYPE C	381.52	378.52	
B5.2	TYPE C	383.71	379.12	
B5.3	TYPE C	384.00	381.00	
B5.4	TYPE M	383.50	380.75	
B5.7	TYPE C	376.32	373.32	
B6	TYPE S	377.79	374.23	
B6.1	TYPE C	377.42	374.69	
B7	TYPE S	379.34	375.55	
B8	TYPE C	380.61	376.26	
B8.1	TYPE M	379.15	376.90	
B9	TYPE C	381.50	378.04	
B10	TYPE C	381.13	378.50	

STORM STRUCTURE TABLE				
NAME	STRUCTURE DETAILS	TG/RIM	INVERT	
EX. INLET T1	EX. INLET	349.00	345.82	
EX. INLET G1	EX. INLET	351.00	346.08	
G2	D-W EW	347.00	346.50	
G3	MH	351.00	346.97	
G4	TYPE C	352.69	348.25	
G5	MH	362.88	359.25	
G6	TYPE C	363.00	359.35	
G7	MH	373.59	370.34	
G8	TYPE C	374.00	370.39	
MH A9	MH	377.43	368.07	
MH T5	MH	358.00	353.43	
OCS A3	6X6 BOX W/ MH TOP	361.52	351.00	
OCS A4	6X6 BOX W/ TRASH RACK	361.00	352.70	
S2	MH	360.00	346.70	
S3	MH	374.83	367.57	
S3.1	D-W EW	374.00	374.00	
S4	TYPE M	380.85	376.26	
S5	TYPE M	385.89	379.20	
S6	TYPE M	391.95	386.34	
S7	TYPE M	395.95	391.22	

STORM STRUCTURE TABLE				
NAME	STRUCTURE DETAILS	TG/RIM	INVERT	
S8	TYPE M	398.92	394.12	
S9	TYPE M	404.97	399.86	
T1.1	D-W EW	347.00	346.50	
T2	TYPE C	351.00	346.97	
T3	TYPE C	354.28	349.50	
T4	TYPE C	358.92	353.25	
T5.1	TYPE C	360.14	356.89	
T5.2	TYPE C	360.64	357.26	
T6	TYPE C	379.91	378.79	
T7	TYPE C	362.12	357.60	
T8	TYPE C	368.64	363.64	
T9	TYPE M	370.00	364.34	
T10	TYPE M	375.96	372.21	
T11	TYPE M	380.03	376.50	
T12	D-W EW	382.05	378.50	

STORM PIPE TABLE							
NAME	SIZE	LENGTH	SLOPE	MATL	INV UP	INV DN	
A1.1 TO A1	24"	20.5'	0.49%	RCP	361.10	361.00	
A2 TO WALL	36"	177.0'	1.92%	RCP	349.90	346.50	
A6 TO A1.1	24"	67.2'	6.31%	RCP	366.54	362.30	
A6.1 TO A6	15"	52.9'	3.57%	RCP	375.78	373.89	
A6.2 TO A6.1	15"	57.3'	2.41%	RCP	377.41	376.03	
A6.3 TO A6.2	15"	49.6'	0.97%	RCP	378.54	378.06	
A6.4 TO A6.3	15"	111.9'	1.92%	RCP	379.91	378.79	
A6.5 TO A6.4	15"	98.8'	1.00%	RCP	381.15	380.16	
A6.7 TO A6.2	15"	98.9'	0.50%	RCP	378.15	377.66	
A7 TO A6	24"	112.0'	0.50%	RCP	367.35	366.79	
A7.1 TO A7	15"	26.0'	8.85%	RCP	373.50	369.20	
A7.2 TO A7.1	15"	33.4'	11.24%	RCP	375.51	371.75	
A8 TO A7	18"	32.2'	0.50%	RCP	367.61	367.45	
A8.1 TO A8	15"	34.0'	5.55%	RCP	370.83	368.95	
A9 TO A8	15"	71.9'	0.50%	RCP	368.07	367.71	
A9.1 TO A9	15"	49.5'	8.74%	RCP	372.75	368.42	
A9.2 TO A9.1	15"	78.2'	3.33%	RCP	375.60	373.00	
A10 TO A9	15"	66.6'	0.50%	RCP	368.50	368.17	

STORM PIPE TABLE							
NAME	SIZE	LENGTH	SLOPE	MATL	INV UP	INV DN	
A11 TO A10	15"	8.7'	0.50%	RCP	368.64	368.60	
A12 TO A11	15"	20.0'	0.50%	RCP	368.84	368.74	
A13 TO A12	15"	7.9'	1.40%	RCP	368.95	368.84	
B2 TO B1	24"	65.9'	0.50%	RCP	361.33	361.00	
B3 TO B2	24"	23.9'	1.68%	RCP	361.90	361.50	
B3.1 TO B3	18"	91.0'	0.55%	RCP	363.10	362.60	
B4 TO B2	15"	12.2'	9.16%	RCP	363.62	362.50	
B4.1 TO B3	18"	12.3'	3.89%	RCP	363.39	362.91	
B5 TO B4.1	18"	94.0'	10.01%	RCP	373.05	363.64	
B5.1 TO B5	15"	52.9'	9.77%	RCP	378.52	373.35	
B5.2 TO B5.1	15"	70.2'	0.50%	RCP	379.12	378.77	
B5.3 TO B5.2	15"	31.5'	3.17%	RCP	381.00	380.00	
B5.4 TO B5.2	15"	91.8'	1.08%	RCP	380.75	379.76	
B5.7 TO B5	15"	27.8'	0.50%	RCP	373.32	373.18	
B6 TO B5	18"	34.5'	2.98%	RCP	374.23	373.20	
B6.1 TO B6	15"	42.0'	0.50%	RCP	374.69	374.48	
B7 TO B6	18"	106.2'	0.72%	RCP	375.55	374.79	
B8 TO B7	18"	92.0'	0.50%	RCP	376.26	375.80	

STORM PIPE TABLE							
NAME	SIZE	LENGTH	SLOPE	MATL	INV UP	INV DN	
B8.1 TO B8	18"	77.7'	0.50%	RCP	376.90	376.51	
B9 TO B8	15"	49.5'	3.11%	RCP	378.04	376.50	
B10 TO B9	15"	41.6'	0.50%	RCP	378.50	378.29	
G2 TO G1	24"	74.1'	0.57%	HDPE	346.50	346.08	
G4 TO G3	15"	9.8'	1.00%	RCP	348.25	348.15	
G6 TO G5	15"	10.2'	1.00%	RCP	359.35	359.25	
G8 TO G7	24"	10.5'	0.50%	RCP	370.39	370.34	
OCS A3 TO A2	36"	55.3'	1.99%	RCP	351.00	349.90	
S2 TO WALL	30"	20.9'	0.96%	HDPE	346.70	346.50	
S3 TO S2	30"	225.9'	5.24%	HDPE	367.58	355.73	
S3.1 TO S3	36"	16.4'	36.68%	HDPE	374.00	368.00	
S4 TO S3	30"	110.5'	7.48%	HDPE	376.26	368.00	
S5 TO S4	30"	56.6'	4.75%	HDPE	379.20	376.51	
S6 TO S5	30"	153.1'	4.50%	HDPE	386.34	379.45	
S7 TO S6	24"	152.3'	2.88%	HDPE	391.22	386.84	
S8 TO S7	24"	88.3'	3.00%	HDPE	394.12	391.47	
S9 TO S8	18"	183.0'	3.00%	HDPE	399.86	394.37	
T1.1 TO T1	24"	72.4'	0.94%	HDPE	346.50	345.82	

STORM PIPE TABLE							
NAME	SIZE	LENGTH	SLOPE	MATL	INV UP	INV DN	
T2 TO T1	18"	72.2'	1.25%	RCP	346.97	346.07	
T3 TO T2	18"	192.1'	1.32%	RCP	349.50	346.97	
T4 TO T3	18"	209.6'	1.67%	RCP	353.25	349.75	
T5 TO T4	18"	151.8'	0.82%	RCP	354.75	353.50	
T5.1 TO T5	15"	42.6'	4.43%	RCP	356.89	355.00	
T5.2 TO T5.1	15"	24.1'	0.50%	RCP	357.26	357.14	
T6 TO T5	18"	66.2'	2.06%	RCP	356.37	355.00	
T7 TO T6	18"	97.7'	1.00%	RCP	357.60	356.62	
T8 TO T7	18"	166.5'	3.48%	RCP	363.64	357.85	
T9 TO T8	18"	45.3'	1.00%	HDPE	364.34	363.89	
T10 TO T9	18"	100.0'	6.49%	HDPE	372.21	365.72	
T11 TO T10	18"	42.7'	9.47%	HDPE	376.50	372.46	
T12 TO T11	18"	17.4'	10.03%	HDPE	378.50	376.75	

STORM PIPE TABLE							
NAME	SIZE	LENGTH	SLOPE	MATL	INV UP	INV DN	
T2 TO T1	18"	72.2'	1.25%	RCP	346.97	346.07	
T3 TO T2	18"	192.1'	1.32%	RCP	349.50	346.97	
T4 TO T3	18"	209.6'	1.67%	RCP	353.25	349.75	
T5 TO T4	18"	151.8'	0.82%	RCP	354.75	353.50	
T5.1 TO T5	15"	42.6'	4.43%	RCP	356.89	355.00	
T5.2 TO T5.1	15"	24.1'	0.50%	RCP	357.26	357.14	
T6 TO T5	18"	66.2'	2.06%	RCP	356.37	355.00	
T7 TO T6	18"	97.7'	1.00%	RCP	357.60	356.62	
T8 TO T7	18"	166.5'	3.48%	RCP	363.64	357.85	
T9 TO T8	18"	45.3'	1.00%	HDPE	364.34	363.89	
T10 TO T9	18"	100.0'	6.49%	HDPE	372.21	365.72	
T11 TO T10	18"	42.7'	9.47%	HDPE	376.50	372.46	
T12 TO T11	18"	17.4'	10.03%	HDPE	378.50	376.75	

1" = 40'

40' 20' 0 40' 80'

NORTH TROOPER ROAD

(A.K.A. S.R. 3002)

(35' WIDE ROAD)

(SPIRIT ROADWAY)

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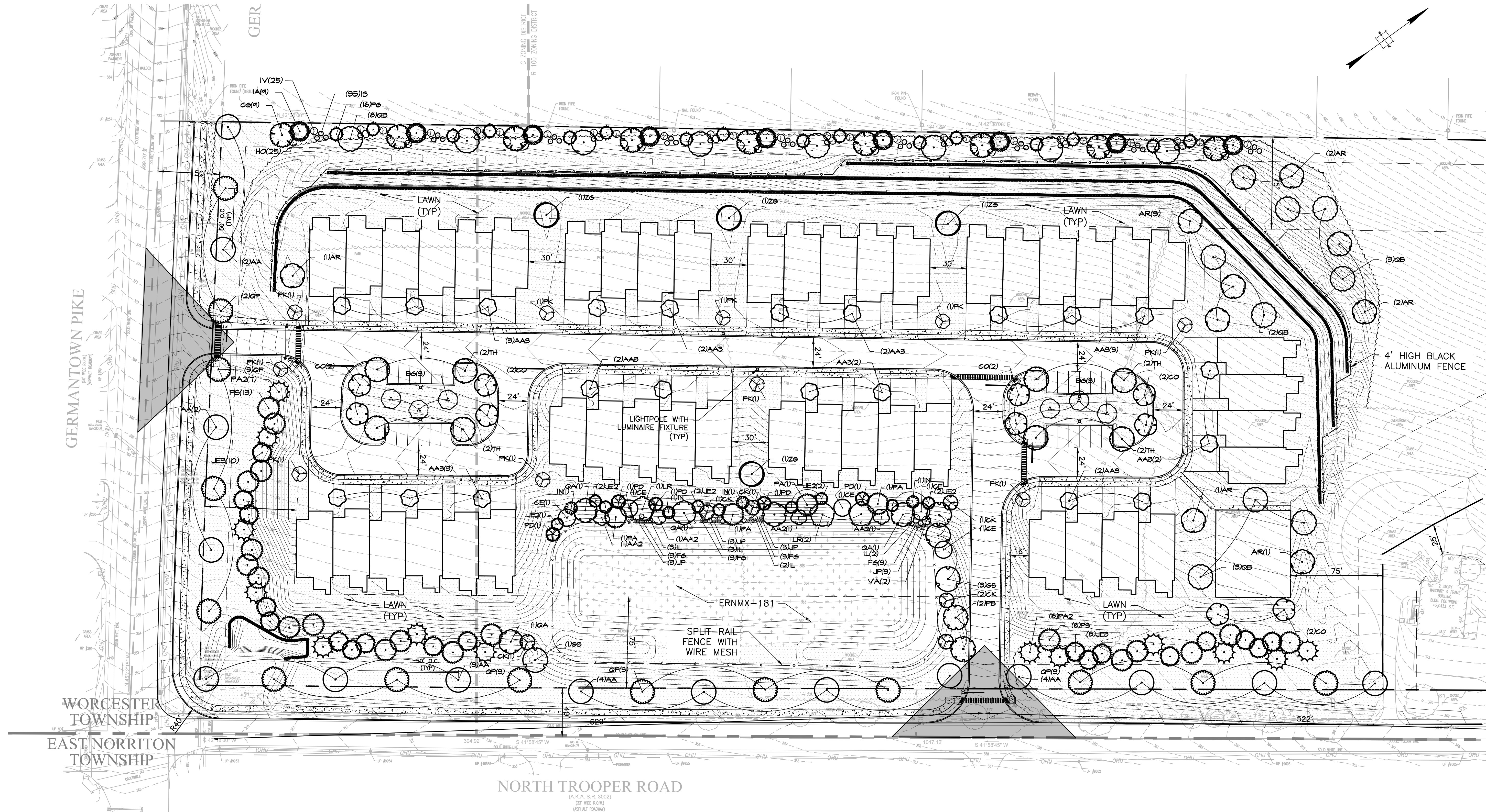
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2004, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL
UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK.
DATE: 12/19/2024

NO.	DATE	REVISIONS	BY	CHKD

BARRY G. STINGEL
REGISTERED LANDSCAPE ARCHITECT



By: BGS 12/19/2024
REGISTERED LANDSCAPE ARCHITECT
STATE OF PA LICENSE No. LA001345R

COMMERCE PURSUIT CAPITAL

TROOPER RIDGE SUBDIVISION
1035 NORTH TROOPER ROAD, WORCESTER TOWNSHIP
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

LANDSCAPE & LIGHTING PLAN



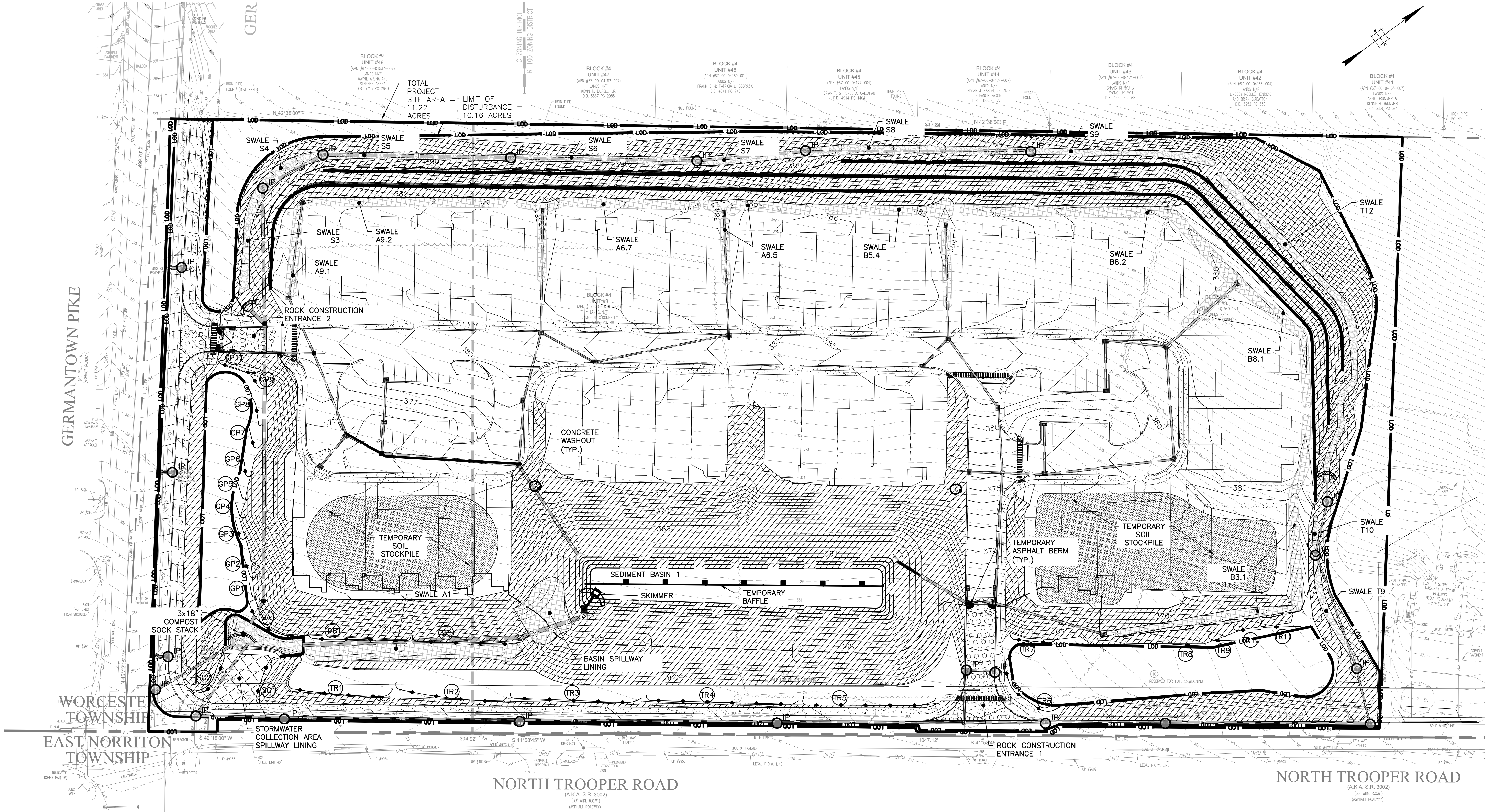
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DATE 12/19/2024	
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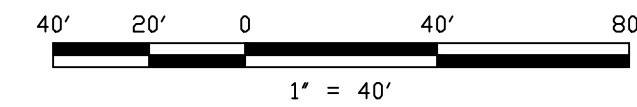
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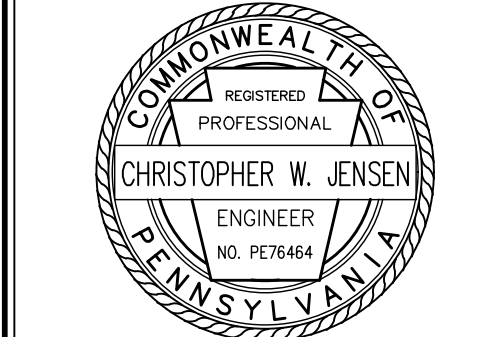
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	TEMPORARY GRADING		EROSION CONTROL BLANKET NAG-75 SLOPE PROTECTION
	BASIN DRAINAGE AREA		EROSION CONTROL BLANKET SC-150 SWALE LINING / BASIN SPILLWAY LINING
	SOIL TYPE BOUNDARY		EROSION CONTROL BLANKET STORMWATER COLLECTION AREA SPILLWAY LINING
	STOCKPILE		RIP RAP SWALE LINING
	TEMPORARY ASPHALT BERM		
	STONE FILTER BERM		



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20243371817

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CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER



12/19/2024
LICENSED PROFESSIONAL ENGINEER
STATE OF PA LICENSE NO. PE076464

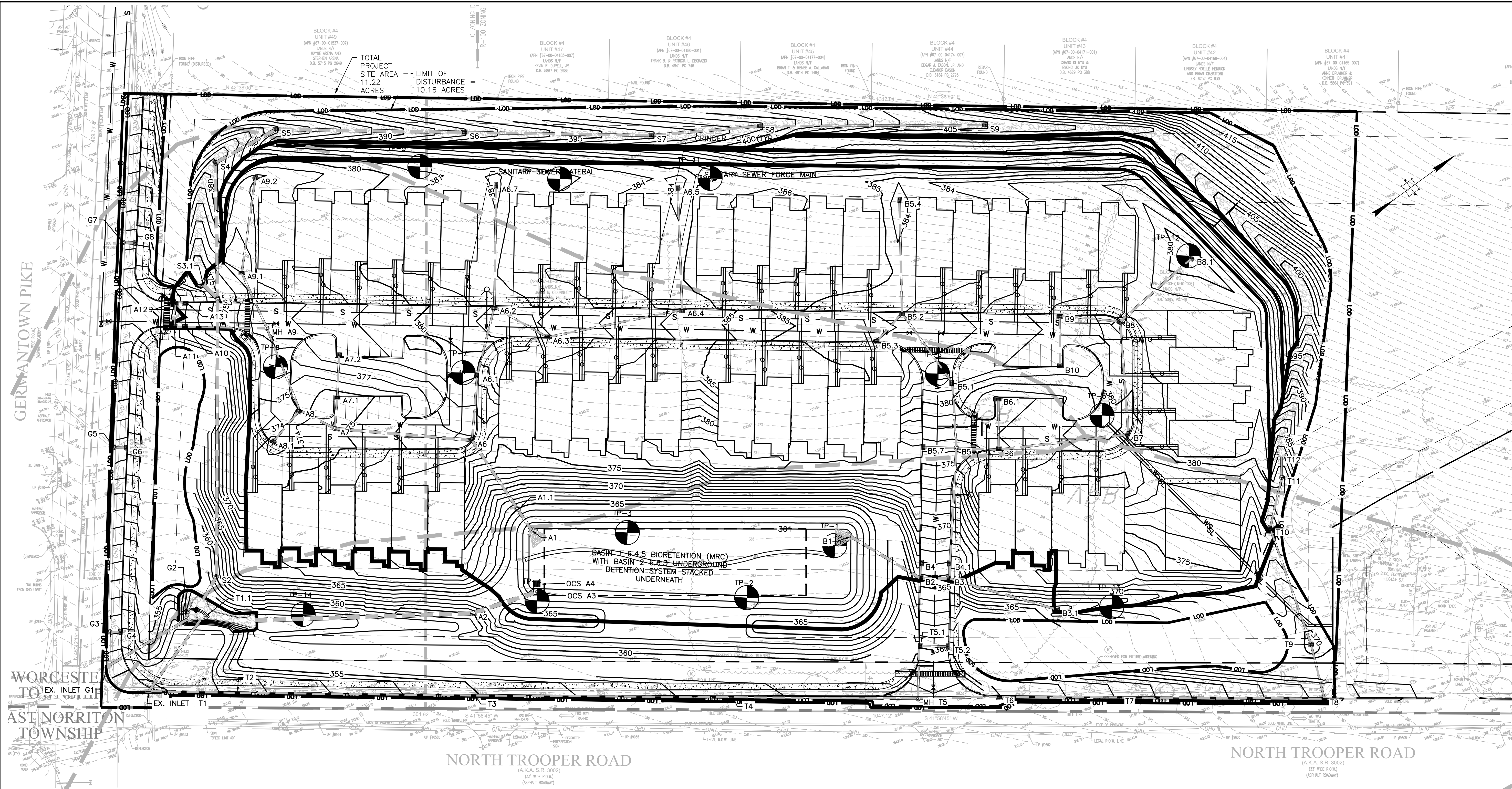
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DATE 12/19/2024 SCALE AS NOTED PROJ. NO. WDEV00004	

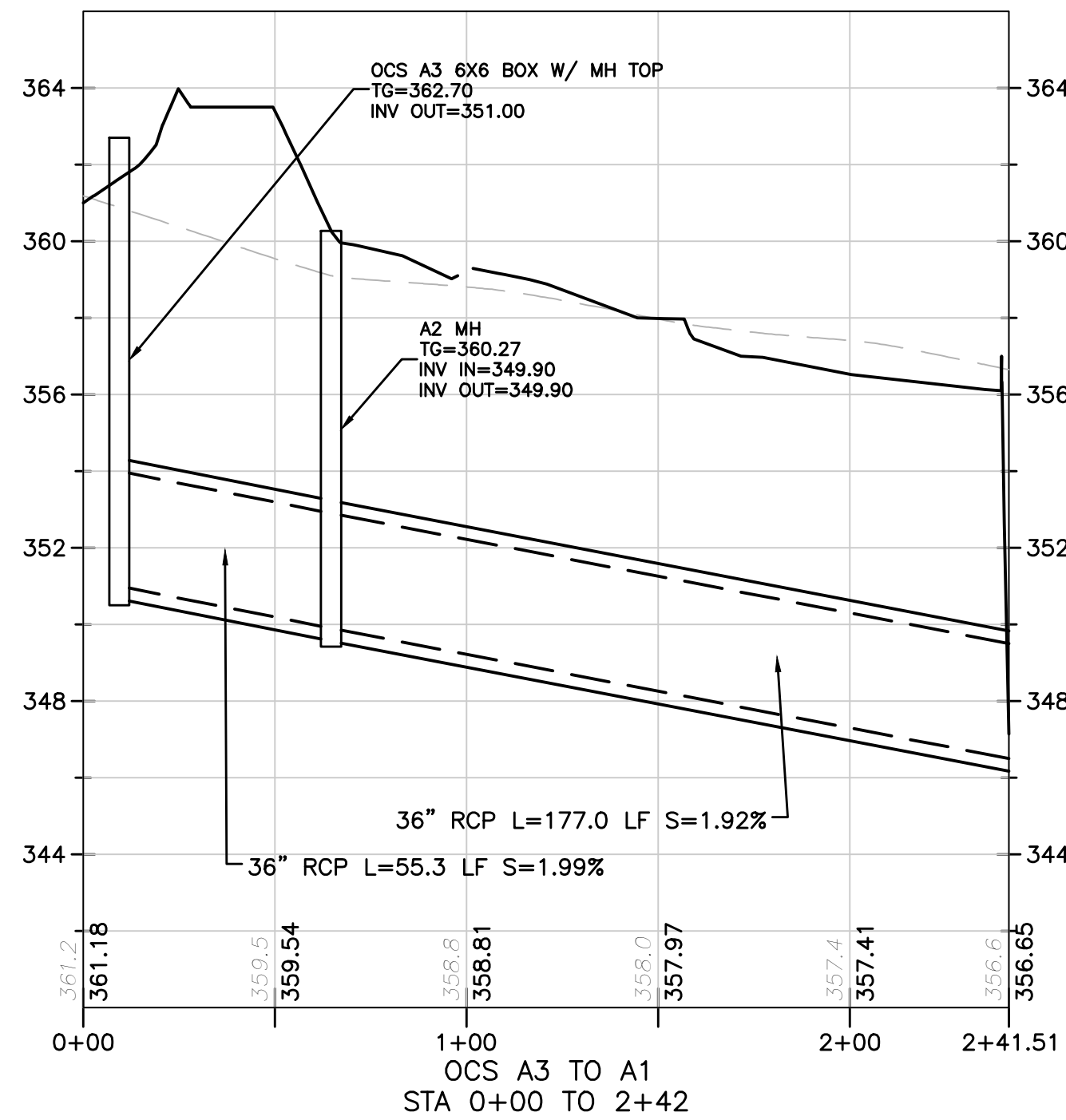
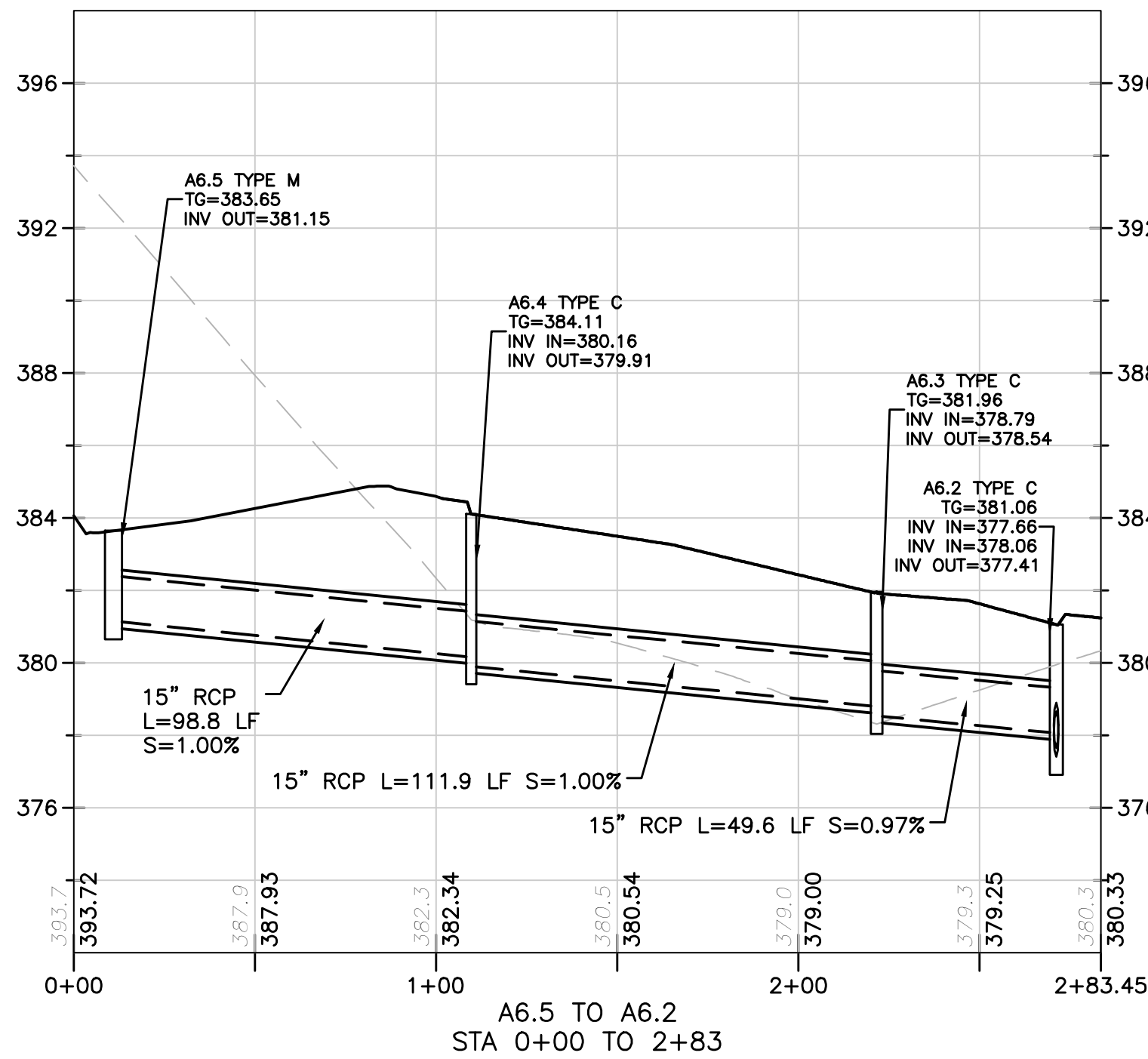
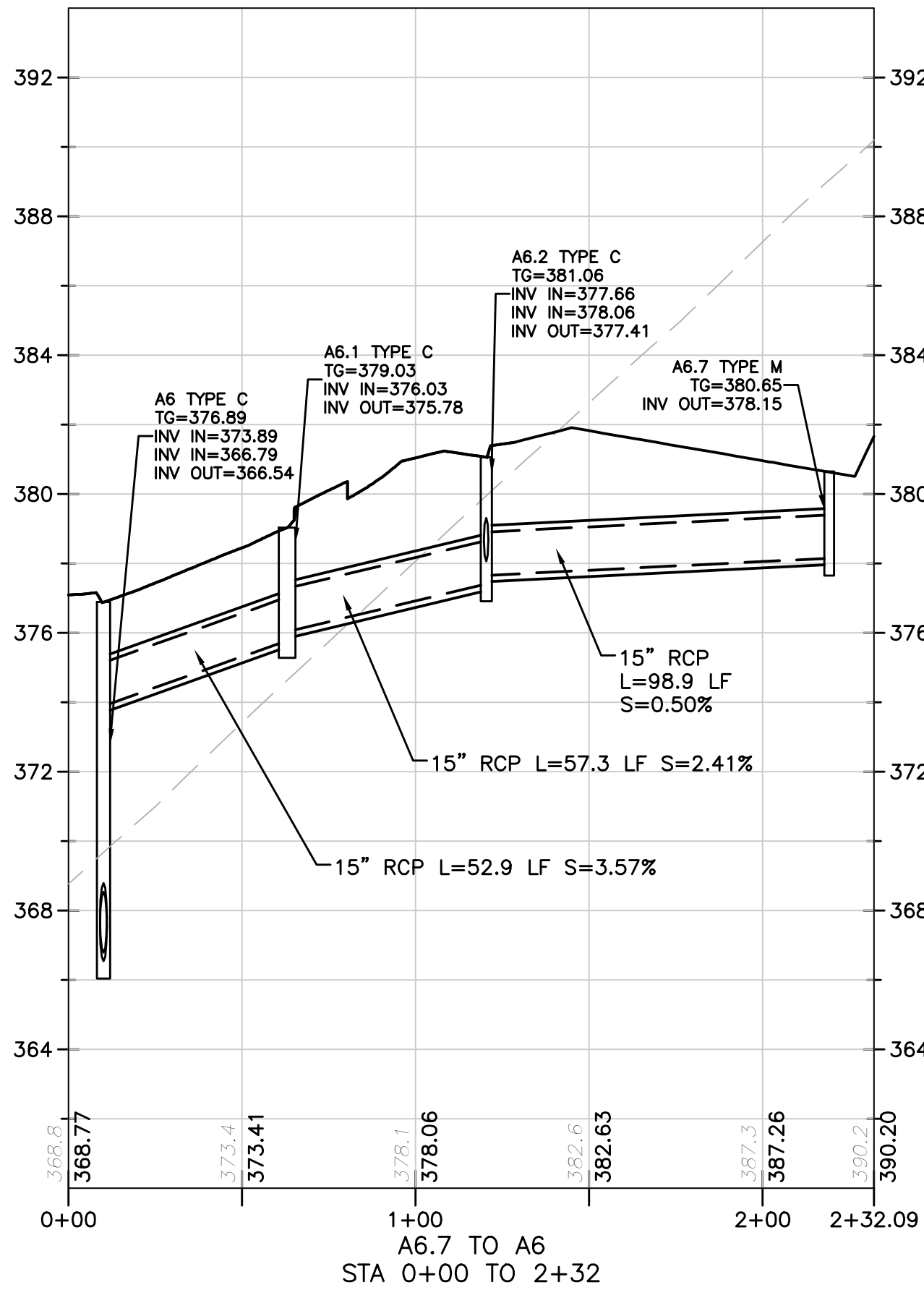
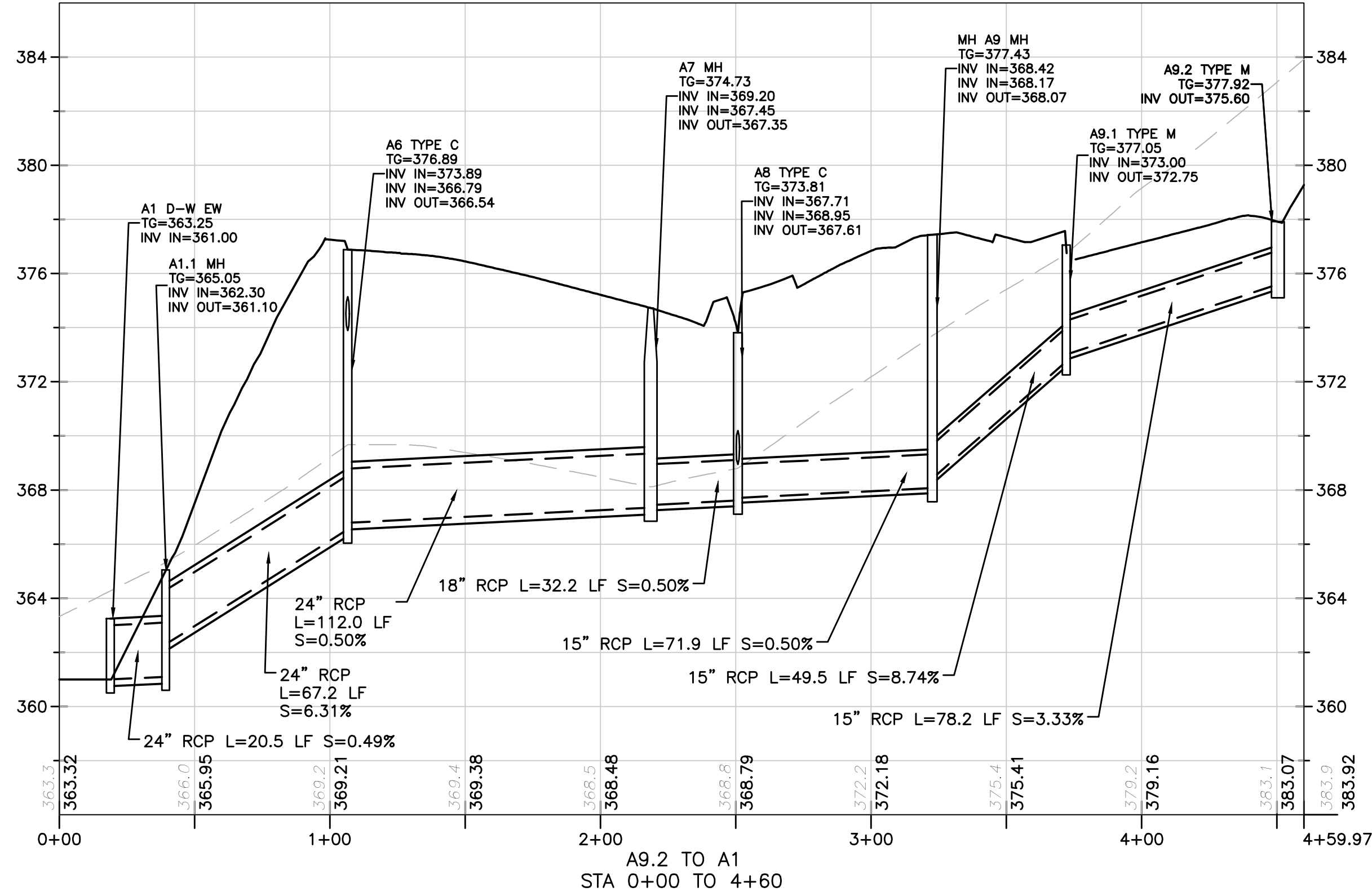
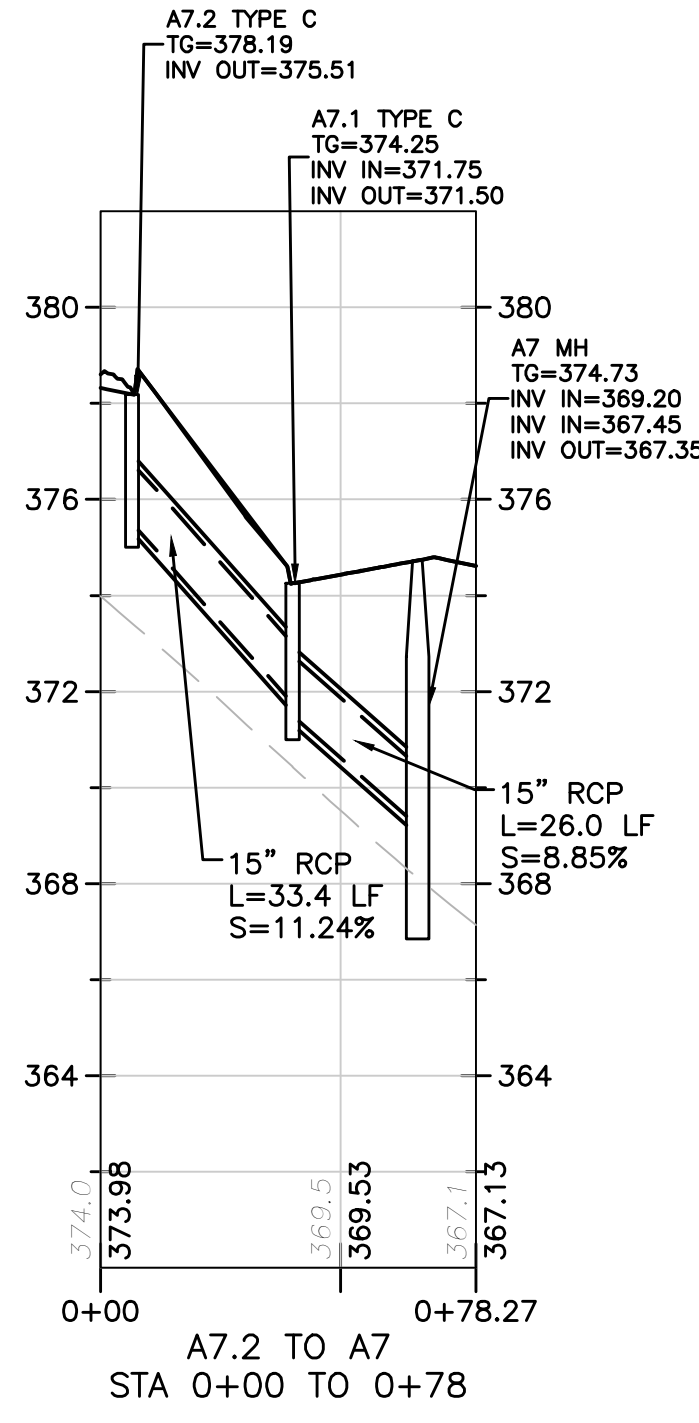
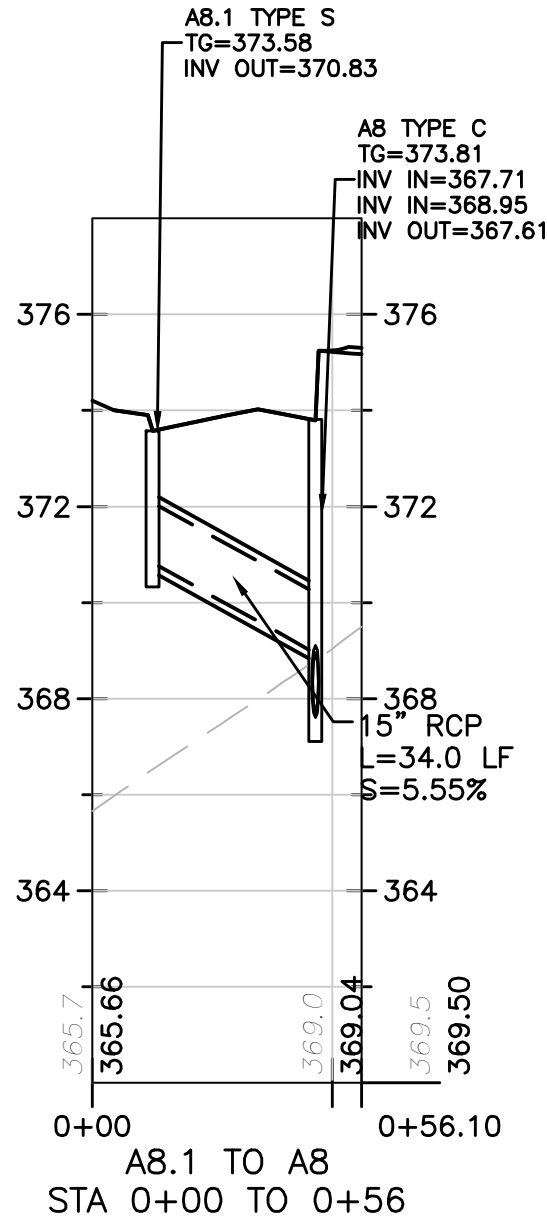
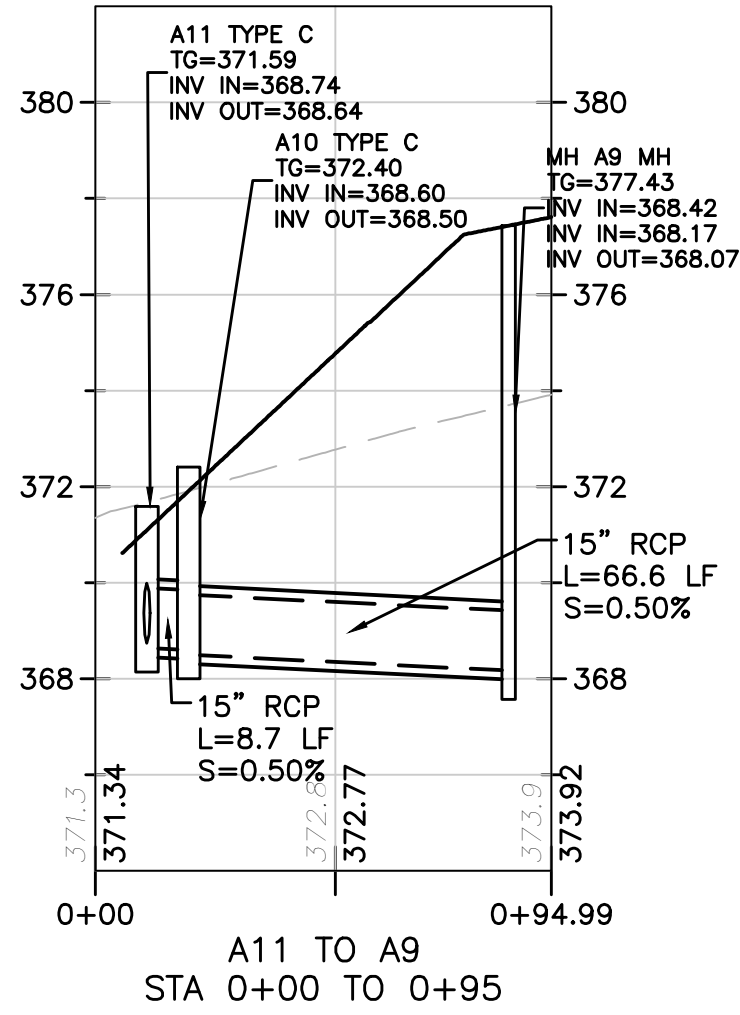
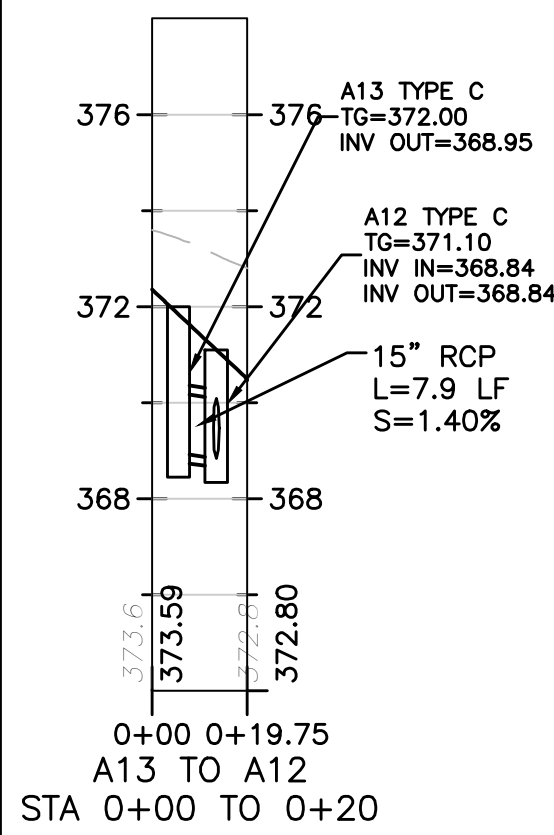
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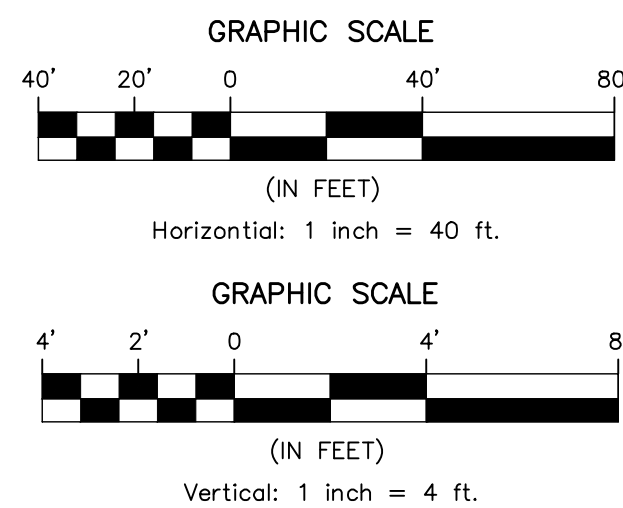
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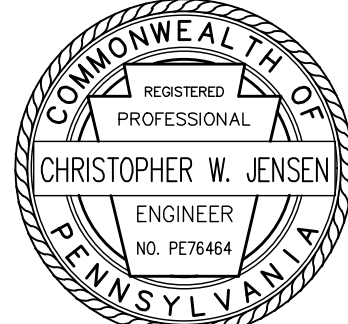
LEGEND

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GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA
LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 121 OF
2004, CONTRACTORS MUST VERIFY LOCATIONS AND DEPTHS OF ALL
UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK.
20243371817

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER



12/19/2024
LICENSED PROFESSIONAL ENGINEER
STATE OF PA LICENSE NO. PE076464

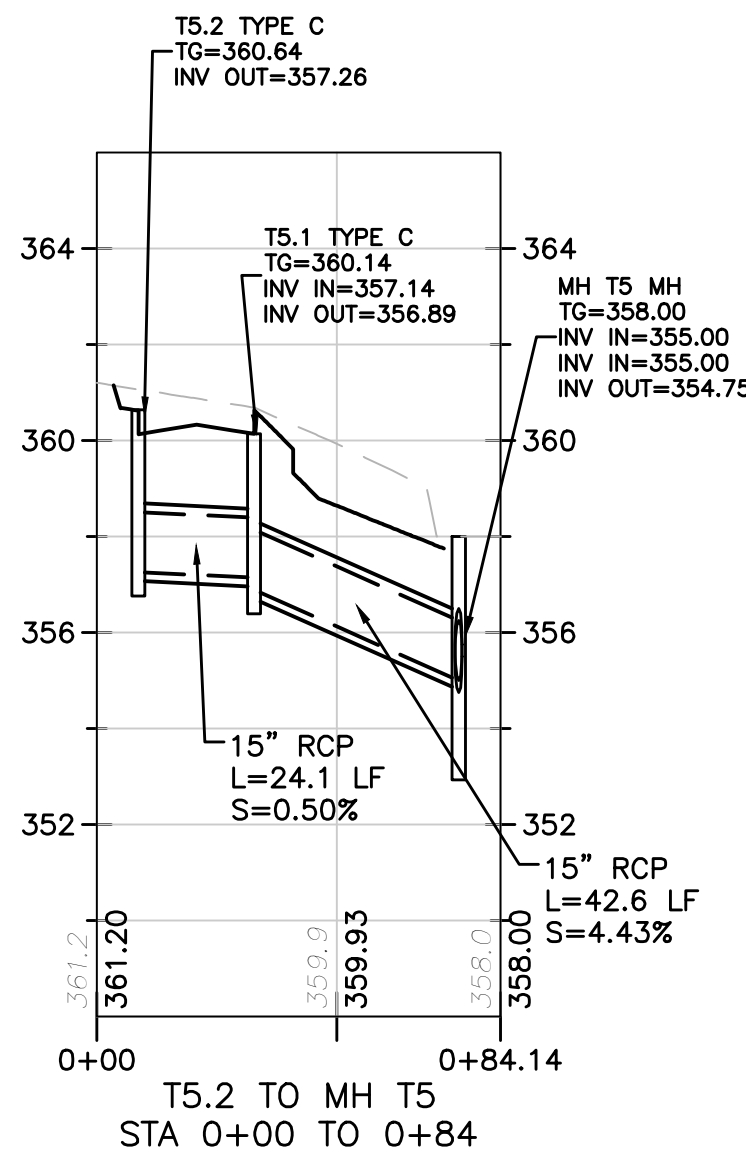
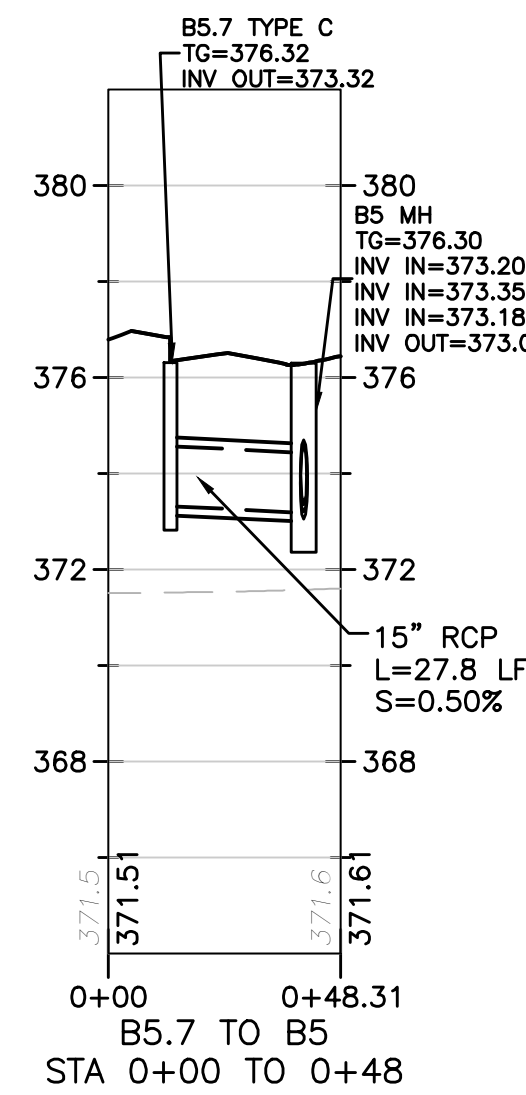
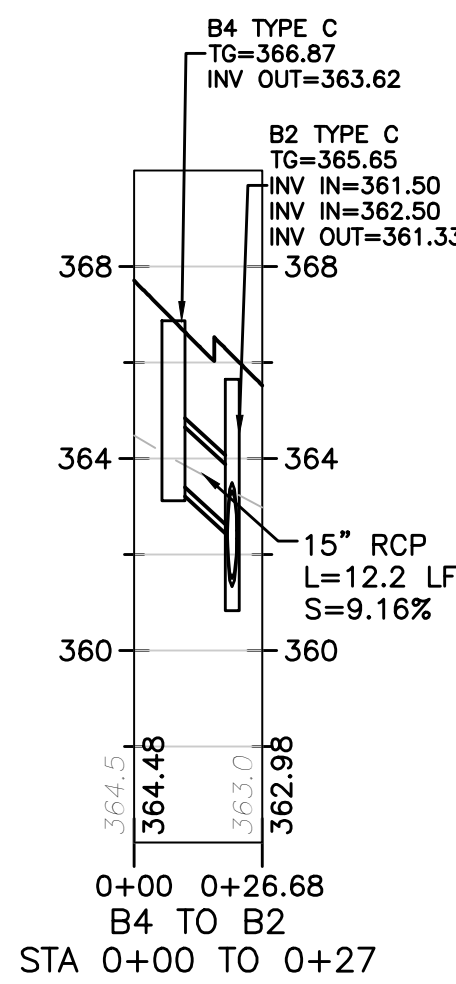
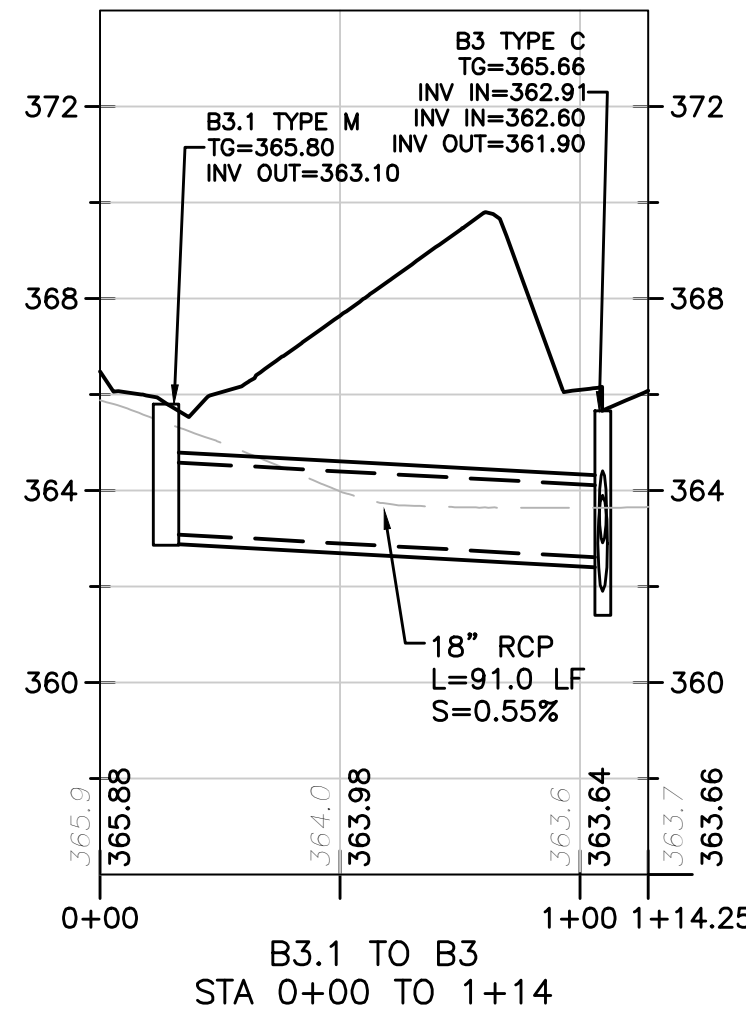
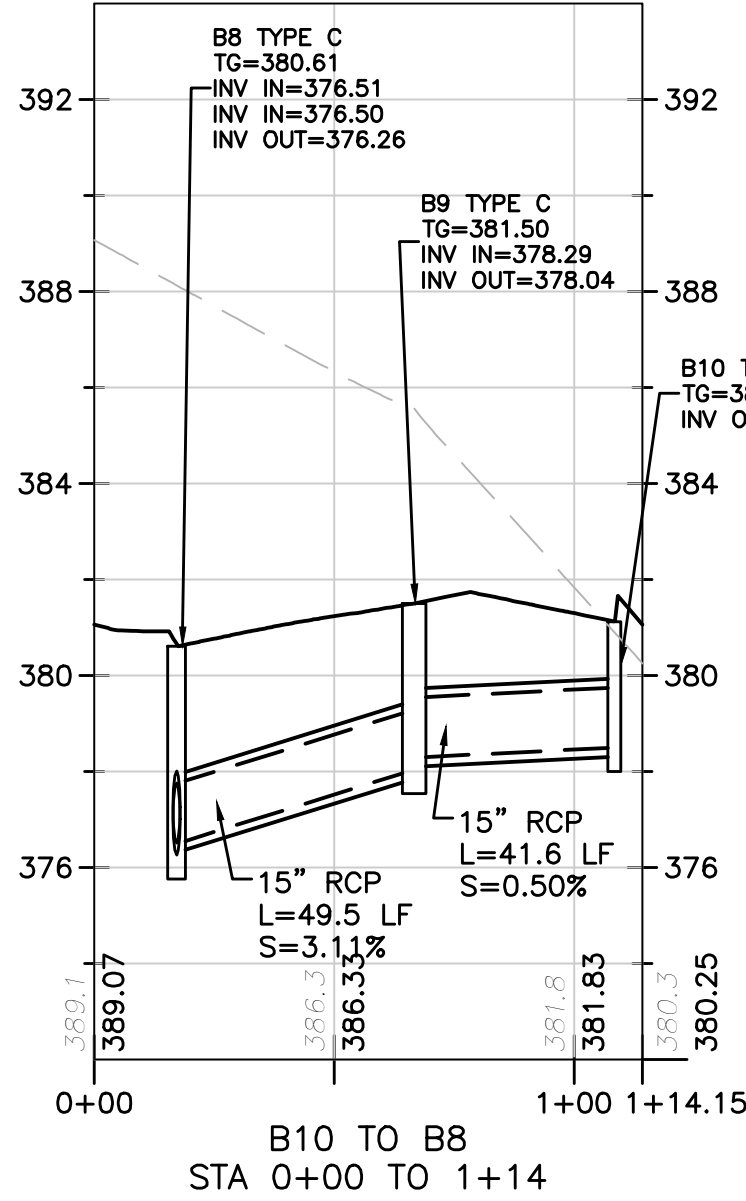
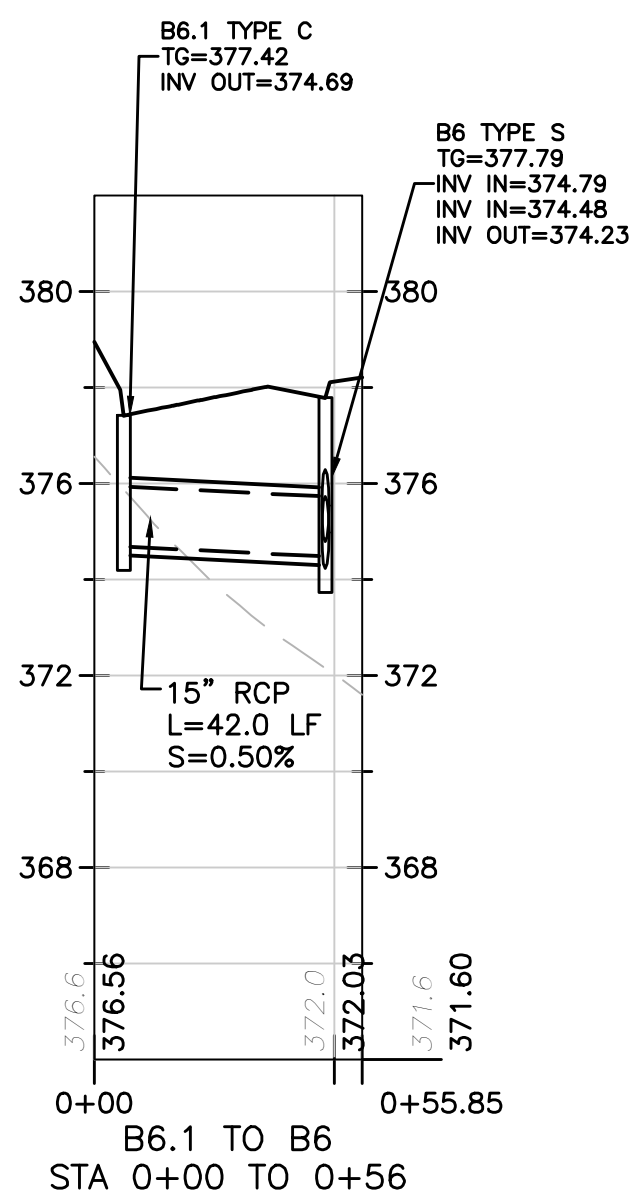
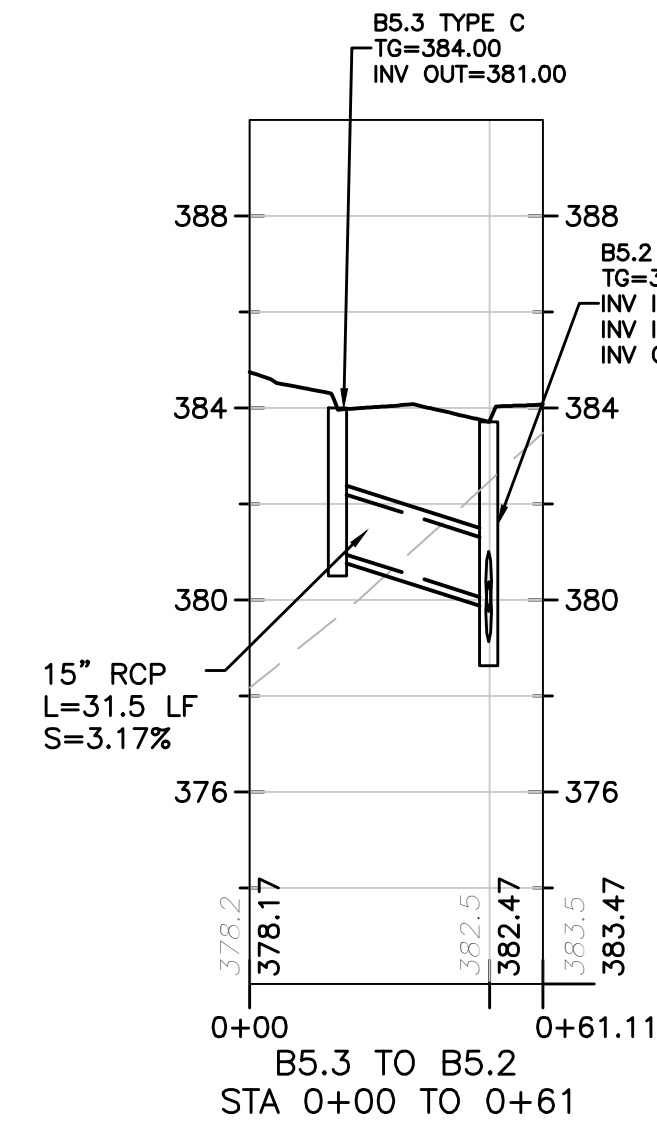
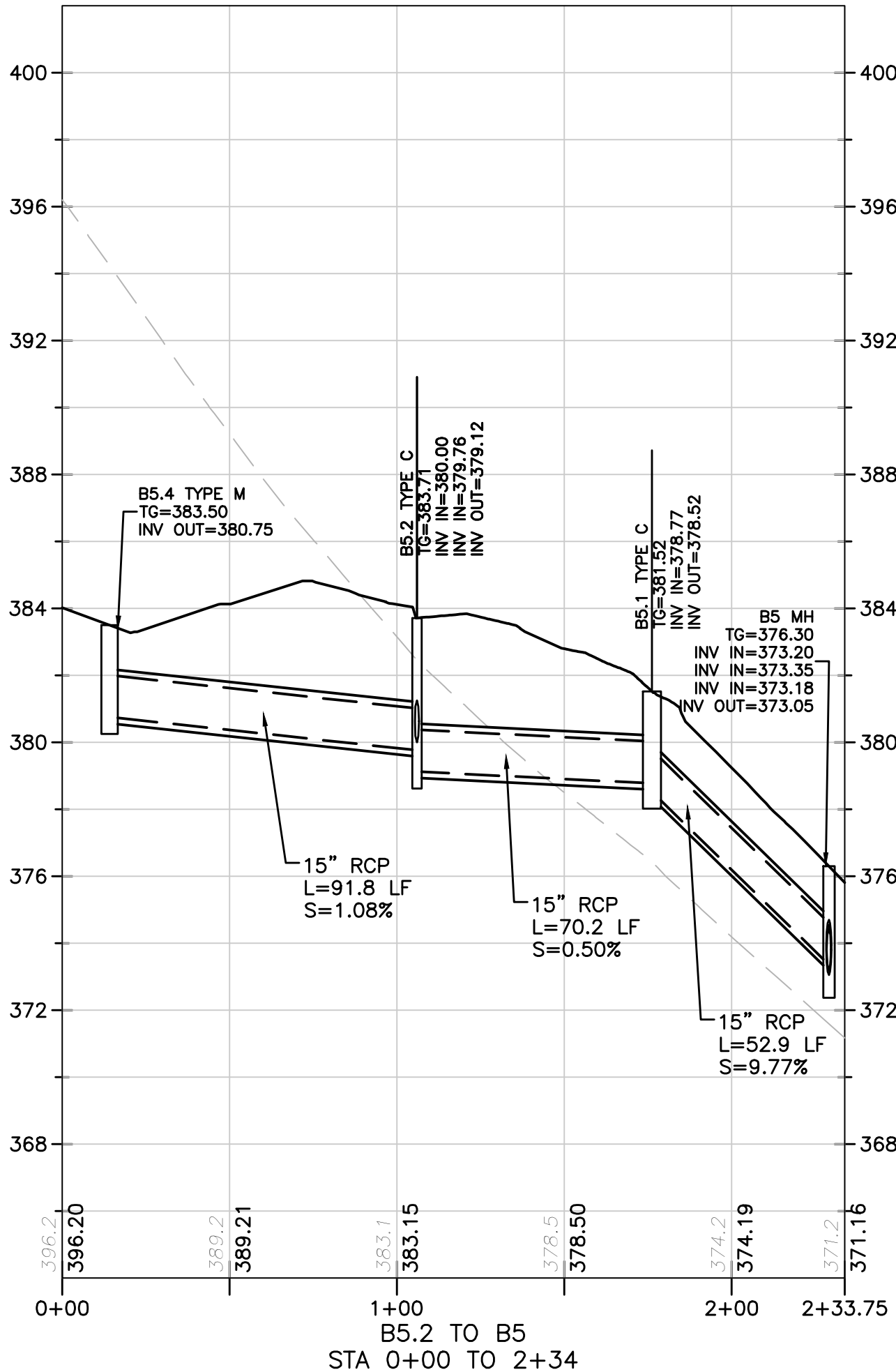
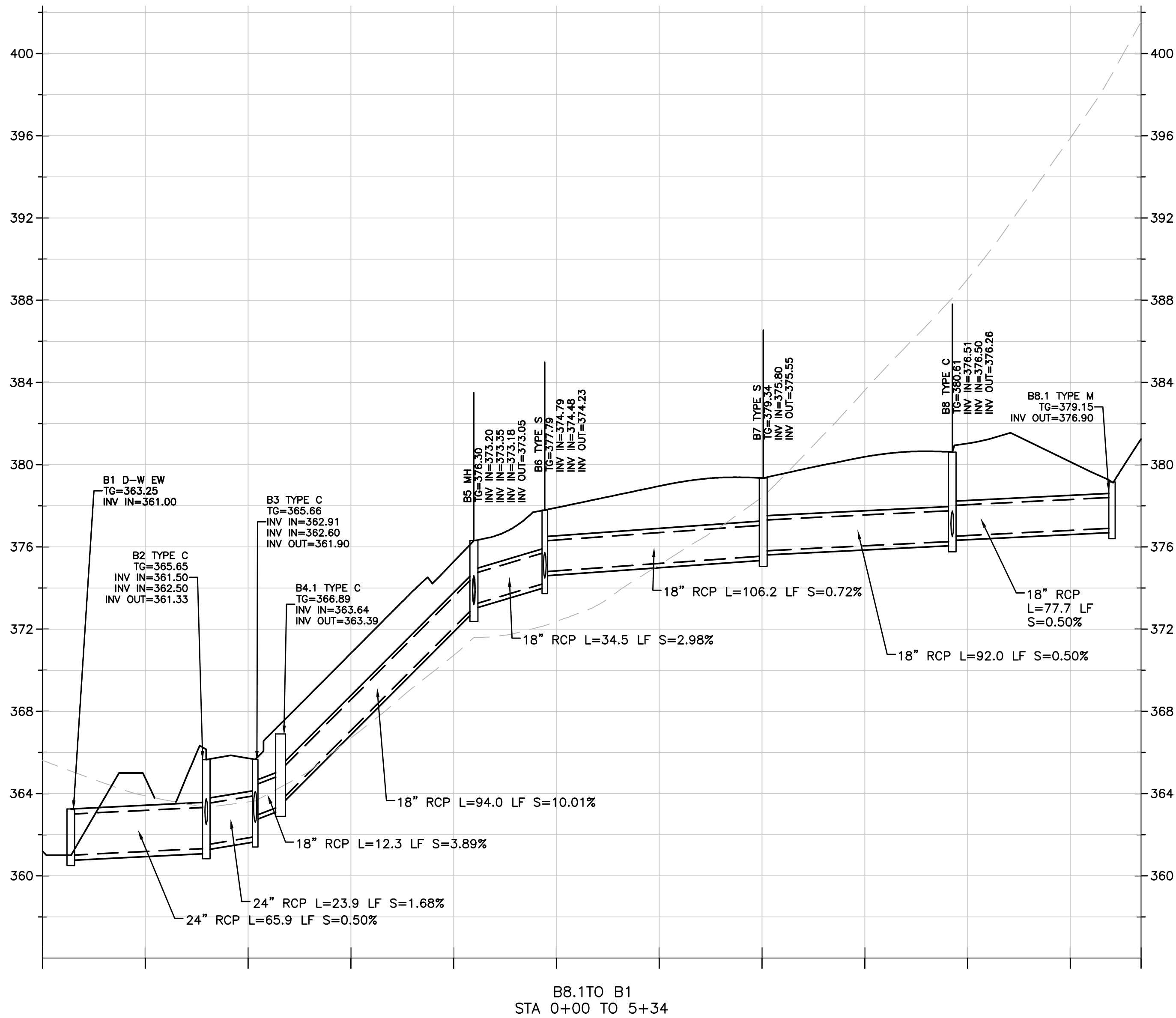
COMMERCE PURSUIT CAPITAL
TROOPER RIDGE SUBDIVISION
1035 NORTH TROOPER ROAD, WORCESTER TOWNSHIP
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA
STORM PROFILE-1

AND
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1700 MARKET STREET, SUITE 3110
PHILADELPHIA, PA 19103
TEL 215-282-7850
FAX 215-627-3499

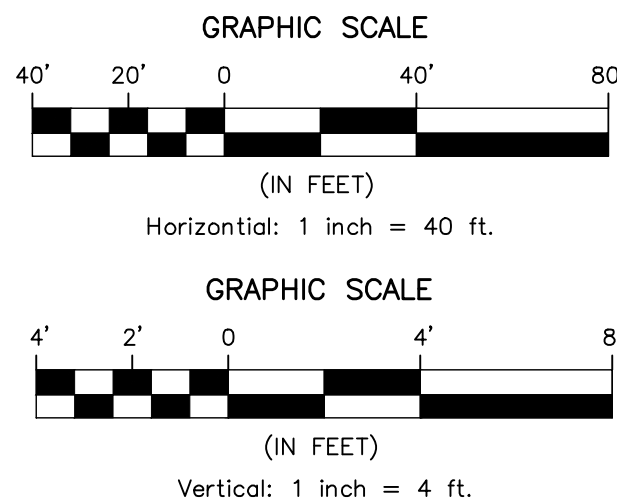
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CALIFORNIA, INDIANA, KENTUCKY,
MASSACHUSETTS, MICHIGAN, NEW JERSEY,
OHIO AND PENNSYLVANIA
DESIGNED BY
JPK/CKS/CMR/ROP/ZHR
CHECKED BY
BGS/ZHR
DRAWN BY
SCR/CKS/RAM
DATE
12/19/2024
SCALE
AS NOTED
PROJ. NO.
WDEV00004
DRAWING
PRF-1
SHEET
14
OF
37

PROJECT INFORMATION:
FILE PATH: C:\Projects\WDEV\0000A\Plans\
FILE NAME: WDEV00004_PRF.dwg
DATE: 12/19/2024 4:43PM
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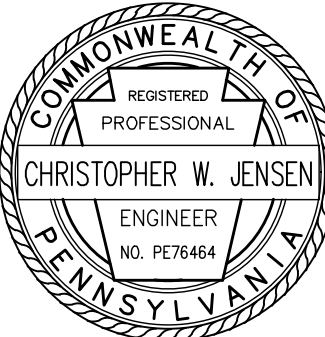
LEGEND
--- EXISTING GRADE
--- FINISHED GRADE



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RECORDS AND/OR ABOVE-GROUND SURVEYS OF THE SITE.
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LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 121 OF
2004. CONTRACTORS MUST VERIFY LOCATIONS AND DEPTHS OF ALL
UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK.
20243371817

NO.	DATE	REVISIONS	BY	CHKD

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER



12/19/2024
LICENSED PROFESSIONAL ENGINEER
STATE OF PA LICENSE NO. PE076464

COMMERCE PURSUIT CAPITAL
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1035 NORTH TROOPER ROAD, WORCESTER TOWNSHIP
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STORM PROFILE-2

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FAX 215-627-3459

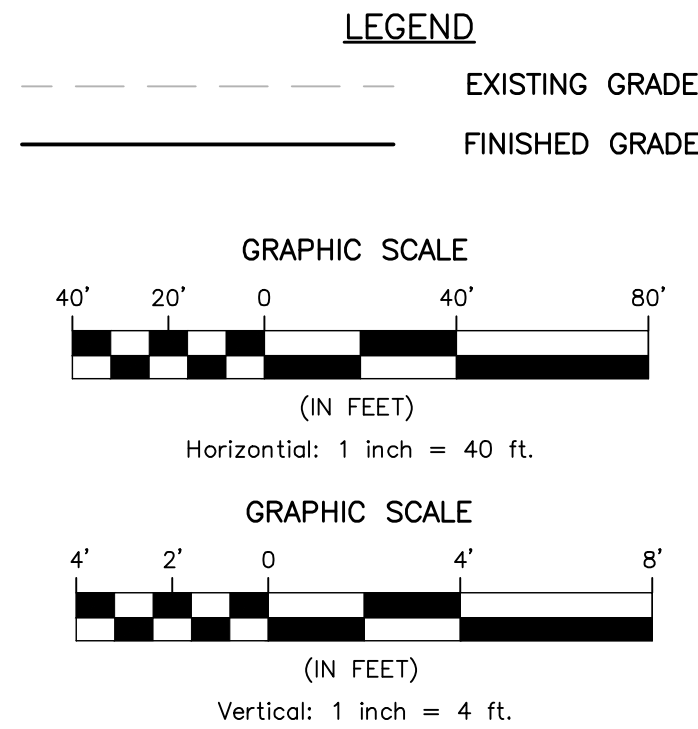
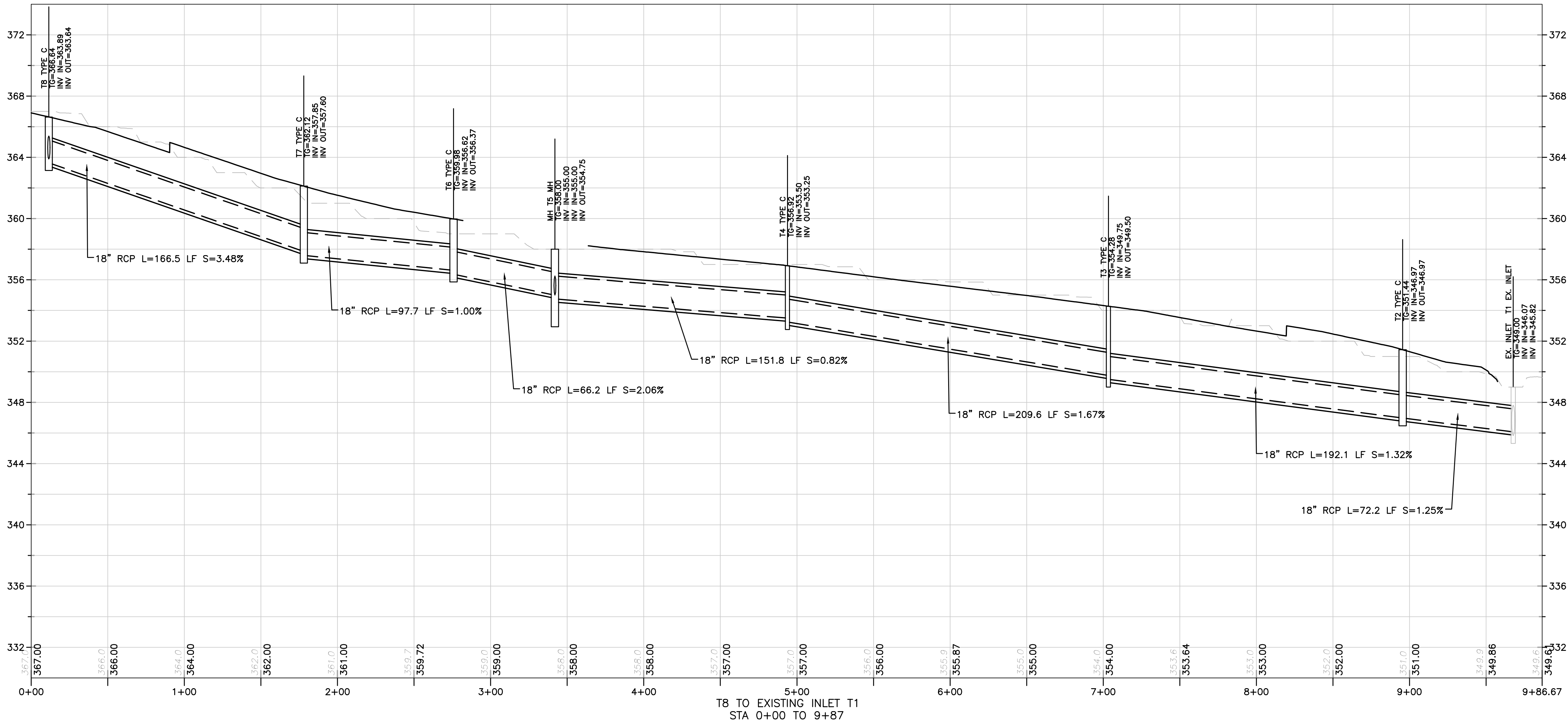
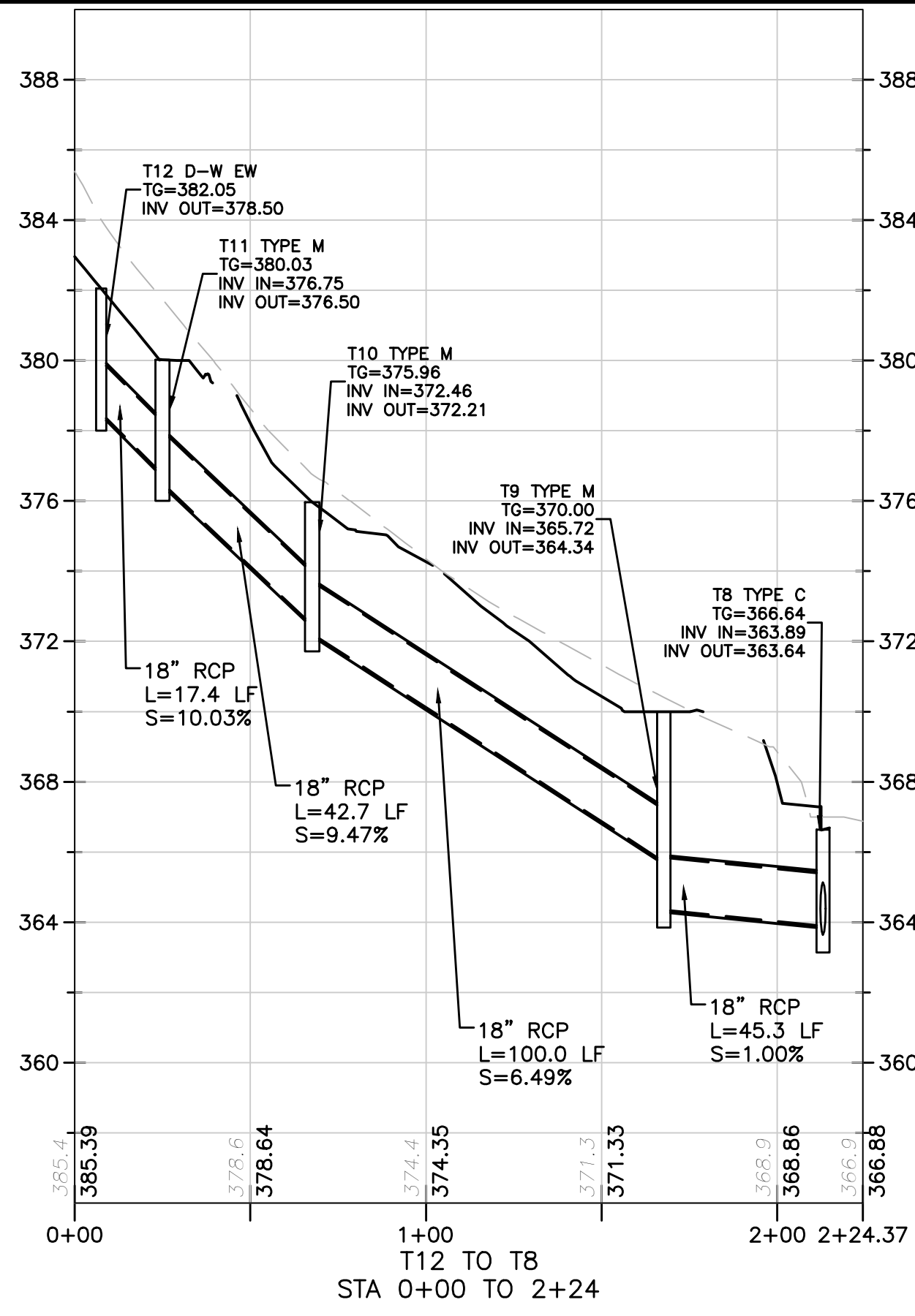
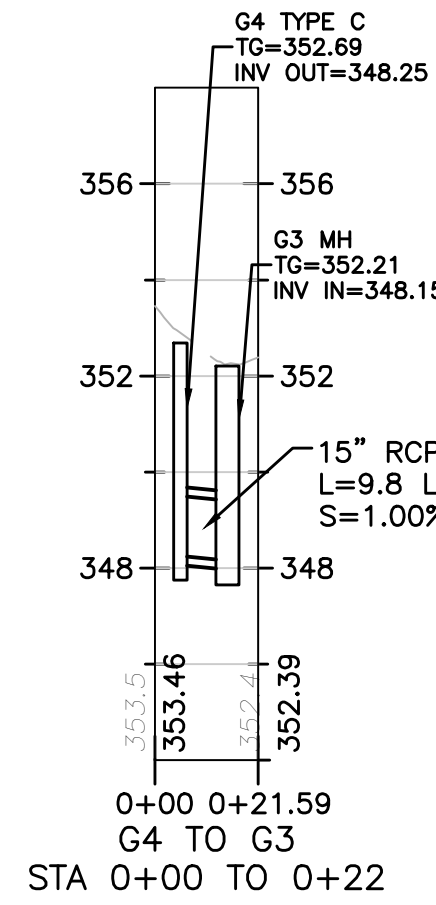
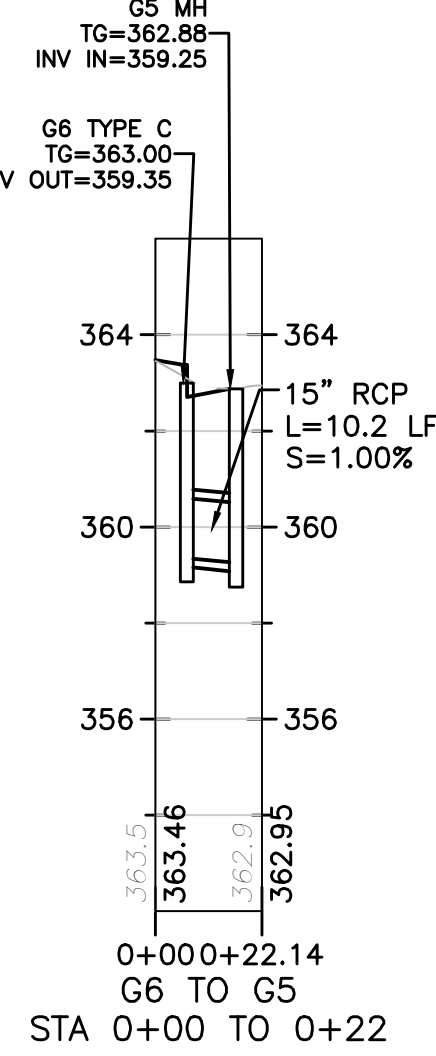
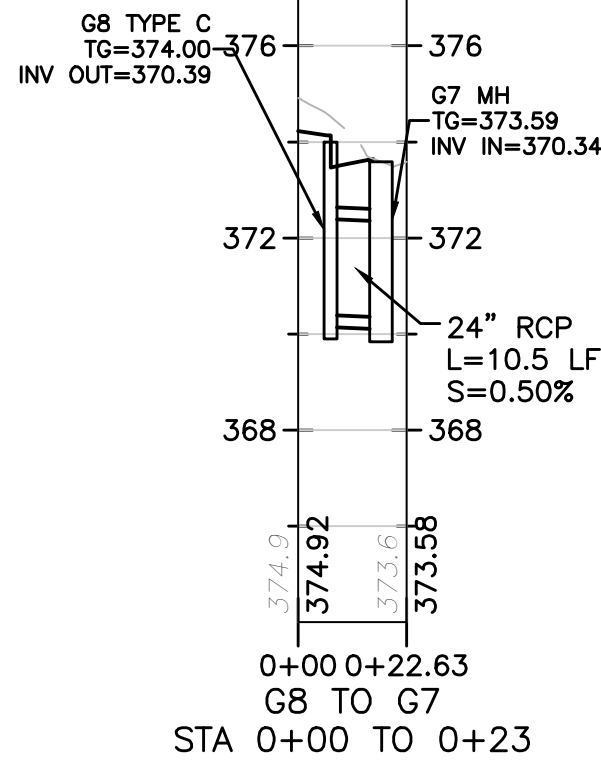
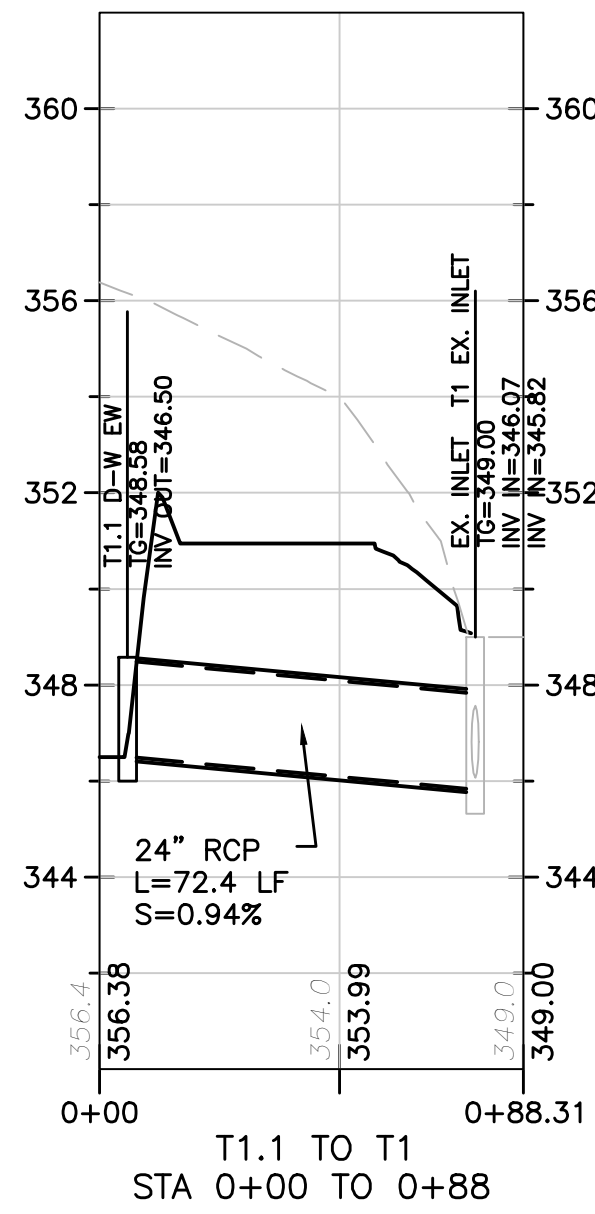
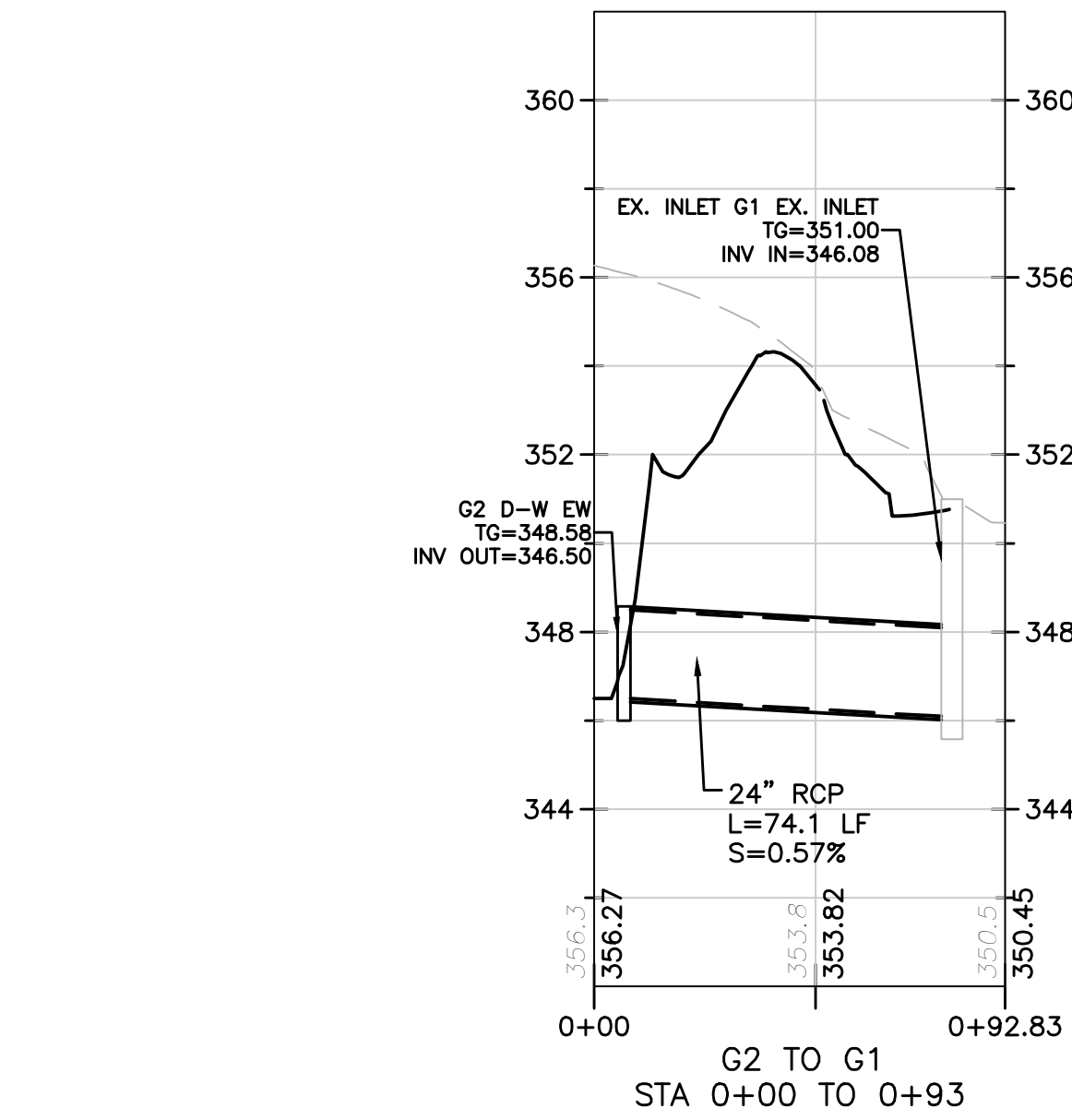
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DESIGNED BY
JPK/CKS/CMR/ROP/ZHR
CHECKED BY
BGS/ZHR
DRAWN BY
SCR/CKS/RAM
DATE
12/19/2024
SCALE
AS NOTED
PROJ. NO.
WDEV00004

DRAWING
PRF-2
SHEET
15
OF 37

PROJECT INFORMATION:
FILE PATH: G:\Projects\WDEV\0000A\Plans\
FILE NAME: WDEV0000A_PRF.dwg
DATE: 12/19/2024 4:43PM
LAST SAVE BY: J.Kelly

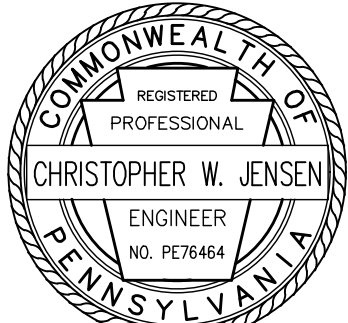
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2004. CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL
UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK.
20243371817

NO.	DATE	REVISIONS	BY	CHKD

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER



12/19/2024
LICENSED PROFESSIONAL ENGINEER
STATE OF PA LICENSE No. PE076464

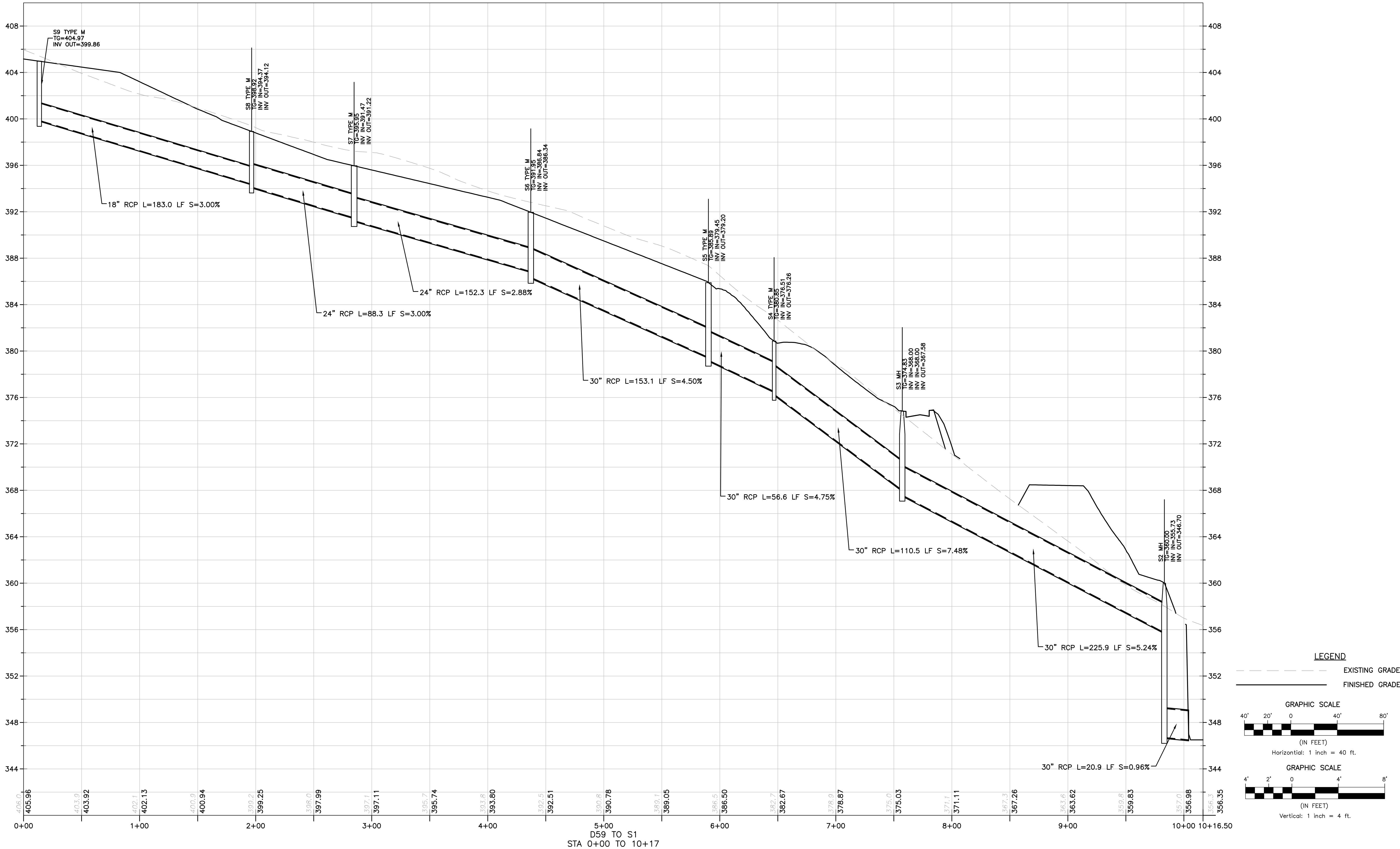
COMMERCE PURSUIT CAPITAL
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MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA
STORM PROFILE-3

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DATE
12/19/2024
SCALE
AS NOTED
PROJ. NO.
WDEV00004
DRAWING
PRF-3
SHEET
16
OF
37

PROJECT INFORMATION:
FILE PATH: C:\Projects\WDEV\00004\Plans\
FILE NAME: WDEV00004_PRF.dwg
DATE: 12/19/2024 4:43PM
LAST SAVE BY: JKelley

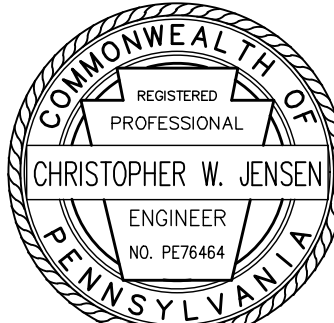
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LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 121 OF
2004. CONTRACTORS MUST VERIFY LOCATIONS AND DEPTHS OF ALL
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LICENSED PROFESSIONAL ENGINEER



12/19/2024
LICENSED PROFESSIONAL ENGINEER
STATE OF PA LICENSE No. PE076464

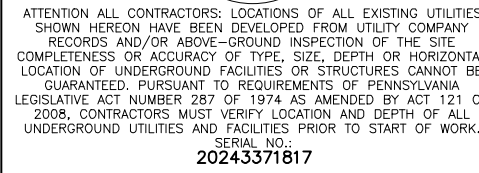
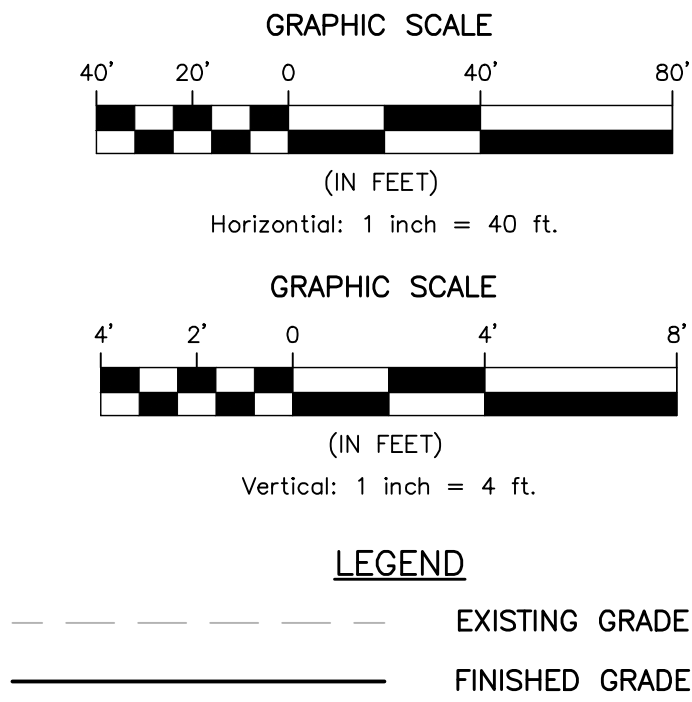

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MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA
STORM PROFILE-4

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DESIGNED BY JPK/CKS/CMR/ROP/ZHR CHECKED BY BGS/ZHR DRAWN BY SCR/CKS/RAM DATE 12/19/2024 SCALE AS NOTED PROJ. NO. WDEV00004	DRAWING PRF-4 SHEET 17 OF 37
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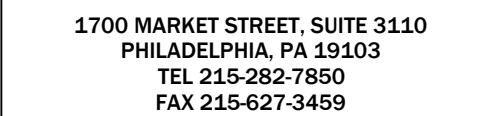
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TROOPER RIDGE SUBDIVISION
1035 NORTH TROOPER ROAD, WORCESTER TOWNSHIP
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

SANITARY PROFILE-5



DESIGNED BY JPK/CKS/CMR/ROP/ZHR	DRAWING PRF-5
CHECKED BY BGS/ZHR	SHEET 18 OF 37
DRAWN BY SCR/CKS/RAM	
DATE 12/19/2024	
SCALE AS NOTED	
PROJ. NO. WDEV00004	

PRF-5

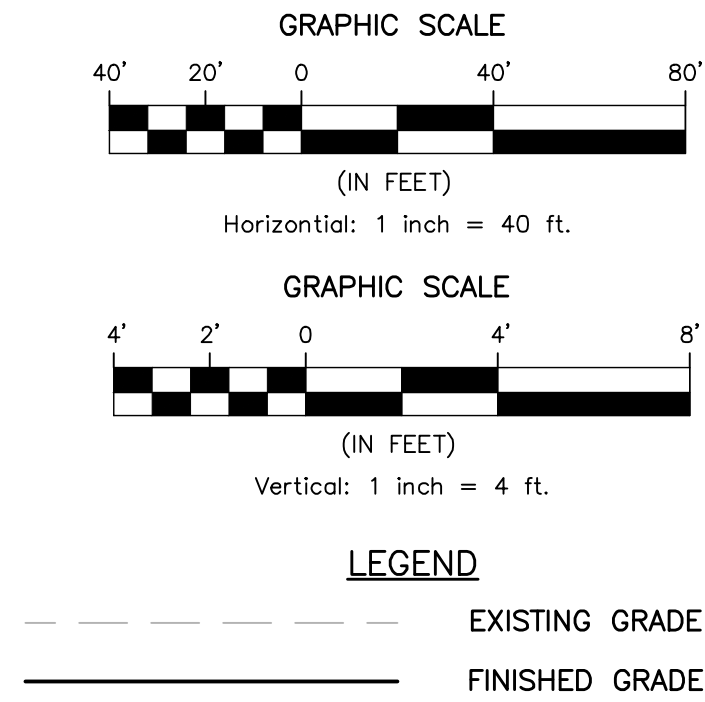
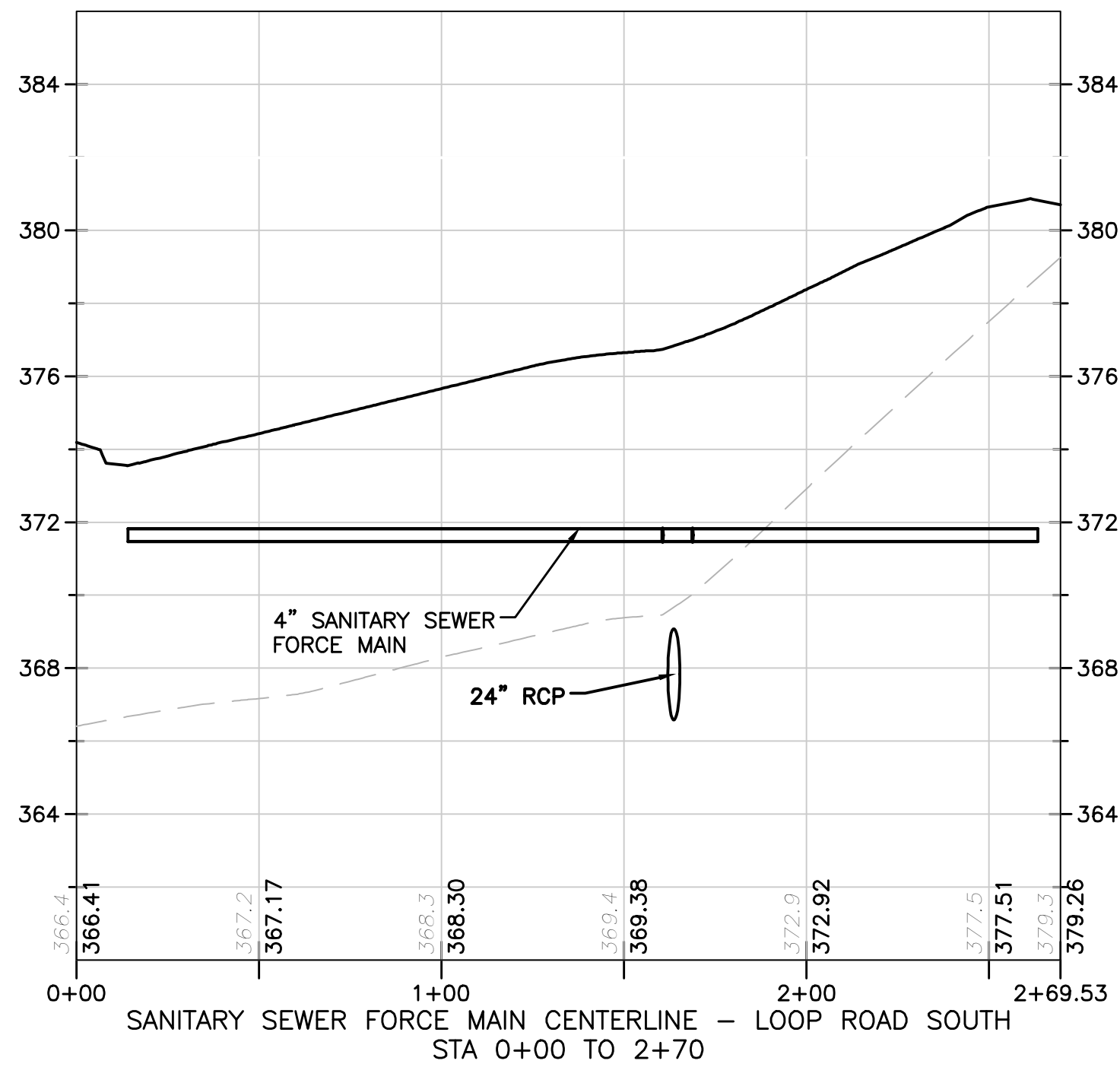
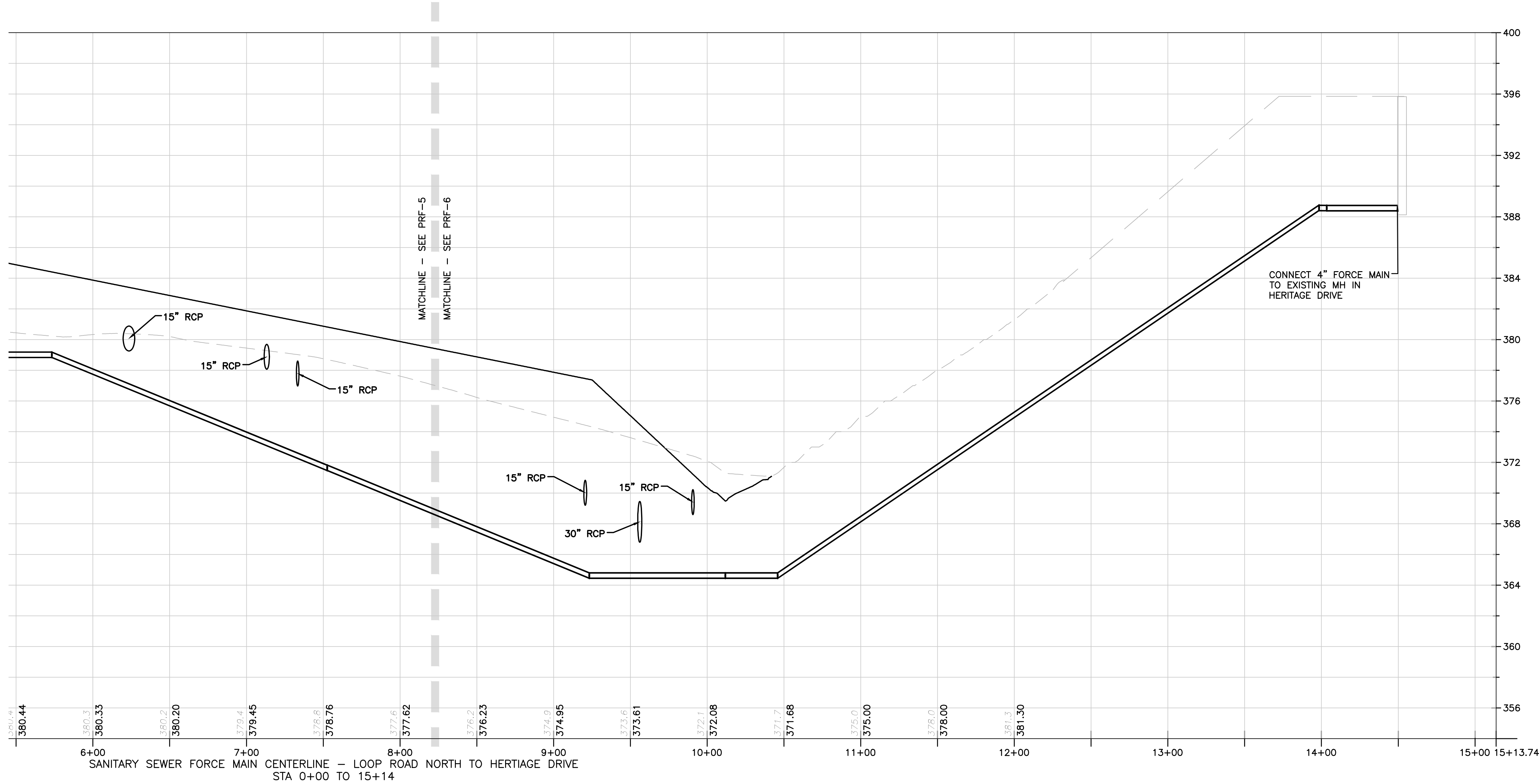
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OF 3

PROJECT INFORMATION:
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FILE NAME: WDEV00004_PRF.dwg
LAST MODIFIED: 12/19/2024 4:43PM
LAST SAVE BY: JKelley

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STATE OF PA LICENSE No. PE076464

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TROOPER RIDGE SUBDIVISION
1035 NORTH TROOPER ROAD, WORCESTER TOWNSHIP
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

SANITARY PROFILE-6

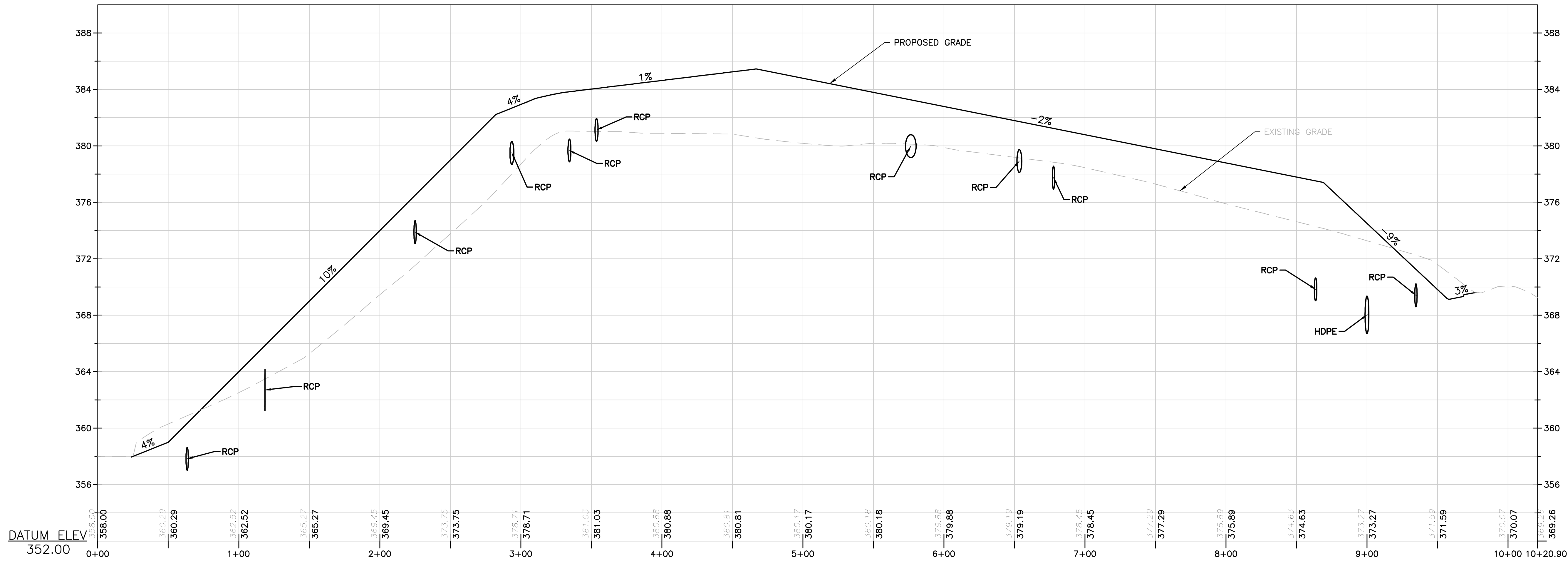
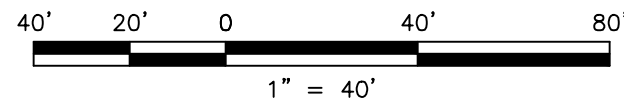
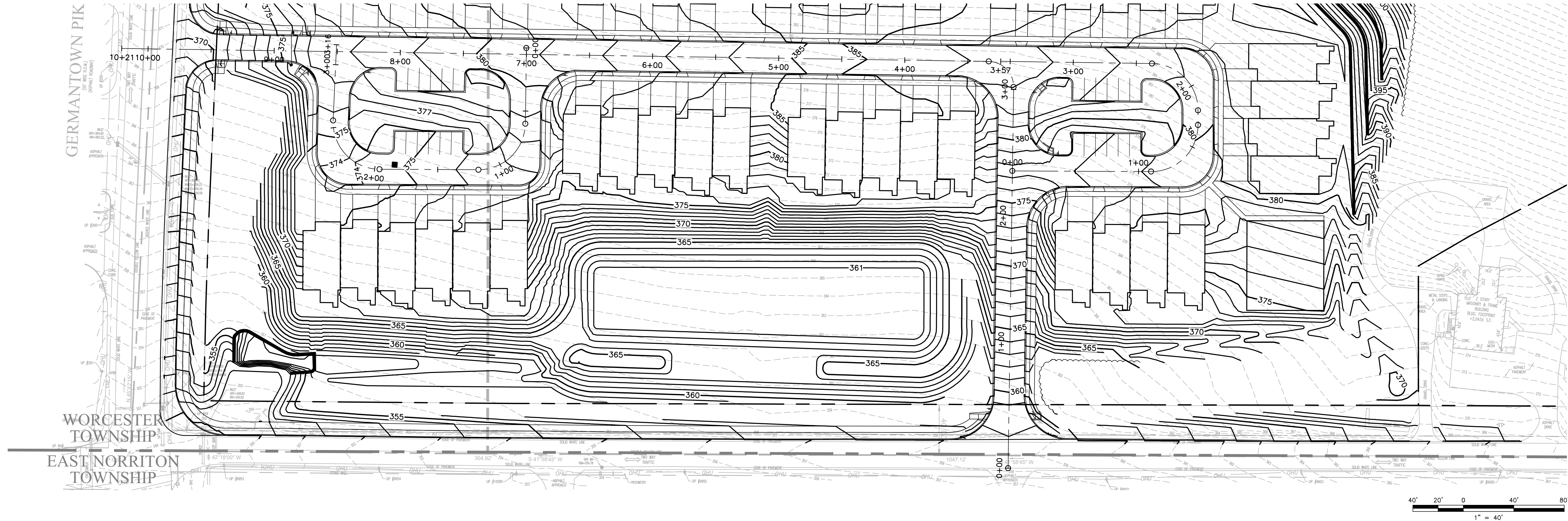
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PHILADELPHIA, PA 19103
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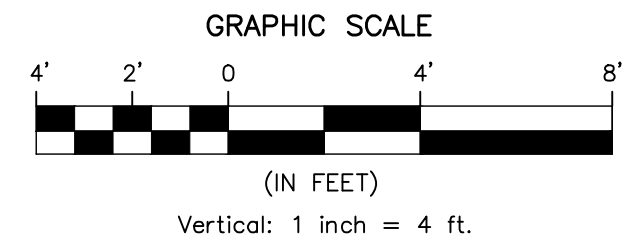
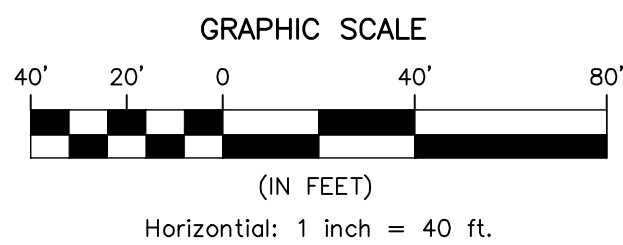
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DATE 12/19/2024	
SCALE AS NOTED	OF 37
PROJ. NO. WDEV00004	

PROJECT INFORMATION:
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FILE NAME: WDEV0000A_PRF -ROAD.dwg
DATE: 12/19/2024 6:17PM
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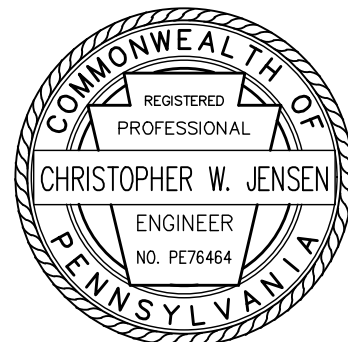
TROOPER ROAD TO GERMANTOWN PIKE CENTERLINE
STA 0+00 TO 10+21



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20243371817

NO.	DATE	REVISIONS	BY	CHKD

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER



12/19/2024
LICENSED PROFESSIONAL ENGINEER
STATE OF PA LICENSE NO. PE076464

COMMERCE PURSUIT CAPITAL

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MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

ROAD PROFILE - CENTERLINE



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PHILADELPHIA, PA 19103
TEL 215-282-7850
FAX 215-627-3459

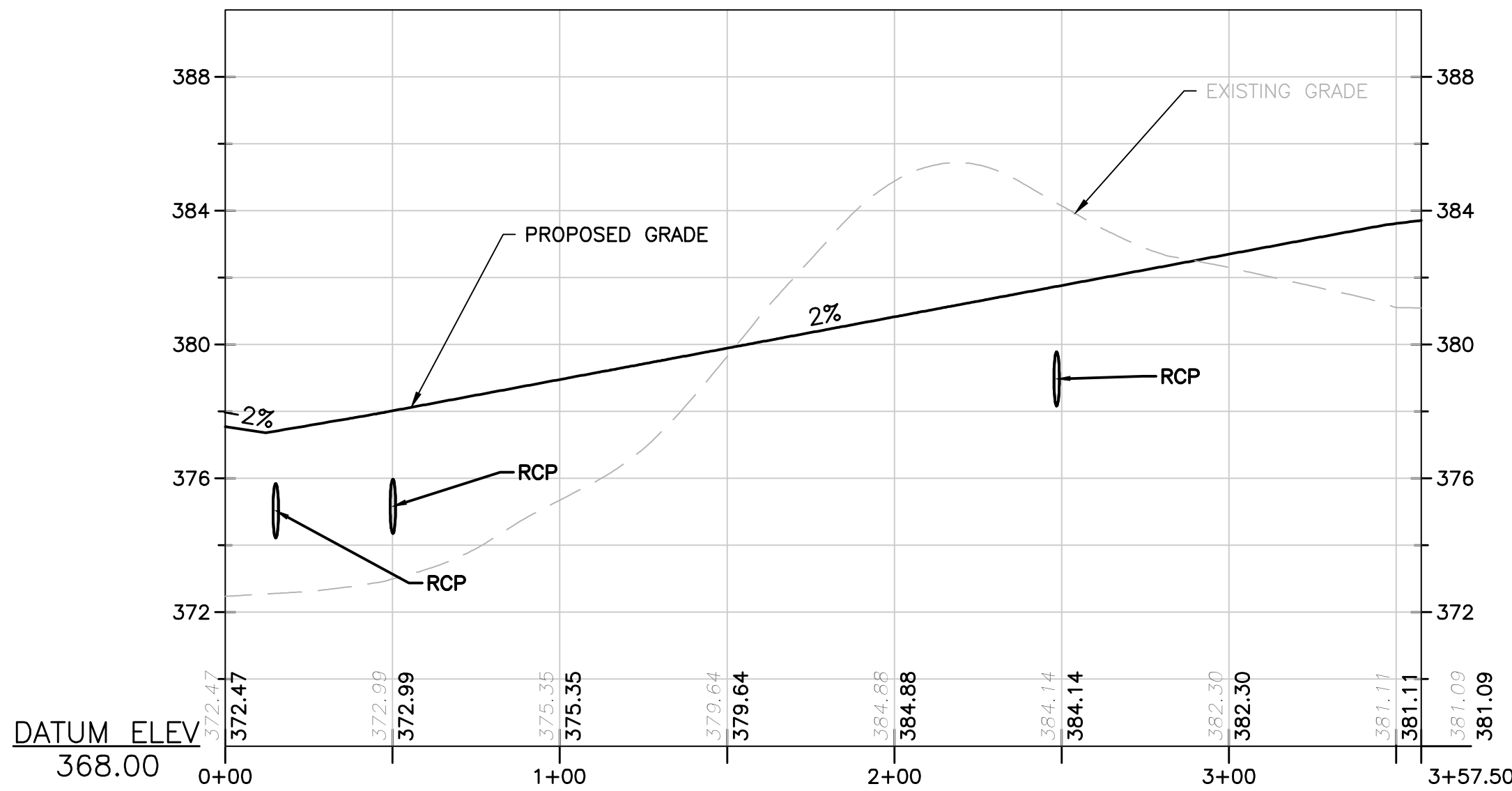
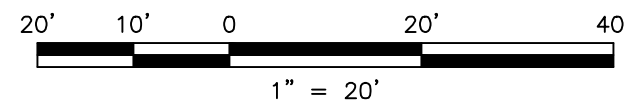
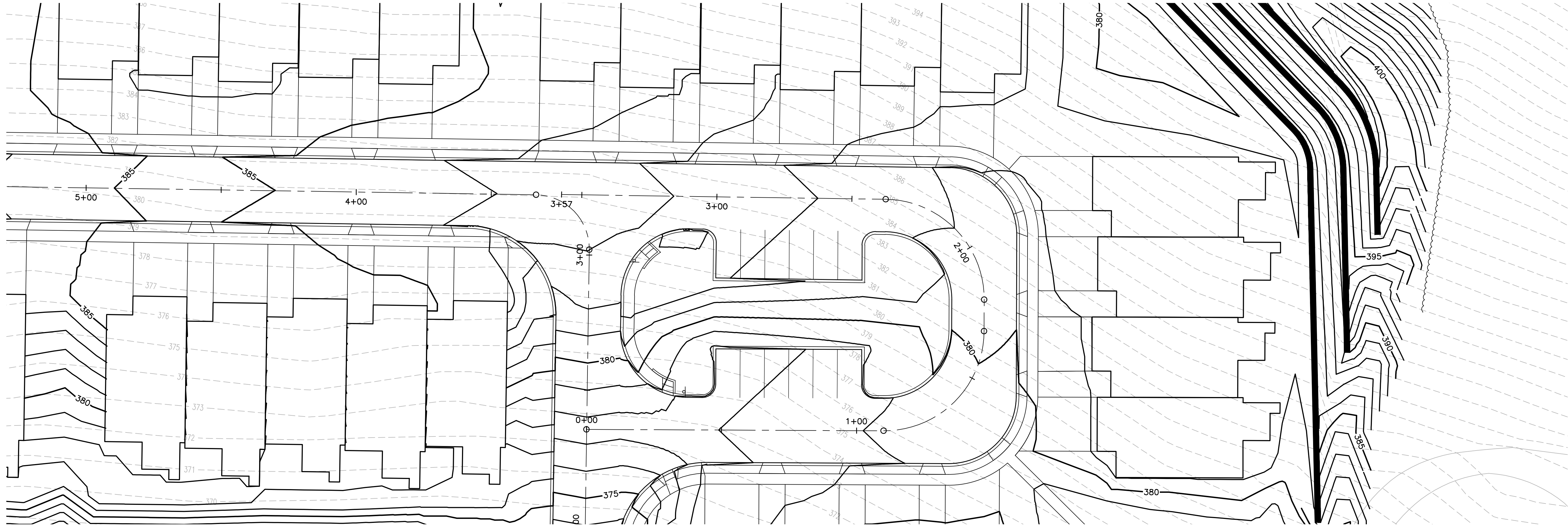
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OHIO AND PENNSYLVANIA

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DATE
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PROJ. NO.
WDEV00004

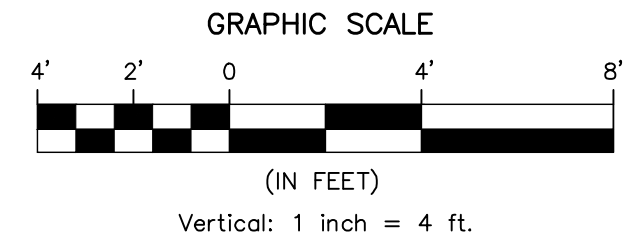
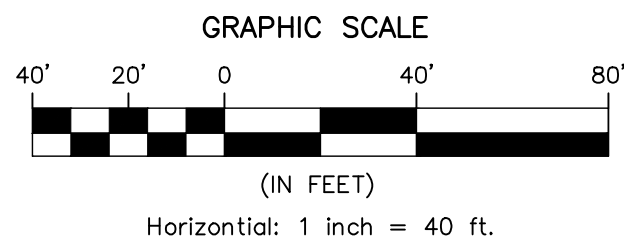
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PRF-7
SHEET
20
OF 37

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FILE NAME: WDEV0000A_PRF -ROAD.dwg
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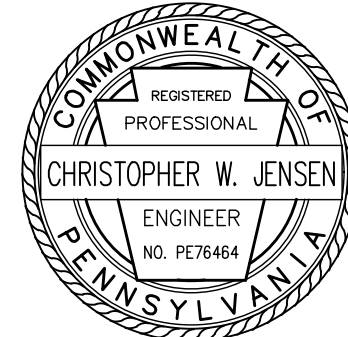
LOOP ROAD NORTH CENTERLINE
STA 0+00 TO 3+57



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LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE
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20243371817

NO.	DATE	REVISIONS	BY	CHKD

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER



12/19/2024
LICENSED PROFESSIONAL ENGINEER
STATE OF PA LICENSE NO. PE076464

COMMERCE PURSUIT CAPITAL

TROOPER RIDGE SUBDIVISION
1035 NORTH TROOPER ROAD, WORCESTER TOWNSHIP
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

ROAD PROFILE - NORTH LOOP



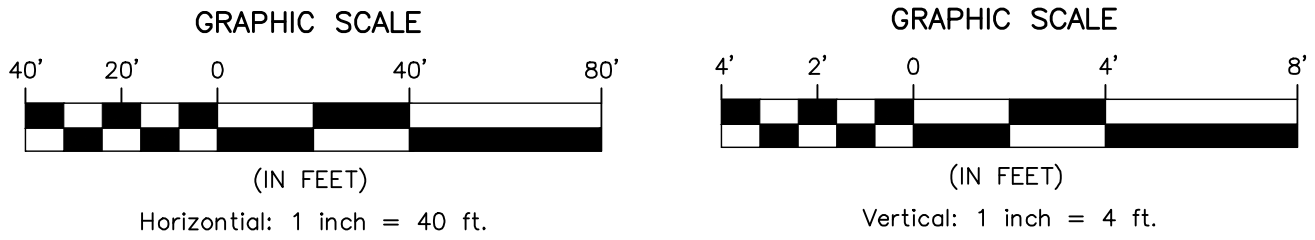
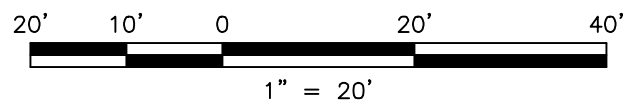
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OHIO AND PENNSYLVANIA

DESIGNED BY
JPK/CKS/CMR/ROP/ZHR
CHECKED BY
BGS/ZHR
DRAWN BY
SCR/CKS/RAM
DATE
12/19/2024
SCALE
AS NOTED
PROJ. NO.
WDEV00004

DRAWING
PRF-8
SHEET
21
OF 37

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LOOP ROAD SOUTH CENTERLINE
STA 0+00 TO 3+16

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES
SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY
RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE.
COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL
LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE
GUARANTEED PURSUANT TO ORDINANCE OF PENNSYLVANIA
LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 121 OF
2008, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL
UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK.

SERIAL NO:
20243371817

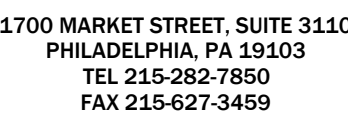
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COMMERCE PURSUIT CAPITAL

TROOPER RIDGE SUBDIVISION
1035 NORTH TROOPER ROAD, WORCESTER TOWNSHIP,
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

1033 NORTH TROUPER ROAD, WORCESTER TOWNSHIP,
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

ROAD PROFILE- SOUTH LOOP



OFFICES LOCATED IN:
CALIFORNIA, INDIANA, KENTUCKY,
MASSACHUSETTS, MICHIGAN, NEW JERSEY,
OHIO AND PENNSYLVANIA

DESIGNED BY
BY (C/K/S) (C/M/D) (D/O/B) (T/U/P)

PK/CKS/CMR/RUP/ZHR	
CHECKED BY	BGS/ZHR

DRAWN BY
SCR/CKS/RAM

DATE 10/10/2024

12/19/2024
SCALE

AS NOTED
PROJ. NO. WDEV00004

DRAWING

PRF-9

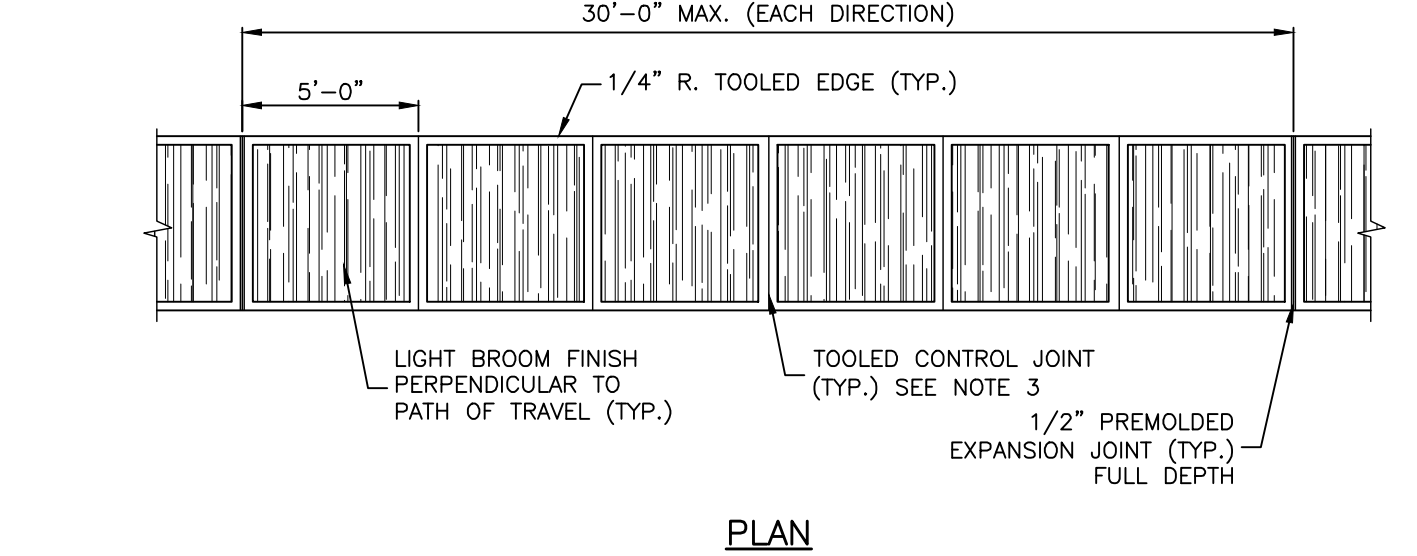
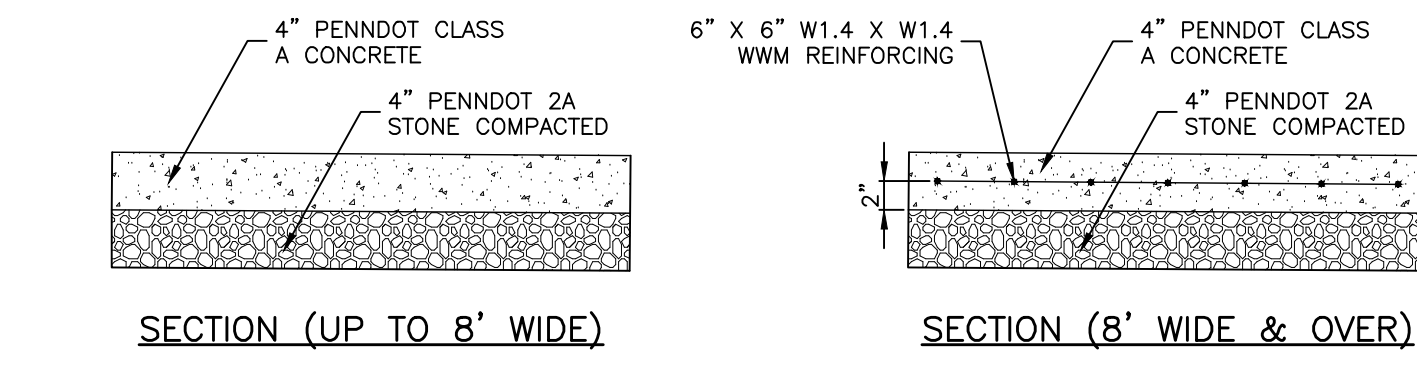
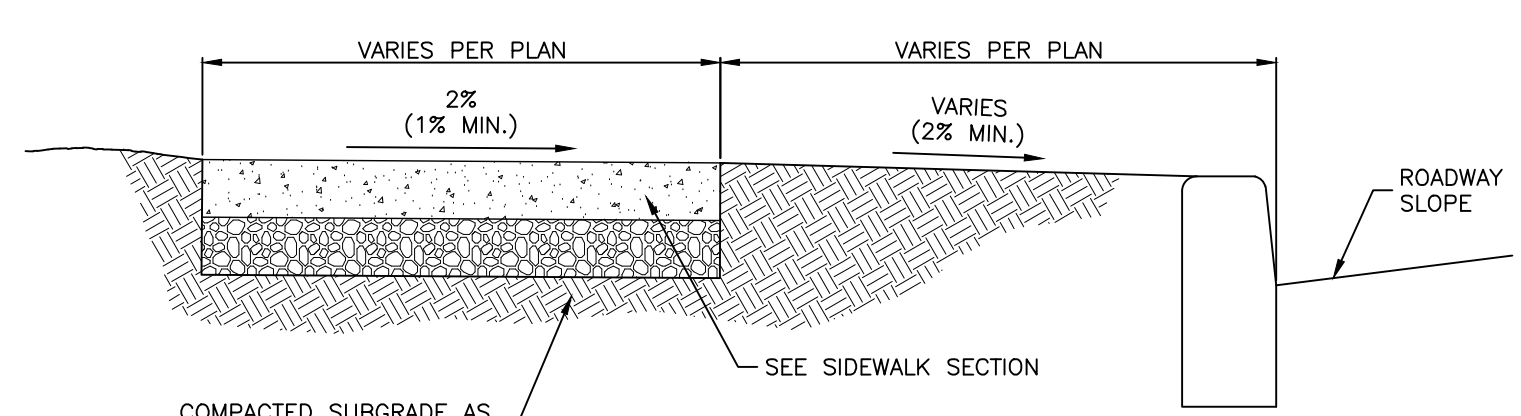
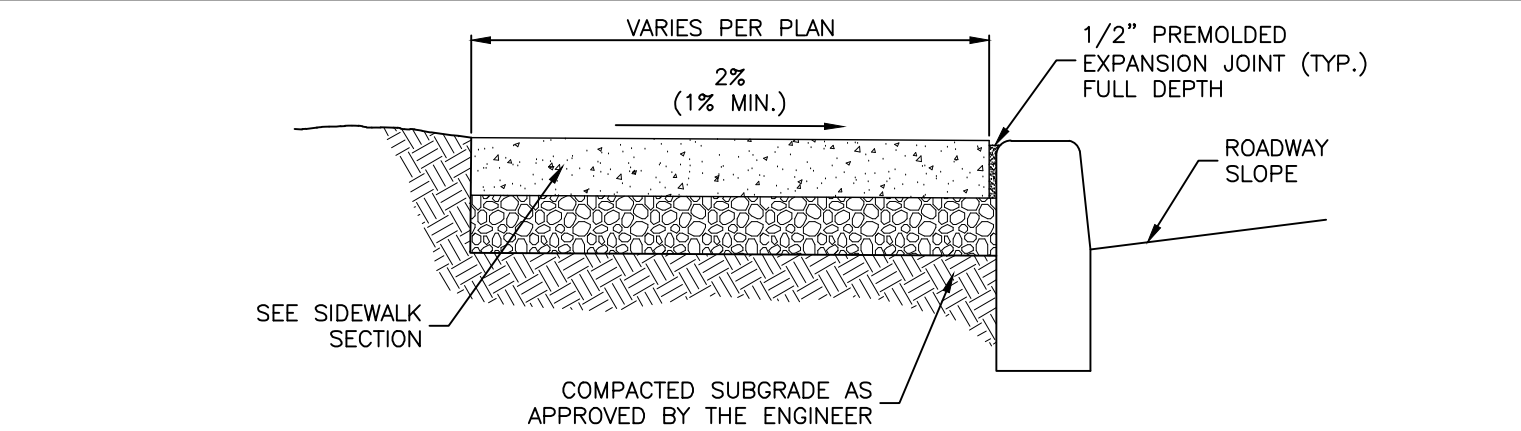
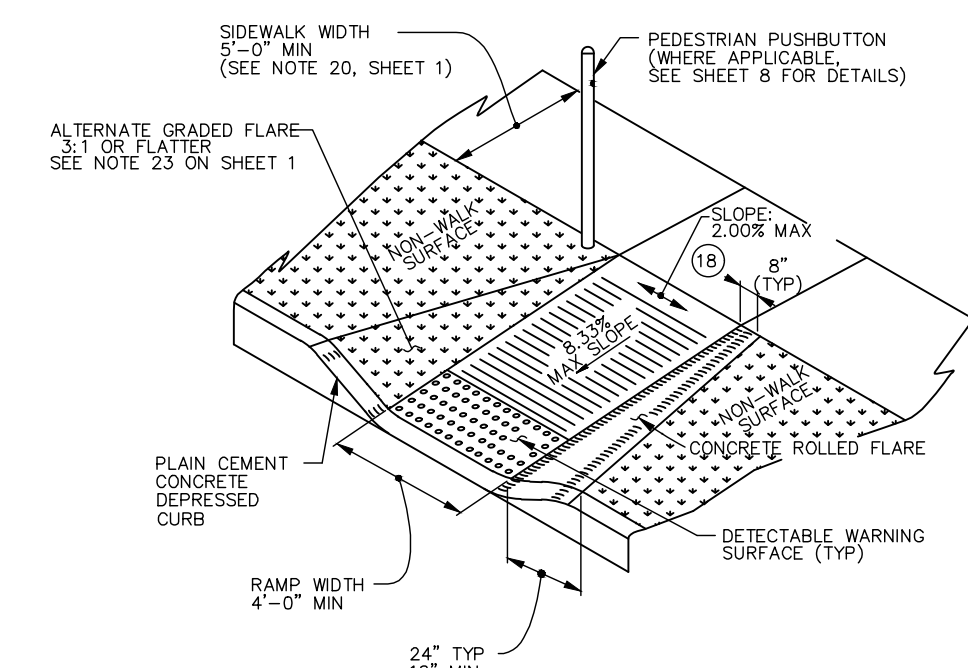
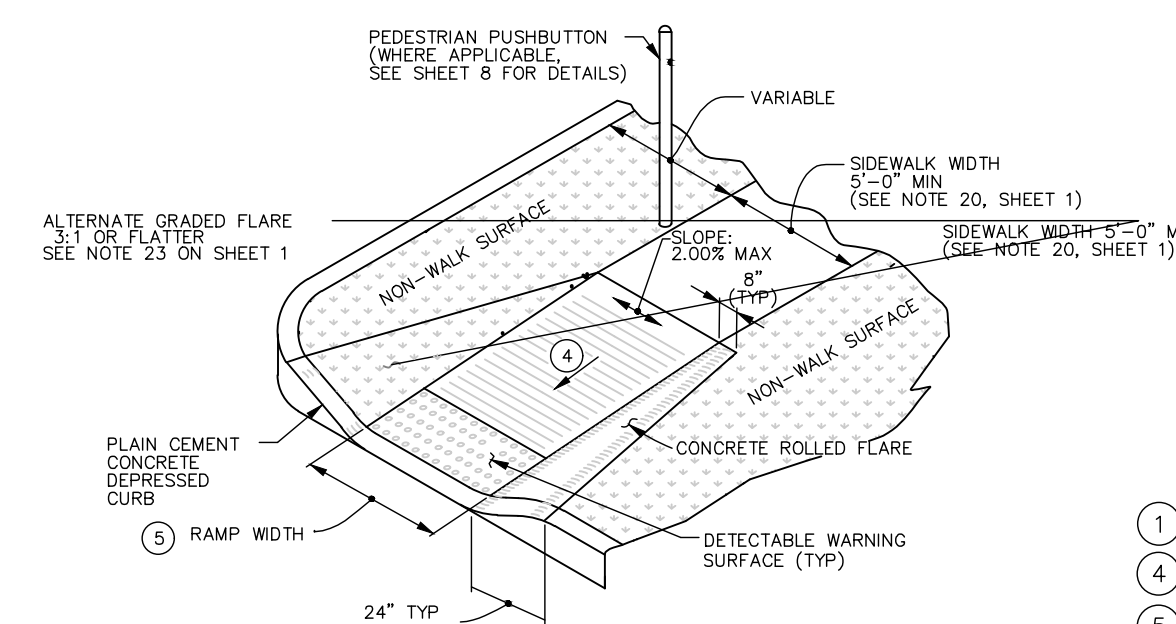
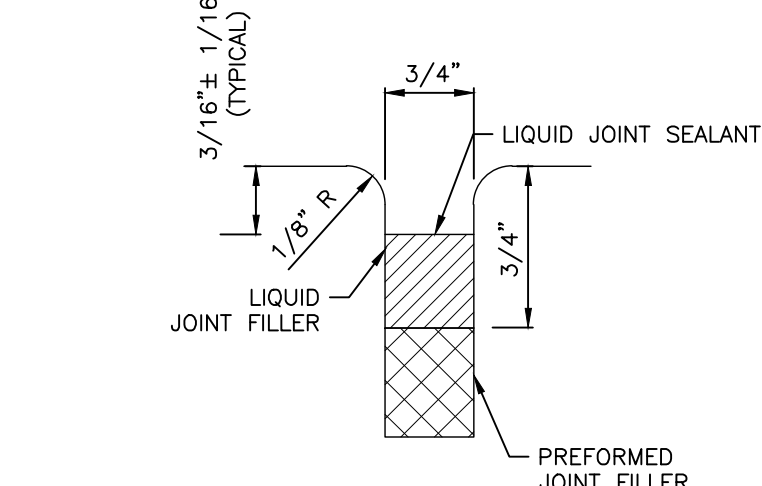
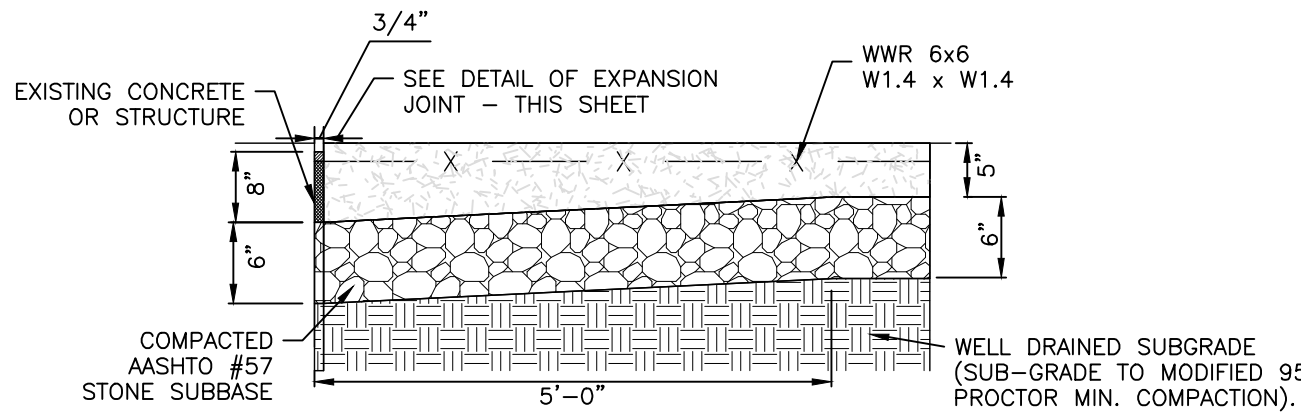
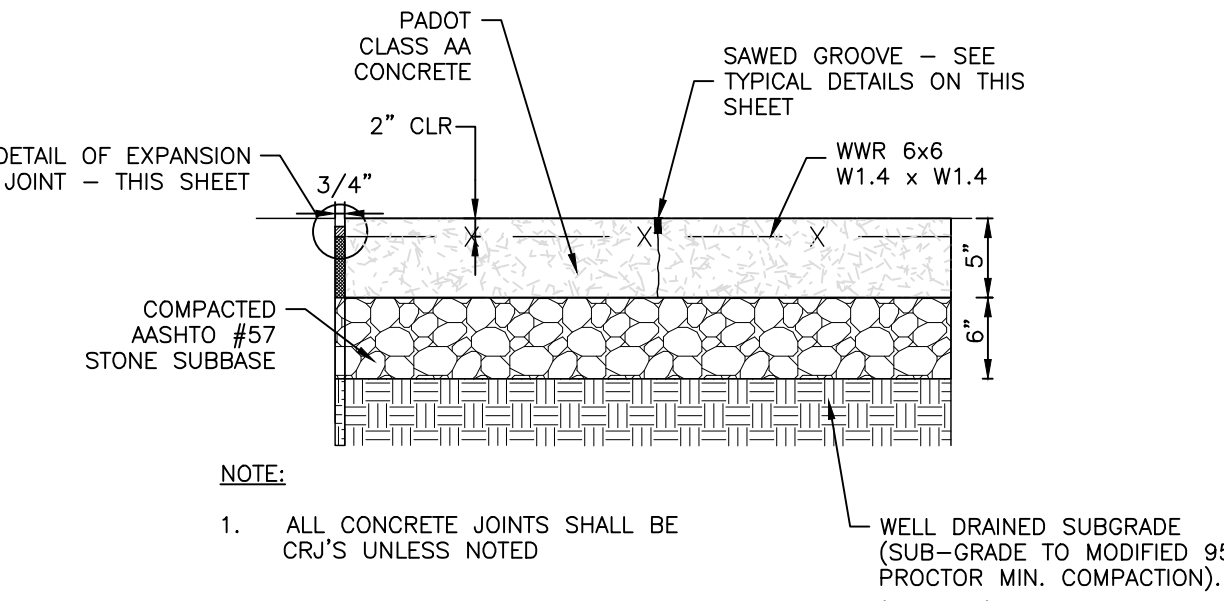
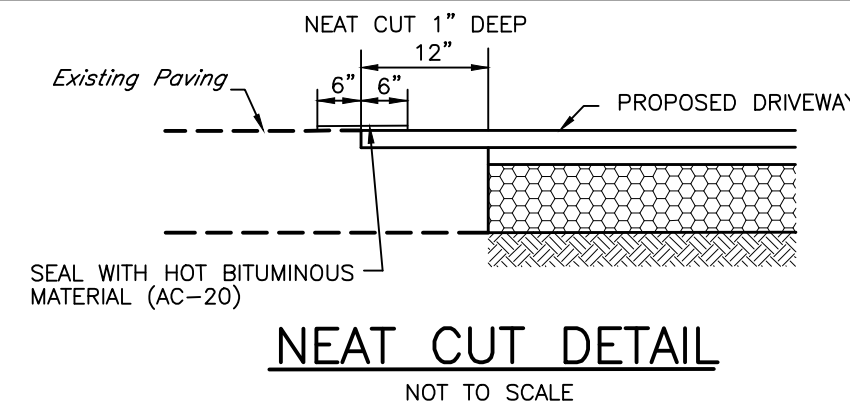
SHEET

22

OF 3

PROJECT INFORMATION:
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FILE NAME: WDEV00004-DTL.dwg
DATE: 18 Dec 2024, 6:16PM
LAST SAVE BY: SRobertis

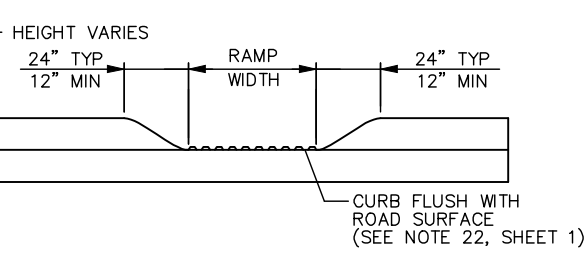
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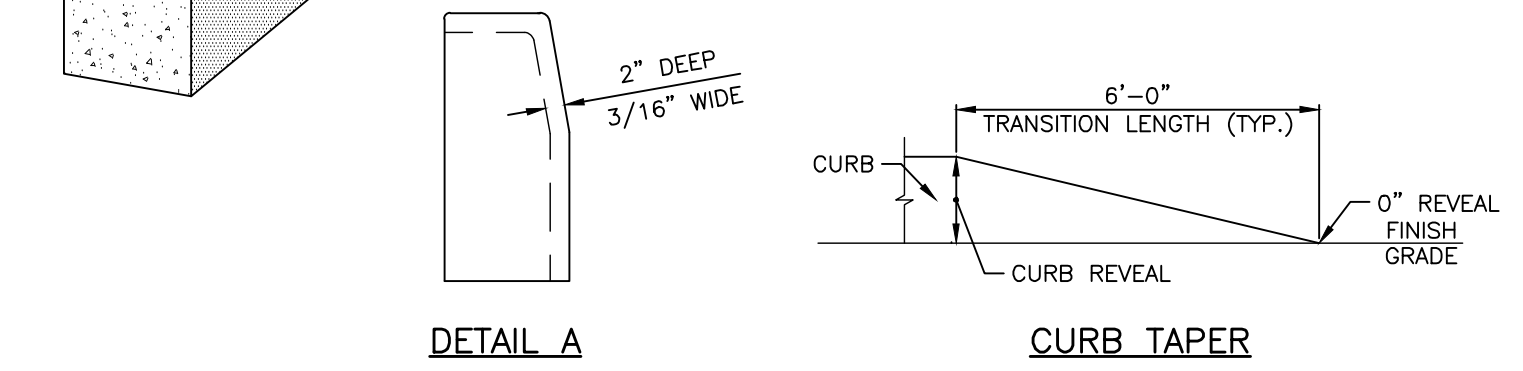
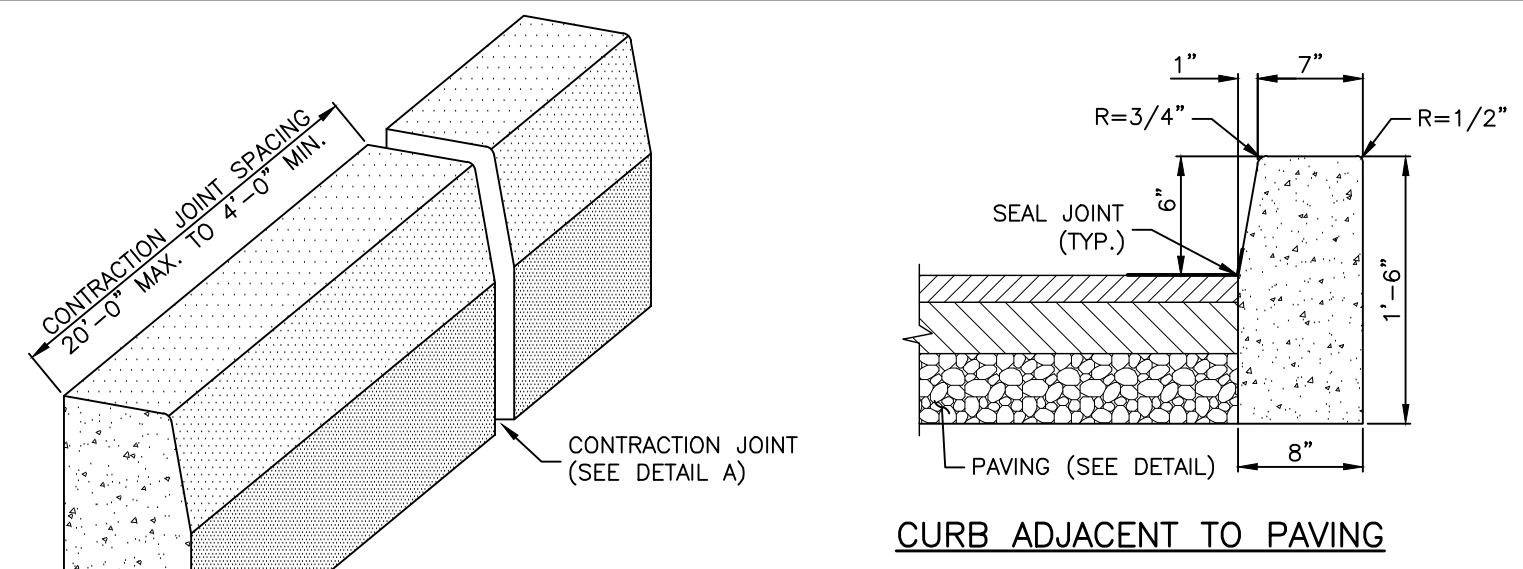
- NOTES:
1. ALL CONSTRUCTION, MATERIALS, METHODS OF CONSTRUCTION AND CONTROL OF WORK TO BE GOVERNED BY THE CURRENT EDITION OF PENNDOT SPECIFICATIONS, PUBLICATION 408.
 2. PLACE 1/2" PREMOLDED EXPANSION JOINT MATERIAL FOR THE FULL DEPTH OF THE SIDEWALK AT 30' INTERVALS OPPOSITE EXPANSION JOINTS IN ADJACENT CURB, BETWEEN THE SIDEWALK AND CURB AND BETWEEN THE SIDEWALK AND ANY RIGID STRUCTURES.
 3. FORM TRANSVERSE TOOLED CONTROL JOINTS AT 5 FOOT INTERVALS, APPROXIMATELY 1/8" WIDE AND AT LEAST 1" DEEP OR PER SCORING DETAIL PLANS WHEN PROVIDED.
 4. ALL EXPOSED CONCRETE SHALL BE SEALED WITH AQUORON OPT-2000 OR APPROVED EQUAL.
 5. EXISTING CONCRETE TO BE REMOVED, ADJACENT TO EXISTING CONCRETE TO REMAIN, SHALL BE SAW CUT FULL DEPTH AT AN EXISTING CONTROL JOINT.
 6. FOR USE WITHIN PEDESTRIAN TRAVEL AREAS.
 7. CONCRETE USED IN CURBING WORK SHALL BE AT LEAST 3,000 POUNDS PER SQUARE INCH AT 28 DAYS WITH CERTIFICATION OF THE MIX FURNISHED TO THE TOWNSHIP ENGINEER. CONCRETE SHALL BE PLACED IN FORMS THAT ARE STRAIGHT AND SECURELY BRACED. CARE SHALL BE TAKEN TO CONTROL THE WATER CONTENT TO PREVENT SEPARATION OF THE AGGREGATES. THE CONCRETE SHALL HAVE A BROOM FINISH AND THE EDGES SHALL BE FINISHED WITH AN APPROVED EDGING TOOL.

SIDEWALK - CONCRETE

- 1 SIDE FLARES 10.00% MAX SLOPE.
- 4 8.33% MAX RAMP SLOPE, SEE NOTE 8 SHEET 1.
- 5 CURB RAMP WIDTH IS EQUAL TO SIDEWALK WIDTH WHEN THE SIDEWALK WIDTH IS GREATER THAN OR EQUAL TO THE MINIMUM 4'-0".
- 6 SLOPE VARIES SEE RAMP DETAILS.
- 18 CURB RAMPS REQUIRE A TURNING SPACE WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SEE DETAILS FOR LOCATIONS AND DIMENSIONS.

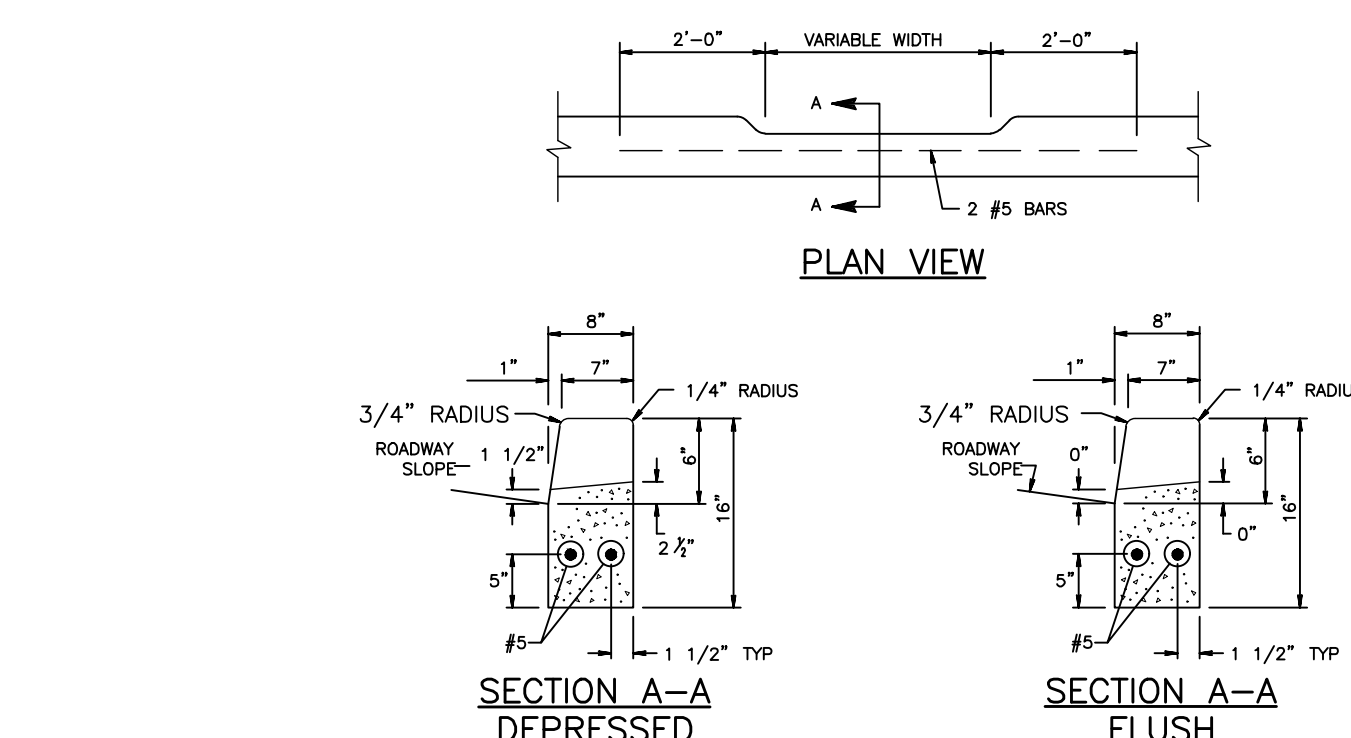
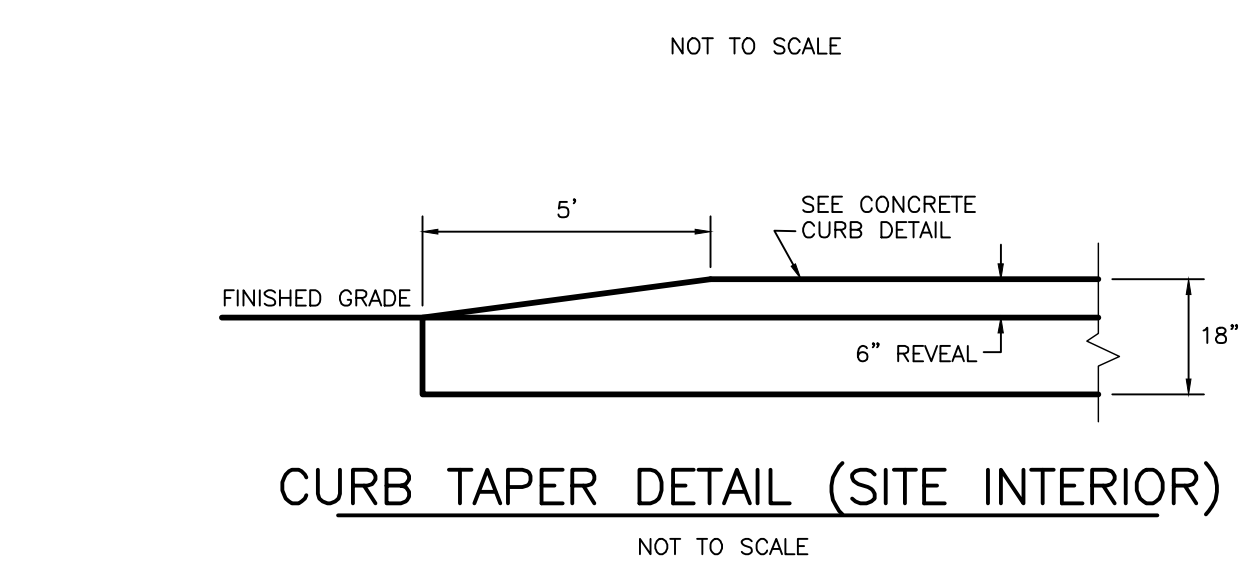


TYPE 4A NON-TRAVERSABLE ROLLED FLARES



- NOTES:
1. CONCRETE SHALL BE PENNDOT CLASS A - MINIMUM.
 2. 3/4" PREMOLDED EXPANSION JOINTS SHALL BE PLACED AT STRUCTURES AND AT THE END OF THE WORK DAY.
 3. FLEXIBLE FORMS SHALL BE REQUIRED FOR ALL CURB RADI WITH A RADIUS OF LESS THAN 150 FEET.
 4. WHERE THE SUBGRADE IS SOFT OR SPONGY, AS DETERMINED BY THE MUNICIPAL ENGINEER, A LAYER OF CRUSHED STONE NOT LESS THAN 4" THICKNESS SHALL BE PLACED UNDER THE CURB.
 5. SEAL JOINT WITH 1" WIDE P664-22 SEALANT OR APPROVED EQUAL (2" UP FACE OF CURB, 10" AWAY FROM CURB).
 6. ALL EXPOSED CONCRETE SHALL BE SEALED WITH AQUORON OPT-2000 OR APPROVED EQUAL.
 7. ALL CONCRETE USED IN THE CONSTRUCTION OF IMPROVEMENTS SHALL BE CERTIFIED TO DEVELOP A COMPRESSIVE STRESS OF AT LEAST 3,000 POUNDS PER SQUARE INCH AT 28 DAYS WITH CERTIFICATION OF THE MIX FURNISHED TO THE TOWNSHIP ENGINEER.

CURB - CONCRETE (SITE INTERIOR)

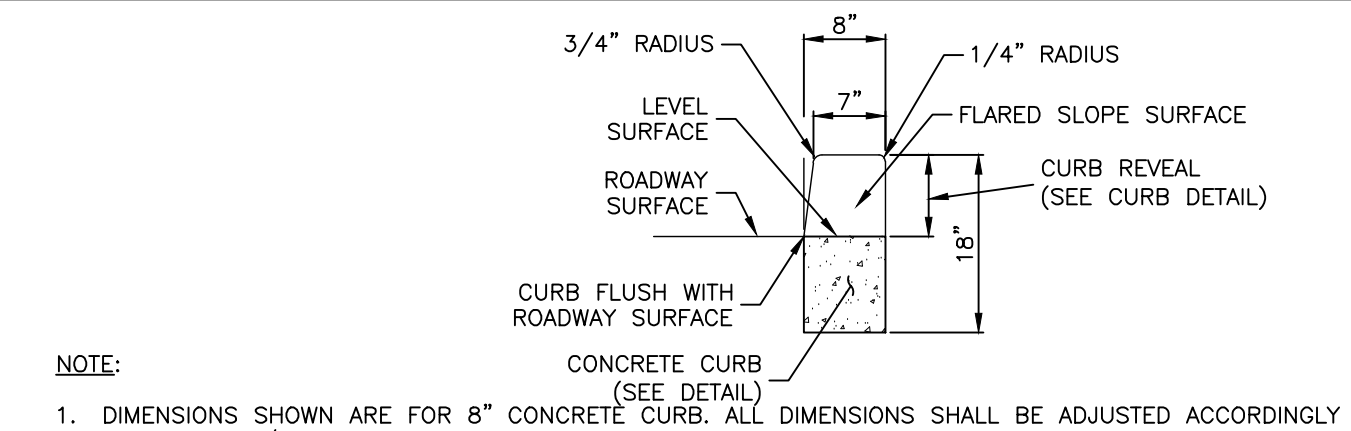


- NOTES:
1. PROVIDE MATERIALS AND CONSTRUCTION MEETING THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT AND PENNDOT PUBLICATION 72M - RC67M.
 2. SPACE CONTRACTION JOINTS IN UNIFORM LENGTHS OR SECTIONS.
 3. PLACE 3/4" THICK PREMOLDED EXPANSION JOINT FILLER MATERIAL AT STRUCTURES AND AT THE END OF THE WORK DAY, CUT MATERIAL TO CONFORM TO AREA ADJACENT TO CURB OR TO CONFORM TO CROSS SECTIONAL AREA OF CURB.
 4. SEE RC-30M FOR PLAN CEMENT CONCRETE CURB SLOPED TOP TREATMENT AT END OF STRUCTURES.
 5. ALL DIMENSIONS ARE IN U.S. CUSTOMARY UNITS.

DEPRESSED AND FLUSH CURB



TYPICAL DETAIL OF SAWED GROOVE

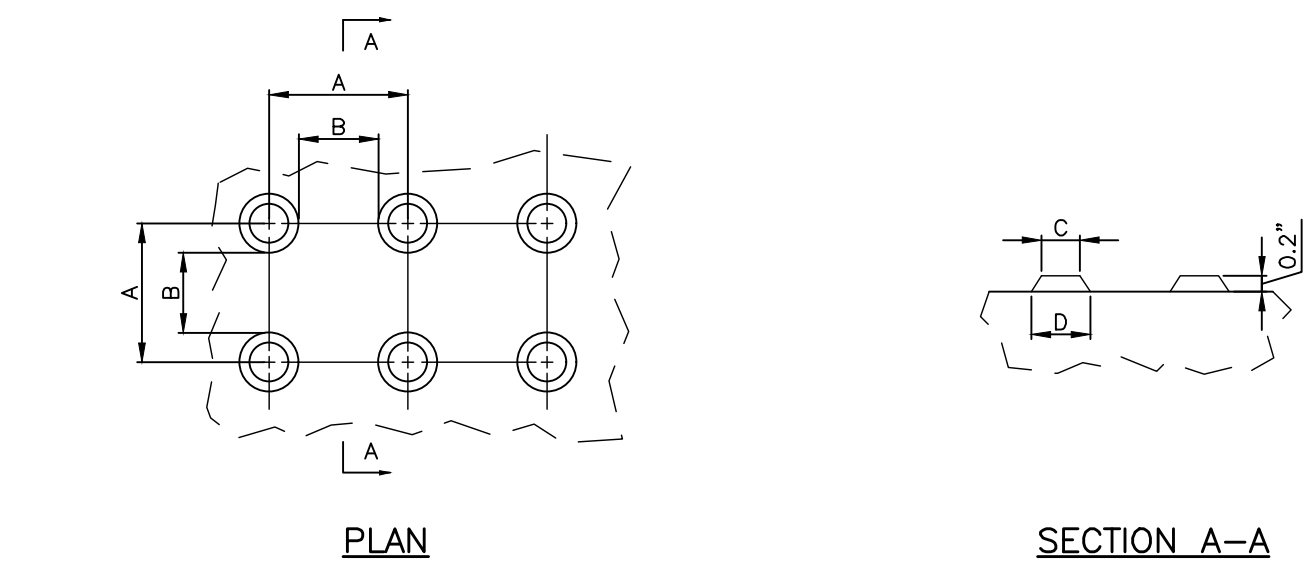


- NOTE:
1. DIMENSIONS SHOWN ARE FOR 8" CONCRETE CURB. ALL DIMENSIONS SHALL BE ADJUSTED ACCORDINGLY FOR VARYING SIZE/TYPE OF CURB.
 2. DEPRESSED CURB FOR CURB RAMPS MUST BE FLUSH TO ADJACENT ROADWAY. EDGE OF ROAD ELEVATIONS AT THE LOW LINE SHALL BE GRADED TO ENSURE POSITIVE DRAINAGE AND PREVENT PONDING.

DEPRESSED CURB AT SIDEWALK CURB RAMPS

- NOTES:
1. PROVIDE MATERIALS AND CONSTRUCTION MEETING THE REQUIREMENTS OF PENNDOT PUBLICATION 408, SECTIONS 350, 409, 630, 676, AND 694.
 2. PROVIDE EXPANSION JOINT MATERIAL 1/2" THICK WHERE CURB RAMP ADJOINS ANY RIGID PAVEMENT, SIDEWALK OR STRUCTURE WITH THE TOP OF JOINT FILLER FLUSH WITH ADJACENT CONCRETE SURFACE.
 3. IF PEDESTRIAN CROSSWALKS ARE NOT WIDE ENOUGH TO PROVIDE MINIMUM 4'-0" X 4'-0" WIDE WHEELCHAIR OVERRUN ZONE AT THE BOTTOM OF THE RAMP, POSITION CROSSWALKS AS INDICATED IN PENNDOT PUBLICATION 72M - RC-67M - DETAIL A, ON SHEET 7.
 4. SEAL JOINTS WITH AN APPROVED SEALING MATERIAL.
 5. PROVIDE SLIP RESISTANT TEXTURE ON CURB RAMP BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP. EXTEND TEXTURE THE FULL WIDTH AND LENGTH OF CURB RAMP INCLUDING FLARED SIDE RAMPS.
 6. MODIFY CONSTRUCTION DETAILS TO ADAPT DIMENSIONS TO EXISTING CURB ALTERATIONS WHERE THE CURB IS LESS THAN THE STANDARD 8" HEIGHT.
 7. CURB RAMP AND SIDE FLARE LENGTHS ARE VARIABLE AND BASED ON CURB HEIGHT AND THE SIDEWALK SLOPE.
 8. IT MAY BE NECESSARY TO LIMIT THE RUN OF A PARALLEL OR PERPENDICULAR CURB RAMP IN ORDER TO AVOID CHASING GRADE INDEFINITELY WHEN TRAVERSING THE HEIGHT OF CURB. RAMP LENGTH NOT TO EXCEED 15'-0", ADJUST RAMP SLOPE AS NEEDED TO PROVIDE ACCESS TO THE MAXIMUM EXTENT POSSIBLE.
 9. WHENEVER POSSIBLE, CONSTRUCT THE TRANSITION SLOPE FROM THE CURB RAMP AND FLARE SIDES TO ADJOINING SURFACES WITH A GRADUAL, ROUNDED SHAPE RATHER THAN AN ABRUPT ANGLE. ENSURE CONSTRUCTION IS WITHIN MAXIMUM SLOPE.
 10. ALIGN DETECTABLE WARNING DOMES ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF THE RAMP AND PERPENDICULAR TO CURB.
 11. PROVIDE DETECTABLE WARNING SURFACES (DWS) 24" MINIMUM (IN THE DIRECTION OF PEDESTRIAN TRAVEL) ACROSS FULL WIDTH OF RAMP AT THE GRADE BREAK NEAR STREET EDGE. PROVIDE DWS THAT CONTRAST VISUALLY WITH ADJACENT WALKWAY SURFACES, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT FOR THE FULL WIDTH OF RAMP. DETECTABLE WARNING SURFACES SHALL COMPLY WITH THE REQUIREMENTS OF PENNDOT PUBLICATION 72M - RC-67M AND ADA REQUIREMENTS.
 12. FOR NEW CONSTRUCTION, DO NOT EXCEED 2.0% CROSS SLOPE ON THE CURB RAMP OR ACCESSIBLE ROUTE.
 13. CONSTRUCT RAMP AND FLARE SLOPES WITH THE FLATTEST SLOPE POSSIBLE. THE SLOPES INDICATED IN THE DETAILS SHOW THE MAX SLOPE ALLOWABLE. IT IS STRONGLY RECOMMENDED TO USE THE SLOPES LISTED ABOVE TO ALLOW FOR CONSTRUCTION TOLERANCES.

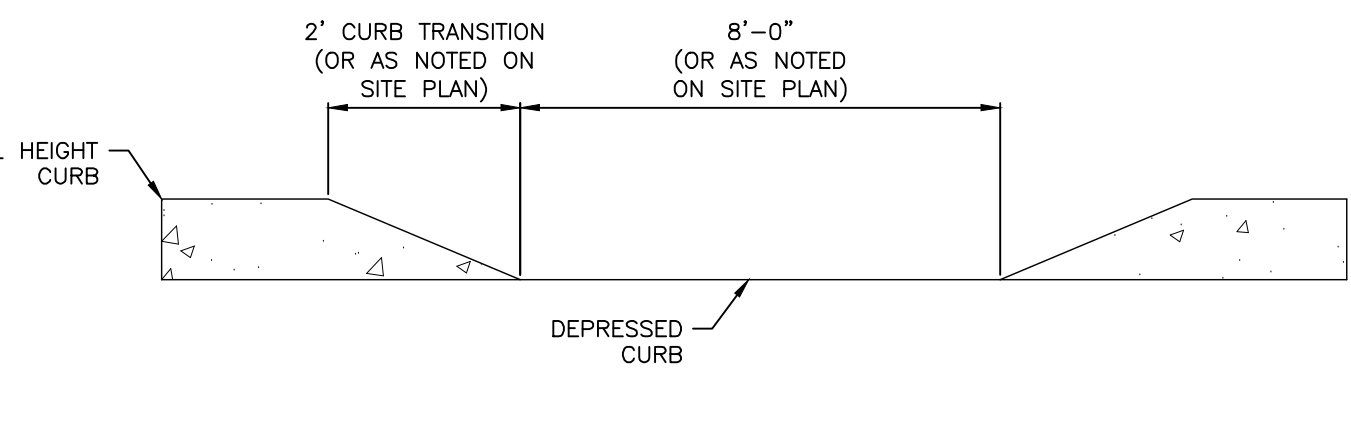
CURB RAMP - GENERAL INFORMATION



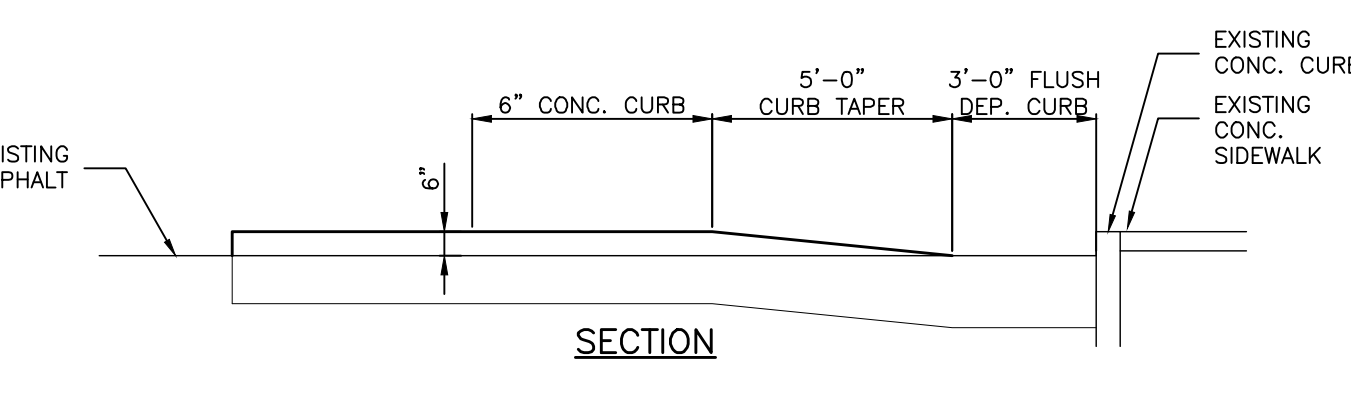
TRUNCATED DOME DIMENSIONS			
DIM	MIN (INCH)	MAX (INCH)	
A	1.6	2.4	
B	0.65	1.5	
C	SEE NOTE 1	SEE NOTE 1	
D	0.9	1.4	

- NOTES:
1. THE C DIMENSION SHALL BE 50% TO 65% OF THE D DIMENSION.
 2. DETECTABLE WARNING SURFACES SHALL COMPLY WITH ALL REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT AND PENNDOT PUBLICATION 72M - RC67M.
 3. DETECTABLE WARNINGS SHALL BE PROVIDED AT ALL LOCATIONS WHERE A PEDESTRIAN WALK CROSSES OR ADJOINS A VEHICULAR WAY AND THE WALKING SURFACES ARE NOT SEPARATED BY CURBS, RAILINGS, OR OTHER ELEMENTS.
 4. DETECTABLE WARNINGS SHALL EXTEND THE FULL WIDTH OF THE WALKING PATH AND BE A MINIMUM OF TWO FEET (2') IN DEPTH.
 5. DETECTABLE WARNINGS SHALL BE ARMOR-TILE (TM) TACTILE SYSTEM - CAST IN PLACE SYSTEM, OR APPROVED EQUAL (WWW.ARMOR-TILE.COM).
 6. COLOR SHALL BE DARK GRAY (FEDERAL COLOR NO. 36118). COLORS SHALL BE SUBMITTED FOR OWNER'S APPROVAL PRIOR TO ORDERING MATERIAL.

DETECTABLE WARNING SURFACE



CURB CUT DETAIL



CURB ISLAND DETAIL

12/19/2024
LICENSED PROFESSIONAL ENGINEER
STATE OF PA LICENSE NO. PE076464

COMMERCE PURSUIT CAPITAL

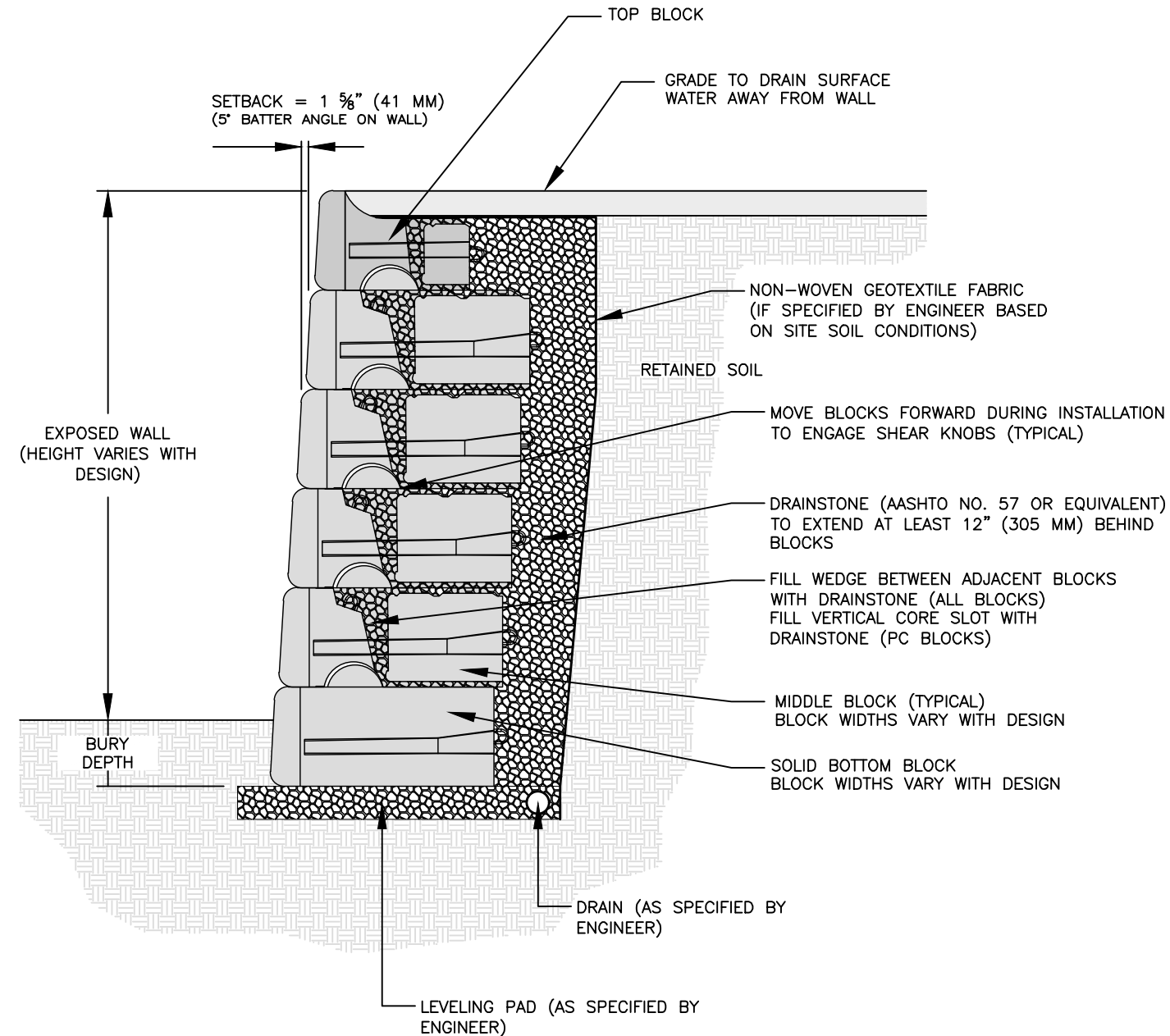
TROOPER RIDGE SUBDIVISION
1025 NORTH TROOPER ROAD, WORCESTER TOWNSHIP
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

CONSTRUCTION SITE DETAILS-1

1700 MARKET STREET, SUITE 3110
PHILADELPHIA, PA 19103
TEL 215-282-7850
FAX 215-627-3459

OFFICES LOCATED IN:
CALIFORNIA, INDIANA, KENTUCKY,
MASSACHUSETTS, MICHIGAN, NEW JERSEY,
OHIO AND PENNSYLVANIA

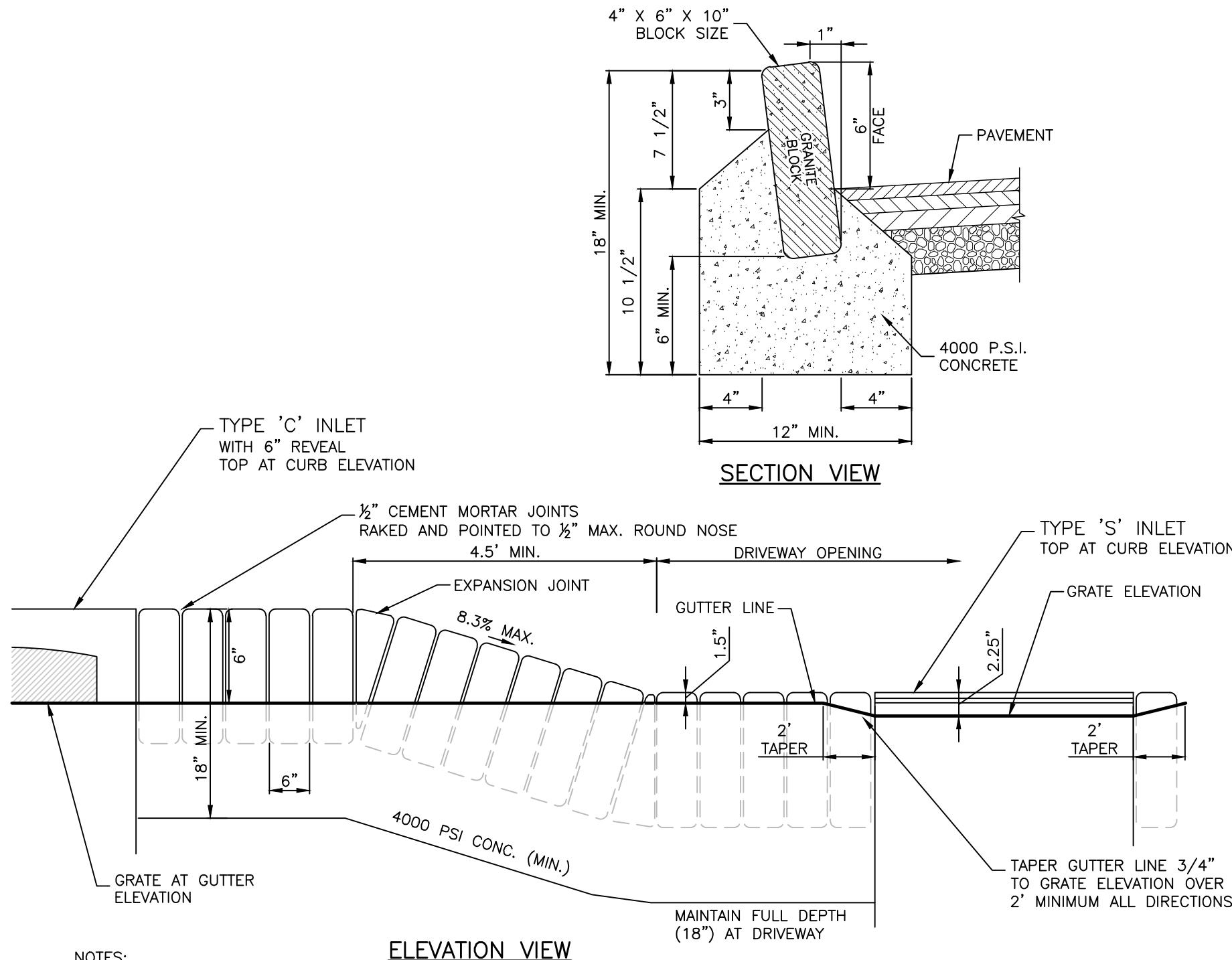
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CHECKED BY BGS/ZHR	SHEET
DRAWN BY SCR/CKS/RAM	23
DATE 12/19/2024	OF 37
SCALE AS NOTED	
PROJ. NO. WDEV00004	



- NOTES:
1. GRAVITY BLOCK WALL BY REDI-ROCK OR APPROVED EQUAL MANUFACTURER.
 2. COMPLETE DESIGN CALCULATIONS, SHOP DRAWINGS, SPECIFICATIONS, MANUFACTURER AND CONSTRUCTION DETAILS OF THE PROPOSED GRAVITY WALL SYSTEM, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER IN THE STATE OF PENNSYLVANIA, SHALL BE PROVIDED TO AND APPROVED BY THE LOCAL GOVERNING AGENCY PRIOR TO CONSTRUCTION.
 3. THE WALLS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH ALL APPLICABLE STANDARDS, INCLUDING BUT NOT LIMITED TO, AASHTO, MUNICIPAL REGULATIONS, BUILDING CODES, AND THE MANUFACTURER'S SPECIFICATIONS.
 4. A GEOTECHNICAL ENGINEER SHALL INSPECT THE CONSTRUCTION OF THE WALLS.

GRAVITY WALL — TYPICAL SECTION

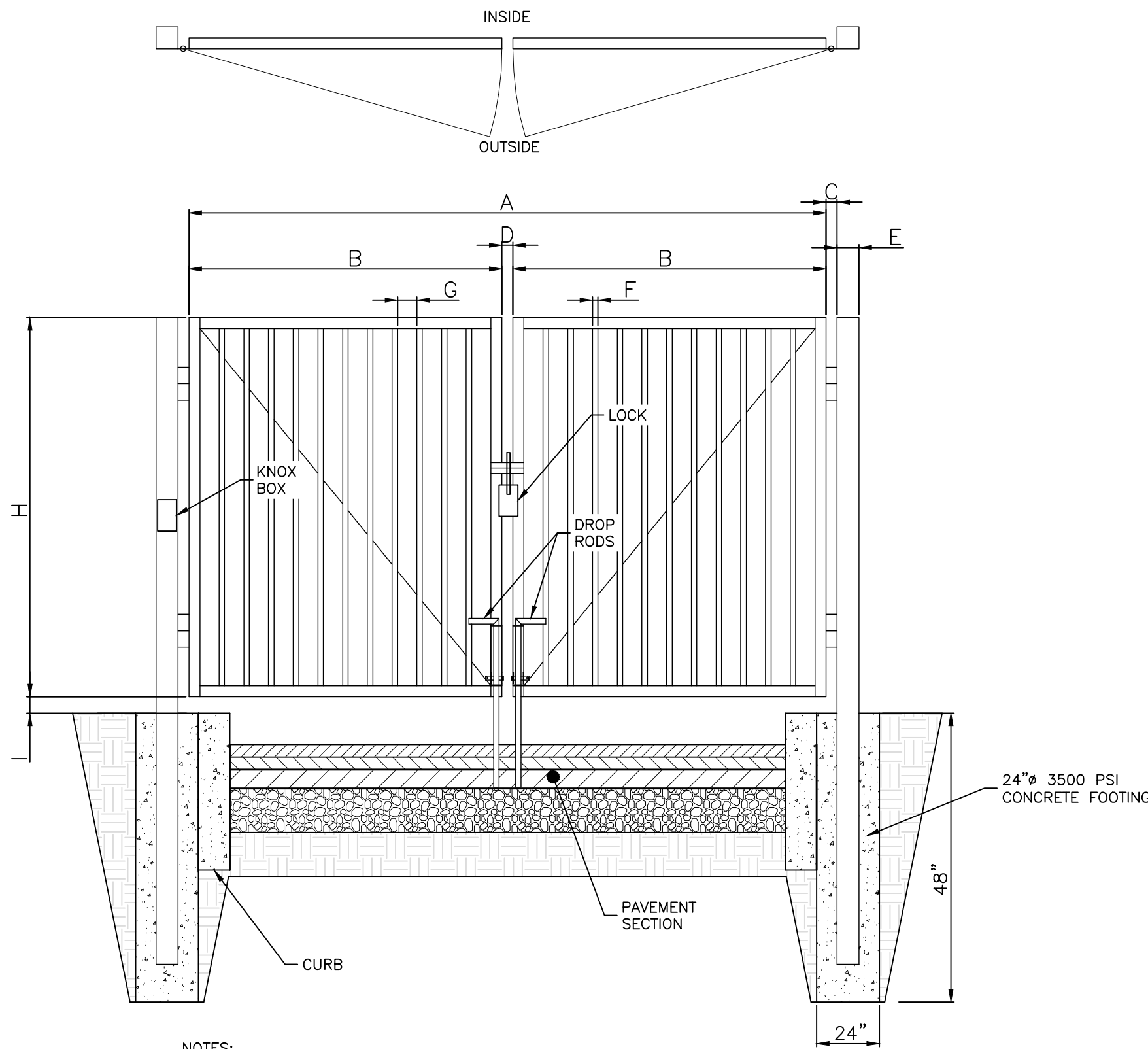
NOT TO SCALE



- NOTES:
1. BELGIAN BLOCK CURBING SHALL BE SELECTED SO THAT THE BLOCK IS A UNIFORM 4" THICKNESS THROUGHOUT THE SITE.
 2. JOINTS WHERE BELGIAN BLOCK CURBING ABUT WITH SOLDIER COURSE PAVEMENT SHALL BE FILLED WITH A MIXTURE OF PORTLAND CEMENT MIXED WITH WHITE SAND (1:1).
 3. MORTAR JOINTS BETWEEN BELGIAN BLOCK SHALL BE NO GREATER THAN 1/2" IN WIDTH.
 4. JOINTS ARE TO BE GROUDED USING BAKER'S BAG OR SIMILAR AND TOOL STRUCK.
 5. JOINTS ARE TO BE TOOL STRUCK WITH 1/4" (MAX.) RODDED FINISH. EXCESS GROUT SHALL BE REMOVED SO THAT JOINT HAS SMOOTH FINISH.
 6. BELGIAN CURB TRANSITION AT P.C. OR P.T. INCREASE ANGLE OF GRANITE BLOCK IN EVEN INCREMENTS BEGINNING WITH 11± DEGREES AND ULTIMATELY REACHING 90 DEGREES.
 7. STORM INLETS IN FULL HEIGHT AREAS TO UTILIZE 6" HIGH REVEAL MODIFIED TYPE "C" HOOD. STORM INLETS ALONG DEPRESSED AREAS TO UTILIZE PADOT TYPE "S" HOOD.

CURB — GRANITE — BELGIAN

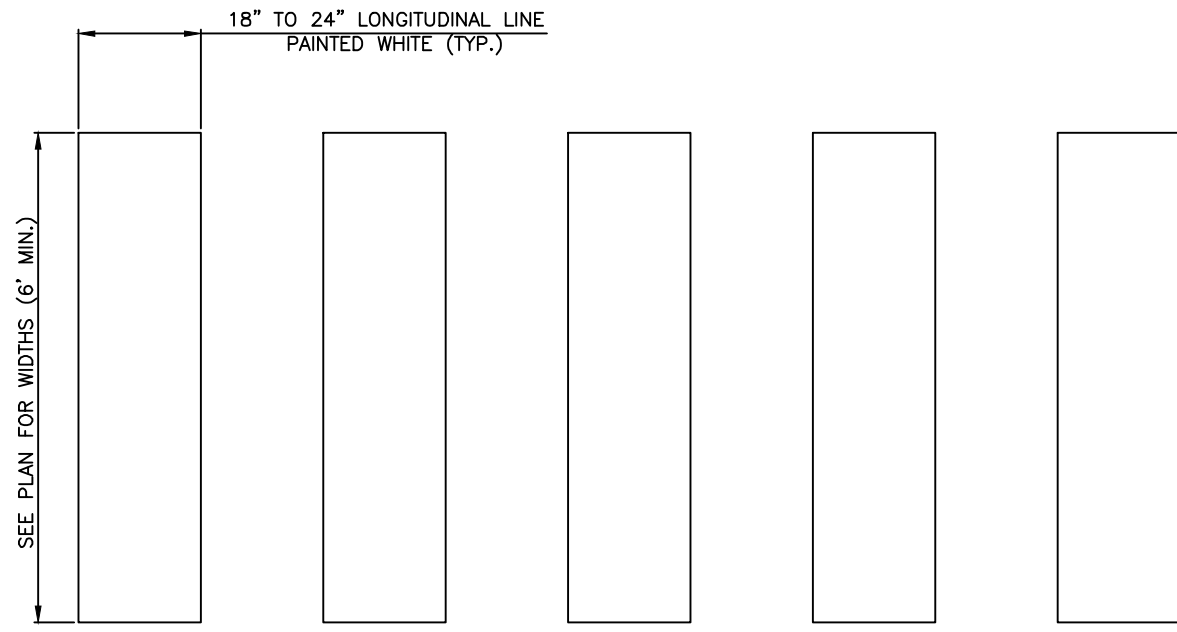
NOT TO SCALE



- NOTES:
1. ORNAMENTAL STEEL FENCE BY AMERICAN FENCE COMPANY OR APPROVED EQUAL.
 2. COLOR: BLACK
 3. "A" INSIDE TO INSIDE CLEAR OPENING: 22 FT
 4. "B" LEAF WIDTH: 10.75 FT
 5. "C" HINGE GAP: 2 IN
 6. "D" LATCH GAP: 2 IN
 7. "E" POST SIZE: 4 IN X 4 IN X 0.125 IN WALL
 8. "F" PICKET SIZE: 1 IN X 1 IN X 0.062 IN WALL
 9. "G" PICKET INSIDE TO INSIDE SPACING: 3.75 IN
 10. "H" GATE LEAF HEIGHT: 4 FT
 11. "I" CLEARANCE GAP: 3 IN
 12. GATE SWING: OUTSIDE
 13. PROVIDE CONCRETE FOOTING AS SHOWN FOR GATE POSTS
 14. PROVIDE LOCK AND KNOX BOX FOR EMERGENCY ACCESS. PROVIDE DROP RODS THAT SECURE TO GATE LEAF IN UP POSITION.

ORNAMENTAL STEEL DRIVEWAY GATE

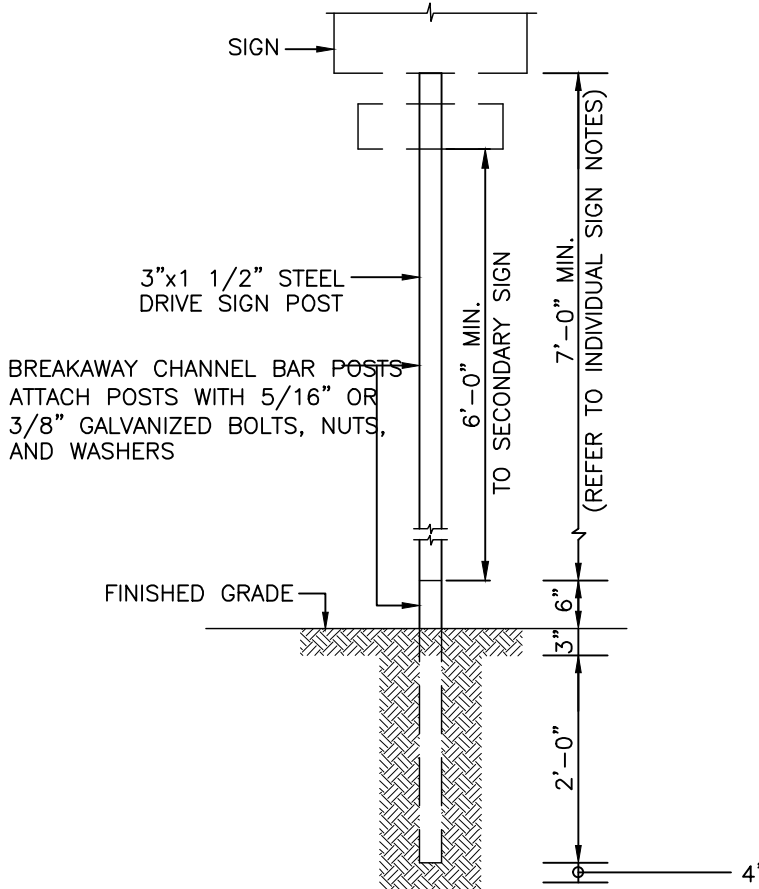
NOT TO SCALE



- NOTES:
1. THIS TYPE OF MARKING SHOULD BE USED AT LOCATIONS WHERE SUBSTANTIAL NUMBERS OF PEDESTRIANS CROSS WITHOUT ANY OTHER TRAFFIC CONTROL DEVICE. AT LOCATIONS WHERE PHYSICAL CONDITIONS ARE SUCH THAT ADDED VISIBILITY OF THE CROSSWALK IS NECESSARY, OR AT PLACES WHERE PEDESTRIANS MIGHT NOT BE EXPECTED.
 2. ALL CROSSWALKS SHALL COMPLY WITH THE FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD), AS AMENDED.
 3. LONGITUDINAL LINES SHALL BE PERPENDICULAR TO TRAVELED WAY THE EXTEND ACROSS THE FULL WIDTH OF PAVEMENT OR TO THE EDGE OF THE INTERSECTING CROSSWALK TO DISCOURAGE DIAGONAL WALKING BETWEEN CROSSWALKS.
 4. ALL CROSSWALK LONGITUDINAL LINES SHALL BE WHITE THERMOPLAST, ALL LINES AND NEUTRAL AREAS SHALL BE OF EQUAL WIDTHS.
 5. WARNING SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH MUTCD, AS AMENDED.
 6. THE SPACING OF THE LINES SHALL BE SELECTED TO AVOID THE WHEEL PATH.

CROSSWALK STRIPING DETAIL

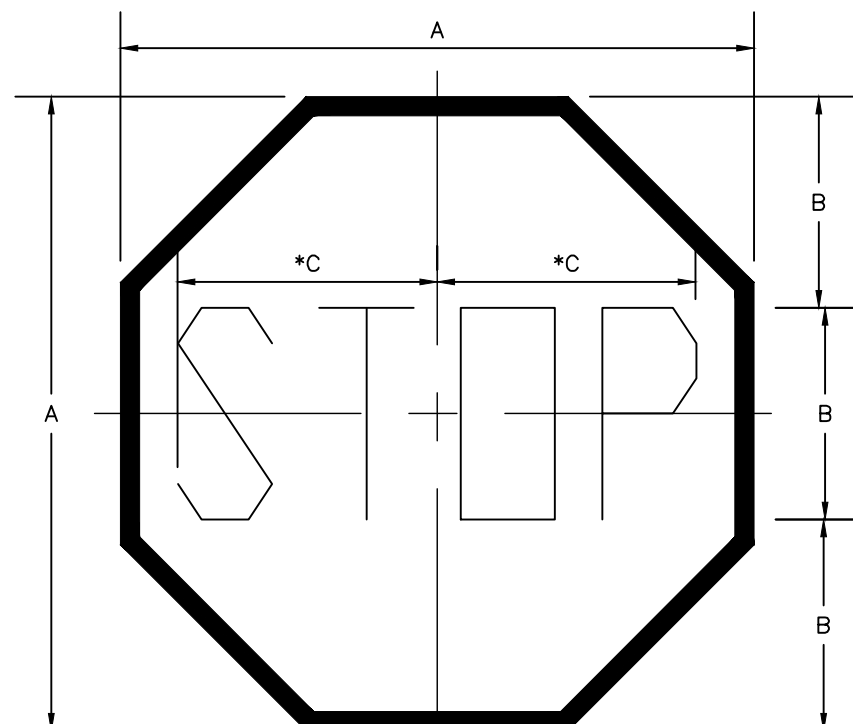
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- NOTE:
1. POSTS TO BE TYPE "B" BREAKAWAY CHANNEL BAR POSTS. (SEE PENNDOT TRAFFIC CONTROL SIGNING STANDARDS TC-7000 SERIES FOR INSTALLATION PROCEDURES.)
 2. SIGN POST LOCATIONS TO BE SELECTED IN THE FIELD UNDER THE DIRECT SUPERVISION OF THE ENGINEER.

SIGN POST DETAIL

NOT TO SCALE

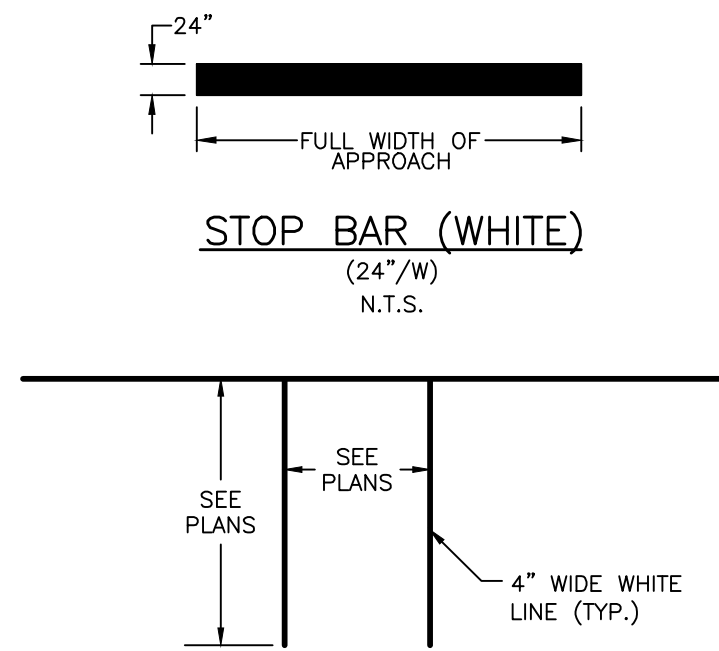


SIGN SIZE	DIMENSIONS	SERIES	BOR- DER	BLANK STD.
30x30	A B C	10 12 2	C	3 4 B1-30

- NOTES:
1. MOUNTING HEIGHT TO BOTTOM OF SIGN SHALL BE 4'-0".
 2. TO BE MOUNTED ON BREAKAWAY SIGN POST INSTALLED IN ACCORDANCE WITH PENNDOT PUB. 408, SECTION 931 AND SECTION 1103.08.

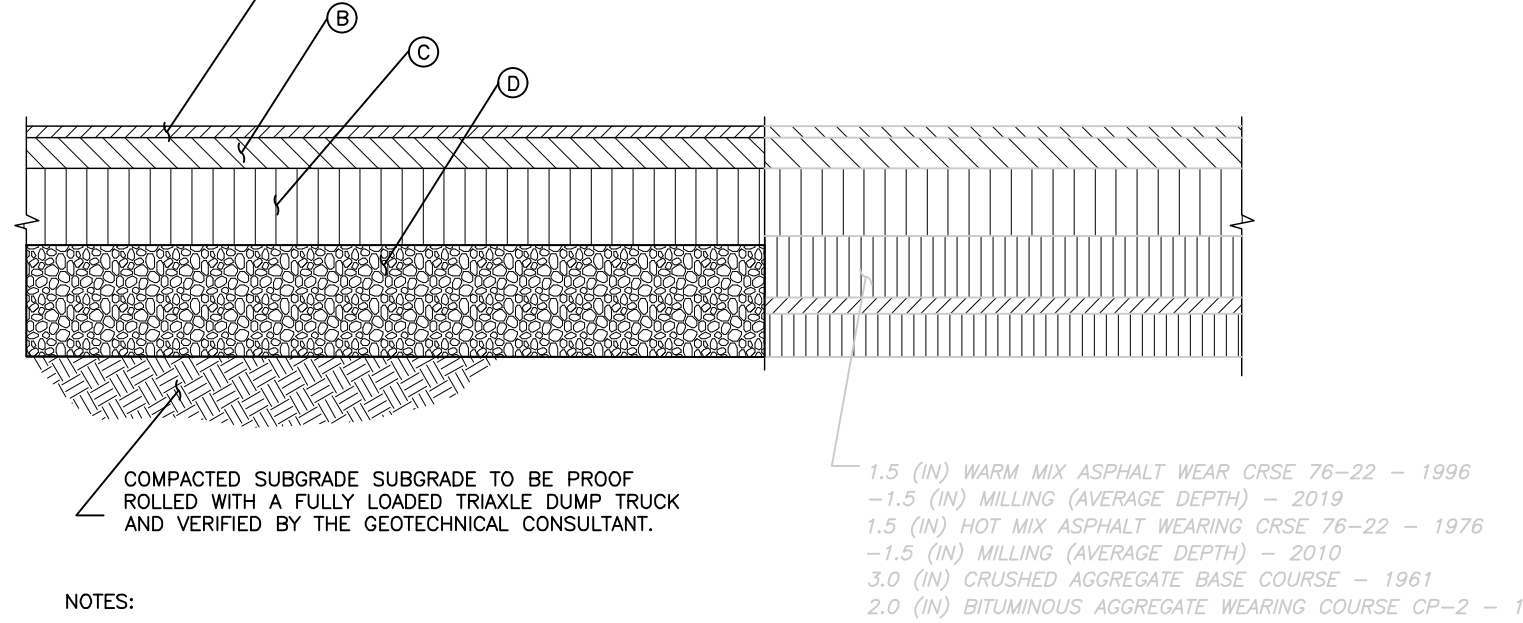
STOP SIGN (R1-1) DETAIL

NOT TO SCALE



PARKING SPACE LAYOUT

NOT TO SCALE



- NOTES:
1. SEE PAVEMENT LEGEND FOR DESCRIPTIONS OF A, B, C, & D.

RIGHT-OF-WAY PAVEMENT SECTION DETAIL

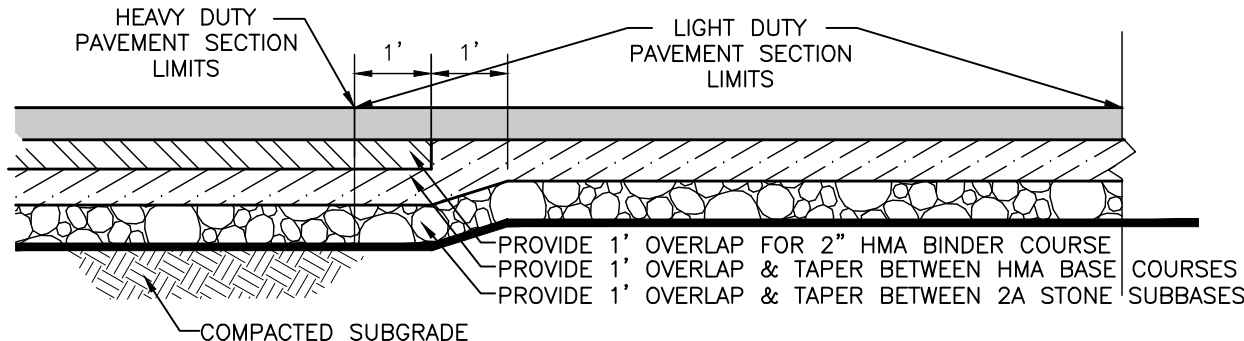
NOT TO SCALE
(FULL DEPTH PAVEMENT SECTION)

PENNDOT PAVING SECTION:

- 1.5" SUPERPAVE ASPHALT MIXTURE DESIGN, WEARING COURSE, PG 64S-22, 10 TO <30 MILLION ESALS, 9.5 MM MIXTURE, SRL-E
- 2.5" SUPERPAVE ASPHALT MIXTURE DESIGN, BINDER COURSE, PG 64S-22, 10 TO <30.0 MILLION ESALS, 19.0 MM MIXTURE
- 10" SUPERPAVE ASPHALT MIXTURE DESIGN, PG 64-22 BASE COURSE, 25.0 MM, 0-0.3 MILLION ESALS
- 8" SUBBASE (PENNDOT NO. 2A)

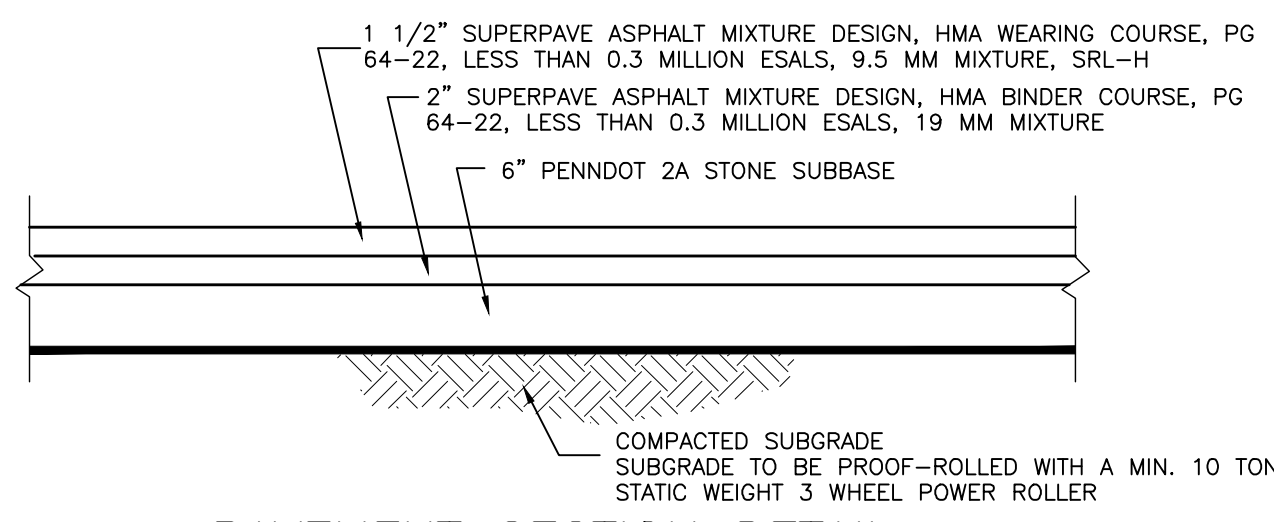
PAVEMENT LEGEND — PENNDOT

NOT TO SCALE



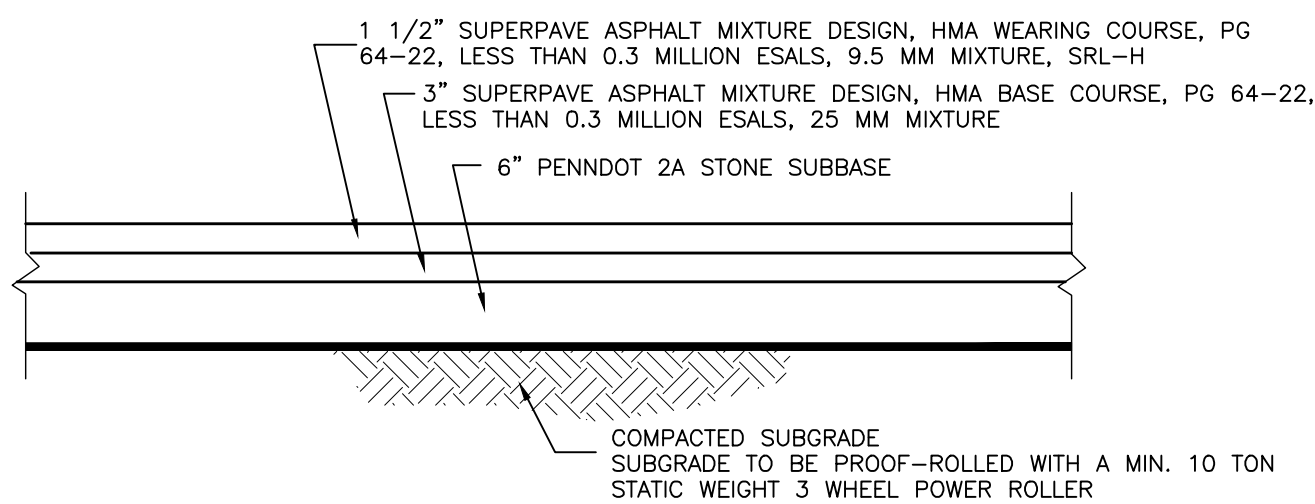
HEAVY — LIGHT DUTY PAVEMENT MATCH DETAIL

NOT TO SCALE



PAVEMENT SECTION DETAIL ASPHALT PATH

NOT TO SCALE



PARKING LOT PAVEMENT SECTION DETAIL (LIGHT DUTY)

NOT TO SCALE

ATTENTION: ALL CONTRACTORS LOCATING OR ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR AERIAL PHOTOGRAPHS. THE LOCATION, DEPTH, AND HORIZONTAL LOCATION OF UNDERGROUND UTILITIES OR STRUCTURES CANNOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN NECESSARY INFORMATION TO DETERMINE THE LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK.

20243371817

CHD	BY	REVISIONS	DATE	NO

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER

12/19/2024
LICENSED PROFESSIONAL ENGINEER
STATE OF PA LICENSE NO. PE076464

COMMERCE PURSUIT CAPITAL

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1035 NORTH TROOPER ROAD, WORCESTER TOWNSHIP
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

CONSTRUCTION SITE DETAILS-2

YOUR GOALS. OUR MISSION.

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DESIGNED BY JPK/CKS/CMR/ROP/ZHR	DRAWING CSD-2
CHECKED BY BGS/ZHR	SHEET
DRAWN BY SCR/CKS/RAM	24
DATE 12/19/2024	OF 37
SCALE AS NOTED	
PROJ. NO. WDEV00004	

PROJECT INFORMATION: G:\Projects\WDEV\00004\Plans\ FILE PATH: G:\Projects\WDEV\00004\Plans\ FILE NAME: WDEV00004_DTL.dwg PROJECT NO: 105 NORTH TROOPER ROAD, WORCESTER TOWNSHIP, MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA LAST SAVE BY: S:\bpcrns

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GENERAL NOTES:

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. U.S. CUSTOMARY UNITS IN () PARENTHESES.
- METRIC UNITS INDICATED ARE SOFT CONVERTED FROM U.S. CUSTOMARY UNITS.
- DESIGN SPECIFICATIONS: ASHBIT URB BRIDGE DESIGN SPECIFICATIONS AND AS SUPPLEMENTED BY THE DESIGN MANUAL, PART 4, STRUCTURES.
- CONSTRUCTION SPECIFICATIONS: PROVIDE MATERIALS AND PERFORM WORK IN ACCORDANCE WITH THE CURRENT VERSION OF THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PUBLICATION 408, ASHBITDRAWS BRIDGE WELDING CODE AND THE CONTRACT SPECIAL PROVISIONS.
- SHOP DRAWINGS FOR INLET TOPS, GRATES, FRAMES, AND GRADE ADJUSTMENT RINGS ARE NOT REQUIRED IF THE ITEM IS CONSTRUCTED/FABRICATED IN ACCORDANCE WITH THIS STANDARD.
- IF A REQUIRED DETAIL IS NOT FOUND IN THIS STANDARD OR ON THE CONTRACT DRAWINGS A SPECIAL SUBMISSION REQUESTING ACCEPTANCE FOR SHOP/CAST DETAILS MUST BE MADE TO THE BUREAU OF DESIGN HIGHWAY QUALITY ASSURANCE DIVISION CHIEF.
- FOR INLET BOX DETAILS REFER TO RC-45M.

PLACEMENT NOTES:

- EACH TYPE OF CONCRETE TOP UNIT OR FRAME IS SUITED FOR A PARTICULAR SITUATION AS FOLLOWS:
 - TYPE C CONCRETE TOP UNIT AND TYPE C ALTERNATE CONCRETE TOP UNIT WITH A TYPE C FRAME ARE DESIGNATED FOR INSTALLATION WITH NON-MOUNTABLE CURBS.
 - TYPE M CONCRETE TOP UNIT AND TYPE M FRAME ARE DESIGNATED FOR INSTALLATION IN AREAS ADJACENT TO MEDIAN AND MOUNTABLE CURBS.
 - TYPE S CONCRETE TOP UNIT IS DESIGNATED FOR INSTALLATION IN SHOULDER GRASS AREAS.
 - TYPE D.H CONCRETE TOP UNIT IS DESIGNATED FOR INSTALLATION IN SHOULDER GRASS AREAS WITH A TYPE D.H INLET BOX.
 - TYPE D.H LEVEL CONCRETE TOP UNIT IS DESIGNATED FOR INSTALLATION IN AREAS ADJACENT TO MEDIAN WITH A TYPE D.H INLET BOX.
- PLACEMENT OF CONCRETE TOP UNITS:
 - TYPE C AND TYPE C ALTERNATE: DO NOT PLACE THE TOP UNIT INTO THE ADJACENT CURB SECTIONS WITH A 2452 X 300 mm (245 x 30) DOWEL BARS. PLACE 20 mm (3/4") WIDE PRELIMINARY EXPANSION JOINT FILLER BETWEEN THE TOP UNIT AND ADJACENT CURB.
 - TYPE M: PLACE THE TOP UNIT OR FRAME ADJACENT TO THE BACK EDGE OF THE CURB, FLUSH WITH THE PREVIOUS SURFACE, WHEN REQUIRED WITHIN A CONCRETE MOUNTABLE CURB SECTION.
 - TYPE S: THE PLACEMENT OF THE TOP UNIT IS DEPENDENT ON THE GUTTER ELEVATION AND THE RATE OF THE BACK SLOPE. FOR BACK SLOPES GREATER THAN 12:1 (2%), LOCATE THE INLET TOP WHERE THE BACK SLOPE LINE INTERSECTS THE BACK, TOP, OUTSIDE CORNER OF THE INLET TOP. FOR BACK SLOPES LESS THAN 12:1 (2%), LOCATE THE INLET WHERE THE BACK SLOPE LINE INTERSECTS THE EDGE OF THE INLET GRATE.
 - TYPE D.H: PLACE THE TOP UNIT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- THE SELECTION OF COMPONENTS TO ACHIEVE A SPECIFIED INLET ASSEMBLY IS THE CONTRACTOR'S RESPONSIBILITY, UNLESS OTHERWISE INDICATED ON THE CONTRACT DOCUMENTS.
- SET THE PRECAST CONCRETE TOP UNITS ON A NON-SHRINK GROUT AND PROVIDE FULL BEARING ON THE SUPPORTING SURFACE. NON-SHRINK GROUT IS ALSO PERMITTED FOR CROSS SLOPE AND LONGITUDINAL GRADE ADJUSTMENTS. PROVIDE NON-SHRINK GROUT IN ACCORDANCE WITH PUBLICATION 408, SECTION 1001.205. MINIMUM GROUT DEPTH = 13 mm (1/2") MAXIMUM GROUT DEPTH = 13 mm (1/2") FOR ALTERNATE GRADE ADJUSTMENT SYSTEMS, WHICH DO NOT REQUIRE NON-SHRINK GROUT, REFER TO NOTE 1 UNDER THE GRADE ADJUSTMENT RINGS GENERAL NOTES ON SHEET 12.
- BRICK OR BRICK AND MORTAR ARE NOT ALLOWED FOR GRADE ADJUSTMENTS FOR NEW OR REHABILITATION PROJECTS.

GENERAL GRATE NOTES:

- THE FOLLOWING TWO DIFFERENT GRATE DEPTHS ARE SPECIFIED ON THIS STANDARD:
 - STRUCTURAL STEEL GRATES - 89 mm (3") DEPTH WITH 64 mm (2") PERIMETER DEPTH
 - CAST IRON GRATES - 64 mm (2") DEPTH (MINIMUM)
- THE SELECTION OF THE TYPE OF GRATE MATERIAL IS THE CONTRACTOR'S RESPONSIBILITY, UNLESS OTHERWISE INDICATED ON THE CONTRACT DOCUMENTS.

CONCRETE TOP UNIT NOTES:

- SHEETS 2 THRU 4 AND 14 THRU 20 SPECIFY THE DIMENSIONS REQUIRED FOR UNIFORMITY AND INTERCHANGEABILITY. IT DOES NOT INCLUDE DETAILS REQUIRED FOR FABRICATION OR MANUFACTURING. FOR DEVIATIONS OR MODIFICATIONS OF THE STANDARD, SUBMIT SHOP DRAWINGS TO THE BUREAU OF DESIGN HIGHWAY QUALITY ASSURANCE DIVISION CHIEF FOR REVIEW AND ACCEPTANCE.
- PROVIDE PRECAST CONCRETE TOP UNITS SUPPLIED BY A MANUFACTURER LISTED IN BULLETIN 15.
- PROVIDE WELDED INLET ANGLE ASSEMBLIES SUPPLIED BY A MANUFACTURER LISTED IN BULLETIN 15.
- CAST-IN-PLACE TOP UNITS MAY BE MONOLITHIC WITH THE INLET BOX.
- PROVIDE MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH THE PUBLICATION 408, SECTIONS 405 AND 714, ASHBITDRAWS BRIDGE WELDING CODE AND THE CONTRACT SPECIAL PROVISIONS.
- THE SIZE OF THE INLET TOPS IS BASED ON THE MINIMUM DIMENSIONS INDICATED FOR THE STANDARD INLET BOX AS SHOWN ON RC-45M.
- PROVIDE A TOP SLAB TO SUPPORT THE INLET TOP UNITS IF A STANDARD INLET BOX IS NOT SPECIFIED. REFER TO RC-45M FOR ADDITIONAL INFORMATION.
- FABRICATOR IS RESPONSIBLE FOR LIFTING, HANDLING AND TRANSPORTATION STRESSES.
- LIFTING DEVICES (IF REQUIRED): PROVIDE GALVANIZED STEEL OR PLASTIC LIFTING DEVICES FOR HANDLING AND INSTALLATION. LIFT TWO HOLES WITH A MAXIMUM OUTSIDE DIAMETER EQUAL TO 41 mm (1 1/2") PERMITTED IN THE SIDEWALLS. LOCATE LIFTING HOLES BASED ON THE CENTER OF GRAVITY OF THE FABRICATED INLET TOP. LIFTING DEVICES WITH NON-SHRINK GROUT AFTER INSTALLATION IF THE LIFTING DEVICE IS LOCATED ON THE TOP SURFACE. HOLES IN THE SIDEWALLS ARE NOT REQUIRED TO BE FILLED WITH NON-SHRINK GROUT. PROVIDE LIFTING DEVICES WITH A MINIMUM CAPACITY OF AT LEAST FOUR TIMES THE CALCULATED LOAD ON THE DEVICE.
- PROVIDE THE FOLLOWING CONCRETE CLASS:
 - CAST-IN-PLACE: CLASS A CONCRETE CONCRETE DESIGN COMPRESSIVE STRENGTH: $f_c = 21 \text{ MPa (3,000 PSI)}$
 - PRECAST: CLASS A/C-45M CONCRETE, MODIFIED DESIGN COMPRESSIVE STRENGTH: $f_c = 28 \text{ MPa (4,000 PSI)}$
- A HIGHER STRENGTH OF CONCRETE MAY BE SUBSTITUTED FOR A LOWER STRENGTH OF CONCRETE AT NO ADDITIONAL COST TO THE DEPARTMENT. SUBMIT MIX DESIGN TO THE DEPARTMENT FOR REVIEW AND ACCEPTANCE.
- GRADE 40 (GRADE 60) DEFORMED REINFORCEMENT BARS THAT MEET THE REQUIREMENTS OF ASTM A706 (A615) OR ASTM A706 (A615), DO NOT WELD REINFORCEMENT BARS WITHOUT A PENNDOT APPROVED WELDING PROCEDURE.
- CLEAR COVER FOR STEEL:
 - PRECAST: 38 mm (1 1/2")
 - CAST-IN-PLACE: 50 mm (2")
- PROVIDE STRUCTURAL STEEL (ANGLES AND PLATES) CONFORMING TO AISC360 M270M (M270) GRADE 50 (50) ASTM A36M (A36), GRADE 250 (250) GRADE 50 (50) ASTM A36M (A36), GRADE 250 (250) GRADE 50 (50) ASTM A36M (A36).
- ANCHORING OF ANGLES AND PLATES: PROVIDE EMBEDMENT OR BENT BAR ANCHORS IN ACCORDANCE WITH THE INDICATED DETAILS. PROVIDE STUDS CONFORMING TO AISC360 M199 (ASTM A1008), WELD STUDS TO ANGLES OR PLATES USING A PENNDOT APPROVED WELDING PROCEDURE. BENT BAR ANCHORS: PROVIDE GRADE 40 (GRADE 60) DEFORMED REINFORCEMENT BARS THAT MEET THE REQUIREMENTS OF ASTM A706 (A615) OR ASTM A706 (A615), WELD BARS TO ANGLES OR PLATES USING A PENNDOT APPROVED WELDING PROCEDURE.
- GALVANIZED PLATES, ANGLES AND STUDS OR BENT BAR ANCHORS (AFTER FABRICATION AND BEFORE INSTALLATION IN FORMS) IN ACCORDANCE WITH PUBLICATION 408, SECTION 1105.020.
- CHAMFER EXPOSED CONCRETE EDGES 12 mm x 12 mm (1/2" x 1/2"), EXCEPT AS NOTED. (CHAMFERS ARE NOT SHOWN ON THE DETAILS)
- PRECAST TOP UNITS: TAPER MAY BE PROVIDED ON THE INSIDE AND/OR OUTSIDE VERTICAL FACES OF THE INLET TOPS TO FACILITATE FORM STRIPPING. TAPERS MAY RESULT IN BOTTOM DIMENSIONS THAT VARY TO A MAXIMUM 50 mm (2").
- REHABILITATION PROJECTS: PROVIDE CONCRETE TOP UNITS IN ACCORDANCE WITH THE DETAILS SHOWN ON SHEETS 18 THRU 20 IF THE AVAILABLE DEPTH IS LESS THAN THE DEPTHS DETAILED ON SHEETS 2 THRU 4. PROVIDE CONCRETE TOP UNITS IN ACCORDANCE WITH THE DETAILS SHOWN ON SHEETS 2 THRU 4 IF THE AVAILABLE DEPTH IS GREATER THAN THE DEPTHS DETAILED ON SHEETS 2 THRU 4. CONTRACTOR TO REMOVE THE EXISTING TOP UNIT AND ANY GRADE ADJUSTMENT DEVICES, INCLUDING BRICK AND MORTAR AND GRADE ADJUSTMENT RINGS, DOWN TO THE TOP OF THE EXISTING INLET BOX. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE REQUIRED DEPTH OF THE NEW CONCRETE TOP UNIT BASED ON THE AVAILABLE DEPTH. COST OF THE WORK IS INCIDENTAL TO THE COST OF THE CONCRETE TOP UNIT. THE DEPTH OF THE CONCRETE TOP UNIT MUST ALWAYS BE MAXIMIZED. FURNISH PRECAST CONCRETE TOP UNITS. THE CONTRACTOR MUST PROVIDE THE AVAILABLE DEPTH TO THE FABRICATOR FOR FABRICATION IN ACCORDANCE WITH THE STANDARD. FOR CAST-IN-PLACE CONCRETE TOP UNIT THE CONTRACTOR IS TO CONSTRUCT THE NEW TOP IN ACCORDANCE WITH THIS STANDARD.

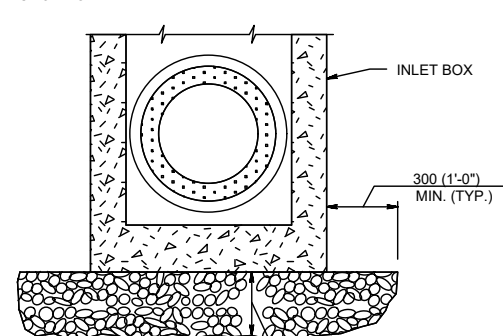
INDEX OF SHEETS	
SHEET NO.	SHEET TITLE
1	GENERAL NOTES
2	CONCRETE TOP UNITS - TYPE M AND TYPE S
3	CONCRETE TOP UNITS - TYPE C
4	CONCRETE TOP UNITS - TYPE C ALTERNATE
5	CONCRETE TOP UNITS - TYPE D-H
6	CONCRETE TOP UNITS - TYPE D-H LEVEL
7	STRUCTURAL STEEL GRATE
8	STRUCTURAL STEEL GRATE - BICYCLE SAFE
9	CAST IRON GRATES - 1
10	CAST IRON GRATES - 2
11	CAST IRON VANE GRATE
12	GRADE ADJUSTMENT RINGS - 1
13	GRADE ADJUSTMENT RINGS - 2
14	TYPE C FRAME
15	TYPE M FRAME
16	TYPE M PLACEMENT AT MEDIAN - 1
17	TYPE M PLACEMENT AT MEDIAN - 2
18	CONCRETE TOP UNITS - TYPE M AND TYPE S FOR REHABILITATION PROJECTS
19	CONCRETE TOP UNITS - TYPE C FOR REHABILITATION PROJECTS
20	CONCRETE TOP UNITS - TYPE C ALTERNATE FOR REHABILITATION PROJECTS

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION BUREAU OF DESIGN		
INLET TOPS, GRATES, AND FRAMES GENERAL NOTES		
RECOMMENDED JUN. 1, 2010	RECOMMENDED JUN. 1, 2010	SHT 1 OF 20
CHIEF, HWY. QA DIVISION	DIRECTOR, BUREAU OF DESIGN	RC-45M

NOTES:

- FOR ADDITIONAL NOTES, SEE SHEETS 1-3.
- STANDARD INLET BOXES SHOWN, PROVIDE TOP SLABS FOR OTHER INLET BOX TYPES.
- SEE RC-45M FOR DETAILS FOR THE CONCRETE TOP UNITS, FRAMES, AND GRATES.
- PROVIDE GRADE ADJUSTMENT RINGS WHEN REQUIRED. SEE RC-45M FOR DETAILS.



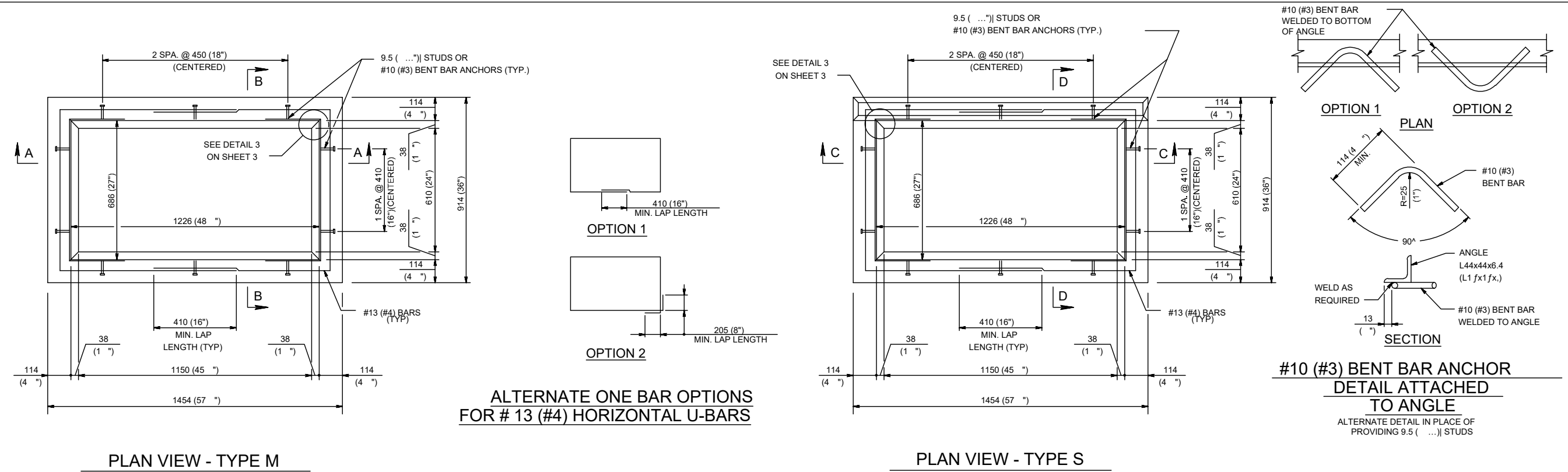
WEEPHOLE DETAIL

(SEE GENERAL NOTE 15 ON SHEET 1)

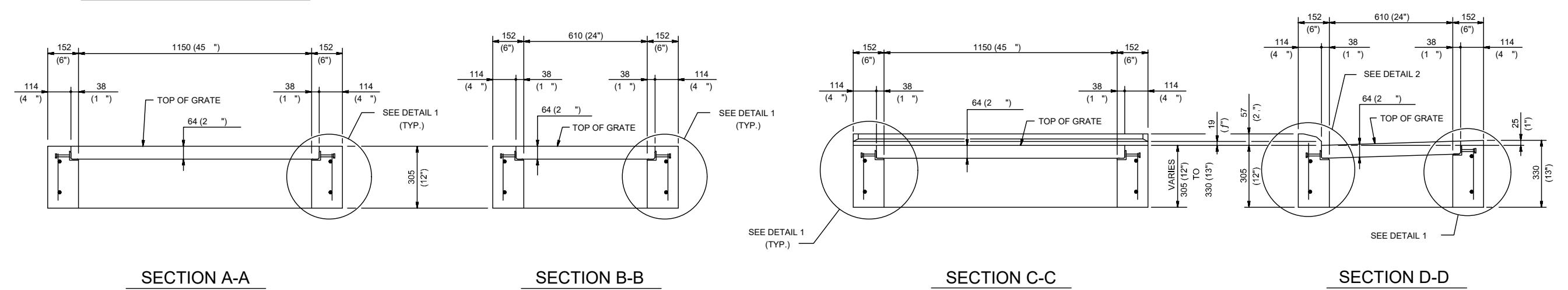
NOTE: COST OF NO. 57 COARSE AGGREGATE AT EACH WEEPHOLE WRAPPED IN GEOTEXTILE, CLASS 1 (PER 608 SECTION 1001.3 (a) & (d))

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION BUREAU OF DESIGN		
INLET BOXES INLET ASSEMBLY - 1		
RECOMMENDED JUN. 1, 2010	RECOMMENDED JUN. 1, 2010	SHT 4 OF 45
CHIEF, HWY. QA DIVISION	DIRECTOR, BUREAU OF DESIGN	RC-46M



ALTERNATE ONE BAR OPTIONS FOR #13 (#4) HORIZONTAL U-BARS

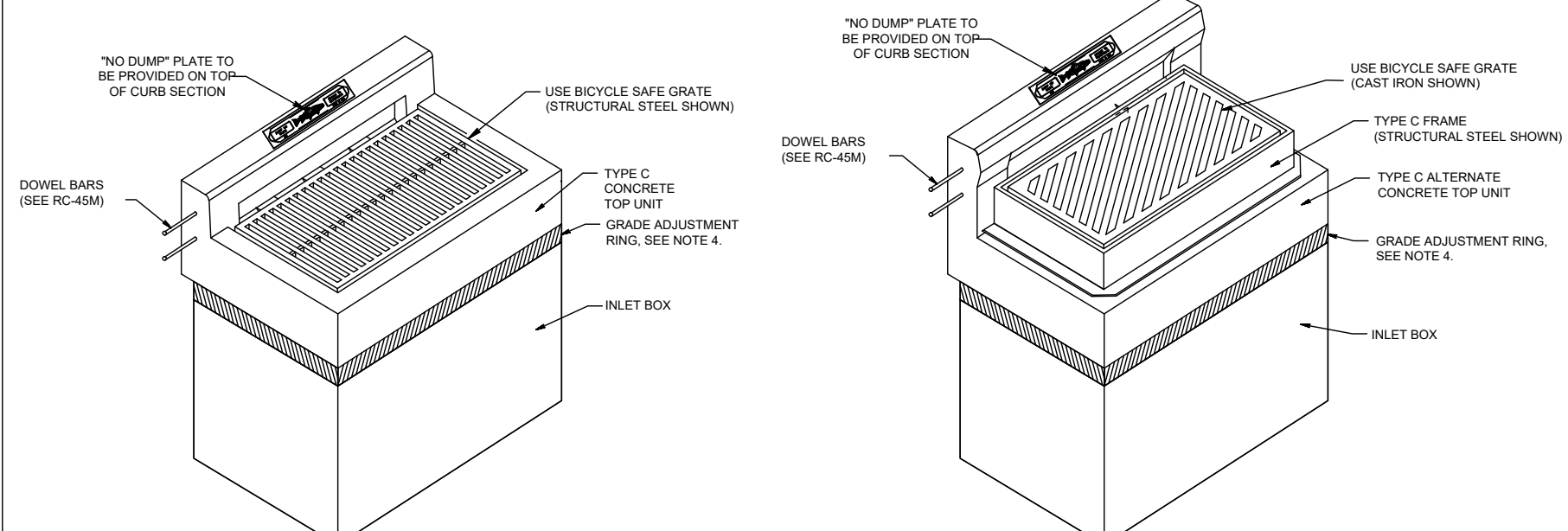


NOTES

- FOR ADDITIONAL NOTES, SEE SHEET 1.

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION BUREAU OF DESIGN		
INLET TOPS, GRATES, AND FRAMES CONCRETE TOP UNITS TYPE M AND TYPE S		
RECOMMENDED JUN. 1, 2010	RECOMMENDED JUN. 1, 2010	SHT 2 OF 20
CHIEF, HWY. QA DIVISION	DIRECTOR, BUREAU OF DESIGN	RC-45M



CONCRETE TOP UNIT - TYPE C ALTERNATE WITH TYPE C FRAME

(SEE FIELD CONSTRUCTION NOTES ON SHEET 1)

CONCRETE TOP UNIT - TYPE M

(SEE FIELD CONSTRUCTION NOTES ON SHEET 1)

CONCRETE TOP UNIT - TYPE S

(SEE FIELD CONSTRUCTION NOTES ON SHEET 1)

INLET BOX WITH TYPE M FRAME

(SEE FIELD CONSTRUCTION NOTES ON SHEET 1)

INLET BOX WITH TYPE S FRAME

(SEE FIELD CONSTRUCTION NOTES ON SHEET 1)

INLET BOX WITH TYPE D-H FRAME

(SEE FIELD CONSTRUCTION NOTES ON SHEET 1)

INLET BOX WITH TYPE D-H LEVEL FRAME

(SEE FIELD CONSTRUCTION NOTES ON SHEET 1)

INLET BOX WITH TYPE D-H LEVEL FRAME

(SEE FIELD CONSTRUCTION NOTES ON SHEET 1)

INLET BOX WITH TYPE D-H LEVEL FRAME

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INLET BOX WITH TYPE D-H LEVEL FRAME

(SEE FIELD CONSTRUCTION NOTES ON SHEET 1)

INLET BOX WITH TYPE D-H LEVEL FRAME

(SEE FIELD CONSTRUCTION NOTES ON SHEET 1)

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12/19/2024
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STORM SEWER DETAILS-2

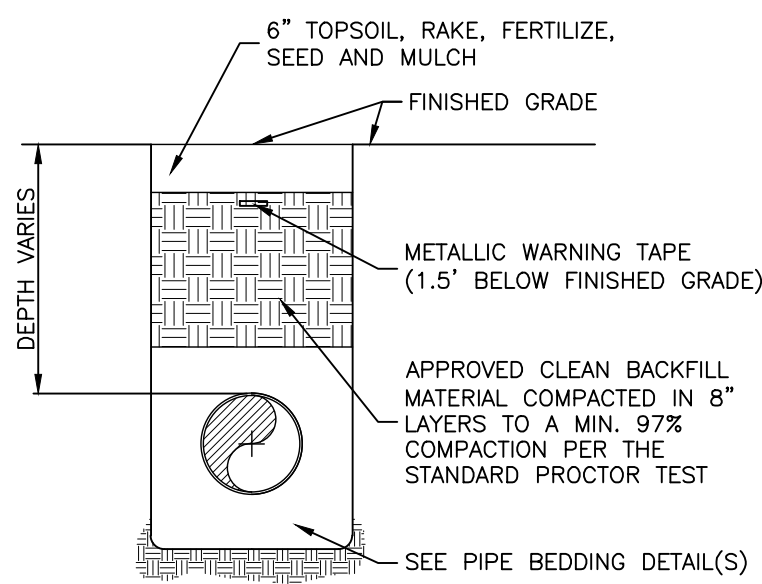
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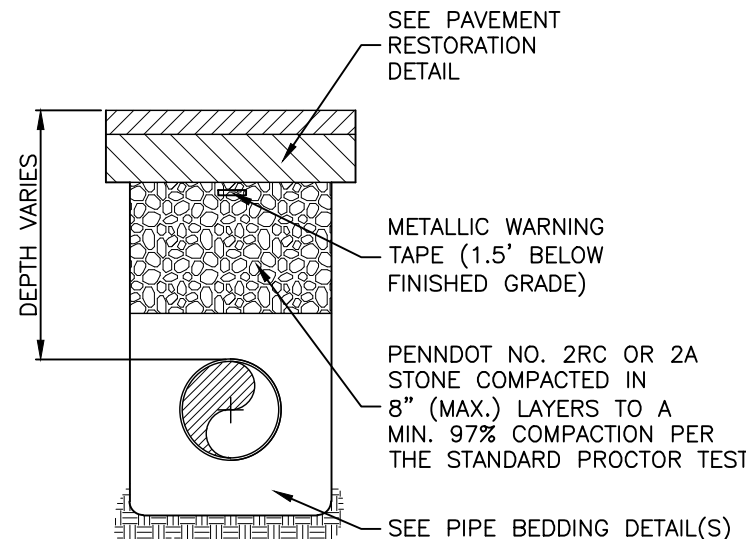
DESIGNED BY JPK/CKS/CMR/ROP/ZHR	DRAWING STRMD-2
CHECKED BY BGS/ZHR	SHEET
DRAWN BY SCR/CKS/RAM	26
DATE 12/19/2024	OF 37
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PROJ. NO. WDEV00004	

PROJECT INFORMATION:
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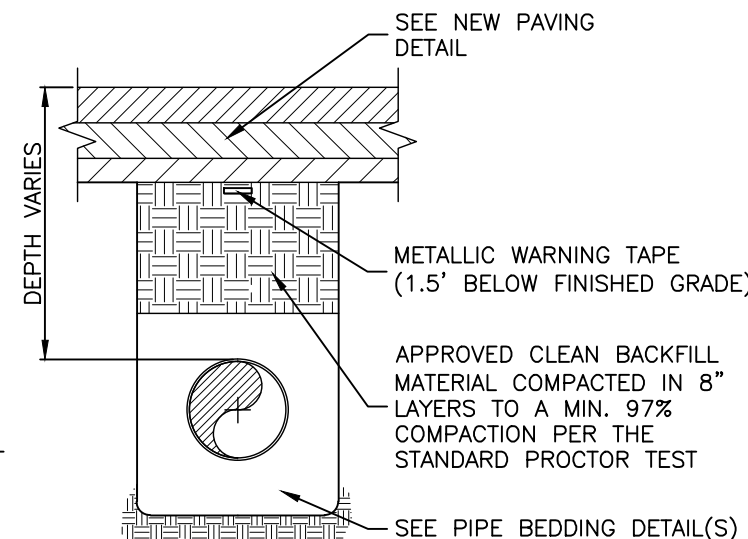
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UNPAVED AREAS



EXISTING PAVED AREAS



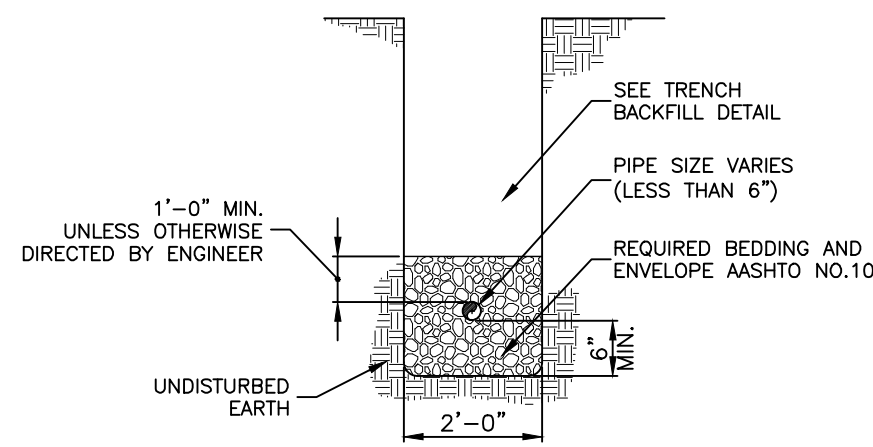
NEW ROADWAYS & PARKING AREAS

NOTES:

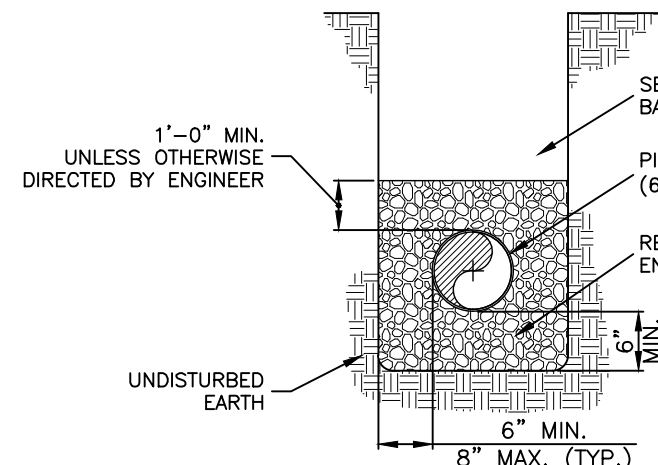
- TRENCH COMPACTION TO BE TESTED, AT THE DEVELOPER'S EXPENSE, IN ACCORDANCE WITH PENNDOT PUB 408, LATEST REVISION, AS REQUIRED BY THE MUNICIPALITY/AUTHORITY HAVING JURISDICTION.
- CLEAN FILL MUST BE APPROVED BY THE MUNICIPALITY/AUTHORITY HAVING JURISDICTION PRIOR TO PLACEMENT IN THE TRENCH.
- AREAS AROUND MANHOLES, INLETS, AND OTHER APPURTENANCES SHALL BE HAND COMPACTED AS DIRECTED BY THE MUNICIPALITY/AUTHORITY HAVING JURISDICTION.
- NO SLAG MATERIAL PERMITTED.
- IF WATER IS ENCOUNTERED IN THE EXCAVATION TRENCH, AASHTO #57 AGGREGATE MUST BE USED.
- ALL MATERIALS AND CONSTRUCTION METHODS SHALL COMPLY WITH PENNDOT SPECIFICATIONS, PUBLICATION 408 AND 67 PA CODE SECTION 459.
- UNDER NO CIRCUMSTANCES SHALL WATER BE ALLOWED TO COLLECT IN EXCAVATED TRENCHES. ANY WATER IN THE TRENCHES SHALL BE REMOVED THROUGH A PUMPED WATER FILTER BAG.

BACKFILL (TRENCH)

NOT TO SCALE



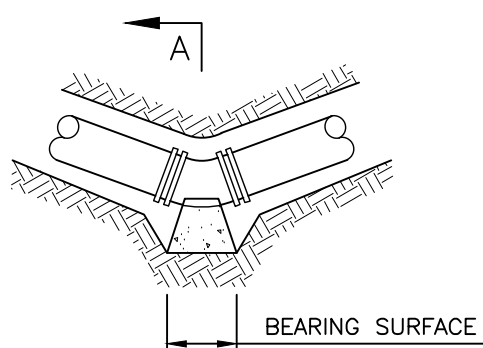
WATER SERVICE



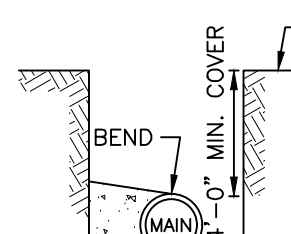
WATER MAIN

PIPE BEDDING (WATER MAIN AND SERVICE)

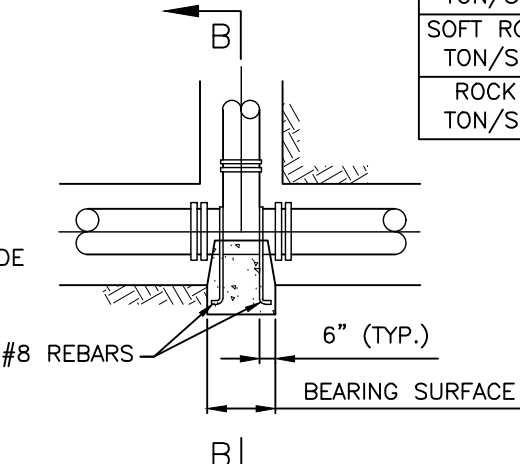
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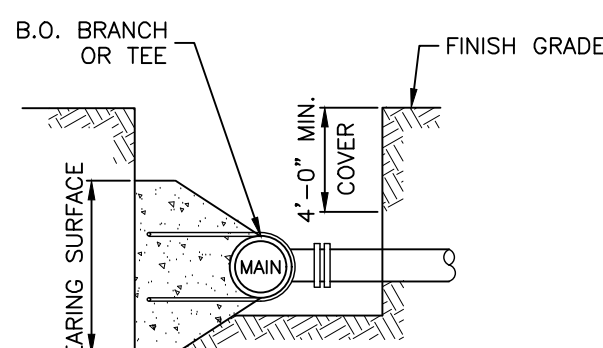
PLAN



SECTION A-A



PLAN



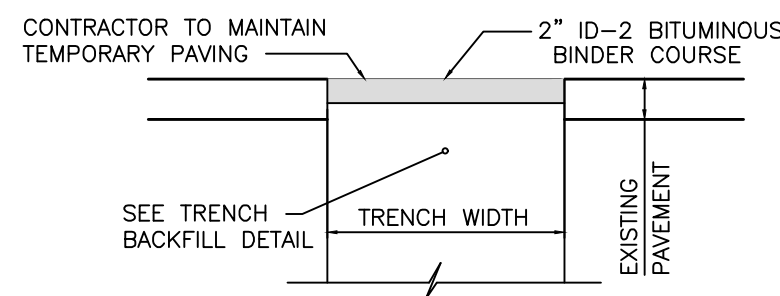
SECTION B-B

NOTES:

- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.
- ALL REINFORCING STEEL SHALL BE DEFORMED BARS (ASTM GRADE 60).
- ALL FITTINGS AND JOINTS SHALL BE COVERED WITH POLYETHYLENE FILM BEFORE PLACING OF CONCRETE.
- PAINTE ALL EXPOSED STEEL WITH TWO COATS OF BITUMASTIC PAINT OR EPOXY COATING.
- FOR THE REQUIRED BEARING SURFACE SEE STANDARD THRUST BLOCKING DETAIL.
- BEARING SURFACE MUST BE UNDISTURBED EARTH.

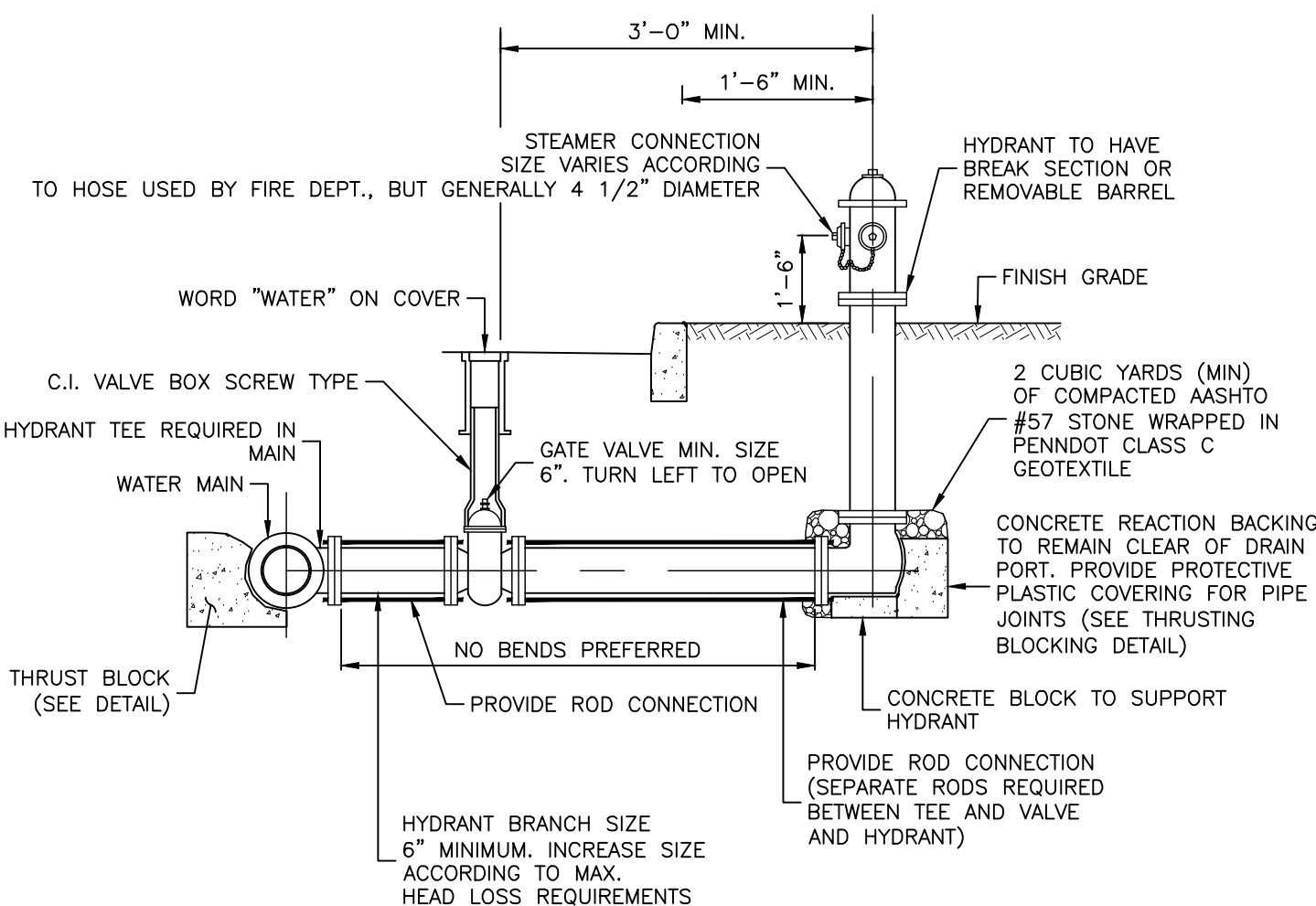
WATER-HORIZONTAL THRUST BLOCKING

NOT TO SCALE



TEMPORARY TRENCH RESTORATION

NOT TO SCALE

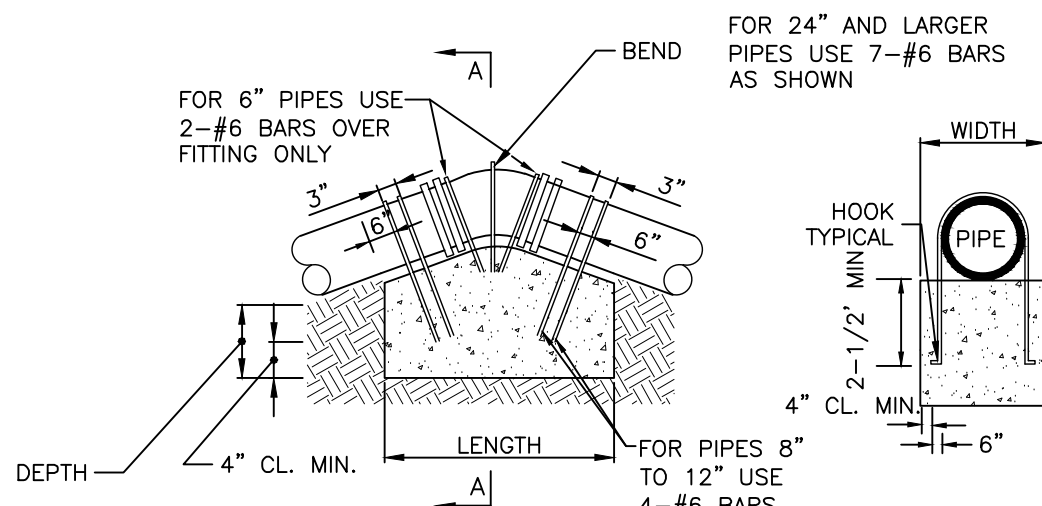


NOTES:

- MAXIMUM HEAD LOSS 5 PSI BETWEEN MAIN AND HYDRANT OUTLET FOR 750 GPM FLOW.
- HYDRANT TO BE PLACED WITH STEAMER CONNECTION FACING STREET @ 1'-6" BEHIND FACE OF CURB OR E.O.P. (TYP.)
- MEGA-LUG REQUIRED AT VALVE (ON HYDRANT SIDE ONLY IF HYDRANT TEE IS UTILIZED) AND AT HYDRANT.
- ALL PROPOSED PLUMBING TO BE INSTALLED IN STRICT ACCORDANCE WITH SPECIFICATIONS OF AUTHORITY HAVING JURISDICTION.
- MINIMUM OF 4'-0" OF COVER OVER ALL PIPES.
- HYDRANT TO HAVE 5' SEAT OPENING.

FIRE HYDRANT

NOT TO SCALE



TYPICAL SECTION - VERTICAL THRUST UPWARD

SECTION A-A

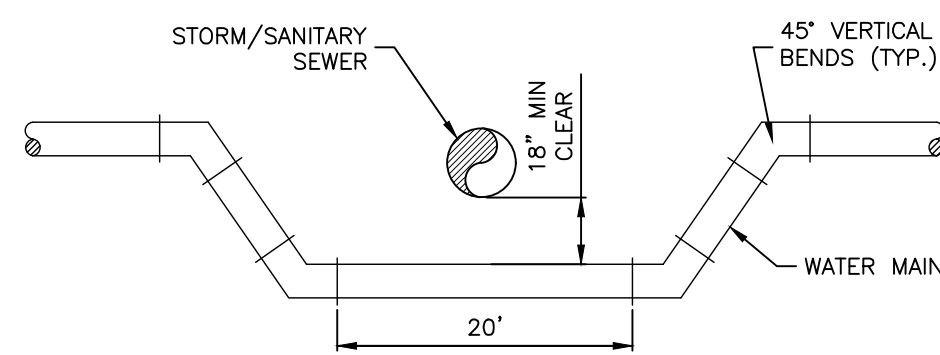
PIPE SIZES	CONCRETE BLOCKING DIMENSIONS, VERTICAL THRUST UPWARD 150 P.S.I. WORKING PRESSURE											
	LENGTH				WIDTH				DEPTH			
6" & 8"	11 1/2"	22 1/2"	45"	45"	11 1/2"	22 1/2"	45"	45"	11 1/2"	22 1/2"	45"	45"
10" & 12"	3'	4'	6'	6'	3'	4'	6'	6'	3'	4'	6'	6'
14" & 16"	3.5'	4'	7'	7'	4'	4'	4'	4'	2.5'	3'	4'	4'
18" & 20"	4'	6'	9'	9'	4.5'	4.5'	4.5'	4.5'	3.5'	4'	5'	5'
24"	5'	6.5'	11.5'	11.5'	5'	5'	5'	5'	4'	5'	5.5'	5.5'
30"	5'	9'	12.5'	12.5'	5'	5'	6'	6'	4.5'	5'	6'	6'
36"	5.5'	9'	13.5'	13.5'	5.5'	5.5'	7'	7'	5.5'	6'	7'	7'
42"	6.5'	11'	14'	14'	6.5'	6.5'	7'	7'	6'	6.5'	7'	7'
48"	9'	13.5'	15'	15'	6'	7'	7'	7'	6'	7'	7'	7'

NOTES:

- ALL CONC. SHALL HAVE MIN. COMPRESSIVE STRENGTH OF 3000 PSI AT THE END OF 28 DAYS.
- ALL REINFORCING STEEL SHALL BE DEFORMED BARS. (ASTM GRADE 60)
- ALL FITTINGS AND JOINTS SHALL BE COVERED WITH POLYETHYLENE FILM BEFORE PLACING CONC.
- PAINTE ALL EXPOSED STEEL WITH TWO COATS OF VALDURA PAINT OR APPROVED EQUAL.
- REINFORCING BARS SHALL BE U-SHAPE AROUND THE PIPE.

THRUST BLOCKING TABLE-VERTICAL-UPWARD

NOT TO SCALE

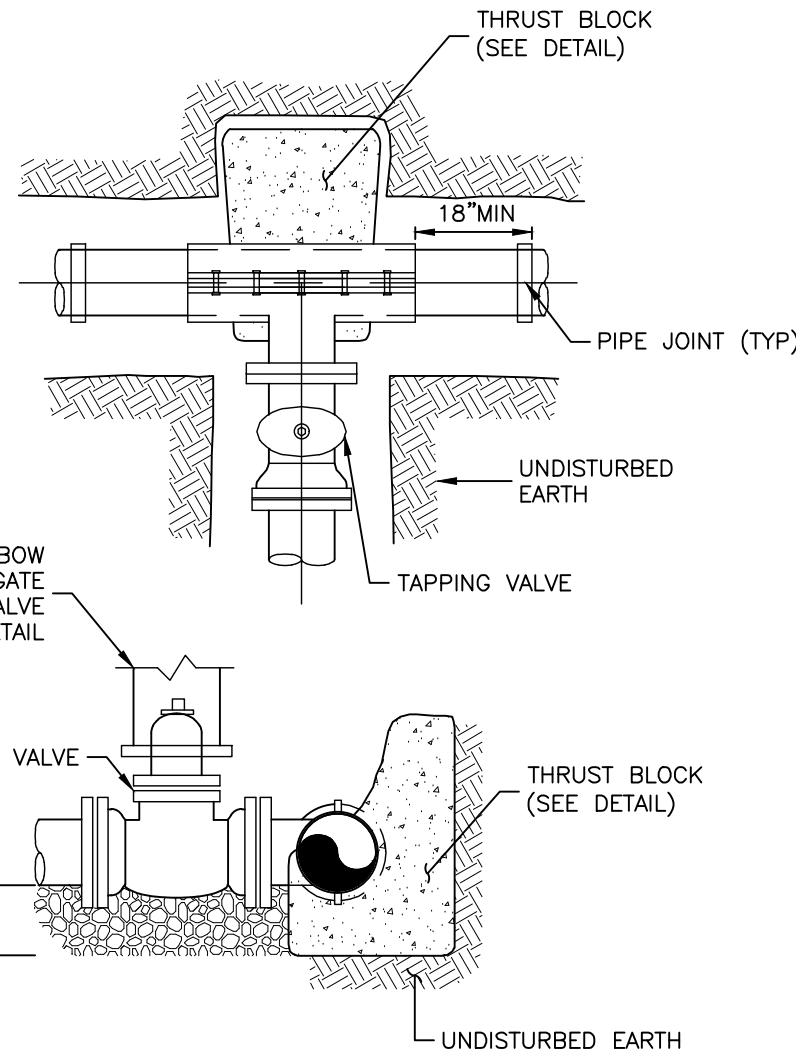


NOTES:

- ALL PIPE AND FITTINGS SHALL BE RESTRAINED PER AUTHORITY SPECIFICATIONS AND BY DIRECTION OF THE ENGINEER.
- THE USE OF CONCRETE THRUST BLOCK SHALL BE PER THE DIRECTION OF THE AUTHORITY AND ENGINEER.

STORM SEWER - SANITARY SEWER WATER CROSSING

NOT TO SCALE

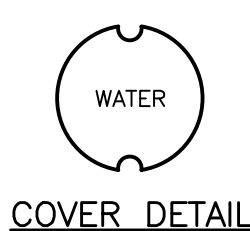


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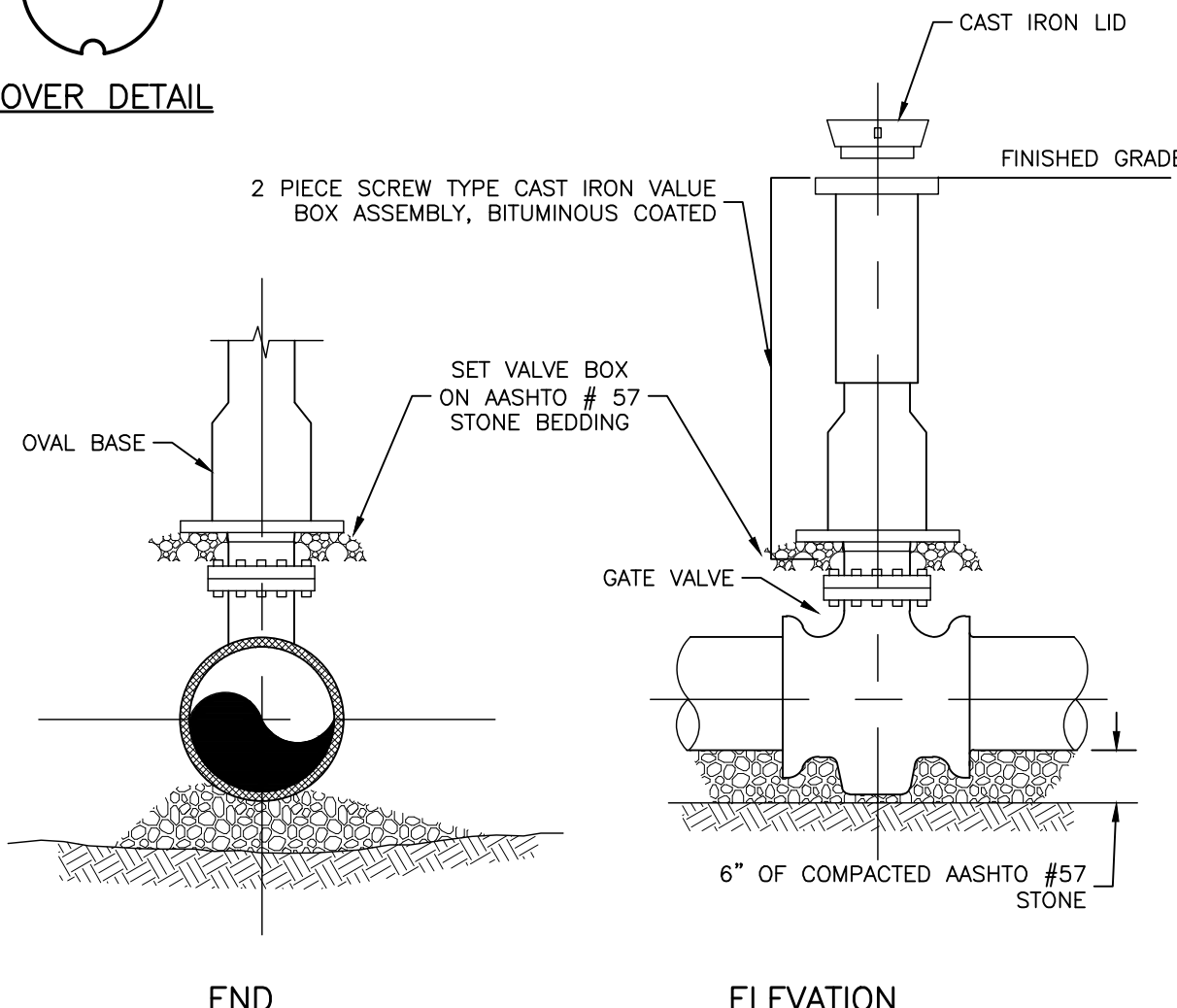
- TAPPING SLEEVE SHALL BE AIR-TESTED PRIOR TO THE LIVE MAIN BEING TAPPED.

TAPPING SLEEVE AND VALVE

NOT TO SCALE



COVER DETAIL

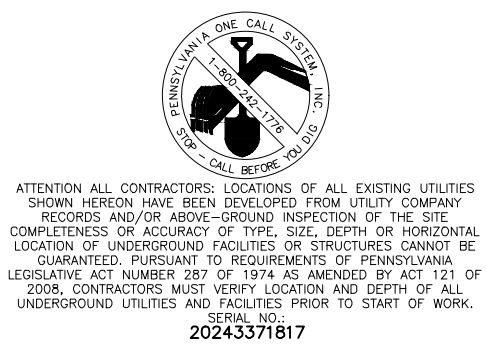


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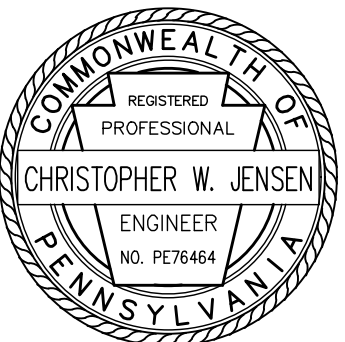
- VALVE SHALL NOT COME INTO CONTACT WITH VALVE.

STANDARD GATE VALVE AND VALVE BOX

NOT TO SCALE



CHRISTOPHER W. JENSEN, P.E.
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12/19/2024
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UTILITY DETAILS-1



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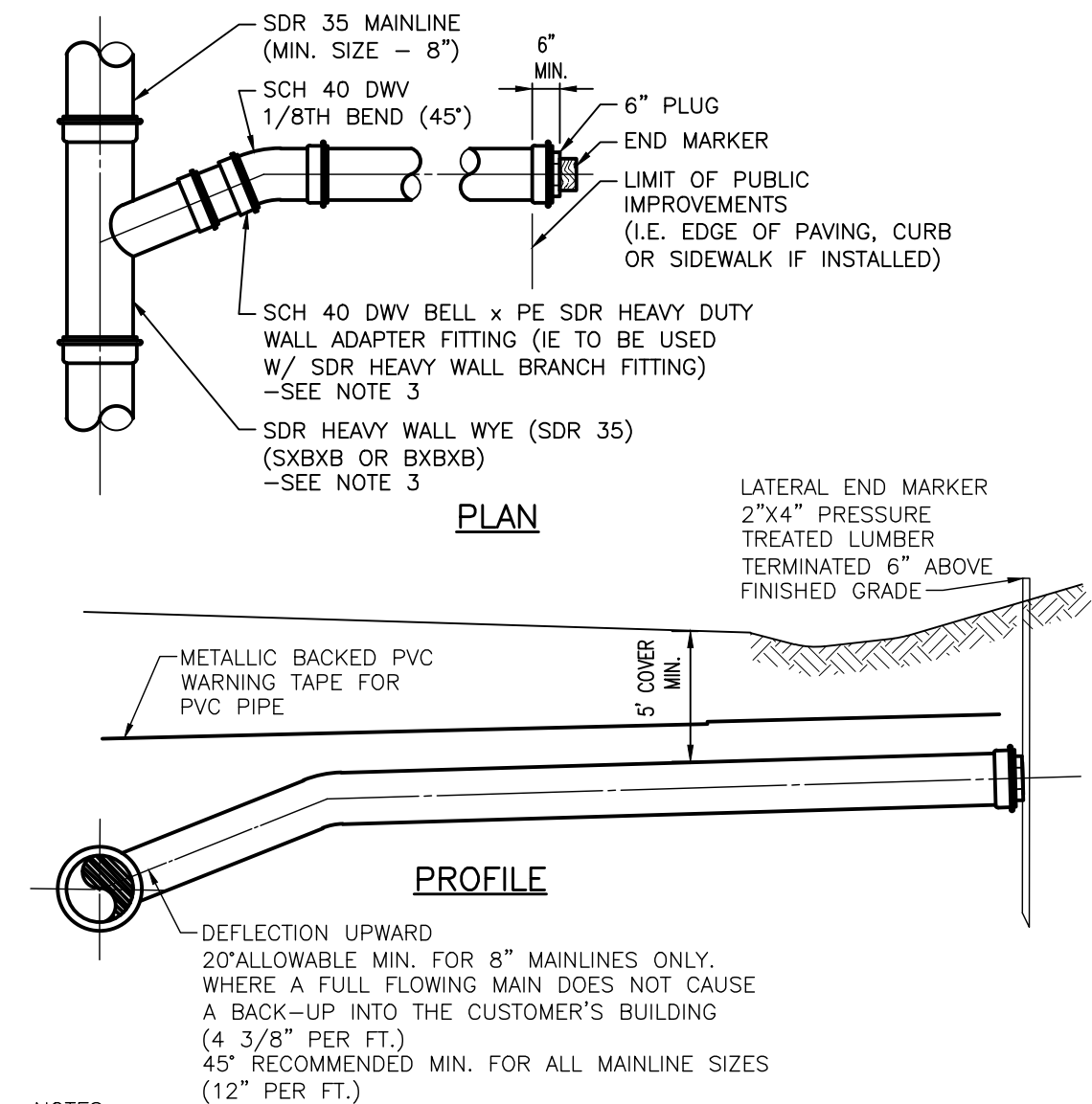
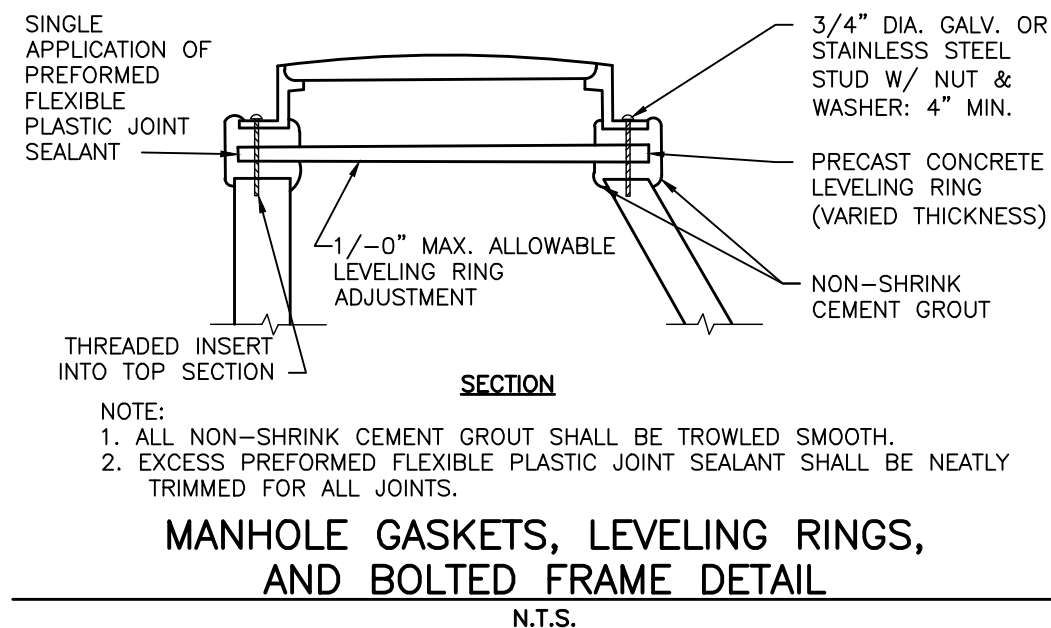
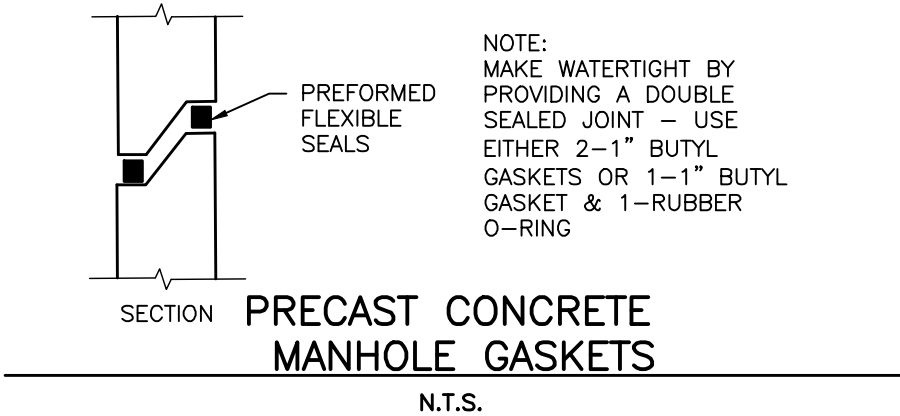
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DESIGNED BY
JPK/CKS/CMR/RDP/ZHR
CHECKED BY
BGS/ZHR
DRAWN BY
SCR/CKS/RAM
DATE
12/19/2024
SCALE
AS NOTED
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27
OF 37

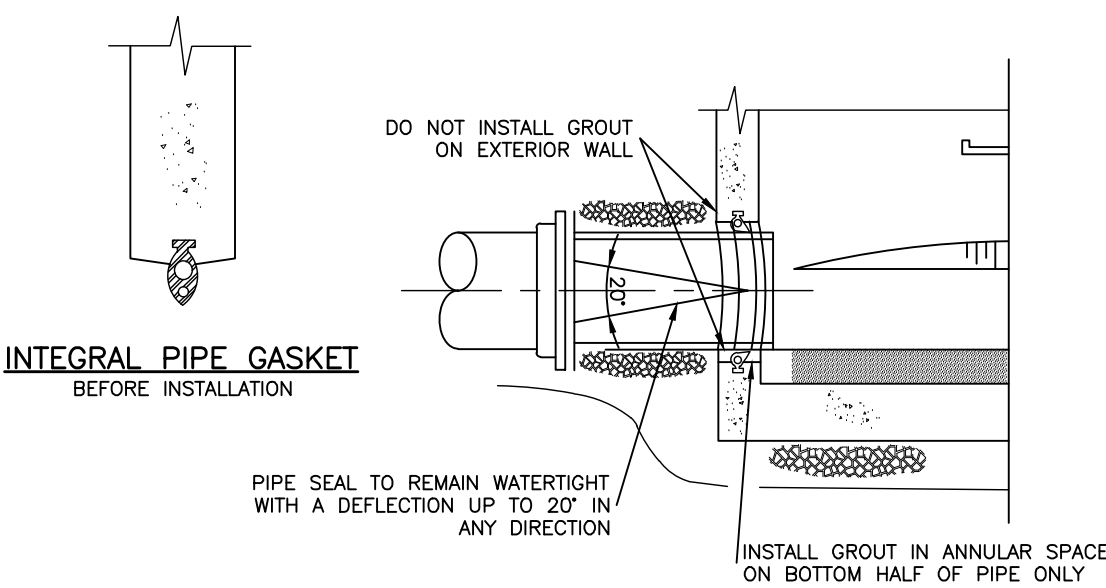
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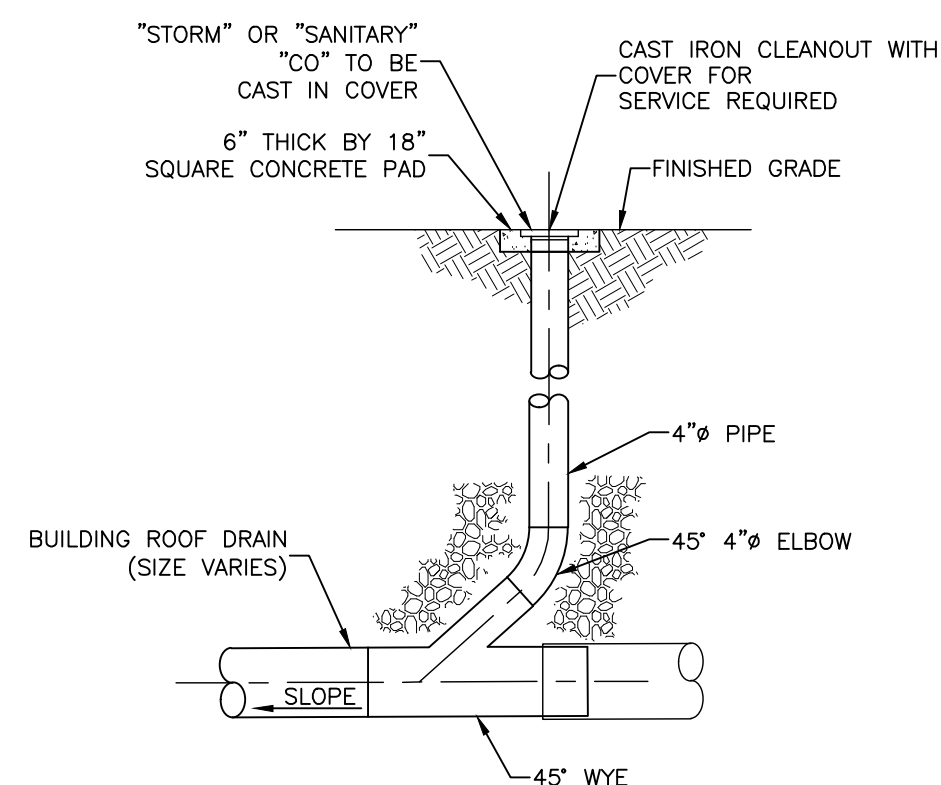


- NOTES:
1. MAINLINE SEWER TO BE SDR 35 MEETING ASTM D-3034.
 2. ALL PIPE & FITTING JOINTS TO HAVE GASKETED JOINTS MEETING ASTM F-477.
 3. RE: WYE OR TEE FITTINGS OR SADDLES-IN LIEU OF USING A STANDARD SDR HEAVY WALL FITTING W/SCH. 40 DWV x SDR HW ADAPTER, A SDR HW x SCH 40 DWV BRANCH FABRICATED FITTING MAY BE USED.
 4. APPROVED SDR HW MANUFACTURERS-HARCO & GPK.
 5. 1"/FT = 83.3mm/m.

PVC SANITARY WYE BRANCHES & LATERAL CONNECTION
N.T.S.

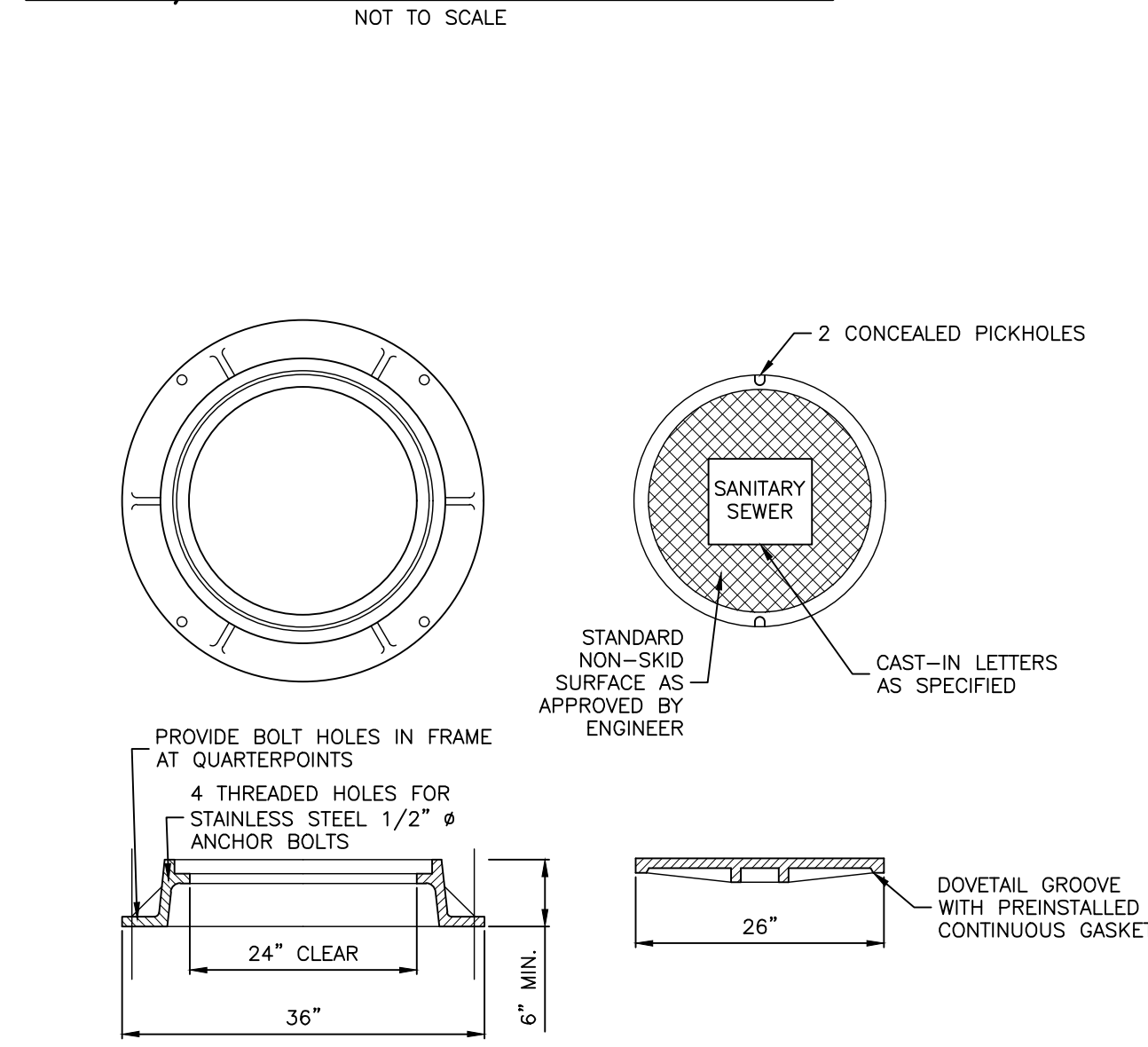


PIPE GASKET (MANHOLE)
NOT TO SCALE



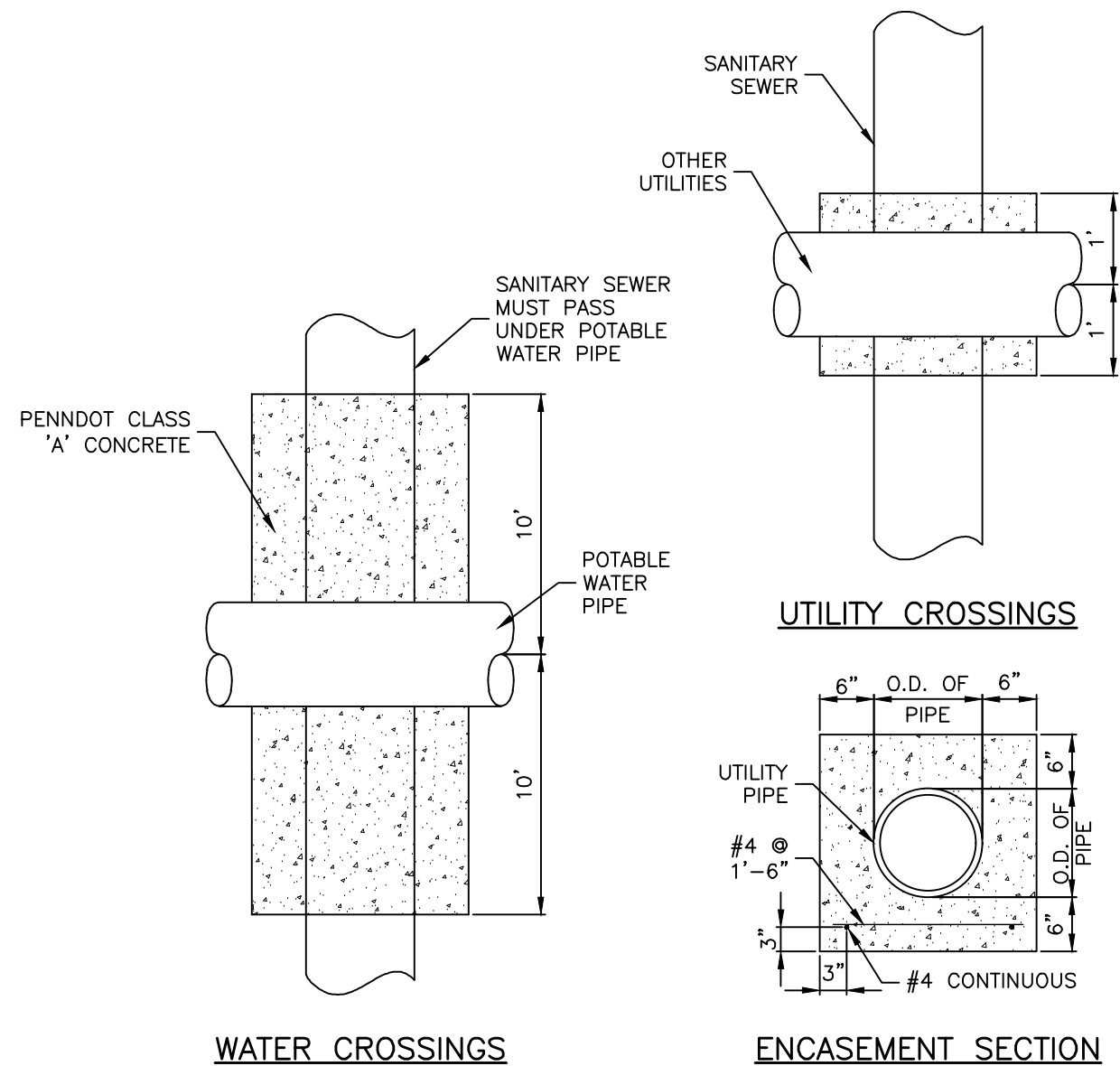
- NOTES:
1. ALL PIPE AND JOINT MATERIAL TO MATCH TYPE OF SANITARY SEWER OR ROOF DRAIN.

STORM/SANITARY SEWER CLEANOUT
NOT TO SCALE



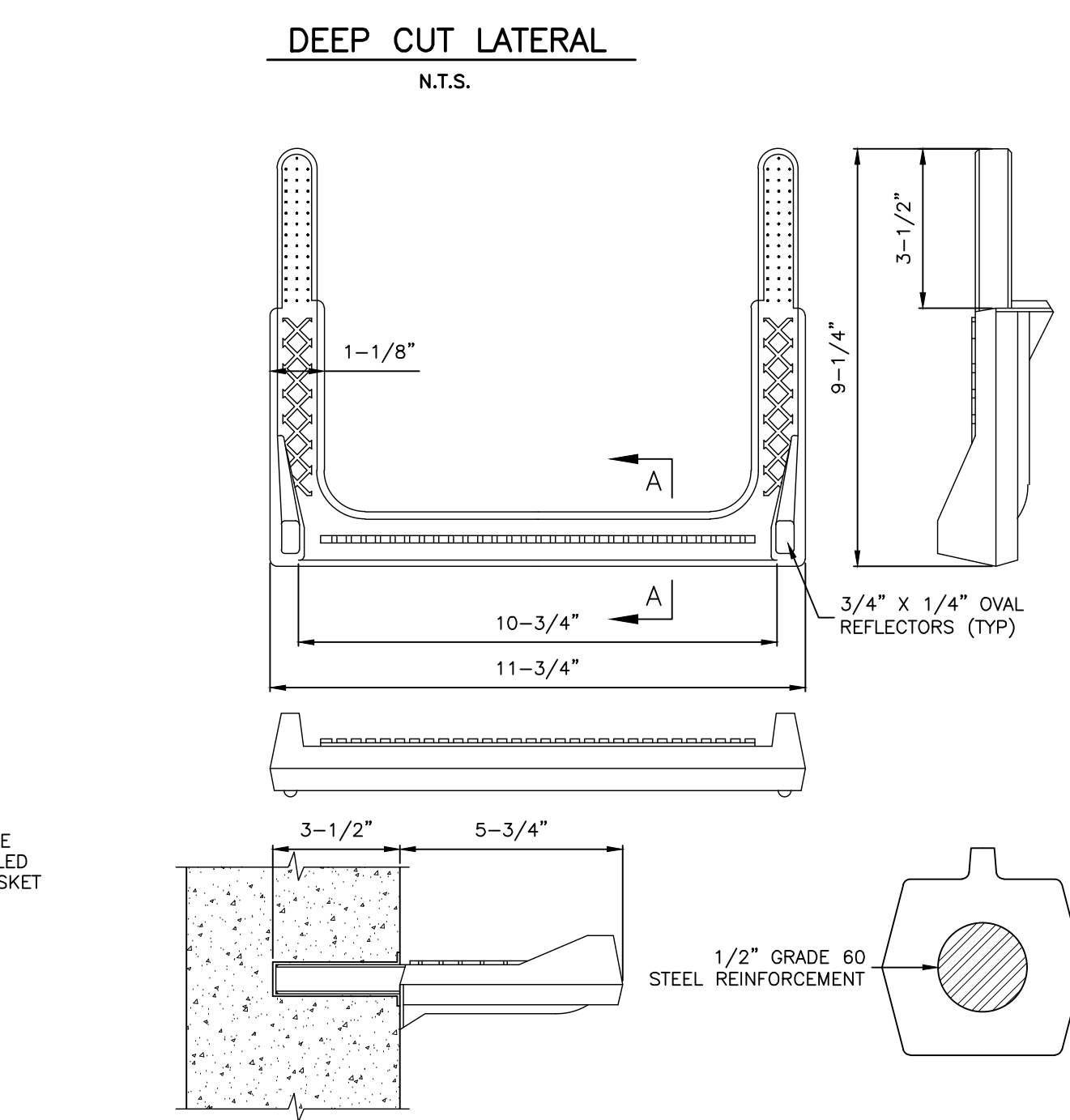
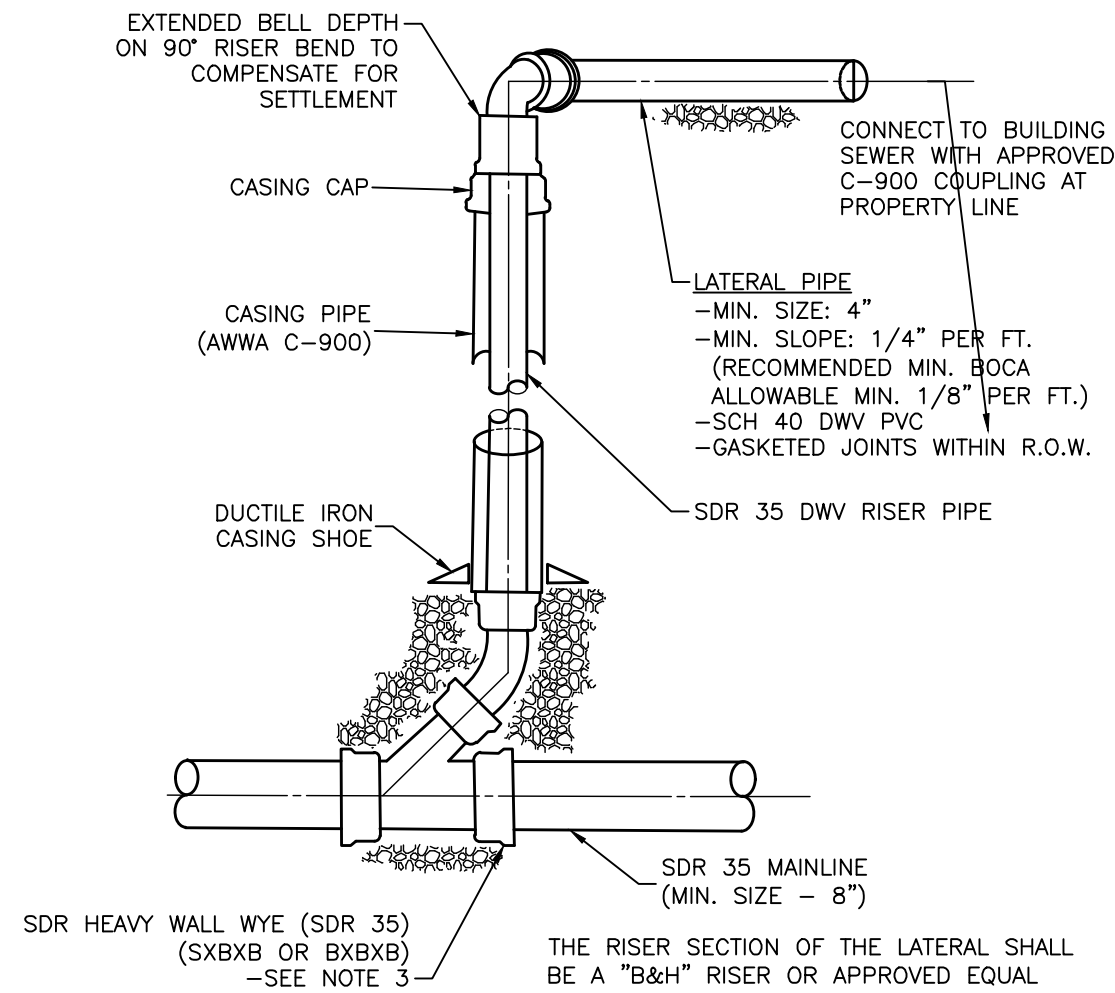
- NOTES:
1. MANHOLE FRAME AND COVER SHALL BE EAST JORDAN IRON WORKS PATTERN NO. 1045Z1, WITH SELF-SEALING GASKET TYPE COVER OR APPROVED EQUAL.
 2. ALL MATERIAL SHALL BE GRAY CAST IRON, ASTM 148-83 CL35.
 3. CASTINGS SHALL BE DESIGNED FOR AASHTO HIGHWAY LOADING CLASS HS-20.
 4. PROVIDE FOUR (4) ANCHOR BOLT HOLES IN FRAME TO ACCOMMODATE 3/4" ANCHOR BOLTS.
 5. COVER SHALL HAVE THE WORDS "SANITARY SEWER" CAST THEREON, LETTERING MINIMUM 2" HIGH.

SANITARY MANHOLE FRAME AND COVER
NOT TO SCALE



- NOTES:
1. PROVIDE REINFORCEMENT AT UTILITY CROSSINGS OR AS DIRECTED BY THE MUNICIPALITY/AUTHORITY HAVING JURISDICTION.

UTILITY CROSSING (CONCRETE ENCASEMENT)
NOT TO SCALE



- NOTES:
1. STEPS TO BE FABRICATED FROM COPOLYMER POLYPROPYLENE PLASTIC.
 2. STEP SPACING SHALL BE 1 FOOT CENTER TO CENTER

POLYPROPYLENE MANHOLE STEP
NOT TO SCALE

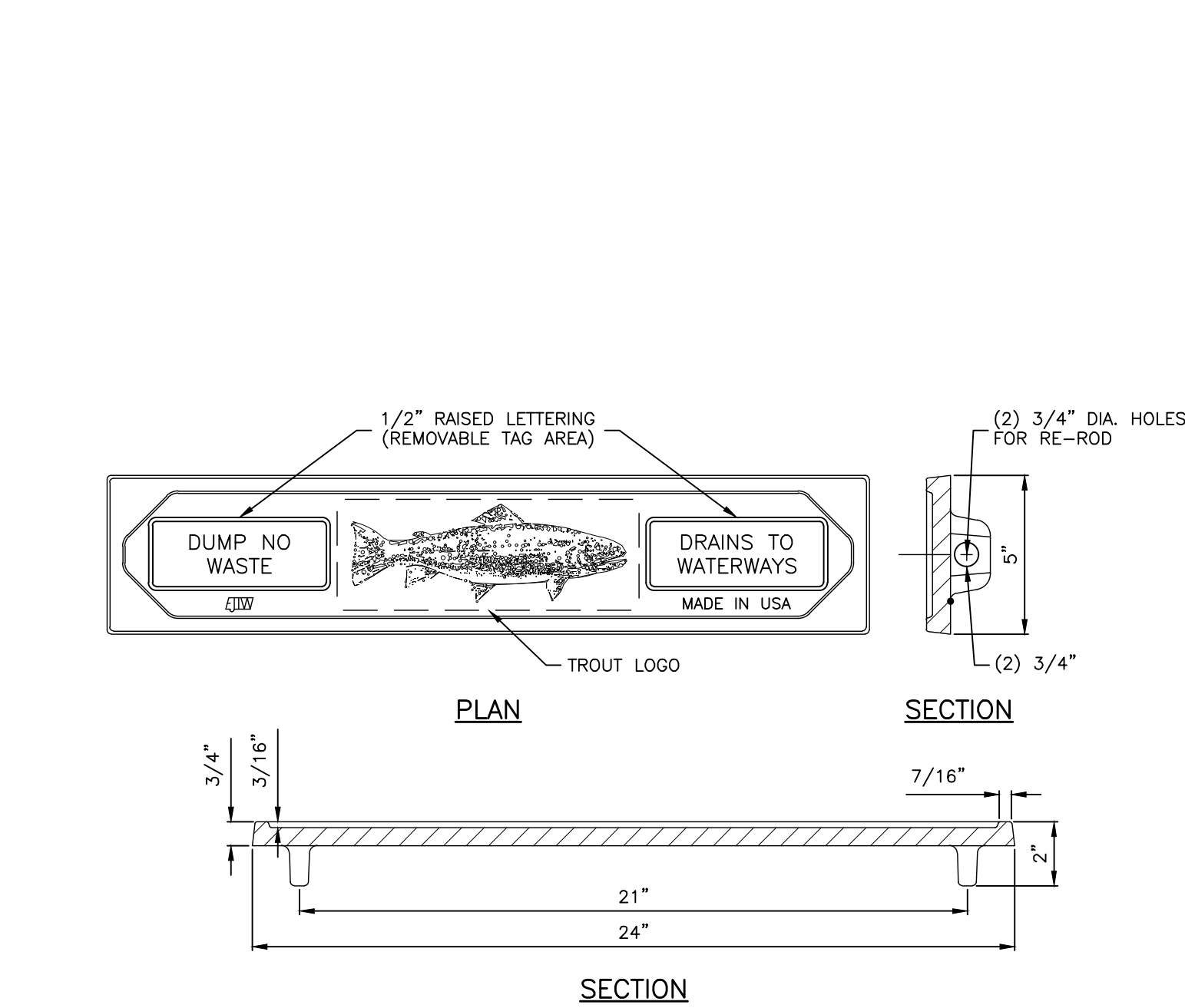
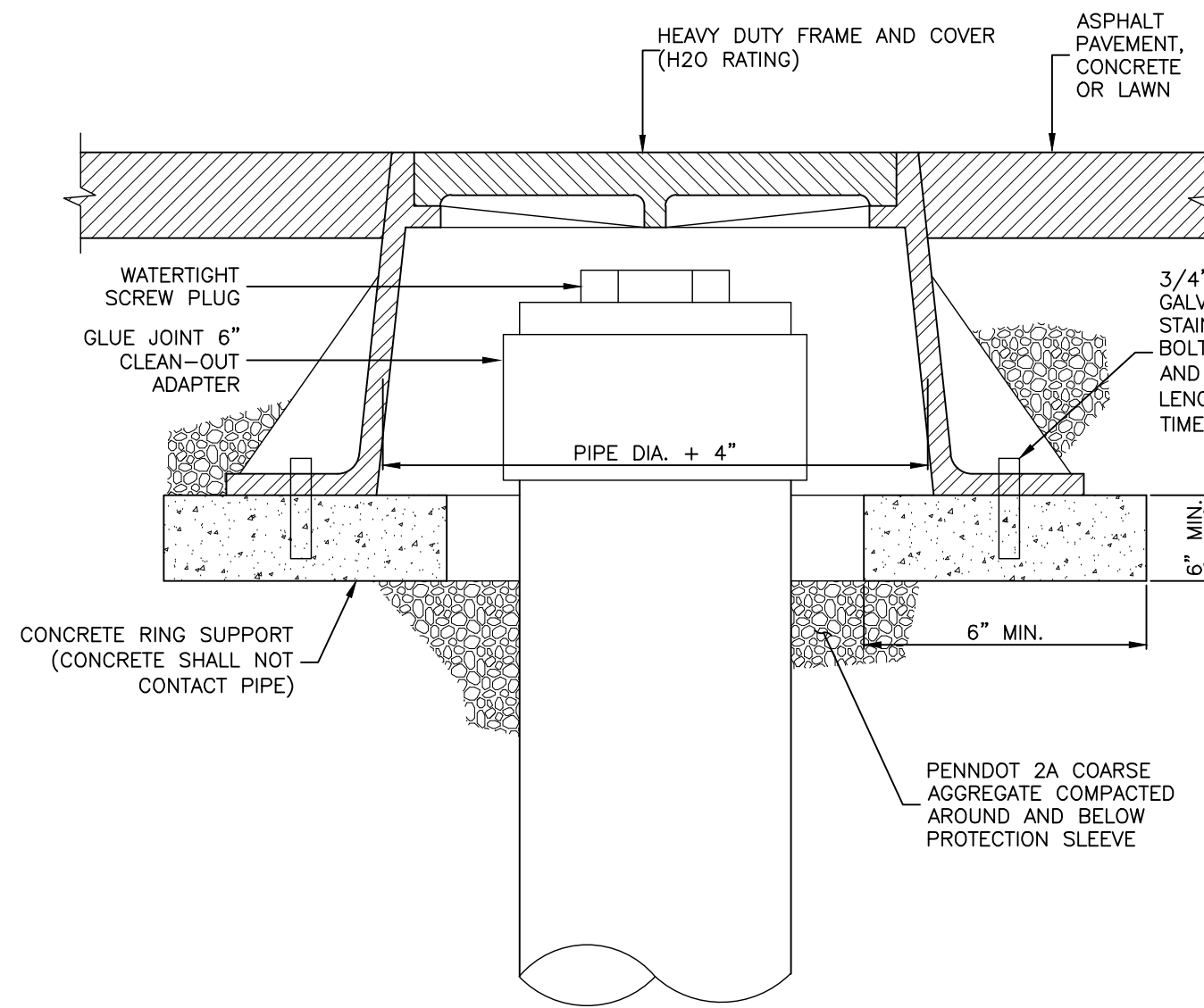
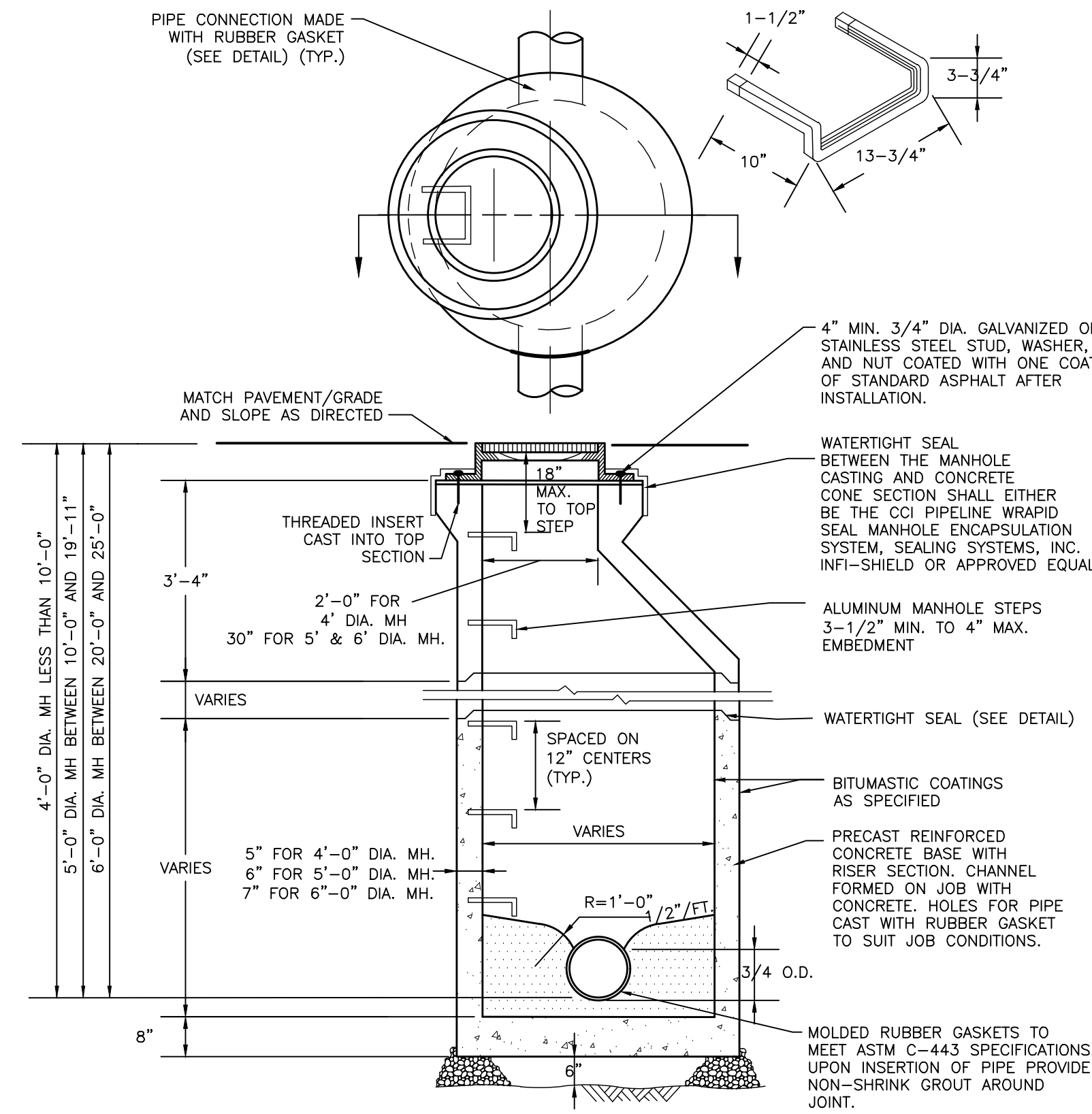


PLATE - NO DUMP
NOT TO SCALE



- NOTES:
1. FRAME AND COVER SHALL BE NEENAH FOUNDRY COMPANY MODEL R-1976 OR APPROVED EQUAL

CLEAN-OUT PROTECTION SLEEVE
NOT TO SCALE



- NOTES:
1. BOLTING OF MANHOLE FRAME AND COVER NOT REQUIRED FOR MANHOLES.
 2. ALL STONE GRADATIONS ARE AASHTO CLASSIFICATION.
 3. PIPES SHALL PROTRUDE 2" INSIDE MANHOLE WALL.
 4. FOR NEW PIPE CONNECTIONS THAT ARE TO BE MADE IN THE FIELD, USE FERROCEMENT OR EQUAL CONCRETE MANHOLE ADAPTER, PRIOR TO PLACING GROUT AROUND PIPE CONNECTION.
 5. WHERE CASTINGS ARE EXPOSED TO SURFACE RUNOFF, O-RING GASKETS WILL BE REQUIRED.
 6. O-RING & MOLDED RUBBER GASKETS PERTAIN STRICTLY TO SANITARY SEWERS.
 7. FOR SEWER PIPE GREATER THAN 30" DIA., CONFORM TO ASTM SPEC. C-478 (CURRENT VERSION).
 8. A HEAT SHRINK ENCAPSULATION SYSTEM SHALL BE PLACED OVER THE EXTERNAL AREA OF THE BRICK COURSE. CCI WRAPID SEAL ONLY.

PRECAST CONCRETE SANITARY MANHOLE WITH PRECAST CONCRETE BASE
NOT TO SCALE

CHRISTOPHER W. JENSEN, P.E.
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12/19/2024
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STATE OF PA LICENSE NO. PE076464

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UTILITY DETAILS-2

DESIGNED BY
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CHECKED BY
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DRAWN BY
SCR/CKS/RAM

DATE
12/19/2024
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AS NOTED
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WDEV00004

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FILE NAME: WDEV00004-DTL.dwg
LAST MODIFIED: 18 Dec 2024, 6:16PM
LAST SAVE BY: Shroberts

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LANDSCAPE PLANTING NOTES AND SPECIFICATIONS:

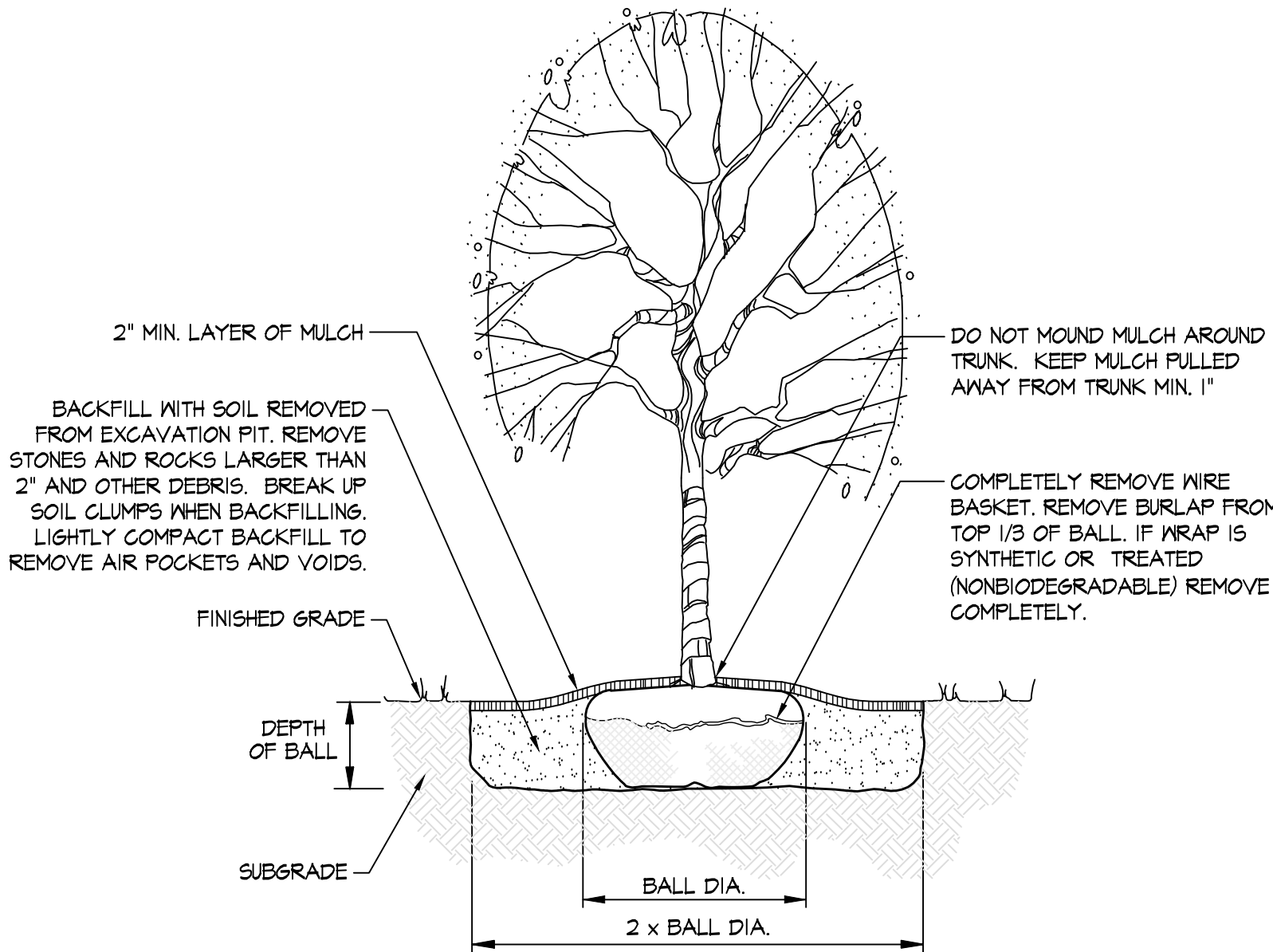
- ALL PLANT MATERIAL SHALL BE PROVIDED AND INSTALLED IN STRICT CONFORMANCE WITH USDA STANDARDS FOR NURSERY STOCK AND THE "AMERICAN NURSERY AND LANDSCAPE ASSOCIATION" STANDARDS LATEST EDITIONS.
- THE CONTRACTOR SHALL VERIFY ALL UTILITIES WITHIN WORK AREA PRIOR TO COMMENCING WITH ANY EXCAVATIONS AND SHALL BE RESPONSIBLE FOR THEIR PROTECTION.
- THE CONTRACTOR SHALL FURNISH AND PLANT ALL PLANTS SHOWN ON THE DRAWINGS, AS SPECIFIED, AND IN QUANTITIES INDICATED ON THE PLANT LIST. IF A DISCREPANCY SHOULD ARISE BETWEEN THE AMOUNT OF PLANTS SHOWN ON THE PLAN VS. THE PLANT SCHEDULE, THE PLAN SHALL GOVERN.
- ALL PLANTS SHALL BE NURSERY GROWN.
- ALL PLANTS SHALL BE HARDY UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT.
- ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OR GROWTH. THEY SHALL BE SOUND, HEALTHY AND VIGOROUS WELL BRANCHED AND DENSELY FOLIATED WHEN IN LEAF THEY SHALL BE FREE OF DISEASE AND INSECT PESTS, EGGS OR LARVAE. THEY SHALL HAVE HEALTHY WELL-DEVELOPED ROOT SYSTEMS.
- SUBSTITUTIONS: WHEN PLANTS OF A SPECIFIED KIND OR SIZE ARE NOT AVAILABLE WITHIN A REASONABLE DISTANCE, SUBSTITUTIONS MAY BE MADE UPON REQUEST BY THE CONTRACTOR IF APPROVED BY THE LANDSCAPE ARCHITECT OR HIS/HER REPRESENTATIVE.
- ALL AREAS TO BE SHOWN AS LAWN SHALL BE SEEDED, AS SPECIFIED, AND WATERED UNTIL A HEALTHY STAND OF GRASS IS OBTAINED WITH A MINIMUM OF 90% COVER PER 5 SQUARE FEET OF LAWN AREA AVERAGE.
- TREE LOCATIONS MAY NEED TO BE ADJUSTED BASED ON LOCATIONS OF UTILITIES, FIELD CONDITIONS, OR FINAL GRADING. THE CONTRACTOR SHALL NOTIFY THE OWNER AND/OR THEIR REPRESENTATIVE IF ADJUSTMENTS ARE NECESSARY.
- ALL SHRUBS TO BE PLANTED IN CONTINUOUS MULCH BEDS UNLESS OTHERWISE NOTED. ALL PLANTING BEDS TO RECEIVE 3" SHREDDED HARDWOOD MULCH.
- ALL PLANTS DELIVERED TO THE SITE MUST BE INSTALLED WITHIN 24 HOURS. IF PLANTS MUST BE STORED LONGER THAN 24 HOURS THEY ARE TO BE WEELED IN WITH MULCH AND SUFFICIENTLY WATERED TO PREVENT DRYNESS AND DESICCATION. IN NO CASE SHALL PLANTS BE STORED MORE THAN 12 HOURS WITHOUT APPROVAL FROM THE OWNERS REPRESENTATIVE.
- ROOT BALLS OF ALL PLANTS SHALL BE ADEQUATELY PROTECTED AT ALL TIMES FROM SUN AND DRYING WINDS OR FROST. PLANTS WITH BROKEN ROOT BALLS, TRUNK AND BARK DAMAGE OR EXCESSIVE DAMAGE TO THE CROWN SHALL BE REPLACED PRIOR TO PLANTING.
- ROPES AT TOP OF BALL SHALL BE CUT. REMOVE TOP 1/3 OF BURLAP MINIMUM. ALL NON- BIODEGRADABLE MATERIAL SHALL BE TOTALLY REMOVED. WIRE BASKETS SHALL BE CAREFULLY REMOVED ENTIRELY AT THE TIME OF PLANTING, PREFERABLY AFTER THE ROOT BALL HAS BEEN INSTALLED IN THE PLANTING PIT.
- PREPARATION OF PLANTING: CLEAN SOIL EXCAVATED FROM PLANTING PIT OF ROOTS, PLANTS, STONES LARGER THAN 2", CLAY LUMPS, AND OTHER EXTRANEQUS MATERIALS HARMFUL OR TOXIC TO PLANT GROWTH.
- DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING.
- NO PLANT SHALL BE PLACED IN THE GROUND BEFORE ROUGH GRADING HAS BEEN COMPLETED AND APPROVED BY THE PROJECT LANDSCAPE ARCHITECT OR HIS/HER EQUAL.
- INSTALL ALL PLANTS SO THAT THE TOP OF THE ROOTBALL IS SLIGHTLY ABOVE FINISHED GRADE. IN NO CASE SHALL THE PLAN BE INSTALLED WITH NO LESS THAN THE SAME RELATIONSHIP TO FINISHED GRADE AS THE PLANT'S ORIGINAL ROOT CROWN. EXCESS SOIL MAY EXIST AROUND THE ROOT CROWN FROM NURSERY OPERATIONS. THIS EXCESS MATERIAL SHALL BE REMOVED PRIOR TO PLANTING TO DETERMINE THE PROPER BALL INSTALLATION DEPTH.
- ALL EXISTING TREES THAT ARE TO BE SAVED AS DETERMINED BY LANDSCAPE ARCHITECT SHALL BE PROTECTED UNTIL CONSTRUCTION HAS BEEN COMPLETED. AREA WITHIN DRIPLINE SHALL NOT BE TRAVELED ACROSS BY CONSTRUCTION TRAFFIC.
- TREES PLANTED ALONG STREETS SHALL HAVE A SINGLE STRAIGHT TRUNK THAT DOES NOT FORK BELOW 6'.
- ALL PLANTS SHALL BE BALLED AND WRAPPED OR CONTAINER GROWN AS SPECIFIED. NO CONTAINER GROWN STOCK WILL BE ACCEPTED IF IT IS ROOT BOUND. ALL NON-BIODEGRADEABLE ROOT WRAPPING MATERIAL SHALL BE REMOVED AT TIME OF PLANTING.
- WITH CONTAINER GROWN STOCK, THE CONTAINER SHALL BE REMOVED AND THE CONTAINER BALL CUT THROUGH THE SURFACE IN TWO VERTICAL LOCATIONS MINIMUM.
- THE CONTRACTOR SHALL LAYOUT WITH IDENTIFIABLE STAKES INDIVIDUAL TREE AND SHRUB LOCATIONS AND AREAS FOR MULTIPLE PLANTING ALONG WITH THE ARRANGEMENTS AND OUTLINE OF PLANTING BEDS AS INDICATED ON DRAWING. THE LAYOUT OF PLANTING WILL THEN BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO ANY EXCAVATION OF PLANT PITS OR PLANT BEDS.
- AT PLANTING TIME, ALL PLANT MATERIAL SHALL TRIMMED TO REMOVE BROKEN AND/OR DEAD VEGETATIVE MATERIAL.
- ALL PLANTS SHALL BE INSTALLED AS PER THE PLANTING DETAILS AND THE CONTRACT SPECIFICATIONS, WHERE APPLICABLE.
- ALL PLANTS SHALL BE INSTALLED PLUMB UNLESS OTHERWISE SPECIFIED.
- ALL PLANTS SHALL BE THOROUGHLY WATERED TWICE DURING THE FIRST 24 HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL THEN BE WATERED WEEKLY OR MORE OFTEN, IF NECESSARY, DURING THE FIRST GROWING SEASON.
- CONDITIONS DETRIMENTAL TO PLANTS: THE CONTRACTOR SHALL NOTIFY THE PROJECT REPRESENTATIVE IN WRITING OF ALL SOIL OR DRAINAGE CONDITIONS WHICH THE CONTRACTOR CONSIDERS DETRIMENTAL TO THE GROWTH OF PLANTS. HE SHALL STATE THE CONDITIONS AND SUBMIT A PROPOSAL FOR CORRECTING THE CONDITIONS INCLUDING ANY CHANGE IN COST FOR REVIEW AND ACCEPTANCE BY THE PROJECT REPRESENTATIVE.
- WARRANT TREES AND SHRUBS FOR A MINIMUM PERIOD OF EIGHTEEN (18) MONTHS AFTER DATE OF WRITTEN FINAL ACCEPTANCE BY THE LANDSCAPE ARCHITECT AND/OR THE OWNERS AUTHORIZED REPRESENTATIVE AGAINST DEFECTS INCLUDING DEATH AND UNSATISFACTORY GROWTH. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MONITOR THE PROJECT PLANTINGS DURING THE WARRANTY PERIOD AND NOTIFY THE OWNER IF PROBLEMS DEVELOP. PLANTS THAT DIE DURING THE WARRANTY PERIOD SHALL BE REMOVED IMMEDIATELY AND REPLACED.
- ANY TREE OR SHRUB WHICH DIES WITHIN 18 MONTHS OF PLANTING SHALL BE REPLACED IN KIND. ANY TREE OR SHRUB WHICH WITHIN 18 MONTHS OF PLANTING OR REPLANTING IS DEEMED BY THE TOWNSHIP NOT TO BE HEALTHY AND VIGOROUS SHALL BE REPLACED IN KIND. REPLACEMENTS MAY BE OF A SUBSTITUTE SPECIES ONLY WHEN APPROVED BY THE TOWNSHIP.

EMERGENCY SEEDING RECOMMENDATIONS TOWNSHIP OF WORCESTER

DURING CONSTRUCTION ALL DISTURBED AREAS SHOULD BE SEEDED ACCORDING TO THE FOLLOWING INSTRUCTIONS:
SEEDING RECOMMENDATION FOR SIX TO TWELVE-MONTHS PERIODS.

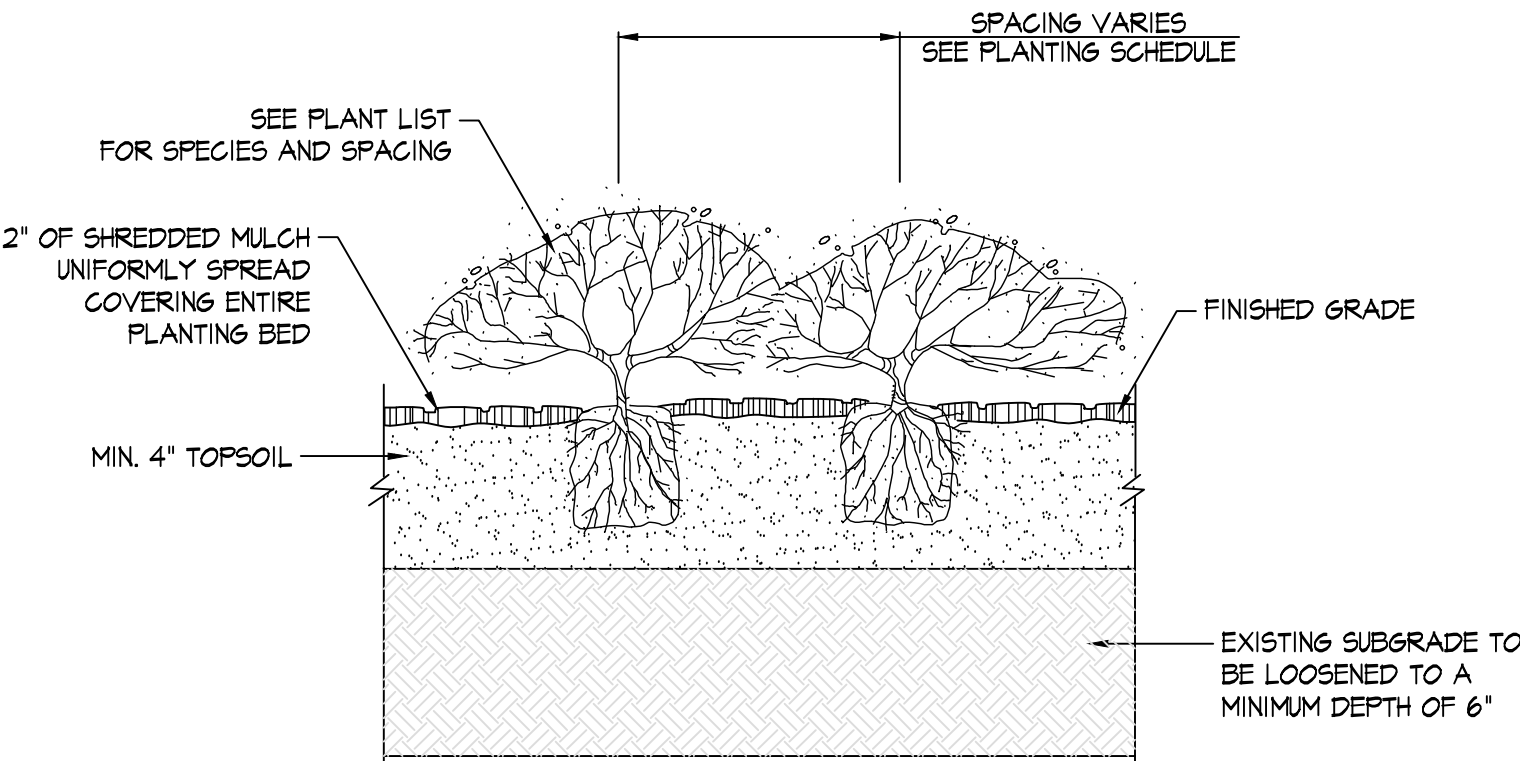
- INSTALL NEEDED WATER-CONTROL MEASURES.
- PERFORM ALL CULTURAL OPERATIONS AT RIGHT ANGLES TO THE SLOPE.
- LIME ACCORDINGS TO SOIL TEST OR KNOWLEDGE OF THE SITE OR APPLY TWO TONS OF GROUND LIMESTONE PER ACRE.
- FERTILIZE ACCORDING TO SOIL TEST OR KNOWLEDGE OF THE SITE OR APPLY 40-40-40 PER ACRE.
- INCORPORATE LIME AND FERTILIZER INTO THE TOP FOUR INCHES OF SURFACE SOIL BY DISCING OR OTHER SUITABLE MEANS.
- SEED ONE OF OF THE FOLLOWING MIXTURES AT THE MOST SUITABLE DATE. APPLY UNIFORMLY WITH A DRILL OR BY BROADCASTING:
 - MARCH 1 TO OCTOBER 1: 20 POUNDS OF ANNUAL RYE GRASS OR FIELD BROMEGRASS PER ACRE.
 - MARCH 1 TO MAY 30: 20 POUNDS OF ANNUAL RYE GRASS OR FIELD BROMEGRASS AND 64 POUNDS OF SPRING OATS PER ACRE.
 - AUGUST 1 TO NOVEMBER 1: 20 POUNDS OF ANNUAL RYE GRASS OR FIELD BROMEGRASS AND 112 POUNDS OF WINTER RYE PER ACRE.
- COVER GRASS AND LEGUME SEEDS ONE-FOURTH-INCH DEEP WITH CULTIPACKER OR HARROW. COVER RYE OR OATS ABOUT TWO INCHES DEEP.
- MOW RYE OR OATS JUST BEFORE THEY HEAD OUT IF SLOPE PERMITS.

SECTION 130-6 SHALL PREVAIL IN CASES OF CONFLICT WITH THE ABOVE PROVISIONS.



DECIDUOUS TREE PLANTING

NOT TO SCALE

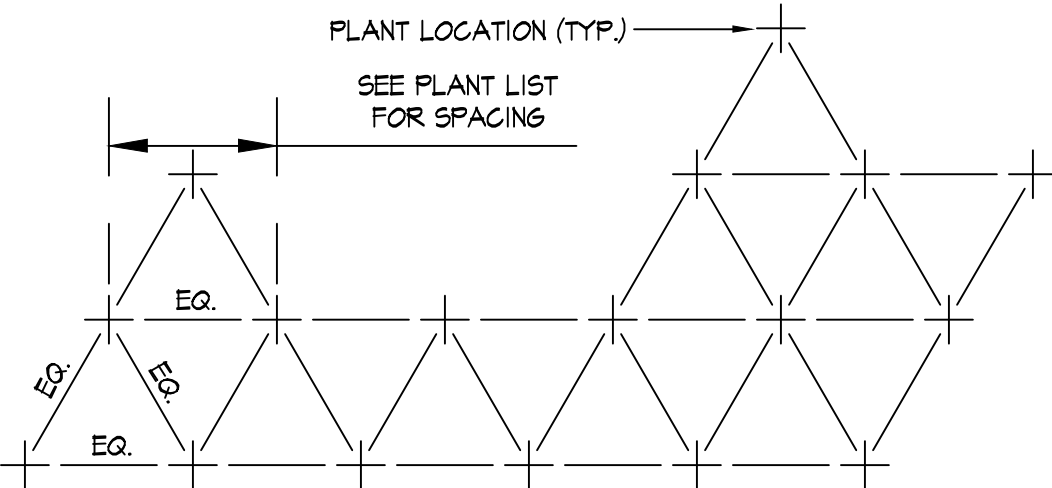


NOTES:

- GROUND COVER MATERIAL SHALL BEAR SAME RELATION TO FINISHED GRADE AS IT BORE TO PREVIOUS GRADE IN THE NURSERY.

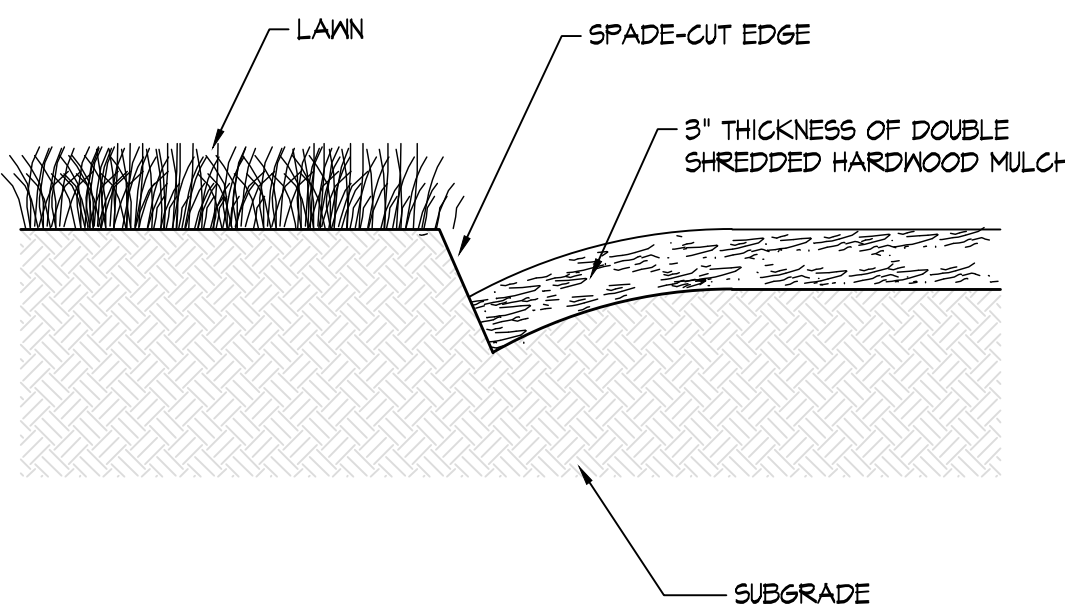
PLUG AND PERENNIAL PLANTING

NOT TO SCALE



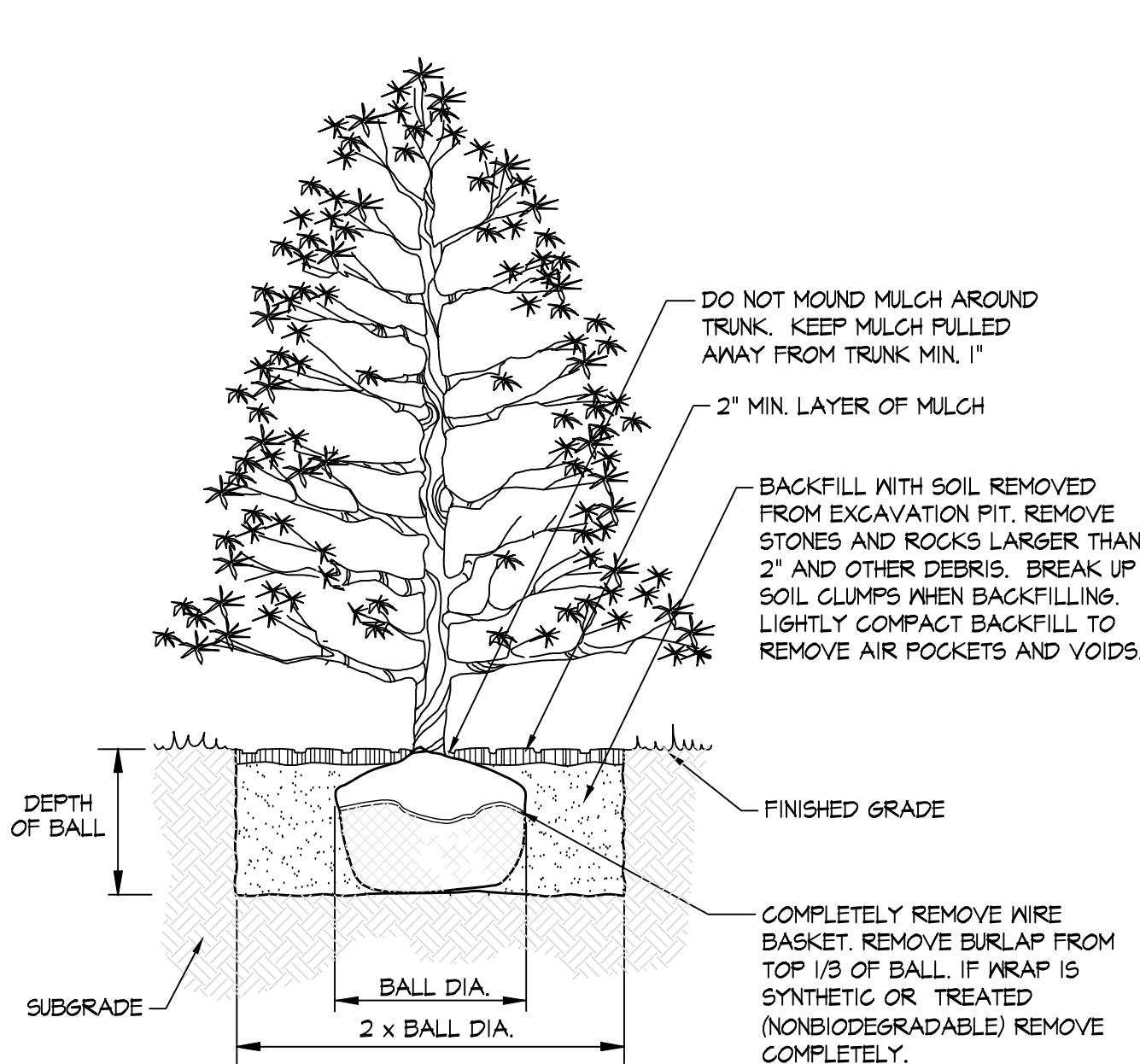
PLANT SPACING DIAGRAM

NOT TO SCALE



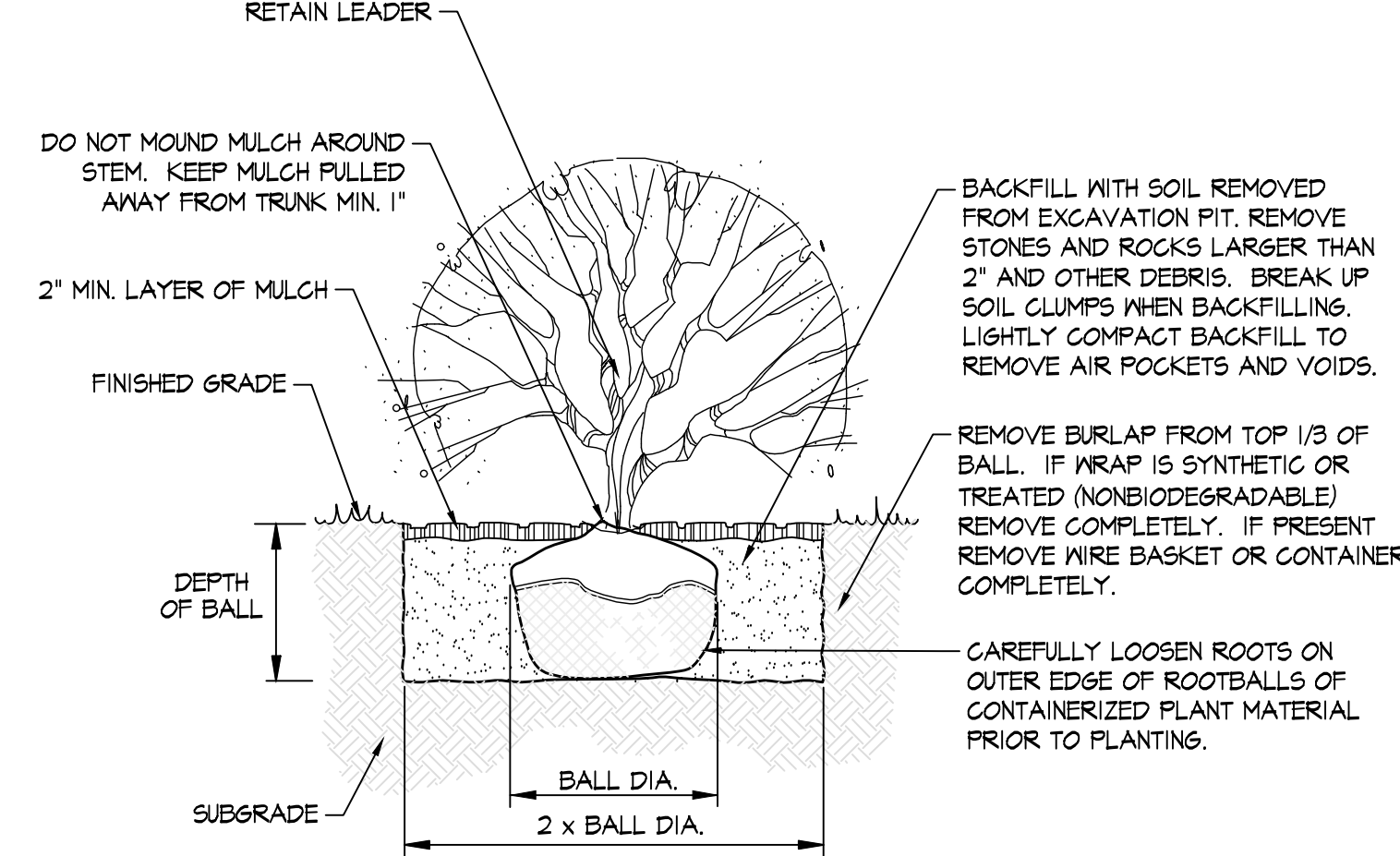
EDGING AT MULCH BED

NOT TO SCALE



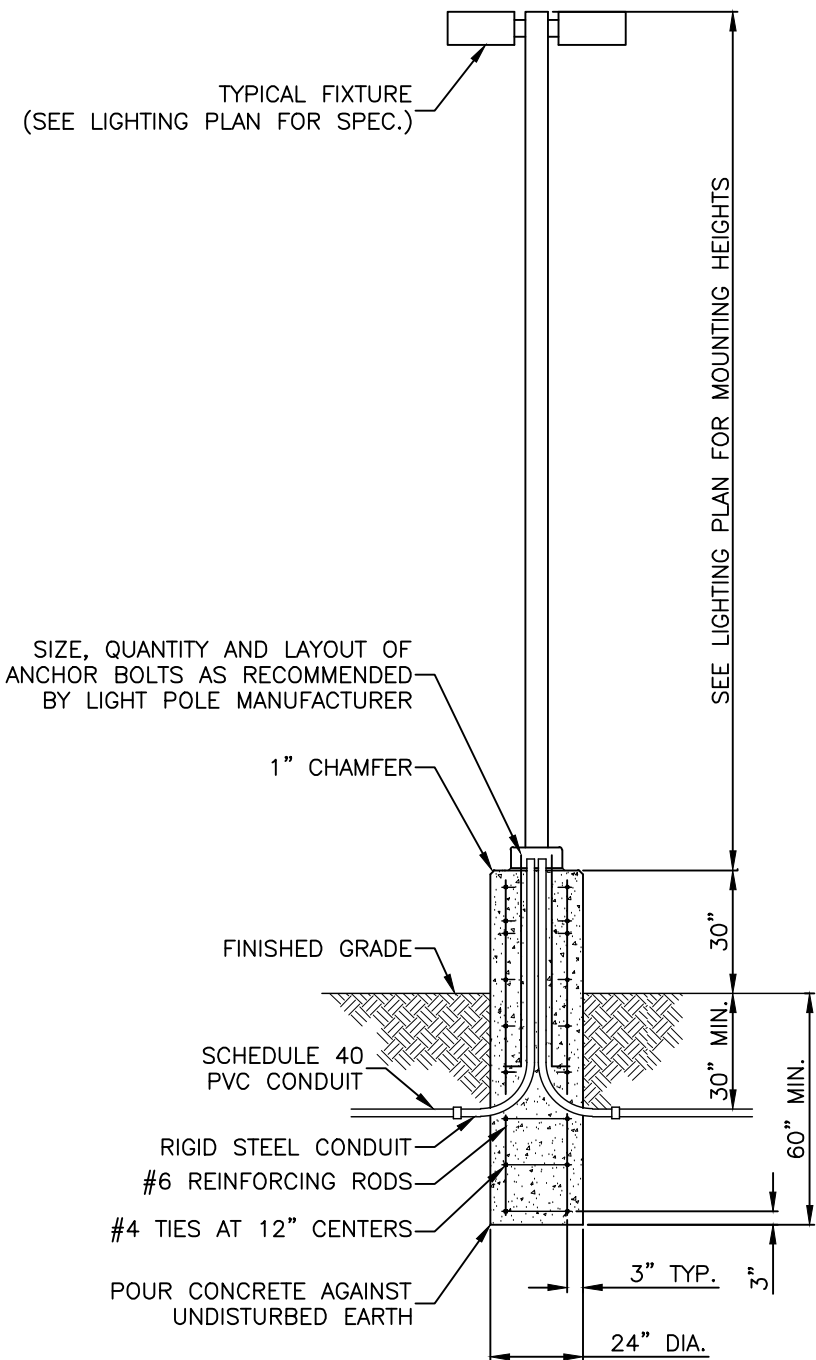
EVERGREEN TREE PLANTING

NOT TO SCALE



SHRUB PLANTING

NOT TO SCALE



NOTES:

- INSTALL ALL ELECTRICAL WORK PER LOCAL REGULATIONS.
- POLE SELECTION PER FIXTURE MANUFACTURER RECOMMENDATIONS AND LOCAL WIND LOAD REQUIREMENTS.
- SEE LIGHTING PLAN FOR POLE/FIXTURE SPECIFICATIONS.

LIGHT POLE

NOT TO SCALE

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER

12/19/2024
LICENSED PROFESSIONAL ENGINEER
STATE OF PA LICENSE NO. PE076464

COMMERCE PURSUIT CAPITAL

TROOPER RIDGE SUBDIVISION
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MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

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OFFICES LOCATED IN:
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DESIGNED BY JPK/CKS/CMR/ROP/ZHR	DRAWING LSPD
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DRAWN BY SCR/CKS/RAM	SHEET
DATE 12/19/2024	30
SCALE AS NOTED	OF 37
PROJ. NO. WDEV00004	

<u>SYMBOL</u>	<u>CODE</u>	<u>QTY</u>	<u>BOTANICAL NAME</u>	<u>COMMON NAME</u>	<u>CONT</u>	<u>HEIGHT</u>	<u>REMARKS</u>
<u>DECIDUOUS TREES</u>							
	TH	8	TILIA CORDATA 'HALKA'	SUMMER SPRITE LINDEN	B & B	2 1/2" - 3" CAL.	STRAIGHT SINGLE LEADER
<u>EVERGREEN TREES</u>							
	IA	9	ILEX OPACA	AMERICAN HOLLY	B & B	6'-7'	FULL FORM TO GROUND
	JE3	18	JUNIPERUS VIRGINIANA	EASTERN REDCEDAR	B & B	10'-12'	
	PA2	13	PICEA ABIES	NORWAY SPRUCE	B & B	10'-12'	
	PG	16	PICEA GLAUCA	WHITE SPRUCE	B & B	6'-7'	FULL FORM TO GROUND
	PS	19	PINUS STROBUS	WHITE PINE	B & B	10'-12'	
<u>FLOWERING TREES</u>							
	AA3	21	AMELANCHIER ARBOREA	DOWNY SERVICEBERRY	B & B	1.5"-2" CAL.	8' MIN
	PK	10	PRUNUS SERRULATA 'KWANZAN'	FLOWERING CHERRY	B & B	1.5"-2" CAL.	8' MIN
<u>REPLACEMENT TREES</u>							
	AR	10	ACER RUBRUM	RED MAPLE	B & B	2 1/2" - 3" CAL.	
	BG	6	BETULA NIGRA 'CULLY IMPROVED'	HERITAGE® IMPROVED RIVER BIRCH	B & B	2 1/2" - 3" CAL.	MULTI-TRUNK
	CG	9	CARYA GLABRA	PIGNOT HICKORY	B & B	2 1/2" - 3" CAL.	
	CO	10	CELTIS OCCIDENTALIS	COMMON HACKBERRY	B & B	2 1/2" - 3" CAL.	
	QB	16	QUERCUS BICOLOR	SWAMP WHITE OAK	B & B	2 1/2" - 3" CAL.	
	ZG	4	ZELKOVA SERRATA 'GREEN VASE'	SANLEAF ZELKOVA	B & B	2 1/2" - 3" CAL.	STRAIGHT SINGLE LEADER
<u>STORMWATER BASIN TREES</u>							
	AA2	4	AMELANCHIER X GRANDIFLORA	APPLE SERVICEBERRY	B & B	1.5"-2" CAL.	8' MIN
	CE	5	CERCIS CANADENSIS	EASTERN REDBUD MULTI-TRUNK	B & B	1.5"-2" CAL.	8' MIN
	CK	6	CORNUS KOUSA	KOUSA DOGWOOD	B & B	1.5"-2" CAL.	8' MIN
	GS	4	GLEDITSIA TRIACANTHOS 'SKYLINE'	SKYLINE HONEY LOCUST	B & B	2 1/2" - 3" CAL.	STRAIGHT SINGLE LEADER
	IN	4	ILEX X 'NELLIE R STEVENS'	NELLIE STEVENS HOLLY	B & B	8' MIN	FULL FORM TO GROUND
	JE2	9	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	B & B	8' MIN	
	LR	3	LIQUIDAMBAR STYRACIFLUA 'ROTUNDILOBA' TM	ROUND-LOBED SWEET GUM	B & B	2 1/2" - 3" CAL.	STRAIGHT SINGLE LEADER
	PA	4	PICEA ABIES	NORWAY SPRUCE	B & B	10'-12'	
	PB	2	PLATANUS X ACERIFOLIA 'BLOODGOOD'	LONDON PLANE TREE	B & B	2 1/2" - 3" CAL.	STRAIGHT SINGLE LEADER
	PD	5	PSEUDOTSUGA MENZIESII	DOUGLAS FIR	B & B	10'-12'	
	QA	5	QUERCUS ACUTISSIMA	SANTOOTH OAK	B & B	2 1/2" - 3" CAL.	STRAIGHT SINGLE LEADER
<u>STREET TREES</u>							
	AA	15	ACER RUBRUM 'AUTUMN FLAME'	AUTUMN FLAME MAPLE	B & B	2 1/2" - 3" CAL.	STRAIGHT SINGLE LEADER
	QP	14	QUERCUS PALUSTRIS	PIN OAK	B & B	2 1/2" - 3" CAL.	
<u>SYMBOL</u>	<u>CODE</u>	<u>QTY</u>	<u>BOTANICAL NAME</u>	<u>COMMON NAME</u>	<u>CONT</u>	<u>HEIGHT</u>	<u>REMARKS</u>
<u>SHRUBS</u>							
	FG	12	FOTHERGILLA GARDENII	DWARF FOTHERGILLA	3 GAL	24"-36"	MIN. 3 CANES
	IS	35	ILEX GLABRA 'SHAMROCK'	INKBERRY	7 GAL	36" HT MIN	MIN. 3 CANES
	IT	10	ITEA VIRGINICA 'LITTLE HENRY' TM	VIRGINIA SWEETSPIRE	5 GAL	30"-36"	MIN. 3 CANES
	JP	12	JUNIPERUS DAVIDRICA 'PARSONII'	PARSON'S JUNIPER	2 GAL	12"-15"	
	VA	2	VIBURNUM RHYTIDOPHYLLUM 'ALLEGHANY'	LEATHERLEAF VIBURNUM	B & B	36" HT MIN	MIN. 3 CANES
<u>SOFTENING BUFFER SHRUBS</u>							

No.	Section		Requirement	Proposed	Variance/Waiver
1	130-28G (4) (b)	Street Trees: Along primary streets, street trees are to be placed 50 feet O.C.	Germantown Pike: 439 LF / 50 = 9 Street trees N Trooper Road: 938 LF / 50 = 19 Street trees (LF excludes access drive widths)	Germantown Pike: 9 Street trees N Trooper Road: 19 Street trees	NO
2	130-28G (5) (b)	Softening Buffer: Along the side and rear property lines of all developments, where existing vegetation is not sufficient and to meet the requirements of a softening buffer, Subsection G(5)(b)[1] below, and a screen buffer is not required, a permanent softening buffer shall be planted	Softening buffer along rear and side yards where screen buffer is not required and existing vegetation is insufficient	850 LF Softening buffer in accordance with 130-28G(5)(b)(1) provided along side yard to Northwest Existing woods along rear and side yards to the North to remain and provide sufficient softening buffer to adjacent properties	NO
3	130-28G (7) (f)	Basin Perimeter Plantings: Plantings shall be at least 10 feet from the toe of berm. 1 shade tree for every 50 LF of basin perimeter	707 LF basin perimeter / 50 = 14 shade trees.	14 shade trees around basin perimeters	NO
4	128-14 (24) (c) [1]	Drainage area and detention basin landscaping: The perimeter of the retention/detention basin shall be landscaped with a mixture of deciduous trees, evergreens, and shrubs arranged in an informal manner. Retention basin (wet ponds) and artificial wetland basin landscaping shall be designed to create a "natural" appearance. Minimum plant material shall include the following per 100 linear feet of basin perimeter measured at the 100-year water surface elevation: [a] Three evergreen trees (minimum height five feet) [b] Two deciduous trees (minimum caliper 2 1/2 inches) [c] Five shrubs (minimum height three feet)	707 LF basin perimeter / 100 = 7.07 7.07 x 3 = 22 evergreen trees 7.07 x 2 = 15 deciduous trees 7.07 x 5 = 36 shrubs	22 evergreen trees 15 deciduous trees 36 shrubs	NO
5	130-28F (7) (b)	Tree Replacement: If greater than 25% of the existing trees on a site with a trunk diameter of six inches DBH or greater are destroyed because of street alignment, building placement, parking area location, grading or otherwise, then replacement of those trees over the twenty-five-percent threshold shall be required as follows:	142 total existing trees on site 25% threshold = 36 trees 88 existing trees proposed to be removed 88-36 = 52 trees to be replaced	55 replacement trees refer to Replacement Tree Schedule for species and size	NO

ERNST SEEDS

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www.ernstseed.com

Retention Basin Floor Mix - Low Maintenance - ERNMX-126

Botanical Name	Common Name	Price/Lb
20.00 % <i>Panicum clandestinum, Tioga</i>	Deertongue, Tioga	22.27
20.00 % <i>Puccinellia distans, Fults</i>	Alkaligrass, Fults	3.84
18.00 % <i>Elymus virginicus, Madison-NY Ecotype</i>	Virginia Wildrye, Madison-NY Ecotype	10.46
15.00 % <i>Agrostis stolonifera, PC 2.0'</i>	Creeping Bentgrass, PC 2.0'	14.40
15.00 % <i>Poa palustris</i>	Fox Sedge	21.60
10.00 % <i>Carex vulpinoidea, PA Ecotype</i>	Fox Sedge, PA Ecotype	31.20
1.00 % <i>Carex scoparius, PA Ecotype</i>	Blunt Broom Sedge, PA Ecotype	96.00
1.00 % <i>Juncus effusus</i>	Soft Rush	48.00

100.00 %	Mix Price/Lb Bulk:	\$17.07
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Seeding Rate: 20-40 lbs per acre, or 0.5-1 lb/1,000 sq ft with a cover crop. For a cover crop use one of the following: grain rye (1 Sep to 30 Apr; 30 lbs/acre), Japanese millet (1 May to 31 Aug; 10 lbs/acre), or barnyard grass (1 May to 31 Aug; 10 lb/acre).

Grasses & Grass-like Species - Herbaceous Perennial; Stormwater Management

The hardy inexpensive grass and grass-like species are ideal for retention basins that may have high salt inflows and where mowing may be required. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

**Price quotes guaranteed for 30 days.
All prices are FOB Meadville, PA.
Please check our web site at www.ernstseed.com
for current pricing when placing orders.**

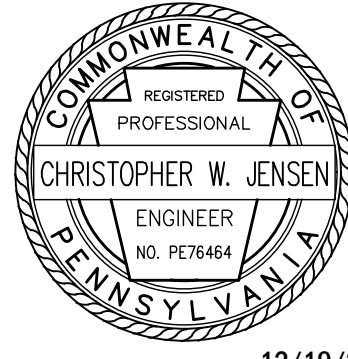


ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 121, AS AMENDED BY ACT 121 OF 2008, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK.

SERIAL NO.:
20243371817

[illegible]

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER



12/19/2024

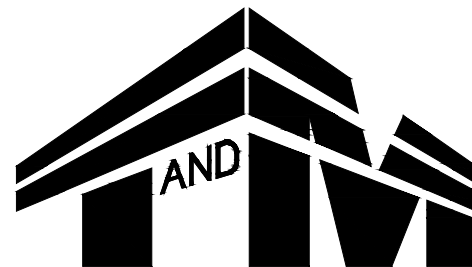
LICENSED PROFESSIONAL ENGINEER
STATE OF PA LICENSE No. PE076464

COMMERCE PURSUIT CAPITAL

TROOPER RIDGE SUBDIVISION
1035 NORTH TROOPER ROAD, WORCESTER TOWNSHIP,
MONTGOMERY COUNTY, COMMUNICAL TR. OF PENNSYLVANIA

MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

LANDSCAPE SCHEDULE

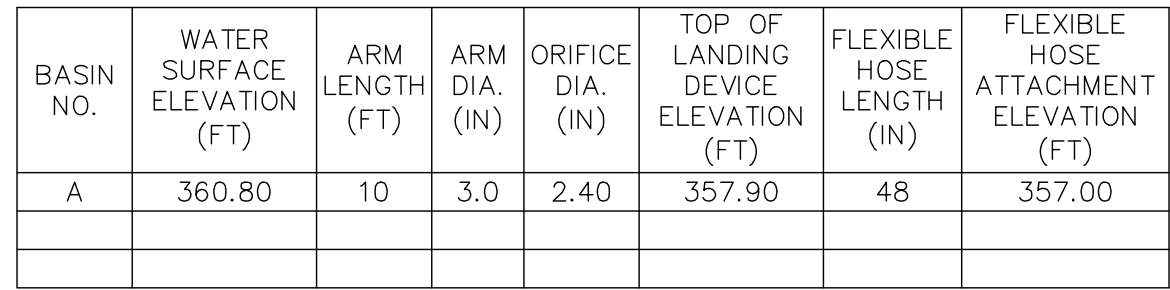


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CHECKED BY BGS/ZHR	
DRAWN BY SCR/CKS/RAM	SHEET 31
DATE 12/19/2024	
SCALE AS NOTED	
PROJ. NO. WDEV00004	



ORIFICE DIAMETER MUST BE EQUAL TO OR LESS THAN ARM DIAMETER

A ROPE SHALL BE ATTACHED TO THE SKIMMER ARM TO FACILITATE ACCESS TO THE SKIMMER ONCE INSTALLED.

SKIMMER SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT.

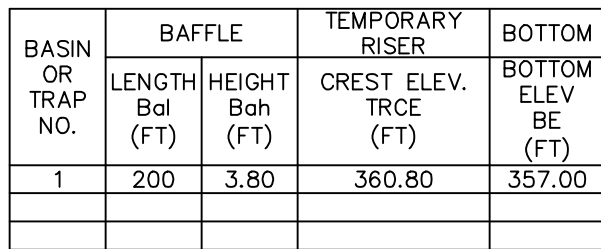
ANY MALFUNCTIONING SKIMMER SHALL BE REPAIRED OR REPLACED WITHIN 24 HOURS OF INSPECTION

ICE OR SEDIMENT BUILDUP AROUND THE PRINCIPAL SPILLWAY SHALL BE REMOVED SO AS TO ALLOW THE SKIMMER TO RESPOND TO FLUCTUATING WATER ELEVATIONS.

SEDIMENT SHALL BE REMOVED FROM THE BASIN WHEN IT REACHES THE LEVEL MARKED ON THE SEDIMENT CLEAN-OUT STAKE OR THE TOP OF THE LANDING DEVICE.

A SEMI-CIRCULAR LANDING ZONE MAY BE SUBSTITUTED FOR THE GUIDE RAILS (STANDARD CONSTRUCTION DETAIL # 7-3).

NOT TO SCALE



SEE APPROPRIATE BASIN DETAIL FOR PROPER LOCATION AND ORIENTATION.

AN ACCEPTABLE ALTERNATIVE IS TO INSTALL A SUPER SILT FENCE AT THE BAFFLE LOCATION IN POOLS WITH DEPTHS EXCEEDING 7'. THE TOP OF THE PLYWOOD BAFFLE DOES NOT NEED TO EXTEND TO THE TEMPORARY RISER CRIST. SUPER SILT FENCE BAFFLES NEED NOT EXTEND TO TRICE ELEVATION.

BAFFLES SHALL BE TIED INTO ONE SIDE OF THE BASIN UNLESS OTHERWISE SHOWN ON THE PLAN DRAWINGS.

SUBSTITUTION OF MATERIALS NOT SPECIFIED IN THIS DETAIL SHALL BE APPROVED BY THE DEPARTMENT OR THE LOCAL CONSERVATION DISTRICT BEFORE INSTALLATION.

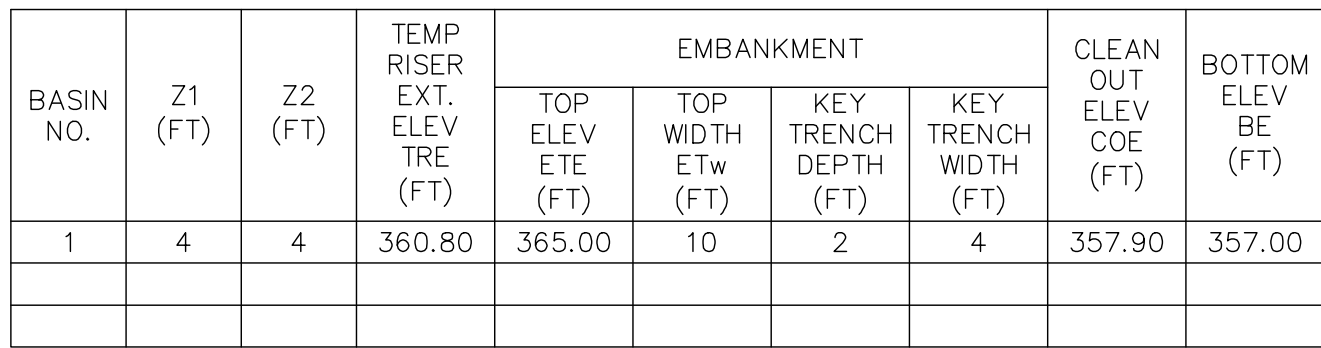
DAMAGED OR WARPED BAFFLES SHALL BE REPLACED WITHIN 7 DAYS OF INSPECTION.

BAFFLES REQUIRING SUPPORT POSTS SHALL NOT BE INSTALLED IN BASINS REQUIRING IMPERVIOUS LINERS.

NOT TO SCALE



NOT TO SCALE



NOTES:

SEDIMENT BASINS, INCLUDING ALL APPURTENANT WORKS, SHALL BE CONSTRUCTED TO THE DETAIL AND DIMENSIONS SHOWN ON THE E&S PLAN DRAWINGS.

AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO A DEPTH OF TWO FEET PRIOR TO ANY PLACEMENT AND COMPACTION OF EARTHEN FILL. IN ORDER TO FACILITATE MAINTENANCE AND RESTORATION, THE POOL AREA SHALL BE CLEARED OF ALL BRUSH, TREES, AND OBJECTIONABLE MATERIAL. FILL MATERIAL FOR THE EMBANKMENTS SHALL BE FREE OF ROOTS, OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIALS. THE EMBANKMENT SHALL BE COMPACTED IN LAYERED LIFTS OF NOT MORE THAN 6 TO 9 IN. THE MAXIMUM ROCK SIZE SHALL BE NO GREATER THAN 2/3 THE LIFT THICKNESS.

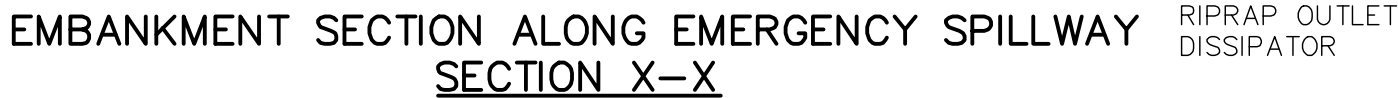
UPON COMPLETION, THE EMBANKMENT SHALL BE SEEDED, MULCHED, BLANKETED OR OTHERWISE STABILIZED ACCORDING TO THE SPECIFICATIONS OF THE E&S PLAN DRAWINGS. TREES SHALL NOT BE PLANTED ON THE EMBANKMENT.

INSPECT ALL SEDIMENT BASIN(S) ON AT LEAST A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. PROVIDE ACCESS FOR SEDIMENT REMOVAL AND OTHER REQUIRED MAINTENANCE ACTIVITIES. A CLEAN OUT STAKE SHALL BE PLACED NEAR THE CENTER OF EACH BASIN. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED THE CLEAN OUT ELEVATION ON THE STAKE AND THE BASIN RESTORED TO ITS ORIGINAL DIMENSIONS. DISPOSE OF MATERIALS REMOVED FROM THE BASIN IN THE MANNER DESCRIBED IN THE E&S PLAN.

BASIN EMBANKMENTS, SPILLWAYS, AND OUTLETS SHALL BE INSPECTED FOR EROSION, PIPING AND SETTLEMENT. NECESSARY REPAIRS SHALL BE IMMEDIATELY. DISPLACED RIPRAP WITHIN THE OUTLET ENERGY DISSIPATER SHALL BE REPLACED IMMEDIATELY.

ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISTURBED AREAS SHALL BE STABILIZED INSIDE THE BASIN BEFORE CONVERSION TO A STORMWATER MANAGEMENT FACILITY. THE DEVICE SHOWN IN STANDARD CONSTRUCTION DETAIL #7-16 MAY BE USED TO DEWATER SATURATED SEDIMENT PRIOR TO ITS REMOVAL. ROCK FILTERS SHALL BE ADDED AS NECESSARY.

NOT TO SCALE



NOTES:

HEAVY EQUIPMENT SHALL NOT CROSS OVER SPILLWAY WITHOUT PRECAUTIONS TAKEN TO PROTECT TRM LINING.

DISPLACED LINER WITHIN THE SPILLWAY AND/OR OUTLET CHANNEL SHALL BE REPLACED IMMEDIATELY.

RIPRAP AT TOE OF EMBANKMENT SHALL BE EXTENDED A SUFFICIENT LENGTH IN BOTH DIRECTIONS TO PREVENT SCOUR.

THE USE OF BAFFLES THAT REQUIRE SUPPORT POSTS ARE RESTRICTED FROM USE IN BASINS REQUIRING IMPERVIOUS LINERS.

NOT TO SCALE



SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. THE EROSION CONTROL SOCK SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN CHANNEL. THE SOCK SHALL BE SECURED TO THE SLOPE AND SHALL NOT EXCEED 7.5 FEET SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PL. COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. COMPOST FILTER SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS.

NON-BIODEGRADABLE COMPOST FILTER SOCKS AND POLYESTER FILM SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

NOT TO SCALE

* OR WOOD CELLULOSE (ON SLOPES 4:1 OR FLATTER), EXCEPT USE HAY

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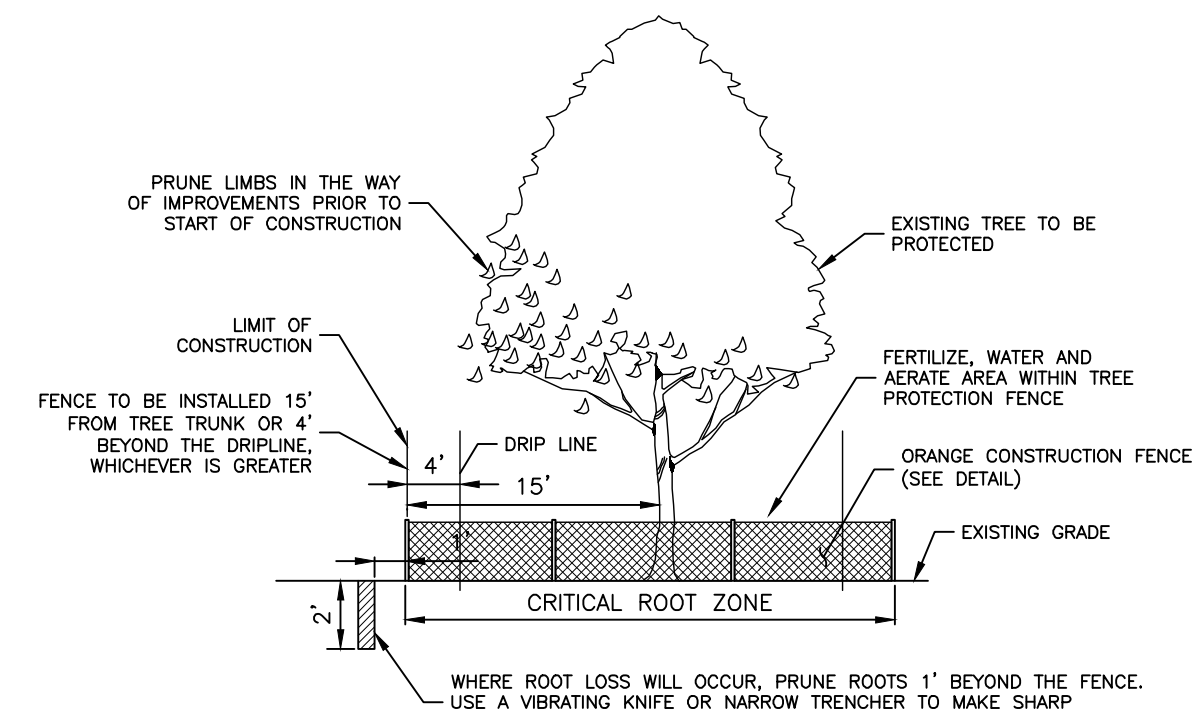
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NOTES:

1. INSTALL 12" COMPOST FILTER SOCK DOWNSLOPE OF AREA OF STOCKPILE.
2. PLACE STOCKPILE IN AREAS SHOWN ON EROSION CONTROL PLAN WITHOUT BLOCKING NATURAL DRAINAGE PATTERNS.
3. FOLLOW DIMENSIONS SHOWN ABOVE. HEIGHT SHOULD NOT EXCEED 35 FT. SIDE SLOPES SHOULD NOT BE STEEPER THAN 2(H):1(V).
4. SEED IMMEDIATELY WITH TEMPORARY SEEDING PENNDOT FORMULA "D" OR "E", IF MATERIAL IS NOT TO BE USED WITHIN 20 DAYS. FOLLOW "PERMANENT SEEDING, FERTILIZATION SCHEDULE & SPECIFICATIONS."

MATERIAL STOCKPILE AND MAINTENANCE

NOT TO SCALE

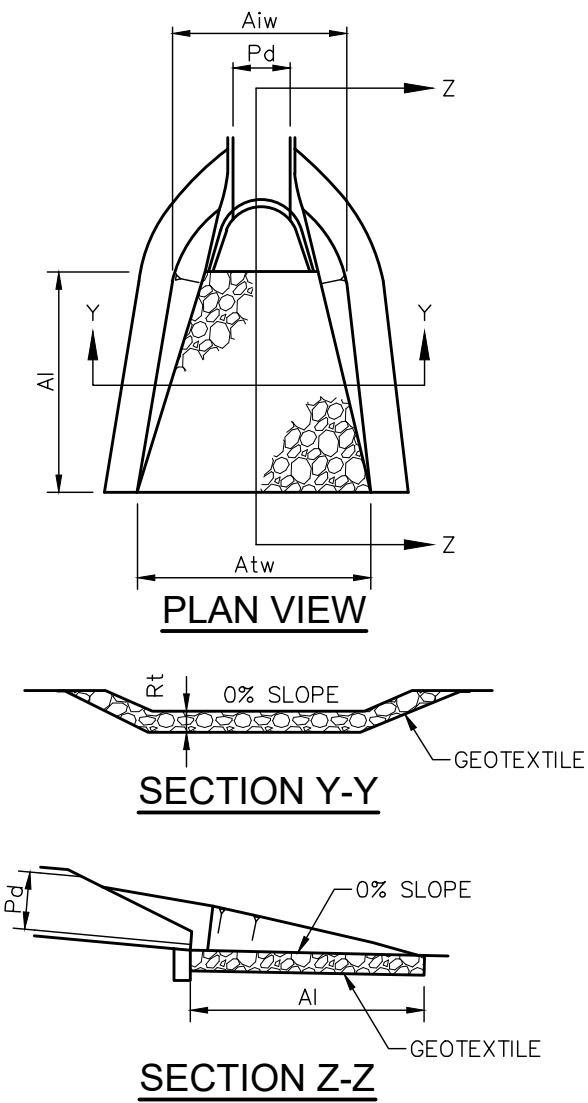


NOTES:

1. NO ENTRY, STORAGE, DISTURBANCE OR ALTERATION SHALL OCCUR IN AREA WITHIN TREE PROTECTION FENCE.

TREE PROTECTION AND PRUNING

NOT TO SCALE



OUTLET NO.	PIPE DIA Pd (IN)	RIPRAP SIZE R- (IN)	THICK. Rt (IN)	LENGTH Al (FT)	INITIAL WIDTH A1w (FT)	TERMINAL WIDTH Atw (FT)
A1	24	R-5	27	16	6	13
B1	24	R-5	27	8	6	10
S2	30	R-5	27	12	8	13
A2	24	R-5	27	8	6	10

NOTES:

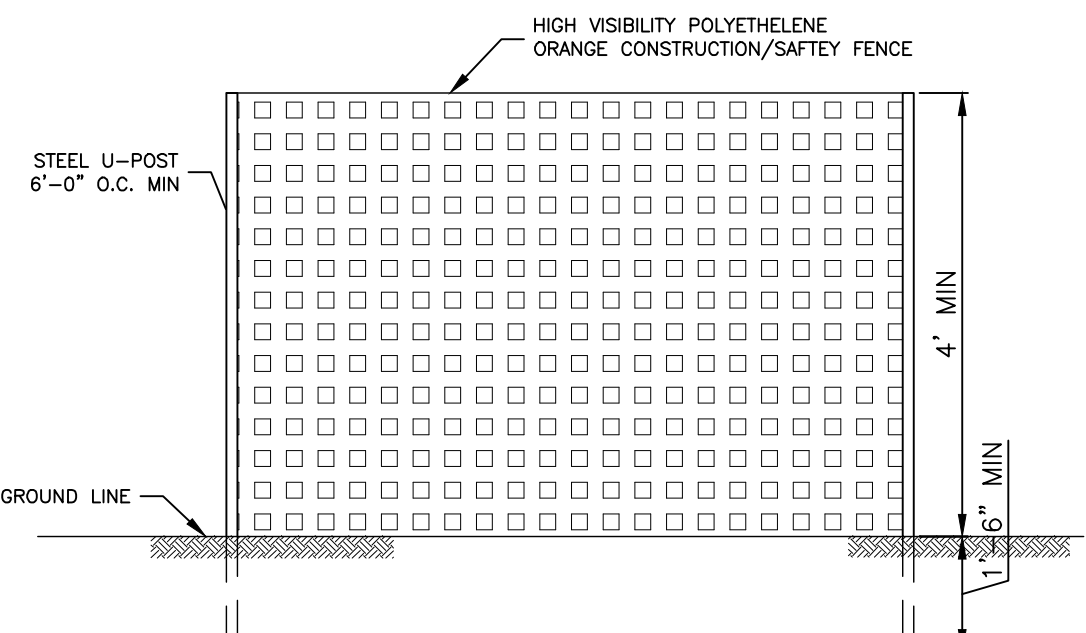
ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.

ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

STANDARD CONSTRUCTION DETAIL #9-1

RIPRAP APRON AT PIPE OUTLET WITH FLARED END SECTION OR ENDWALL

NOT TO SCALE



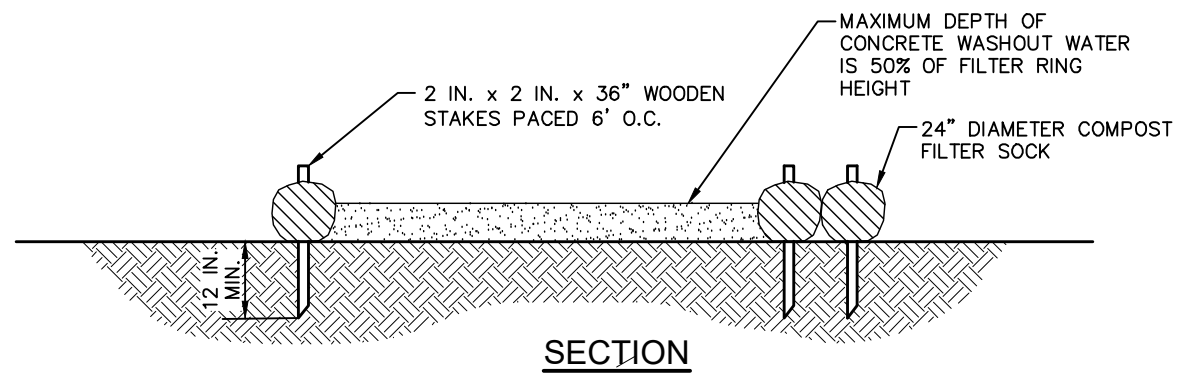
NOTES:

1. CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCE ALONG LIMIT OF DISTURBANCE BOUNDARY PRIOR TO THE START OF ANY EARTHMOVING.
2. CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN FENCE THROUGHOUT ENTIRE DURATION OF THE PROJECT.

ORANGE CONSTRUCTION FENCE

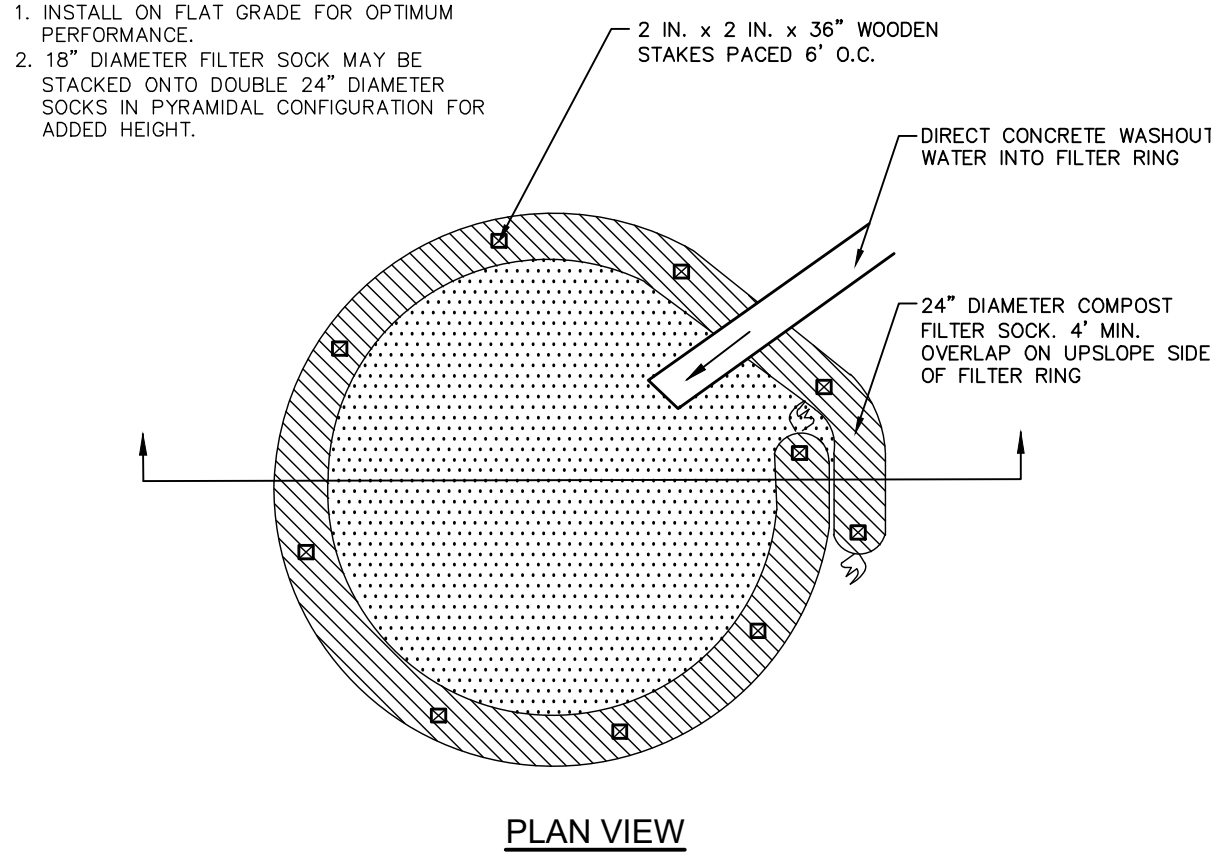
TREE PROTECTION FENCE

NOT TO SCALE



NOTES:

1. INSTALL ON FLAT GRADE FOR OPTIMUM PERFORMANCE.
2. 18" DIAMETER FILTER SOCK MAY BE STACKED ONTO DOUBLE 24" DIAMETER SOCKS IN PYRAMIDAL CONFIGURATION FOR ADDED HEIGHT.



A SUITABLE IMPERVIOUS GEMEMBRANE SHALL BE PLACED AT THE LOCATION OF THE WASHOUT PRIOR TO INSTALLING THE SOCKS.

MAINTENANCE

ALL CONCRETE WASHOUT FACILITIES SHOULD BE INSPECTED DAILY. DAMAGED OR LEAKING WASHOUTS SHOULD BE DEACTIVATED AND REPAIRED OR REPLACED IMMEDIATELY.

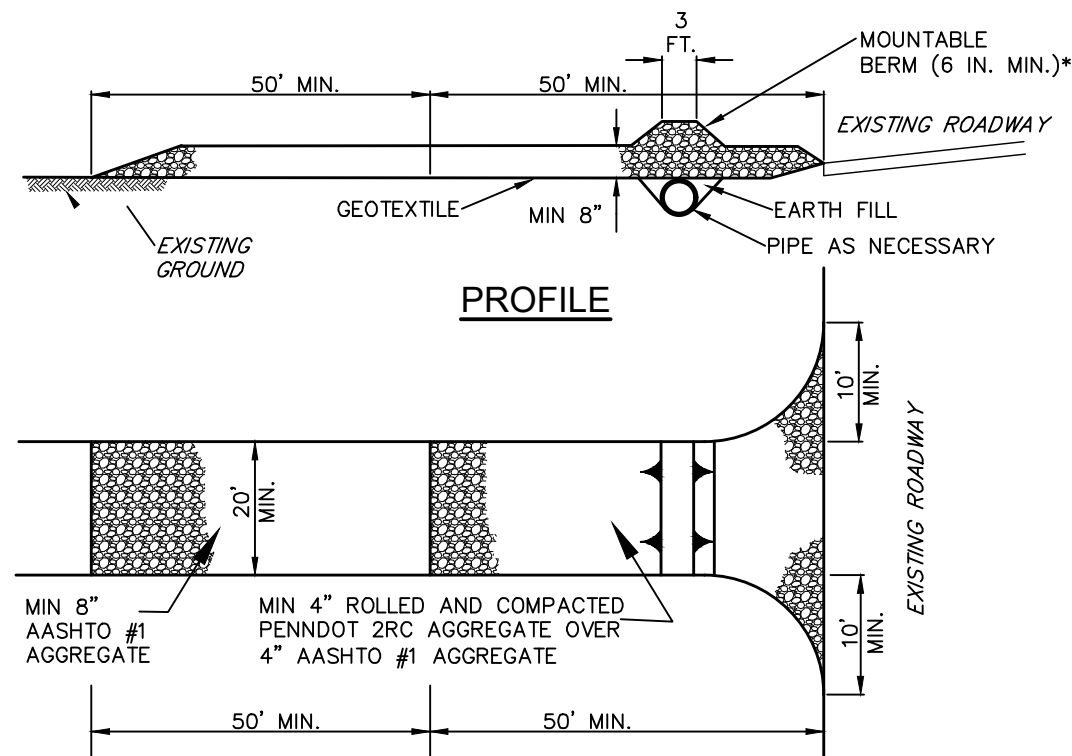
ACCUMULATED MATERIAL SHOULD BE REMOVED WHEN THEY REACH 75% CAPACITY.

PLASTIC LINERS SHOULD BE REPLACED WITH EACH CLEANING OF THE WASHOUT FACILITY.

TYPICAL COMPOST SOCK

CONCRETE WASHOUT INSTALLATION

NOT TO SCALE



NOTES:

REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.

RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.

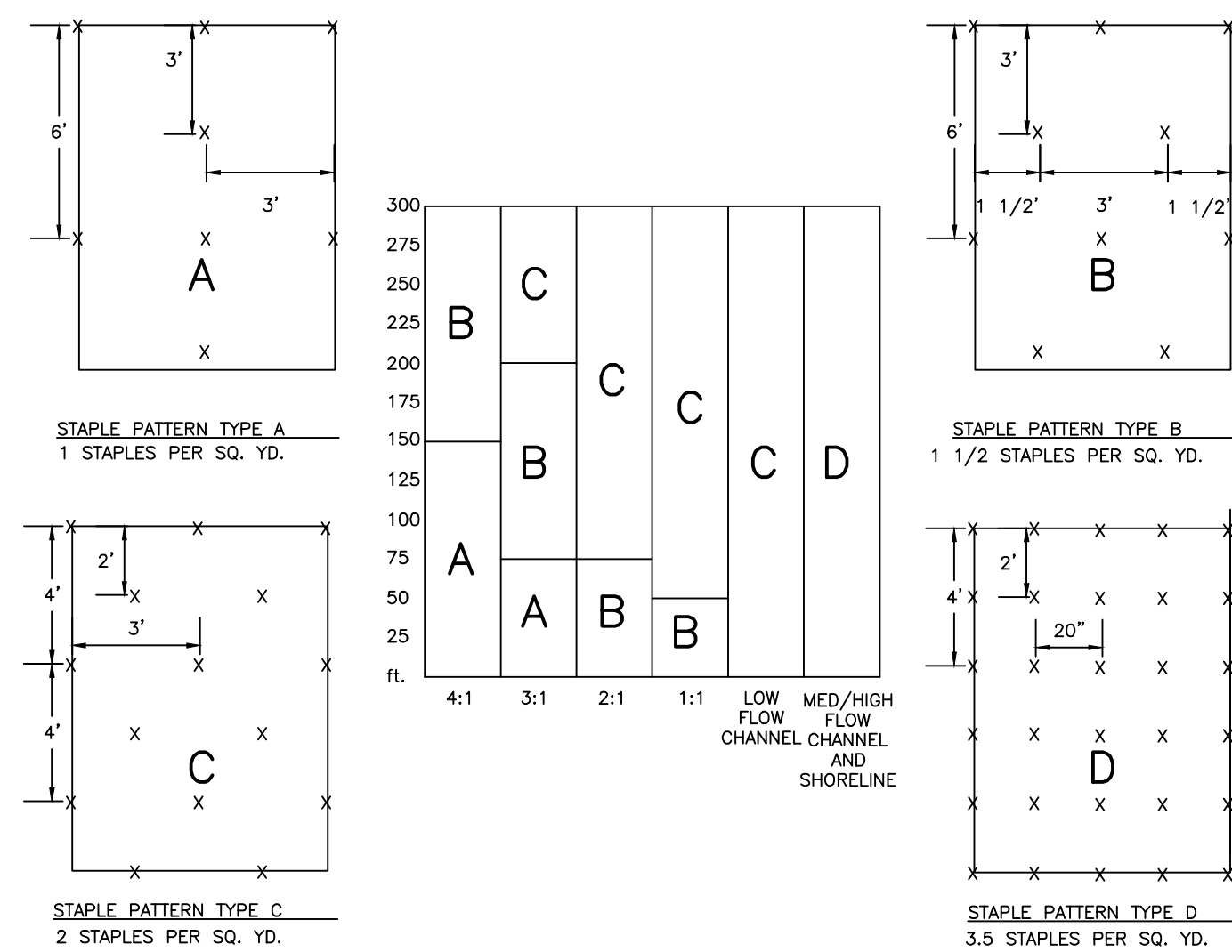
MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK, WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

ALTERNATE CONSTRUCTION DETAIL #3-1

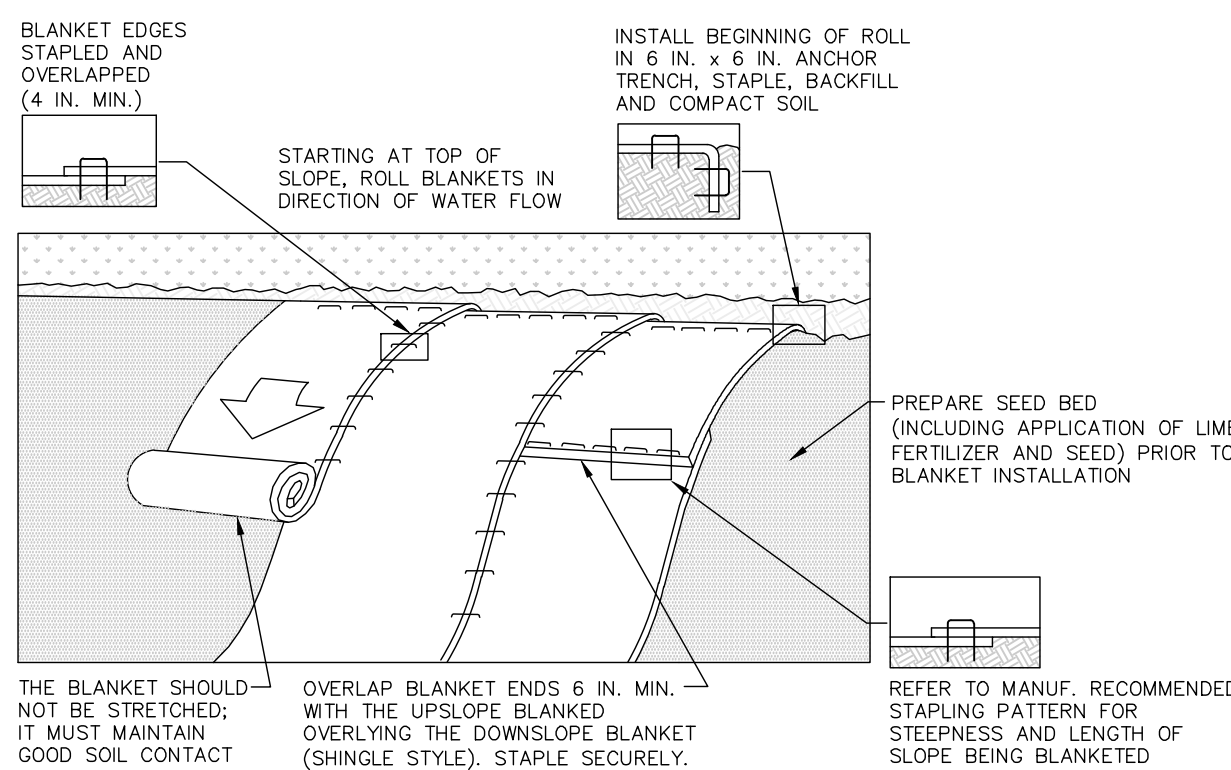
ROCK CONSTRUCTION ENTRANCE

NOT TO SCALE



NORTH AMERICAN GREEN STAPLE PATTERNS

NOT TO SCALE



NOTES:

SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN DRAWINGS PRIOR TO INSTALLING THE BLANKET.

PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE.

SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.

BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.

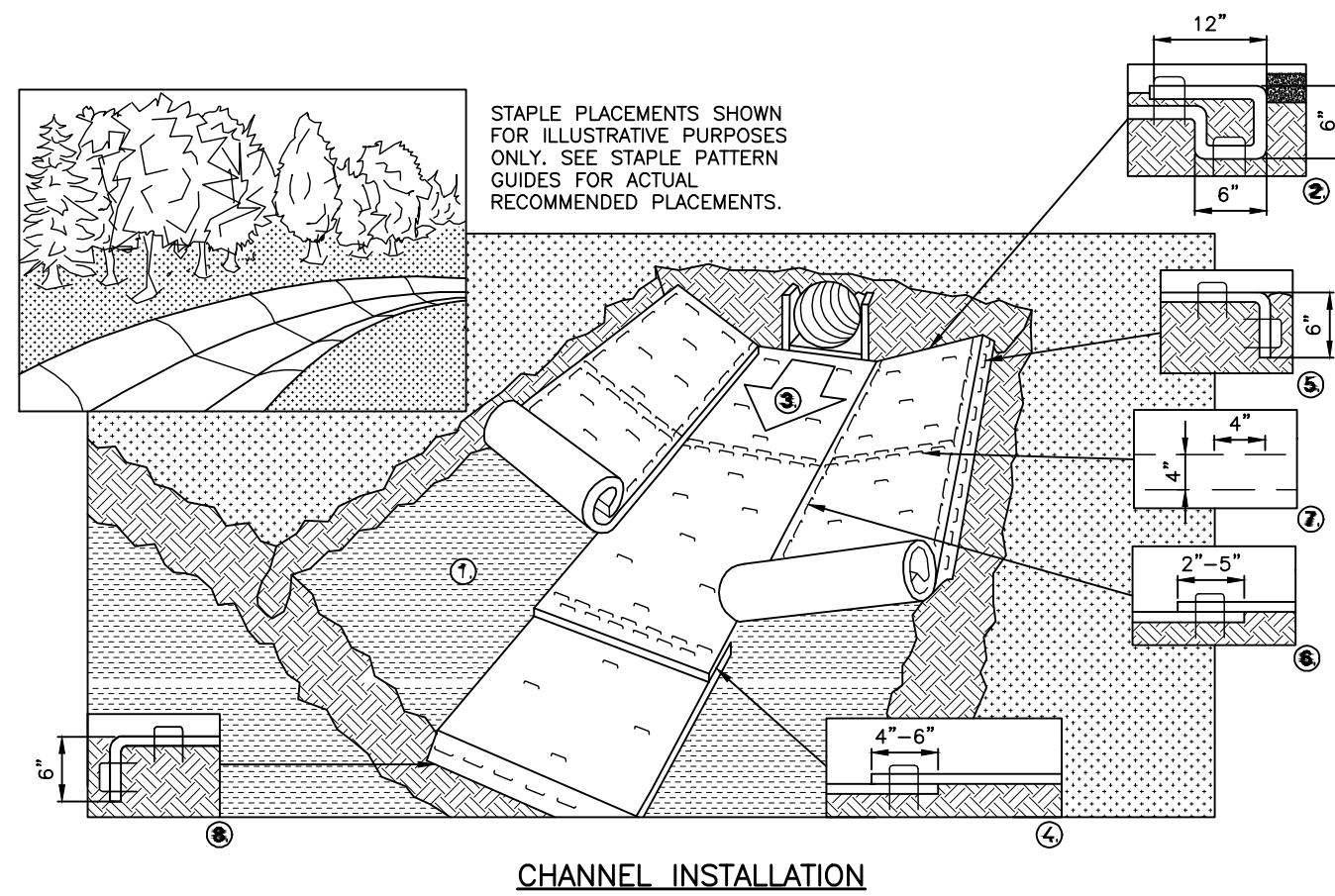
THE BLANKET SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

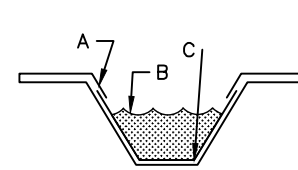
STANDARD CONSTRUCTION DETAIL #11-1

EROSION CONTROL BLANKET INSTALLATION

NOT TO SCALE



CHANNEL INSTALLATION



NOTES:

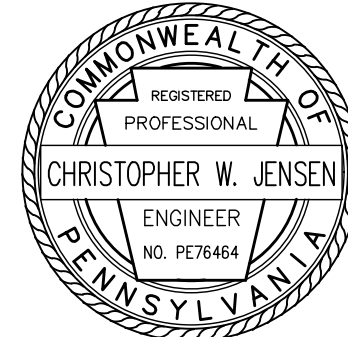
1. NORTH AMERICAN GREEN OR APPROVED EQUIV.
2. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (REC'S), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
3. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE REC'S IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF REC'S EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE REC'S WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF REC'S BACK OVER SEED AND COMPACTED SOIL. SECURE REC'S OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE REC'S.
4. ROLL THE REC'S IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. REC'S WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL REC'S MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
5. PLACE CONSECUTIVE REC'S END OVER END (SHINGLE STYLE) WITH A 4" - 6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE REC'S.
6. FULL LENGTH EDGE OF REC'S AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
7. ADJACENT REC'S MUST BE OVERLAPPED APPROXIMATELY 2" - 5" (DEPENDING ON REC'S TYPE) AND STAPLED.
8. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
9. THE TERMINAL END OF THE REC'S MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
10. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE REC'S.
11. NORTH AMERICAN GREEN, 14649 HIGHWAY 41 NORTH, EVANSVILLE, INDIANA 47735. USA 1-800-772-2040, CANADA 1-800-448-2040. WWW.NAGREEN.COM

CHANNEL STABILIZATION/INSTALLATION GUIDELINES

NOT TO SCALE



CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER



12/19/2024
LICENSED PROFESSIONAL ENGINEER
STATE OF PA LICENSE NO. PE076404

COMMERCE PURSUIT CAPITAL

TROOPER RIDGE SUBDIVISION
1035 NORTH TROOPER ROAD, WORCESTER TOWNSHIP
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

EROSION AND SEDIMENT CONTROL DETAILS-2



1700 MARKET STREET, SUITE 3110
PHILADELPHIA, PA 19103
TEL 215-282-7850
FAX 215-627-3459

OFFICES LOCATED IN:
CALIFORNIA, INDIANA, KENTUCKY,
MASSACHUSETTS, MICHIGAN, NEW JERSEY,
OHIO AND PENNSYLVANIA

DESIGNED BY JPK/CKS/CMR/ROP/ZHR	DRAWING ENSD-2
CHECKED BY BGS/ZHR	SHEET 33
DRAWN BY SCR/CKS/RAM	PROJ. NO. WDEV00004
DATE 12/19/2024	OF 37
SCALE AS NOTED	

1. ALL EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, AS WELL AS CUTS AND FILLS THAT SHALL BE DONE IN ACCORDANCE WITH THE APPROVED PCSM PLAN PREPARED BY THE DESIGNER. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY SHALL BE WRITTEN SUBURE A WRITTEN SUBMITAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.

2. AT LEAST SEVEN (7) DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS INCLUDING THE TOWNSHIP ENGINEER, THE EROSION AND SEDIMENT CONTROL PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE OF THE MONTGOMERY COUNTY CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.

3. AT LEAST THREE (3) DAYS PRIOR TO THE START OF ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY DISTURBED, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM INCORPORATED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.

4. ALL EARTH DISTURBANCE ACTIVITIES SHALL TAKE PLACE IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION.

5. AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED PRIOR TO REMOVE TREES, VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL.

6. CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY BE COMPLETED IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPs SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS E&S PLAN.

7. AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OF E&S CONCERN. A LIMIT OF 100 YARDS SHOWN ON THE PLAN MAPS UNLESS REQUIRED TO MINIMIZE DISTURBANCE.

8. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN IN THE AMOUNTS NECESSARY TO COMPLETE THE FINISH GRADING OF ALL EXPOSED AREAS THAT ARE TO BE STABILIZED BY VEGETATION. TOPSOIL SHOULD CONTAIN ABOUT 45% GENERAL MATERIAL, 50% OPEN SPACE, AND 5% ORGANIC MATERIAL. TABLE 11.1 (CONTIGUOUS SHEET) GIVES THE QUANTITIES OF TOPSOIL FOR VARIOUS DEPTHS. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER SHOWN ON THE PLAN DRAWINGS. STOCKPILE HEIGHTS SHALL NOT EXCEED 35 FEET. STOCKPILE SLOPES SHALL BE 2H:1V OR FLATTER.

9. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE CONTRACTOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE LOCAL CONSERVATION DISTRICT AND/OR THE REGIONAL OFFICE OF THE DEPARTMENT.

10. ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND RECYCLED OR DISPOSED IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE CHAPTER 102, 271 ET SEQ. AND 287.1 ET SEQ. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THIS SITE.

11. ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED.

12. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON TO SITE IS CERTIFIED CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A LIQUID OR SOLID OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN FILL DUE TO ANALYTICAL TESTING.

13. ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN. UNDISTURBED VEGETATED AREAS. ALL PUMPING OF SEDIMENT LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BMP, SUCH AS A PUMPED WATER FILTER BAG DISCHARGING OVER NON-DISTURBED AREAS.

14. VEHICLES AND EQUIPMENT MAY NEITHER ENTER DIRECTLY NOR EXIT THE CONSTRUCTION SITE. CONSTRUCTION WASTE ONTO ANY PUBLIC ROAD, VEHICLES AND EQUIPMENT MAY ENTER AND EXIT THE CONSTRUCTION SITE ONLY VIA A STABILIZED ROCK CONSTRUCTION ENTRANCE.

15. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPs SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPs AT LEAST EACH RUNOFF EVENT AND ON A WEEKLY BASIS. THE CONTRACTOR WILL MAINTAIN A KICK-AVAILABLE TO THE MONTGOMERY COUNTY CONSERVATION DISTRICT. WRITTEN INSPECTION LOGS OF ALL THOSE INSPECTIONS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REPAIR, RESEEDING, REMEDIATION, RESEEDING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPs FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPs, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.

16. A LOG SHOWING DATES THAT E&S BMPs WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.

17. SEDIMENT TRACKED ON ANY ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY AND AS NEEDED THROUGHOUT THE WORKDAY OR AS DIRECTED BY CONSERVATION DISTRICT OR MUNICIPALITY AND DISPOSED AS A MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE CONSTRUCTION OF SATISFACTORY, OR SWEEP INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.

18. ALL SEDIMENT REMOVED FROM BMPs SHALL BE DISPOSED OF IN A MANNER DERIVED ON PLAN DRAWINGS. SEDIMENT REMOVED FROM BMPs SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.

19. UPON FINAL GRADING, AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES (6 TO 12 INCHES ON SLOPES) AND TOPSOIL PLACED TO A DEPTH OF 4 INCHES TO 6 INCHES. VEGETATED SHALL HAVE A MINIMUM FOUR (4) INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 4 INCHES OF TOPSOIL.

20. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES, ETC., ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.

21. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.

22. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.

23. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.

24. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD ANY SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.

25. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED. SEEDED AREAS WITHIN 50 FEET OF A SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.

26. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OF THE PROJECT, THE CONTRACTOR AND UPON RECEIPT OF CLEAN TEST RESULTS, THE OPERATOR SHALL STABILIZE THOSE AREAS DISTURBED BY THE ACTIVITIES DURING NON-GERMINATING PERIODS, MULCH OR OTHER PROTECTIVE BLANKETING SHALL BE APPLIED AT THE RECOMMENDED RATES AND METHODS. DISTURBED AREAS WHICH ARE NOT FINISHED GRADE AND WHICH WILL BE RE-DISTURBED WITHIN 1 YEAR SHALL BE SEEDED AND MULCHED WITH A QUICK GROWING TEMPORARY SEEDING MIXTURE AND MULCH. DISTURBED AREAS, WHICH ARE EITHER AT FINISHED GRADE OR WILL NOT BE RE-DISTURBED WITHIN 1 YEAR SHALL BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION SPECIFICATIONS.

27. PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION, CUT AND FILL SLOPES SHALL BE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS.

28. EROSION AND SEDIMENT CONTROLS (BMP'S) MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE GENERAL SITE DISTURBANCE BEGINS WITHIN THE TRIBUTARY AREAS OF THOSE CONTROLS. EROSION AND SEDIMENT BMPs SHALL REMAIN IN PLACE UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.

29. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL OR CONVERSION OF THE E&S BMPs. TEMPORARY CONTROLS MAY BE REMOVED ONLY UPON APPROVAL OF THE MONTGOMERY COUNTY CONSERVATION DISTRICT.

30. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENTATION CONTROLS MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT BMPs. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE E&S BMPs SHALL BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVALS/CONVERSIONS ARE TO BE DONE ONLY DURING GERMINATING SEASON.

31. FAILURE TO CORRECTLY INSTALL SEDIMENT CONTROL FACILITIES OR FAILURE TO PREVENT SEDIMENT LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTIONS TO RESOLVE FAILURES OF SEDIMENT CONTROL FACILITY MAY RESULT IN ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION AS DEFINED IN SECTION 602 OF THE CLEAN WATER ACT OF PENNSYLVANIA. AS CLEANUP OF THE E&S BMPs FOR UP TO \$10,000 PER DAY IN CIVIL PENALTIES, UP TO \$10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO \$25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.

32. IN THE EVENT OF SINKHOLE DISCOVERY OR OCCURRENCE, A PROFESSIONAL GEOLOGIST OR ENGINEER SHALL BE CONTACTED CONCERNING MITIGATION. ADDITIONALLY, THE MONTGOMERY COUNTY CONSERVATION DISTRICT SHALL BE IMMEDIATELY MADE AWARE OF THE SINKHOLE DISCOVERY.

33. THE CONTRACTOR SHALL ASSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED.

34. THE CONTRACTOR IS ADVISED TO BECOME THOROUGHLY FAMILIAR WITH THE PROVISIONS OF THE APPENDIX 64, EROSION CONTROL RULES AND REGULATIONS, TITLE 25 PA. CODE CHAPTER 102, ENVIRONMENTAL PROTECTION, SUBPART C, PROTECTION OF NATURAL RESOURCES, ARTICLE II, WATER RESOURCES, CHAPTER 102, EROSION CONTROL.

35. STRAW MULCH SHALL BE APPLIED IN LONG STRANDS, NOT CHOPPED OR FINELY BROWN.

36. THE OPERATOR / PERMITTEE SHALL BE RESPONSIBLE FOR THE PROPER INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENTATION CONTROLS (BMPs) AND RELATED ITEMS INCLUDED WITHIN THIS PLAN AND NARRATIVE.

37. EROSION AND SEDIMENT BMP CONTROLS MUST BE CONSISTENT WITH STANDARDS AND SPECIFICATIONS OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION "EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL" DATED MARCH 2012.

38. ALL EROSION AND SEDIMENTATION CONTROL FACILITIES SHALL BE MAINTAINED IN THE APPROVED DESIGN CONDITION THROUGHOUT THE CONSTRUCTION PERIOD OR UNTIL THE DESIGN AREA IS STABILIZED.

39. SHOULD ANY MEASURES CONTAINED WITHIN THIS PLAN PROVE INCAPABLE OF ADEQUATELY REMOVING SEDIMENT FROM ON-SITE FLOWS PRIOR TO DISCHARGE OR STABILIZING THE SURFACES INVOLVED, ADDITIONAL MEASURES MUST BE IMMEDIATELY IMPLEMENTED BY THE OPERATOR TO ELIMINATE ALL SUCH PROBLEMS.

40. BEFORE INITIATING ANY REVISIONS TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN OR REVISIONS TO OTHER PLANS WHICH MAY AFFECT THE EFFECTIVENESS OF THE APPROVED E&S CONTROL PLAN, THE CONTRACTOR MUST RECEIVE APPROVAL OF THE REVISIONS FROM THE MONTGOMERY COUNTY CONSERVATION DISTRICT.

41. THE CONTRACTOR SHALL NOTIFY THE MONTGOMERY COUNTY CONSERVATION DISTRICT PRIOR TO ANY CESSATION IN EARTHMOVING ACTIVITIES OF MORE THAN TWENTY (20) DAYS.

42. THE OPERATOR SHALL ASSURE THAT AN EROSION AND SEDIMENT CONTROL PLAN HAS BEEN PREPARED, APPROVED BY THE APPLICABLE COUNTY CONSERVATION DISTRICT, AND IS BEING IMPLEMENTED AND MAINTAINED FOR ALL SOIL AND/OR ROCK SPOIL AND BORROW AREAS, REGARDLESS OF THEIR LOCATIONS.

43. MULCH WITH MULCH CONTROL NETTING OR EROSION CONTROL BLANKETS MUST BE INSTALLED ON ALL SLOPES 3:1 AND STEEPER.

44. HAY OR STRAW MULCH MUST BE APPLIED TO ALL SEEDED AREAS AT 3.0 TONS PER ACRE (SEE TABLE 11.6 ON THIS SHEET).

45. CLEAN FILL AND TOPSOIL STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.

46. SEDIMENT MUST BE REMOVED FROM STORM WATER INLET PROTECTION AFTER EACH RUNOFF EVENT.

47. EROSION CONTROL BLANKETING SHALL BE INSTALLED ON ALL SLOPES 3H:1V OR STEEPER, WITHIN 50 FEET OF A SURFACE WATER, AND ON ALL OTHER DISTUR

VISUAL INSPECTIONS

1. THE PERMITTEE AND CO-PERMITTEE(S) MUST ENSURE THAT VISUAL SITE INSPECTIONS ARE CONDUCTED WEEKLY, AND WITHIN 24 HOURS AFTER EACH MEASURABLE RAINFALL EVENT THROUGHOUT THE DURATION OF CONSTRUCTION AND UNTIL THE RECEIPT AND ACKNOWLEDGEMENT OF THE NOTICE OF TERMINATION (NOT) BY THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT. THE VISUAL SITE INSPECTIONS AND REPORTS SHALL BE COMPLETED IN A FORMAT PROVIDED BY THE DEPARTMENT, AND CONDUCTED BY QUALIFIED PERSONNEL, TRAINED AND EXPERIENCED IN EROSION AND SEDIMENT CONTROL. TO ASCERTAIN THAT E&S BMPs AND PCSM BMPs ARE PROPERLY CONSTRUCTED AND MAINTAINED TO EFFECTIVELY MINIMIZE POLLUTION TO THE WATERS OF THIS COMMONWEALTH, A WRITTEN REPORT OF EACH INSPECTION SHALL BE SUBMITTED ON DEP FORM 3150-FM-BWE00053 DATED 2/2012 AND KEPT ON SITE AT ALL TIMES.

NONCOMPLIANCE REPORTING

WHERE E&S, PCSM OR PPC BMPs ARE FOUND TO BE INOPERATIVE OR INEFFECTIVE DURING AN INSPECTION, OR ANY OTHER TIME, THE PERMITTEE AND CO-PERMITTEE(S) SHALL, WITHIN 24 HOURS, CONTACT THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT, BY PHONE OR PERSONAL CONTACT, AND FOLLOW UP BY THE SUBMISSION OF A WRITTEN REPORT WITHIN 5 DAYS OF THE INITIAL CONTACT. NONCOMPLIANCE REPORTS SHALL INCLUDE THE FOLLOWING INFORMATION:

- 1) ANY CONDITION ON THE PROJECT SITE WHICH MAY ENDANGER PUBLIC HEALTH, SAFETY, OR THE ENVIRONMENT, OR INVOLVE INCIDENTS WHICH CAUSE OR THREATEN POLLUTION;
- 2) THE PERIOD OF NONCOMPLIANCE, INCLUDING THE EXACT DATES AND TIMES AND/OR ANTICIPATED TIME WHEN THE ACTIVITY WILL RETURN TO COMPLIANCE;
- 3) STEPS BEING TAKEN TO REDUCE, ELIMINATE, AND PREVENT RECURRENCE OF THE NONCOMPLIANCE; AND
- 4) THE DATE OR SCHEDULE OF DATES, AND IDENTIFYING REMEDIES FOR CORRECTING NONCOMPLIANCE CONDITIONS.

REDUCTION, LOSS, OR FAILURE OF THE BMPs

UPON REDUCTION, LOSS, OR FAILURE OF THE BMPs, THE PERMITTEE AND CO-PERMITTEE(S) SHALL TAKE IMMEDIATE ACTION TO RESTORE THE BMPs OR PROVIDE ALTERNATE METHOD OF TREATMENT. IF THE SITE SHALL BE ALTERNATE TREATMENT SHALL BE AT LEAST AS EFFECTIVE AS THE ORIGINAL BMPs.

RECYCLING OR DISPOSAL METHODS

1. THE OPERATOR SHALL REMOVE FROM THE SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTE IN ACCORDANCE WITH ANY AND ALL APPLICABLE MUNICIPAL OR OTHER GOVERNMENT AGENCY CURRENT REGULATIONS INCLUDING BUT NOT LIMITED TO: THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1 ET SEQ., 281.1 ET SEQ. AND THE DEPARTMENT'S REGULATIONS FOR BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL OR WASTES AT THE SITE.
2. EXCEPT FOR ITEMS OR MATERIALS INDICATED TO BE REUSED, SALVAGED, REINSTALLED, OR OTHERWISE INDICATED TO REMAIN ON THE PROPERTY, DEMOLISHED OR EXCAVATED MATERIALS SHALL BE REMOVED FROM THE PROPERTY AT THE COMPLETION OF WORK. THE ENTIRE AREA INVOLVED SHALL BE CLEAN AND LEFT IN A NEAT CONDITION, FREE OF RUBBISH AND DEBRIS.
3. RECYCLING OR DISPOSAL OF MATERIALS ASSOCIATED WITH OR FROM THIS PROJECT SITE SHALL BE UNDERTAKEN IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION RULES AND REGULATIONS.
4. SEDIMENT REMOVED FROM CONTROL FACILITIES AS A PART OF REGULAR MAINTENANCE SHALL BE DISPOSED OF UPSLOPE OF CONTROL FACILITIES IN SUCH A MANNER AS TO PREVENT EROSION OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.
6. REFER TO THE SITE / RECORD PLAN FOR ADDITIONAL NOTES.

RESPONSIBILITIES FOR FILL MATERIALS

1. THE OPERATOR MUST USE ENVIRONMENTAL DUE DILIGENCE TO ENSURE THAT ANY NECESSARY FILL MATERIAL ASSOCIATED WITH THIS PROJECT SHALL BE OBTAINED FROM A SOURCE THAT IS IN COMPLIANCE WITH ACCORDANCE WITH PADEP'S POLICY "MANAGEMENT OF FILL", DOCUMENT NUMBER 258-2182-773. A COPY OF THIS POLICY IS AVAILABLE ONLINE AT WWW.DEPWEB.STATE.PA.US.
2. CLEAN FILL IS DEFINED AS: UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSED, INERT, SOLID MATERIAL. THE TERM INCLUDES SOIL, ROCK, STONE, OR OTHER SOLID MATERIAL, USED ASPHALT, AND BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES THAT IS SEPARATE FROM THE WASTE AND IS RECOGNIZABLE AS SUCH. THE TERM DOES NOT INCLUDE MATERIALS PLACED IN OR ON THE WATERS OF THE COMMONWEALTH UNLESS OTHERWISE AUTHORIZED. THE TERM "USED ASPHALT" DOES NOT INCLUDE MILLED ASPHALT OR ASPHALT THAT HAS BEEN PROCESSED FOR RE-USE.
3. CLEAN FILL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE: FILL MATERIALS AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE SHALL QUALIFY AS CLEAN FILL PROVIDED THE TESTING REVEALS THAT THE FILL MATERIAL CONTAINS CONCENTRATIONS OF REGULATED SUBSTANCES THAT ARE BELOW THE RESIDENTIAL LIMITS IN TABLES FP-1A AND FP-1B FOUND IN PADEP'S POLICY "MANAGEMENT OF FILL".
4. ANY PERSON PLACING CLEAN FILL THAT HAS BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE MUST USE PADEP FORM FP-001 TO CERTIFY THE ORIGIN OF THE FILL MATERIAL AND THE RESULTS OF THE ANALYTICAL TESTING TO QUALIFY THE MATERIAL AS CLEAN FILL. FORM FP-001 MUST BE OBTAINED BY THE OWNER OF THE PROPERTY REQUESTING THE FILL. A COPY OF FORM FP-001 CAN BE FOUND AT WWW.DEPWEB.STATE.PA.US.
5. ENVIRONMENTAL DUE DILIGENCE- INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, REMEDIATION SCREEN, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS.
6. ANALYTICAL TESTING IS NOT A REQUIRED PART OF DUE DILIGENCE UNLESS VISUAL INSPECTION AND/OR REVIEW OF THE PAST LAND USE OF THE PROPERTY INDICATES THAT THE FILL MAY HAVE BEEN SUBJECTED TO A SPILL OR RELEASE OF A REGULATED SUBSTANCE. IF THE FILL MAY HAVE BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE, IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF PADEP'S POLICY "MANAGEMENT OF FILL".
7. FILL MATERIAL THAT DOES NOT QUALIFY AS CLEAN FILL IS REGULATED FILL. REGULATED FILL IS WASTE AND MUST BE MANAGED IN ACCORDANCE WITH ANY AND ALL APPLICABLE MUNICIPAL OR OTHER GOVERNMENT AGENCY CURRENT CHAPTERS 287 RESIDUAL WASTE MANAGEMENT OR 271 MUNICIPAL WASTE MANAGEMENT, WHICHEVER IS APPLICABLE.
8. ALL FILLS SHALL BE COMPACTED SUFFICIENTLY FOR THEIR INTENDED PURPOSE AND AS REQUIRED TO REDUCE SLIPPING, EROSION OR EXCESS SATURATION.
9. REFER TO SITE / RECORD PLAN FOR ADDITIONAL NOTES.

1. THE OPERATOR SHALL BE RESPONSIBLE FOR THE PROPER CONSTRUCTION, STABILIZATION AND MAINTENANCE OF ALL EROSION AND SEDIMENTATION CONTROLS AND RELATED ITEMS INCLUDED WITHIN THE PLAN HEREWITH. THE CONTRACTOR SHALL SCHEDULE AND CONDUCT HIS OPERATIONS TO MINIMIZE EROSION OF SOILS AND TO PREVENT SILTING AND MUDDYING OF STREAMS, RIVERS AND DRAINAGE SYSTEMS.
2. EROSION AND SEDIMENTATION POLLUTION CONTROL SPECIALISTS' CONTACTS:
MONTGOMERY COUNTY CONSERVATION DISTRICT: (610) 925-4920
PADEP SOUTHEAST REGIONAL OFFICE (484) 250-5900
3. ALL EROSION AND SEDIMENTATION POLLUTION CONTROL MEASURES MUST REMAIN IN PLACE UNTIL THE SITE IS STABILIZED, REGARDLESS IF CONSTRUCTION IS TAKING PLACE OR NOT.
4. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT POLLUTION CONTROLS (BMPs) MUST BE PROPERLY MAINTAINED. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT CONTROL BMPs AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. A WRITTEN REPORT OF EACH INSPECTION SHALL BE LOGGED ONTO DEP FORM 3150-FM-BWE0083 DATED 2/2012 AND KEPT ON SITE AT ALL TIMES. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING, AND RENETTING, MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPs FAIL TO PERFORM AS EXPECTED, REPLACEMENT CONTROLS OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
5. SEDIMENT REMOVED FROM BMPs SHALL BE DISPOSED OF IN LANDSCAPE AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.
6. SEEDED AREAS THAT WASH OUT MUST BE FILLED AND GRADED AS NECESSARY, AND THEN RESEEDED, AN ANCHORING METHOD SHOULD THEN BE USED TO HOLD SEED AND MULCH IN PLACE; THIS IS ESPECIALLY IMPORTANT AROUND WATER COURSES, IN SWALES, AND AREAS OF CONCENTRATED FLOWS, AND ON SLOPES.
7. IN THE EVENT OWNERS OF THE PROPERTY OR THE OPERATOR FAILS TO PROPERLY MAINTAIN THE CONTROL FACILITIES, THE TOWNSHIP SHALL HAVE THE RIGHT TO ENTER SAID AREA AND PERFORM THE REQUIRED MAINTENANCE AFTER PROPER NOTIFICATION OF THE OWNERS.
8. IN THE EVENT THAT THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, THE MONTGOMERY COUNTY CONSERVATION DISTRICT, THE MUNICIPALITY OR THE DESIGN ENGINEER OR THEIR AGENTS DEEM THAT ADDITIONAL CONTROLS, MEASURES OR PROCEDURES BEYOND THOSE SHOWN OR DESCRIBED ARE NECESSARY TO CONTROL OR CORRECT CONDITIONS WHICH WERE UNFORESEEN DURING THE DESIGN STAGE, THE CONTRACTOR SHALL BE RESPONSIBLE TO IMPLEMENT ADDITIONAL CONTROLS, MEASURES OR PROCEDURES AS IS DEEMED REASONABLY NECESSARY AND WARRANTED.
9. NO SEDIMENT, STONES OR DEBRIS SHALL BE TRACKED ON TO SURROUNDING ROADS. ANY SEDIMENT THAT IS TRACKED ONTO THE SURROUNDING ROADS MUST BE CLEANED OFF BEFORE THE END OF THE DAY. UTILIZING MECHANICAL METHODS OR VIA HAND SWEEPING TO THE SATISFACTION OF THE MONTGOMERY COUNTY CONSERVATION DISTRICT AND TOWNSHIP ENGINEER.
10. ANY FILTER FABRIC FENCE, WHICH HAS BEEN UNDERMINED OR TOPPED, MUST BE REPLACED IMMEDIATELY WITH ROCK FILTER OUTLETS.
11. ANY SOIL BORROW OR SPOIL SITES, ON OR OFFSITE SHALL HAVE AN APPROVED AND IMPLEMENTED EROSION CONTROL PLAN BY THE MONTGOMERY COUNTY CONSERVATION DISTRICT. TRANSPORTATION OF ANY EXCESS MATERIALS SHALL BE SUCH THAT SPILLAGE, TRACKING OFF SITE AND OTHER DISTURBANCES ARE KEPT TO A MINIMUM.
12. THE CONTRACTOR SHALL PERIODICALLY AND ESPECIALLY AFTER HEAVY RAINFALL, INSPECT ALL CONTROL FACILITIES FOR PROPER FUNCTION. FACILITIES SHALL BE REPAIRED IF DAMAGES OR MALFUNCTIONING OR REPLACED AS NECESSARY. MAINTENANCE OF ALL CONTROL FACILITIES SHALL CONTINUE UNTIL THE ENTIRE AREA TRIBUTARY TO THE FACILITY IS STABILIZED.
13. THE MONTGOMERY COUNTY CONSERVATION DISTRICT MUST BE CONTACTED PRIOR TO REMOVAL OF ANY EROSION AND SEDIMENTATION CONTROL DEVICE SUCH AS FILTER FABRIC FENCES, ROCK FILTERS, INLET PROTECTION, TEMPORARY CHANNELS, ETC. TEMPORARY CONTROLS MAY BE REMOVED ONLY AFTER A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER, WITH A DENSITY CAPABLE OF RESISTING ACCELERATED EROSION AND SEDIMENTATION, HAS BEEN ACHIEVED ACROSS THE UPSLOPE AREAS.

INSTALL GP AND TR SERIES PERIMETER COMPOST FILTER SOCK
STEMENTS.

CRITICAL STAGE – INSPECT PERIMETER COMPOST SOCK

2. INSTALL ROCK CONSTRUCTION ENTRANCES I AND 2. CUT IN CONSTRUCTION ENTRANCES AT PROPOSED GRADE, STOCKPILE EXCAVATION AT LOCATIONS INDICATED.

3. CONSTRUCT TROOPER ROAD CURBING AND STORM SEWER FROM EXISTING INLET T1 UP TO PROPOSED INLET T9. DISTURB NO MORE EARTH IN A DAY WHICH CAN BE STABILIZED AT END OF EACH DAY WITH TOPSOIL, SEED AND EROSION BLANKETS FOR AREAS TO BE PERMANENTLY VEGETATED, OR STONE BACKFILL FOR ROADWAY AREAS. INSTALL AND MAINTAIN INLET PROTECTION AS INLETS ARE PLACED. INSTALL CURBING.

CRITICAL STAGE – INSPECTION OF TROOPER ROAD IMPROVEMENTS

4. CONSTRUCT STORMWATER COLLECTION AREA AT G2-T11-S1-A1 NEXUS. MAKE STORM SEWER CONNECTION TO G1 AND T11. EXCAVATE AREA, INSTALL RETAINING WALL AND PIPE STUBS THROUGH WALL AT S1 AND A1, AND HEADWALLS T1.1 AND G2. STABILIZE SURROUNDING SURFACES EXTERNAL TO THE COLLECTION AREA WITH EROSION BLANKETS AS INDICATED. INSTALL RIP-RAP WITHIN THE COLLECTION AREA. INSTALL COMPOST FILTER SOCK BERM IN FRONT OF HEADWALLS G2 AND T1.1.

CRITICAL STAGE – INSPECT STORMWATER COLLECTION AREA THAT IT IS STABILIZED AND ONLINE.

5. INSTALL STORM SEWER FROM S1 UP TO S3 AND HEADWALL S3.1.

CRITICAL STAGE – INSPECT STORM SEWER RUN FROM S3.1 TO S1 THAT IT IS ONLINE AND CAN RECEIVE RUNOFF FROM THE S-SERIES DIVERSION SWALE SYSTEM.

6. CONSTRUCT THE S4 TO S9 STORM SEWER AND DIVERSION SWALE FROM DOWNSTREAM TO UPSTREAM. SIMULTANEOUSLY CUT IN EMBANKMENT TO CONSTRUCT RETAINING WALLS BETWEEN S4-S9 STORM SEWER AND UNIT BLOCKS 1-4. SIMILARLY AND SIMULTANEOUSLY, INSTALL STORM SEWER AND EROSION CONTROL BLANKETS ON SIDE SLOPES. EVERY EFFORT SHALL BE MADE TO WORK IN CONDITIONS WHERE PRECIPITATION IS NOT FORECAST. DISTURBANCE SHALL NOT PRACTICALLY EXCEED WHAT CAN BE STABILIZED. RIP-RAP SWALES SHALL BE CONSTRUCTED TO THE NEXT BERM AND MUST BE STABLE AND ABLE TO CONVEY RUNOFF FROM OFFSITE. INSTALL TRASH RACKS ON INLETS AND HEADWALLS UPON PLACEMENT.

CRITICAL STAGE – INSPECT SWALE S3.1 TO S9 SYSTEM AND T12 TO T9 SYSTEM, THAT THEY ARE STABLE AND IN PERMANENT CONFIGURATION, AND ASSOCIATED RETAINING WALL SYSTEMS BELOW ARE PROPERLY CONSTRUCTED.

7. GERMANTOWN PIKE WIDENING MAY OCCUR AT THIS STAGE, OR AT ANY STAGE HEREAFTER. BOX CUT WIDENING FROM TROOPER INTERSECTION UPHILL TO TROOPER ROAD. STABILIZE EXCAVATION WITH EROSION CONTROL BLANKETS WITH TOPSOIL, SEED AND EROSION BLANKETS FOR PERMANENTLY VEGETATED AREAS, AND AT A MINIMUM, STONE OR BITUMINOUS BINDER COURSE FOR ROADWAYS. INSTALL CURBING AND STORM SEWER STUBS. INSTALL INLET PROTECTION ON STORM SEWER STUBS UPON INLET PLACEMENT.

8. BEGIN CONSTRUCTION OF SEDIMENT BASIN 1 OVER FOOTPRINT OF PERMANENT STORMWATER MANAGEMENT BASIN SYSTEM 001. REMOVE TOPSOIL AND STOCKPILE SEPARATELY. EXCAVATE TO GREAT BASIN VOLUME INCLUDING TEMPORARY EROSION CONTROL GRADING WITHIN SEDIMENT BASIN. CONSTRUCT BERM, BASIN OUTLET PIPING AND OUTLET STRUCTURES TO A1, SWALE A1, BASIN SPILLWAY, SKIMMER AND LANDING PAD AND BAFFLE. BEGIN PERMANENT STABILIZATION PROCESS ON OUTSIDE BASIN BERMS WITH TOPSOIL, SEED AND EROSION CONTROL BLANKETS WHERE INDICATED ON BASIN SLOPES. STABILIZE INLET SEDIMENT SLOPES WITH TOPSOIL, SEED AND EROSION CONTROL BLANKETS WHERE INDICATED.

9. CRITICAL STAGE – INSPECT SEDIMENT BASIN 1 (INCLUDING TEMPORARY OPENING CONFIGURATION IN PERMANENT OUTLET STRUCTURE) THAT IT IS ONLINE AND READY TO RECEIVE RUNOFF FROM DEVELOPMENT SITE.

10. BEGIN MASS GRADING OF SITE IN FOLLOWING ORDER: ESTABLISH DRAINAGE PATTERN INTERNAL TO SITE (FROM WALLS TO SEDIMENT BASIN) TO CONVEY RUNOFF TO SEDIMENT BASIN, TEMPORARY COMPOST SOCK DIVERSIONS SHALL BE USED TO ACHIEVE DRAINAGE PATTERNS UNTIL FINAL GRADES ARE ACHIEVED. BOX CUT INTERIOR DRIVES UP FROM CONSTRUCTION ENTRANCES SIMULTANEOUSLY INSTALLING STORM SEWER FROM A13 TO A5 AND B3.1 TO B1. CONTINUE INTERNAL DRIVE CONSTRUCTION INSTALLING STORM SEWER, BALANCE OF UTILITIES, CURBING, STONE BASE COURSE AND BITUMINOUS BINDER COURSE. INSTALL INITIALLY SANDBAGS THEN ASPHALT BERMS AT A11-A12 AND B2-B3 TO CAPTURE RUNOFF DOWN DROPS BEFORE IT ENTERS ROADWAY. GRADE SWALES SURROUNDING UNITS, INSTALL SWALE LININGS. PAID OUT UNIT BLOCKS, RESERVING STOCKPILE AREA UNITS LAST. INSTALL FOUNDATIONS. BEGIN UNIT CONSTRUCTION.

11. PERFORM FINAL GRADING AND LANDSCAPING WHENEVER AND WHEREVER POSSIBLE, STABILIZE WITH TOPSOIL, SEED AND MULCH.

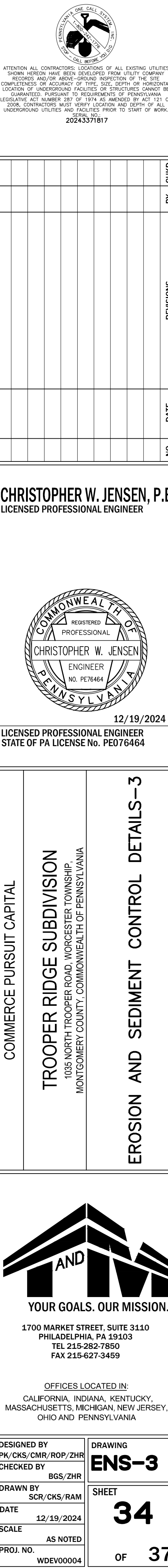
CRITICAL STAGE – INSPECT FOR 70% STABILIZATION (UNIFORM PERENNIAL GROWTH). WITH APPROVAL INCLUDING INSPECTION BY CONSERVATION DISTRICT, UPON INSPECTION, PROCEED TO BASIN CONVERSION.

12. CONVERT SEDIMENT BASIN TO PERMANENT STORMWATER MANAGEMENT FACILITY. WORK SHALL BE SCHEDULED AT TIMES OF NO FORECAST PRECIPITATION AND SHALL OCCUR INCREMENTALLY SO THAT SYSTEM IS PROTECTED AT END OF EACH DAY. FLUSH ALL STORM SEWER OF SEDIMENT AND/OR INSPECT THAT STORM SEWER IS CLEAR. DESILT SEDIMENT BASIN. REMOVE SKIMMER, BAFFLE. EXCAVATE FOR UNDERGROUND DETENTION INSTALLATION. INSTALL UNDERGROUND DETENTION SYSTEM INCLUDING IMPERMEABLE LINER SURROUNDING. INSTALL MRC SURFACE RAINGARDEN OVER UNDERGROUND DETENTION, WITH ITS RESPECTIVE IMPERMEABLE LINER. SEAL TEMPORARY OPENINGS IN OUTLET STRUCTURED FOR EROSION CONTROL WITH PERMANENT WATERIGHT FITTINGS – SILICONE (OR APPROVED EQUAL) SEALED BOLT METAL PLATES. INSTALL UNDERDRAIN AND MEDIA INFILL. INSTALL RAINGARDEN PLANTINGS.

CRITICAL STAGE – INSPECT PERMANENT STORMWATER BASIN CONFIGURATION, OPENING SEALS AND FUNCTION

13. WHEN PERMANENT STABILIZATION IS ACHIEVED (90% UNIFORM PERENNIAL GROWTH), REMOVE REMAINING COMPOST SOCK BARRIER CONTROLS.

14. FILE NOTICE OF TERMINATION FOR NPDES PERMIT



CLEAN WASHED
AASHTO #57 STONE

- 24" PERFORATED
HDPE PIPE

10 CHAMBERS/ROW X 20.00' LONG +4.50' HEADER X
2 = 209.00' ROW LENGTH +24.0" END STONE X 2
= 213.00' BASE LENGTH

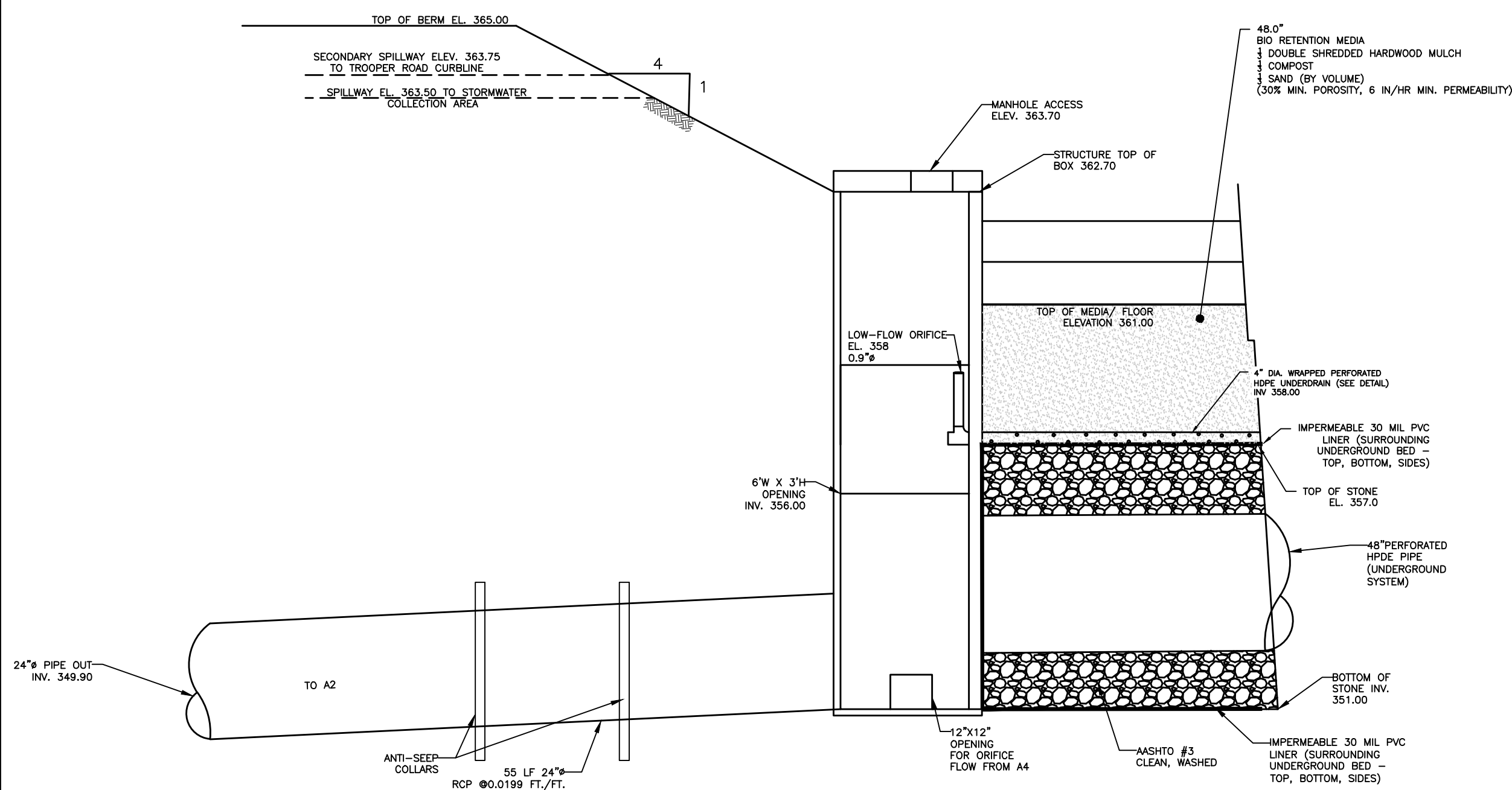
NON-WOVEN GEOTEXTILE
(TOP, BOTTOM & SIDES)

INV. 351.00

$$12.0'' \text{ STONE BASE} + 54.0'' \text{ CHAMBER HEIGHT} + 6.0' \text{ STONE COVER} = 6.00' \text{ FIELD HEIGHT}$$

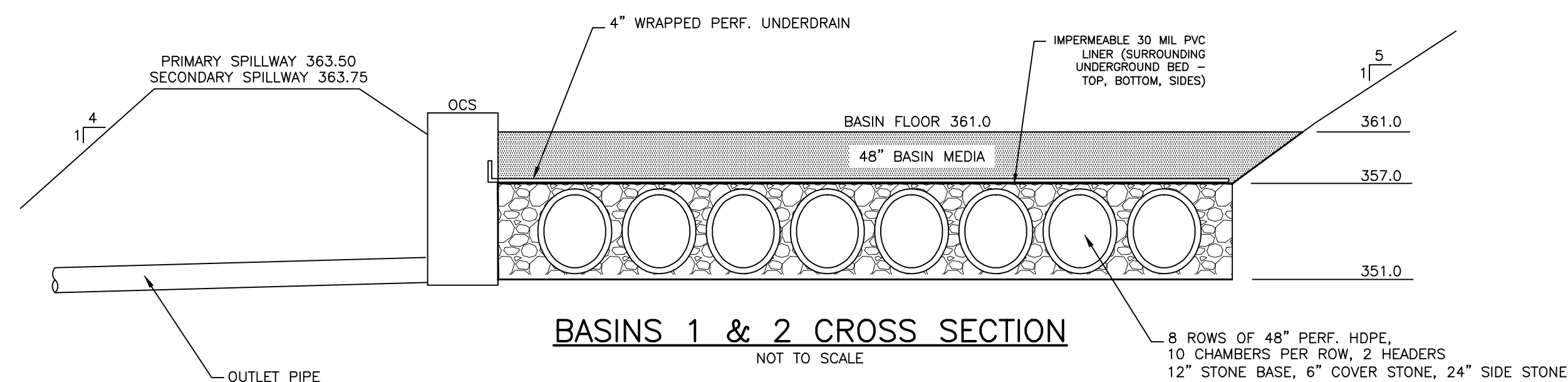
ADS N-12 PIPE & STONE BED

NOT TO SCALE



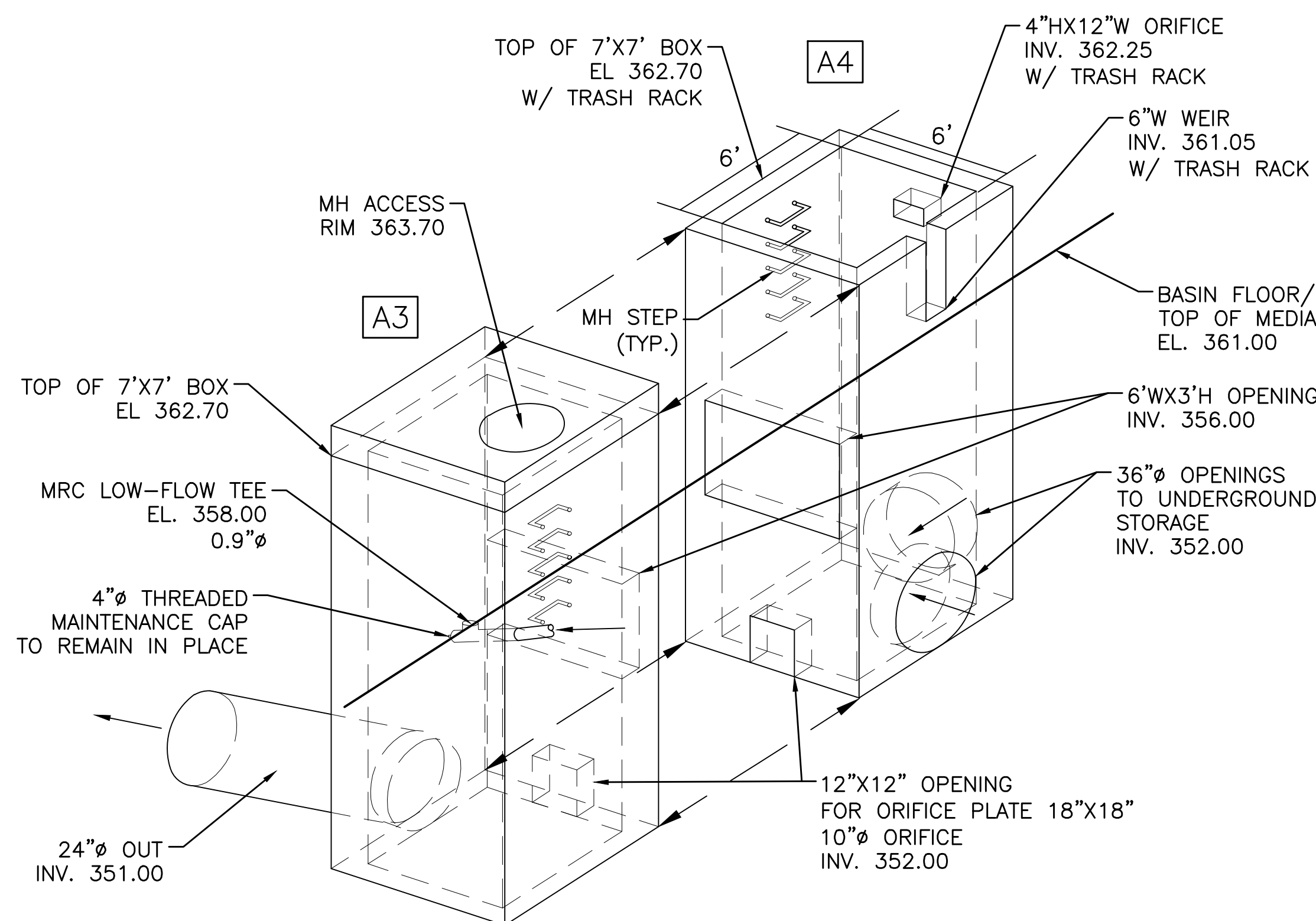
A3 OCS DETAIL – SIDE VIEW

NOT TO SCALE



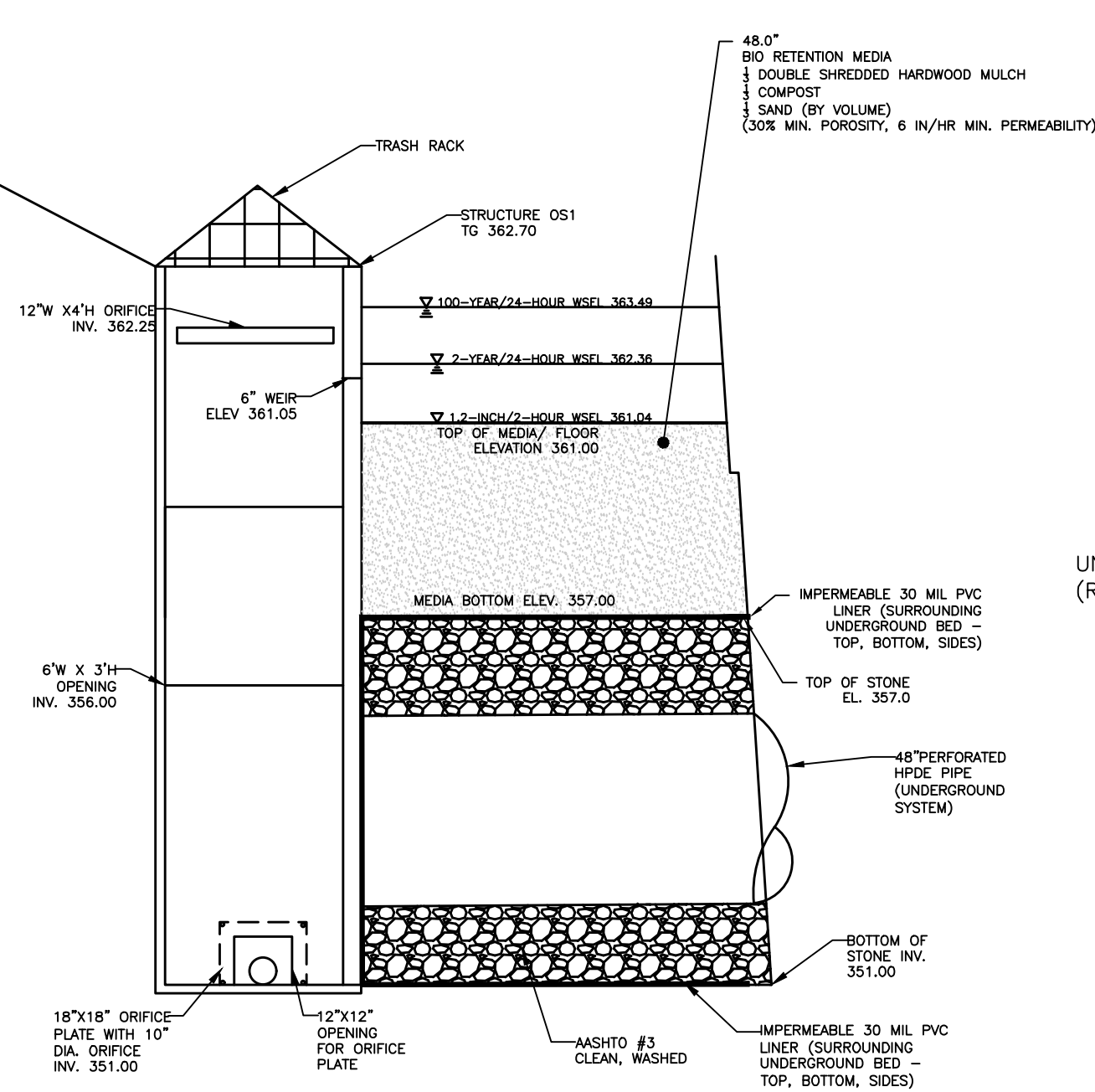
BASINS 1 & 2 CROSS SECTION

NOT TO SCALE



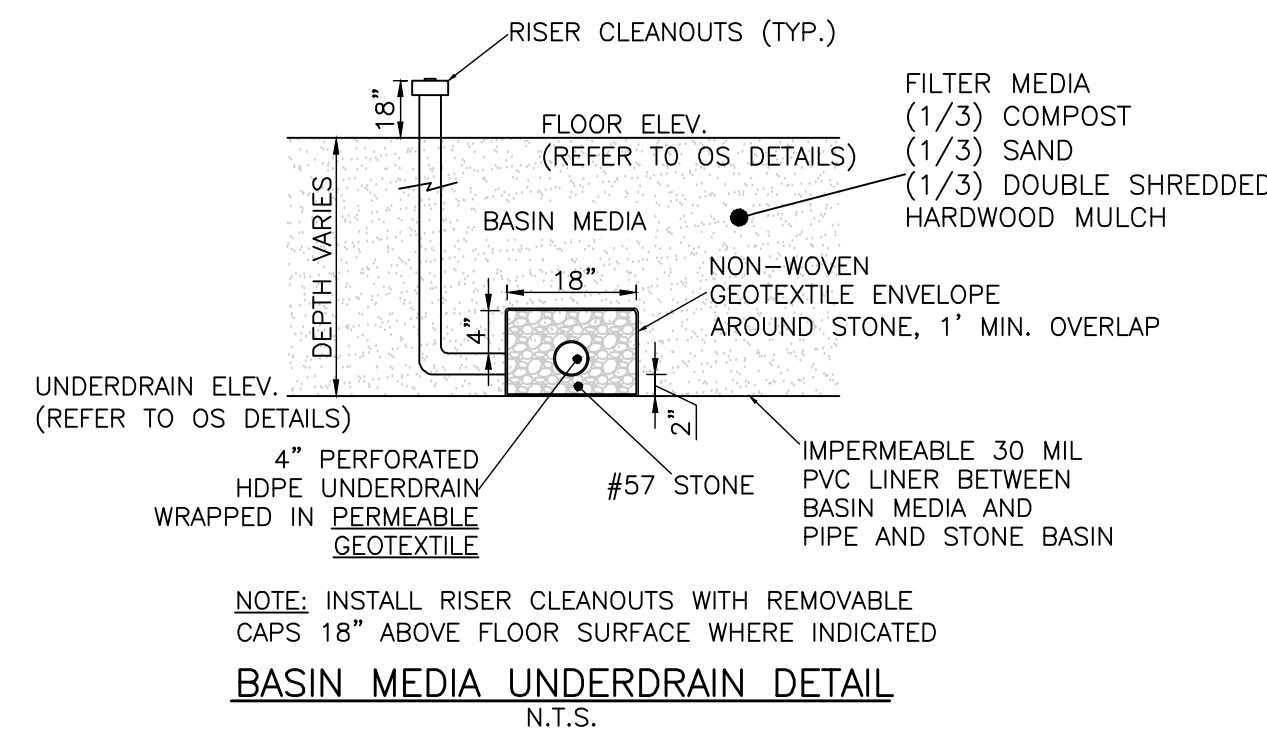
BASIN OCS A3 & A4 —
ISOMETRIC VIEW

NOT TO SCALE



A4 OCS DETAIL – SIDE VIEW

NOT TO SCALE



NOTE: INSTALL RISER CLEANOUTS WITH REMOVABLE CAPS 18" ABOVE FLOOR SURFACE WHERE INDICATED

BASIN MEDIA UNDERDRAIN DETAIL

N.T.S.

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FILE NAME: WDEV00004_PCSM DTL.dwg
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LAST SAVE BY: CReddon

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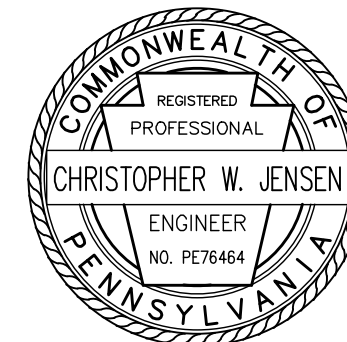


ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 802 OF 1971. AS REQUIRED BY ACT 120, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK.

SERIAL NO. 2024337817

[illegible]

CHRISTOPHER W. JENSEN, P.
LICENSED PROFESSIONAL ENGINEER



12/19/2024

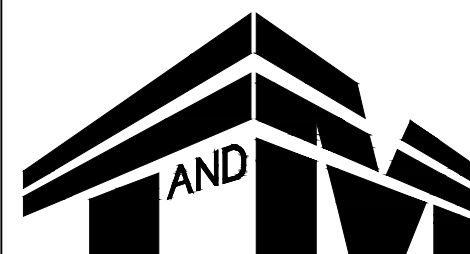
LICENSED PROFESSIONAL ENGINEER
STATE OF PA LICENSE No. PE07646

COMMERCE PURSUIT CAPITAL

TROOPER RIDGE SUBDIVISION
1035 NORTH TROOPER ROAD, WORCESTER TOWNSHIP,
MONTGOMERY COUNTY, COMMUNWENTH OF PENNSYLVANIA

MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS-1



YOUR GOALS. OUR MISSION.

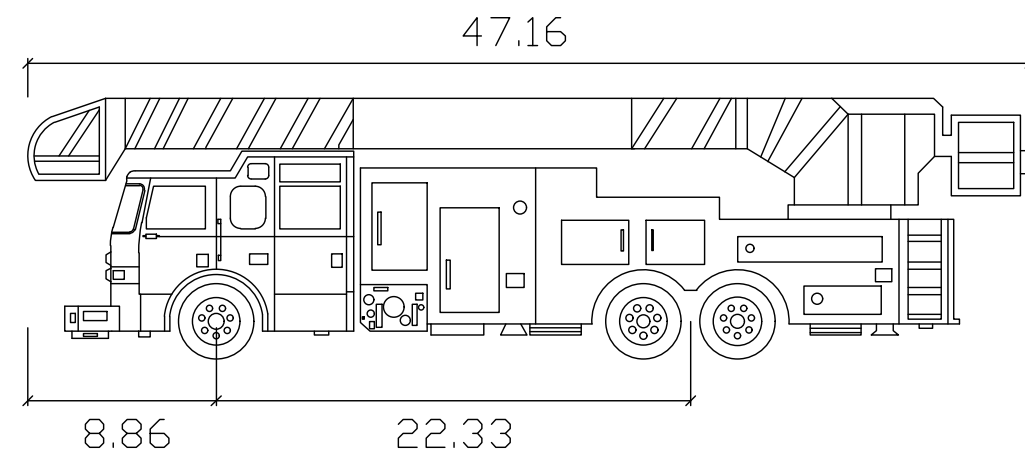
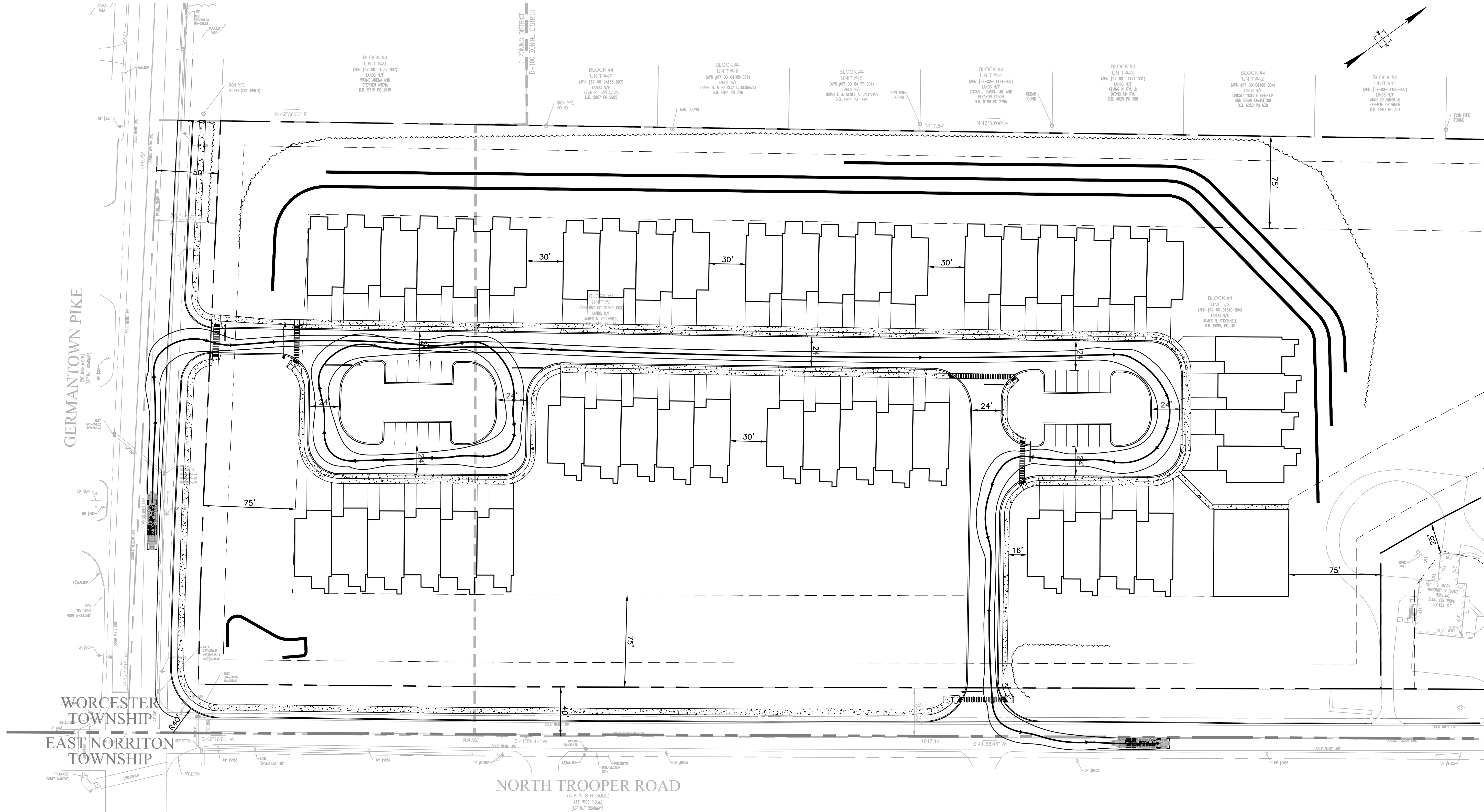
1700 MARKET STREET, SUITE 3110
PHILADELPHIA, PA 19103
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FAX 215-627-3459

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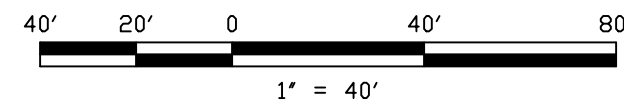
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DATE 12/19/2024	
SCALE AS NOTED	
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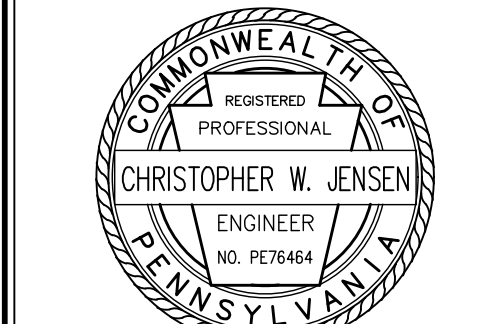


Pierce Arrow XT
feet
Width : 8.01
Track : 8.01
Lock to Lock Time : 6.0
Steering Angle : 45.5



NO.	DATE	REVISIONS	BY	CHKD

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER



12/19/2024
LICENSED PROFESSIONAL ENGINEER
STATE OF PA LICENSE NO. PE076464

COMMERCE PURSUIT CAPITAL

TROOPER RIDGE SUBDIVISION
1035 NORTH TROOPER ROAD, WORCESTER TOWNSHIP
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

FIRETRUCK TURNING TEMPLATE



1700 MARKET STREET, SUITE 3110
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CHECKED BY BGS/ZHR	SHEET
DRAWN BY SCR/CKS/RAM	37
DATE 12/19/2024	OF 37
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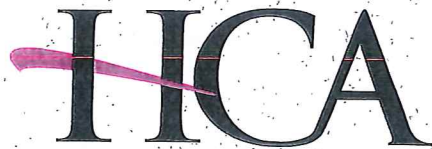
TRAFFIC IMPACT ASSESSMENT

TROOPER RIDGE TOWNHOUSE DEVELOPMENT

Worcester Township, Montgomery County

Pennsylvania

January 13, 2025



Horner & Canter Associates A PROFESSIONAL CORPORATION
TRANSPORTATION AND TRAFFIC ENGINEERING

TRAFFIC IMPACT ASSESSMENT

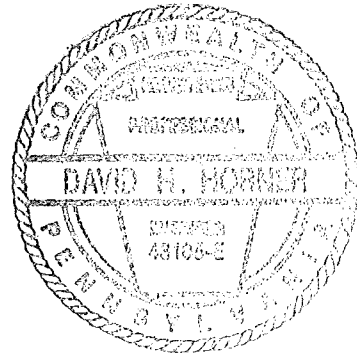
TROOPER RIDGE TOWNHOUSE DEVELOPMENT

North Trooper Road (SR 3002)
Germantown Pike

Worcester Township
Montgomery County
Pennsylvania

Prepared by:

HORNER & CANTER ASSOCIATES
A Professional Corporation
Transportation and Traffic Engineering
4950 York Road, Suite 2G
P.O. Box 301
Holicong, Pennsylvania 18928



January 13, 2025

A handwritten signature in black ink, appearing to read "David H. Horner", written over a horizontal line.

David H. Horner, P.E., PTOE
Professional Engineer
PA Lic. No. PE-043105-E

File No. 24-025

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- APPENDIX B - Traffic Signal Plans
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INTRODUCTION

Horner & Canter Associates has prepared this Traffic Impact Assessment for the proposed Trooper Ridge townhouse development located at 1035 Trooper Road in Worcester Township, Montgomery County, Pennsylvania. The site is situated in the northwest quadrant of North Trooper Road (SR 3002) and Germantown Pike (Figure 1). The proposed townhouse development will comprise 45 townhouses with access provided via one new residential roadway intersecting North Trooper Road. There is also an emergency-only access driveway proposed to intersect Germantown Pike, a County roadway.

For the purpose of this Traffic Impact Assessment, the completion and occupancy date of the proposed townhouse development is assumed to be 2029.

Scope of Study

The purpose of this Traffic Impact Assessment is to determine the traffic impact the proposed townhouse development will have with respect to the conditions on the adjacent roadways and intersections. A Scoping Meeting Application was submitted to PennDOT. A copy of the application and PennDOT's responses are included for reference in Appendix A, along with the most recent review letter provided by Bowman, the Township's traffic consultant. The study scope, consistent with the Scoping Meeting Application and PennDOT's responses, include the following:

- A site inspection and inventory of existing roadway features such as geometric layout, lane configurations, traffic control devices, and other pertinent physical characteristics.
- Conduct of Manual Turning Movement (MTM) counts for the weekday AM (7:00 AM - 9:00 AM) and weekday PM (4:00 PM - 6:00 PM) peak periods at the following intersection which constitute the study area:
 - North Trooper Road (SR 3002)/Germantown Pike
 - North Trooper Road (SR 3002)/Woodlyn Road/Woodland Avenue
 - Germantown Pike/N. Park Avenue/Valley Forge Road (SR 0363)
- Projection of development-generated traffic volumes and distribution of this traffic to the study area roadway network.

- Establishment of future traffic volumes for the study horizon year (2029) including background traffic growth projections, other known developments to be constructed in within the horizon year, and the site-generated traffic.
- Analysis of existing, future No-Build (without development) and future Build (with development) traffic conditions at the study area intersection and the proposed site access intersection in the build-out horizon year.
- Formulation of conclusions with regard to the traffic impact of the proposed development on traffic conditions in the study area.

EXISTING CONDITIONS

The study area roadway network was inventoried with regard to the existing physical and operating characteristics as they affect traffic flow. The study area roadway network is described in further detail below.

The site fronts on **North Trooper Road**, a State roadway carrying the SR 3002 designation in a general north-south direction. In the vicinity of the site, North Trooper Road provides one through travel lane in each direction with a posted speed limit of 40 miles per hour. The site is proposed to take direct vehicular access to North Trooper Road.

The site also fronts on **Germantown Pike** which is under Montgomery County jurisdiction and extends in a general east-west direction. In the vicinity of the site, Germantown Pike provides one travel lane in each direction east of its intersection with North Trooper Road. West of the intersection, Germantown Pike widens to provide two westbound travel lanes. The posted speed limit on Germantown Pike is 45 miles per hour. The site will be provided with emergency-only access via Germantown Pike.

The study area intersection of North Trooper Road (SR 3002)/Germantown Pike and Germantown Pike/N. Park Avenue/Valley Forge Road (SR 0363) are signalized. Reduced-size copies of the Traffic Signal Permit Plans for these intersections are provided for reference in Appendix B.

Existing Traffic Volumes

Since the peak hour traffic conditions reflect the critical periods for evaluation of operating conditions and traffic impact, existing traffic volumes were acquired at the study area intersection through the conduct of peak hour Manual Turning Movement (MTM) traffic counts. The counts were conducted during the weekday AM (7:00 – 9:00 AM) and weekday PM (4:00 – 6:00 PM) peak periods in August/September 2024. These count periods were selected to capture both the peak hours of adjacent street traffic and the peak periods of the proposed development. The summarized MTM counts are provided for reference in Appendix C.

The resultant existing peak hour traffic volumes are presented in Figures 2 and 3 for the respective peak periods.

Existing Levels of Service

The operating conditions of the study area intersections were determined through the conduct of a capacity/Level of Service (LOS) analysis using the methodologies contained in the Highway Capacity Manual (HCM 6th Edition). Level of Service (LOS) is a measure of the quality of the traffic flow and generally is expressed as follows:

- Level of Service A - Excellent - Free flow
- B - Very Good - Minor adjustments in traffic flows
- C - Good - Stable flow of traffic
- D - Satisfactory flow - Occasional short periods with minor delays
- E – Approaching Capacity - Regular delays
- F - Forced Flow - Significant delays and queuing

At signalized intersections, LOS is based on the average delay for all movements at the intersection. At unsignalized intersections, LOS is based on the average delay to controlled and yielding movements, such as exiting movements from a stop sign or the left-turn from a through street into a side street. The delay thresholds for various Levels of Service are contained in Appendix D.

The existing LOS findings for the study area intersections are presented in Figure 4. The detailed capacity/LOS analysis worksheets are provided in Appendix E.

SITE TRAFFIC

The determination of the amount of traffic that a proposed development will generate can best be made by comparison with similar sites. The residential development of the site is proposed to comprise 45 townhouses. The Institute of Transportation Engineers (ITE) publication *Trip Generation Manual, 11th Edition* is a compilation of trip generation studies for a variety of land uses and is considered the primary data source for use of trip generation projections. For the proposed residential development, Land Use Code 215 – Single-Family Attached Housing was selected as the most appropriate for the proposed townhouses.

Table 1 presents the projected development-generated traffic for the site based on the ITE database. The trip generation worksheets are provided for reference in Appendix F.

Table 1 Site Trips							
		<i>AM Peak Hour</i>			<i>PM Peak Hour</i>		
	<i>Daily</i>	<i>In</i>	<i>Out</i>	<i>Total</i>	<i>In</i>	<i>Out</i>	<i>Total</i>
Townhouses (45 D.U.)	324	5	17	22	15	11	26

The development-generated traffic was distributed to the proposed site access roadway and to the study area roadway network based on existing traffic patterns. The site traffic distribution percentages are summarized below:

North Trooper Road (SR 3002)

to/from the south 10%

Germantown Pike

to/from the east 15%

to/from the west 20%

N. Park Avenue/Valley Forge Road (SR 0363)

to/from the north 25%

to/from the south 20%

Woodlyn Road/Woodland Avenue

to/from the east 2%

to/from the west 8%

100%

The resultant distributed site trips are depicted in Figure 5 for both the AM and PM peak periods.

FUTURE CONDITIONS

To assess the impact of the development-generated traffic volumes on the study area roadway network, the future traffic volumes in the anticipated build-out year of the site (2029) were determined. To account for regional growth that is expected to occur during the intervening period, a background traffic growth rate was applied to the existing traffic volumes. Based on PennDOT's growth rates for the area, a 0.21 percent per year background growth was applied (total 1.05 percent over five years) to the existing 2024 traffic volumes. In addition to general background traffic growth, it was confirmed with Worcester Township and Montgomery County that the proposed City View Apartment Development, located along Germantown Pike to the west of the site, will be built-out within the horizon year of this study. Thus, the traffic anticipated to be generated by this development was added to the background traffic. The traffic distribution for this development is provided for reference in Appendix G.

The resultant 2029 No-Build traffic volumes presented on Figures 6 and 7 for the respective peak periods. The total Build 2029 traffic volumes, which overlay the site-generated traffic volumes onto the No-Build traffic volumes, are presented in Figures 8 and 9 for the two study peak periods, respectively.

Assessment

An assessment of the future 2029 No-Build and Build operating conditions within the study area was completed. The assessment included a Level of Service (LOS) analysis of the study area intersection and the proposed site access roadway in order to determine if the projected traffic volumes can be acceptably accommodated within the study area and whether any roadway or intersection improvements would be required. The future No-Build LOS results are presented in Figure 10. The future Build LOS results are presented in Figure 11. The detailed capacity analysis worksheets for the No-Build and Build conditions analyses are contained in Appendices H and I, respectively.

The Level of Service (LOS) results for each of the study locations are summarized in Table 3 at the end of this section and detailed below.

North Trooper Road (SR 3002)/Germantown Pike – This signalized intersection currently operates at overall LOS C in the AM peak hour and LOS F in the PM peak hour, based on the established traffic signal timings. The North Trooper Road movements are operating at LOS C during both peak periods. The Germantown Pike movements are operating at LOS B/C during the AM peak hour and LOS F during the PM peak hour. These LOS findings will continue under both No-Build and Build conditions.

In accordance with PennDOT's *Highway Occupancy Permit Operations Manual (Pub 282)*, we applied the "10-Second Variance" standard to assess whether the site-generated traffic impact would require mitigation improvements at this intersection. Mitigation is not required if there is either no drop in the overall intersection LOS when comparing the Build conditions to the No-Build conditions or there is a drop but the overall intersection delay increase is less than 10 seconds. If the overall intersection LOS is F in the No-Build condition then an overall intersection delay increase of greater than 10 seconds must be mitigated. The "10-Second Variance" chart for this intersection is below:

	No-Build LOS (Delay)	Build LOS (Delay)	Delay Variance	Requirements Met?
AM Peak Hour	C (27.5)	C (27.8)	n/a	Yes
PM Peak Hour	F (111.8)	F (154.5)	42.7 sec	No

n/a – With no LOS drop, the delay variance is not applicable to the compliance determination

As shown above, since the intersection will operate at overall LOS F in the PM peak hour under No-Build conditions, and the Build conditions show a greater than 10 second overall delay increase, mitigation is required. The following improvements are proposed in conjunction with the proposed development:

- *Widening of approximately 12' along the site's Germantown Pike frontage*
- *Striping for a separate EB left-turn lane on Germantown Pike approaching N. Trooper Road.*
- *Modification of the existing traffic signal timing to provide additional green time to the Germantown Pike approaches*

With these improvements, the Build conditions will meet the LOS mitigation requirements. The Build Improved LOS results for the PM peak hour are also shown in Table 3.

Germantown Pike/N. Park Avenue/Valley Forge Road (SR 0363) – This signalized intersection currently operates at overall LOS E during both peak hours, based on the established traffic signal timings. The individual traffic movements range in operation from LOS C through LOS F.

In conjunction with the proposed City View apartment development on the SE corner of the intersection, it is proposed to construct a separate right-turn lane on NB N. Park Road and modify the traffic signal timings. These improvements were assumed in place for the No-Build analysis. With these improvements the No-Build LOS improves to overall LOS D in the AM peak hour while remaining overall LOS E in the PM peak hour. The individual traffic movements generally improve although there will remain LOS E/F operations for

some movements. In the Build conditions, with the site-generated traffic, the LOS will be consistent with the No-Build conditions.

In accordance with PennDOT's *Highway Occupancy Permit Operations Manual* (Pub 282), we applied the "10-Second Variance" standard to assess whether the site-generated traffic impact would require mitigation improvements at this intersection. Mitigation is not required if there is either no drop in the overall intersection LOS when comparing the Build conditions to the No-Build conditions or there is a drop but the overall intersection delay increase is less than 10 seconds. If the overall intersection LOS is F in the No-Build condition then an overall intersection delay increase of greater than 10 seconds must be mitigated. The "10-Second Variance" chart for this intersection is below:

	No-Build LOS (Delay)	Build LOS (Delay)	Delay Variance	Requirements Met?
AM Peak Hour	D (53.5)	D (53.6)	n/a	Yes
PM Peak Hour	E (60.4)	E (60.6)	n/a	Yes

n/a – With no LOS drop, the delay variance is not applicable to the compliance determination

As shown above, there is no change in overall LOS from the No-Build to the Build conditions; thus, the mitigation requirements are met. There are no additional improvements required or recommended at this intersection attributable to the proposed Trooper Ridge residential development project.

North Trooper Road (SR 3002)/Woodlyn Road/Woodland Avenue – This unsignalized "T"-intersection currently operates at with all movements at LOS A/B during both peak hours. These LOS findings will continue under both No-Build and Build conditions.

There are no improvements required or recommended at this intersection attributable to the proposed Trooper Ridge residential development project.

North Trooper Road (SR 3002)/Site Access Roadway – The site access roadway will be classified as a "low volume" roadway pursuant to Pennsylvania Code, Chapter 441 guidelines. The access roadway will provide one ingress lane and one egress lane with stop-sign control. With this configuration the unsignalized access intersection will operate with all movements at highly acceptable LOS A during both peak periods.

Queues

The 95th percentile queues for the study area intersections were calculated as part of the capacity/LOS analysis. Table 4 at the end of this section provides a summary of the 95th percentile queues for the existing, No-Build, and Build conditions at all locations. It is noted that the site traffic has very little effect on the queue conditions.

Sight Distance

Sight distance for entering and exiting vehicles to/from the proposed access roadway onto North Trooper Road (SR 3002) was measured and compared to the desirable sight distance values contained in the Pennsylvania Code, Chapter 441. Table 4 below summarizes the sight distances for entering and exiting vehicles at this proposed access roadway location. As shown in Table 4 all required clear sight distance criteria are met.

Table 2 Sight Distance Summary							
Movement	Direction	Posted Speed Limit (mph)	Approx. Grade	PennDOT Requirements ⁽¹⁾ (in feet)		Available Sight Distance (in feet)	Meets Criteria?
				Desirable	Minimum		
North Trooper Road/Site Access Roadway							
Exiting	Looking Left	40	-2%	535	325	>700	Yes
	Looking Right	40	+1%	460	309	>600	Yes
Left Turn Entering	Looking Ahead	40	-2%	370	325	>700	Yes
	From the Rear	40	+1%	370	309	>600	Yes

⁽¹⁾ Based on Pa. Code, Chapter 441.

Auxiliary Turn Lane Warrant Analysis

Auxiliary turn lane warrant analyses were completed at the proposed site access roadway intersection with North Trooper Road (SR 3002) to determine whether separate left- or right-turn lanes are required along North Trooper Road at the proposed access roadway intersection. The results of the analysis show that no auxiliary turn turns are warranted. The analysis results are provided in Appendix J.

Table 3
Intersection Level of Service Summary

		Weekday AM Peak				Weekday PM Peak			
Intersections	Movement	Existing	No-Build	Build	Build Impr	Existing	No-Build	Build	Build Impr
N. Trooper Road (SR 3002)/Germantown Pike	EB -/L	-	-	-	C (21.5)	-	-	-	D (45.5)
	EB LTR/TR	C (31.8)	C (34.3)	C (34.9)	D (38.5)	F (120.1)	F (145.0)	F (298.0)	C (27.4)
	WB L	C (24.2)	C (26.9)	C (27.3)	C (26.2)	F (208.9)	F (214.1)	F (214.1)	F (81.3)
	WB TR	B (14.5)	B (14.7)	B (14.8)	B (14.8)	F (91.8)	F (98.8)	F (99.9)	F (74.2)
	NB LTR	C (32.9)	C (33.5)	C (33.5)	C (33.5)	C (33.1)	C (34.1)	C (34.3)	D (43.4)
	SB LTR	C (24.4)	C (24.5)	C (24.8)	C (24.8)	C (24.8)	C (24.8)	C (25.0)	C (27.5)
	Overall	C (26.1)	C (27.5)	C (27.8)	C (29.0)	F (101.6)	F (111.8)	F (154.5)	D (54.2)
Germantown Pike/N. Park Avenue/Valley Forge Road (SR 0363)	EB L	C (26.4)	C (25.6)	C (25.6)	-	D (49.4)	E (61.6)	E (61.6)	-
	EB TR	F (80.7)	E (57.1)	E (57.4)	-	D (53.5)	D (50.4)	D (50.9)	-
	WB L	D (36.9)	D (46.3)	D (49.0)	-	D (37.6)	D (38.7)	D (39.8)	-
	WB T	D (37.1)	C (33.6)	C (33.8)	-	E (77.5)	E (67.4)	E (68.2)	-
	WB R	C (28.4)	C (26.2)	C (26.3)	-	C (31.4)	C (30.0)	C (30.1)	-
	NB L	C (31.1)	D (36.5)	D (36.5)	-	C (30.6)	C (31.0)	C (31.0)	-
	NB TR/T	E (67.7)	D (47.9)	D (47.9)	-	E (75.4)	E (58.5)	E (58.5)	-
	NB -/R	-	C (28.6)	C (28.6)	-	-	C (27.6)	C (27.6)	-
	SB L	C (29.8)	C (29.4)	C (29.4)	-	C (30.7)	C (30.8)	C (31.0)	-
	SB TR	E (70.0)	F (85.1)	F (85.1)	-	E (71.4)	F (84.1)	F (84.1)	-
	Overall	E (60.2)	D (53.5)	D (53.6)	-	E (63.6)	E (60.4)	E (60.6)	-
Trooper Road (SR 3002)/Woodlyn Road/Woodland Avenue	WB L	A (8.9)	A (8.9)	A (8.9)	-	A (8.6)	A (8.6)	A (8.6)	-
	NB LR	B (10.1)	B (10.1)	B (10.1)	-	B (10.8)	B (10.8)	B (10.8)	-
	Overall	A (3.8)	A (3.8)	A (3.8)	-	A (5.6)	A (5.6)	A (5.6)	-
N. Trooper Road (SR 3002)/Site Access	NB L	-	-	A (8.7)	-	-	-	A (8.7)	-
	EB LR	-	-	A (9.5)	-	-	-	A (9.4)	-
	Overall	-	-	A (0.6)	-	-	-	A (0.5)	-

Table 4
95th Percentile Queue Summary (in feet)

			Weekday AM Peak				Weekday PM Peak			
Intersections	Movement	Storage Length	Existing	No-Build	Build	Build Impr	Existing	No-Build	Build	Build Impr
N. Trooper Road (SR 3002)/ Germantown Pike	EB -/L	n/a/75'	-	-	-	5	-	-	-	17
	EB LTR/TR	n/a	575	610	618	635	1025	1169	1815	498
	WB L	200'	81	88	89	87	618	633	633	349
	WB TR	n/a	280	285	287	287	1163	1232	1241	1037
	NB LTR	n/a	311	317	318	318	301	311	314	352
	SB LTR	n/a	164	166	180	180	142	145	154	163
Germantown Pike/N. Park Avenue/Valley Forge Road (SR 0363)	EB L	135'	116	117	117	-	219	238	238	-
	EB TR	n/a	833	740	743	-	554	557	562	-
	WB L	230'	133	151	160	-	235	238	243	-
	WB T	n/a	379	374	378	-	770	733	738	-
	WB R	180'	40	41	46	-	79	79	82	-
	NB L	155'	74	96	96	-	46	52	52	-
	NB TR/T	n/a	730	553	553	-	814	668	668	-
	NB -/R	-/430'	-	90	91	-	-	52	55	-
	SB L	140'	66	73	74	-	55	61	64	-
	SB TR	n/a	805	902	902	-	823	900	900	-
Trooper Road (SR 3002)/ Woodlyn Road/Woodland Avenue	WB L	n/a	3	3	3	-	3	3	3	-
	NB LR	n/a	15	15	15	-	30	30	30	-
N. Trooper Road (SR 3002)/Site Access	NB L	n/a	-	-	0	-	-	-	0	-
	EB LR	n/a	-	-	3	-	-	-	0	-

CONCLUSIONS

The conduct of this Traffic Impact Assessment for the proposed 45-unit Trooper Ridge townhouse development in Worcester Township, Montgomery County, has led to the following conclusions and recommendations:

1. The proposed residential development will generate an estimated 324 daily trips with 22 trips in the AM peak hour and 26 trips in the PM peak hour.
2. Access to the residential development will be provided via a new residential roadway intersecting North Trooper Road (SR 3002). The access roadway will be classified as a "low volume" roadway.
3. The access intersection will operate at highly acceptable LOS A during both peak periods.
4. The access location will meet or exceed all sight distance requirements and will not require auxiliary left- or right-turn lanes on North Trooper Road.
5. In conjunction with the proposed development it is proposed to implement the following improvements:
 - Widening of approximately 12' along the site's Germantown Pike frontage
 - Striping for a separate EB left-turn lane on Germantown Pike approaching N. Trooper Road.
 - Modification of the existing traffic signal timing to provide additional green time to the Germantown Pike approaches
6. The off-site signalized intersection of North Trooper Road (SR 3002)/Germantown Pike currently experiences LOS F conditions during the PM peak hour. With the above-reference proposed improvements, the site-generated traffic impact is fully mitigated resulting in better LOS under Build Improved conditions than under the unimproved No-Build conditions.
7. The site-generated traffic will have only minimal impact on the other off-site study intersections, with no decline in LOS between the No-Build and Build scenarios.

There are no geometric improvements required or recommended at these locations attributable to the proposed residential development project.

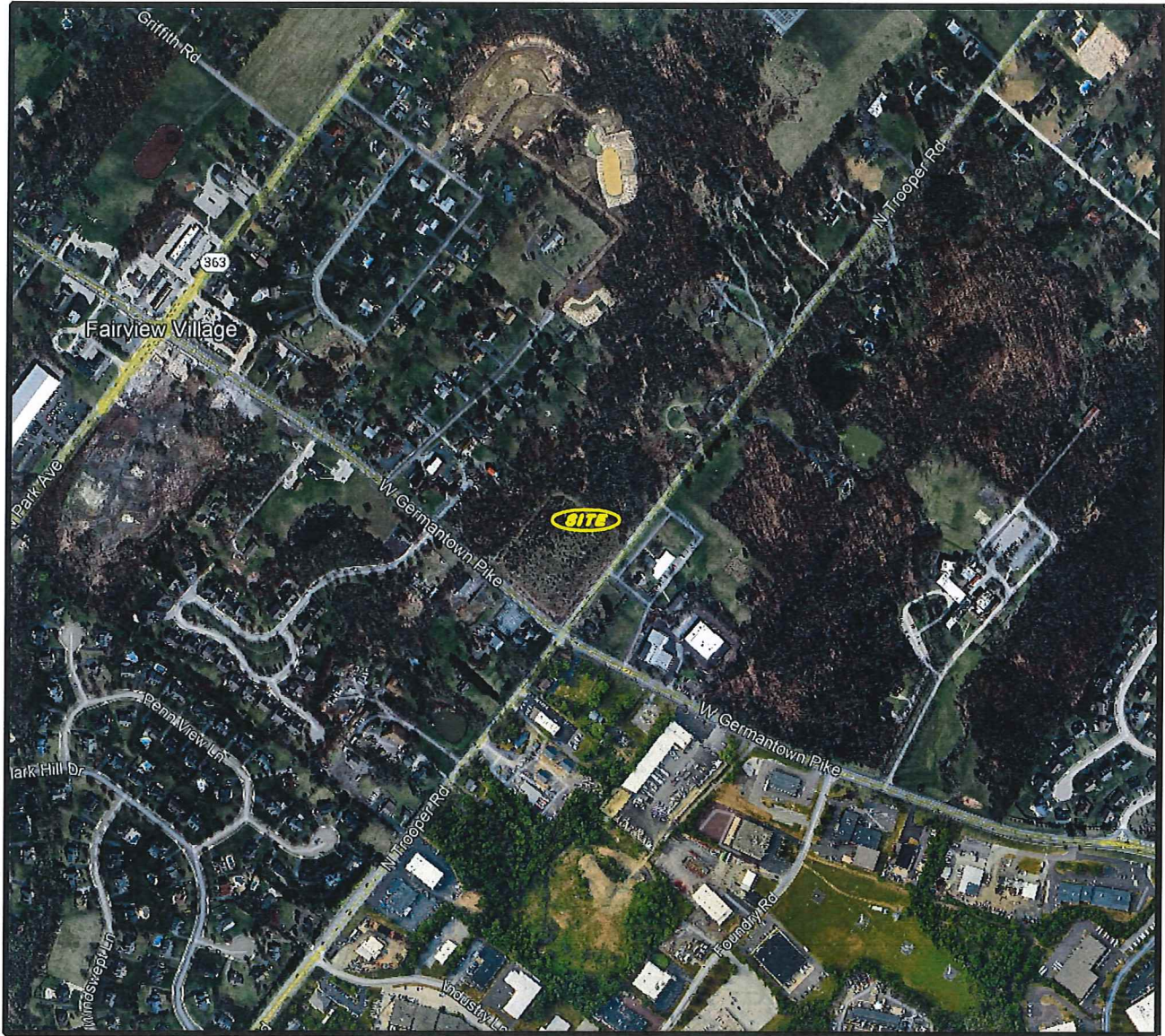
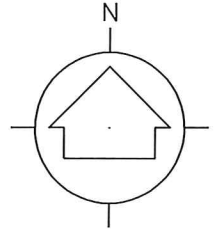


FIGURE 1
SITE LOCATION MAP

TROOPER RIDGE TOWNHOUSE DEVELOPMENT

WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

24-025
JANUARY 2025

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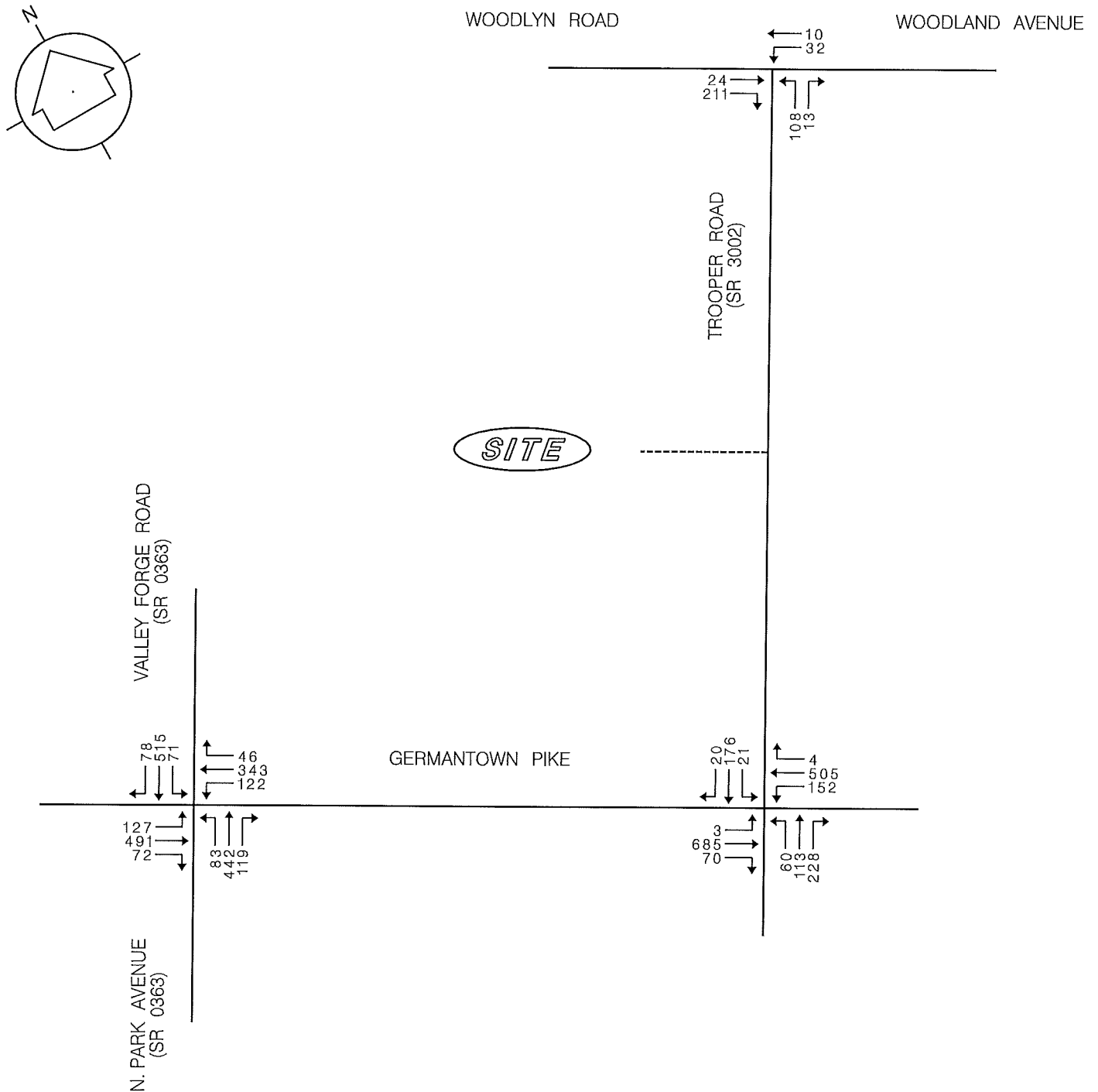


FIGURE 2
EXISTING WEEKDAY AM PEAK HOUR TRAFFIC VOLUMES

TROOPER RIDGE TOWNHOUSE DEVELOPMENT

WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

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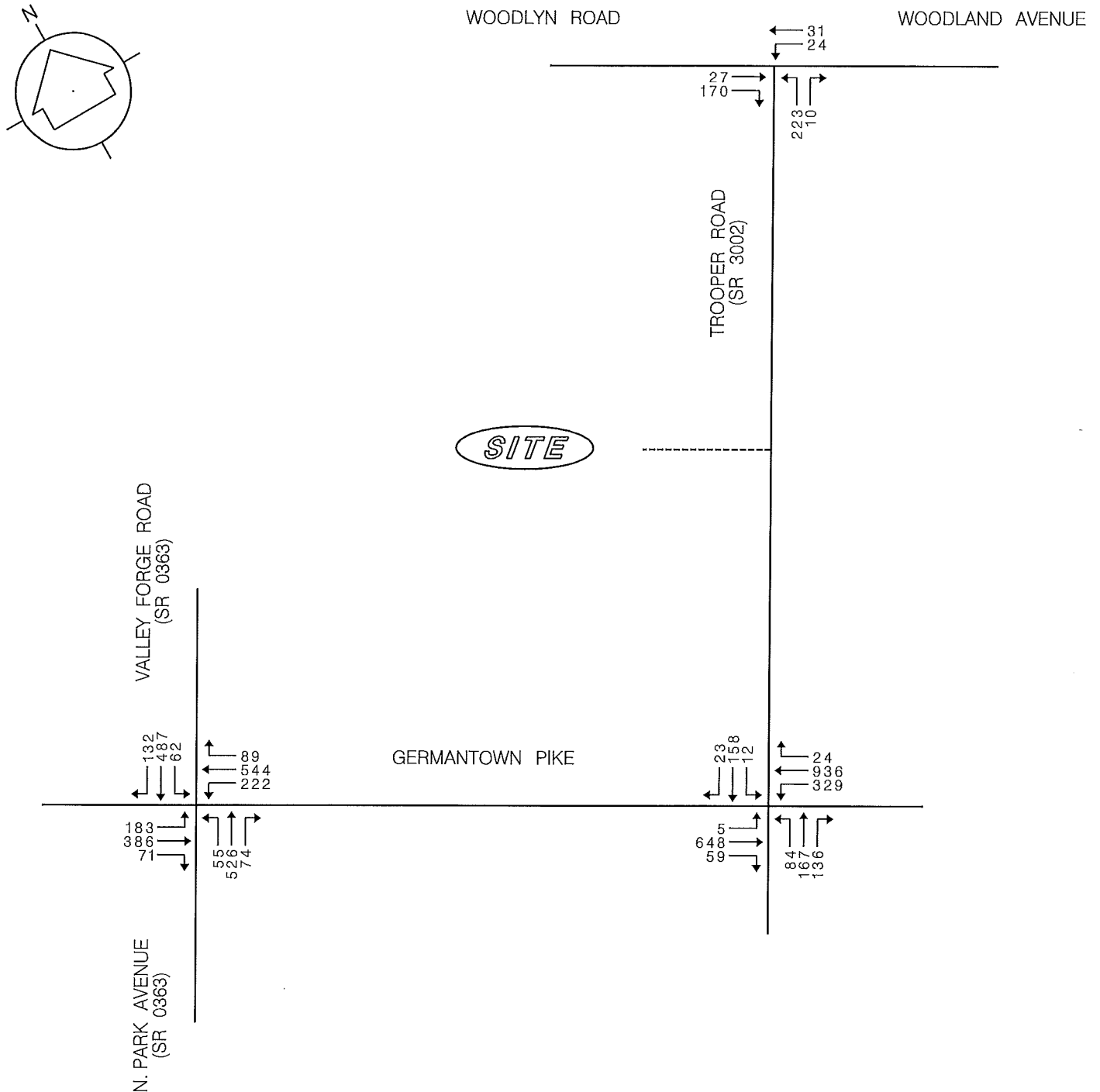


FIGURE 3
EXISTING WEEKDAY PM PEAK HOUR TRAFFIC VOLUMES

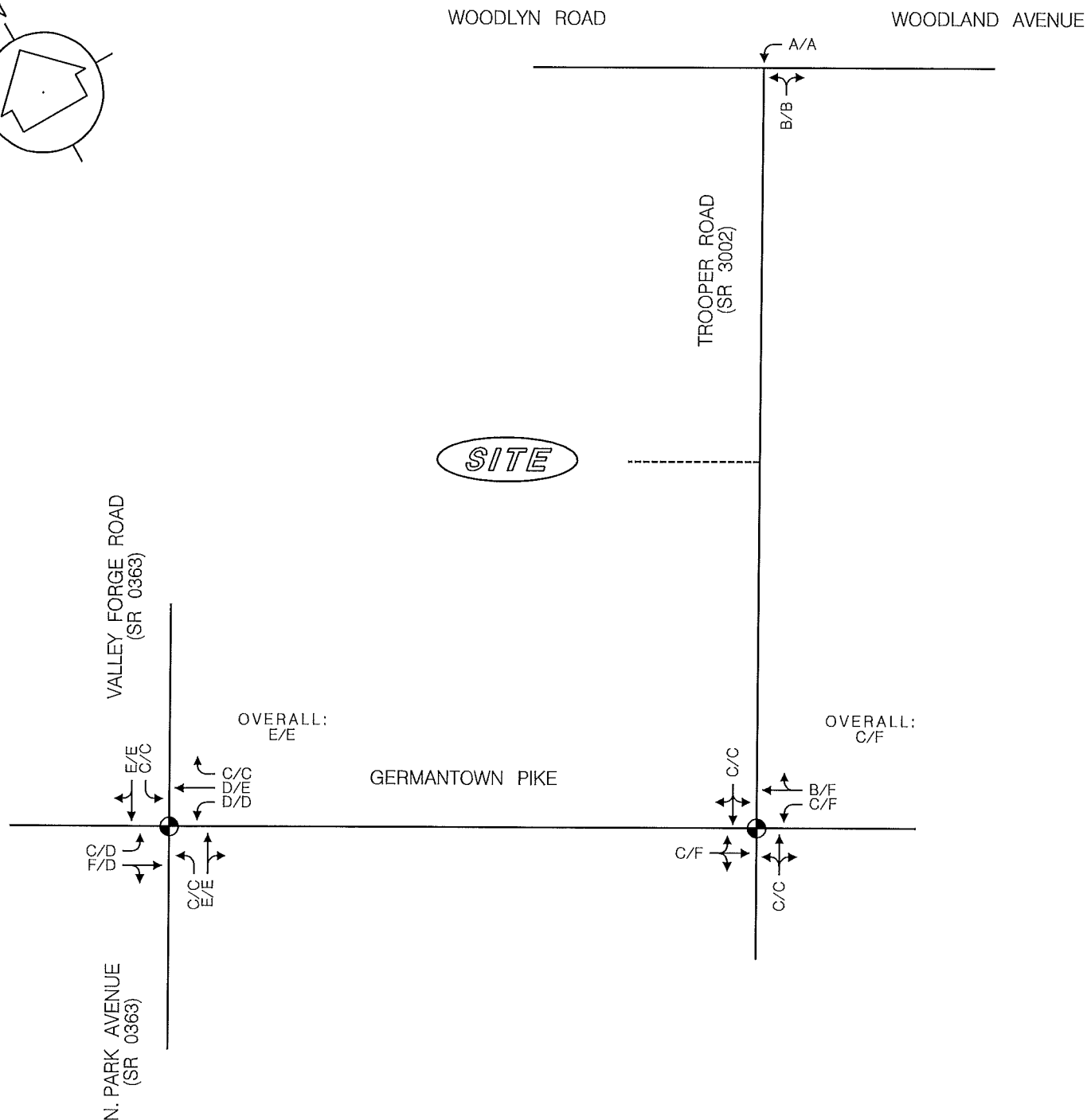
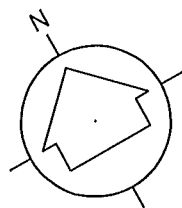
TROOPER RIDGE TOWNHOUSE DEVELOPMENT

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LEGEND:

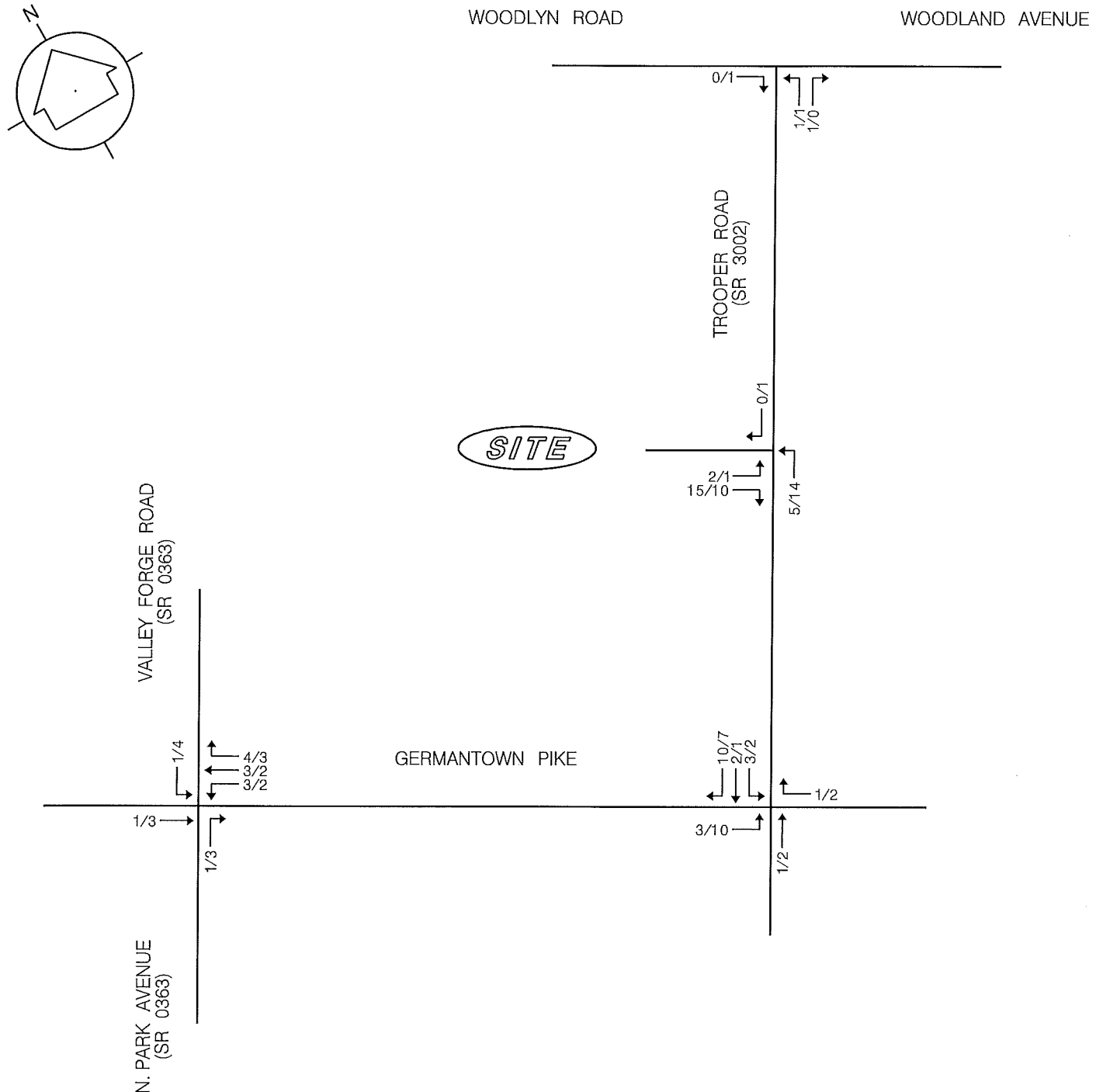
- ← AM/PM PEAK HOUR
- ⊕ TRAFFIC SIGNAL

FIGURE 4
EXISTING LEVELS OF SERVICE

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TROOPER RIDGE TOWNHOUSE DEVELOPMENT

WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA



LEGEND:

← AM/PM PEAK HOUR

FIGURE 5
SITE TRIPS

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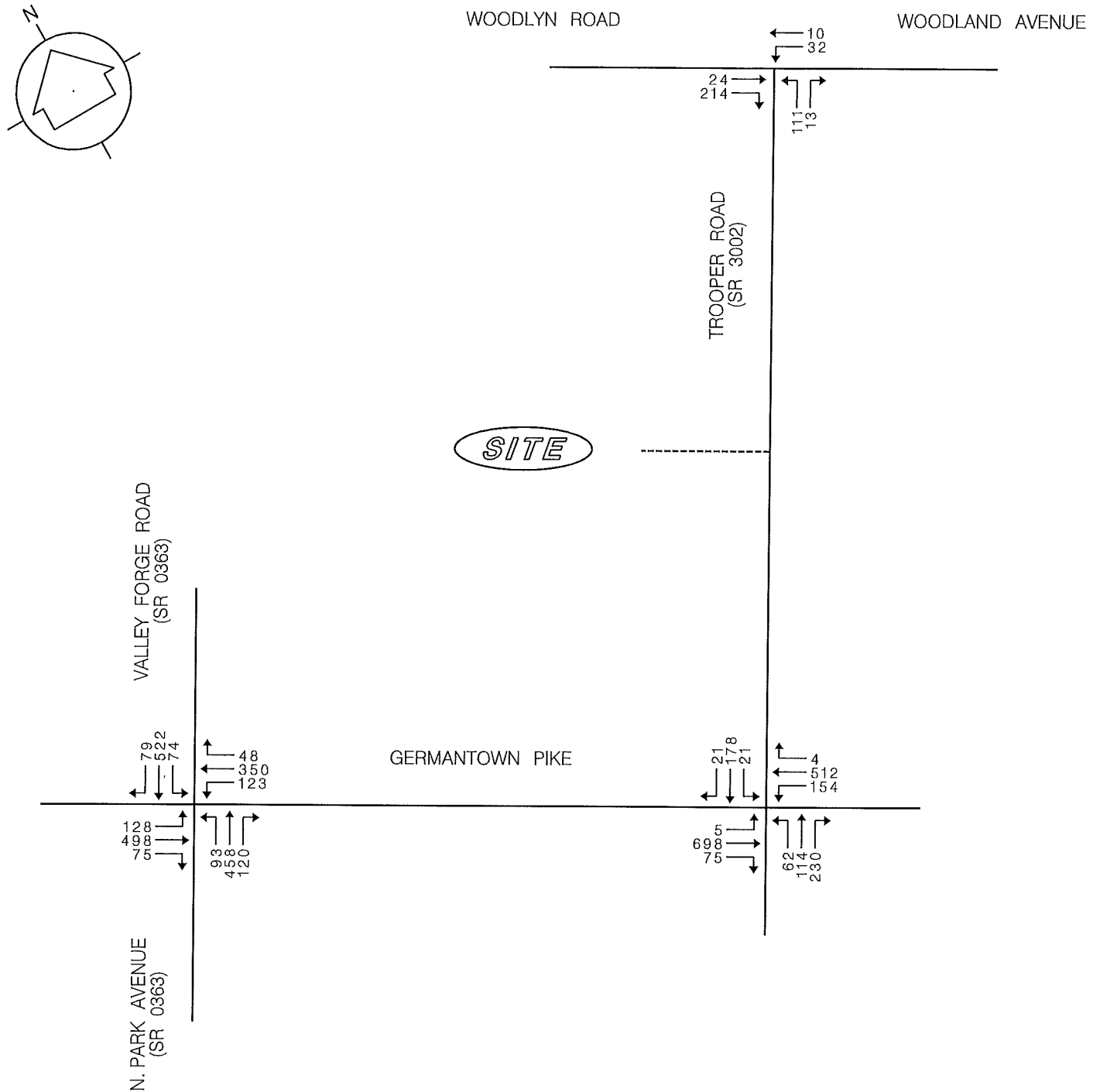


FIGURE 6
NO-BUILD WEEKDAY AM PEAK HOUR TRAFFIC VOLUMES

TROOPER RIDGE TOWNHOUSE DEVELOPMENT

WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

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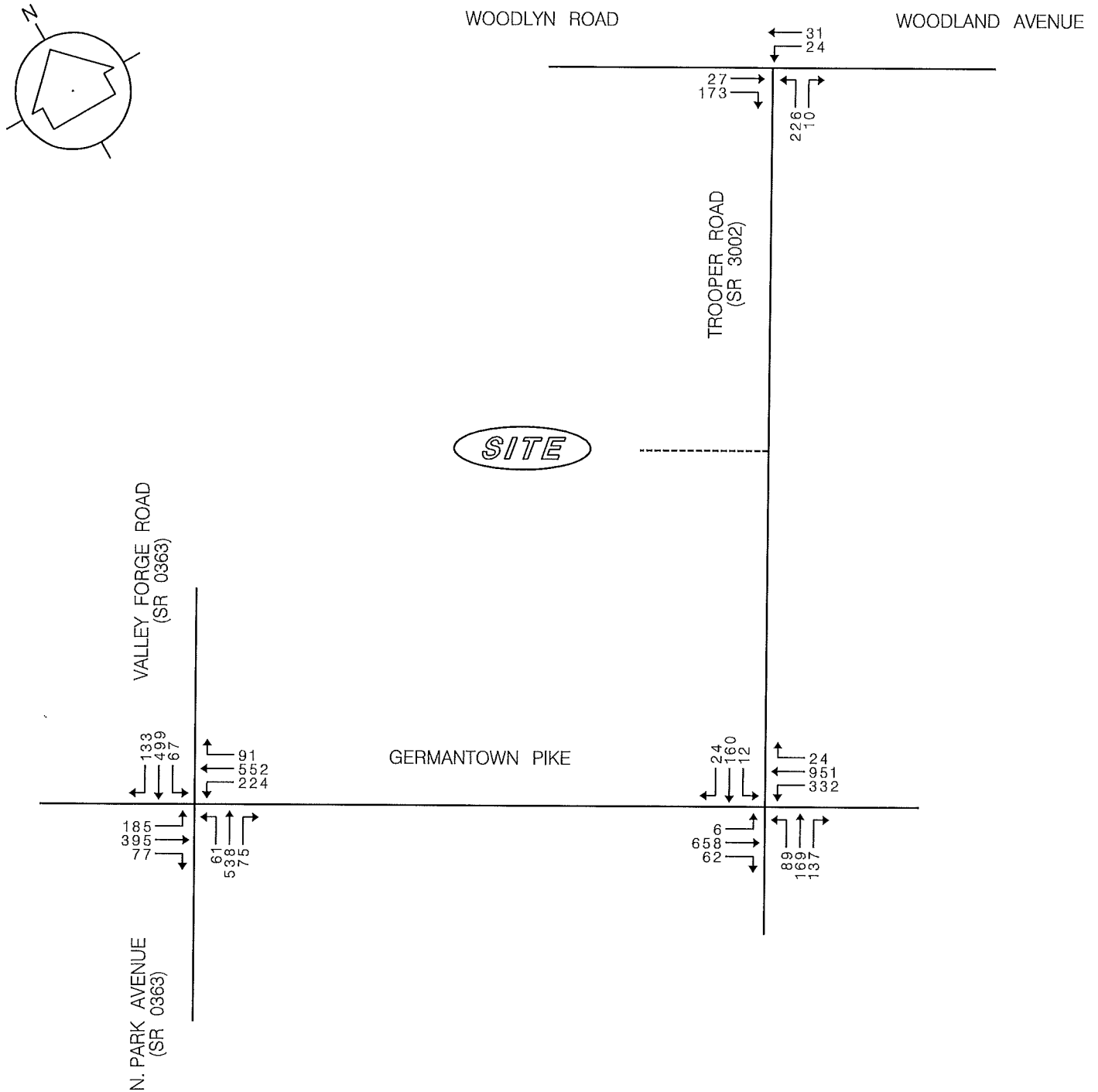


FIGURE 7
NO-BUILD WEEKDAY PM PEAK HOUR TRAFFIC VOLUMES

TROOPER RIDGE TOWNHOUSE DEVELOPMENT

WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

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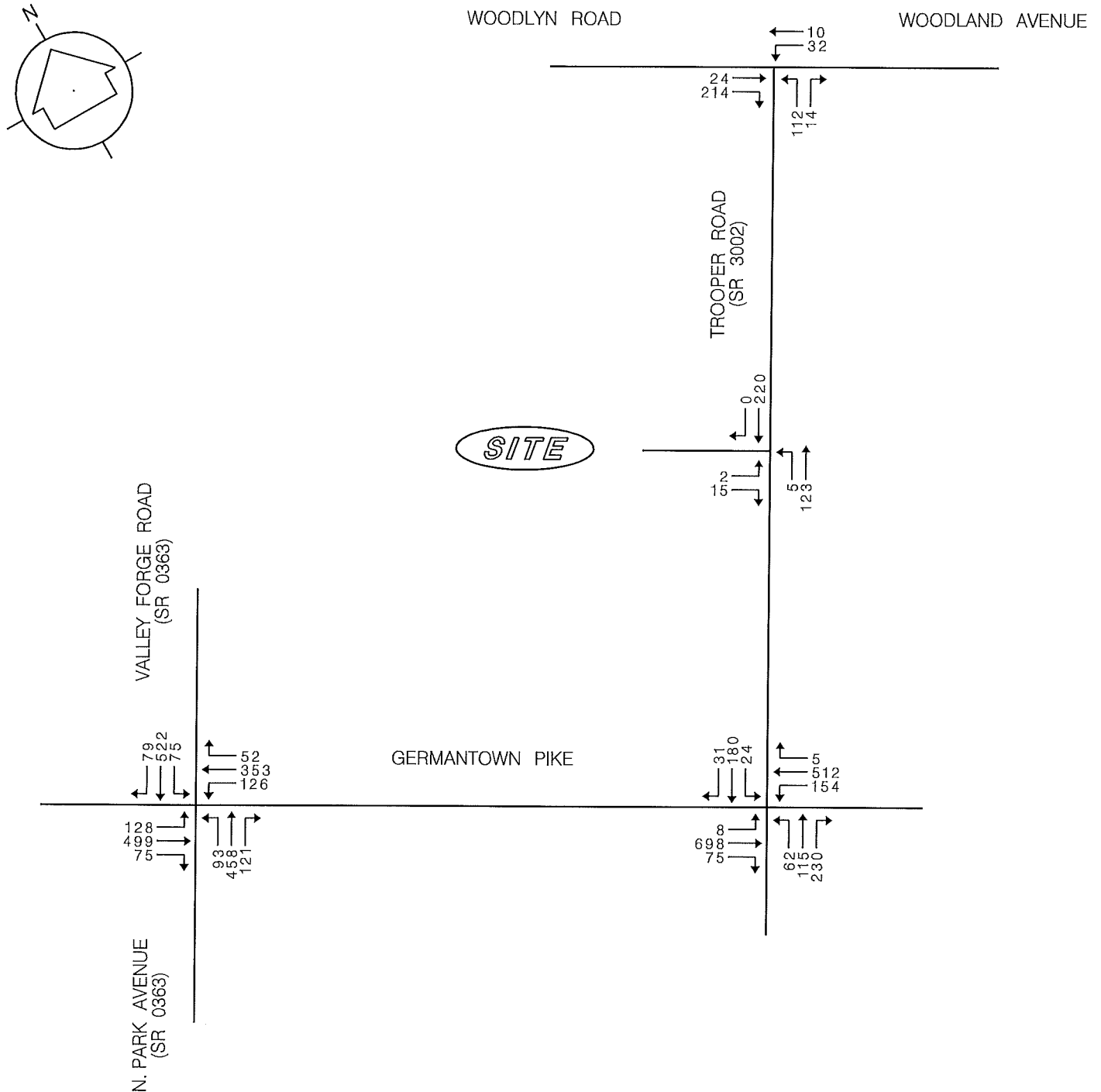


FIGURE 8
BUILD WEEKDAY AM PEAK HOUR TRAFFIC VOLUMES

TROOPER RIDGE TOWNHOUSE DEVELOPMENT

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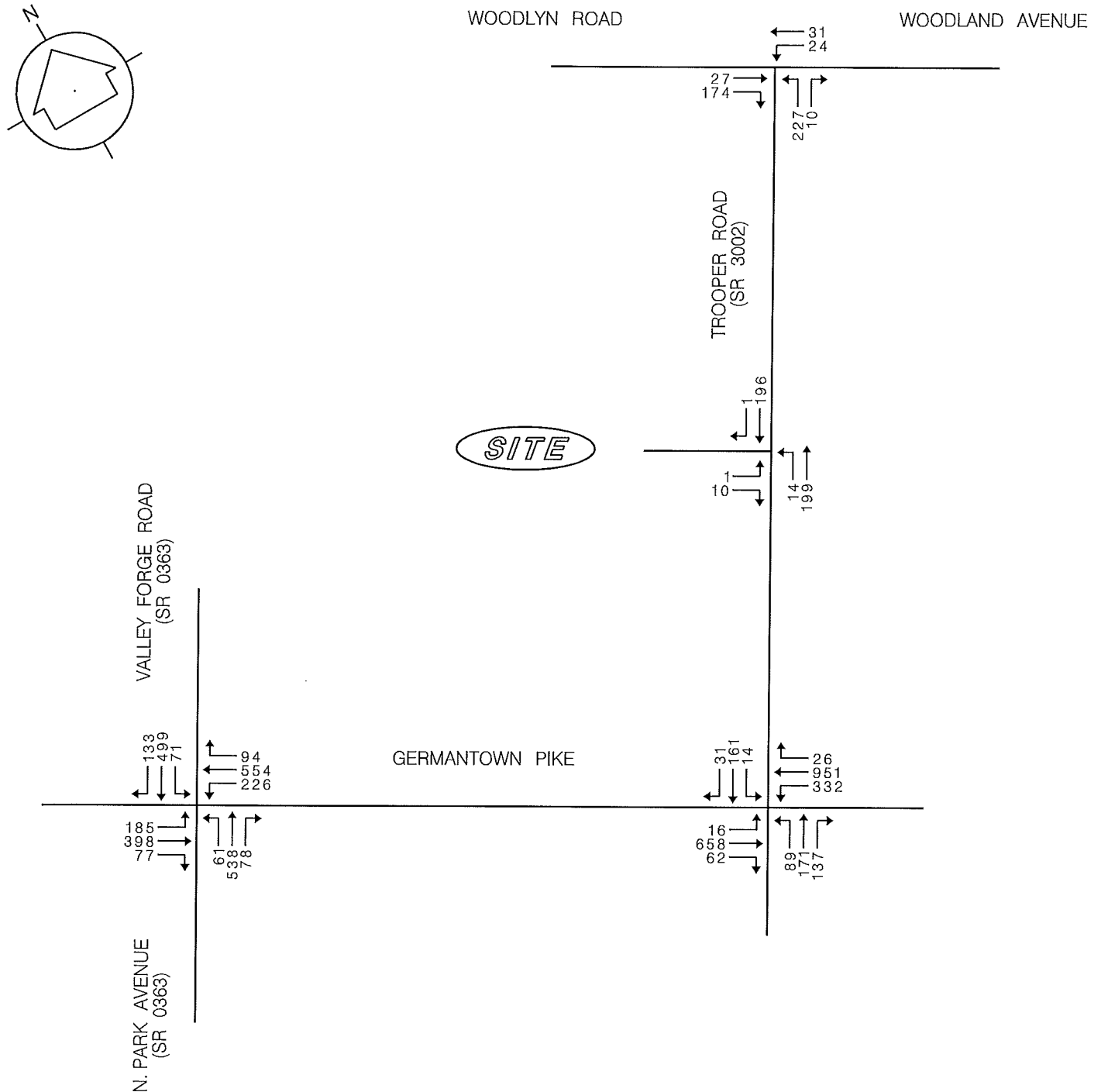


FIGURE 9
BUILD WEEKDAY PM PEAK HOUR TRAFFIC VOLUMES

TROOPER RIDGE TOWNHOUSE DEVELOPMENT

WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

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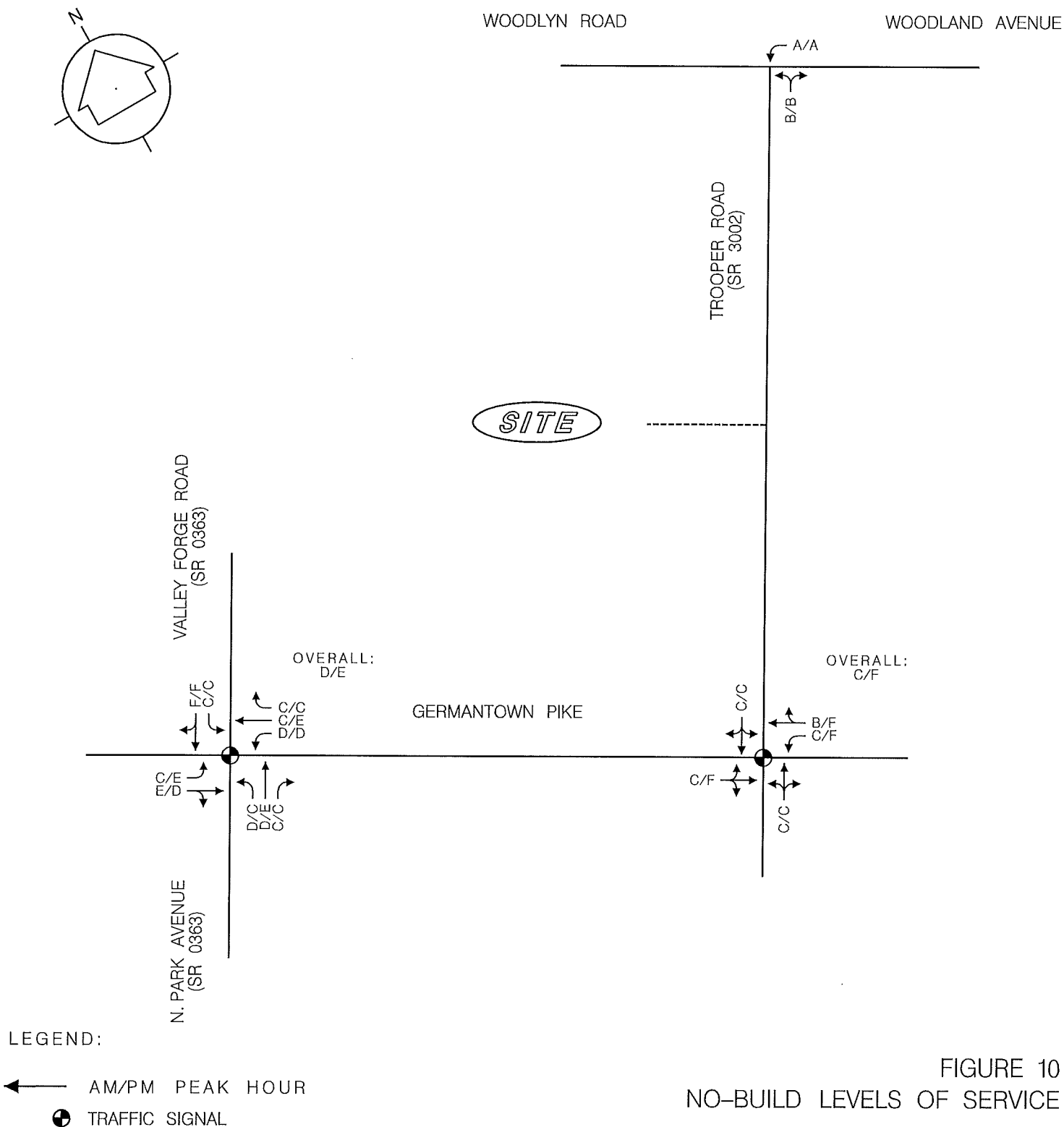


FIGURE 10
NO-BUILD LEVELS OF SERVICE

TROOPER RIDGE TOWNHOUSE DEVELOPMENT

WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

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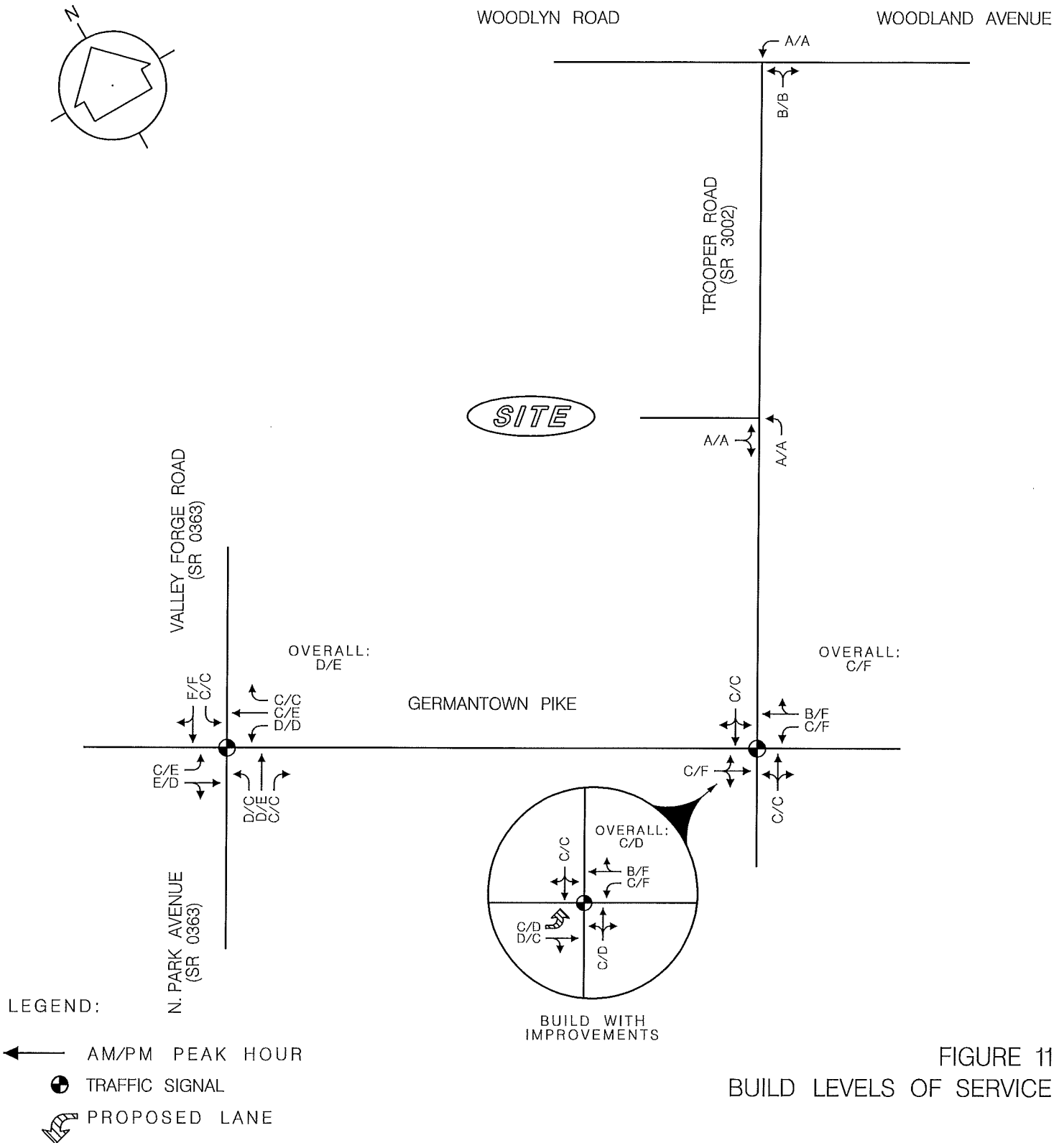


FIGURE 11
BUILD LEVELS OF SERVICE

TROOPER RIDGE TOWNHOUSE DEVELOPMENT

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APPENDIX A

Relevant PennDOT and Township Correspondence

Bowman

June 18, 2024

Mr. John J. Finnigan Jr.
Interim Township Manager
Worcester Township
1721 Valley Forge Road
P.O. Box 767
Worcester, PA 19490

Attention: Christian R. Jones, Assistant Township Manager
Mr. Robert D'Hulster, Public Works Director

RE: **Traffic Review #2 – Revised Sketch Plan**
1035 North Trooper Road (S.R. 3002) – 45 proposed townhouse units
Worcester Township, Montgomery County, PA
Project No. 314086-01-001

Dear Jay:

In response to the Township's request, Bowman Consulting Group (Bowman) has completed our second (2nd) traffic engineering review, which entailed the review of a revised Sketch Plan associated with the proposed development to be located at 1035 North Trooper Road (S.R. 3002) in Worcester Township, Montgomery County, PA. According to the updated sketch plan materials resubmitted to our office, the development is now proposed to consist of 45 townhouse units with access being provided via one full-movement access/local road to North Trooper Road (S.R. 3002), as well as an emergency-only access to/from West Germantown Pike with a gating system proposed to be provided for first responders to access the community but not others. The existing single-family home and garage will remain on the northern end of the site and will be subdivided on its own lot (lot 1).

The following documents were reviewed in preparation of our comments:

- Sketch Plan – Trooper Ridge, prepared by T & M Associates, Inc., last revised May 22, 2024.
- Response to Comments Letter – 1035 Trooper Road, prepared by T & M Associates, Inc., dated May 22, 2024.

Based on our review of the documents listed above, Bowman offers the following comments for consideration by the Township and action by the applicant should the sketch plan continue to move forward for a submission for land development:

General

1. Based on information provided in Land Use Code 215 (Single-Family Attached Housing) in the Institute of Transportation Engineers publication, *Trip Generation, 11th Edition*, the proposed 45 townhouse units are expected to generate approximately 22 "new" trips during the weekday morning peak hour and approximately 26 "new" trips during the weekday afternoon peak hour, based on trip generation itself, a full transportation impact study (TIS) is not required for the

proposed development. However, due to the site's location along the highly-trafficked roads of North Trooper Road (S.R. 3002) and West Germantown Pike, as well as located adjacent to the intersection of North Trooper Road (S.R. 3002) and West Germantown Pike which currently experiences congestion during the weekday commuter peak periods, the applicant should submit a transportation impact assessment (TIA) for the proposed development.

The applicant's engineer has indicated in its response that a scoping meeting will be scheduled and a TIA will be prepared and submitted to reviewing agencies.

At a minimum, our office continues to recommend that the TIS scoping meeting application should include the following, but may not be limited to upon official agency scoping:

- Analysis of the weekday morning and weekday afternoon commuter peak hours for existing traffic conditions, as well as opening-year conditions, both without and with the proposed development, at the intersections of North Trooper Road (S.R. 3002)/West Germantown Pike, Park Avenue (S.R. 0363)/West Germantown Pike, Trooper Road, and Woodlyn Road/Woodland Road, as well as the proposed site access. *(Note: The proposed City View apartments by BET Investments at the SE quadrant of West Germantown Pike and Park Avenue (S.R. 0363) will be providing some intersection/signal improvements that should be captured in the traffic evaluations for the subject Westrum site.)*
 - Mitigation improvements, as applicable, to address levels-of-service and queuing issues, as well as degradation must be provided as recommendations in the traffic study and how they will be addressed by the applicant.
 - As discussed at an April 1, 2024 field meeting with County representatives and members of the PC, the applicant's engineers should evaluate roadway alignment improvements for the North Trooper Road (S.R. 3002) approaches to West Germantown Pike with their site design and project. This may involve an adjustment of the section of North Trooper Road (S.R. 3002) adjacent to the applicant's site as well as intersection enhancements.
 - The full-movement driveway along North Trooper Road (S.R. 3002) could be impacted by queuing beyond the access location, as well as sight distance limitations or obstructions that may be caused by queued vehicles, and if so left-turn egress restrictions would be placed upon it. To confirm if such restrictions are prudent, a gap study should be conducted at the proposed driveway location along North Trooper Road (S.R. 3002).
 - Provide sight distance analysis at the driveway along North Trooper Road (S.R. 3002).
 - Conduct left-turn and right-turn auxiliary lane warrant analysis at the proposed driveway along North Trooper Road (S.R. 3002).
 - Provide a crash analysis at the study intersections, as well as along the North Trooper Road (S.R. 3002) and West Germantown Pike site frontages.
 - The applicant must include the electronic Synchro files with the TIA submission for review.
 - Additional comments on the scope will follow upon receipt of the formal TIA scoping application to PennDOT, Montgomery County, and Worcester Township.
2. The applicant and their team should contact Montgomery County for additional information on the *West Germantown Pike Corridor Study* completed for Montgomery County in the early 2000's and the *Montco Pikes Study*, as well as Worcester and East Norriton Townships for access to their current Act 209 Roadway Sufficiency Analyses and Capital Improvement Programs.

The applicant's engineer has indicated in its response that the information will be obtained from Montgomery County.

3. According to the Township's Roadway Sufficiency Analysis, the proposed development is located in Transportation Service Area South, which has a corresponding impact fee of \$3,125 per "new" weekday afternoon peak hour trip and the applicant will be required to pay a Transportation Impact Fee in accordance with the Township's Transportation Impact Fee Ordinance. If the information provided in Land Use Code 215 (Single-Family Attached Housing) in the Institute of Transportation Engineers publication, *Trip Generation, 11th Edition* for proposed 45 townhouse units is the proper land use description for this development, then with the sketch plan it is preliminarily expected the site would generate 26 "new" trips during the weekday afternoon peak hour resulting in a **transportation impact fee of \$81,250.**

The applicant's engineer has acknowledged this comment in its response.

4. A Highway Occupancy Permit (HOP) is required for this project from **both** PennDOT and Montgomery County for the proposed site accesses and work that may be completed within the legal right of way on North Trooper Road and West Germantown Pike since North Trooper Road (S.R. 3002) is a State Roadway and West Germantown Pike is a County Roadway. Furthermore, since the site and/or the intersections in the study border the adjacent municipality of East Norriton Township, and the site adjacent traffic signal at the intersection of West Germantown Pike and North Trooper Road (S.R. 3002) is owned and maintained by East Norriton Township, any roadway/signal improvements extending into that jurisdiction will require the review and approval of that municipality, as well. The Township and our office must be copied on all TIA and HOP submissions, as well as correspondence between the applicant, PennDOT, and Montgomery County, and invited to any and all meetings among these parties. **If it would be beneficial to all parties involved with this application, the applicant and their team may desire to schedule a (virtual) technical meeting with Worcester Township, PennDOT, and Montgomery County representatives to go over the project since all three will be involved with permitting for this project. Upon determination of study area roadway and signal improvements that will be required for the mitigation and development of the subject site, it may be beneficial and/or necessary to include East Norriton Township in future discussions.**

The applicant's engineer has acknowledged this comment in its response.

5. A more detailed review of the site and all transportation-related engineering elements on the plan will be conducted, as the Township deems necessary, if and as the application advances into and through the land development process at the Township. Additional comments may be raised at that point, as well as how the comments herein are satisfied.
6. Upon resubmission, our office will evaluate the information in concert with PennDOT and Montgomery County and will provide additional reviews of engineering and supplemental submission details as we receive them.

7. A response letter **must be provided** with the resubmission detailing how each comment below has been addressed, and where each can be found in the resubmission materials (i.e., page number(s)) to assist in the re-review process.

Sketch Plan

The applicant's engineer has indicated in its response that it has acknowledged the following comments, and this information will be provided on future land development plan submissions in accordance with Township requirements. Therefore, we continue to offer the following comments pertaining to the revised sketch plan provided in this submission that must be addressed by the applicant as the project advances through the Township land development process.

8. The cartway widths along the North Trooper Road (S.R. 3002) and West Germantown Pike site frontages should be clearly labeled on the plan and be in accordance with **Section 130-16.C** of the **Subdivision and Land Development Ordinance**. Frontage widening improvements will be required to satisfy right-of-way and cartway requirements for the classification of the roadway, as well as the provision of curbing and sidewalk unless waivers are requested and granted by the Township.
9. A note must be added to the plan stating that the area between legal right-of-way line and ultimate right-of-way line along North Trooper Road (S.R. 3002) and West Germantown Pike should be offered for dedication to the authority having jurisdiction over the road as required by **Section 130-16.C(2)(c)** of the **Subdivision and Land Development Ordinance**.
10. Adequate sight distance measurements will need to be provided on the land development plans for the proposed driveways along North Trooper Road (S.R. 3002) and West Germantown Pike as required by **Section 130-16.E(5)** of the **Subdivision and Land Development Ordinance**, and to satisfy PennDOT and Montgomery County highway occupancy permits.
11. According to **Section 130-18.A** of the **Subdivision and Land Development Ordinance**, sidewalk should be provided along the site frontages of North Trooper Road (S.R. 3002) and West Germantown Pike. The plan currently does not show any sidewalk along the North Trooper Road (S.R. 3002) and West Germantown Pike site frontages, thereby not satisfying the ordinance requirement. However, the applicant is currently proposing a multi-purpose trail around the perimeter of the townhouse units internal to the site that sits 60 feet or more from the edge of either road abutting the site. In addition, we also note to the Township at this time that no sidewalk currently exists along either side of North Trooper Road (S.R. 3002) and West Germantown Pike in the vicinity of the site.

The applicant's engineer indicates in its response that the trail and sidewalks for the development will be discussed with the Planning Commission to determine what the Township's needs are in this regard. While we continue to recommend the provision of sidewalk and/or a multi-purpose trail on the plan. Adequate connectivity of the trail system to the signalized intersection of West Germantown Pike/North Trooper Road (S.R. 3002) and provision of ADA ramps and a crosswalk across North Trooper Road (S.R. 3002) from the site to the Norriton Presbyterian Cemetery at a minimum should be incorporated. Furthermore, provisions should be made in the design to be constructed with the development or escrow held for future construction of pedestrian connectivity along both roads

fronting the property. The Board of Supervisors may consider deferring this obligation that is required of the applicant until such a time as may be required by the PennDOT, Montgomery County, or the Township for this property, whether under present or future land ownership, and at no cost to Worcester Township, or may desire to consider a fee in lieu of sidewalk to be kept in escrow for future sidewalk installations in the Township and/or area of these properties.

12. According to **Section 130-18.B** of the **Subdivision and Land Development Ordinance**, curbing should be provided along the site frontages of North Trooper Road (S.R. 3002) and West Germantown Pike. The plan currently does not show any curbing along the North Trooper Road (S.R. 3002) and West Germantown Pike site frontages, thereby not satisfying the ordinance requirement. We recommend that the plan be revised to show curbing along the entire site frontages of North Trooper Road (S.R. 3002) and West Germantown Pike, or a waiver must be requested from this ordinance section. We do note to the Township that there is currently no curbing along either side of North Trooper Road (S.R. 3002) and West Germantown Pike in the immediate vicinity of the site. Alternatively, the Board of Supervisors may also consider deferring this obligation that is required of the applicant until such a time as may be required by the PennDOT, Montgomery County, or the Township for this property, whether under present or future land ownership, and at no cost to Worcester Township, or may desire to consider a fee in lieu of curb to be kept in escrow for future curb installations in the Township and/or area of these properties.
13. The curb radii should be labeled on the plan at the proposed driveway intersections with North Trooper Road (S.R. 3002) and West Germantown Pike and be in accordance with **Section 130-17.B(3)** of the **Subdivision and Land Development Ordinance**.
14. The designer should ensure sufficient sight distance is provided for the proposed driveways along the internal road in accordance with **Section 130-17** of the **Subdivision and Land Development Ordinance**.
15. Horizontal curvature information should be provided on the plans for the internal roadway and be in accordance with **Section 130-16.(2)** of the **Subdivision and Land Development Ordinance**.
16. Parking along the edges of both sides of the internal roadway based on the site design, road widths, and location of driveways will need to be prohibited by adequate signing. The Township Engineer and Fire Marshal may also comment on this design.
17. Turning templates must be provided demonstrating the ability for Township emergency vehicles, trash trucks, and the largest expected delivery vehicle/moving trucks to maneuver into and out of the full-movement driveway along North Trooper Road (S.R. 3002), as well as entirely through the site's private street system.
18. The Township Fire Marshal should review the emergency vehicle turning templates for accessibility and circulation needs of emergency apparatus. Ensure that any correspondence, including any review comments and/or approvals, is included in subsequent submissions.

19. The plan(s) must be signed and sealed by a Professional Engineer licensed to practice in the Commonwealth of Pennsylvania.

20. All proposed signs should be clearly labeled on the plan in subsequent submissions.

In addition, we offer the following additional comments pertaining to the revised sketch plan provided in this submission.

21. We recommend that the proposed Knox Box gate should likely be moved closer to the southern side of the emergency-only access along West Germantown Pike just inside the ultimate ROW line so that vehicles from West Germantown Pike see it and do not improperly use it to access the site. In addition, both ends of the emergency-only access should be signed to clearly indicate it is for emergency use only with special "Do Not Enter" signs for emergency vehicles only. If this is going to remain an emergency-only access, the County can weigh in on the provision of smaller radii or perhaps a depressed curb driveway so it is less likely to be mistaken for an access roadway to/from the property for every day vehicles to use.

22. A total of 24 guest parking spaces (12 at each end of the development) are proposed. With the provision of narrower roads and parking to be prohibited except in driveways (approximately 20' to 22' deep and 20' wide, allowing up to two driveway cars not in garage) and in the guest parking spaces, the adequacy of parking should be evaluated and provided by the applicant and their team. Depending on the demographic of residents to live in this community, holiday and special gatherings may require more overflow parking than available in this community, and the roadways and site layout are not designed to allow for on-street parking and two-way travel for other vehicles to circulate. No parking is to be provided along West Germantown Pike or North Trooper Road (S.R. 3002).

23. The parking space dimensions for the guest parking spaces should be labeled on the plan and be in accordance with **Section 130-17.D(11)** of the **Subdivision and Land Development Ordinance**.

24. What appears to be a sidewalk connection at the northwestern most part of the sketch plan along West Germantown Pike should be better clarified and graded appropriately for ADA as it shows an open terminus inside the ultimate right of way.

25. Retaining wall design documents, including reports and specifications, must be submitted to the Township Engineer for review and concurrence.

We trust that this review letter responds to your request. If you or the Township have any questions, or require clarification, please contact me, Michelle Eve, P.E., or Brian Jones, PTP, TOPS.

Sincerely,



Casey A. Moore, P.E
EVP/Regional Manager - Transportation

BMJ/MEE/CAM

cc: John Evarts, P.E., CKS Engineers (Township Engineer)
Wendy Feiss McKenna, Esq. (Township Solicitor)
Scott Burton, PennDOT
Paul Lutz, PennDOT
Andy Parker, McCormick Taylor (PennDOT and Montgomery County Review Consultant)
Susan M. Guisinger-Colon, P.E., LEED AP (Montgomery County consultant)
Robert Hart, East Norriton Township Manager
Michael Maier, Westrum Development Company (Applicant)
Barry Stingel, PLA, T&M Associates (Applicant's Architect)

Q:\PA-FTWA-MC\MCM\eng\WORCETO1\314086-01-001 - 1035 Trooper Road\Submissions\2024-05-23 Sketch Plan\Review\2024-06-18 Review Letter #2 - 1035 North Trooper Road (finalized).docx



**TRANSPORTATION IMPACT STUDY (TIS)
DETERMINATION & SCOPING MEETING
APPLICATION**

Scoping Meeting Application:

[Returned to Applicant](#)

Scoping Meeting Date: _____ Scoping Number: S0620240059

Tax Parcel Number: 67-00-01540-004

Project/Development Name: Trooper Ridge

Applicant Information:

Business Partner ID: _____

Applicant Name: Bristol Ridge Associates LLC

Phone: 215-620-5610 Email 1: maier@westrum.com

Primary Contact: Michael Maier Email 2: _____

Additional Engineering Firm Information:

Business Partner ID: _____

Engineering Firm: _____

Phone: _____ Email 1: _____

Primary Contact: _____ Email 2: _____

Creator Information:

Business Partner ID: 004633 Firm Name: Horner & Canter Associates, P.C.

Phone: 609-654-4104 Email 1: hkeene@horner-canter.com

(1) LOCATION OF PROPOSED DEVELOPMENT:

PennDOT Engineering District: 06 Email: _____

County: Montgomery Email: _____

Municipality: WORCESTER Email: tryan@worcestertwp.com;
worcestertwptrafficengineer@mcmahonassociates.com

NO.	SR	Segment	Offset	Average Daily Trips	Driveway Classification	Local Road
1	3002	0040	0700	383	Low Volume	No

Are there any vehicle weight or size restrictions along the SR in accordance with 75 PA C.S. ss 4902? : No

(2) DESCRIPTION OF PROPOSED DEVELOPMENT (Attach site plan if available):**Proposed site access:**

Full access driveway to Trooper Road (SR 3002) approximately 700 feet north of Germantown Pike. Also right-in/right-out access proposed to Germantown Pike, a County Road.

Proposed land uses:

48 townhomes

Community linkages (access to neighboring properties, cross easements, pedestrian and transit accommodations):

n/a

(3) DEVELOPMENT SCHEDULE AND STAGING:

Anticipated Opening Date: 06-01-2026

Full Buildout Date: 06-01-2028

Describe Proposed Development Schedule/Staging:

No development phasing is anticipated

(4) TRIP GENERATION:

Land Use & Size	Land Use Code	Were ITE results used?	Daily Trips	AM Peak Hour		PM Peak Hour		Saturday Peak Hour	
				Enter	Exit	Enter	Exit	Enter	Exit
Townshouses / 48 DU	220	Yes	383	9	29	26	15	10	10
		TOTAL:	383	9	29	26	15	10	10

(5) TRANSPORTATION IMPACT STUDY REQUIRED?

Transportation Impact Study Required? No

If Yes, based on:

Other considerations as described below:

(6) TRANSPORTATION IMPACT ASSESSMENT REQUIRED?

Transportation Impact Assessment Required? Yes

(7) STUDY AREA:**Roadway and Study Intersections:**

Trooper Road (SR 3002)/Germantown Pike

Land use context (Refer to PennDOT Design Manual, Part 1X, Appendix B):

Suburban Neighborhood

Known Congestion Areas:

n/a

Known Safety Concerns:

n/a

Known Environmental Constraints:

n/a

Pedestrian/Bike Review (Community Centers, Parks, Schools, etc.):

n/a

Transit Review (Current routes/stops):

n/a

(8) STUDY AREA TYPE:**Study Area Type:** Rural**(9) TIS ANALYSIS PERIODS AND TIMES:****Analysis period and times notes:**

Existing Conditions, Build Out Year Without Development, Build Out Year With Development; Weekday AM Peak Hour and Weekday PM Peak Hour

(10) TRAFFIC ADJUSTMENT FACTORS:**(a) Seasonal Adjustment (Identify counts requiring adjustment and methodology):**

n/a

(b) Annual Base Traffic Growth: 0.75% %/yr. **Source:** PennDOT Growth Factor Report**(c) Pass-By Trips (Attach justification where required):**

NO.	Land Use	%	Source
1	Residential	0%	ITE

(d) Captured Trips for Multi-Use Sites:

n/a

(e) Modal Split Reductions:

n/a

(f) Other Reductions:

n/a

(11) OTHER PROJECTS WITHIN STUDY AREA TO BE ADDED TO BASE TRAFFIC:**Notes:**

To be confirmed with the municipality

(12) TRIP DISTRIBUTION AND ASSIGNMENT:**Trip Distribution Notes:**

To be determined once counts are completed

(13) APPROVAL OF DATA COLLECTION ELEMENTS AND METHODOLOGIES:

NO.	Location	Period	Type
1	Trooper Rd (SR 3002)/Germantown Pk	AM Peak, PM Peak	Turning Movement Counts

(14) CAPACITY/LOS ANALYSIS:

NO.	Location	Period	Type
1	Trooper Rd (SR 3002)/Germantown Pike	AM Peak, PM Peak	HCM 7th Edition

(15) ROADWAY IMPROVEMENTS/MODIFICATIONS BY OTHERS TO BE INCLUDED:**Roadway Improvements:**

To be confirmed with the municipality

(16) OTHER NEEDED ANALYSES:

(a) Sight Distance Analysis:

Access Driveways Only

(b) Signal Warrant Analysis (Identify locations):

n/a

(c) Required Signal Phasing/Timing Modifications (Determine for all signalized intersections; specify methodology):

To be determined

(d) Traffic Signal Corridor/Network Analysis (Identify locations/methodology):

n/a

(e) Analysis of the Need for Turning Lanes (Identify locations/methodology):

Access Driveways Only, PennDOTs Turn Lane Warrant Methodology

(f) Turning Lane Lengths (Identify methodology to be used):

PennDOT's Turn Lane Warrant Methodology

(g) Left Turn Signal Phasing Analysis (Identify locations/methodology):

n/a

(h) Queuing Analysis (Identify locations/methodology):

Trooper Road (Sr 3002)/Germantown Pike

(i) Gap Studies (Identify locations/methodology):

Potentially at Trooper Road access location

(j) Crash Analysis (Identify locations):

n/a

(k) Weaving Analysis (Identify locations):

n/a

(l) Other Required Studies (Specify locations/methodology):

n/a

(17) ADDITIONAL COMMENTS OR RECOMMENDATIONS RELATIVE TO THE SCOPE OF THE TIS:

Additional Comments:

None

PennDOT Review Comments: (Current Cycle Comments)

1). The PennDOT project number for this scoping application review, S0620240059, must be referenced when the formal Highway Occupancy Permit (HOP) application is submitted.

2). This review is preliminary in nature. The Department reserves the right to make additional comments when the application includes the submission of detailed plans and stormwater calculations. If you have any questions pertaining to the technical aspects of this review, please contact Scott Bechard, AICP at scott.bechard@dawood.net or 855-432-9663.

3). Provide copies of correspondence indicating that the municipality is aware of the project and has had a chance to comment.

4). With respect to the formal permit application, please ensure that the following items are addressed:
a. Please be advised that pursuant to and in accordance with Title 67, Chapter 441.8(h)(2)(iv) of the code, the Safe Stopping Sight Distance is the absolute minimum acceptable sight distance for driveways. It is the designer's responsibility to ensure that this minimum requirement is satisfied. b. It should be understood that in accordance with PennDOT Strike-Off Letter 470-10-03 and pursuant to

section 421 of the State Highway Law (36 P.S. ♦ 670-421) the installation of any drainage facilities within the Legal Right-of-Way may necessitate additional permitting requirements, including, but not limited to, a separate Highway Occupancy Permit from the Municipality for the future maintenance of the new drainage facilities. c. ADA compliance within the limits of work (along the access frontage at a minimum) must be evaluated in the TIS (i.e. new/modified facilities, impact to SEPTA bus stops, etc.). If driveway modifications are proposed, the existing curb ramps must be upgraded to be ADA compliant. At a minimum, the ramp adjacent to the curb replacement would need to be reconstructed. d. Consistent with current Department Policy, applicants for Highway Occupancy Permits must apply for an EPS Business Partner ID (BPID). The BPID is to be used in the establishment of a billing account for the invoicing of inspection costs. For information on obtaining a BPID, you may visit: <https://www.dot14.state.pa.us/EPS/home/manageBPRegistration.jsp>

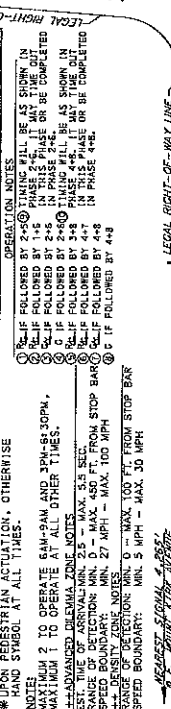
- 5). Include the Engineering Firm Information on the application.
- 6). Section 2 of the scoping form indicates RIRO access on Germantown Pike, but the updated site plan shows a gated emergency access. Please resolve this discrepancy.
- 7). Note section 4 of the scoping application indicates 48 residential units but the revised site plan shows 45. The assumption of 48 units is conservative and will be acceptable.
- 8). Add the full movement site access as a study intersection.
- 9). Identify the roadway typology per the latest edition of PennDOT Publication 13, Chapter 3.6.
- 10). Revise the study area type (scoping section 8) to urban per the Federal Functional Class map designations.
- 11). PennDOT♦s current Growth Factor Report (Growth Factors for September 2023 to July 2024) shows a growth factor of 0.21. Update the Annual Base Traffic Growth accordingly.
- 12). Please utilize Synchro 11 / HCM 6th Edition for this analysis. The most current version has not been fully adopted by the Department.
- 13). Please note 95th percentile queues must be reported in the Queueing Analysis referenced in scoping section 16(h). Queue analysis must also be provided at the full movement site access.
- 14). Address the following related to the revised site plan: ♦ Shift the sidewalk extension closer to the radius of the North Trooper Road (SR 3002) / Germantown Pike intersection. As proposed, pedestrians would be required to cross behind the stop bar opposite a stone wall. ♦ A TE-672 pedestrian study must be completed in conjunction with the TIS to identify pedestrian crossings and needs. ♦ Note that upgrades to pedestrian signal equipment will likely be required.
- 15). The applicant must convey Right-of-Way along the property frontage of SR 3002, North Trooper Road, to enable the Department to better align SR 3002 through the intersection of Germantown Pike in the future.
- 16). A condition statement must be provided with the Highway Occupancy Permit application to facilitate the future transfer the Highway Occupancy Permit to from the applicant to Worcester Township, once the local road has been accepted by the municipality.

After review of the scoping meeting application, the Department will contact the applicant regarding the need for a scoping meeting prior to applying for a highway occupancy permit.

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APPENDIX B

Traffic Signal Plans



NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE RESIDENT.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 212.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. MOST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED.

SHALL BE PLAIN CEMENT CONCRETE CURB OR GRANITE CURB,
 INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS
 FORM 40B.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITEE COMPLIES WITH THE PROVISIONS OF THE

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST

CONFORM TO FORM 40B AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT, FOR REVIEW, PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BUILDING ROADWAY LESS THAN 5 YEARS
OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED
AND JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH
TRAFFIC SIGNAL STANDARDS TC-8800 SERIES.

MPMS #119301

PROJECT #M133

SYSTEM PERMIT #~0194

14-00000

ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY WORCESTER TOWNSHIP

MUNICIPALITY: NORFOLK TOWNSHIP
INTERSECTION: GERMANTOWN PIKE AND PARK

AVENUE / VALLEY FORGE ROAD (SR 0363)

REVIEWED: _____ DATE: _____

Seam Pollution
CONFISCATE OFFICIAL
DATE 2/24/2023
RECOMMENDED:

MARK L. KRAY 2/28/91

DOUGLAS W. MAY
DISTRICT TRAFFIC ENGINEER

RECORD	DATE	REV.	DATE	RECD.	DATE
ADDED PHASE B AND PREEMPTION	JUL 2/28/91	AK	2/28/91	DWM	2/28/91
NEW DRAWING	JUL 9/23/93	AK	4/28/94	LAB	4/28/94

ADD WB RT LANE, REFERENCE NE CORNER MA & WB OLC	5/24/04	MLK	10/18/04	LAB	11/18/05
ADD TOB SHOULDER STRIPING, WB EXTENSION LANE, AND SONGS R <td>6/5/09 <td>OLA <td>7/1/09 <td>ABP <td>7/7/09</td> </td></td></td></td>	6/5/09 <td>OLA <td>7/1/09 <td>ABP <td>7/7/09</td> </td></td></td>	OLA <td>7/1/09 <td>ABP <td>7/7/09</td> </td></td>	7/1/09 <td>ABP <td>7/7/09</td> </td>	ABP <td>7/7/09</td>	7/7/09

	DLA	ADP	1/4/11
REMOVED CURB RAMPS, PEDESTRIAN BUTTONS AND PEDESTRIAN TUBES			NOI
ADDED VARIOUS VEHICLE AND PEDESTRIAN TUBES			NOI
INSTALL GUILIANA ZONE DIRECTION	KPL	DLA	7/2/08

INSTALL COUNTDOWN PED SIGNAL HEADS AND LATCHING PBs	TPD	7/12/73	MJS	KPL	60000
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SHEET 2 OF 3 PERMIT # 64-1438 FILE # 1438

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APPENDIX C

Traffic Counts

Horner & Canter Associates
Transportation and Traffic Engineering

4950 York Rd, Suite 2G, P.O. 301, Holicong, PA 18928-0301
 105 Atsion Rd, Suite F, Medford, NJ 08055

NB/SB: Trooper Rd.
 EB/WB: Germantown Pike
 Worcester Twp./ Montgomery Co./ PA
 Tuesday/ AM Clear, PM Rain/ E-14/ GD

File Name : 24-025-001
 Site Code : 24025001
 Start Date : 8/6/2024
 Page No : 1

Groups Printed- Passenger and 2 Axle Vehicles - Buses and Heavy Vehicles

Start Time	Trooper Road Southbound			Germantown Pike Westbound			Trooper Road Northbound			Germantown Pike Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00 AM	5	24	7	56	63	1	12	19	49	0	145	18	399
07:15 AM	6	41	3	64	121	5	6	27	54	0	135	10	472
07:30 AM	3	41	3	65	100	2	9	31	63	1	133	12	463
07:45 AM	3	56	4	35	115	1	17	34	61	0	166	17	509
Total	17	162	17	220	399	9	44	111	227	1	579	57	1843
08:00 AM	4	38	5	44	115	3	16	23	47	2	147	16	460
08:15 AM	10	41	9	40	119	0	17	25	58	0	204	11	534
08:30 AM	4	41	2	33	156	0	10	31	62	1	168	26	534
08:45 AM	3	38	4	42	135	1	17	21	44	0	163	10	478
Total	21	158	20	159	525	4	60	100	211	3	682	63	2006

*** BREAK ***

04:00 PM	9	54	7	64	202	8	14	48	34	0	161	13	614
04:15 PM	1	28	9	83	242	5	30	39	25	2	162	19	645
04:30 PM	2	34	6	92	232	10	20	40	39	3	159	13	650
04:45 PM	0	42	1	90	260	1	20	40	38	0	166	14	672
Total	12	158	23	329	936	24	84	167	136	5	648	59	2581
05:00 PM	2	35	6	80	186	2	21	38	33	2	152	10	567
05:15 PM	3	37	3	75	217	1	18	42	46	1	170	12	625
05:30 PM	2	36	6	87	212	4	10	34	31	0	121	9	552
05:45 PM	3	22	3	46	154	5	10	42	32	1	87	11	416
Total	10	130	18	288	769	12	59	156	142	4	530	42	2160
Grand Total	60	608	78	996	2629	49	247	534	716	13	2439	221	8590
Apprch %	8	81.5	10.5	27.1	71.6	1.3	16.5	35.7	47.8	0.5	91.2	8.3	
Total %	0.7	7.1	0.9	11.6	30.6	0.6	2.9	6.2	8.3	0.2	28.4	2.6	
Passenger and 2 Axle Vehicles	58	592	75	947	2533	47	225	518	681	13	2344	198	8231
% Passenger and 2 Axle Vehicles	96.7	97.4	96.2	95.1	96.3	95.9	91.1	97	95.1	100	96.1	89.6	95.8
Buses and Heavy Vehicles	2	16	3	49	96	2	22	16	35	0	95	23	359
% Buses and Heavy Vehicles	3.3	2.6	3.8	4.9	3.7	4.1	8.9	3	4.9	0	3.9	10.4	4.2

Horner & Canter Associates
Transportation and Traffic Engineering

4950 York Rd, Suite 2G, P.O. 301, Holicong, PA 18928-0301
105 Atsion Rd, Suite F, Medford, NJ 08055

NB/SB: Trooper Rd.
EB/WB: Germantown Pike
Worcester Twp./ Montgomery Co./ PA
Tuesday/ AM Clear, PM Rain/ E-14/ GD

File Name : 24-025-001
Site Code : 24025001
Start Date : 8/6/2024
Page No : 2

	Trooper Road Southbound				Germantown Pike Westbound				Trooper Road Northbound				Germantown Pike Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	3	56	4	63	35	115	1	151	17	34	61	112	0	166	17	183	509
08:00 AM	4	38	5	47	44	115	3	162	16	23	47	86	2	147	16	165	460
08:15 AM	10	41	9	60	40	119	0	159	17	25	58	100	0	204	11	215	534
08:30 AM	4	41	2	47	33	156	0	189	10	31	62	103	1	168	26	195	534
Total Volume	21	176	20	217	152	505	4	661	60	113	228	401	3	685	70	758	2037
% App. Total	9.7	81.1	9.2		23	76.4	0.6		15	28.2	56.9		0.4	90.4	9.2		
PHF	.525	.786	.556	.861	.864	.809	.333	.874	.882	.831	.919	.895	.375	.839	.673	.881	.954
Passenger and 2 Axle Vehicles	20	171	19	210	144	462	4	610	49	108	218	375	3	656	60	719	1914
% Passenger and 2 Axle Vehicles	95.2	97.2	95.0	96.8	94.7	91.5	100	92.3	81.7	95.6	95.6	93.5	100	95.8	85.7	94.9	94.0
Buses and Heavy Vehicles	1	5	1	7	8	43	0	51	11	5	10	26	0	29	10	39	123
% Buses and Heavy Vehicles	4.8	2.8	5.0	3.2	5.3	8.5	0	7.7	18.3	4.4	4.4	6.5	0	4.2	14.3	5.1	6.0
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	9	54	7	70	64	202	8	274	14	48	34	96	0	161	13	174	614
04:15 PM	1	28	9	38	83	242	5	330	30	39	25	94	2	162	19	183	645
04:30 PM	2	34	6	42	92	232	10	334	20	40	39	99	3	159	13	175	650
04:45 PM	0	42	1	43	90	260	1	351	20	40	38	98	0	166	14	180	672
Total Volume	12	158	23	193	329	936	24	1289	84	167	136	387	5	648	59	712	2581
% App. Total	6.2	81.9	11.9		25.5	72.6	1.9		21.7	43.2	35.1		0.7	91	8.3		
PHF	.333	.731	.639	.689	.894	.900	.600	.918	.700	.870	.872	.977	.417	.976	.776	.973	.960
Passenger and 2 Axle Vehicles	12	155	23	190	320	922	23	1265	81	165	133	379	5	625	54	684	2518
% Passenger and 2 Axle Vehicles	100	98.1	100	98.4	97.3	98.5	95.8	98.1	96.4	98.8	97.8	97.9	100	96.5	91.5	96.1	97.6
Buses and Heavy Vehicles	0	3	0	3	9	14	1	24	3	2	3	8	0	23	5	28	63
% Buses and Heavy Vehicles	0	1.9	0	1.6	2.7	1.5	4.2	1.9	3.6	1.2	2.2	2.1	0	3.5	8.5	3.9	2.4

Horner & Canter Associates
Transportation and Traffic Engineering

4950 York Rd, Suite 2G, P.O. 301, Holicong, PA 18928-0301
105 Atsion Rd, Suite F, Medford, NJ 08055

NB/SB: Valley Forge Rd./ Park Ave.
EB/WB: Germantown Pike
Worcester Twp./ Montgomery Co./ PA
Tuesday/ Clear/ E-14/ GD

File Name : 24-025-101
Site Code : 24025101
Start Date : 9/10/2024
Page No : 1

Groups Printed- Passenger and 2 Axle Vehicles - Buses and Heavy Vehicles

	Park Ave. Northbound			Germantown Pike Eastbound			Valley Forge Rd. Southbound			Germantown Pike Westbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	47	104	24	36	115	13	18	122	20	21	97	8	625
07:15 AM	16	122	28	31	108	30	14	133	20	37	87	17	643
07:30 AM	8	118	34	37	136	23	15	133	21	43	83	11	662
07:45 AM	12	98	33	23	132	6	24	127	17	21	76	10	579
Total	83	442	119	127	491	72	71	515	78	122	343	46	2509
08:00 AM	13	95	38	22	150	10	19	128	12	21	71	7	586
08:15 AM	10	105	27	13	130	15	23	133	17	40	72	15	600
08:30 AM	12	95	35	48	101	18	25	146	23	46	48	17	614
08:45 AM	11	91	34	32	115	12	16	110	23	43	67	17	571
Total	46	386	134	115	496	55	83	517	75	150	258	56	2371
*** BREAK ***													
04:00 PM	25	102	20	35	79	17	21	120	38	50	135	14	656
04:15 PM	12	138	18	49	111	18	9	117	41	52	137	9	711
04:30 PM	9	111	14	34	109	22	19	101	41	58	134	16	668
04:45 PM	15	148	15	57	90	17	12	133	37	50	132	28	734
Total	61	499	67	175	389	74	61	471	157	210	538	67	2769
05:00 PM	11	130	14	48	89	16	18	131	33	55	124	21	690
05:15 PM	15	108	18	46	118	20	16	104	29	65	160	18	717
05:30 PM	14	140	27	32	89	18	16	119	33	52	128	22	690
05:45 PM	12	113	21	36	109	19	15	96	38	50	117	28	654
Total	52	491	80	162	405	73	65	450	133	222	529	89	2751
Grand Total	242	1818	400	579	1781	274	280	1953	443	704	1668	258	10400
Apprch %	9.8	73.9	16.3	22	67.6	10.4	10.5	73	16.6	26.8	63.4	9.8	
Total %	2.3	17.5	3.8	5.6	17.1	2.6	2.7	18.8	4.3	6.8	16	2.5	
Passenger and 2 Axle Vehicles	227	1723	384	559	1698	247	258	1855	429	680	1594	236	9890
% Passenger and 2 Axle Vehicles	93.8	94.8	96	96.5	95.3	90.1	92.1	95	96.8	96.6	95.6	91.5	95.1
Buses and Heavy Vehicles	15	95	16	20	83	27	22	98	14	24	74	22	510
% Buses and Heavy Vehicles	6.2	5.2	4	3.5	4.7	9.9	7.9	5	3.2	3.4	4.4	8.5	4.9

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105 Atsion Rd, Suite F, Medford, NJ 08055

NB/SB: Valley Forge Rd./ Park Ave.
EB/WB: Germantown Pike
Worcester Twp./ Montgomery Co./ PA
Tuesday/ Clear/ E-14/ GD

File Name : 24-025-101
Site Code : 24025101
Start Date : 9/10/2024
Page No : 2

	Park Ave. Northbound				Germantown Pike Eastbound				Valley Forge Rd. Southbound				Germantown Pike Westbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	47	104	24	175	36	115	13	164	18	122	20	160	21	97	8	126	625
07:15 AM	16	122	28	166	31	108	30	169	14	133	20	167	37	87	17	141	643
07:30 AM	8	118	34	160	37	136	23	196	15	133	21	169	43	83	11	137	662
07:45 AM	12	98	33	143	23	132	6	161	24	127	17	168	21	76	10	107	579
Total Volume	83	442	119	644	127	491	72	690	71	515	78	664	122	343	46	511	2509
% App. Total	12.9	68.6	18.5		18.4	71.2	10.4		10.7	77.6	11.7		23.9	67.1	9		
PHF	.441	.906	.875	.920	.858	.903	.600	.880	.740	.968	.929	.982	.709	.884	.676	.906	.948
Passenger and 2 Axle Vehicles	77	410	115	602	121	454	60	635	61	484	73	618	110	315	37	462	2317
% Passenger and 2 Axle Vehicles	92.8	92.8	96.6	93.5	95.3	92.5	83.3	92.0	85.9	94.0	93.6	93.1	90.2	91.8	80.4	90.4	92.3
Buses and Heavy Vehicles	6	32	4	42	6	37	12	55	10	31	5	46	12	28	9	49	192
% Buses and Heavy Vehicles	7.2	7.2	3.4	6.5	4.7	7.5	16.7	8.0	14.1	6.0	6.4	6.9	9.8	8.2	19.6	9.6	7.7
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	15	148	15	178	57	90	17	164	12	133	37	182	50	132	28	210	734
05:00 PM	11	130	14	155	48	89	16	153	18	131	33	182	55	124	21	200	690
05:15 PM	15	108	18	141	46	118	20	184	16	104	29	149	65	160	18	243	717
05:30 PM	14	140	27	181	32	89	18	139	16	119	33	168	52	128	22	202	690
Total Volume	55	526	74	655	183	386	71	640	62	487	132	681	222	544	89	855	2831
% App. Total	8.4	80.3	11.3		28.6	60.3	11.1		9.1	71.5	19.4		26	63.6	10.4		
PHF	.917	.889	.685	.905	.803	.818	.888	.870	.861	.915	.892	.935	.854	.850	.795	.880	.964
Passenger and 2 Axle Vehicles	54	517	73	644	181	372	67	620	59	471	131	661	214	537	86	837	2762
% Passenger and 2 Axle Vehicles	98.2	98.3	98.6	98.3	98.9	96.4	94.4	96.9	95.2	96.7	99.2	97.1	96.4	98.7	96.6	97.9	97.6
Buses and Heavy Vehicles	1	9	1	11	2	14	4	20	3	16	1	20	8	7	3	18	69
% Buses and Heavy Vehicles	1.8	1.7	1.4	1.7	1.1	3.6	5.6	3.1	4.8	3.3	0.8	2.9	3.6	1.3	3.4	2.1	2.4

Horner & Canter Associates
Transportation and Traffic Engineering

4950 York Rd, Suite 2G, P.O. 301, Hollicong, PA 18928-0301
 105 Atsion Rd, Suite F, Medford, NJ 08055

NB: N. Trooper Rd.
 EB/WB: Woodlyn Rd./ Woodland Rd.
 Worcester Twp./ Montgomery Co./ PA
 Wednesday/ Clear/ E-14/ GD

File Name : 24-025-102
 Site Code : 24025102
 Start Date : 9/11/2024
 Page No : 1

Groups Printed- Passenger and 2 Axle Vehicles - Buses and Heavy Vehicles

Start Time	Woodland Rd. Westbound		N. Trooper Rd. Northbound		Woodlyn Rd. Eastbound		Int. Total
	Left	Thru	Left	Right	Thru	Right	
07:00 AM	5	4	10	2	4	39	64
07:15 AM	4	2	28	2	3	48	87
07:30 AM	5	1	30	4	7	48	95
07:45 AM	6	2	31	3	9	50	101
Total	20	9	99	11	23	185	347
08:00 AM	6	2	25	2	8	51	94
08:15 AM	7	2	25	2	5	48	89
08:30 AM	10	4	25	6	9	56	110
08:45 AM	9	2	33	3	2	56	105
Total	32	10	108	13	24	211	398

*** BREAK ***

04:00 PM	2	8	48	6	4	50	118
04:15 PM	9	3	58	1	5	44	120
04:30 PM	7	8	48	2	11	40	116
04:45 PM	4	10	52	2	8	42	118
Total	22	29	206	11	28	176	472
05:00 PM	4	10	65	5	3	44	131
05:15 PM	5	13	40	2	7	38	105
05:30 PM	8	11	55	0	2	45	121
05:45 PM	5	5	39	6	7	32	94
Total	22	39	199	13	19	159	451
Grand Total	96	87	612	48	94	731	1668
Apprch %	52.5	47.5	92.7	7.3	11.4	88.6	
Total %	5.8	5.2	36.7	2.9	5.6	43.8	
Passenger and 2 Axle Vehicles	92	84	584	43	91	695	1589
% Passenger and 2 Axle Vehicles	95.8	96.6	95.4	89.6	96.8	95.1	95.3
Buses and Heavy Vehicles	4	3	28	5	3	36	79
% Buses and Heavy Vehicles	4.2	3.4	4.6	10.4	3.2	4.9	4.7

Horner & Canter Associates
Transportation and Traffic Engineering

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NB: N. Trooper Rd.
 EB/WB: Woodlyn Rd./ Woodland Rd.
 Worcester Twp./ Montgomery Co./ PA
 Wednesday/ Clear/ E-14/ GD

File Name : 24-025-102
 Site Code : 24025102
 Start Date : 9/11/2024
 Page No : 2

	Woodland Rd. Westbound			N. Tropper Rd. Northbound			Woodlyn Rd. Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	6	2	8	25	2	27	8	51	59	94
08:15 AM	7	2	9	25	2	27	5	48	53	89
08:30 AM	10	4	14	25	6	31	9	56	65	110
08:45 AM	9	2	11	33	3	36	2	56	58	105
Total Volume	32	10	42	108	13	121	24	211	235	398
% App. Total	76.2	23.8		89.3	10.7		10.2	89.8		
PHF	.800	.625	.750	.818	.542	.840	.667	.942	.904	.905
Passenger and 2 Axle Vehicles	31	10	41	99	12	111	23	198	221	373
% Passenger and 2 Axle Vehicles	96.9	100	97.6	91.7	92.3	91.7	95.8	93.8	94.0	93.7
Buses and Heavy Vehicles	1	0	1	9	1	10	1	13	14	25
% Buses and Heavy Vehicles	3.1	0	2.4	8.3	7.7	8.3	4.2	6.2	6.0	6.3

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 04:15 PM

04:15 PM	9	3	12	58	1	59	5	44	49	120
04:30 PM	7	8	15	48	2	50	11	40	51	116
04:45 PM	4	10	14	52	2	54	8	42	50	118
05:00 PM	4	10	14	65	5	70	3	44	47	131
Total Volume	24	31	55	223	10	233	27	170	197	485
% App. Total	43.6	56.4		95.7	4.3		13.7	86.3		
PHF	.667	.775	.917	.858	.500	.832	.614	.966	.966	.926
Passenger and 2 Axle Vehicles	24	29	53	215	8	223	26	167	193	469
% Passenger and 2 Axle Vehicles	100	93.5	96.4	96.4	80.0	95.7	96.3	98.2	98.0	96.7
Buses and Heavy Vehicles	0	2	2	8	2	10	1	3	4	16
% Buses and Heavy Vehicles	0	6.5	3.6	3.6	20.0	4.3	3.7	1.8	2.0	3.3

APPENDIX D

Level of Service Delay Thresholds

Level of Service Criteria

Level of Service at intersections is defined in terms of DELAY. Delay is a measure of driver discomfort, frustration, and lost travel time, thus the rating of delay from highly acceptable LOS A to unacceptable LOS F.

At traffic signals, delay is a complex measure and is dependent on a number of variables including signal progression, the cycle length, the green-time ratio, clearance times, trucks, pedestrians, parking, and signal phasing.

At unsignalized intersections, delay is dependent on the available gaps in the two-way flow of the uninterrupted traffic movement, intersection width, and queuing.

Intersection LOS

	<u>Signalized</u>	<u>Unsignalized</u>
LOS A	Less than 10.0 sec/veh	Less than 10.0 sec/veh
B	10.0 to 20.0 sec/veh	10.0 to 15.0 sec/veh
C	20.0 to 35.0 sec/veh	15.0 to 25.0 sec/veh
D	35.0 to 55.0 sec/veh	25.0 to 35.0 sec/veh
E	55.0 to 80.0 sec/veh	35.0 to 50.0 sec/veh
F	Greater than 80.0 sec/veh	Greater than 50.0 sec/veh

LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

Level of service for signalized intersections is defined in terms of delay. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time.

- **LEVEL-OF-SERVICE A** describes operations with very low delay, i.e., less than 10.0 sec per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
- **LEVEL-OF-SERVICE B** describes operations with delay in the range of 10.0 to 20.0 sec per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
- **LEVEL-OF-SERVICE C** describes operations with delay in the range of 20.0 to 35.0 sec per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
- **LEVEL-OF-SERVICE D** describes operations with delay in the range of 35.0 to 55.0 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
- **LEVEL-OF-SERVICE E** describes operations with delay in the range of 55.0 to 80.0 sec per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.
- **LEVEL-OF-SERVICE F** describes operations with delay in excess of 80.0 sec per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over saturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

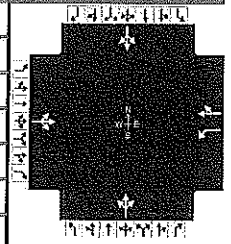
APPENDIX E

Existing Capacity/LOS Analysis Worksheets

HCS Signalized Intersection Results Summary

General Information

Agency	Horner & Canter Assoc			Duration, h	0.250
Analyst	DHH	Analysis Date	Jan 9, 2025	Area Type	Other
Jurisdiction	Worcester Twp	Time Period	AM Peak Hour	PHF	0.95
Urban Street		Analysis Year	Existing 2024	Analysis Period	1> 7:00
Intersection	Germantown Pk/Trooper...	File Name	Germantown Pk_Trooper Rd_ea.xus		
Project Description	24-025 Trooper Ridge Townhouse Devel				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	3	685	70	152	505	4	60	113	228	21	176	20

Signal Information

Cycle, s	90.0	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	Yes	Simult. Gap E/W	On	Green	7.0	38.0	27.0	0.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
				Red	2.0	2.0	2.0	0.0	0.0	0.0	

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8		4
Case Number		8.3	1.0	4.0		8.0		8.0
Phase Duration, s		44.0	13.0	57.0		33.0		33.0
Change Period, (Y+R _c), s		6.0	6.0	6.0		6.0		6.0
Max Allow Headway (MAH), s		2.9	3.0	2.9		3.1		3.1
Queue Clearance Time (g _s), s		35.2	7.8	25.7		23.0		11.0
Green Extension Time (g _e), s		1.1	0.0	2.7		0.6		1.1
Phase Call Probability		1.00	1.00	1.00		1.00		1.00
Max Out Probability		1.00	1.00	0.00		0.62		0.00

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	782			160	536		369			223		
Adjusted Saturation Flow Rate (s), veh/h/ln	2002			1387	1412		1476			1774		
Queue Service Time (g _s), s	3.2			5.3	23.2		11.9			0.0		
Cycle Queue Clearance Time (g _c), s	32.7			5.3	23.2		20.5			8.5		
Green Ratio (g/C)	0.43			0.55	0.58		0.31			0.31		
Capacity (c), veh/h	908			243	816		506			596		
Volume-to-Capacity Ratio (X)	0.862			0.657	0.657		0.730			0.374		
Back of Queue (Q), ft/ln (95 th percentile)	575			80.6	280.3		311.3			163.6		
Back of Queue (Q), veh/ln (95 th percentile)	22.1			3.1	10.5		11.8			6.4		
Queue Storage Ratio (RQ) (95 th percentile)	0.00			0.00	0.00		0.00			0.00		
Uniform Delay (d ₁), s/veh	23.7			19.1	12.9		28.2			24.3		
Incremental Delay (d ₂), s/veh	8.1			5.1	1.5		4.7			0.1		
Initial Queue Delay (d ₃), s/veh	0.0			0.0	0.0		0.0			0.0		
Control Delay (d), s/veh	31.8			24.2	14.5		32.9			24.4		
Level of Service (LOS)	C			C	B		C			C		
Approach Delay, s/veh / LOS	31.8	C		16.7	B		32.9	C		24.4	C	
Intersection Delay, s/veh / LOS	26.1						C					

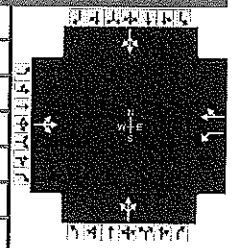
Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.75	B		1.66	B		1.92	B		1.72	B	
Bicycle LOS Score / LOS	1.78	B		1.64	B		1.10	A		0.86	A	

HCS Signalized Intersection Results Summary

General Information

Agency	Horner & Canter Assoc			Duration, h	0.250
Analyst	DHH	Analysis Date	Jan 9, 2025	Area Type	Other
Jurisdiction	Worcester Twp	Time Period	PM Peak Hour	PHF	0.96
Urban Street		Analysis Year	Existing 2024	Analysis Period	1> 7:00
Intersection	Germantown Pk/Trooper...	File Name	Germantown Pk_Trooper Rd_ep.xus		
Project Description	24-025 Trooper Ridge Townhouse Devel				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	5	648	59	329	936	24	84	167	136	12	158	23

Signal Information

Cycle, s	90.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	10.0	36.0	26.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0		
				Red	2.0	2.0	2.0	0.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8		4
Case Number		8.3	1.0	4.0		8.0		8.0
Phase Duration, s		42.0	16.0	58.0		32.0		32.0
Change Period, (Y+R _c), s		6.0	6.0	6.0		6.0		6.0
Max Allow Headway (MAH), s		2.9	3.0	2.9		3.1		3.1
Queue Clearance Time (g _s), s		39.5	13.5	55.5		22.2		10.0
Green Extension Time (g _e), s		0.0	0.0	0.0		0.5		1.0
Phase Call Probability		1.00	1.00	1.00		1.00		1.00
Max Out Probability		1.00	1.00	1.00		0.69		0.00

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	726			343	995		372			196		
Adjusted Saturation Flow Rate (s), veh/h/ln	1413			1414	1493		1548			1825		
Queue Service Time (g _s), s	0.0			11.0	53.0		12.3			0.0		
Cycle Queue Clearance Time (g _c), s	37.0			11.0	53.0		19.7			7.5		
Green Ratio (g/C)	0.41			0.56	0.59		0.30			0.30		
Capacity (c), veh/h	621			253	879		514			590		
Volume-to-Capacity Ratio (X)	1.168			1.356	1.131		0.724			0.332		
Back of Queue (Q), ft/ln (95 th percentile)	1025.4			618.3	1162.9		301.2			142.4		
Back of Queue (Q), veh/ln (95 th percentile)	39.7			24.2	45.8		11.9			5.6		
Queue Storage Ratio (RQ) (95 th percentile)	0.00			0.00	0.00		0.00			0.00		
Uniform Delay (d ₁), s/veh	27.8			25.3	18.5		28.8			24.7		
Incremental Delay (d ₂), s/veh	92.3			183.7	73.3		4.4			0.1		
Initial Queue Delay (d ₃), s/veh	0.0			0.0	0.0		0.0			0.0		
Control Delay (d), s/veh	120.1			208.9	91.8		33.1			24.8		
Level of Service (LOS)	F			F	F		C			C		
Approach Delay, s/veh / LOS	120.1	F		121.8	F		33.1	C		24.8	C	
Intersection Delay, s/veh / LOS	101.6						F					

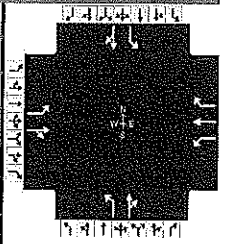
Multimodal Results

	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.73	B	1.66	B	1.93	B	1.72	B
Bicycle LOS Score / LOS	1.69	B	2.69	C	1.10	A	0.81	A

HCS Signalized Intersection Results Summary

General Information

Agency	Horner & Canter Assoc			Duration, h	0.250
Analyst	DHH	Analysis Date	Jan 9, 2025	Area Type	Other
Jurisdiction	Worcester Twp	Time Period	AM Peak Hour	PHF	0.95
Urban Street		Analysis Year	Existing 2024	Analysis Period	1> 7:00
Intersection	Germantown Pk/N Park/...	File Name	Germantown Pk_N Park Rd_Valley Forge Rd_ea...		
Project Description	24-025 Trooper Ridge Townhouse Devel				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	127	491	72	122	343	46	83	442	119	71	515	78

Signal Information

Cycle, s	122.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	9.0	39.0	7.0	43.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	4.0	0.0	0.0		
				Red	2.0	2.0	2.0	2.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	3.0	1.1	4.0	1.1	4.0
Phase Duration, s	15.0	45.0	15.0	45.0	13.0	49.0	13.0	49.0
Change Period, (Y+R _c), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.0	3.0	3.1	3.0
Queue Clearance Time (g _s), s	8.7	42.5	8.7	24.2	6.6	44.4	6.0	45.3
Green Extension Time (g _e), s	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	0.02	1.00	1.00	1.00	1.00

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	134	577		128	361	38	87	564		75	608	
Adjusted Saturation Flow Rate (s), veh/h/ln	1682	1745		1614	1724	1369	1573	1615		1560	1718	
Queue Service Time (g _s), s	6.2	40.0		6.2	21.7	2.3	4.1	41.9		3.5	42.8	
Cycle Queue Clearance Time (g _c), s	6.2	40.0		6.2	21.7	2.3	4.1	41.9		3.5	42.8	
Green Ratio (g/C)	0.41	0.33		0.41	0.33	0.33	0.43	0.36		0.43	0.36	
Capacity (c), veh/h	320	572		191	565	449	162	582		161	620	
Volume-to-Capacity Ratio (X)	0.418	1.008		0.671	0.639	0.084	0.539	0.969		0.463	0.982	
Back of Queue (Q), ft/ln (95 th percentile)	115.7	833.2		132.8	379.4	40.2	73.7	729.6		65.6	804.8	
Back of Queue (Q), veh/ln (95 th percentile)	4.4	31.1		4.9	14.3	1.4	2.8	27.8		2.4	30.7	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	26.1	41.0		29.6	35.2	28.3	29.2	38.3		29.0	38.6	
Incremental Delay (d ₂), s/veh	0.3	39.7		7.2	1.9	0.0	1.9	29.3		0.8	31.4	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	26.4	80.7		36.9	37.1	28.4	31.1	67.7		29.8	70.0	
Level of Service (LOS)	C	F		D	D	C	C	E		C	E	
Approach Delay, s/veh / LOS	70.5	E		36.4	D		62.8	E		65.6	E	
Intersection Delay, s/veh / LOS	60.2						E					

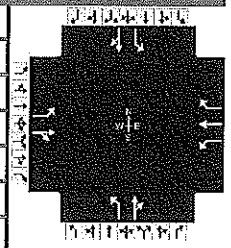
Multimodal Results

	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.97	B	1.95	B	2.13	B	1.95	B
Bicycle LOS Score / LOS	1.66	B	1.36	A	1.56	B	1.61	B

HCS Signalized Intersection Results Summary

General Information

Agency	Horner & Canter Assoc			Duration, h	0.250
Analyst	DHH	Analysis Date	Jan 9, 2025	Area Type	Other
Jurisdiction	Worcester Twp	Time Period	PM Peak Hour	PHF	0.96
Urban Street		Analysis Year	Existing 2024	Analysis Period	1> 7:00
Intersection	Germantown Pk/N Park/...	File Name	Germantown Pk_N Park Rd_Valley Forge Rd_ep....		
Project Description	24-025 Trooper Ridge Townhouse Devel				



Demand Information

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	183	386	71	222	544	89	55	526	74	62	487	132

Signal Information

Cycle, s	127.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	12.0	2.0	37.0	7.0	45.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	0.0	4.0	4.0	4.0	0.0		
				Red	2.0	0.0	2.0	2.0	2.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	3.0	1.1	4.0	1.1	4.0
Phase Duration, s	18.0	43.0	20.0	45.0	13.0	51.0	13.0	51.0
Change Period, (Y+R _c), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.0	3.0	3.1	3.0
Queue Clearance Time (g _s), s	11.9	32.9	14.2	41.7	5.1	48.1	5.4	47.3
Green Extension Time (g _e), s	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	0.72	1.00	1.00	1.00	1.00	1.00	1.00

Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	191	460		231	567	77	57	609		65	619	
Adjusted Saturation Flow Rate (s), veh/h/ln	1736	1810		1696	1823	1582	1640	1691		1682	1738	
Queue Service Time (g _s), s	9.4	30.4		11.7	39.2	4.5	2.6	45.6		2.9	44.8	
Cycle Queue Clearance Time (g _c), s	9.4	30.4		11.7	39.2	4.5	2.6	45.6		2.9	44.8	
Green Ratio (g/C)	0.40	0.30		0.42	0.31	0.31	0.43	0.36		0.43	0.36	
Capacity (c), veh/h	234	542		313	574	498	160	612		163	630	
Volume-to-Capacity Ratio (X)	0.813	0.850		0.738	0.987	0.155	0.358	0.995		0.397	0.983	
Back of Queue (Q), ft/ln (95 th percentile)	218.9	553.7		235.4	769.7	78.9	46.2	813.5		55	822.8	
Back of Queue (Q), veh/ln (95 th percentile)	8.7	21.5		9.1	30.5	3.1	1.8	32.0		2.1	32.1	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh	31.4	41.8		29.7	43.5	31.3	30.1	40.4		30.1	40.1	
Incremental Delay (d ₂), s/veh	18.1	11.6		7.9	34.0	0.1	0.5	35.0		0.6	31.3	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	49.4	53.5		37.6	77.5	31.4	30.6	75.4		30.7	71.4	
Level of Service (LOS)	D	D		D	E	C	C	E		C	E	
Approach Delay, s/veh / LOS	52.3	D		62.9	E		71.5	E		67.6	E	
Intersection Delay, s/veh / LOS	63.6						E					

Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.96	B		1.97	B		2.14	B		1.95	B	
Bicycle LOS Score / LOS	1.56	B		1.93	B		1.59	B		1.62	B	

HCS Two-Way Stop-Control Report

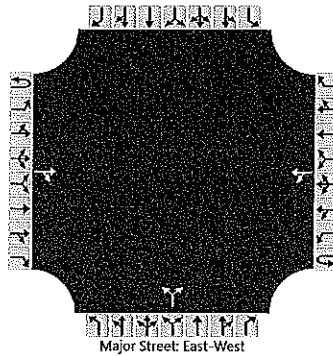
General Information

Analyst	DHH
Agency/Co.	Homer & Canter Assoc
Date Performed	1/9/2025
Analysis Year	2024
Time Analyzed	AM Peak Hour
Intersection Orientation	East-West
Project Description	24-025 Trooper Ridge Townhouse Devel

Site Information

Intersection	Trooper Rd/Woodlyn Rd/Woodland Ave
Jurisdiction	Worcester Twp
East/West Street	Woodlyn Rd/Woodland Ave
North/South Street	Trooper Road
Peak Hour Factor	0.91
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			24	211		32	10			108		13				
Percent Heavy Vehicles (%)						3				8		8				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.3				7.1		6.2				
Critical Headway (sec)						4.33				6.48		6.28				
Base Follow-Up Headway (sec)						3.0				3.0		3.1				
Follow-Up Headway (sec)						3.03				3.07		3.17				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						35					133					
Capacity, c (veh/h)						970					840					
v/c Ratio						0.04					0.16					
95% Queue Length, Q ₉₅ (veh)						0.1					0.6					
Control Delay (s/veh)						8.9	0.3				10.1					
Level of Service (LOS)						A	A				B					
Approach Delay (s/veh)					6.8				10.1							
Approach LOS					A				B							

HCS Two-Way Stop Control Report

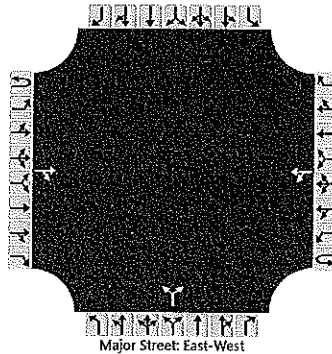
General Information

Analyst	DHH
Agency/Co.	Horne & Canter Assoc
Date Performed	1/9/2025
Analysis Year	2024
Time Analyzed	PM Peak Hour
Intersection Orientation	East-West
Project Description	24-025 Trooper Ridge Townhouse Devel

Site Information

Intersection	Trooper Rd/Woodlyn Rd/Woodland Ave
Jurisdiction	Worcester Twp
East/West Street	Woodlyn Rd/Woodland Ave
North/South Street	Trooper Road
Peak Hour Factor	0.93
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			27	170		24	31			223		10				
Percent Heavy Vehicles (%)						0				4		20				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.3				7.1		6.2				
Critical Headway (sec)						4.30				6.44		6.40				
Base Follow-Up Headway (sec)						3.0				3.0		3.1				
Follow-Up Headway (sec)						3.00				3.04		3.28				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						26					251					
Capacity, c (veh/h)						1016					874					
v/c Ratio						0.03					0.29					
95% Queue Length, Q ₉₅ (veh)						0.1					1.2					
Control Delay (s/veh)						8.6	0.2				10.8					
Level of Service (LOS)						A	A				B					
Approach Delay (s/veh)					3.9				10.8							
Approach LOS					A				B							

APPENDIX F

Trip Generation Worksheets

Single-Family Attached Housing (215)

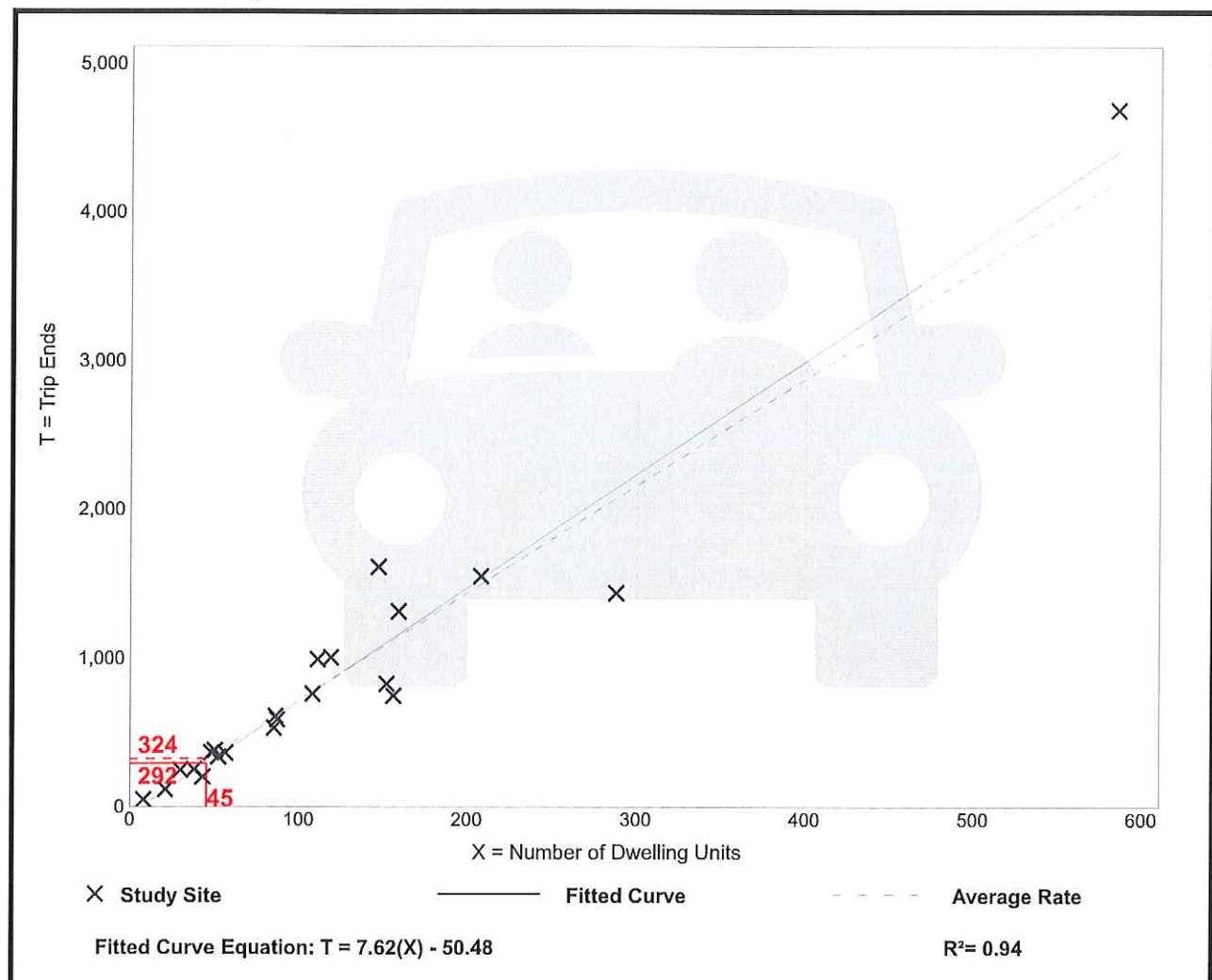
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 22
Avg. Num. of Dwelling Units: 120
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
7.20	4.70 - 10.97	1.61

Data Plot and Equation



Single-Family Attached Housing (215)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 46

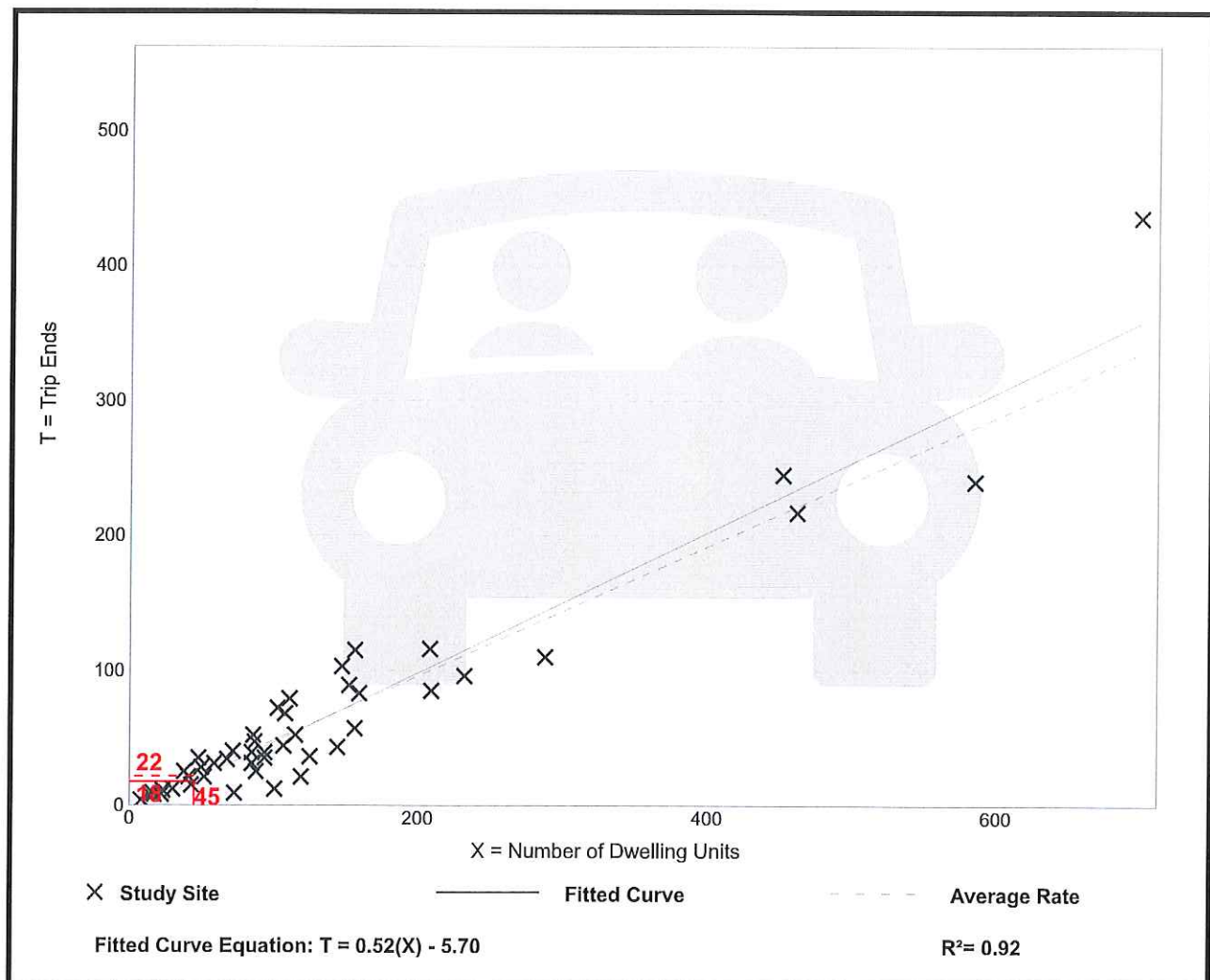
Avg. Num. of Dwelling Units: 135

Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.48	0.12 - 0.74	0.14

Data Plot and Equation



Single-Family Attached Housing (215)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 51

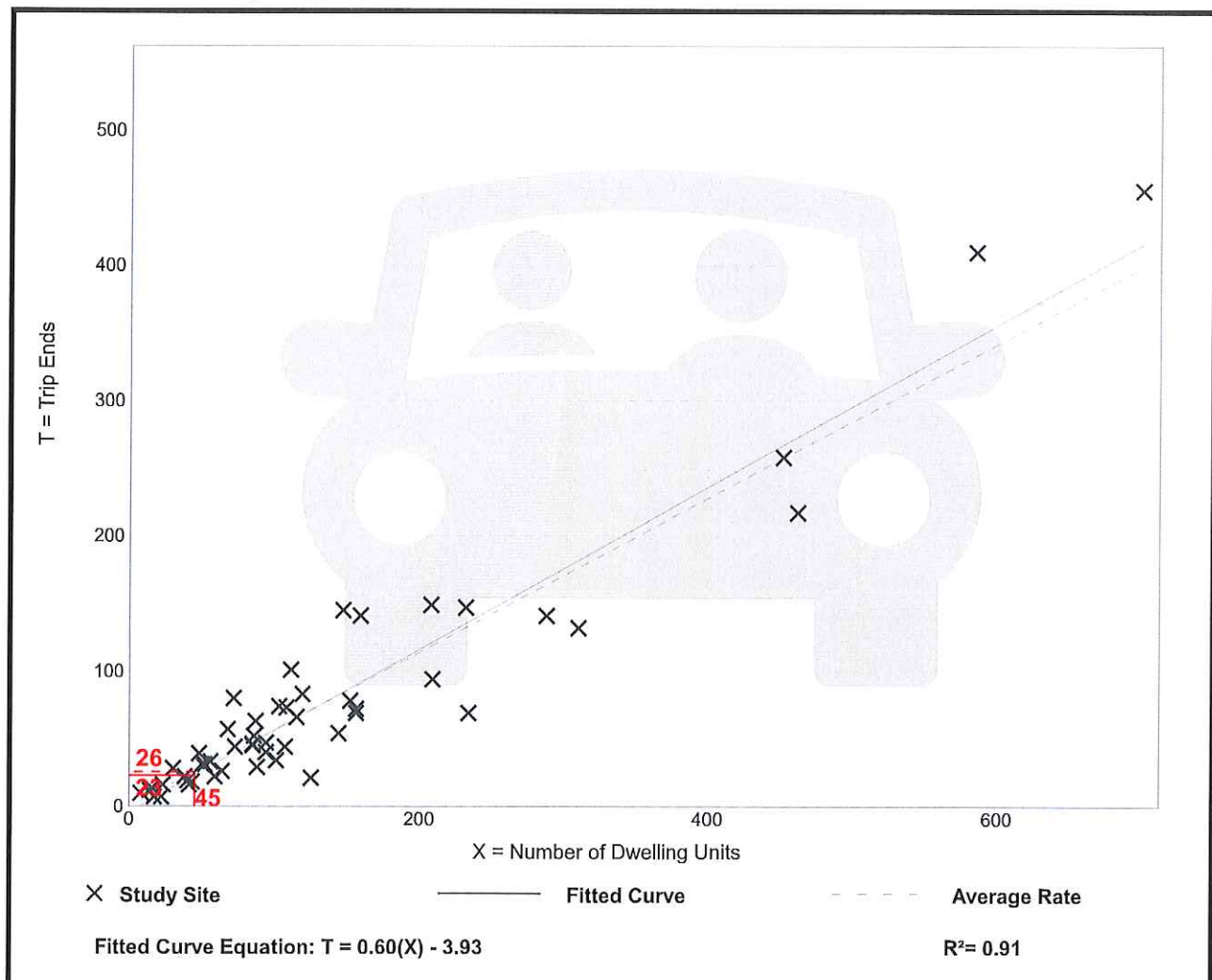
Avg. Num. of Dwelling Units: 136

Directional Distribution: 59% entering, 41% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.57	0.17 - 1.25	0.18

Data Plot and Equation



APPENDIX G

Other Development Trip Distribution

January 27, 2022
(Last Revised April 3, 2023)
TPD# BETI.00009



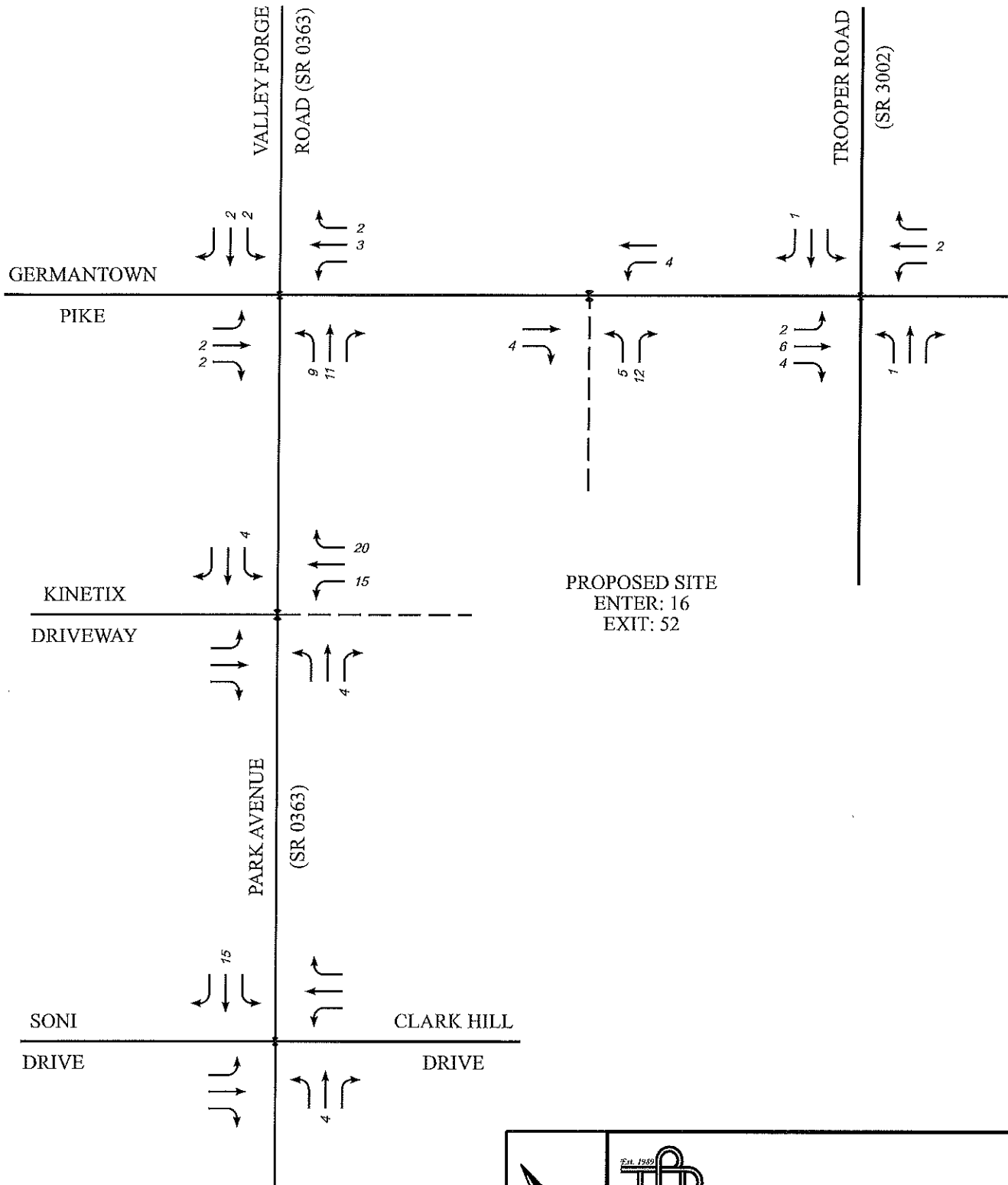
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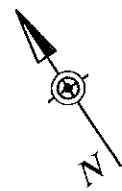
City View Apartment Development
Transportation Impact Assessment
Worcester Township, Montgomery County


For Submission To:
PennDOT 6-0, Worcester Township, Montgomery County

DATE: 11/11/11
BY: J. L. BROWN
PROJECT: FAIRVIEW VILLAGE APARTMENTS



KEY:
----- PROPOSED DRIVEWAY
SCHEMATIC DRAWING: NOT TO SCALE



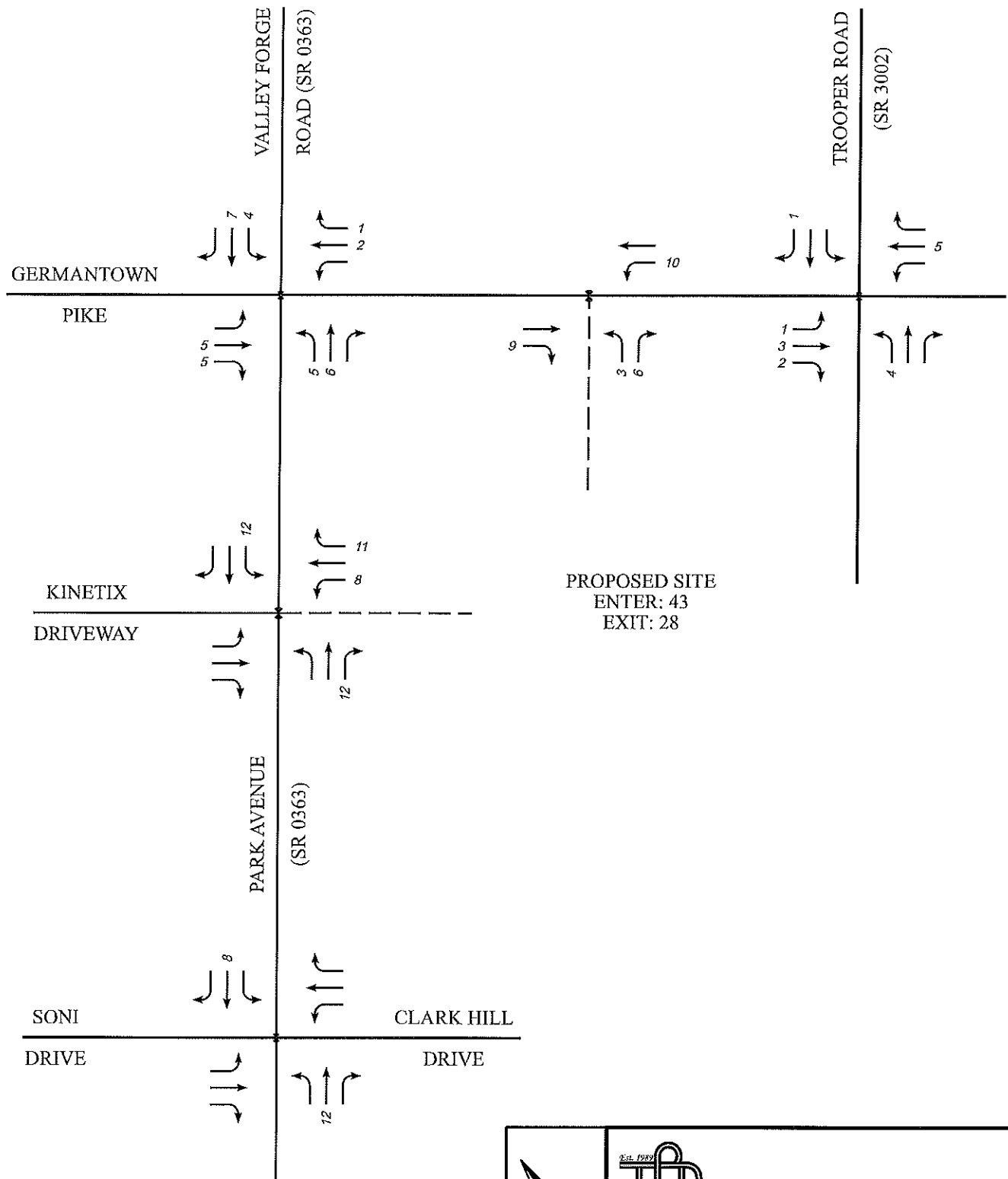


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FIGURE 7

FAIRVIEW VILLAGE APARTMENTS
WEEKDAY A.M. PEAK HOUR
TRIP DISTRIBUTIONS

AS LIES
SHOWN
AT THE
SUSTAIN
SUPPORT



KEY:
----- PROPOSED DRIVEWAY
SCHEMATIC DRAWING: NOT TO SCALE



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FIGURE 8

FAIRVIEW VILLAGE APARTMENTS
WEEKDAY P.M. PEAK HOUR
TRIP DISTRIBUTIONS

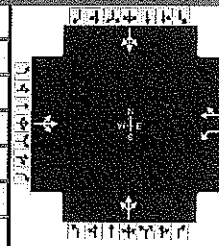
APPENDIX H

No-Build Capacity/LOS Analysis Worksheets

HCS Signalized Intersection Results Summary

General Information

Agency	Horner & Canter Assoc			Duration, h	0.250
Analyst	DHH	Analysis Date	Jan 9, 2025	Area Type	Other
Jurisdiction	Worcester Twp	Time Period	AM Peak Hour	PHF	0.95
Urban Street		Analysis Year	2029 No-Build	Analysis Period	1> 7:00
Intersection	Germantown Pk/Trooper...	File Name	Germantown Pk_Trooper Rd_na.xus		
Project Description	24-025 Trooper Ridge Townhouse Devel				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	5	698	75	154	512	4	62	114	230	21	178	21

Signal Information

Cycle, s	90.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	7.0	38.0	27.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0		
				Red	2.0	2.0	2.0	0.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8		4
Case Number		8.3	1.0	4.0		8.0		8.0
Phase Duration, s		44.0	13.0	57.0		33.0		33.0
Change Period, (Y+R _c), s		6.0	6.0	6.0		6.0		6.0
Max Allow Headway (MAH), s		2.9	3.0	2.9		3.2		3.2
Queue Clearance Time (g _s), s		36.7	7.9	26.2		23.4		11.2
Green Extension Time (g _e), s		0.6	0.0	2.7		0.6		1.1
Phase Call Probability		1.00	1.00	1.00		1.00		1.00
Max Out Probability		1.00	1.00	0.00		0.78		0.00

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h		803		162	543			375			226	
Adjusted Saturation Flow Rate (s), veh/h/ln		1998		1387	1412			1475			1770	
Queue Service Time (g _s), s		6.9		5.4	23.7			12.2			0.0	
Cycle Queue Clearance Time (g _c), s		34.2		5.4	23.7			20.9			8.7	
Green Ratio (g/C)		0.43		0.55	0.58			0.31			0.31	
Capacity (c), veh/h		906		233	816			506			595	
Volume-to-Capacity Ratio (X)		0.886		0.696	0.666			0.741			0.381	
Back of Queue (Q), ft/ln (95 th percentile)		610.3		87.9	285.3			317			166	
Back of Queue (Q), veh/ln (95 th percentile)		23.5		3.4	10.7			12.0			6.5	
Queue Storage Ratio (RQ) (95 th percentile)		0.00		0.00	0.00			0.00			0.00	
Uniform Delay (d ₁), s/veh		24.1		19.5	13.0			28.4			24.3	
Incremental Delay (d ₂), s/veh		10.2		7.4	1.7			5.1			0.1	
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0			0.0			0.0	
Control Delay (d), s/veh		34.3		26.9	14.7			33.5			24.5	
Level of Service (LOS)		C		C	B			C			C	
Approach Delay, s/veh / LOS	34.3	C		17.5	B		33.5	C		24.5	C	
Intersection Delay, s/veh / LOS	27.5						C					

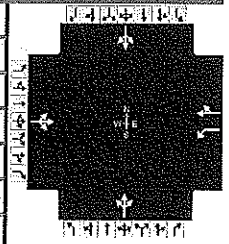
Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.75	B		1.66	B		1.92	B		1.72	B	
Bicycle LOS Score / LOS	1.81	B		1.65	B		1.11	A		0.86	A	

HCS Signalized Intersection Results Summary

General Information

Agency	Horner & Canter Assoc			Duration, h
Analyst	DHH	Analysis Date	Jan 9, 2025	Area Type
Jurisdiction	Worcester Twp	Time Period	PM Peak Hour	PHF
Urban Street		Analysis Year	2029 No-Build	Analysis Period
Intersection	Germantown Pk/Trooper...	File Name	Germantown Pk_Trooper Rd_np.xus	
Project Description	24-025 Trooper Ridge Townhouse Devel			



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	6	658	62	332	951	24	89	169	137	12	160	24

Signal Information

Cycle, s	90.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	10.0	36.0	26.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0		
				Red	2.0	2.0	2.0	0.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8		4
Case Number		8.3	1.0	4.0		8.0		8.0
Phase Duration, s		42.0	16.0	58.0		32.0		32.0
Change Period, (Y+R), s		6.0	6.0	6.0		6.0		6.0
Max Allow Headway (MAH), s		3.0	3.0	3.0		3.1		3.1
Queue Clearance Time (g _s), s		39.5	13.5	55.5		22.9		10.1
Green Extension Time (g _e), s		0.0	0.0	0.0		0.5		1.0
Phase Call Probability		1.00	1.00	1.00		1.00		1.00
Max Out Probability		1.00	1.00	1.00		1.00		0.00

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h		741		346	1010			380			199	
Adjusted Saturation Flow Rate (s), veh/h/ln		1368		1414	1493			1543			1825	
Queue Service Time (g _s), s		0.0		11.0	53.0			12.8			0.0	
Cycle Queue Clearance Time (g _c), s		37.0		11.0	53.0			20.4			7.6	
Green Ratio (g/C)		0.41		0.56	0.59			0.30			0.30	
Capacity (c), veh/h		603		253	879			513			590	
Volume-to-Capacity Ratio (X)		1.228		1.368	1.149			0.742			0.337	
Back of Queue (Q), ft/ln (95 th percentile)		1169.4		632.6	1231.7			311.3			145	
Back of Queue (Q), veh/ln (95 th percentile)		45.3		24.7	48.5			12.3			5.7	
Queue Storage Ratio (RQ) (95 th percentile)		0.00		0.00	0.00			0.00			0.00	
Uniform Delay (d ₁), s/veh		28.1		25.3	18.5			29.0			24.7	
Incremental Delay (d ₂), s/veh		116.9		188.8	80.3			5.1			0.1	
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0			0.0			0.0	
Control Delay (d), s/veh		145.0		214.1	98.8			34.1			24.8	
Level of Service (LOS)		F		F	F			C			C	
Approach Delay, s/veh / LOS	145.0	F		128.2	F		34.1	C		24.8	C	
Intersection Delay, s/veh / LOS	111.8						F					

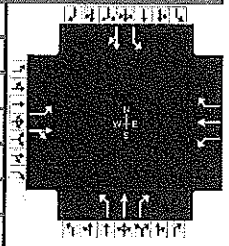
Multimodal Results

	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.73	B	1.66	B	1.93	B	1.72	B
Bicycle LOS Score / LOS	1.71	B	2.73	C	1.11	A	0.82	A

HCS Signalized Intersection Results Summary

General Information

Agency	Horner & Canter Assoc			Duration, h	0.250
Analyst	DHH	Analysis Date	Jan 9, 2025	Area Type	Other
Jurisdiction	Worcester Twp	Time Period	AM Peak Hour	PHF	0.95
Urban Street		Analysis Year	2029 No-Build	Analysis Period	1> 7:00
Intersection	Germantown Pk/N Park/...	File Name	Germantown Pk_N Park Rd_Valley Forge Rd_na...		
Project Description	24-025 Trooper Ridge Townhouse Devel				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	128	498	75	123	350	48	93	458	120	74	522	79

Signal Information

Cycle, s	126.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	7.0	45.0	7.0	43.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	4.0	0.0	0.0		
				Red	2.0	2.0	2.0	2.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	3.0	1.1	3.0	1.1	4.0
Phase Duration, s	13.0	51.0	13.0	51.0	13.0	49.0	13.0	49.0
Change Period, (Y+R _c), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.0	3.0	3.1	3.0
Queue Clearance Time (g _s), s	8.8	43.1	8.8	24.3	7.4	36.3	6.4	46.5
Green Extension Time (g _e), s	0.0	0.6	0.0	2.0	0.0	1.7	0.0	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	1.00	1.00	0.00	1.00	0.35	1.00	1.00

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	135	587		129	368	40	98	482	95	78	617	
Adjusted Saturation Flow Rate (s), veh/h/ln	1682	1744		1614	1724	1369	1573	1652	1447	1560	1718	
Queue Service Time (g _s), s	6.3	40.6		6.3	21.8	2.4	4.9	33.8	5.7	3.9	44.0	
Cycle Queue Clearance Time (g _c), s	6.3	40.6		6.3	21.8	2.4	4.9	33.8	5.7	3.9	44.0	
Green Ratio (g/C)	0.43	0.37		0.43	0.37	0.37	0.41	0.35	0.35	0.41	0.35	
Capacity (c), veh/h	330	637		171	629	500	157	577	505	201	600	
Volume-to-Capacity Ratio (X)	0.408	0.923		0.755	0.586	0.080	0.624	0.836	0.187	0.387	1.028	
Back of Queue (Q), ft/ln (95 th percentile)	116.5	740.1		151.2	374.4	41.2	95.7	552.6	90.2	72.5	901.5	
Back of Queue (Q), veh/ln (95 th percentile)	4.5	27.6		5.6	14.1	1.4	3.6	20.9	3.5	2.6	34.4	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d ₁), s/veh	25.3	38.3		30.7	32.7	26.2	30.9	38.1	28.6	29.0	41.0	
Incremental Delay (d ₂), s/veh	0.3	18.8		15.6	1.0	0.0	5.6	9.8	0.1	0.5	44.1	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	25.6	57.1		46.3	33.6	26.2	36.5	47.9	28.6	29.4	85.1	
Level of Service (LOS)	C	E		D	C	C	D	D	C	C	F	
Approach Delay, s/veh / LOS	51.2	D		36.1	D		43.6	D		78.9	E	
Intersection Delay, s/veh / LOS	53.5						D					

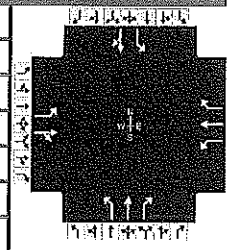
Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.16	B		1.95	B		2.14	B		1.95	B	
Bicycle LOS Score / LOS	1.68	B		1.38	A		1.60	B		1.63	B	

HCS Signalized Intersection Results Summary

General Information

Agency	Horner & Canter Assoc			Duration, h	0.250
Analyst	DHH	Analysis Date	Jan 9, 2025	Area Type	Other
Jurisdiction	Worcester Twp	Time Period	PM Peak Hour	PHF	0.96
Urban Street		Analysis Year	2029 No-Build	Analysis Period	1> 7:00
Intersection	Germantown Pk/N Park/...	File Name	Germantown Pk_N Park Rd_Valley Forge Rd_np....		
Project Description	24-025 Trooper Ridge Townhouse Devel				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	185	395	77	224	552	91	61	538	75	67	499	133

Signal Information

Cycle, s	127.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	11.0	2.0	39.0	7.0	44.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	0.0	4.0	4.0	4.0	0.0		
				Red	2.0	0.0	2.0	2.0	2.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	3.0	1.1	3.0	1.1	4.0
Phase Duration, s	17.0	45.0	19.0	47.0	13.0	50.0	13.0	50.0
Change Period, (Y+R _c), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.0	3.0	3.1	3.0
Queue Clearance Time (g _s), s	12.2	33.6	14.1	41.7	5.5	42.1	5.7	47.5
Green Extension Time (g _e), s	0.0	1.5	0.0	0.0	0.0	0.8	0.0	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	0.50	1.00	1.00	1.00	1.00	1.00	1.00

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	193	476		233	575	79	64	560	57	70	632	
Adjusted Saturation Flow Rate (s), veh/h/ln	1736	1807		1696	1823	1582	1640	1722	1471	1682	1739	
Queue Service Time (g _s), s	9.7	31.1		11.6	39.2	4.5	3.0	39.6	3.3	3.2	45.0	
Cycle Queue Clearance Time (g _c), s	9.7	31.1		11.6	39.2	4.5	3.0	39.6	3.3	3.2	45.0	
Green Ratio (g/C)	0.41	0.31		0.43	0.33	0.33	0.42	0.35	0.35	0.42	0.35	
Capacity (c), veh/h	221	569		308	603	523	160	610	521	176	616	
Volume-to-Capacity Ratio (X)	0.873	0.836		0.757	0.954	0.151	0.397	0.919	0.110	0.398	1.026	
Back of Queue (Q), ft/ln (95 th percentile)	238.3	556.5		238.4	732.5	79	52.4	668.1	52.2	60.5	900	
Back of Queue (Q), veh/ln (95 th percentile)	9.5	21.6		9.2	29.1	3.1	2.1	26.3	2.1	2.3	35.2	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d ₁), s/veh	33.0	40.5		29.4	42.0	29.9	30.4	39.7	27.5	30.3	41.0	
Incremental Delay (d ₂), s/veh	28.6	9.9		9.3	25.4	0.0	0.6	18.7	0.0	0.5	43.1	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	61.6	50.4		38.7	67.4	30.0	31.0	58.5	27.6	30.8	84.1	
Level of Service (LOS)	E	D		D	E	C	C	E	C	C	F	
Approach Delay, s/veh / LOS	53.6	D		56.5	E		53.3	D		78.8	E	
Intersection Delay, s/veh / LOS	60.4						E					

Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.15	B		1.97	B		2.14	B		1.95	B	
Bicycle LOS Score / LOS	1.59	B		1.95	B		1.61	B		1.65	B	

HCS Two-Way Stop-Control Report

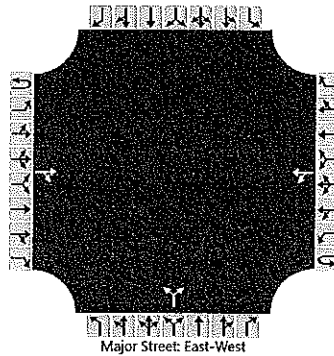
General Information

Analyst	DHH
Agency/Co.	Horner & Canter Assoc
Date Performed	1/9/2025
Analysis Year	2029
Time Analyzed	AM Peak Hour - No-Build
Intersection Orientation	East-West
Project Description	24-025 Trooper Ridge Townhouse Devel

Site Information

Intersection	Trooper Rd/Woodlyn Rd/Woodland Ave
Jurisdiction	Worcester Twp
East/West Street	Woodlyn Rd/Woodland Ave
North/South Street	Trooper Road
Peak Hour Factor	0.91
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			24	214		32	10			111		13				
Percent Heavy Vehicles (%)						3				8		8				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.3				7.1		6.2				
Critical Headway (sec)						4.33				6.48		6.28				
Base Follow-Up Headway (sec)						3.0				3.0		3.1				
Follow-Up Headway (sec)						3.03				3.07		3.17				

Delay, Queue Length, and Level of Service

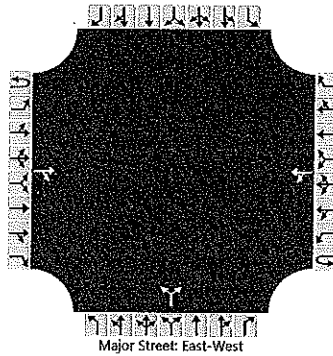
Flow Rate, v (veh/h)						35					136					
Capacity, c (veh/h)						967					838					
v/c Ratio						0.04					0.16					
95% Queue Length, Q ₉₅ (veh)						0.1					0.6					
Control Delay (s/veh)						8.9	0.3				10.1					
Level of Service (LOS)						A	A				B					
Approach Delay (s/veh)					6.8				10.1							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

General Information

Analyst	DHH	Intersection	Trooper Rd/Woodlyn Rd/Woodland Ave
Agency/Co.	Horner & Canter Assoc	Jurisdiction	Worcester Twp
Date Performed	1/9/2025	East/West Street	Woodlyn Rd/Woodland Ave
Analysis Year	2029	North/South Street	Trooper Road
Time Analyzed	PM Peak Hour - No-Build	Peak Hour Factor	0.93
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	24-025 Trooper Ridge Townhouse Devel		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			27	173		24	31			226		10				
Percent Heavy Vehicles (%)						0				4		20				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.3				7.1		6.2				
Critical Headway (sec)						4.30				6.44		6.40				
Base Follow-Up Headway (sec)						3.0				3.0		3.1				
Follow-Up Headway (sec)						3.00				3.04		3.28				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						26					254					
Capacity, c (veh/h)						1014					872					
v/c Ratio						0.03					0.29					
95% Queue Length, Q ₉₅ (veh)						0.1					1.2					
Control Delay (s/veh)						8.6	0.2				10.8					
Level of Service (LOS)						A	A				B					
Approach Delay (s/veh)					3.9				10.8							
Approach LOS					A				B							

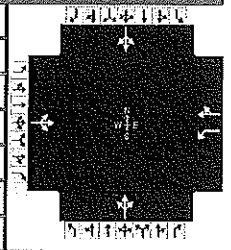
APPENDIX I

Build Capacity/LOS Analysis Worksheets

HCS Signalized Intersection Results Summary

General Information

Agency	Horner & Canter Assoc			Duration, h	0.250
Analyst	DHH	Analysis Date	Jan 9, 2025	Area Type	Other
Jurisdiction	Worcester Twp	Time Period	AM Peak Hour	PHF	0.95
Urban Street		Analysis Year	2029 Build	Analysis Period	1> 7:00
Intersection	Germantown Pk/Trooper...	File Name	Germantown Pk_Trooper Rd_ba.xus		
Project Description	24-025 Trooper Ridge Townhouse Devel				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	8	698	75	154	512	5	62	115	230	24	180	31

Signal Information

Cycle, s	90.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	7.0	38.0	27.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0		
				Red	2.0	2.0	2.0	0.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8		4
Case Number		8.3	1.0	4.0		8.0		8.0
Phase Duration, s		44.0	13.0	57.0		33.0		33.0
Change Period, (Y+R _c), s		6.0	6.0	6.0		6.0		6.0
Max Allow Headway (MAH), s		3.0	3.0	3.0		3.2		3.2
Queue Clearance Time (g _s), s		37.1	7.9	26.3		23.4		11.9
Green Extension Time (g _e), s		0.4	0.0	2.8		0.6		1.2
Phase Call Probability		1.00	1.00	1.00		1.00		1.00
Max Out Probability		1.00	1.00	0.00		0.81		0.00

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h		806		162	544			376			242	
Adjusted Saturation Flow Rate (s), veh/h/ln		1995		1387	1412			1476			1745	
Queue Service Time (g _s), s		9.5		5.4	23.8			11.5			0.0	
Cycle Queue Clearance Time (g _c), s		34.6		5.4	23.8			20.9			9.4	
Green Ratio (g/C)		0.43		0.55	0.58			0.31			0.31	
Capacity (c), veh/h		905		231	816			506			587	
Volume-to-Capacity Ratio (X)		0.891		0.702	0.667			0.742			0.412	
Back of Queue (Q), ft/ln (95 th percentile)		617.8		89.1	286.5			318			180.1	
Back of Queue (Q), veh/ln (95 th percentile)		23.8		3.4	10.8			12.0			7.0	
Queue Storage Ratio (RQ) (95 th percentile)		0.00		0.00	0.00			0.00			0.00	
Uniform Delay (d ₁), s/veh		24.2		19.5	13.1			28.4			24.6	
Incremental Delay (d ₂), s/veh		10.7		7.8	1.7			5.2			0.2	
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0			0.0			0.0	
Control Delay (d), s/veh		34.9		27.3	14.8			33.5			24.8	
Level of Service (LOS)		C		C	B			C			C	
Approach Delay, s/veh / LOS	34.9	C		17.6	B		33.5	C		24.8	C	
Intersection Delay, s/veh / LOS	27.8						C					

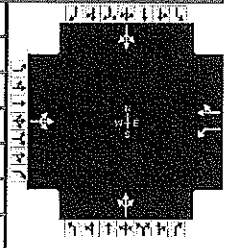
Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.75	B		1.66	B		1.92	B		1.72	B	
Bicycle LOS Score / LOS	1.82	B		1.65	B		1.11	A		0.89	A	

HCS Signalized Intersection Results Summary

General Information

Agency	Horner & Canter Assoc			Duration, h	0.250
Analyst	DHH	Analysis Date	Jan 9, 2025	Area Type	Other
Jurisdiction	Worcester Twp	Time Period	PM Peak Hour	PHF	0.96
Urban Street		Analysis Year	2029 Build	Analysis Period	1> 7:00
Intersection	Germantown Pk/Trooper...	File Name	Germantown Pk_Trooper Rd_bp.xus		
Project Description	24-025 Trooper Ridge Townhouse Devel				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	16	658	62	332	951	26	89	171	137	14	161	31

Signal Information

Cycle, s	90.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	10.0	36.0	26.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0		
				Red	2.0	2.0	2.0	0.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8		4
Case Number		8.3	1.0	4.0		8.0		8.0
Phase Duration, s		42.0	16.0	58.0		32.0		32.0
Change Period, (Y+R _c), s		6.0	6.0	6.0		6.0		6.0
Max Allow Headway (MAH), s		3.0	3.0	3.0		3.1		3.1
Queue Clearance Time (g _s), s		39.5	13.5	55.5		23.1		10.6
Green Extension Time (g _e), s		0.0	0.0	0.0		0.5		1.1
Phase Call Probability		1.00	1.00	1.00		1.00		1.00
Max Out Probability		1.00	1.00	1.00		1.00		0.00

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h		751		346	1013			382			209	
Adjusted Saturation Flow Rate (s), veh/h/ln		1061		1414	1493			1542			1813	
Queue Service Time (g _s), s		0.0		11.0	53.0			12.5			0.0	
Cycle Queue Clearance Time (g _c), s		37.0		11.0	53.0			20.6			8.1	
Green Ratio (g/C)		0.41		0.56	0.59			0.30			0.30	
Capacity (c), veh/h		477		253	879			512			587	
Volume-to-Capacity Ratio (X)		1.574		1.368	1.152			0.746			0.357	
Back of Queue (Q), ft/ln (95 th percentile)		1814.7		632.6	1241.4			313.8			154.2	
Back of Queue (Q), veh/ln (95 th percentile)		70.3		24.7	48.9			12.4			6.1	
Queue Storage Ratio (RQ) (95 th percentile)		0.00		0.00	0.00			0.00			0.00	
Uniform Delay (d ₁), s/veh		29.9		25.3	18.5			29.1			24.9	
Incremental Delay (d ₂), s/veh		268.1		188.8	81.4			5.3			0.1	
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0			0.0			0.0	
Control Delay (d), s/veh		298.0		214.1	99.9			34.3			25.0	
Level of Service (LOS)		F		F	F			C			C	
Approach Delay, s/veh / LOS	298.0	F		128.9	F		34.3	C		25.0	C	
Intersection Delay, s/veh / LOS	154.5						F					

Multimodal Results

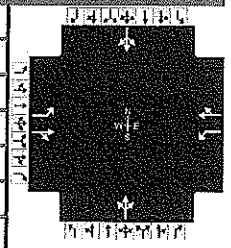
	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.73	B		1.66	B		1.93	B		1.72	B	
Bicycle LOS Score / LOS	1.73	B		2.73	C		1.12	A		0.83	A	

HCS Signalized Intersection Results Summary

General Information

Agency	Horner & Canter Assoc		
Analyst	DHH	Analysis Date	Jan 9, 2025
Jurisdiction	Worcester Twp	Time Period	AM Peak Hour
Urban Street		Analysis Year	2029 Build Impr
Intersection	Germantown Pk/Trooper...	File Name	Germantown Pk_1
Project Description	24-025 Trooper Ridge Townhouse Devel		

Intersection Information



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	8	698	75	154	512	5	62	115	230	24	180	31

Signal Information

Cycle, s	90.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	7.0	38.0	27.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0		
				Red	2.0	2.0	2.0	0.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8		4
Case Number		6.3	1.0	4.0		8.0		8.0
Phase Duration, s		44.0	13.0	57.0		33.0		33.0
Change Period, (Y+R c), s		6.0	6.0	6.0		6.0		6.0
Max Allow Headway (MAH), s		3.0	3.0	3.0		3.2		3.2
Queue Clearance Time (g s), s		36.3	7.9	26.3		23.4		11.9
Green Extension Time (g e), s		0.7	0.0	2.8		0.6		1.2
Phase Call Probability		1.00	1.00	1.00		1.00		1.00
Max Out Probability		1.00	1.00	0.00		0.81		0.00

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	8	798		162	544			376			242	
Adjusted Saturation Flow Rate (s), veh/h/ln	876	2002		1387	1412			1476			1745	
Queue Service Time (g s), s	0.6	33.8		5.4	23.8			11.5			0.0	
Cycle Queue Clearance Time (g c), s	11.4	33.8		5.4	23.8			20.9			9.4	
Green Ratio (g/C)	0.43	0.43		0.55	0.58			0.31			0.31	
Capacity (c), veh/h	354	868		236	816			506			587	
Volume-to-Capacity Ratio (X)	0.024	0.920		0.688	0.667			0.742			0.412	
Back of Queue (Q), ft/ln (95 th percentile)	5.3	635.2		86.5	286.5			318			180.1	
Back of Queue (Q), veh/ln (95 th percentile)	0.2	24.4		3.3	10.8			12.0			7.0	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00			0.00			0.00	
Uniform Delay (d 1), s/veh	21.4	24.0		19.4	13.1			28.4			24.6	
Incremental Delay (d 2), s/veh	0.0	14.5		6.8	1.7			5.2			0.2	
Initial Queue Delay (d 3), s/veh	0.0	0.0		0.0	0.0			0.0			0.0	
Control Delay (d), s/veh	21.5	38.5		26.2	14.8			33.5			24.8	
Level of Service (LOS)	C	D		C	B			C			C	
Approach Delay, s/veh / LOS	38.3		D	17.4		B	33.5		C	24.8		C
Intersection Delay, s/veh / LOS	29.0						C					

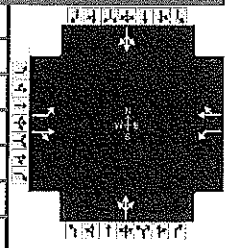
Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	1.75		B	1.66		B	1.92		B	1.94		B
Bicycle LOS Score / LOS	1.82		B	1.65		B	1.11		A	0.89		A

HCS Signalized Intersection Results Summary

General Information

Agency	Horner & Canter Assoc			Duration, h	0.250
Analyst	DHH	Analysis Date	Jan 9, 2025	Area Type	Other
Jurisdiction	Worcester Twp	Time Period	PM Peak Hour	PHF	0.96
Urban Street		Analysis Year	2029 Build Impr	Analysis Period	1> 7:00
Intersection	Germantown Pk/Trooper...	File Name	Germantown Pk_Trooper Rd_bp_impr.xus		
Project Description	24-025 Trooper Ridge Townhouse Devel				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	16	658	62	332	951	26	89	171	137	14	161	31

Signal Information

Cycle, s	90.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	10.0	39.0	23.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0		
				Red	2.0	2.0	2.0	0.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6		8		4
Case Number		6.3	1.0	4.0		8.0		8.0
Phase Duration, s		45.0	16.0	61.0		29.0		29.0
Change Period, (Y+R _c), s		6.0	6.0	6.0		6.0		6.0
Max Allow Headway (MAH), s		3.0	3.0	3.0		3.1		3.1
Queue Clearance Time (g _s), s		42.5	13.5	58.5		24.2		11.0
Green Extension Time (g _e), s		0.0	0.0	0.0		0.0		1.0
Phase Call Probability		1.00	1.00	1.00		1.00		1.00
Max Out Probability		1.00	1.00	1.00		1.00		0.01

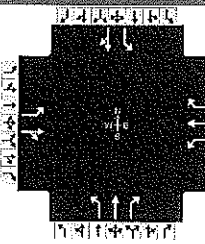
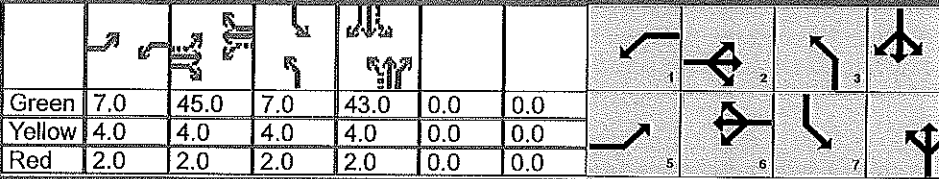
Movement Group Results

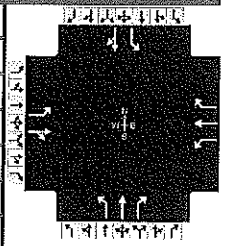
	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	17	734		346	1013			382			209	
Adjusted Saturation Flow Rate (s), veh/h/ln	566	2021		1414	1493			1541			1794	
Queue Service Time (g _s), s	0.0	28.5		11.0	56.0			13.2			0.0	
Cycle Queue Clearance Time (g _c), s	40.0	28.5		11.0	56.0			21.7			8.5	
Green Ratio (g/C)	0.44	0.44		0.59	0.62			0.27			0.27	
Capacity (c), veh/h	80	898		330	929			461			521	
Volume-to-Capacity Ratio (X)	0.208	0.818		1.048	1.090			0.830			0.402	
Back of Queue (Q), ft/ln (95 th percentile)	16.5	497.7		348.6	1037.4			351.5			162.9	
Back of Queue (Q), veh/ln (95 th percentile)	0.7	19.3		13.6	40.8			13.8			6.4	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00			0.00			0.00	
Uniform Delay (d ₁), s/veh	45.0	21.8		18.5	17.0			32.0			27.3	
Incremental Delay (d ₂), s/veh	0.5	5.6		62.7	57.2			11.4			0.2	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0			0.0			0.0	
Control Delay (d), s/veh	45.5	27.4		81.3	74.2			43.4			27.5	
Level of Service (LOS)	D	C		F	F			D			C	
Approach Delay, s/veh / LOS	27.8	C		76.0	E		43.4	D		27.5	C	
Intersection Delay, s/veh / LOS	54.2						D					

Multimodal Results

	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.72	B	1.66	B	1.93	B	1.95	B
Bicycle LOS Score / LOS	1.73	B	2.73	C	1.12	A	0.83	A

HCS Signalized Intersection Results Summary

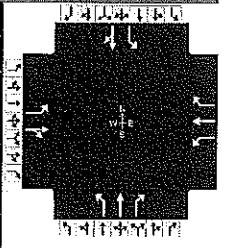
General Information						Intersection Information									
Agency		Horner & Canter Assoc				Duration, h		0.250							
Analyst		DHH		Analysis Date		Jan 9, 2025		Area Type		Other					
Jurisdiction		Worcester Twp		Time Period		AM Peak Hour		PHF		0.95					
Urban Street				Analysis Year		2029 Build		Analysis Period		1> 7:00					
Intersection		Germantown Pk/N Park/...		File Name		Germantown Pk_N Park Rd_Valley Forge Rd_ba....									
Project Description		24-025 Trooper Ridge Townhouse Devel													
															
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				128	499	75	126	353	52	93	458	121	75	522	79
Signal Information															
Cycle, s	126.0	Reference Phase	2	Green	7.0	45.0	7.0	43.0	0.0	0.0					
Offset, s	0	Reference Point	End	Yellow	4.0	4.0	4.0	4.0	0.0	0.0					
Uncoordinated	Yes	Simult. Gap E/W	On	Red	2.0	2.0	2.0	2.0	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On												
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase				5	2	1	6	3	8	7	4				
Case Number				1.1	4.0	1.1	3.0	1.1	3.0	1.1	4.0				
Phase Duration, s				13.0	51.0	13.0	51.0	13.0	49.0	13.0	49.0				
Change Period, (Y+R c), s				6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0				
Max Allow Headway (MAH), s				3.1	3.1	3.1	3.1	3.0	3.0	3.1	3.0				
Queue Clearance Time (g s), s				8.8	43.2	8.9	24.5	7.4	36.3	6.4	46.5				
Green Extension Time (g e), s				0.0	0.6	0.0	2.0	0.0	1.7	0.0	0.0				
Phase Call Probability				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Max Out Probability				1.00	1.00	1.00	0.00	1.00	0.35	1.00	1.00				
Movement Group Results				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h				135	588		133	372	44	98	482	96	79	617	
Adjusted Saturation Flow Rate (s), veh/h/ln				1682	1744		1614	1724	1369	1573	1652	1447	1560	1718	
Queue Service Time (g s), s				6.3	40.7		6.4	22.0	2.7	4.9	33.8	5.8	3.9	44.0	
Cycle Queue Clearance Time (g c), s				6.3	40.7		6.4	22.0	2.7	4.9	33.8	5.8	3.9	44.0	
Green Ratio (g/C)				0.43	0.37		0.43	0.37	0.37	0.41	0.35	0.35	0.41	0.35	
Capacity (c), veh/h				328	637		171	629	500	157	577	505	201	600	
Volume-to-Capacity Ratio (X)				0.411	0.924		0.777	0.591	0.088	0.624	0.836	0.190	0.393	1.028	
Back of Queue (Q), ft/ln (95 th percentile)				116.6	743.1		160.4	378	45.7	95.7	552.6	91.3	73.6	901.5	
Back of Queue (Q), veh/ln (95 th percentile)				4.5	27.7		5.9	14.2	1.6	3.6	20.9	3.6	2.6	34.4	
Queue Storage Ratio (RQ) (95 th percentile)				0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d 1), s/veh				25.3	38.3		30.7	32.7	26.2	30.9	38.1	28.6	29.0	41.0	
Incremental Delay (d 2), s/veh				0.3	19.0		18.3	1.0	0.0	5.6	9.8	0.1	0.5	44.1	
Initial Queue Delay (d 3), s/veh				0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (d), s/veh				25.6	57.4		49.0	33.8	26.3	36.5	47.9	28.6	29.4	85.1	
Level of Service (LOS)				C	E		D	C	C	D	D	C	C	F	
Approach Delay, s/veh / LOS				51.5		D	36.8		D	43.5		D	78.8		E
Intersection Delay, s/veh / LOS				53.6						D					
Multimodal Results				EB			WB			NB			SB		
Pedestrian LOS Score / LOS				2.16		B	1.95		B	2.14		B	1.95		B
Bicycle LOS Score / LOS				1.68		B	1.39		A	1.60		B	1.64		B



HCS Signalized Intersection Results Summary

General Information

Agency	Horner & Canter Assoc			Duration, h	0.250
Analyst	DHH	Analysis Date	Jan 9, 2025	Area Type	Other
Jurisdiction	Worcester Twp	Time Period	PM Peak Hour	PHF	0.96
Urban Street		Analysis Year	2029 Build	Analysis Period	1> 7:00
Intersection	Germantown Pk/N Park/...	File Name	Germantown Pk_N Park Rd_Valley Forge Rd_bp...		
Project Description	24-025 Trooper Ridge Townhouse Devel				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	185	398	77	226	554	94	61	538	78	71	499	133

Signal Information

Cycle, s	127.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	11.0	2.0	39.0	7.0	44.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	0.0	4.0	4.0	4.0	0.0		
				Red	2.0	0.0	2.0	2.0	2.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	3.0	1.1	3.0	1.1	4.0
Phase Duration, s	17.0	45.0	19.0	47.0	13.0	50.0	13.0	50.0
Change Period, (Y+R _c), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.0	3.0	3.1	3.0
Queue Clearance Time (g _s), s	12.2	33.9	14.3	41.9	5.5	42.1	5.9	47.5
Green Extension Time (g _e), s	0.0	1.4	0.0	0.0	0.0	0.8	0.0	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	0.54	1.00	1.00	1.00	1.00	1.00	1.00

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	193	479		235	577	82	64	560	60	74	632	
Adjusted Saturation Flow Rate (s), veh/h/ln	1736	1808		1696	1823	1582	1640	1722	1471	1682	1739	
Queue Service Time (g _s), s	9.7	31.4		11.8	39.4	4.7	3.0	39.6	3.5	3.4	45.0	
Cycle Queue Clearance Time (g _c), s	9.7	31.4		11.8	39.4	4.7	3.0	39.6	3.5	3.4	45.0	
Green Ratio (g/C)	0.41	0.31		0.43	0.33	0.33	0.42	0.35	0.35	0.42	0.35	
Capacity (c), veh/h	221	569		306	603	523	160	610	521	176	616	
Volume-to-Capacity Ratio (X)	0.873	0.842		0.769	0.957	0.157	0.397	0.919	0.116	0.421	1.026	
Back of Queue (Q), ft/ln (95 th percentile)	238.3	562.3		242.8	738.4	82.3	52.4	668.1	55.1	64.2	900	
Back of Queue (Q), veh/ln (95 th percentile)	9.5	21.8		9.4	29.3	3.2	2.1	26.3	2.2	2.5	35.2	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d ₁), s/veh	33.0	40.5		29.5	42.1	30.0	30.4	39.7	27.6	30.4	41.0	
Incremental Delay (d ₂), s/veh	28.6	10.4		10.3	26.1	0.1	0.6	18.7	0.0	0.6	43.1	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	61.6	50.9		39.8	68.2	30.1	31.0	58.5	27.6	31.0	84.1	
Level of Service (LOS)	E	D		D	E	C	C	E	C	C	F	
Approach Delay, s/veh / LOS	54.0	D		57.2	E		53.2	D		78.5	E	
Intersection Delay, s/veh / LOS	60.6						E					

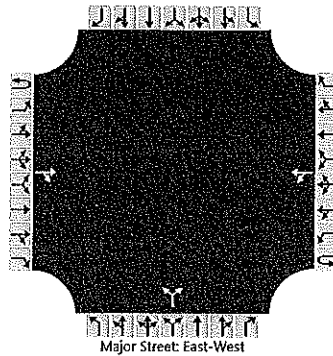
Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.15	B		1.97	B		2.14	B		1.95	B	
Bicycle LOS Score / LOS	1.60	B		1.96	B		1.62	B		1.65	B	

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DHH	Intersection	Trooper Rd/Woodlyn Rd/Woodland Ave
Agency/Co.	Horner & Canter Assoc	Jurisdiction	Worcester Twp
Date Performed	1/9/2025	East/West Street	Woodlyn Rd/Woodland Ave
Analysis Year	2029	North/South Street	Trooper Road
Time Analyzed	AM Peak Hour – Build	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	24-025 Trooper Ridge Townhouse Devel		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			24	214		32	10			112		14				
Percent Heavy Vehicles (%)						3				8		8				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.3				7.1		6.2				
Critical Headway (sec)						4.33				6.48		6.28				
Base Follow-Up Headway (sec)						3.0				3.0		3.1				
Follow-Up Headway (sec)						3.03				3.07		3.17				

Delay, Queue Length, and Level of Service

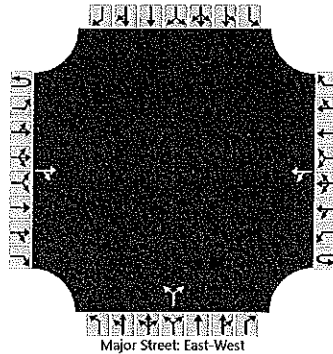
Flow Rate, v (veh/h)						35					138					
Capacity, c (veh/h)						967					838					
v/c Ratio						0.04					0.17					
95% Queue Length, Q ₉₅ (veh)						0.1					0.6					
Control Delay (s/veh)						8.9	0.3				10.1					
Level of Service (LOS)						A	A				B					
Approach Delay (s/veh)					6.8				10.1							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

General Information

Analyst	DHH	Intersection	Trooper Rd/Woodlyn Rd/Woodland Ave
Agency/Co.	Horner & Canter Assoc	Jurisdiction	Worcester Twp
Date Performed	1/9/2025	East/West Street	Woodlyn Rd/Woodland Ave
Analysis Year	2029	North/South Street	Trooper Road
Time Analyzed	PM Peak Hour - Build	Peak Hour Factor	0.93
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	24-025 Trooper Ridge Townhouse Devel		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			27	174		24	31			227		10				
Percent Heavy Vehicles (%)						0				4		20				
Proportion Time Blocked																
Percent Grade (%)									0							
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.3				7.1		6.2				
Critical Headway (sec)						4.30				6.44		6.40				
Base Follow-Up Headway (sec)						3.0				3.0		3.1				
Follow-Up Headway (sec)						3.00				3.04		3.28				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						26					255					
Capacity, c (veh/h)						1013					871					
v/c Ratio						0.03					0.29					
95% Queue Length, Q ₉₅ (veh)						0.1					1.2					
Control Delay (s/veh)						8.6	0.2				10.8					
Level of Service (LOS)						A	A				B					
Approach Delay (s/veh)					3.9				10.8							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

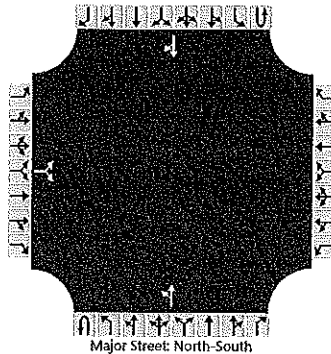
General Information

Analyst	DHH
Agency/Co.	Horner & Canter Assoc
Date Performed	1/9/2025
Analysis Year	2029
Time Analyzed	AM Peak Hour - Build
Intersection Orientation	North-South
Project Description	24-025 Trooper Ridge Townhouse Devel

Site Information

Intersection	Trooper Rd/Site Access
Jurisdiction	Worcester Twp
East/West Street	Site Access
North/South Street	Trooper Road
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		2		15						5	123				220	0
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.3						
Critical Headway (sec)		6.43		6.23						4.33						
Base Follow-Up Headway (sec)		3.0		3.1						3.0						
Follow-Up Headway (sec)		3.03		3.13						3.03						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			19							6						
Capacity, c (veh/h)			816							981						
v/c Ratio			0.02							0.01						
95% Queue Length, Q ₉₅ (veh)			0.1							0.0						
Control Delay (s/veh)			9.5							8.7	0.1					
Level of Service (LOS)			A							A	A					
Approach Delay (s/veh)	9.5								0.4							
Approach LOS	A								A							

HCS Two-Way Stop-Control Report

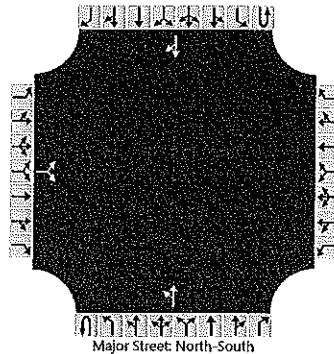
General Information

Analyst	DHH
Agency/Co.	Horne & Canter Assoc
Date Performed	1/9/2025
Analysis Year	2029
Time Analyzed	PM Peak Hour - Build
Intersection Orientation	North-South
Project Description	24-025 Trooper Ridge Townhouse Devel

Site Information

Intersection	Trooper Rd/Site Access
Jurisdiction	Worcester Twp
East/West Street	Site Access
North/South Street	Trooper Road
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		1		10						14	199				196	1
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.3						
Critical Headway (sec)		6.43		6.23						4.33						
Base Follow-Up Headway (sec)		3.0		3.1						3.0						
Follow-Up Headway (sec)		3.03		3.13						3.03						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			12							16						
Capacity, c (veh/h)			834							1001						
v/c Ratio			0.01							0.02						
95% Queue Length, Q ₉₅ (veh)			0.0							0.0						
Control Delay (s/veh)			9.4							8.7	0.2					
Level of Service (LOS)			A							A	A					
Approach Delay (s/veh)	9.4								0.7							
Approach LOS	A								A							

APPENDIX J

Auxiliary Lane Warrant Worksheets

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Worcester Township	Analysis Date:	1/9/2025
County:	Montgomery County	Conducted By:	DHH
PennDOT Engineering District:	6	Checked By:	DHH
		Agency/Company Name:	Horner & Canter Assoc

Intersection & Approach Description: Trooper Road (SR 3002)/Site Access

Analysis Period:	2029 Build	Number of Approach Lanes:	1
Design Hour:	AM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	40		
Type of Terrain:	Level		

Left or Right-Turn Lane Analysis?: Type of Analysis
Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	3.0%	6
	Through	-	123	3.0%	125
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	220	3.0%	224
	Right	Yes	0	3.0%	0

Advancing Volume: 131

Opposing Volume: 224

Left Turn Volume: 6

% Left Turns in Advancing Volume: 4.58%

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	220	3.0%	N/A
	Right	-	0	3.0%	N/A

Advancing Volume: N/A

Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: Figure 2	Applicable Warrant Figure: N/A
Warrant Met?: No	Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized	
Design Hour Volume of Turning Lane:	6	
Cycles Per Hour (Assumed):	60	
Cycles Per Hour (If Known):	60	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A: N/A

Feet

Condition B: N/A

Feet

Condition C: N/A

Feet

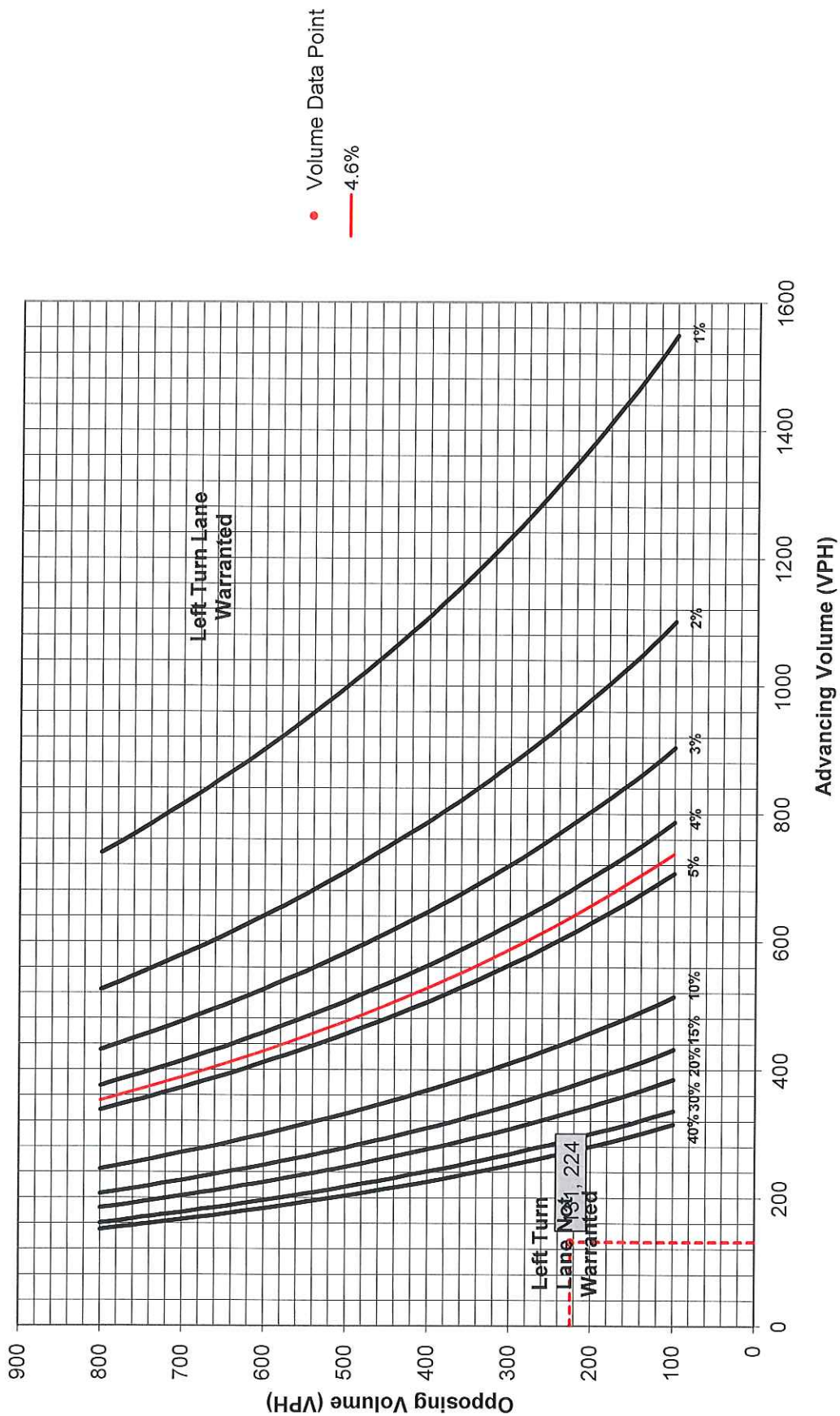
Required Left Turn Lane Storage Length: N/A

Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways
(40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Worcester Township	Analysis Date:	1/9/2025
County:	Montgomery County	Conducted By:	DHH
PennDOT Engineering District:	6	Checked By:	DHH
		Agency/Company Name:	Horner & Canter Assoc
Intersection & Approach Description: Trooper Road (SR 3002)/Site Access			
Analysis Period:	2029 Build	Number of Approach Lanes:	1
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	40		
Type of Terrain:	Level		
		Type of Analysis:	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement	Include?	Volume	% Trucks	PCEV	
Advancing	Left	Yes	14	3.0%	15
	Through	-	199	2.0%	201
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	196	2.0%	198
	Right	Yes	1	3.0%	2

Advancing Volume: 216
Opposing Volume: 200
Left Turn Volume: 15

% Left Turns in Advancing Volume: 6.94%

Right Turn Lane Volume Calculations

Movement	Include?	Volume	% Trucks	PCEV	
Advancing	Left	No	0	0.0%	N/A
	Through	-	196	2.0%	N/A
	Right	-	1	3.0%	N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings Applicable Warrant Figure: Figure 2 Warrant Met?: No	Right Turn Lane Warrant Findings Applicable Warrant Figure: N/A Warrant Met?: N/A
---	--

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized	Average # of Vehicles/Cycle:	N/A
Design Hour Volume of Turning Lane:	15		
Cycles Per Hour (Assumed):	60		
Cycles Per Hour (If Known):	60		

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A: **N/A** Feet

Condition B: **N/A** Feet

Condition C: **N/A** Feet

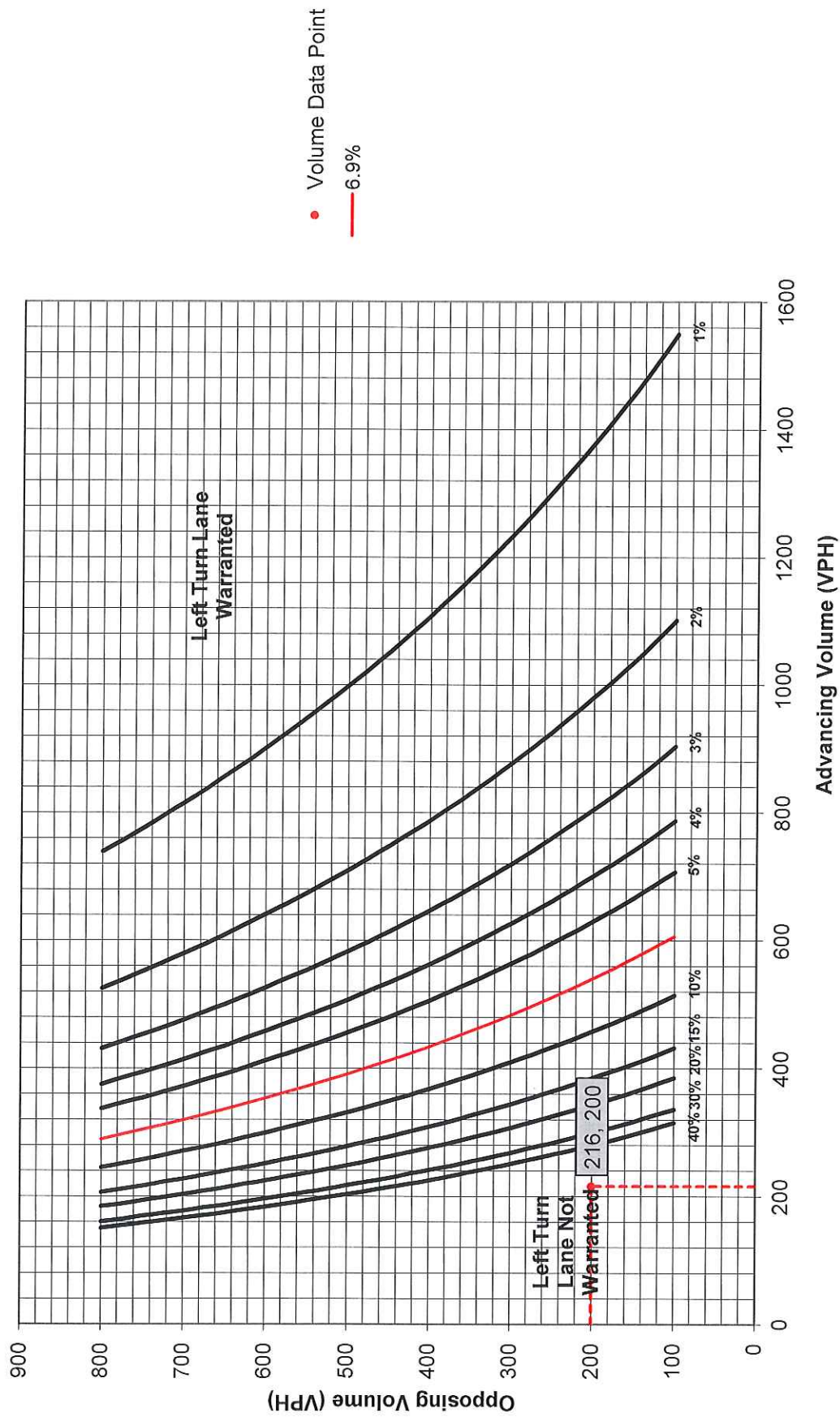
Required Left Turn Lane Storage Length: **N/A** Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways
(40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Worcester Township	Analysis Date:	1/9/2025
County:	Montgomery County	Conducted By:	DHH
PennDOT Engineering District:	6	Checked By:	DHH
		Agency/Company Name:	Horner & Canter Assoc
Intersection & Approach Description: Trooper Road (SR 3002)/Site Access			
Analysis Period:	2029 Build	Number of Approach Lanes:	1
Design Hour:	AM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	40		
Type of Terrain:	Level		
		Type of Analysis:	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	3.0%	N/A
	Through	-	123	3.0%	N/A
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	220	3.0%	N/A
	Right	Yes	0	3.0%	N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A

% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	220	3.0%	224
	Right	-	0	3.0%	0

Advancing Volume: 224
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings Applicable Warrant Figure: N/A Warrant Met?: N/A	Right Turn Lane Warrant Findings Applicable Warrant Figure: Figure 9 Warrant Met?: No
---	--

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized
 Design Hour Volume of Turning Lane: 0
 Cycles Per Hour (Assumed): 60
 Cycles Per Hour (If Known): 60

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

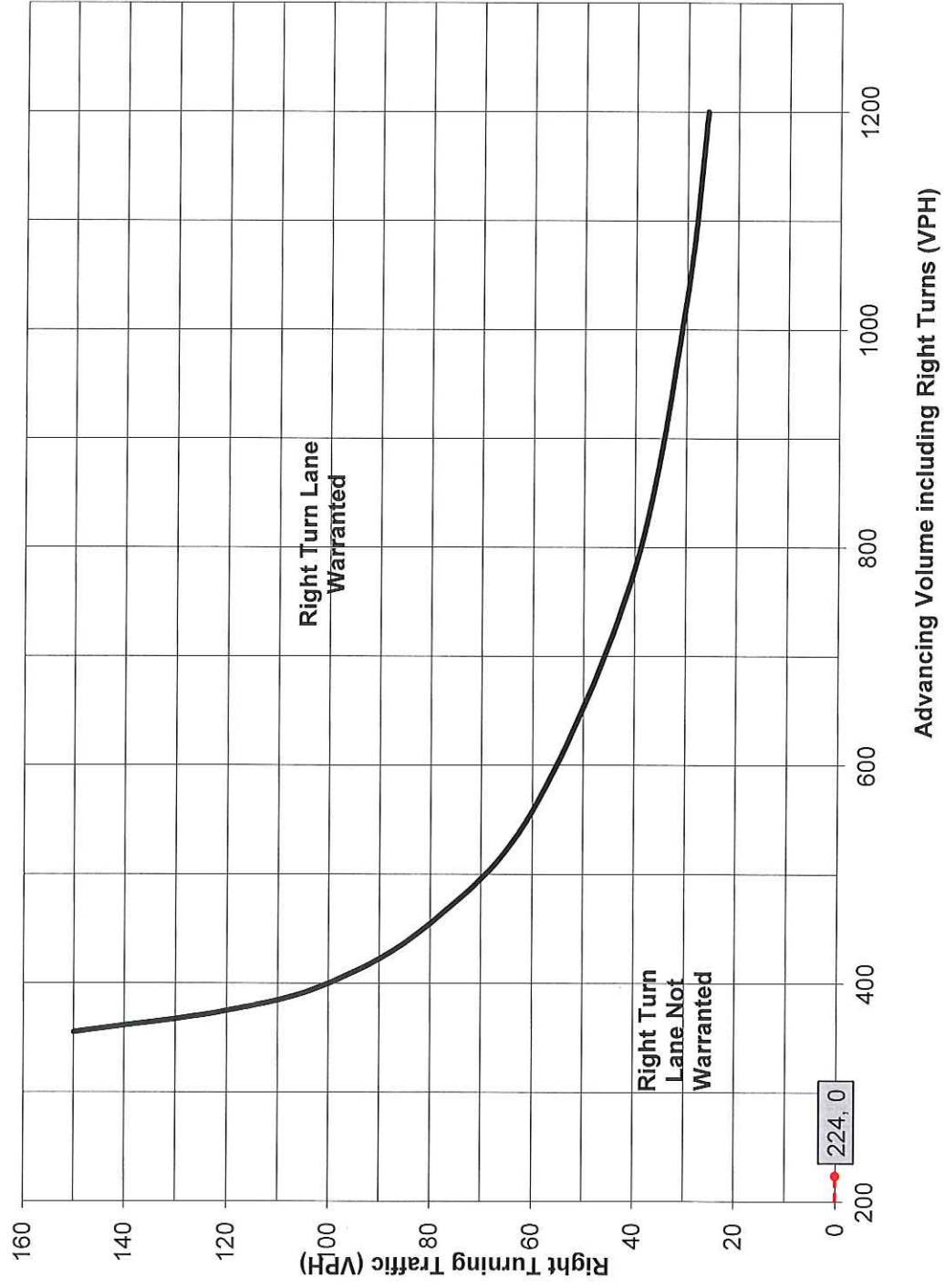
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
 Condition B: N/A Feet
 Condition C: N/A Feet
 Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Worcester Township	Analysis Date:	1/9/2025
County:	Montgomery County	Conducted By:	DHH
PennDOT Engineering District:	6	Checked By:	DHH
		Agency/Company Name:	Horner & Canter Assoc
Intersection & Approach Description: Trooper Road (SR 3002)/Site Access			
Analysis Period:	2029 Build	Number of Approach Lanes:	1
Design Hour:	PM Peak Hour	Undivided or Divided Highway:	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	40		
Type of Terrain:	Level		
		Type of Analysis:	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	14	3.0%	N/A
	Through	-	199	2.0%	N/A
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	196	2.0%	N/A
	Right	Yes	1	3.0%	N/A
Advancing Volume: N/A					
Opposing Volume: N/A					
Left Turn Volume: N/A					
% Left Turns in Advancing Volume: N/A					
Right Turn Lane Volume Calculations					
Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	196	2.0%	198
	Right	-	1	3.0%	2
Advancing Volume: 200					
Right Turn Volume: 2					

TURN LANE WARRANT FINDINGS

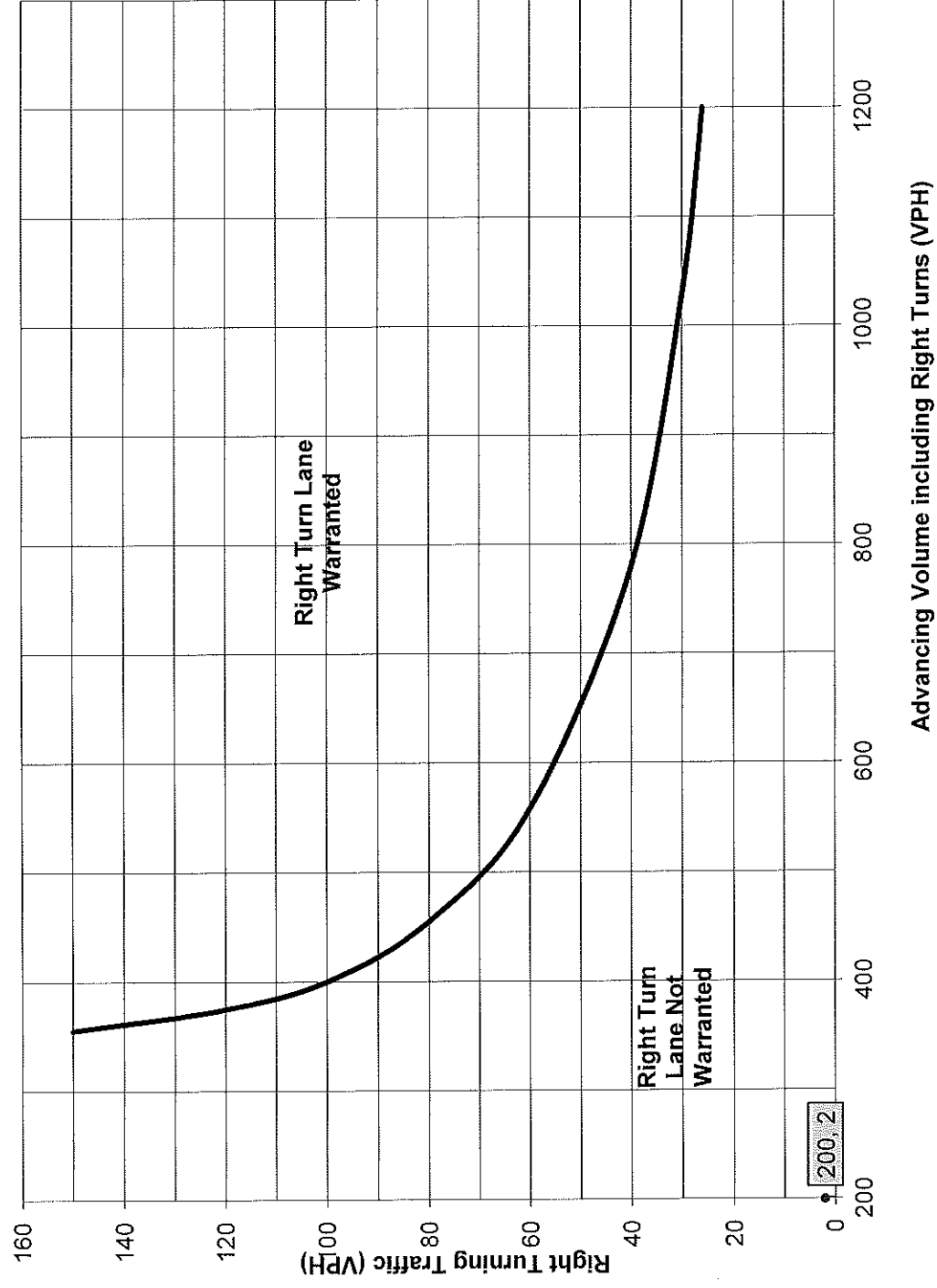
Left Turn Lane Warrant Findings	Right Turn Lane Warrant Findings
Applicable Warrant Figure: N/A	Applicable Warrant Figure: Figure 9
Warrant Met?: N/A	Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized	Average # of Vehicles/Cycle:	N/A			
Design Hour Volume of Turning Lane:	2					
Cycles Per Hour (Assumed):	60					
Cycles Per Hour (If Known):	60					
PennDOT Publication 46, Exhibit 11-6						
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B
Right Turn Lane Storage Length, Condition A: N/A Feet						
Condition B: N/A Feet						
Condition C: N/A Feet						
Required Right Turn Lane Storage Length: N/A Feet						
Additional Findings: N/A						

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)





Horner & Canter Associates

A PROFESSIONAL CORPORATION

TRANSPORTATION AND TRAFFIC ENGINEERING

DAVID H. HORNER, P.E., PTOE, President
HASSON A. KEENE, Associate

January 23, 2025

Mr. Dan DeMeno, Township Manager
Worcester Township
1721 Valley Forge Road, P.O. Box 767
Worcester, PA 19490

Re: 1035 North Trooper Road (S.R. 3002)
45 Proposed Townhouse Units
Worcester Township, Montgomery County, Pennsylvania
HCA File No. 24-025

Dear Mr. DeMeno:

We are providing this letter in response to the Bowman Traffic Review #2, dated June 18, 2024, in review of the proposed 45 townhouse project at 1035 North Trooper Road. We submitted a Traffic Impact Assessment dated January 13, 2024, under separate cover.

The following is our point-by-point response to the Bowman review letter with the original numbered comments provided along with our responses (in italics):

General

1. Based on information provided in Land Use Code 215 (Single-Family Attached Housing) in the Institute of Transportation Engineers publication, *Trip Generation, 11th Edition*, the proposed 45 townhouse units are expected to generate approximately 22 “new” trips during the weekday morning peak hour and approximately 26 “new” trips during the weekday afternoon peak hour, based on trip generation itself, a full transportation impact study (TIS) is not required for the proposed development. However, due to the site’s location along the highly-trafficked roads of North Trooper Road (S.R. 3002) and West Germantown Pike, as well as located adjacent to the intersection of North Trooper Road (S.R. 3002) and West Germantown Pike which currently experiences congestion during the weekday commuter peak periods, the applicant should submit a transportation impact assessment (TIA) for the proposed development.

Response: A Traffic Impact Assessment, dated January 13, 2025, has been submitted.

At a minimum, our office continues to recommend that the TIS scoping meeting application should include the following, but may not be limited to upon official agency scoping:

- Analysis of the weekday morning and weekday afternoon commuter peak hours for existing traffic conditions, as well as opening-year conditions, both without and with the proposed development, at the intersections of North Trooper Road (S.R. 3002)/West Germantown Pike, Park Avenue (S.R. 0363)/West Germantown Pike, Trooper Road, and Woodlyn Road/Woodland Road, as well as the proposed site access. *(Note: The proposed City View apartments by BET Investments at the SE quadrant of West Germantown Pike and Park Avenue (S.R. 0363) will be providing some intersection/signal improvements that should be captured in the traffic evaluations for the subject Westrum site.)*
- Mitigation improvements, as applicable, to address levels-of-service and queuing issues, as well as degradation must be provided as recommendations in the traffic study and how they will be addressed by the applicant.
- As discussed at an April 1, 2024 field meeting with County representatives and members of the PC, the applicant's engineers should evaluate roadway alignment improvements for the North Trooper Road (S.R. 3002) approaches to West Germantown Pike with their site design and project. This may involve an adjustment of the section of North Trooper Road (S.R. 3002) adjacent to the applicant's site as well as intersection enhancements.
- The full-movement driveway along North Trooper Road (S.R. 3002) could be impacted by queuing beyond the access location, as well as sight distance limitations or obstructions that may be caused by queued vehicles, and if so left-turn egress restrictions would be placed upon it. To confirm if such restrictions are prudent, a gap study should be conducted at the proposed driveway location along North Trooper Road (S.R. 3002).
- Provide sight distance analysis at the driveway along North Trooper Road (S.R. 3002).
- Conduct left-turn and right-turn auxiliary lane warrant analysis at the proposed driveway along North Trooper Road (S.R. 3002).
- Provide a crash analysis at the study intersections, as well as along the North Trooper Road (S.R. 3002) and West Germantown Pike site frontages.
- The applicant must include the electronic Synchro files with the TIA submission for review.
- Additional comments on the scope will follow upon receipt of the formal TIA scoping application to PennDOT, Montgomery County, and Worcester Township.

Response: A scoping meeting application was submitted and comments were received from PennDOT. A copy of the scoping application and PennDOT comments is provided in Appendix A of the TIA.

2. The applicant and their team should contact Montgomery County for additional information on the *West Germantown Pike Corridor Study* completed for Montgomery County in the early 2000's and the *Montco Pikes Study*, as well as Worcester and East Norriton Townships for access to their current Act 209 Roadway Sufficiency Analyses and Capital Improvement Programs.

Response: We have contacted Montgomery County and reviewed the cited documents.

3. According to the Township's Roadway Sufficiency Analysis, the proposed development is located in Transportation Service Area South, which has a corresponding impact fee of \$3,125 per "new" weekday afternoon peak hour trip and the applicant will be required to pay a Transportation Impact Fee in accordance with the Township's Transportation Impact Fee Ordinance. If the information provided in Land Use Code 215 (Single-Family Attached Housing) in the Institute of Transportation Engineers publication, *Trip Generation, 11th Edition* for proposed 45 townhouse units is the proper land use description for this development, then with the sketch plan it is preliminarily expected the site would generate 26 "new" trips during the weekday afternoon peak hour resulting in a **transportation impact fee of \$81,250**.

Response: Comment noted.

4. A Highway Occupancy Permit (HOP) is required for this project from both PennDOT and Montgomery County for the proposed site accesses and work that may be completed within the legal right of way on North Trooper Road and West Germantown Pike since North Trooper Road (S.R. 3002) is a State Roadway and West Germantown Pike is a County Roadway. Furthermore, since the site and/or the intersections in the study border the adjacent municipality of East Norriton Township, and the site adjacent traffic signal at the intersection of West Germantown Pike and North Trooper Road (S.R. 3002) is owned and maintained by East Norriton Township, any roadway/signal improvements extending into that jurisdiction will require the review and approval of that municipality, as well. The Township and our office must be copied on all TIA and HOP submissions, as well as correspondence between the applicant, PennDOT, and Montgomery County, and invited to any and all meetings among these parties. **If it would be beneficial to all parties involved with this application, the applicant and their team may desire to schedule a (virtual) technical meeting with Worcester Township, PennDOT, and Montgomery County representatives to go over the project since all three will be involved with permitting for this project. Upon determination of study area roadway and signal improvements that will be required for the mitigation and development of the subject site, it may be beneficial and/or necessary to include East Norriton Township in future discussions.**

Response: The applicant will schedule a meeting with the Township, PennDOT and Montgomery County. After this meeting occurs, HOP applications will be prepared for submission to both PennDOT and Montgomery County as required.

5. A more detailed review of the site and all transportation-related engineering elements on the plan will be conducted, as the Township deems necessary, if and as the application advances into and through the land development process at the Township. Additional comments may be raised at that point, as well as how the comments herein are satisfied.

Response: Comment noted.

6. Upon resubmission, our office will evaluate the information in concert with PennDOT and Montgomery County and will provide additional reviews of engineering and supplemental submission details as we receive them.

Response: Comment noted.

7. A response letter **must be provided** with the resubmission detailing how each comment below has been addressed, and where each can be found in the resubmission materials (i.e., page number(s)) to assist in the re-review process.

Response: Please consider this the response letter identifying how each comment has been addressed.

Sketch Plan

The applicant's engineer has indicated in its response that it has acknowledged the following comments, and this information will be provided on future land development plan submissions in accordance with Township requirements. Therefore, we continue to offer the following comments pertaining to the revised sketch plan provided in this submission that must be addressed by the applicant as the project advances through the Township land development process.

8. The cartway widths along the North Trooper Road (S.R. 3002) and West Germantown Pike site frontages should be clearly labeled on the plan and be in accordance with **Section 130-16.C** of the **Subdivision and Land Development Ordinance**. Frontage widening improvements will be required to satisfy right-of-way and cartway requirements for the classification of the roadway, as well as the provision of curbing and sidewalk unless waivers are requested and granted by the Township.

Response: Cartway widths have been provided on the Preliminary Land Development Plans. A 40 foot half ultimate ROW is provided on Trooper Road, and a 50 foot half ultimate ROW provided on W. Germantown Pike. Curbing and sidewalk have been provided along both existing streets. An additional 12 foot wide lane was added to W. Germantown Pike along the parcel's frontage.

9. A note must be added to the plan stating that the area between legal right-of-way line and ultimate right-of-way line along North Trooper Road (S.R. 3002) and West Germantown Pike should be offered for dedication to the authority having jurisdiction over the road as required by **Section 130-16.C(2)(c)** of the **Subdivision and Land Development Ordinance**.

Response: A note will be added stating that the area between the legal ROW and ultimate ROW are offered for dedication.

10. Adequate sight distance measurements will need to be provided on the land development plans for the proposed driveways along North Trooper Road (S.R. 3002) and West Germantown Pike as required by **Section 130-16.E(5)** of the **Subdivision and Land**

Development Ordinance, and to satisfy PennDOT and Montgomery County highway occupancy permits.

Response: Adequate sight distances and sight triangles have been added to the plans. Note that the W. Germantown Pike access is emergency only.

11. According to **Section 130-18.A** of the **Subdivision and Land Development Ordinance**, sidewalk should be provided along the site frontages of North Trooper Road (S.R. 3002) and West Germantown Pike. The plan currently does not show any sidewalk along the North Trooper Road (S.R. 3002) and West Germantown Pike site frontages, thereby not satisfying the ordinance requirement. However, the applicant is currently proposing a multi-purpose trail around the perimeter of the townhouse units internal to the site that sits 60 feet or more from the edge of either road abutting the site. In addition, we also note to the Township at this time that no sidewalk currently exists along either side of North Trooper Road (S.R. 3002) and West Germantown Pike in the vicinity of the site.

The applicant's engineer indicates in its response that the trail and sidewalks for the development will be discussed with the Planning Commission to determine what the Township's needs are in this regard. While we continue to recommend the provision of sidewalk and/or a multi-purpose trail on the plan. Adequate connectivity of the trail system to the signalized intersection of West Germantown Pike/North Trooper Road (S.R. 3002) and provision of ADA ramps and a crosswalk across North Trooper Road (S.R. 3002) from the site to the Norriton Presbyterian Cemetery at a minimum should be incorporated. Furthermore, provisions should be made in the design to be constructed with the development or escrow held for future construction of pedestrian connectivity along both roads fronting the property. The Board of Supervisors may consider deferring this obligation that is required of the applicant until such a time as may be required by the PennDOT, Montgomery County, or the Township for this property, whether under present or future land ownership, and at no cost to Worcester Township, or may desire to consider a fee in lieu of sidewalk to be kept in escrow for future sidewalk installations in the Township and/or area of these properties.

Response: Sidewalks have been provided along N. Trooper Road and W. Germantown Pike and include connections to the development's internal sidewalk system. An ADA ramp and crosswalk were not added at the intersection of N. Trooper Road and W. Germantown Pike to the Norriton Presbyterian Cemetery because there is no corresponding ADA ramp with which to connect a crosswalk. This will require further discussion with the Township, PennDOT, and the County.

12. According to **Section 130-18.B** of the **Subdivision and Land Development Ordinance**, curbing should be provided along the site frontages of North Trooper Road (S.R. 3002) and West Germantown Pike. The plan currently does not show any curbing along the North Trooper Road (S.R. 3002) and West Germantown Pike site frontages, thereby not satisfying the ordinance requirement. We recommend that the plan be revised to show curbing along the entire site frontages of North Trooper Road (S.R. 3002) and West Germantown Pike, or a waiver must be requested from this ordinance section. We do note to the Township that

there is currently no curbing along either side of North Trooper Road (S.R. 3002) and West Germantown Pike in the immediate vicinity of the site. Alternatively, the Board of Supervisors may also consider deferring this obligation that is required of the applicant until such a time as may be required by the PennDOT, Montgomery County, or the Township for this property, whether under present or future land ownership, and at no cost to Worcester Township, or may desire to consider a fee in lieu of curb to be kept in escrow for future curb installations in the Township and/or area of these properties.

Response: Curbing has been provided along both N. Trooper Road and W. Germantown Pike along the parcel's frontage.

13. The curb radii should be labeled on the plan at the proposed driveway intersections with North Trooper Road (S.R. 3002) and West Germantown Pike and be in accordance with **Section 130- 17.B(3)** of the **Subdivision and Land Development Ordinance**.

Response: The curb radii will be labeled. They are shown on the plans with 35-foot radii.

14. The designer should ensure sufficient sight distance is provided for the proposed driveways along the internal road in accordance with **Section 130-17** of the **Subdivision and Land Development Ordinance**.

Response: It does not appear that required sight distances for dwelling unit driveways along an internal road are in SALDO Section 130-17. We will discuss with the Township Traffic Engineer.

15. Horizontal curvature information should be provided on the plans for the internal roadway and be in accordance with **Section 130-16.(2)** of the **Subdivision and Land Development Ordinance**.

Response: This level of detail is not included on the Preliminary Plans; however, street centerline road profiles have been provided noting the proposed road slopes.

16. Parking along the edges of both sides of the internal roadway based on the site design, road widths, and location of driveways will need to be prohibited by adequate signing. The Township Engineer and Fire Marshal may also comment on this design.

Response: "No Parking" signs will be added to the plan.

17. Turning templates must be provided demonstrating the ability for Township emergency vehicles, trash trucks, and the largest expected delivery vehicle/moving trucks to maneuver into and out of the full-movement driveway along North Trooper Road (S.R. 3002), as well as entirely through the site's private street system.

Response: Turning templates have been provided.

18. The Township Fire Marshal should review the emergency vehicle turning templates for accessibility and circulation needs of emergency apparatus. Ensure that any correspondence, including any review comments and/or approvals, is included in subsequent submissions.

Response: Any correspondence to or from the Fire Marshall will be included in future correspondence. No comments have been received to date.

19. The plan(s) must be signed and sealed by a Professional Engineer licensed to practice in the Commonwealth of Pennsylvania.

Response: The plans have been signed by a PE licensed in the Commonwealth of Pennsylvania.

20. All proposed signs should be clearly labeled on the plan in subsequent submissions.

Response: All proposed signs have been shown on the plans and are labeled.

In addition, we offer the following additional comments pertaining to the revised sketch plan provided in this submission.

21. We recommend that the proposed Knox Box gate should likely be moved closer to the southern side of the emergency-only access along West Germantown Pike just inside the ultimate ROW line so that vehicles from West Germantown Pike see it and do not improperly use it to access the site. In addition, both ends of the emergency-only access should be signed to clearly indicate it is for emergency use only with special "Do Not Enter" signs for emergency vehicles only. If this is going to remain an emergency-only access, the County can weigh in on the provision of smaller radii or perhaps a depressed curb driveway so it is less likely to be mistaken for an access roadway to/from the property for every day vehicles to use.

Response: The location of the Knox Box gate will be discussed with the Fire Marshal. Its location was chosen in order to allow emergency vehicles to pull off of W. Germantown Pike to unlock the gate.

22. A total of 24 guest parking spaces (12 at each end of the development) are proposed. With the provision of narrower roads and parking to be prohibited except in driveways (approximately 20' to 22' deep and 20' wide, allowing up to two driveway cars not in garage) and in the guest parking spaces, the adequacy of parking should be evaluated and provided by the applicant and their team. Depending on the demographic of residents to live in this community, holiday and special gatherings may require more overflow parking than available in this community, and the roadways and site layout are not designed to allow for on-street parking and two-way travel for other vehicles to circulate. No parking is to be provided along West Germantown Pike or North Trooper Road (S.R. 3002).

Response: The number of guest parking spaces provided complies with Township requirements. Additional spaces could be added if determined to be necessary.

23. The parking space dimensions for the guest parking spaces should be labeled on the plan and be in accordance with **Section 130-17.D(11)** of the **Subdivision and Land Development Ordinance**.

Response: Parking space dimensions have been labeled as 9'x 18'.

24. What appears to be a sidewalk connection at the northwestern most part of the sketch plan along West Germantown Pike should be better clarified and graded appropriately for ADA as it shows an open terminus inside the ultimate right of way.

Response: The sidewalk connection has been revised to show the internal sidewalk network connected to the proposed sidewalk along W. Germantown Pike.

25. Retaining wall design documents, including reports and specifications, must be submitted to the Township Engineer for review and concurrence.

Response: The retaining wall design documents will be submitted to the Township Engineer under separate cover.

If you have any questions, please do not hesitate to call me.

Very truly yours,



David H. Horner, P.E., PTOE

DHH/mac

cc: Christian R. Jones, Assistant Township Manager
Casey A. Moore, P.E. – Bowman
Westrum Development Company



February 5, 2025

Mr. Dan Demeno
Township Manager
Worcester Township
1721 Valley Forge Road
P.O. Box 767
Worcester, PA 19490

Attention: Christian R. Jones, Assistant Township Manager
Robert D'Hulster, Public Works Director

RE: **Traffic Review #3 – Transportation Impact Assessment and Preliminary Land Development Plans**
1035 North Trooper Road (S.R. 3002) – 45 proposed townhouse units
Worcester Township, Montgomery County, PA
Project No. 314086-01-001

Dear Dan:

In response to the Township's request, Bowman Consulting Group (Bowman) has completed our third (3rd) traffic engineering review associated with the proposed development to be located at 1035 North Trooper Road (S.R. 3002) in Worcester Township, Montgomery County, PA. According to the land development plans provided to our office, the development is proposed to consist of 45 townhouse units with access being provided via one full-movement access/local road to North Trooper Road (S.R. 3002), as well as an emergency-only access to/from West Germantown Pike with a gating system proposed to be provided for first responders to access the community but not others. The existing single-family home and garage will remain on the northern end of the site and will be subdivided on its own lot (lot 1).

The following documents were reviewed in preparation of our comments:

- Transportation Impact Assessment – Trooper Ridge Townhouse Development, prepared by Horner & Canter Associates, Inc., dated January 13, 2025.
- Preliminary Land Development Plans – Trooper Ridge Subdivision, prepared by T & M Associates, Inc., dated December 19, 2024.
- Waiver Request Letter – Trooper Ridge Subdivision, prepared by T & M Associates, Inc., dated December 19, 2024.
- Response to Comments Letter – 1035 North Trooper Road, prepared by Horner & Canter Associates, Inc., dated January 23, 2025.

There has been interim coordination with the applicant's traffic consultant since the prior submission to the Township via email and a few calls to answer questions for them to address technical items leading up to the resubmission of the project plans and materials to the Township.

Based on our review of the documents listed above, Bowman offers the following comments for consideration by the Township and action by the applicant.

General

1. A response letter **must be provided** with the resubmission detailing how each comment below has been addressed, and where each can be found in the resubmission materials (i.e., page number(s)) to assist in the re-review process. Additional comments may follow upon review of any resubmitted during the land development process.
2. According to the Township's Roadway Sufficiency Analysis, the proposed development is located in Transportation Service Area South, which has a corresponding impact fee of \$3,125 per "new" weekday afternoon peak hour trip and the applicant will be required to pay a Transportation Impact Fee in accordance with the Township's Transportation Impact Fee Ordinance. Based on information provided in Table 1 of the study, the proposed 45 townhouse units are expected to generate 26 "new" trips during the weekday afternoon peak hour resulting in a **transportation impact fee of \$81,250**.
3. A Highway Occupancy Permit (HOP) is required for this project from **both** PennDOT and Montgomery County for the proposed site accesses and work that may be completed within the legal right of way on North Trooper Road (S.R. 3002) and West Germantown Pike since North Trooper Road (S.R. 3002) is a State Roadway and West Germantown Pike is a County roadway. Furthermore, since the site borders the adjacent municipality of East Norriton Township, and the site adjacent traffic signal at the intersection of West Germantown Pike and North Trooper Road (S.R. 3002) is owned and maintained by East Norriton Township, any roadway/signal improvements at the intersection or along North Trooper Road (S.R. 3002) extending into that jurisdiction will require the review and approval of that municipality, as well. The Township and our office must be copied on all TIA and HOP submissions, as well as correspondence between the applicant, PennDOT, and Montgomery County, and invited to any and all meetings among these parties.
4. Upon resubmission, our office will evaluate the information in concert with PennDOT and Montgomery County and will provide additional reviews of engineering and supplemental submission details as we receive them.

Transportation Impact Assessment

5. Since the site is situated along North Trooper Road (S.R. 3002), which is a state road, and West Germantown Pike, which is a County road, the transportation impact assessment (TIA) is recommended to be concurrently reviewed by PennDOT and Montgomery County. In addition, since the site is located immediately adjacent to East Norriton Township, the TIA should be shared and reviewed by East Norriton Township for their knowledge of the site access and associated roadway/signal improvements concluded from the study. Any comments from PennDOT, Montgomery County, and East Norriton Township should also be coordinated with our office and the Township and evaluated and addressed accordingly.
6. The TIA submitted by the applicant's traffic engineer was prepared using the industry's generally accepted transportation impact study practices. The TIA was jointly scoped with PennDOT and the Township (via our office) in preparation of the study included for review. It is unclear if the study was scoped with Montgomery County.
7. The study presents the following recommendations/conclusions, that should minimally be required of the applicant. There may be additional or modified improvements, or driveway design considerations based on the comments in this letter and responses to them, as well as those from PennDOT and

Montgomery County, as the applicant must obtain their concurrence and approvals since North Trooper Road (S.R. 3002) is a state highway and West Germantown Pike is a county highway:

West Germantown Pike and North Trooper Road (S.R. 3002)

- Widen West Germantown Pike approximately 12 feet along the site frontage in order to restripe the western leg of this intersection to provide a separate left-turn lane and a shared through/right-turn lane on the eastbound West Germantown Pike approach. *Note: This widening is also intended to provide for a minimum 14-foot curb lane in the westbound direction of West Germantown Pike in the future.* Note: The frontage widening along West Germantown Pike and improvement of the northwest radius of the West Germantown Pike/North Trooper Road (S.R. 3002) intersection will require replacement of the existing signal pole at this corner to accommodate the improvements.
 - Traffic signal timing modifications.
8. With the proposed improvements noted above to widen the West Germantown Pike site frontage and to provide for roadway restriping and a designated eastbound left-turn lane at the intersection, the applicant is helping to mitigate their impact and working towards the larger long-term solution to alleviate the congestion experienced by vehicles along West Germantown Pike in the vicinity of the site. These are improvements that were identified in the West Germantown Pike Corridor Study completed for Montgomery County in the early 2000's as well as the capital improvement plan completed for the adjacent signalized intersection in the Worcester Township Act 209 study. Under the County review, however, they may comment on their desire to provide for a shoulder or designated bike lane between a future westbound travel lane and the currently proposed new curb line along the West Germantown Pike site frontage to accommodate two westbound through lanes and a 5-lane cross-section (plus bike lanes/pedestrian ways).
 9. The widened lane closest to the site should be striped to provide gore pavement markings in the interim and allow for the conversion into an additional westbound through lane (plus shoulder if the County requires) in the future.
 10. The analysis worksheets should be revised to show all analysis inputs (i.e., saturated flow rate, lane widths, grades, heavy vehicles percentages, etc.), in order to confirm the inputs used in the analysis.
 11. The base critical headway and follow up headway factors for all unsignalized intersections should be adjusted to be consistent with **PennDOT Publication 46, Chapter 10** parameters.
 12. The applicant's traffic engineer should verify the traffic signal timings/phasing used in the analysis conditions at the intersection West Germantown Pike and Park Avenue/Valley Forge Road (S.R. 0363) during both peak hours to confirm they match the traffic signal permit plan.
 13. The study utilizes a background growth rate of 0.21 percent per year which is consistent with data contained in PennDOT table entitled, ***Growth Factors for August 2023 to July 2024*** for urban non-interstates in Montgomery County. It should be noted that the study should have used a background growth rate is 0.17 percent per year as contained in PennDOT table entitled, ***Growth Factors for August 2024 to July 2025***, for urban non-interstates in Montgomery County. The analyses do not need to be revised specifically for this growth factor as the growth rate used in the study is higher, and therefore considered more conservative. However, to address other capacity/LOS items the applicant's engineer may re-run analyses with the lower rate.

14. Please provide volume development spreadsheets in the appendices that clearly indicate the existing volumes, baseline traffic growth volumes, traffic generated by planned or approved projects in the study area, and the proposed site volumes.
15. The applicant's traffic engineer should verify if they contacted East Norriton Township to determine if there are any proposed/planned nearby developments in that Township that should have been included in the future conditions traffic volume projections. If this was not done, please do so.
16. The traffic signal timings at the intersection of West Germantown Pike and North Trooper Road (S.R. 3002) should be optimized under 2029 future base conditions as required by current PennDOT TIS guidelines.
17. The HCM worksheets for the unsignalized study intersections during both the weekday morning and weekday afternoon peak hours under all analysis conditions should be revised to include the overall levels-of-service/delay in order to confirm the overall levels-of-service/delay results shown in Table 3.
18. The 2029 future no-build and build queues at the following intersections **exceed the available storage lengths** on one or more of the turn lanes between no-build to build conditions according to the queue analysis provided in Table 4:
 - West Germantown Pike and North Trooper Road (S.R. 3002) – westbound left-turn lane
 - West Germantown Pike and Park Avenue/Valley Forge Road (S.R. 0363) – eastbound left-turn lane

Therefore, the applicant's engineer must evaluate feasible additional improvements required in order to reduce the queue lengths at these intersections during both peak hours or must provide an Alternative Transportation Plan (ATP) to provide necessary storage and/or infrastructure improvements in the study area that are feasible and will improve transportation (multi-modal) mobility.

19. Crash analysis for the most recent five years of available crash data (i.e., 2019-2023) must be included in the study for all study intersections.
20. The applicant's traffic engineer will likely be required by PennDOT to complete a comprehensive pedestrian study for the existing signalized intersection of West Germantown Pike and North Trooper Road (SR 3002). An inquiry should be made to the County and PennDOT to confirm before completing. This pedestrian study would include documentation of the existing pedestrian accommodations and generators at the intersection and improvements proposed as part of the site development. It should be noted that upgrades to the existing pedestrian signal equipment may result from the study with the other intersection improvements at this location, as well as provision of appropriate ADA facilities and crosswalks.
21. It is noted that the applicant is proposing to provide a dedicated left-turn lane for eastbound West Germantown Pike as part of the traffic study and project improvements. Due to curve in West Germantown Pike through the intersection and grades, the vehicles waiting to make the left-turn on the eastbound approach may impact the unobstructed view of oncoming through traffic for motorists turning left from westbound West Germantown Pike onto southbound North Trooper Road (SR 3002). Due to this, PennDOT may necessitate the implementation of protected-prohibited left-turn phasing for the westbound West Germantown Pike left-turn lane. Implementation of protected-prohibited phasing will likely impact the traffic analysis results and could potentially require additional mitigation measures. We request that the applicant's traffic engineer evaluate this potential sight-distance concern in the field,

and then recommend that a technical meeting with PennDOT, County, and Township representatives be scheduled to confirm what, if anything, should be done with the signal timing/phasing for the left turn approaches. With the conclusions and guidance discussed, then revise the TIA accordingly.

22. As noted in a prior comment, the radius improvements proposed on the northwest corner of the existing signalized intersection of West Germantown Pike and North Trooper Road (SR 3002) will impact the existing signal equipment and require it to be relocated and replaced.
23. The applicant's traffic engineer shall provide left-turn conflict analysis calculations to confirm the need for left-turn phases at the existing signalized intersection of West Germantown Pike and North Trooper Road (SR 3002). Additional signal equipment may need to be replaced to accommodate the phasing requirements determined by the analysis, and the structural integrity of the existing equipment must then be evaluated to discern if it needs to be upgraded.
24. To reiterate an earlier point, East Norriton Township owns and maintains the traffic signal at the intersection of West Germantown Pike and North Trooper Road (SR 3002). All design plans and documents related to the traffic signal must be also submitted to East Norriton Township for review and approvals.

Preliminary Land Development Plans

25. The cartway widths along the North Trooper Road (S.R. 3002) and West Germantown Pike site frontages should be clearly labeled on the plans and be in accordance with **Section 130-16.C** of the **Subdivision and Land Development Ordinance**. *The applicant's traffic engineer indicates in its response that the cartway widths have been provided (labeled) on the preliminary land development plans, however, we are unable to locate them in this submission.*
26. A note must be added to the plan stating that the area between legal right-of-way line and ultimate right-of-way line along North Trooper Road (S.R. 3002) and West Germantown Pike should be offered for dedication to the authority having jurisdiction over the road as required by **Section 130-16.C(2)(c)** of the **Subdivision and Land Development Ordinance**. *The applicant's traffic engineer indicates in its response that a note will be added to the land development plans.*
27. According to **Section 130-18.A** of the **Subdivision and Land Development Ordinance**, sidewalk should be provided along the site frontages of North Trooper Road (S.R. 3002) and West Germantown Pike. *The applicant's traffic engineer indicates in its response that sidewalk has been provided along the North Trooper Road (S.R. 3002) and West Germantown Pike site frontages, however, the plans currently show sidewalk along the West Germantown Pike site frontage and along only a portion of the North Trooper Road (S.R. 3002) site frontage from West Germantown Pike to the proposed site access, thereby satisfying the ordinance requirement for West Germantown Pike but not satisfying the ordinance requirement for North Trooper Road (S.R. 3002). The plans must either be revised to show sidewalk along the entire North Trooper Road (S.R. 3002) site frontage, or a waiver/partial waiver must be requested from this ordinance requirement with a detailed explanation why it is being requested. We note to the Township that no sidewalk currently exists along either side of North Trooper Road (S.R. 3002) in the vicinity of the site. The Board of Supervisors may consider deferring this obligation that is required of the applicant until such a time as may be required by the PennDOT or the Township for this property, whether under present or future land ownership, and at no cost to Worcester Township, or may desire to consider a fee in lieu of sidewalk to be kept in escrow for future sidewalk installations in the Township and/or area of these properties.*

28. The plans have been revised to show curbing along the West Germantown Pike site frontage and along the North Trooper Road (S.R. 3002) site frontage for Lot 2 from West Germantown Pike to a point to the north of the gravel driveway for the existing single-family home and garage on the northern end of the site, however, it is unclear if the applicant is proposing to install curbing entirely along the Lot 1 site frontage to the northern property line on North Trooper Road (S.R. 3002) as is required in **Section 130-18.B** of the **Subdivision and Land Development Ordinance**. *The applicant's traffic engineer indicates in its response that curbing is provided along the West Germantown Pike and North Trooper Road (S.R. 3002) site frontages for the parcel (Lot 2).* We recommend that the plans be revised to clearly show curbing along the entire site frontage (both Lots 1 and 2) of North Trooper Road (S.R. 3002), or a waiver/partial waiver must be requested from this ordinance section with a detailed explanation of why it is being requested. We do note to the Township that there is currently no curbing along either side of North Trooper Road (S.R. 3002) in the immediate vicinity of the site. Alternatively, the Board of Supervisors may also consider deferring this obligation that is required of the applicant until such a time as may be required by the PennDOT or the Township for this property, whether under present or future land ownership, and at no cost to Worcester Township, or may desire to consider a fee in lieu of curb to be kept in escrow for future curb installations in the Township and/or area of these properties.

29. As previously commented upon in the prior review, adequate connectivity of the proposed sidewalk along the West Germantown Pike and North Trooper Road (S.R. 3002) site frontages to the signalized intersection of West Germantown Pike/North Trooper Road (S.R. 3002) must be provided. In addition, provision of ADA ramps and a crosswalk across North Trooper Road (S.R. 3002) from the site to the Norriton Presbyterian Cemetery should be incorporated into the plans.

*The applicant's traffic engineer indicates in its response that ADA ramps and crosswalks are not shown on the plans at the intersection of West Germantown Pike and North Trooper Road (S.R. 3002) connecting the site and the Norriton Presbyterian Cemetery since there is no corresponding ADA ramp on the opposite side of North Trooper Road (S.R. 3002) for which to connect a crosswalk, and that **further discussion will be required between the County, PennDOT, and the Township. We concur that this item should be discussed along with other items in this letter with the agencies involved.***

30. According to **Section 130-18.A(3)** of the **Subdivision and Land Development Ordinance**, a minimum of five feet should be provided between the curb and sidewalk. There is currently approximately four feet of separation between the curb and sidewalk along the roadways throughout out the site, and no separation provided between the curb and sidewalk in the island in the northern parking area, thereby not satisfying the ordinance requirement. The plans should be revised to show a minimum of five feet between the curb and sidewalk along the roadways throughout the site and in the island in the northern parking area, or a waiver must be requested from this ordinance requirement with a detailed explanation of why it cannot be provided per ordinance.

31. According to **Section 130-17.B(2)** of the **Subdivision and Land Development Ordinance**, driveways shall be located no less than 40 feet from a street intersection. The plans currently show less than 40 feet between the intersections in the northern and southern parking areas and the driveways for the individual townhouses along the internal roads in the vicinity of these intersections. The plans should be revised to show a minimum of 40 feet between the driveways and intersections in the northern and southern parking areas, or waiver must be requested from this ordinance requirement.

32. The curb radii should be labeled on the plans at the proposed driveway intersections with North Trooper Road (S.R. 3002) and West Germantown Pike and be in accordance with **Section 130-17.B(3)** of the **Subdivision and Land Development Ordinance**. *The applicant's traffic engineer indicates in its response*

that the curb radii at the West Germantown Pike and North Trooper Road (S.R. 3002) driveways are 35 feet and that they will be labeled on future plans.

33. The designer should ensure sufficient sight distance is provided for the proposed driveways along the internal road in accordance with **Section 130-17.B(1)** of the **Subdivision and Land Development Ordinance**. *The applicant's traffic engineer indicates in its response that sight distance requirements for individual driveways along an internal road are not required in Section 130-17 and it will discuss this with the Township Traffic Engineer.* Since this ordinance section pertains to driveway intersections with streets, the sight distance for the individual driveways along the internal road should be provided.
34. According to **Section 130-17.D(2)** of the **Subdivision and Land Development Ordinance**, at no time shall angle or perpendicular parking along the curbs of local, public, or private access roads or streets be permitted. All parking other than parallel parking shall be physically separated from the cartway by a minimum of seven feet and confined to barrier parking. The plans do not show any separation between the perpendicular parking and the cartway in the parking areas on the northern and southern ends of the site, thereby not satisfying the ordinance requirement. The plans should be revised to show a minimum of seven feet of separation between the perpendicular parking and cartways in these parking areas, or a waiver must be requested from this ordinance requirement.
35. Horizontal curvature information should be provided on the plans for the internal roadway and be in accordance with **Section 130-16.B(2)** of the **Subdivision and Land Development Ordinance**.
36. The proposed profiles should be revised to include the points of intersecting streets and be in accordance with **Section 130-16.E.7** of the **Subdivision and Land Development Ordinance**.
37. The proposed profiles on Sheets 20-22 should be updated to provide the proposed elevations on the bottom informational band.
38. The proposed crosswalk areas must be shown on the proposed profiles and have ADA compliant slopes.
39. Detailed ADA designs and CS-4401 forms must be submitted for review for all ADA ramps located within the Township right-of-way, along with any necessary TIF forms, for municipal concurrence. Crosswalks across the accesses should be designed to cross in front of the stop bar.
40. The required and available sight distances must be provided and labeled on the plans for the intersections of the proposed roadway and North Trooper Road (SR 3002) and West Germantown Pike.
41. The designer must evaluate the proposed pipe connection with existing inlet T1, as well as proposed Inlet A11. Based on the information provided, it does not appear that either inlet is constructible.
42. The designer should clarify where the detail for concrete curb on Sheet 23 of the plan set will be used.
43. The design ESALS for the proposed PennDOT pavement legend provided on Sheet 24 of the plan set should be verified.
44. The designer should consider placing the proposed sidewalk closer to the ultimate right-of-way line in order to better accommodate the future ultimate widening of West Germantown Pike.

45. Parking along the edges of both sides of the internal roadway based on the site design, road widths, and location of driveways will need to be prohibited by adequate signing. The Township Engineer and Fire Marshal may also comment on this design. *The applicant's traffic engineer indicates in its response that "No Parking" signs will be added to the plan in future submissions.*
46. Turning templates must be provided demonstrating the ability of trash trucks and the largest expected delivery vehicle/moving trucks to maneuver into and out of the full-movement driveway along North Trooper Road (S.R. 3002), as well as entirely through the site's private street system.

The applicant's traffic engineer indicates in its response that these turning templates have been provided in this submission, however, we are unable to locate them in the submission.

47. The Township Fire Marshal should review the emergency vehicle turning templates for accessibility and circulation needs of emergency apparatus. Ensure that any correspondence, including any review comments and/or approvals, is included in subsequent submissions. *The applicant's traffic engineer indicates in its response that no correspondence from the Fire Marshal has been received to date and any correspondence will be included in future submissions.*
48. All proposed signs should be clearly labeled on the plans in subsequent submissions. *The applicant's traffic engineer indicates in its response that all proposed signs have been labeled on the plans, however, several signs throughout the proposed development are not clearly labeled on the plans.*
49. We recommend that the proposed Knox Box gate should likely be moved closer to the southern side of the emergency-only access along West Germantown Pike just inside the ultimate right-of-way line so that vehicles from West Germantown Pike see it and do not improperly use it to access the site. In addition, both ends of the emergency-only access should be signed to clearly indicate it is for emergency use only with special "Do Not Enter" signs for emergency vehicles only. If this is going to remain an emergency-only access, the County can weigh in on the provision of smaller radii or perhaps a depressed curb driveway, so it is less likely to be mistaken for an access roadway to/from the property for everyday vehicles to use. The pavement section between the curbline and internal roadway should also be discussed and potentially be designed with pavers capable of carrying an emergency vehicle.

The applicant's traffic engineer indicates in its response that the location of the Knox Box gate currently shown on the plans was chosen to allow emergency vehicles to pull off of West Germantown Pike to unlock the gate and that its ultimate location will be discussed with the Fire Marshal. The Fire Marshal should comment on this.

50. A total of 24 guest parking spaces (12 at each end of the development) are proposed. With the provision of narrower roads and parking to be prohibited except in driveways (approximately 20' to 22' deep and 20' wide, allowing up to two driveway cars not in garage) and in the guest parking spaces, the adequacy of parking should be evaluated and provided by the applicant and their team. Depending on the demographic of residents to live in this community, holiday and special gatherings may require more overflow parking than available in this community, and the roadways and site layout are not designed to allow for on-street parking and two-way travel for other vehicles to circulate. No parking is to be provided along West Germantown Pike or North Trooper Road (S.R. 3002).

The applicant's traffic engineer indicates in its response that the proposed number of guest parking spaces complies with Township requirements and that additional guest parking spaces can be added if determined to be necessary. Since the Township Ordinance does not specify any requirements for guest space

parking, we **recommend** that the applicant try to provide as many guest parking spaces as possible throughout the site to accommodate for the potential for additional overflow parking needs throughout the development.

51. Retaining wall design documents, including reports and specifications, must be submitted to the Township Engineer for review and concurrence. *The applicant's traffic engineer indicates in its response that the retaining wall design documents will be submitted to the Township under separate cover.*

We trust that this review letter responds to your request. If you or the Township have any questions, or require clarification, please contact me, Michelle Eve, P.E., or Brian Jones, PTP, TOPS.

Sincerely,



Casey A. Moore, P.E
EVP/Regional Manager - Transportation

BMJ/MEE/CAM

cc: John Evarts, P.E., CKS Engineers (Township Engineer)
Wendy Feiss McKenna, Esq. (Township Solicitor)
Scott Burton, PennDOT
Paul Lutz, PennDOT
Andy Parker, McCormick Taylor (PennDOT and Montgomery County Review Consultant)
Robert Hart, East Norriton Township Manager
Michael Maier, Westrum Development Company (Applicant)
Barry Stingel, PLA, T&M Associates (Applicant's Architect)
Chris Jensen, P.E., T&M Associates (Applicant's Engineer)
Dave Horner, P.E., PTOE, Horner & Canter Associates (Applicant's Traffic Engineer)

Q:\PA-FTWA-MC\MCM\eng\WORCETO1\314086-01-001 - 1035 Trooper Road\Submissions\2025-01-09 TIA_LD Plans\Review\2025-02-05 Review Letter #3 - 1035 North Trooper Road (finalized).docx

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SCOTT FRANCE, AICP
EXECUTIVE DIRECTOR

February 13, 2025

Dan DeMeno, Manager
Worcester Township
1721 South Valley Forge Road
P.O. Box 767
Worcester, PA 19490

Re: MCPC #24-0066-002
Plan Name: 1035 Trooper Road
(2 lots comprising 13.32 acres)
Situate: Trooper Road at Germantown Pike
Worcester Township

Dear Mr. DeMeno:

We have reviewed the above-referenced preliminary subdivision and land development plan in accordance with Section 502 of Act 247, "The Pennsylvania Municipalities Planning Code," as you requested on January 14, 2025. We forward this letter as a report of our review.

BACKGROUND

The applicant, Commerce Pursuit Capital LP, has submitted a preliminary plan proposing the development of a 13.32 acre tract for 45 townhomes, open space, and associated improvements (including amenity space) in the MR Multi-Residential Overlay District. The tract does have an existing residence on it, which is proposed to remain. Twenty-four guest parking spaces are proposed along two central green islands within the development. Stormwater management, including an underground basin, is placed along the perimeter of the property. Several retaining walls are proposed for the northern corner of the site. One of the two access points to the development is along Germantown Pike, a county-owned road, which will require a Highway Occupancy Permit from the county. The development would be served by public water and sewer service.

COMPREHENSIVE PLAN COMPLIANCE

Montco 2040: A Shared Vision, the county's current comprehensive plan, identifies the future land use of this tract as a Suburban Residential Area, which is appropriate for single-family attached and multifamily development. This proposal is consistent with the county's comprehensive plan. It is also consistent with



the Future Land Use Map of Worcester Township's 2008 Comprehensive Plan, which identifies the general area of this development as a Mixed Use Village Area.

RECOMMENDATION

The Montgomery County Planning Commission (MCPC) generally supports the applicant's proposal, however, in the course of our review we have identified the following issues that the applicant and township may wish to consider prior to final plan approval. Our comments are as follows:

REVIEW COMMENTS

SITE DESIGN

- 1) Front Yards. In a prior review letter for this site, we noted that the front yards of these townhouses are relatively narrow, and that adjacent garages and driveways could be paired together to provide consolidated green space and more areas for landscaping and tree cover.
- 2) Amenity Spaces. As a requirement of the MR District, the applicant is required to provide an amenity area within the development. What had been two amenity spaces in the prior submission is now one; we strongly encourage providing a multi-purpose space that allows for children to play and adults to safely gather.
- 3) Street Trees. We noted during our review that much of the interior streets are lined with serviceberry trees and we would encourage increasing the variety of tree specimens placed within the interior of the property.
- 4) Stormwater Management. With the placement of the stormwater basin along North Trooper Road in a very visible spot, we'd encourage the applicant to treat this as an amenity and take care that it does not get overrun with invasives like phragmites.

TRANSPORTATION

- 1) Highway Occupancy Permit. A reminder that Germantown Pike is a county road and as such, the applicant will need a highway occupancy permit to create this new driveway access. Please copy Jennifer Payne through the county's Office of Roads and Bridges on any future correspondence on this topic.

CONCLUSION

We wish to reiterate that MCPC generally supports the applicant's proposal but we believe that our suggested revisions will better achieve Worcester Township's planning objectives.

Please note that the review comments and recommendations contained in this report are advisory to the municipality and final disposition for the approval of any proposal will be made by the municipality.

Should the governing body approve a final plat of this proposal, the applicant must present the plan to our office for seal and signature prior to recording with the Recorder of Deeds office. A paper copy bearing the municipal seal and signature of approval must be supplied for our files. Please print the assigned MCPC number #24-0066-002 on any plans submitted for final recording.

Sincerely,

A handwritten signature in dark ink that reads "Anne Leavitt-Gruberger". The script is cursive and fluid, with the first name "Anne" being larger and more prominent than the last name.

Anne Leavitt-Gruberger, County Planning Manager

anne.leavitt-gruberger@montgomerycountypa.gov – 610-278-3727

c: Barry Stingel, T&M Associates, Applicant's Representative
Christian Jones, Assistant Township Manager

Attachment A: Aerial Image of Site

Attachment B: Reduced Copy of Applicant's Proposed Site Plan

ATTACHMENTS



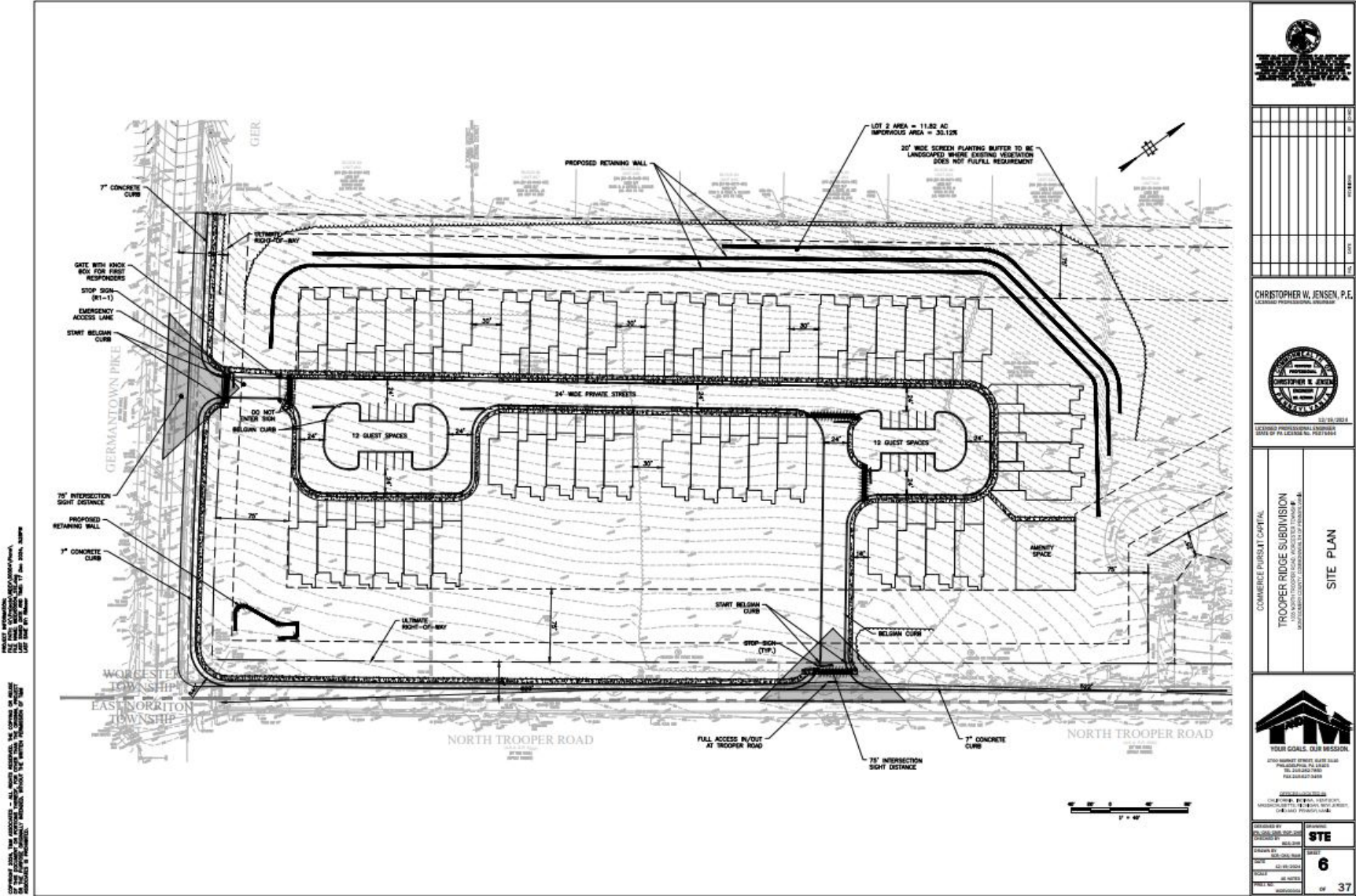
1035 Trooper Road
MCPC#240066002

Montgomery
County
Planning
Commission

Montgomery County Courthouse - Planning Commission
PO Box 311, Norriton PA 19024-0311
(p) 610 278-3722 (f) 610 278-3941
www.montcopa.org/plancom
Aerial photography provided by Newmap

0 100 200 400 Feet







CKS Engineers
4259 West Swamp Road, Suite 410
Doylestown, PA 18902
P: 215.340.0600
www.cksengineers.com

February 20, 2025
Ref: #C0005084

Township of Worcester
1721 Valley Forge Road
PO Box 767
Worcester, PA 19490-0767

Attention: Dan DeMeno, Township Manager

Reference: 1035 Trooper Road
Parcel No. 67-00-01540-00-4
"Trooper Ridge" Minor Subdivision and Residential Land Development
Preliminary Review

Dear Dan:

Our office is in receipt of your request for review of a Preliminary Plan for the above-referenced site. The submission consists of a 37-sheet plan dated December 19, 2024, with no revisions, and a Post Construction Stormwater Management and Erosion and Sediment Control Report dated December 18, 2024, with no revisions, both prepared by T&M Associates.

The applicant proposes subdivision of an existing 15.12-acre (gross) 13.32±-acre (net) parcel to create two lots. Lot 1 will be a 1.50-acre lot to contain an existing single-family detached dwelling with a detached garage located entirely in the R-100 Residential Zoning District and Multi-Residential Use Overlay district. Lot 2 will be an 11.82-acre lot to contain 45 townhouses in nine building clusters ranging from four to six units each, all with a two-car garage and driveway accessed by a 24-ft.-wide private roadway, with 24 perpendicular overflow parking spaces in two separate parking areas, an aboveground stormwater basin, and an amenity space. The existing parcel is a split-zoned lot in both the R-100 Residential, C-Commercial Zoning Districts, as well as the MR - Multi-Residential Use Overlay District. Access to Lot 2 will be provided via one full-movement access at the southeasterly frontage along Trooper Road (State Route 3002) with one emergency access to Germantown Pike (Montgomery County Route) at the southwesterly frontage. The three existing driveway accesses serving Lot 1 will remain unchanged. All townhouses are proposed to be connected to public water and sewer service and stubs to Lot 1 will be provided for future connection.

We offer the following comments for consideration by the Township:

ZONING:

The following comments are based upon the Worcester Township Zoning Ordinance:

1. Ordinance No. 285 adopted June 16, 2021 made the MR Multi-Residential Overlay District applicable to this property with underlying zoning districts to remain. The existing 15.12-acre lot consists of two zoning districts, approximately 21% C-Commercial and 79% R-100 Residential. Once subdivided, Lot 1 will be entirely R-100 and Lot 2 will be approximately 29% C-Commercial, with the remainder being zoned R-100 Residential.
2. The proposed use of Lot 1, single-family detached dwelling with a detached barn for storage and workshop use incidental to the principal dwelling use of the lot garage, is permitted by-right in the R-100 Zoning District and Multi-Residential Overlay. (150-67.B, 150-67.C and 150-83.A)
3. While a Zoning Data table is supplied on Sheet 2, compliance of Lot 1 cannot be verified as the plan does not depict the entirety of proposed Lot 1. The plan must be revised to show the full extents of Lot 1. Additional zoning comments may apply upon future submission of Lot 1 details. (150-68, 150-84 and 130-33.B.4)
4. The proposed use of Lot 2, multi-family dwellings consisting of 45 townhouses, is permitted in the Multi-Residential District at a density of four units per developable acre. The plan notes a lot area of 11.82 net acres; therefore, 45 townhouses results in a permissible density of 3.8 du/acre. (150-83.B and 150-89.E.1)
5. The plan shows compliance with the 50% impervious coverage limit for townhouses in the MR Zoning District and 40% requirement for single-family dwelling in the R-100/MR Overlay. A tabulation of impervious surface types must be provided with their respective areas so our office may confirm the proposed impervious coverage areas on each lot. (150-86.B)
6. The twenty units with rears oriented towards Trooper Road will have basements with floor slabs approximately 10 feet below the finished floor elevation at the street side. While the Zoning Data table on Sheet 2 notes a 30-foot proposed height for all structures, we question the asterisk which states, "units will have basements with a majority of the basement wall area below finished grade." The ordinance definition of basement requires the basement floor to be below subgrade on all sides. Additionally, the ordinance defines building height as the vertical distance measured from the average elevation of the existing grade at the location of the building or its highest point of a flat or multi-level roof. A height variance may be required for the units in question if any are to exceed 35 feet or two stories. If any other units will have basements, the proposed floor elevation(s) must be added to Sheet 7. (150-9 and 150-87.A.1)
7. The lighting plan must include a compliance table and show light distribution patterns and intensities. (150-89.E.4 and 150-200)
8. The plans show a stormwater management basin located in the front yard setback of Trooper Road. For multi-family residential districts, no part of any detention basin shall occupy more than 35% of the required yard area of any district yard. A calculation must be provided indicating what percentage of the setback is occupied by the basin. Additionally, no detention basin shall be located closer to any building containing two or more multi-family dwelling units than the minimum distance required between buildings. We note that a required 30-ft. separation is required between the stormwater facility and

- the townhomes and appears to be provided from adjacent building clusters, but a setback dimension should be shown on the plan. (150-89.D and 150-203)
9. A 20-foot-wide screen planting buffer shall be provided in the exterior 50 feet of the 75-foot buffer area. (150-89.E.6.b)
 10. If the townhouses are to be operated under a homeowners association, the future association declaration and by-laws may need to include language prohibiting the keeping of recreational vehicles and travel trailers. (150-160)
 11. The type and location of mail delivery must be indicated on the plan. The applicant must provide a mail collection area at a central location(s) if cluster boxes are mandated by the Postmaster. We recommend placement in the landscaped islands for overflow parking, near pedestrian crossings for ease of access. A level approach and concrete pad for a standing area should be also provided in front of each cluster so residents and the postal carrier may access mailboxes without standing in the cartway. (150-177.A.7)
 12. All structures, buildings, parking areas, regraded slopes, and substantial improvements (with the exception of driveway and utility crossings when no other location is feasible) are prohibited on slopes of 25% or greater. A tabulation of steep slope disturbance must be added to the plan. A variance may be necessary if slopes over 25% are disturbed. (150-146.4.B.1)
 13. All buildings shall be designed as a single architectural scheme. The applicant must provide the Township with renderings of the intended building design scheme for the townhouses to ensure the continued character of the Township. Additionally, elevation views shall be provided of the townhomes backing up to Trooper Road. (150-89.E.2)
 14. The applicant must provide further details of the proposed amenity area at the southeast corner of Lot 2. We note that the Township's Open Space Preservation Plan contains an "implementation item" for the consideration of recreational space in the Fairview Village area. We recommend an inclusive facility with elements for all ages and abilities be considered, such as accessible play equipment, benches or similar seating areas, tables, and weather-protected gathering space. At the Board of Supervisors' discretion, the Township may require a fee-in-lieu of outdoor recreational facilities. (150-89.E.7)
 15. The use of the accessory structure on Lot 1 must be discussed with the Township. The Zoning Table should be updated to reflect any applicable zoning data related to accessory structures. (150-177.A)

SUBDIVISION AND LAND DEVELOPMENT

The following comments are based upon the Worcester Township Subdivision and Land Development Ordinance:

1. The plan must include a calculation of the net lot area. Sheet 2 and Sheet 4 note a 15.12-acre gross tract area and Sheet 4 lists a tract area of 14.30 acres to the legal right-of-way line. For reference, constrained land areas must be separately tabulated per the Zoning Ordinance. (130-33.C.5)

2. The location and size of any existing sanitary sewer, storm drains, and water supplies must be noted on the plans. (130-33.C.4.c)
3. General ERSA Note No. 3 on Sheet 12 indicates the site does have verified wetlands and that the wetlands are delineated on the plans. The wetlands are unfounded and must be clearly shown, if applicable. An investigation report which determined the presence of wetlands must be furnished for review. If no wetlands are present, the note must be revised. (130-33.C.3.e)
4. Based on General ERSA Note No. 1 on Sheet 12, a Pennsylvania Natural Diversity Index (PNDI) search was conducted. We recommend the Township apply restrictions on tree removal timeframes consistent with the habitat protection guidelines (i.e. avoid removals from May 15th to August 15th). (130-33.C.3.j)
5. Whenever possible, the applicant shall preserve trees, groves, and/or waterways. If more than 25% of the existing trees on site with six-inch DBH or more are destroyed because of development, then all trees over the 25% threshold shall be replaced in addition to other landscaping requirements. (130-14.C)(130-28.F.7.b)
6. The applicant must determine if there are any deed restrictions, covenants, easements, and/or other encumbrances which may preclude the development as proposed. (130-33.C.4.e)
7. Existing cartway widths must be labeled on the plans. (130.C.2.a)
8. Subdivisions and land developments should be laid out so as to avoid the necessity for excessive cut or fill unless specifically warranted by terrain or location. Dwellings located along the northern side of the tract result in excessive cut and those closer to Trooper Road will require fill. The applicant should demonstrate to the Township that no alternative layout is feasible that would minimize cut and fill operations. (130-14.D)
9. A portion of the retaining walls are proposed in steep slope areas. Retaining walls are not permitted unless the applicant can demonstrate that steeper slopes or retaining walls can be stabilized and maintained adequately and that they more effectively preserve the landscape in its scenic and/or natural state. (130-32.1.C.4)
10. Street names must be proposed for consideration by the Township Planning Commission and Board of Supervisors. Proposed names shall not closely resemble any other existing streets. (130-16.A.8)
11. The plans must demonstrate that a 200-foot sight distance is provided along the proposed streets along the centerline, measured at the driver's eye height of five feet. (130-16.B.1)
12. The radius of horizontal curves shall not exceed 150 feet for residential streets. Curves through the north and south loops do not comply and will require a waiver unless reconfigured. (130-16.B.2.a)
13. Even if to be a private street, a 50-foot-wide right-of-way must be proposed for the internal roads. The plans must be revised to show the limits of the proposed right(s)-of-way. (130-16.C.1.a.4)

14. The paved cartway width of residential street shall be 32 feet or a reduced 28- to 30-foot width where such width is unreasonable. The proposed paved cartway is shown to be 24 feet wide and will require a waiver. If a waiver is requested and granted, we recommend it be contingent upon an on-street parking prohibition along the curb lines on both sides of all streets. (130-16.C.1.a.4).
15. The area between an existing title line and the ultimate right-of-way line should be offered for dedication to the authority having jurisdiction over the road when land is subdivided or developed along an existing right-of-way. This offer should be noted on a plan to be recorded and metes and bounds provided on the plan for such strips of land. (130-16.C.2.c)
16. Sheet 24 provides the following paving section details:
 - a. Right-of-Way Pavement Section detail
 - b. Parking Lot Paving Section detail (light duty)
 - c. Heavy-Light Duty Pavement Match detail

The plan must graphically depict the limits of where each of these pavement sections will be installed. While proposed as a private roadway, the internal road system should be constructed to Township standards. (130-16.D)

17. The intersection approach to Trooper Road from the main access road and to the cross street northwest of the north loop has a slope of 4% per the Sheet 20 profile. This must be reduced to 3% for a minimum distance of 50 feet at both locations, or a waiver requested. We defer to the Township Traffic Engineer for further comment. (130-16.E.7)
18. Driveways shall be a minimum of 40 feet from street intersections. Some unit driveways do not comply and those two which are within the main access drive intersection with the loop street are of greatest concern. The applicant should reconfigure the units as necessary to minimize the number of driveways occurring at street intersections. (130-17.B.2)
19. Perpendicular parking as proposed for the 24 overflow guest parking spaces is prohibited along private roadways unless separated by barrier curbing and located a minimum of seven feet from the cartway. (130-17.D.2)
20. Guest parking spaces must be a minimum of 10 feet wide by 20 feet deep. The detail on Sheet 24 states "see plans" for dimensions, but none are provided on Sheet 6. (130-17.D.7 and 130-17.D.11)
21. At least one van-accessible ADA parking space must be provided for guests since the parking will be for public use. We recommend placement in the parking row closest to the amenity space. The quantity of overflow spaces must still satisfy zoning ordinance requirements based on the number of dwellings proposed if this item requires changes to proposed striping. (130-17.D.11 and 150-158)
22. An emergency access is being provided off of Germantown Pike into the proposed development. We question the design of the emergency access and have concerns that

it will appear to drivers as a second local access into the development. The access proposes a locking gate and "Knox Box" to limit vehicular access. We recommend that sufficient signage be added to the plans to post the access for Emergency Vehicles Only from the Germantown Pike and internal road approaches. A detail of the sign panel and post-mount should be provided on the plans. Further, additional measures may be necessary such as knock-down bollards or similar barriers to prevent motorists from attempting to enter the site from Germantown Pike.

23. Sidewalks shall be provided along all streets, unless the Township Supervisors deem it unnecessary for public safety. East of the proposed access drive at Trooper Road, no sidewalks are provided on the plan. A partial waiver may be required for this portion of the Lot 2 frontage and the entire Lot 1 frontage. (130-18.A.1)
24. The minimum required width of sidewalks, 4 feet, must be noted on Sheet 23 details. Where sidewalk is less than five feet wide, ADA compliant passing zones must be provided and may not be contained within dwelling driveways or aprons. (130-18.A0)
25. The location of the sidewalk relative to the right-of-way line could not be reviewed for the private road system. The right-of-way line must be added and sidewalks must be five feet from the curb line, within the right-of-way. (130-18.A.3)
26. Curbing is shown to be Belgian Block material interior to the site at the threshold of the ultimate rights-of-way. A waiver will be required as curbing must be constructed of concrete. (130-18.B.1.a)
27. The Township may wish to comment on the appropriateness of the amenity space and consider if its placement effectively preserves the site's natural features. We note the northern end of the site, where it is proposed to be located, contains steep slopes and medium-aged trees, whereas other portions of the site are presently meadow with fewer trees. The applicant may wish to consider a more central location to all proposed dwellings; however, proximity to overflow parking is preferred. (130-21)
28. A blanket stormwater easement is proposed per General Note 31 on Sheet 2. This note should indicate if the easement applies only to Lot 2 as it appears no stormwater facilities will be constructed upon Lot 1. (130-22.D.3)
29. The location of all trash receptacle areas must be shown. If curbside collection is to be provided, it must be noted on a plan to be recorded. We recommend at least one permanent receptacle be provided at the amenity space and the party responsible for maintenance of the receptacle be listed. If the requested receptacle is added, a detail should be provided. (130-28.E.2)
30. The plan should show the entire tract boundary with bearings and distances. Lot 1 is only partially shown. The extent of the subdivision line is not clear due to the partial plan presentation. (130-33.B.4)
31. Existing and proposed monumentation must be shown on the plans. Additional monuments are required to differentiate Lot 1 from Lot 2. Monuments shall be stone or concrete and located on the right-of-way lines at corners, angle points, beginning and end of curves, and otherwise required. (130-23)

32. A note should be added to a plan that will be recorded indicating that all proposed utilities are to be installed underground. (130-27)
33. Further quantification is required to evaluate compliance regarding steep slopes. The grayscale rendering on Sheets 5 and 12 and 1' = 100' plan scale of Sheet 12 are difficult to evaluate. The plan scale must be increased and the steep slope areas tabulated on both sheets. (130-32.1)
34. Unit numbers for each townhouse must be added to all plans.
35. A "Tree Survey Plan" was not included with the submission. Relative information is depicted on Sheet 5, Demolition Plan, and Sheet 12, Natural Resources Protection Plan, which is acceptable. Tree counts of sample areas and tree removal calculations are outlined on Sheet 12, Natural Resources Protection Plan. We request that the applicant or their consultant contact this office to arrange a site visit to verify the information provided. Furthermore, the sampling methodology must be submitted to Worcester Township for approval. (130-28.E.1)
36. A location map showing zoning district designations for the site and adjacent properties is to be shown on the Landscape Plan. (130-28.E.2.a.)
37. The plant list is to be revised and expanded to include planting *height* and *spread* for trees and *height* and *spread* for shrubs at installation. (130-28.E.2.g.)
38. Existing and proposed contours shall be clearly labeled and areas with slopes in excess of 10% shall be indicated on the Landscape Plan. (130-28.E.2.i.)
39. We offer the following comments and recommendations relative to the Plant Schedule and Landscape Planting Notes and Specifications: (130-28.E.2.g & .j)
 - a. We recommend for clarity that Landscape Details (Sheet 30) and Landscape Schedule (Sheet 31) plan sheets are referenced on the Landscape Plan (Sheet 10).
 - b. We recommend that an installation detail is provided for trees to be installed on steep slopes.
 - c. Provide the intended spacing of shrubs. Designed spacing for each shrub species proposed should be reviewed based on the mature size of the species and intent of the design.
 - d. We recommend shrubs be included in a continuous mulch bed for ease of ongoing maintenance. A note should be added accordingly.
 - e. We recommend that a note be added to the Plant Schedule indicating the quantity of male Winterberry shrubs to be provided as pollinators to the female shrubs.
 - f. Note No. 7 on Sheet 30 should be expanded to include the Township Engineer for review of species substitution requests.

40. We offer the following comments relative to tree preservation and removal (130-28.F.):
- a. In cases where natural features that exist and will be retained on site duplicate the planting requirements of Subsection G, any and all of such requirements may be waived by the Township. Notes in the Landscape Requirements Chart indicate that existing woods to remain along the rear and side yard to the north to count toward meeting perimeter buffer requirements. The extent of existing perimeter vegetation should be clearly indicated in plan view for further review.
 - b. Since vegetation to remain is intended by the Applicant to count toward Landscaping requirements, it is recommended that the following note, or similar, be added to the Landscape Plan: *The Township reserves the right to require additional landscape buffer plantings, following substantial completion of construction, should vegetation to be preserved not be preserved or not otherwise be as represented on the Final Landscape Plan(s).*
 - c. A tree protection fence installation detail has been provided. The limits of the protection fencing are to be depicted on the Erosion and Sediment Control Plan (Sheet 11).
 - d. Planting is proposed within an area of vegetation shown to remain. The planting design should be adjusted to eliminate this conflict.
 - e. The Township encourages native species for replacement trees, and these shall not be all the same size.
 - f. Pignut Hickory, used toward meeting replacement tree requirements, is not included in the Recommended Plant List. While the species is native, it is not widely available at nurseries. Another option should be considered.
 - g. Minimum 2-1/2" caliper River Birch trees are proposed, yet are specified as multi-stem trees. It is acceptable to specify these trees as multi-stem trees, as long as the minimum height specified is the same as a minimum 2-1/2" caliper single-stem shade tree.
41. Plantings should be selected and located where they will not create or contribute to conditions hazardous to the public's safety. We offer the following comments and recommendations relative to tree placement: (130-28.G.2)
- a. Location of all existing and proposed above and underground utilities are to be added to the Landscape & Lighting Plan, Sheet 10, to ensure landscaping and utilities will not be in conflict with one another. Except where precluded altogether by an easement or right-of-way, it is recommended that new trees be installed no closer than 5 feet measured horizontally from any underground utility.
 - b. Street trees shall not be located within the street right-of-way of Trooper Road.

- c. Trees and shrubs shall not be planted within swales. Proposed plantings must be relocated elsewhere.
 - d. Clear sight triangles are to be labeled on the Landscape & Lighting Plan, Sheet 10.
 - e. The proposed tree layout and lighting design should be coordinated and adjusted as appropriate to reduce conflict between trees and proposed lighting.
42. Street trees are required along existing streets where missing and along access driveways to residential developments having more than four dwelling units. We note that trees along Lot 1's Trooper Road frontage could not be reviewed and the main access driveway to Lot 2 is deficient. (130-28.G.4.a.3.&4.)
43. The planting design provides for Softening buffers. However, Perimeter *screen* buffer planting shall be provided. (150-89.E.6. and 130-28.G.5.f.)
44. Off-street parking landscape plantings shall be provided. (130-28.G.6.)
45. Individual lot landscape plantings shall be provided in addition to all other required plantings. (130-28.G.9.b.)
46. We offer the following comments relative to detention basin perimeter plantings: (129-18.24.c. and 130-28.G.7.f)
- a. The ordinance reference for Drainage Area and Detention Basin Landscaping within the Landscape Requirements chart should be corrected.
 - b. The extent of Detention Basin perimeter should be verified and additional plantings provided accordingly. The Landscape Requirements chart lists 707 linear feet. However, our measurements result in approximately 770 linear feet.
 - c. The overall intent of the landscaping requirements should be considered with relation to the design and layout of the basin area plantings, in particular, 130-28.A.2.b. which reads, *"Reduce stormwater runoff velocity and quantity by ... providing planting areas where runoff velocities are reduced and stormwater can infiltrate, ultimately recharging local groundwater supplies."*
 - d. We recommend plantings proposed in association with detention basins are native species.
 - e. Sawtooth Oak tree is not recommended as it is currently on the PA DCNR Invasive Plant Watch List.
47. We offer the following comments relative to the proposed species: (130-28.H.)

- a. Due to Serviceberry being a cohost for Cedar Apple Rust, these should not be planted in close proximity to Eastern Red Cedars. One of the species should be switched out.
 - b. Downy Serviceberry and Flowering Cherry trees are not in the Recommended Plant List. With exception as noted above, both species are acceptable as proposed, between townhome units and between buildings.
 - c. White Spruce evergreen trees are not on the Recommended Plant List. We believe the use and placement of these trees as proposed is acceptable.
 - d. Dwarf Fothergilla, Sweetspire, Alleghany Viburnum and Snow Queen Oakleaf Hydrangea shrubs are not on the Recommended Plant List. We believe the use and placement of these shrubs as proposed is acceptable. However, availability of Dwarf Fothergilla and Sweetspire at the sizes specified should be verified. Furthermore, Common Name for Alleghany Viburnum should be corrected for clarification.
 - e. Parson's Juniper is not on the Recommended Plant List. We do not believe a ground cover is appropriate as proposed.
48. The applicant must provide a written summary of waivers from the Subdivision and Land Development Ordinance with any future submissions. Sheet 1 only identifies one waiver request from the Stormwater Ordinance as follows:
- a. From Section 129-18, to allow for High Density Polyethelene (HDPE) pipe in lieu of the required reinforced concrete pipe material. We take no exception to this request given the drainage piping will be contained upon a private tract with private roadways.

SANITARY SEWER

1. A pressure sanitary sewer extension will be constructed to serve the proposed townhouse development. This pressure sewer extension will be constructed within the development and continue into W. Germantown Pike. The flow from this project will flow through the system to Township MH HD1.1A and flow by gravity to the Heritage Village Pumping Station. This pumping station has been evaluated and determined to have adequate capacity. We note that sewer treatment from this development will be treated at the Berwick Place WWTP. Currently, this plant is projected to have an organic overload within five years. A Corrective Action Plan (CAP) is currently under review by PADEP. No new connections will be allowed until the CAP is approved by PADEP.
2. The applicant will be required to prepare a Planning Module for this project for sanitary sewer service. This module will need to be submitted to the Pennsylvania Department of Environmental Protection (PADEP) for review and approval in order to revise the

Township's current Act 537 Plan. The Township will need to review the planning module prior to submission and execution for PADEP.

3. Manhole HD1.1A must be core drilled for the new lateral connection. Additionally, MH HD1.1A and HD1.1 must be lined with an epoxy coating. Both of these requirements must be noted on the plans.
4. The design of pressure sanitary system, including calculations, must be submitted to the Township for review.
5. Please identify all new sanitary sewer force main piping as SDR-21 pipe. All pipe size and material must be included on the utility plan and profile sheet.
6. The Applicant should contact Worcester Township Code Enforcement Officer to determine if residential fire suppression systems will be required in the proposed townhouse buildings.
7. The Applicant should confirm with the Pennsylvania American Water Company the type of meter pits (if any) that will be required for this project.
8. The Worcester Fire Marshal should review the plans to verify that he is satisfied with the number and location of fire hydrants shown on the plans.
9. The Applicant will be required to purchase sanitary sewer tapping fees from the Township. The Township will determine the adequate number of EDUs required for this project and convey that information to the Applicant.
10. Capped sanitary and water laterals from Lot 2 to Lot 1 are capped off at the proposed property boundary. When capped sewers are provided, on-site disposal facilities shall also be provided until connection to Lot 1 is made. (130-26.5)
11. We recommend the stubbed utilities which will extend to Lot 1's property line be reoriented to not pass below the amenity space. Regardless of their location, a utility easement will be required in favor of the Lot 1 property owner.

STORMWATER MANAGEMENT, GRADING, EROSION AND SEDIMENT CONTROL

The following comments are based upon the Worcester Township Stormwater Management Ordinance:

1. An NPDES permit and erosion and sedimentation adequacy letter will be required from the Montgomery County Conservation District and PADEP. (130-32 and 129-20)
2. The plan should note if the stormwater basin will be owned/maintained by a HOA or if it is to be offered for dedication. If a stormwater management facility is accepted by the Township for dedication, the applicant shall pay a specified amount to the Township Maintenance Fund for periodic inspections and maintenance. (129-42.A)

3. An O&M agreement will be required for all stormwater facilities, in a form acceptable to the Township Solicitor. (129-39.A)
4. West of the basin, contour 377 is intersecting with an unlabeled contour. Contours should be verified and may not intersect.
5. The following storm structures and pipe segments have varying elevations on the Sheet 9 table relative to the storm sewer profiles on Sheets 14 through 17:
 - a. A1.1 – Top of grate on profiles is 365.05.
 - b. A2 – The invert listed does not match profiles.
 - c. B3.1 – The invert listed does not match profiles.
 - d. B5 - The invert listed does not match profiles.
 - e. MH T5 - The invert listed does not match profiles.
 - f. OCS A3 – The TG/rim listed does not match profiles
 - g. S3 - The invert listed does not match profiles.
 - h. T2 – The TG/rim listed does not match profiles.
 - i. The following pipe segments have HDPE as the proposed material listed on the table; however, the profiles show RCP: G2 to G1, S2-S9, T1.1 to T1, and T8 to T11).
6. While a typical detail is provided on Sheet 25, the applicant must confirm that all headwalls /endwalls will be of reinforced concrete. If any alternative materials are proposed, a waiver will be required. (129-18.C.5)
7. Anti-seep collars shall be cast-in-place. Storm Sewer Note No. 4 on Sheet 2 must be revised and a typical detail provided reflecting the same. (129-18.H.16)
8. We note that infiltration testing encountered bedrock at TP-2 and TP-4, at elevations 357.42 and 359.92. The proposed basin floor is shown to be at elevation 361.00 and the subsurface stone bed will extend to 351.00. The limiting zone must be considered in the basin design.
9. If bedrock cannot be ripped, blasting may be required. General Demolition Note 6 should be revised to explicitly include approval from Worcester Township is required for any blasting.
10. We note that flow to inlets S8 and S9 atop the northernmost retaining wall and inlet B8.1 in the yard between Buildings 7 and 8 are approaching or exceed 4.0 cfs of inflow. We recommend the inlets be upsized to a Type 6 top and box. Further, the drainage area to inlets S8 and S9 are 1.8 and 2.2 acres, respectively. While this is capturing off-site flow, this is a significant contributing drainage area. Inlets T8, T9 and T12 are also shown to have drainage areas ranging from 1.8 to 2.4 acres and may benefit from providing additional structures upgradient to reduce the contributing drainage areas. (129-18.C.10)
11. Slopes for the basin sides behind buildings 10 through 12 are shown to be steeper than 5V:1H; a waiver will be required. (129-18.H.9)

12. All proposed slopes steeper than 3:1 must be labeled on the plans. It appears that there are proposed slopes greater than 3:1 upstream of the basin. (SMO 129.G(4) and 129.G(5))
13. All proposed grading must be located five feet from a property boundary. (SMO 129.G(6))
14. The basin bottom slope must be 2% unless landscaped and provided with a design which encourages infiltration. We acknowledge the placement of the gabion wall to increase the flow path travel time through the basin floor; however, we recommend some plantings beyond the ERNMX-181 seeding be proposed. (129-18.H.10)
15. The spillway lining material is noted to be "SC-150" or "NAG-75" erosion control blanket. If not to be of concrete checkerblocs, a waiver may be required. (129-18.H.12)
16. A section drawing of the proposed basin is required showing the configuration above and below grade. The profile must also dimension the top of berm width as 10 feet. (129-18.H.14)
17. A stabilized access drive will be required for Basin 1 and an access gate must be provided in the split rail fence surrounding the basin. The basin must be reachable by the service drive with a depressed curb and concrete apron at the right-of-way. An easement must be established for access by Worcester Township or its designee. The split rail fence is proposed to contain wire mesh within its voids. The mesh specification must be included on the plans to ensure emergency spillway operation is not encumbered as the fence extends across the spillway. (129-18.H.22 and 129-18.H.23)
18. We note that the maximum allowable water depth for basins is 2 ft. for the 2- and 10-year storms and 3 ft for 100-year storm. The basin 2-year and 100-year water surface elevations are noted to be 362.36' and 363.49', respectively, per the PCSM report; however, there is conflicting information regarding the bottom of bed elevation. If to be 357.00, the water depth exceeds the allowable limits for these storms. (129-18.H.3)
19. While supported by this office, the gabion wall within 100-year water surface through spillway will require a waiver. A typical construction detail for the gabion wall must be added to the plans. (129-18.H.21)
20. Skewed or angled storm pipe crossings above or below utilities are not allowed unless approved by the authorities having jurisdiction of the facilities being crossed. There are multiple angled crossings throughout the storm network. While this cannot be entirely avoided, we recommend the applicant confirm all other utility providers are agreeable to the storm pipe configurations as shown. (129-18.C.16)
21. Numerous inlets are proposed directly in front of depressed curbs serving unit driveways. We recommend these inlets be relocated elsewhere or the driveway spacing adjusted to minimize travel over the grates.
22. A minimum of 6 inches is required between the emergency spillway elevation and the top of grade elevation of the outlet structure. Six inches is also required between the 100-year water surface elevation and the top of grade of the outlet structure. The basin outlet configuration must be adjusted accordingly. (SMO 129-18.H(19))

23. Basin 1 outlet piping must be watertight O-ring RCP. (SMO 129-18.H(18)).
24. A Stormwater Management Agreement will be required. The Agreement shall be reviewed and approved by the Township Solicitor prior to plan approval. (SMO 129-138)
25. Roof drain and sump pump discharge locations must be indicated on the plan. (SMO 129-18(C)(20))

GENERAL ENGINEERING & DRAFTING

The following are general comments and considerations generated during the course of our review:

1. The portion of the existing driveway that Lot 1 utilizes will now be located on Lot 2. The applicant must indicate if the driveway is to remain. If this section of driveway is to remain, an access easement may be required.
2. Legend(s) should be added to the plan sheets throughout the plan set, as applicable.
3. On all the sheets, the northern lot line appears to be cut off, not showing the total of the lot subdivision.
4. Sheet 37 illustrates truck turning movements for the aerial fire apparatus only. We offer the following comments on the provided template:
 - a. At the access driveway, egress movements are shown in the opposing lane.
 - b. Access into the site must be depicted from Trooper Road as well.
 - c. The approach through the emergency access is shown to have a 9% grade. We recommend the designer confirm the apparatus can successfully traverse this slope.
 - d. Movements of a waste hauling vehicle must also be modeled.
 - e. The locations of any on-street parking located outside of the 24 guest spaces must be considered in these templates, if applicable.
5. The project proposes several retaining walls. Notes on Sheet 2 and 24 are acceptable, however; all walls must be reviewed and approved before construction commences.
6. Methacton School District should comment on any potential bus stop location if to be a private road network. There may be a need for a waiting area on Trooper for student pick-up/drop-off. If necessary, a bench for seating and weather protection are recommended for students and guardians.
7. Sheet No. 1 includes a list of utility users. There are other utilities (East Norriton) listed which may or may not be impacted by this project and the Applicant should review those and provide an accurate listing of only utilities impacted.

8. The title sheet must indicate which sheets are to be recorded. Additionally, on each sheet to be recorded, an 'xx' of 'xx' must be added to the title block.
9. The plans must be submitted for review and comment to the following agencies:
 - a. Montgomery County Planning Commission
 - b. Montgomery County Conservation District
 - c. PennDOT – Trooper Road
 - d. Montgomery County Roads and Bridges Department W. Germantown Pike
 - e. PADEP
 - f. PA American Water
 - g. Township Traffic Engineer
 - h. Fire Marshal

The above represents our comments on this Preliminary Plan Submission. Due to the extensive information requested, additional comments may apply upon review of subsequent submissions. Please contact me if you have any questions or need additional assistance on this project.

Very truly yours,
CKS ENGINEERS
Township Engineers



John Evarts, P.E.

JWE/klk

cc: Christian Jones, Assistant Township Manager (via email)
Casey Moore, Township Traffic Engineer (via email)
James O'Donnell, Owner
Robert Gundlach, Esquire, Fox Rothschild (via email)
Michael Maier, Commerce Pursuit Capital, L.P. (via email)
Barry Stingel, P.E., T&M Associates (via email)
File



January 07, 2025

Dan DeMeno, Township Manager
Township of Worcester
1721 S Valley Forge Road
Worcester, PA 19490

RE: Methacton School District
1001 Kriebel Mill Road
Norristown, PA 19408
Methacton High School Redevelopment
T&M Project Number: SGAL00073

Dear Mr. DeMeno,

T&M, on behalf of the applicant, Methacton School District, is pleased to submit the following plans and documents for review and consideration by the Township Planning Commission and Board of Supervisors for the above referenced project. The project consists of the demolition of the existing Methacton High School and construction of a new school building and various site improvements. Included are as follows:

1. (14) Fourteen copies of the signed township application form
2. (14) Fourteen sketch plans dated 01/03/2025
3. (14) Fourteen survey plans dated 09/13/2024
4. (14) Fourteen copies of the Methacton High School deed dated 02/19/2004
5. (1) One check in the amount of \$1,500
6. (1) One check in the amount of \$1,000

Should you have any questions or require any additional information please do not hesitate to contact Emma Pasnak (215.282.7841 or epasnak@tandmassociates.com) or myself.

Very truly yours,
T&M Associates Consulting Engineers

David Stewart
Group Manager
dstewart@tandmassociates.com

WORCESTER TOWNSHIP
SKETCH PLAN
REVIEW REQUEST

Date of Request: 12/20/2024 Date of Plan: 12/20/2024

Plan Revision Date(s): N/A

Applicant Name: Methacton School District

Address: 1001 Kriebel Mill Road, Norristown, PA 19408

Tele: 610-489-5000 Fax: 610-489-5019

Property Owner(s) Name(s): Methacton School District

Address: 1001 Kriebel Mill Road, Norristown, PA 19408

Tele: 610-489-5000 Fax: 610-489-5019

Tract Address: 1001 Kriebel Mill Road, Norristown, PA 19408

Existing Zoning: AGR - Agricultural

Tract Parcel Number(s): 67-00-01393-00-7

Intended Land Use: Educational (no proposed change in use)

Tract Area: 62.8261 Acres (Net to Ultimate Right-of-Way)

Utilities (sewer & water): Water (Public) - PA American Water;
Sewer (Private) - On-site Water Treatment Facility

Previous Submissions (include all referenced names of tract & dates): N/A

Signature of Applicant: 

Printed Name of Applicant: David Zerbe

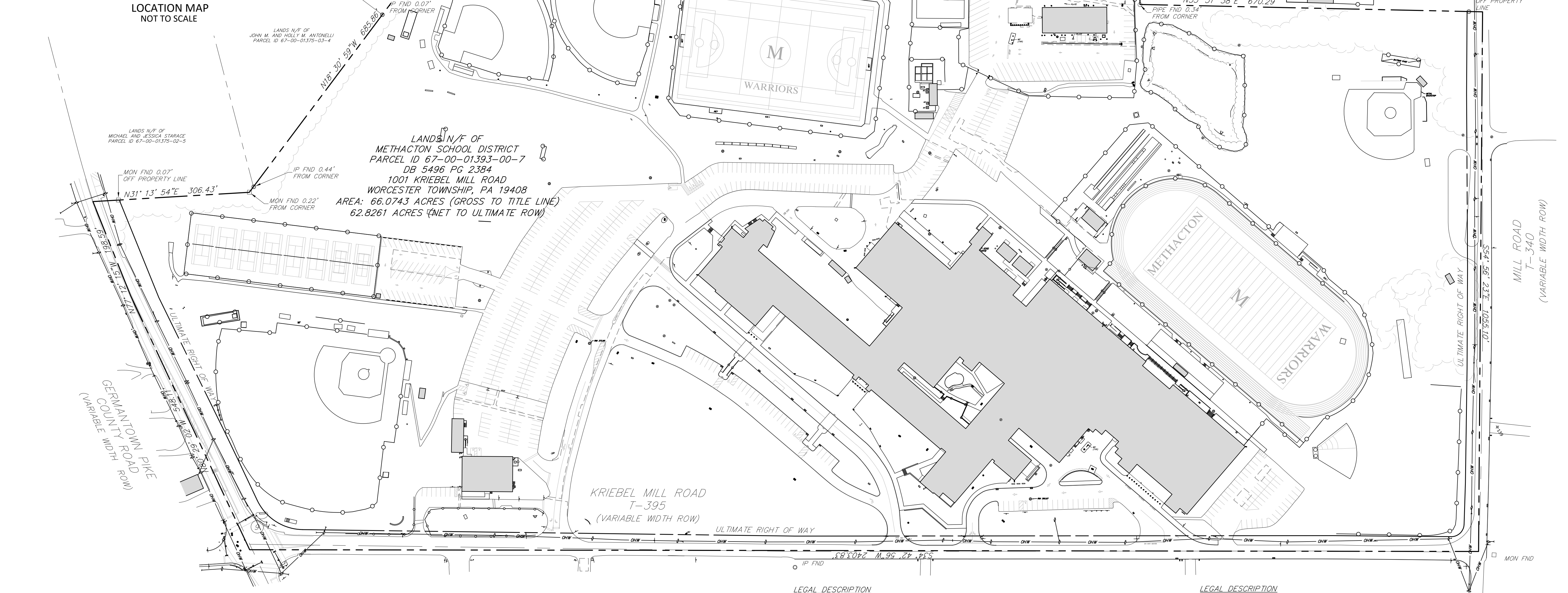
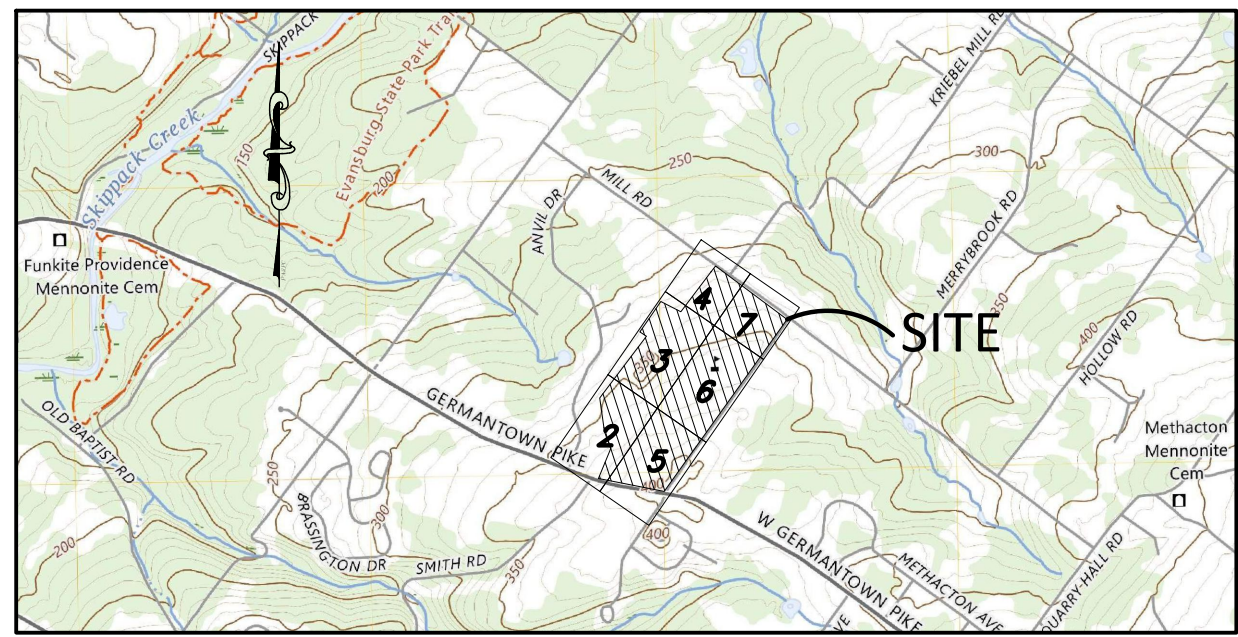
Date of Signature: 12/17/24

Must present:

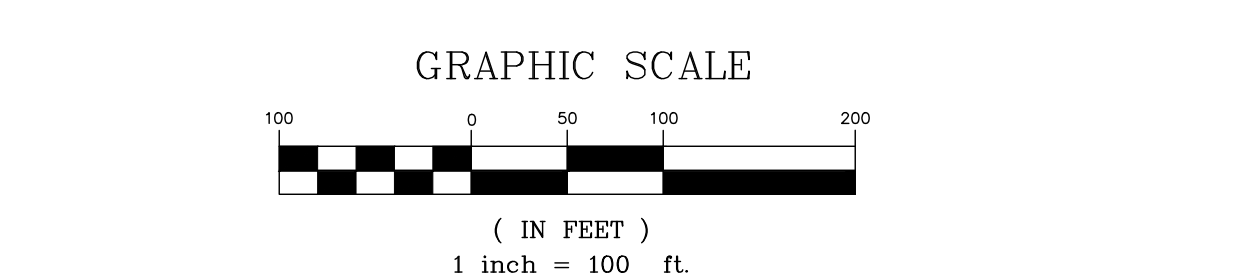
- **14 detailed sketch plans, folded, showing land use, number of proposed lots and information as attached. Plans will be returned if insufficient information is presented.**
- **A current Agreement of Sale or letter of acknowledgement from property owner. Application will be returned if this information is missing.**

The Township Engineer review fee, when applicable, is pursuant to the current fee schedule. (Township will bill applicant unless otherwise advised.)

NOTE: Plan contents must be according to Ordinance No. 99-169.



- NOTES
- FIELD WORK FOR ALTA/ NSPS LAND TITLE SURVEY OF 1001 KRIEBEL MILL ROAD, TOWNSHIP OF WORCESTER, MONTGOMERY COUNTY, PENNSYLVANIA WAS COMPLETED IN JULY, 2024.
 - HORIZONTAL DATUM IS BASED ON PENNSYLVANIA STATE PLANE NAD83. METES AND BOUNDS ARE LABELED PER STATE PLANE BEARINGS.
 - VERTICAL DATUM IS BASED ON NAVD83.
 - BY GRAPHIC PLOTTING ONLY, THE FOLLOWING PROPERTY IS LOCATED IN THE FOLLOWING FLOOD HAZARD ZONE:
1001 KRIEBEL MILL ROAD, ZONE 1
PER FEMA FLOOD MAP NUMBER 42091C0245G DATED 03/02/2016
 - THE FOLLOWING DOCUMENTS WERE USED IN RESOLUTION OF THE BOUNDARY IN PREPARATION OF THE SURVEY MAP:
- DEED BOOK 5496 PAGE 2384
- DEEDS OF RECORD FROM ALL OTHER ADJOINING PROPERTIES
 - RECORD PLAN FOR SUBJECT TRACT TITLED "METHACTON HIGH SCHOOL ATHLETIC FIELD RECONSTRUCTION PROJECT", PREPARED BY C2OP SPECIFIC, DATED 07/17/17 AND LAST REVISED 05/10/14 AND RECORDED IN THE MONTGOMERY COUNTY RECORDER OF DEEDS IN PLAN BOOK 42 PAGE 53.
RECORD PLAN FOR SUBJECT TRACT TITLED "HIGH SCHOOL EXPANSION PHASE II", PREPARED BY BARRY ISETT AND ASSOCIATES, INC. DATED 01/23/03 AND LAST REVISED 05/20/03 AND RECORDED IN THE MONTGOMERY COUNTY RECORDER OF DEEDS IN PLAN BOOK 68 PAGE 403.
RECORD SUBDIVISION PLAN FOR PARCEL TO THE NORTH TITLED "SUBDIVISION PLAN OF ROSENBLUM TRACT", PREPARED BY STOLZ, TACCELLI AND ASSOCIATES, INC. DATED 02/16/01 AND LAST REVISED 04/01/02 AND RECORDED IN THE MONTGOMERY COUNTY RECORDER OF DEEDS IN PLAN BOOK 80 PAGE 495.
 - RIGHT OF WAY ARE BASED ON PHYSICAL CENTERLINE OF ROAD AND THE FOLLOWING DOCUMENT:
RECORD PLAN FOR SUBJECT TRACT TITLED "METHACTON HIGH SCHOOL ATHLETIC FIELD RECONSTRUCTION PROJECT", PREPARED BY C2OP SPECIFIC, DATED 07/17/17 AND LAST REVISED 05/10/14 AND RECORDED IN THE MONTGOMERY COUNTY RECORDER OF DEEDS IN PLAN BOOK 42 PAGE 53.
 - NO PAIR ONE CALL WAS PLACED FOR THIS SURVEY.
 - ZONING REPORT OR LETTER WAS NOT PROVIDED TO THE SURVEYOR BY THE CLIENT OR THE CLIENTS DESIGNATED REPRESENTATIVE. ZONING INFORMATION IS NOT SHOWN.
 - THERE WAS NO EVIDENCE OF RECENT EARTH MOVING WORK, BUILDING CONSTRUCTIONS, OR BUILDING ADDITIONS OBSERVED DURING THE PROCESS OF CONDUCTING TELEPHONY.
 - LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE. LOCATIONS AND SIZES ARE BASED ON UTILITY MARK-OUTS, ABOVE GROUND STRUCTURES THAT WERE VISIBLE & ACCESSIBLE, IN THE FIELD, AND THE MAPS AS CITED IN THE REFERENCES AVAILABLE AT THE TIME OF THE SURVEY. AVAILABLE ADJUT PLANS AND UTILITY MARKOUT DOES NOT ENSURE MAPPING OF ALL UNDERGROUND UTILITIES AND STRUCTURES. BEFORE ANY EXCAVATION IS TO BE DONE, ALL UTILITIES MUST BE MARKED TO THEIR LOCATION, SIZE, AND TYPE BY THE PROPER UTILITY COMPANIES. CARROLL ENGINEERING DOES NOT GUARANTEE THE UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED.



Source Of Title
Alta Commitment For Title Insurance
Issuing Agent: NORTHEAST EXECUTIVE ABSTRACT AGENCY, INC.
479 OLD YORK ROAD
JENKINTOWN, PA 19034
Effective Date: 08/26/2024
Issued By: FIDELITY NATIONAL TITLE INSURANCE COMPANY
FIR No.: 2409-NCA-4854-ACC
Property Address From Title Commitment:
1001 KRIEBEL MILL ROAD,
TOWNSHIP OF WORCESTER,
COUNTY OF MONTGOMERY, PA
Schedule B, Part II, Exception:

- SCHEDULE B, PART II, EXCEPTION:
- ANY DETECT, LIEN, ENCUMBRANCE, ADVERSE CLAIM, OR OTHER MATTER THAT APPEARS FOR THE FIRST TIME IN THE PUBLIC RECORDS OR IS CREATED, ATTACHES, OR IS DISCLOSED BETWEEN THE REPORT DATE AND THE DATE ON WHICH ALL OF THE SCHEDULE B, PART I - REQUIREMENTS ARE MET. (NOT SURVEY RELATED)
 - RIGHTS OR CLAIMS OF PARTIES IN POSSESSION OF THE LAND NOT SHOWN BY THE PUBLIC RECORD. (NOT PLOTTABLE)
 - ANY LIEN OR RIGHT TO A LIEN FOR SERVICES, LABOR OR MATERIALS HERETOFORE OR HEREAFTER FURNISHED, IMPOSED BY LAW AND NOT SHOWN BY THE PUBLIC RECORDS. (NOT SURVEY RELATED)
 - EASEMENTS, ENCROACHMENTS, OVERLAPS, SHORTAGES OF AREA, BOUNDARY LINE DISPUTES AND OTHER MATTERS AFFECTING TITLE THAT AN ACCURATE AND COMPLETE SURVEY WOULD DISCLOSE. (NOT PLOTTABLE)
 - REAL ESTATE TAXES FOR THE CURRENT AND PRIOR TAX YEARS WHICH ARE HEREAFTER ASSESSED AND ARE NOT YET DUE AND PAYABLE. (NOT SURVEY RELATED)
 - MEMORANDUM OF TRI-PARTY DEVELOPMENT AGREEMENT AS IN DEED BOOK 5474 PAGE 694. (NOT SURVEY RELATED)
 - DECLARATION OF COVENANTS, EASEMENTS AND RESTRICTIONS CONCERNING STORMWATER FACILITIES AS IN DEED BOOK 5474 PAGE 685 AND DEED BOOK 5945 PAGE 2034. (EFFECTS SUBJECT TRACT - BLANKET IN NATURE - WORCESTER TOWNSHIP HAS FULL AND UNINTERRUPTED RIGHT, RIGHT OF WAY PRIVILEGE, EASEMENT AND SUBJORITY TO EXERCISE UPON ALL PROPERTIES ON WHICH SURFACE AND SUBSURFACE STORMWATER DRAINAGE FACILITIES ARE LOCATED SUCH AS SEWAGE BEDS, SURFACE SWALES, BMPs, DETENTION BASINS, DRAINAGE EASEMENTS, STORM SEWERS AND OTHER RELATED STORMWATER FACILITIES)
 - NOTES, CONDITIONS, SEWER LINES, EASEMENTS, RESERVATIONS, COVENANTS AND RESTRICTIONS AS SHOWN AND SET FORTH IN PLAN, RECORDED IN PLAN BOOK L-8 PAGE 405 & PAGE 53 BUT OMITTING ANY COVENANTS OR RESTRICTIONS IF ANY BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, OR SOURCE OF INCOME. AS SET FORTH IN APPLICABLE STATE OR FEDERAL LAWS, EXCEPT TO THE EXTENT THAT SAID COVENANT OR RESTRICTION IS PERMITTED BY APPLICABLE LAW. (EFFECTS SUBJECT TRACT - ULTIMATE RIGHT OF WAY IS ARE SHOWN FOR PLANS - NOT SHOWING SETBACK LINES PER PLANS DUE TO POTENTIAL OUTDATED INFORMATION)
 - DEED OF DEDICATION AS IN DEED BOOK 5947 PAGE 1702. (EFFECTS SUBJECT TRACT - NORTHEAST CORNER OF KRIEBEL MILL ROAD AND GERMANTOWN PIKE TO BE DEDICATED FOR PUBLIC USE AND ENJOYMENT AS AND FOR A PUBLIC STREET, ROAD OR HIGHWAY TOGETHER WITH THE SANITARY AND STORM SEWER LINES, AND A GUIDE RAIL ALONG GERMANTOWN PIKE - AREA IS WITHIN ULTIMATE RIGHT OF WAY)
 - RIGHTS GRANTED TO PHILADELPHIA ELECTRIC COMPANY AS MORE PARTICULARLY SET FORTH IN DEED BOOK 4611 PAGE 388. (AFFECTS SUBJECT TRACT - BLANKET IN NATURE - RIGHTS GRANTED TO PHILADELPHIA ELECTRIC COMPANY [] THE PERPETUAL RIGHT, LIBERTY, PRIVILEGE AND AUTHORITY TO LOCATE, RELOCATE, INSTALL, MAINTAIN, AND REMOVE ITS ENTRANCE FACILITIES TO THE PAVE GERMANTOWN PIKE WITH ASSOCIATED TERMINALS AND OTHER FACILITIES)
 - RELEASE, DISCHARGE, ASSIGNMENT AND CONVEYANCE AS IN DEED BOOK 4696 PAGE 1829. (NOT SURVEY RELATED)
 - TERMINATION AGREEMENT AS IN DEED BOOK 4696 PAGE 1837 OF LEASE DATED 4/7/1967. (NOT SURVEY RELATED)
 - TAX REFORM CODE AS IN IRC BOOK 20 PAGE 1639. (NOT SURVEY RELATED)
 - RIGHTS GRANTED TO THE BELL TELEPHONE COMPANY AS MORE PARTICULARLY SET FORTH IN DEED BOOK 5912 PAGE 567. (EFFECTS SUBJECT TRACT - BLANKET IN NATURE - TWO DOCUMENT GRANTS THE BELL TELEPHONE COMPANY, ITS SUCCESSORS, AND ASSIGNS, THE RIGHT, PRIVILEGE AND AUTHORITY TO PLACE, MAINTAIN AND REMOVE ITS ENTRANCE, RISER, FLOOR AND DISTRIBUTION CABLES WITH ALL NECESSARY TERMINALS AND OTHER APPLIANCES REQUIRED TO PROVIDE TELEPHONE SERVICE TO VARIOUS RESIDENTS.)
 - EASEMENT AS IN DEED BOOK 3451 PAGE 94. (MAY EFFECT SUBJECT TRACT - NOT PLOTTABLE - DOCUMENT REFERENCES A MAP THAT IS NOT ATTACHED)
 - DECLARATION OF RESTRICTIONS AND COVENANTS AS IN DEED BOOK 5945 PAGE 2048. (NOT SURVEY RELATED)
 - MEMORANDUM OF LAND DEVELOPMENT AND FINANCIAL SECURITY AGREEMENT AS IN DEED BOOK 5945 PAGE 2048. (NOT SURVEY RELATED)
 - RIGHTS GRANTED TO VERIZON PENNA. INC. AS SET FORTH IN DEED BOOK 5945 PAGE 1881. (EFFECTS SUBJECT TRACT - BLANKET IN NATURE - THIS DOCUMENT GRANTS VERIZON PENNSYLVANIA INC. ITS SUCCESSORS, ASSIGNS, LESSEES AND AGENTS THE RIGHT, PRIVILEGE AND AUTHORITY TO CONSTRUCT, RECONSTRUCT, OPERATE, MAINTAIN AND REMOVE ITS ENTRANCE FACILITIES TO THE PAVE GERMANTOWN PIKE WITH ASSOCIATED TERMINALS AND OTHER FACILITIES)
 - RELEASE, DISCHARGE, ASSIGNMENT AND CONVEYANCE AS IN DEED BOOK 4696 PAGE 1829. (NOT SURVEY RELATED)
 - TERMINATION AGREEMENT AS IN DEED BOOK 4696 PAGE 1837 OF LEASE DATED 4/7/1967. (NOT SURVEY RELATED)
 - TAX REFORM CODE AS IN IRC BOOK 20 PAGE 1639. (NOT SURVEY RELATED)
 - RIGHTS GRANTED TO THE BELL TELEPHONE COMPANY AS MORE PARTICULARLY SET FORTH IN DEED BOOK 5912 PAGE 567. (EFFECTS SUBJECT TRACT - BLANKET IN NATURE - TWO DOCUMENT GRANTS THE BELL TELEPHONE COMPANY, ITS SUCCESSORS, AND ASSIGNS, THE RIGHT, PRIVILEGE AND AUTHORITY TO PLACE, MAINTAIN AND REMOVE ITS ENTRANCE, RISER, FLOOR AND DISTRIBUTION CABLES WITH ALL NECESSARY TERMINALS AND OTHER APPLIANCES REQUIRED TO PROVIDE TELEPHONE SERVICE TO VARIOUS RESIDENTS.)
 - EASEMENT AS IN DEED BOOK 3451 PAGE 94. (MAY EFFECT SUBJECT TRACT - NOT PLOTTABLE - DOCUMENT REFERENCES A MAP THAT IS NOT ATTACHED)
 - DECLARATION OF RESTRICTIONS AND COVENANTS AS IN DEED BOOK 5945 PAGE 2048. (NOT SURVEY RELATED)
 - CERTIFICATE REQUESTING TERMINATION AS IN DEED BOOK 5505 PAGE 143. (NOT SURVEY RELATED)

LEGAL DESCRIPTION
PER SCHEDULE A

PREMISES "A"
ALL THAT CERTAIN LOT OR PIECE OF GROUND WITH THE BUILDINGS AND IMPROVEMENTS THEREON ERECTED, SITUATE IN THE TOWNSHIP OF WORCESTER, COUNTY OF MONTGOMERY AND COMMONWEALTH OF PENNSYLVANIA, DESCRIBED IN ACCORDANCE WITH A MAP MADE FOR LOWER PROVIDENCE-WORCESTER JOINT SCHOOL DISTRICT MADE BY YERNES ENGINEERING CO., BRYN MAWR, PENNSYLVANIA, DATED 6-8-1959 AS FOLLOWS, TO WIT:
BEGINNING AT A SPIKE SET AT THE INTERSECTION OF THE MIDDLE LINE OF MILL ROAD (50 FEET WIDE) WITH THE MIDDLE LINE OF KRIEBEL MILL ROAD (33 FEET WIDE), THENCE ALONG THE MIDDLE LINE OF KRIEBEL MILL ROAD, SOUTH 40 DEGREES 48 MINUTES WEST, 668.71 FEET TO A POINT, A CORNER OF LAND OF LULLIAN M. REBERT, THENCE ALONG SAID LAND, THE TWO FOLLOWING COURSES AND DISTANCES: (1) NORTH 47 MINUTES 59 SECONDS 30 SECONDS WEST, 551.76 FEET TO A POINT, (2) SOUTH 41 DEGREES 01 MINUTE WEST, 837.20 FEET TO A POINT, THENCE ALONG THE LAND OF LULLIAN M. REBERT AND BY LAND OF ARTHUR AND HELEN ROSENBLUM, NORTH 50 DEGREES 10 MINUTES 30 SECONDS WEST, 233.47 FEET, THENCE BY LAND OF ARTHUR AND HELEN ROSENBLUM, THE THREE FOLLOWING COURSES AND DISTANCES: (1) NORTH 40 DEGREES 29 MINUTES 30 SECONDS EAST, 465.30 FEET TO AN IRON PIN, (2) NORTH 49 DEGREES 02 MINUTES WEST, 501.50 FEET TO AN IRON PIN, (3) NORTH 42 DEGREES 57 MINUTES EAST, 464.48 FEET TO AN IRON PIN IN LINE OF LAND OF WILLIAM BROWN, JR AND REGINA, HUSBAND AND WIFE, THENCE ALONG SAID LAND AND BY LAND OF ALLEN F. AND MARIAN F. CHRISTMAN, SOUTH 49 DEGREES 35 MINUTES EAST, 195.51 FEET TO AN OLD STONE, THENCE BY LAND OF ALLEN F. AND MARIAN F. CHRISTMAN, NORTH 42 DEGREES 21 MINUTES EAST, 668.70 FEET TO A SPIKE IN THE MIDDLE LINE OF MILL ROAD, THENCE ALONG THE MIDDLE LINE OF MILL ROAD, SOUTH 49 DEGREES 38 MINUTES EAST, 499.68 FEET TO A POINT, THENCE BY LAND OF JAMES A. DETMELER, THE THREE FOLLOWING COURSES AND DISTANCES: (1) SOUTH 41 DEGREES 40 MINUTES WEST, 187.42 FEET TO A POINT, (2) SOUTH 40 DEGREES 20 MINUTES EAST, 161 FEET TO A POINT, (3) NORTH 41 DEGREES 40 MINUTES EAST, 187.42 FEET TO A POINT IN THE MIDDLE LINE OF MILL ROAD, THENCE ALONG THE MIDDLE LINE OF MILL ROAD, SOUTH 48 DEGREES 20 MINUTES EAST, 400 FEET TO THE FIRST MENTIONED POINT AND PLACE OF BEGINNING.
PREMISES "B"
ALL THAT CERTAIN LOT OR PIECE OF GROUND WITH THE BUILDINGS AND IMPROVEMENTS THEREON ERECTED, SITUATE IN THE TOWNSHIP OF WORCESTER, COUNTY OF MONTGOMERY AND COMMONWEALTH OF PENNSYLVANIA, DESCRIBED IN ACCORDANCE WITH A MAP MADE FOR LOWER PROVIDENCE-WORCESTER JOINT SCHOOL DISTRICT MADE BY YERNES ENGINEERING COMPANY, BRYN MAWR, PENNSYLVANIA, DATED 6-8-1959 AS FOLLOWS, TO WIT:
BEGINNING AT A POINT IN THE MIDDLE LINE OF MILL ROAD (50 FEET WIDE) AT THE DISTANCE OF 400 FEET MEASURED ALONG SAID MIDDLE LINE NORTH 48 DEGREES 20 MINUTES WEST FROM A SPIKE AT ITS INTERSECTION WITH THE MIDDLE LINE OF KRIEBEL MILL ROAD (33 FEET WIDE), THENCE ALONG THE MIDDLE LINE OF MILL ROAD, NORTH 48 DEGREES 20 MINUTES WEST, 161 FEET TO A POINT, THENCE BY LAND OF SAMUEL J. DETMELER, THE THREE FOLLOWING COURSES AND DISTANCES: (1) SOUTH 41 DEGREES 40 MINUTES WEST, 187.42 FEET TO A POINT, (2) SOUTH 48 DEGREES 20 MINUTES EAST, 161 FEET TO A POINT AND (3) NORTH 41 DEGREES 40 MINUTES EAST, 187.42 FEET TO THE FIRST MENTIONED POINT AND PLACE OF BEGINNING.
PREMISES "C"
ALL THAT CERTAIN LOT OR PIECE OF GROUND WITH THE BUILDINGS AND IMPROVEMENTS THEREON ERECTED, SITUATE IN THE TOWNSHIP OF WORCESTER, COUNTY OF MONTGOMERY AND COMMONWEALTH OF PENNSYLVANIA, DESCRIBED IN ACCORDANCE WITH A MAP MADE FOR LOWER PROVIDENCE-WORCESTER JOINT SCHOOL DISTRICT MADE BY YERNES ENGINEERING CO., BRYN MAWR, PENNSYLVANIA, DATED 6-8-1959 AS FOLLOWS, TO WIT:
BEGINNING AT A SPIKE SET AT THE INTERSECTION OF THE MIDDLE LINE OF GERMANTOWN PIKE (50 FEET WIDE) WITH THE MIDDLE LINE OF KRIEBEL MILL ROAD (33 FEET WIDE), THENCE ALONG THE MIDDLE LINE OF GERMANTOWN PIKE, THE TWO FOLLOWING COURSES AND DISTANCES: (1) NORTH 74 DEGREES 24 MINUTES WEST, 549.27 FEET TO A POINT, (2) NORTH 70 DEGREES 52 MINUTES WEST, 198.59 FEET TO A SPIKE, THENCE BY LAND OF ARTHUR AND HELEN ROSENBLUM, SAID POINT BEING MEASURED THE THREE FOLLOWING COURSES AND DISTANCES FROM A SPIKE MARKING THE INTERSECTION OF THE CENTER LINE OF KRIEBEL MILL ROAD AND THE CENTER LINE OF GERMANTOWN PIKE: (1) ALONG THE CENTER LINE OF GERMANTOWN PIKE, NORTH 74 DEGREES 24 MINUTES WEST, 549.27 FEET TO A SPIKE, (2) STILL BY SAME, NORTH TO DEGREES 52 MINUTES WEST, 198.59 FEET TO A SPIKE, (3) LEAVING GERMANTOWN PIKE BY OTHER COURSE, 305.40 FEET TO THE PLACE OF BEGINNING, THENCE FROM SAID BEGINNING POINT EXTENDING THROUGH OTHER LAND OF ARTHUR AND HELEN ROSENBLUM, THE TWO FOLLOWING COURSES AND DISTANCES: (1) NORTH 12 DEGREES 35 MINUTES 20 SECONDS WEST, 885.85 FEET TO AN IRON PIN, (2) NORTH 42 DEGREES 57 MINUTES EAST, 885.80 FEET TO AN IRON PIN, (3) SOUTH 40 DEGREES 10 MINUTES 30 SECONDS EAST, 182.23 FEET TO A POINT, (4) NORTH 41 DEGREES 01 MINUTE EAST, 837.20 FEET TO A POINT, (5) SOUTH 47 DEGREES 01 MINUTE 30 SECONDS EAST, 551.76 FEET TO A POINT IN THE MIDDLE OF KRIEBEL MILL ROAD, THENCE ALONG THE MIDDLE LINE THEREON, SOUTH 40 DEGREES 48 MINUTES WEST, 1,334.97 FEET TO THE FIRST MENTIONED POINT AND PLACE OF BEGINNING.
PREMISES "D"
ALL THAT CERTAIN LOT OR PIECE OF GROUND, SITUATE IN WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA, BOUNDED AND DESCRIBED ACCORDING TO A SURVEY OR CATERED 10-1-1955, AS FOLLOWS, TO WIT:
BEGINNING AT AN IRON PIN IN LINE OF LAND OF LOWER PROVIDENCE-WORCESTER JOINT SCHOOL DISTRICT AND IN LINE OF LAND OF ARTHUR AND HELEN ROSENBLUM, SAID POINT BEING MEASURED THE THREE FOLLOWING COURSES AND DISTANCES FROM A SPIKE MARKING THE INTERSECTION OF THE CENTER LINE OF KRIEBEL MILL ROAD AND THE CENTER LINE OF GERMANTOWN PIKE: (1) ALONG THE CENTER LINE OF GERMANTOWN PIKE, NORTH 74 DEGREES 24 MINUTES WEST, 549.27 FEET TO A SPIKE, (2) STILL BY SAME, NORTH TO DEGREES 52 MINUTES WEST, 198.59 FEET TO A SPIKE, (3) LEAVING GERMANTOWN PIKE BY OTHER COURSE, 305.40 FEET TO THE PLACE OF BEGINNING, THENCE FROM SAID BEGINNING POINT EXTENDING THROUGH OTHER LAND OF ARTHUR AND HELEN ROSENBLUM, THE TWO FOLLOWING COURSES AND DISTANCES: (1) NORTH 12 DEGREES 35 MINUTES 20 SECONDS WEST, 885.85 FEET TO AN IRON PIN, (2) NORTH 42 DEGREES 57 MINUTES EAST, 885.80 FEET TO AN IRON PIN, (3) SOUTH 40 DEGREES 10 MINUTES 30 SECONDS EAST, 182.23 FEET TO A POINT, (4) NORTH 41 DEGREES 01 MINUTE EAST, 837.20 FEET TO A POINT, (5) SOUTH 47 DEGREES 01 MINUTE 30 SECONDS EAST, 551.76 FEET TO A POINT IN THE MIDDLE OF KRIEBEL MILL ROAD, THENCE ALONG THE MIDDLE LINE THEREON, SOUTH 40 DEGREES 48 MINUTES WEST, 1,334.97 FEET TO THE FIRST MENTIONED POINT AND PLACE OF BEGINNING.
AND THE SAID LOWER PROVIDENCE-WORCESTER JOINT SCHOOL AUTHORITY HAS SINCE MERGED INTO THE METHACTON SCHOOL DISTRICT AUTHORITY.

TAX ID # PARCEL NO. 67-00-01393-00-7
BEING THE SAME PREMISES WHICH METHACTON SCHOOL DISTRICT AUTHORITY, SUCCESSOR BY MERGER TO LOWER PROVIDENCE-WORCESTER JOINT SCHOOL AUTHORITY, BY DEED DATED 2/19/2004 AND RECORDED 2/20/2004 IN MONTGOMERY COUNTY IN DEED BOOK 5496 PAGE 2384 CONVEYED UNTO METHACTON SCHOOL DISTRICT, IN FEE.

LEGAL DESCRIPTION
AS SURVEYED LEGAL DESCRIPTION
USING STATE PLANE BEARINGS

ALL THAT CERTAIN LOT OR PIECE OF GROUND WITH THE BUILDINGS AND IMPROVEMENTS THEREON ERECTED, SITUATE IN THE TOWNSHIP OF WORCESTER, COUNTY OF MONTGOMERY AND COMMONWEALTH OF PENNSYLVANIA, DESCRIBED IN ACCORDANCE WITH AN ALTA/NSPS LAND TITLE SURVEY TITLED "1001 KRIEBEL MILL ROAD" PREPARED BY CARROLL ENGINEERING CORPORATION, DATED 08/13/2024.
BEGINNING AT A MONUMENT FOUND ON THE NORTHERN PROPERTY LINE OF LANDS N/E OF METHACTON SCHOOL DISTRICT (PARCEL ID 67-00-01393-00-7), SAID MONUMENT ALSO BEING ON THE SOUTHERN PROPERTY LINE OF LANDS N/E OF JASON M. AND KAREN S. VAVRA (PARCEL ID 67-00-02555-00-6),
THENCE, FROM SAID POINT OF BEGINNING, ALONG SAID LANDS AND ALONG LANDS N/E OF PHILLIP AND SUZANNE LOWERY (PARCEL ID 67-00-02555-01-5), NORTH 36° 57' 22" EAST, A DISTANCE OF 464.60' TO AN IRON PIN FOUND;
THENCE, ALONG LANDS N/E OF JEFFREY L. BERLET (PARCEL ID 67-00-02380-00-1) AND LANDS N/E OF PHILLIP AND SUZANNE LOWERY (PARCEL ID 67-00-02383-00-3), SOUTH 55° 41' 02" EAST, A DISTANCE OF 201.83' TO A PIPE FOUND;
THENCE, ALONG LANDS N/E OF PHILLIP AND SUZANNE LOWERY (PARCEL ID 67-00-02383-00-3), NORTH 35° 51' 38" EAST, A DISTANCE OF 670.29' TO THE CENTERLINE OF MILL ROAD (T-340 - VARIABLE WIDTH ROW), HAVING CROSSED OVER AN IRON PIN FOUND 643.36' FROM THE COMMENCEMENT OF THIS COURSE;
THENCE, THROUGH THE BED OF SAID ROAD, SOUTH 54° 56' 23" EAST, A DISTANCE OF 1055.10';
THENCE, LEAVING SAID ROAD AND GOING THROUGH THE BED OF GERMANTOWN PIKE (COUNTY ROAD - VARIABLE WIDTH ROW), SOUTH 34° 42' 56" WEST, A DISTANCE OF 2403.83';
THENCE, LEAVING SAID ROAD AND GOING THROUGH THE BED OF GERMANTOWN PIKE (COUNTY ROAD - VARIABLE WIDTH ROW), NORTH 80° 29'02" WEST, A DISTANCE OF 548.11';
THENCE, THROUGH THE SAME, NORTH 77° 12' 15" WEST, A DISTANCE OF 198.59';
THENCE, LEAVING SAID BED AND GOING ALONG LANDS N/E OF MICHAEL AND JESSICA STARACE (PARCEL ID 67-00-01375-02-5), NORTH 31° 13' 54" EAST, A DISTANCE OF 306.43' TO A CONCRETE MONUMENT FOUND;
THENCE, GOING ALONG THE SAME AND ALONG LANDS N/E OF JOHN M. AND HOLLY M. ANTONELLI (PARCEL ID 67-00-01375-03-4) AND LANDS N/E OF KEITH W. AND KIMBERLY A. DESTEFANO (PARCEL ID 67-00-01375-04-3), NORTH 18° 10' 59" WEST, A DISTANCE OF 685.86' TO A MONUMENT FOUND, HAVING CROSSED OVER TWO IRON PINS FOUND 13.71' AND 433.80' FROM THE COMMENCEMENT OF THIS COURSE;
THENCE, ALONG LANDS N/E OF JASON M. AND KAREN S. VAVRA (PARCEL ID 67-00-01375-05-2), LANDS N/E OF JOSHUA T. AND HOLLY ANDERSON (PARCEL ID 67-00-01375-06-1), AND LANDS N/E OF JASON M. AND KAREN S. VAVRA (PARCEL ID 67-00-02555-00-6), NORTH 37° 00' 47" EAST, A DISTANCE OF 685.12' TO A FENCE POST FOUND 0.84' FROM THE TERMINUS OF THIS LINE, HAVING CROSSED OVER AN IRON PIN FOUND 40.00' FROM THE COMMENCEMENT OF THIS COURSE;
THENCE, ALONG LANDS N/E OF JASON M. AND KAREN S. VAVRA (PARCEL ID 67-00-02555-00-6), NORTH 54° 56' 33" WEST, A DISTANCE OF 74.94' TO A MONUMENT FOUND, SAID MONUMENT BEING THE POINT OF BEGINNING.
CONTAINING 66.0743 ACRES

CERTIFICATION

TO: -METHACTON SCHOOL DISTRICT
-FIDELITY NATIONAL TITLE INSURANCE COMPANY
-NORTHEAST EXECUTIVE ABSTRACT AGENCY, INC.
THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IS IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 4, 4 (B), 7(B)(3), 8, 9, 11(B), 13, 15, 16. THE FIELD WORK WAS COMPLETED DURING THE MONTH OF AUGUST, 2024.

DATE OF PLAT OR MAP, SEPTEMBER 13, 2024
RYAN J. PATRICK, PLS., PA LICENSE #0507502

Carroll Engineering Corporation
CORPORATE OFFICE
949 EASTON ROAD
WARRINGTON, PA 18976
PHONE: 215.343.5700
FAX: 215.343.0875
355 Second Avenue, Suite G-101
Collegeville, PA 19426
Phone: 610-489-5100
Fax: 610-489-2674
105 Rader Boulevard, Suite 206
Hillsborough, NJ 08044
Phone: 908-474-7500
Fax: 908-474-5702
www.carrollengineering.com

Ryan J. Patrick
RYAN J. PATRICK, PLS.
PENNSYLVANIA PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER SU 075702

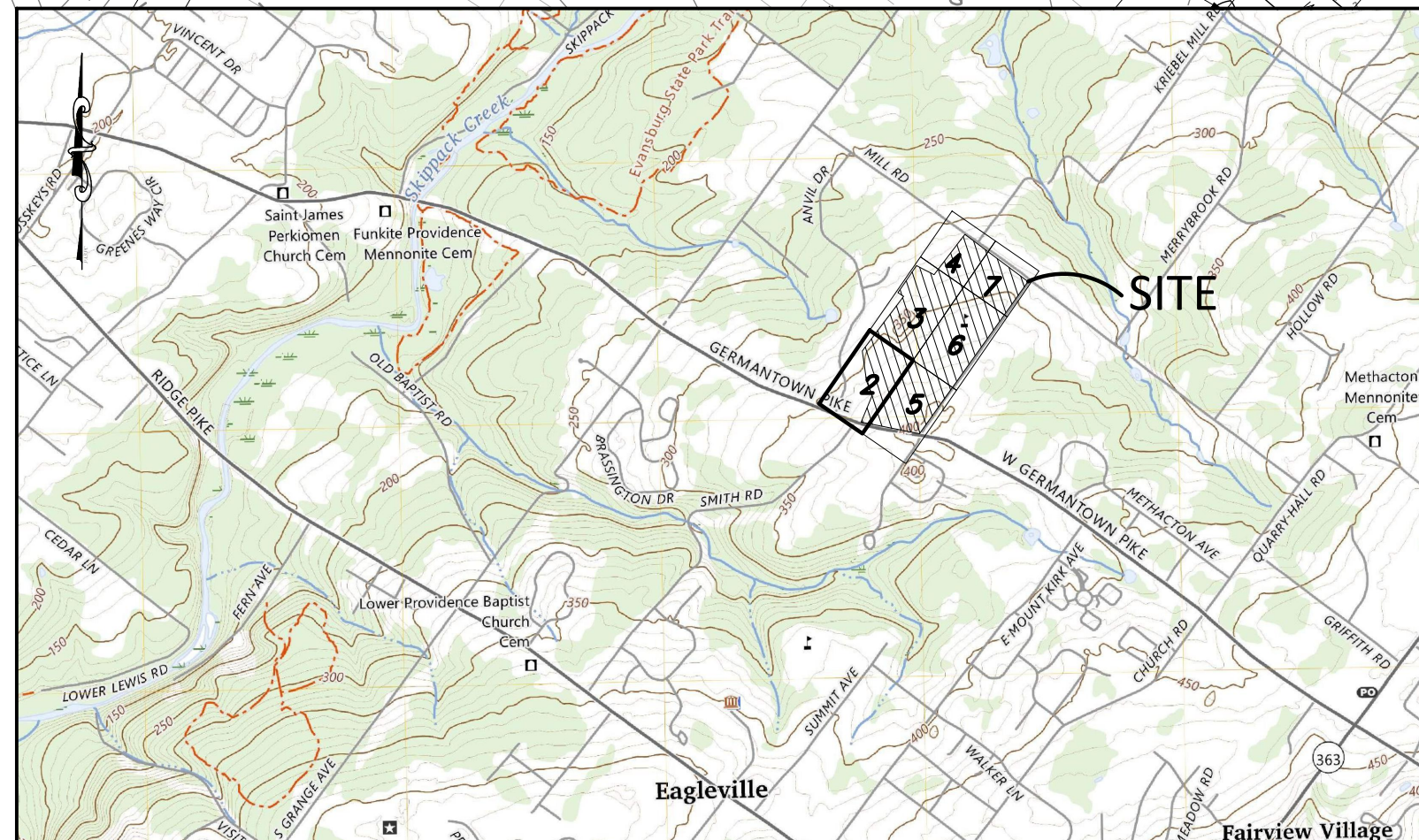
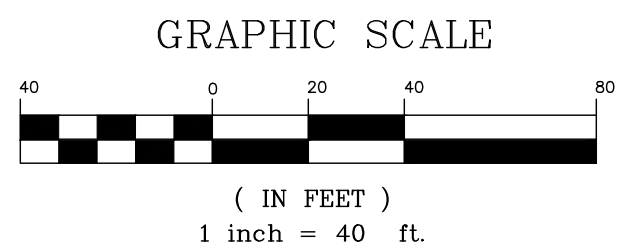
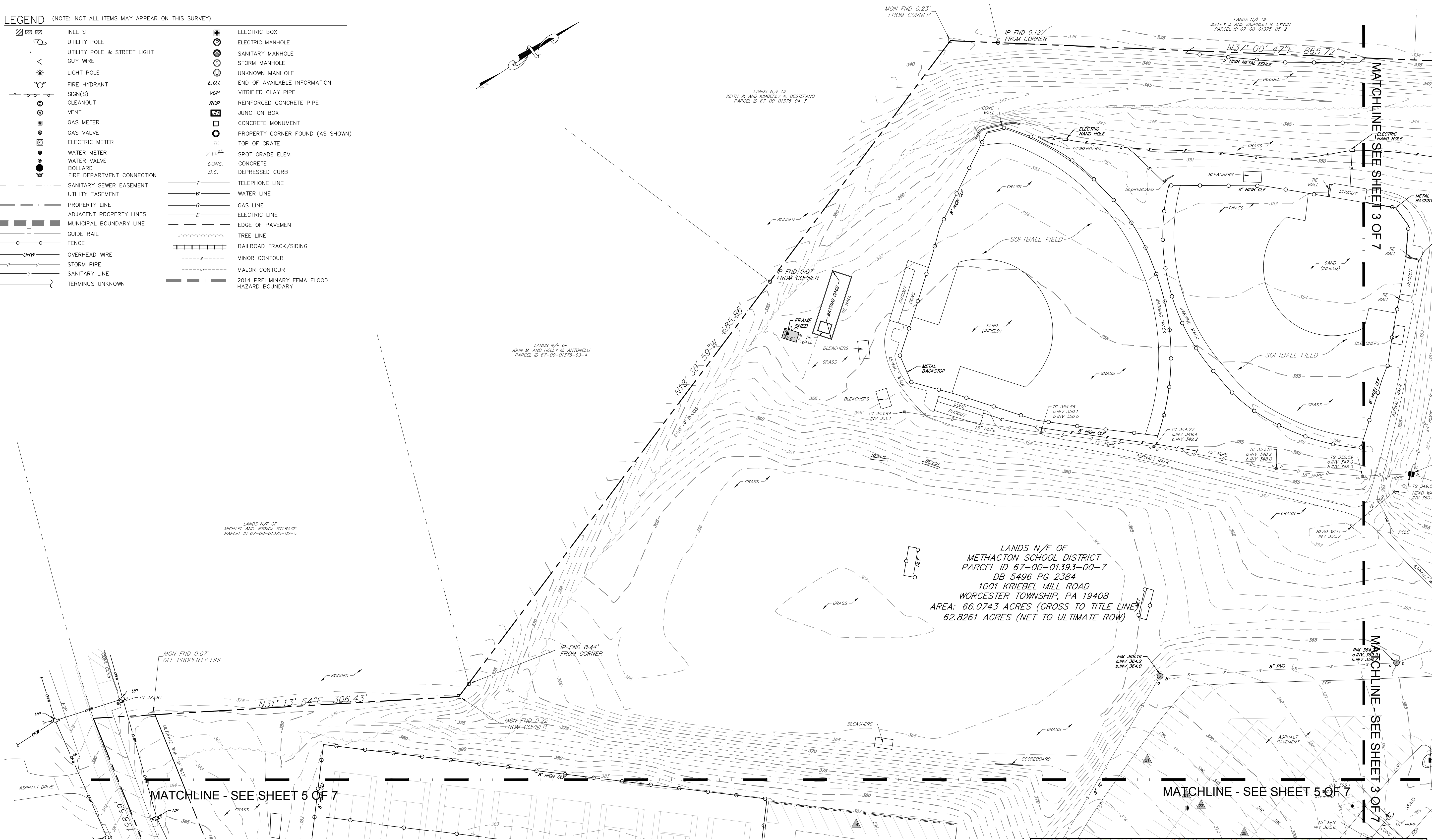
ALTA/ NSPS LAND TITLE SURVEY
1001 KRIEBEL MILL ROAD
SITUATED IN
TOWNSHIP OF WORCESTER
MONTGOMERY COUNTY, PENNSYLVANIA
PREPARED FOR
T&M ASSOCIATES
1700 MARKET STREET, SUITE 3110
PHILADELPHIA, PA 19103

NO.	DATE	DESCRIPTION	INITIALS
1	09/13/2024		
2	241500001		
3	24-1500.00		
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DATE 09/13/2024
CADD FILE 241500001
JOB NO 24-1500.00

DSS BY -----
DWN BY R.J.P.
CKD BY S.R.M.
SCALE 1"=100'
DRAWER NUMBER
SHEET 1 OF 7 SHEETS
DRAWING NUMBER 1

- LEGEND (NOTE: NOT ALL ITEMS MAY APPEAR ON THIS SURVEY)
- | | | | |
|--|-----------------------------|--|---|
| | INLETS | | ELECTRIC BOX |
| | UTILITY POLE | | ELECTRIC MANHOLE |
| | UTILITY POLE & STREET LIGHT | | SANITARY MANHOLE |
| | GUY WIRE | | STORM MANHOLE |
| | LIGHT POLE | | UNKNOWN MANHOLE |
| | FIRE HYDRANT | | END OF AVAILABLE INFORMATION |
| | SIGN(S) | | VITRIFIED CLAY PIPE |
| | CLEANOUT | | REINFORCED CONCRETE PIPE |
| | VENT | | JUNCTION BOX |
| | GAS METER | | CONCRETE MONUMENT |
| | GAS VALVE | | PROPERTY CORNER FOUND (AS SHOWN) |
| | ELECTRIC METER | | TOP OF GRATE |
| | WATER METER | | SPOT GRADE ELEV. |
| | WATER VALVE | | CONCRETE |
| | BOLLARD | | DEPRESSED CURB |
| | FIRE DEPARTMENT CONNECTION | | TELEPHONE LINE |
| | SANITARY SEWER EASEMENT | | WATER LINE |
| | UTILITY EASEMENT | | GAS LINE |
| | PROPERTY LINE | | ELECTRIC LINE |
| | ADJACENT PROPERTY LINES | | EDGE OF PAVEMENT |
| | MUNICIPAL BOUNDARY LINE | | TREE LINE |
| | GUIDE RAIL | | RAILROAD TRACK/SIDING |
| | FENCE | | MINOR CONTOUR |
| | OVERHEAD WIRE | | MAJOR CONTOUR |
| | STORM PIPE | | 2014 PRELIMINARY FEMA FLOOD HAZARD BOUNDARY |
| | SANITARY LINE | | |
| | TERMINUS UNKNOWN | | |



Carroll Engineering Corporation

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FAX: 215.343.0875

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Collegeville, PA 19426 Ellensburg, NJ 08844
Phone: 610-489-5100 Phone: 908-474-7500
Fax: 610-489-2674 Fax: 908-474-5762

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NOTES:
1. THIS SURVEY WAS PREPARED FOR THE PURPOSE OF RECORDING THE BOUNDARIES AND INTERESTS OF THE LANDS OWNED BY THE METHACTON SCHOOL DISTRICT. IT IS NOT TO BE USED FOR ANY OTHER PURPOSE.
2. THE SURVEYOR HAS REVIEWED THE RECORDS OF THE COMMONWEALTH OF PENNSYLVANIA AND HAS FOUND NO RECORDS OF ANY OTHER SURVEYS OR RECORDS THAT AFFECT THE BOUNDARIES OR INTERESTS OF THE LANDS OWNED BY THE METHACTON SCHOOL DISTRICT.
3. THE SURVEYOR HAS REVIEWED THE RECORDS OF THE COMMONWEALTH OF PENNSYLVANIA AND HAS FOUND NO RECORDS OF ANY OTHER SURVEYS OR RECORDS THAT AFFECT THE BOUNDARIES OR INTERESTS OF THE LANDS OWNED BY THE METHACTON SCHOOL DISTRICT.
4. THE SURVEYOR HAS REVIEWED THE RECORDS OF THE COMMONWEALTH OF PENNSYLVANIA AND HAS FOUND NO RECORDS OF ANY OTHER SURVEYS OR RECORDS THAT AFFECT THE BOUNDARIES OR INTERESTS OF THE LANDS OWNED BY THE METHACTON SCHOOL DISTRICT.
5. THE SURVEYOR HAS REVIEWED THE RECORDS OF THE COMMONWEALTH OF PENNSYLVANIA AND HAS FOUND NO RECORDS OF ANY OTHER SURVEYS OR RECORDS THAT AFFECT THE BOUNDARIES OR INTERESTS OF THE LANDS OWNED BY THE METHACTON SCHOOL DISTRICT.



Ryan J. Patrick
RYAN J. PATRICK, PLS
PENNSYLVANIA PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER SU 075702

ALTA/ NSPS LAND TITLE SURVEY

1001 KRIEBEL MILL ROAD
SITUATED IN
TOWNSHIP OF WORCESTER
MONTGOMERY COUNTY, PENNSYLVANIA
PREPARED FOR
T&M ASSOCIATES
1700 MARKET STREET, SUITE 3110
PHILADELPHIA, PA 19103

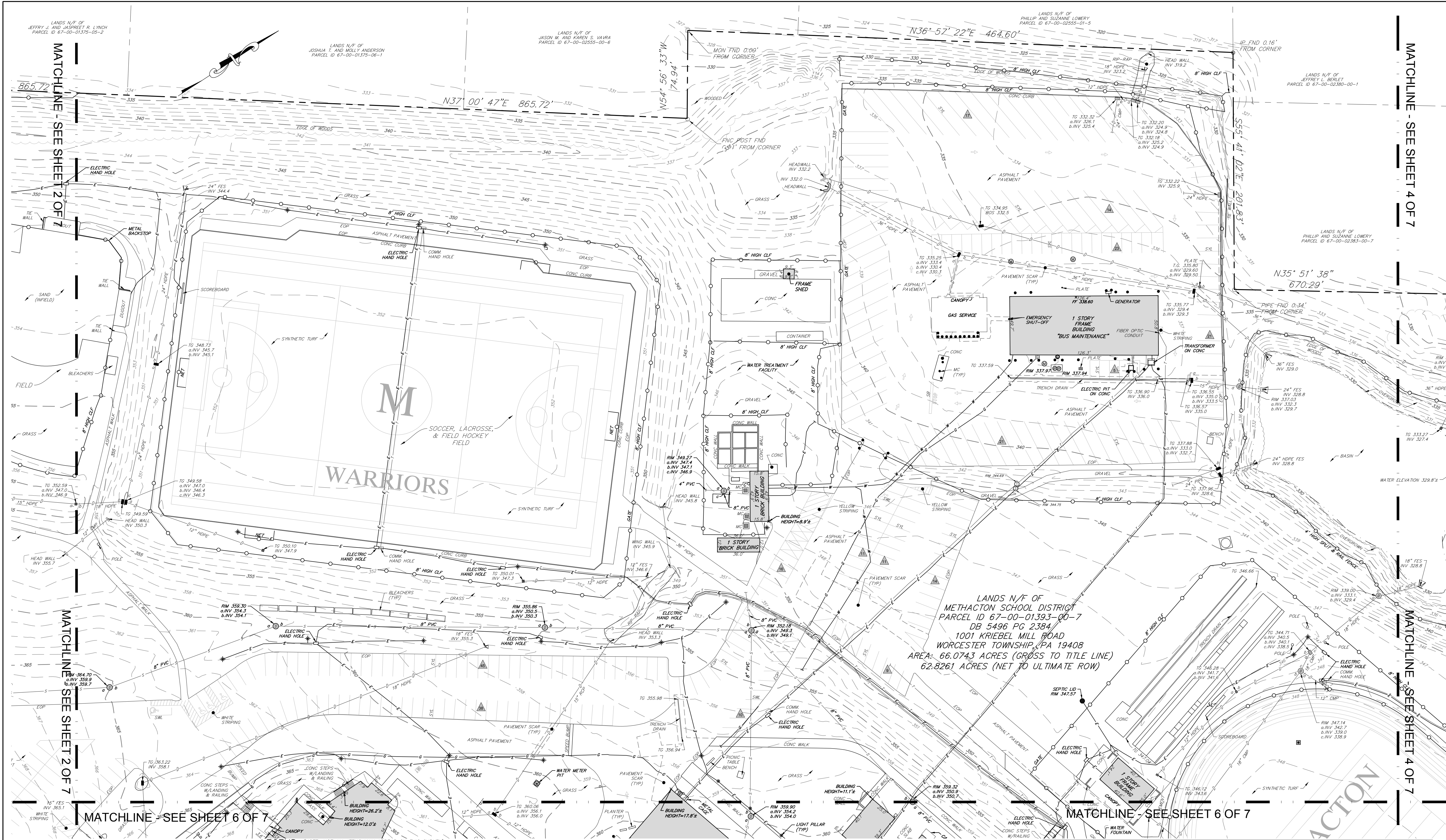
DATE 09/13/2024
CADD FILE 241500001
JOB NO 24-1500.00

DSG BY
DWN BY R.J.P.
CKD BY S.R.M.
SCALE 1"=40'

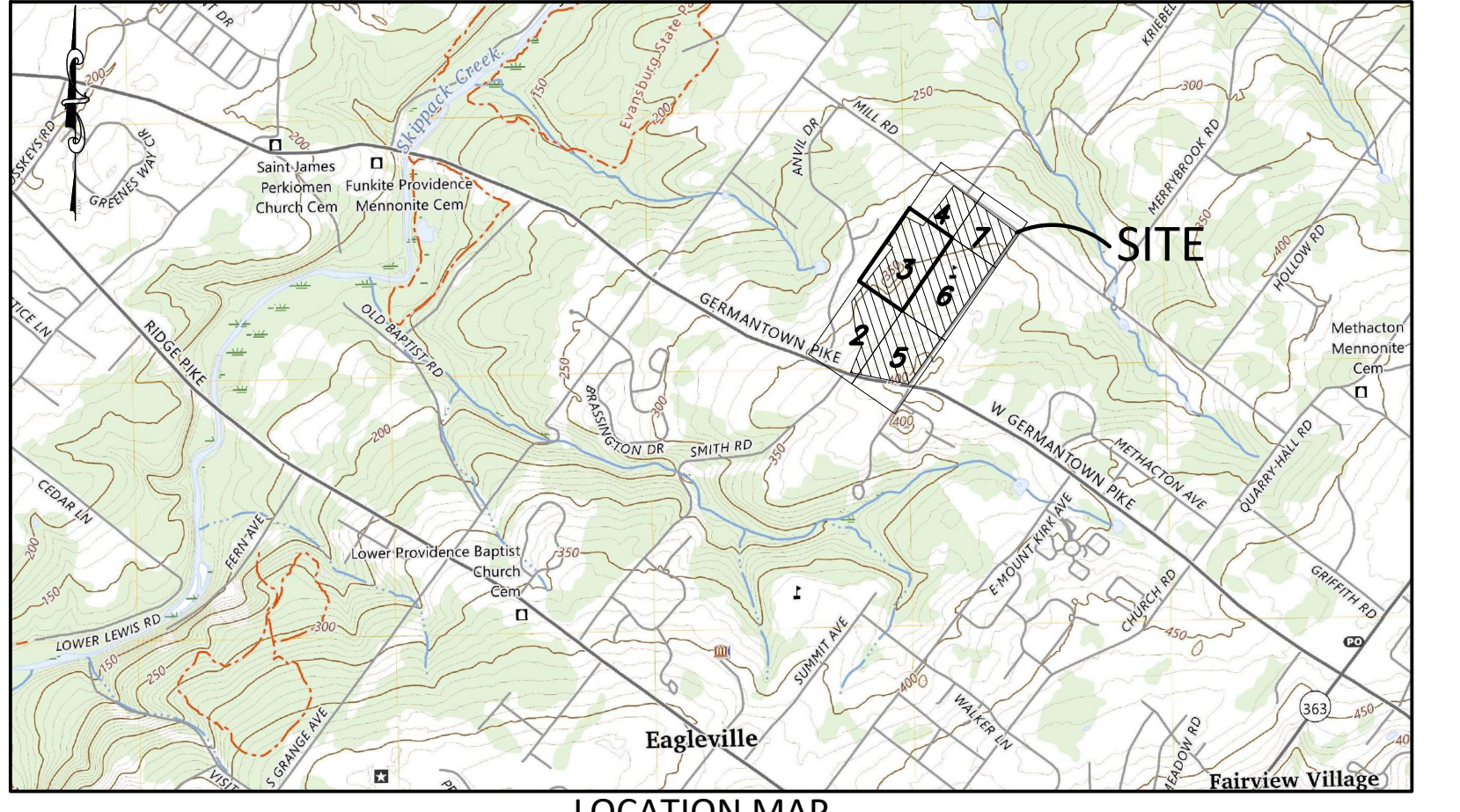
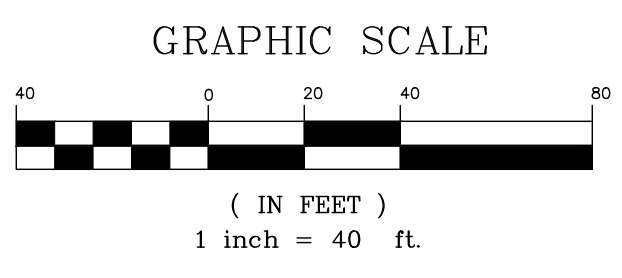
DRAWER NUMBER
SHEET 2 OF 7 SHEETS

DRAWING NUMBER
1

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LEGEND (NOTE: NOT ALL ITEMS MAY APPEAR ON THIS SURVEY)	
	INLETS
	UTILITY POLE
	UTILITY POLE & STREET LIGHT
	GUY WIRE
	LIGHT POLE
	FIRE HYDRANT
	SIGN(S)
	CLEANOUT
	VENT
	GAS METER
	GAS VALVE
	ELECTRIC METER
	WATER METER
	WATER VALVE
	BOLLARD
	FIRE DEPARTMENT CONNECTION
	SANITARY SEWER EASEMENT
	UTILITY EASEMENT
	PROPERTY LINE
	ADJACENT PROPERTY LINES
	MUNICIPAL BOUNDARY LINE
	GUIDE RAIL
	FENCE
	OVERHEAD WIRE
	STORM PIPE
	SANITARY LINE
	TERMINUS UNKNOWN
	ELECTRIC BOX
	ELECTRIC MANHOLE
	SANITARY MANHOLE
	STORM MANHOLE
	UNKNOWN MANHOLE
	END OF AVAILABLE INFORMATION
	VITRIFIED CLAY PIPE
	REINFORCED CONCRETE PIPE
	JUNCTION BOX
	CONCRETE MONUMENT
	PROPERTY CORNER FOUND (AS SHOWN)
	TOP OF GRATE
	SPOT GRADE ELEV.
	CONCRETE
	DEPRESSED CURB
	TELEPHONE LINE
	WATER LINE
	GAS LINE
	ELECTRIC LINE
	EDGE OF PAVEMENT
	TREE LINE
	RAILROAD TRACK/SIDING
	MINOR CONTOUR
	MAJOR CONTOUR
	2014 PRELIMINARY FEMA FLOOD HAZARD BOUNDARY



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Fax: 908-474-5762

RYAN J. PATRICK, PLS.
PENNSYLVANIA PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER SU 075702

ALTA/ NSPS LAND TITLE SURVEY

1001 KRIEBEL MILL ROAD
SITUATED IN
TOWNSHIP OF WORCESTER
MONTGOMERY COUNTY, PENNSYLVANIA

PREPARED FOR
T&M ASSOCIATES
1700 MARKET STREET, SUITE 3110
PHILADELPHIA, PA 19103

NO.	DATE	DESCRIPTION	INITIALS

DATE 09/13/2024

CADD FILE 241500001

JOB NO 24-1500.00

DSG BY -----

DWN BY R.J.P.

CKD BY S.R.M.

SCALE 1"=40'

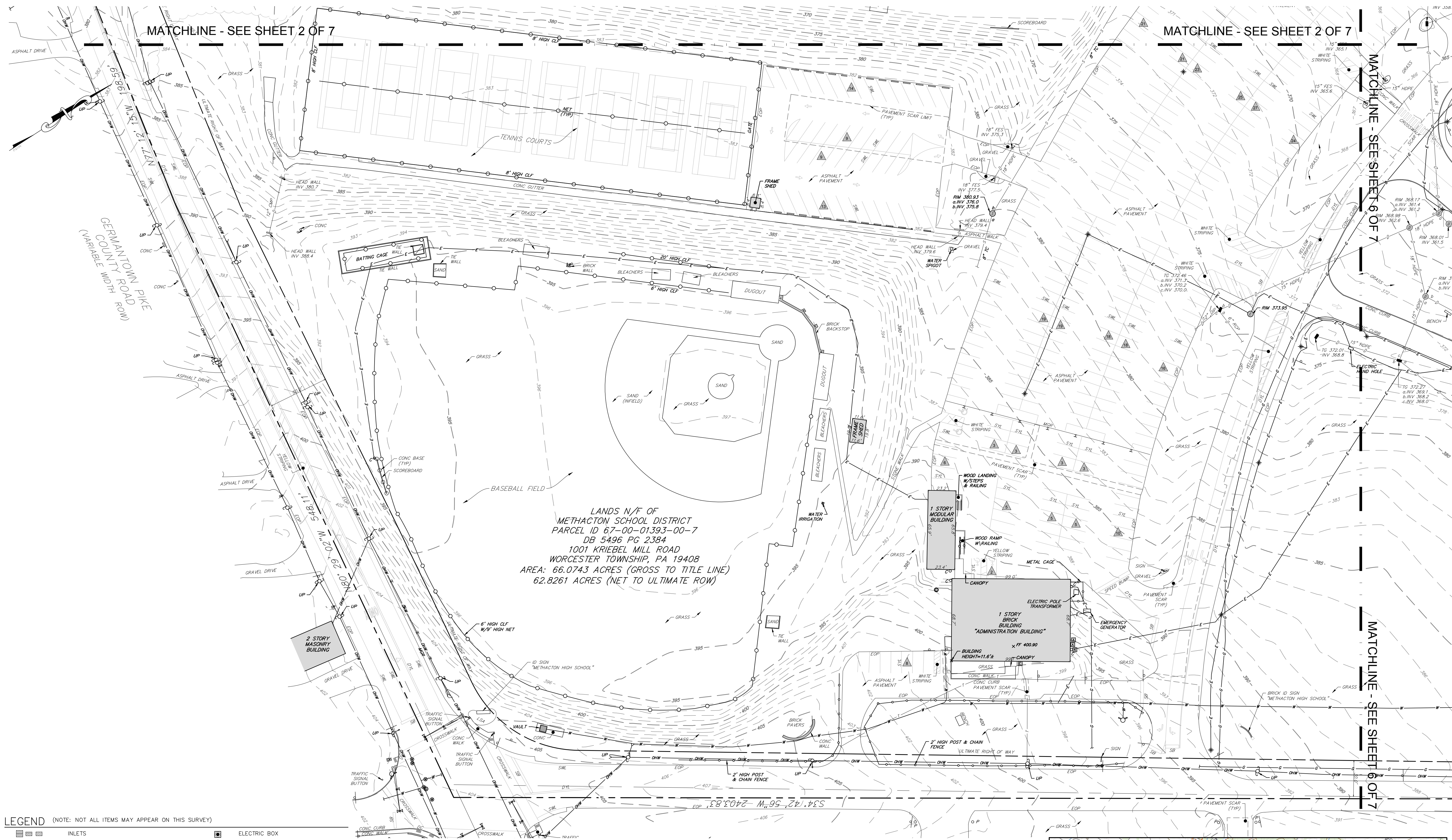
DRAWER NUMBER -----

SHEET 3 OF 7 SHEETS

DRAWING NUMBER 1

THIS SURVEY WAS PREPARED BY RYAN J. PATRICK, PLS., A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF PENNSYLVANIA. THE SURVEY WAS CONDUCTED IN ACCORDANCE WITH THE PENNSYLVANIA SURVEYING ACT OF 1980 AND THE RULES AND REGULATIONS OF THE BOARD OF SURVEYING. THE SURVEYOR HAS REVIEWED THE SURVEY AND CERTIFIES THAT IT IS A TRUE AND CORRECT REPRESENTATION OF THE SURVEY CONDUCTED. THE SURVEYOR HAS ALSO REVIEWED THE SURVEY FOR CONFORMANCE WITH THE PENNSYLVANIA SURVEYING ACT OF 1980 AND THE RULES AND REGULATIONS OF THE BOARD OF SURVEYING. THE SURVEYOR HAS ALSO REVIEWED THE SURVEY FOR CONFORMANCE WITH THE PENNSYLVANIA SURVEYING ACT OF 1980 AND THE RULES AND REGULATIONS OF THE BOARD OF SURVEYING.

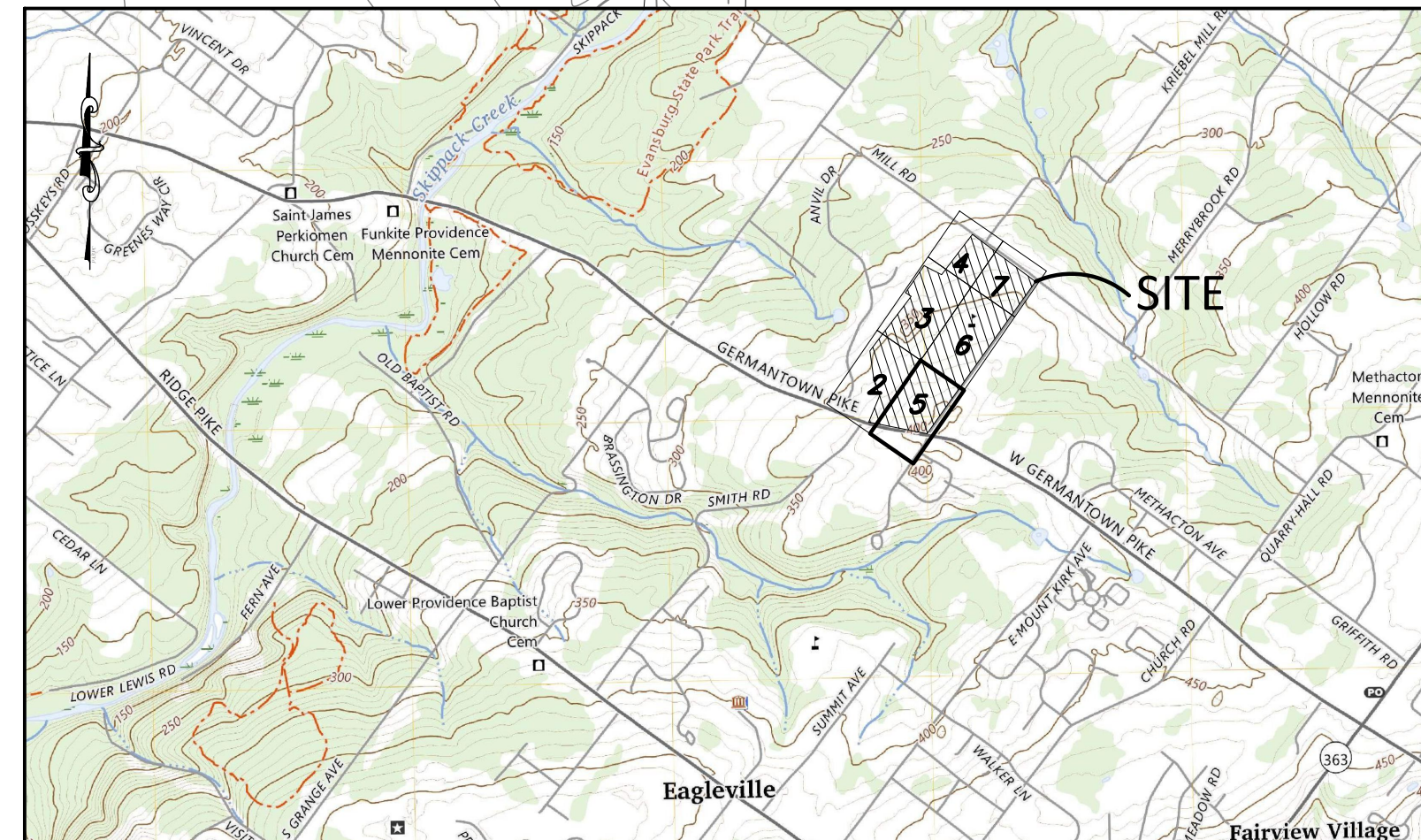
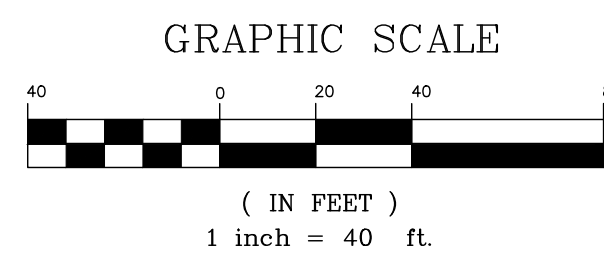
\\carroll-engineering\carroll\1500\1500_001\1500_001.dwg Sep 13, 2024 12:15pm rpatrick



LEGEND (NOTE: NOT ALL ITEMS MAY APPEAR ON THIS SURVEY)

- | | | | |
|--|-----------------------------|--|---|
| | INLETS | | ELECTRIC BOX |
| | UTILITY POLE | | ELECTRIC MANHOLE |
| | UTILITY POLE & STREET LIGHT | | SANITARY MANHOLE |
| | GUY WIRE | | STORM MANHOLE |
| | LIGHT POLE | | UNKNOWN MANHOLE |
| | FIRE HYDRANT | | END OF AVAILABLE INFORMATION |
| | SIGN(S) | | VITRIFIED CLAY PIPE |
| | CLEANOUT | | REINFORCED CONCRETE PIPE |
| | VENT | | JUNCTION BOX |
| | GAS METER | | CONCRETE MONUMENT |
| | GAS VALVE | | PROPERTY CORNER FOUND (AS SHOWN) |
| | ELECTRIC METER | | TOP OF GRATE |
| | WATER METER | | SPOT GRADE ELEV. |
| | WATER VALVE | | CONCRETE |
| | BOLLARD | | DEPRESSED CURB |
| | FIRE DEPARTMENT CONNECTION | | TELEPHONE LINE |
| | SANITARY SEWER EASEMENT | | WATER LINE |
| | UTILITY EASEMENT | | GAS LINE |
| | PROPERTY LINE | | ELECTRIC LINE |
| | ADJACENT PROPERTY LINES | | EDGE OF PAVEMENT |
| | MUNICIPAL BOUNDARY LINE | | TREE LINE |
| | GUIDE RAIL | | RAILROAD TRACK/SIDING |
| | FENCE | | MINOR CONTOUR |
| | OVERHEAD WIRE | | MAJOR CONTOUR |
| | STORM PIPE | | 2014 PRELIMINARY FEMA FLOOD HAZARD BOUNDARY |
| | SANITARY LINE | | |
| | TERMINUS UNKNOWN | | |

KRIEBEL MILL ROAD
T-395
(VARIABLE WIDTH ROW)



LOCATION MAP
NOT TO SCALE



Carroll Engineering Corporation

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Ryan J. Patrick

RYAN J. PATRICK, PLS
PENNSYLVANIA PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER SU 075702

ALTA/ NSPS LAND TITLE SURVEY

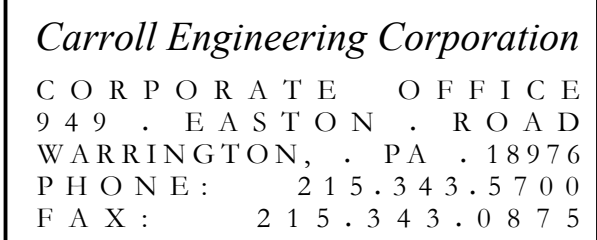
1001 KRIEBEL MILL ROAD
SITUATED IN
TOWNSHIP OF WORCESTER
MONTGOMERY COUNTY, PENNSYLVANIA
PREPARED FOR
T&M ASSOCIATES
1700 MARKET STREET, SUITE 3110
PHILADELPHIA, PA 19103

DATE 09/13/2024
CADD FILE 241500001
JOB NO 24-1500.00

DSG BY
DWN BY R.J.P.
CKD BY S.R.M.
SCALE 1"=40'

DRAWER NUMBER
SHEET 5 OF 7 SHEETS

DRAWING NUMBER
1



555 Second Avenue, Suite G-101 Collegeville, PA 19426 Phone: 610-489-5100 Fax: 610-489-2674	105 Raider Boulevard, Suite 206 Hillsborough, NJ 08844 Phone: 908-874-7500 Fax: 908-874-5762
--	---

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RYAN J. PATRICK, PLS
PENNSYLVANIA PROFESSIONAL LAND SURVEYOR
LICENSE NUMBER SU 075702

ALTA/ NSPS LAND TITLE SURVEY

1001 KRIEBEL MILL ROAD

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MONTGOMERY COUNTY, PENNSYLVANIA

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T&M ASSOCIATES
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PHILADELPHIA, PA 19103

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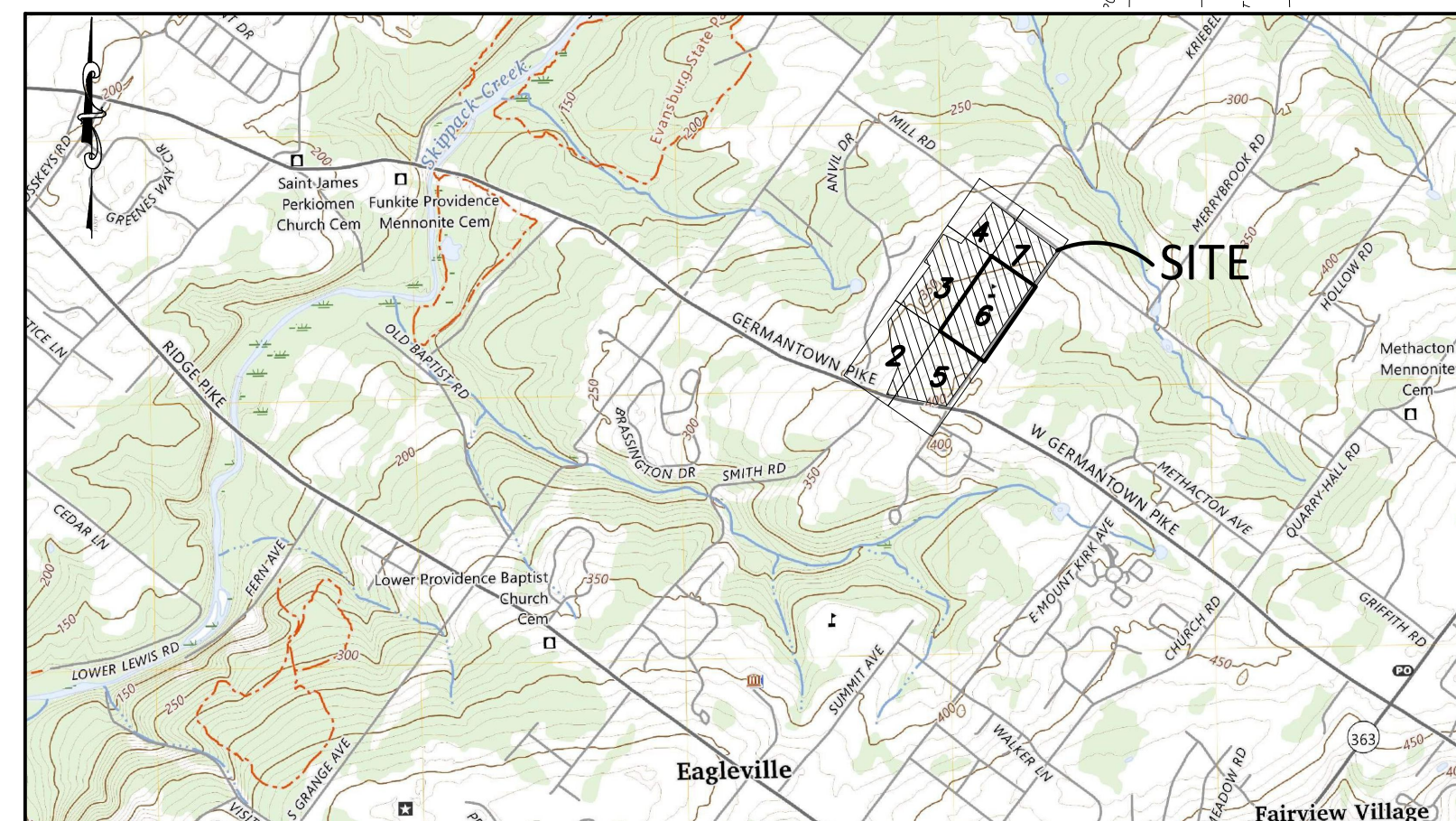
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CADD FILE	<u>241500001</u>
JOB NO	<u>24-1500.00</u>

DSG BY	-----
DWN BY	R.J.P.
CKD BY	S.R.M.
SCALE	1"=40'

DRAWER NUMBER _____

SHEET 6 OF 7 SHEETS

DRAWING NUMBER
1



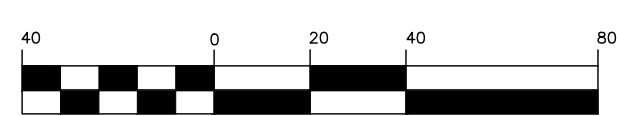
LOCATION MAP
NOT TO SCALE

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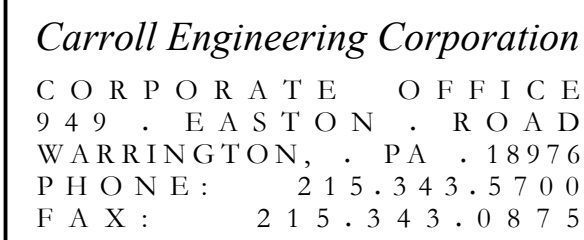
LEGEND (NOTE: NOT ALL ITEMS MAY APPEAR ON THIS SURVEY)

- | | | | | | | | |
|--|-----------------------------|---------------|----------------------------------|--|----------------------------|--------------------|---------------------------------------|
| | INLETS | | ELECTRIC BOX | | WATER METER | $\times 10^{+6.2}$ | SPOT GRADE ELEV. |
| | UTILITY POLE | | ELECTRIC MANHOLE | | WATER VALVE | CONC. | CONCRETE |
| | UTILITY POLE & STREET LIGHT | | SANITARY MANHOLE | | BOLLARD | | DEPRESSED CURB |
| | GUY WIRE | | STORM MANHOLE | | FIRE DEPARTMENT CONNECTION | | |
| | LIGHT POLE | | UNKNOWN MANHOLE | | SANITARY SEWER EASEMENT | 7 | TELEPHONE LINE |
| | FIRE HYDRANT | <i>E.O.I.</i> | END OF AVAILABLE INFORMATION | | UTILITY EASEMENT | W | WATER LINE |
| | SIGN(S) | <i>VCP</i> | VITRIFIED CLAY PIPE | | PROPERTY LINE | G | GAS LINE |
| | CLEANOUT | <i>RCP</i> | REINFORCED CONCRETE PIPE | | ADJACENT PROPERTY LINES | E | ELECTRIC LINE |
| | VENT | | JUNCTION BOX | | MUNICIPAL BOUNDARY LINE | | EDGE OF PAVEMENT |
| | GAS METER | | CONCRETE MONUMENT | | GUIDE RAIL | | TREE LINE |
| | GAS VALVE | | PROPERTY CORNER FOUND (AS SHOWN) | | FENCE | | RAILROAD TRACK/SIDING |
| | ELECTRIC METER | <i>TO</i> | TOP OF GRATE | | OVERHEAD WIRE | | MINOR CONTOUR |
| | | | | | STORM PIPE | | MAJOR CONTOUR |
| | | | | | SANITARY LINE | | |
| | | | | | TERMINUS UNKNOWN | | 2014 PRELIMINARY FEMA HAZARD BOUNDARY |

GRAPHIC SCALE



(IN FEET)
1 inch = 40



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Hillsborough, NJ 08844
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ALTA/ NSPS LAND TITLE SURVEY

1001 KRIEBEL MILL ROAD
SITUATED IN
TOWNSHIP OF WORCESTER
MONTGOMERY COUNTY, PENNSYLVANIA

PREPARED FOR
T&M ASSOCIATES
1700 MARKET STREET, SUITE 3110
PHILADELPHIA, PA 19103

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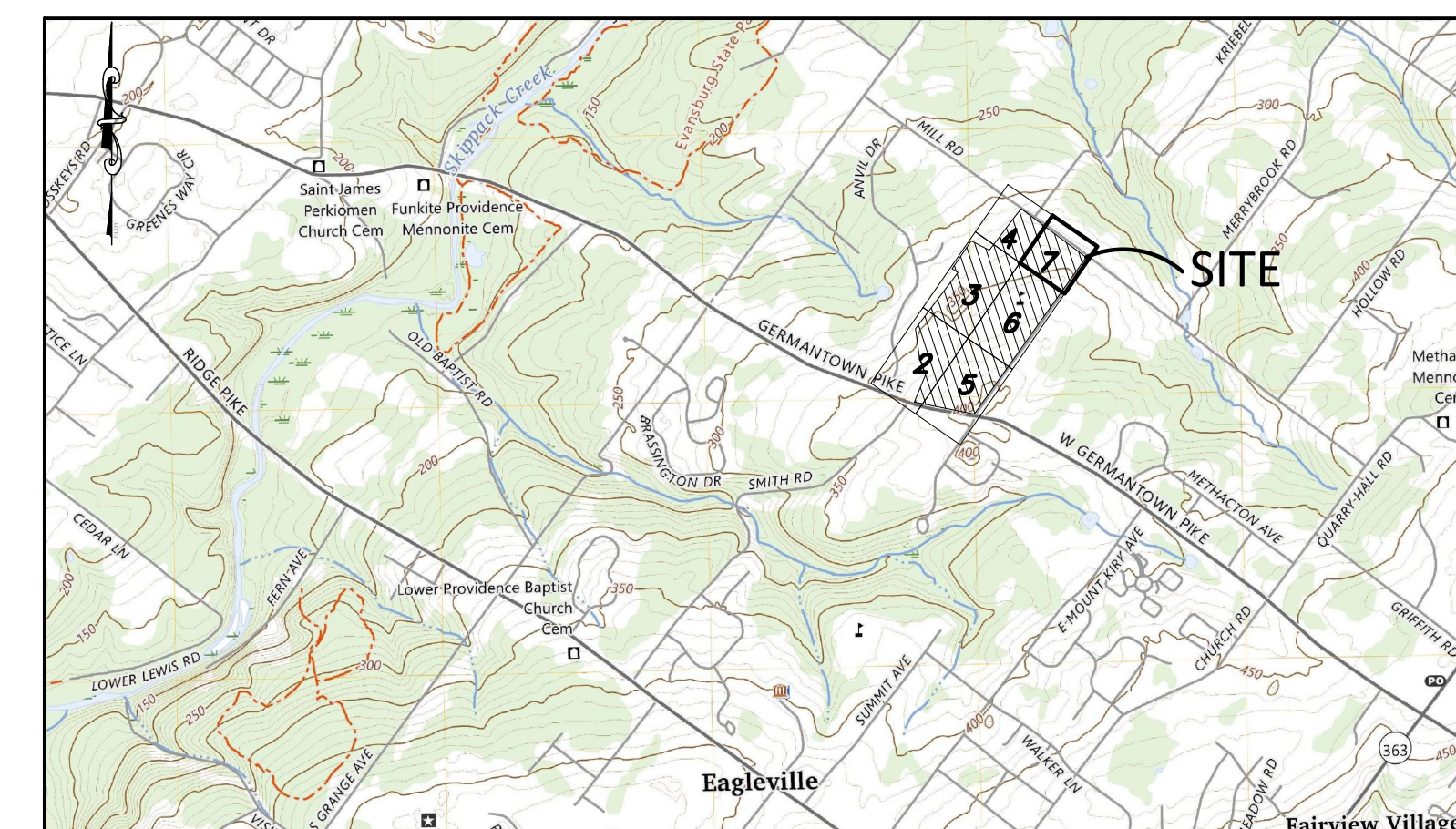
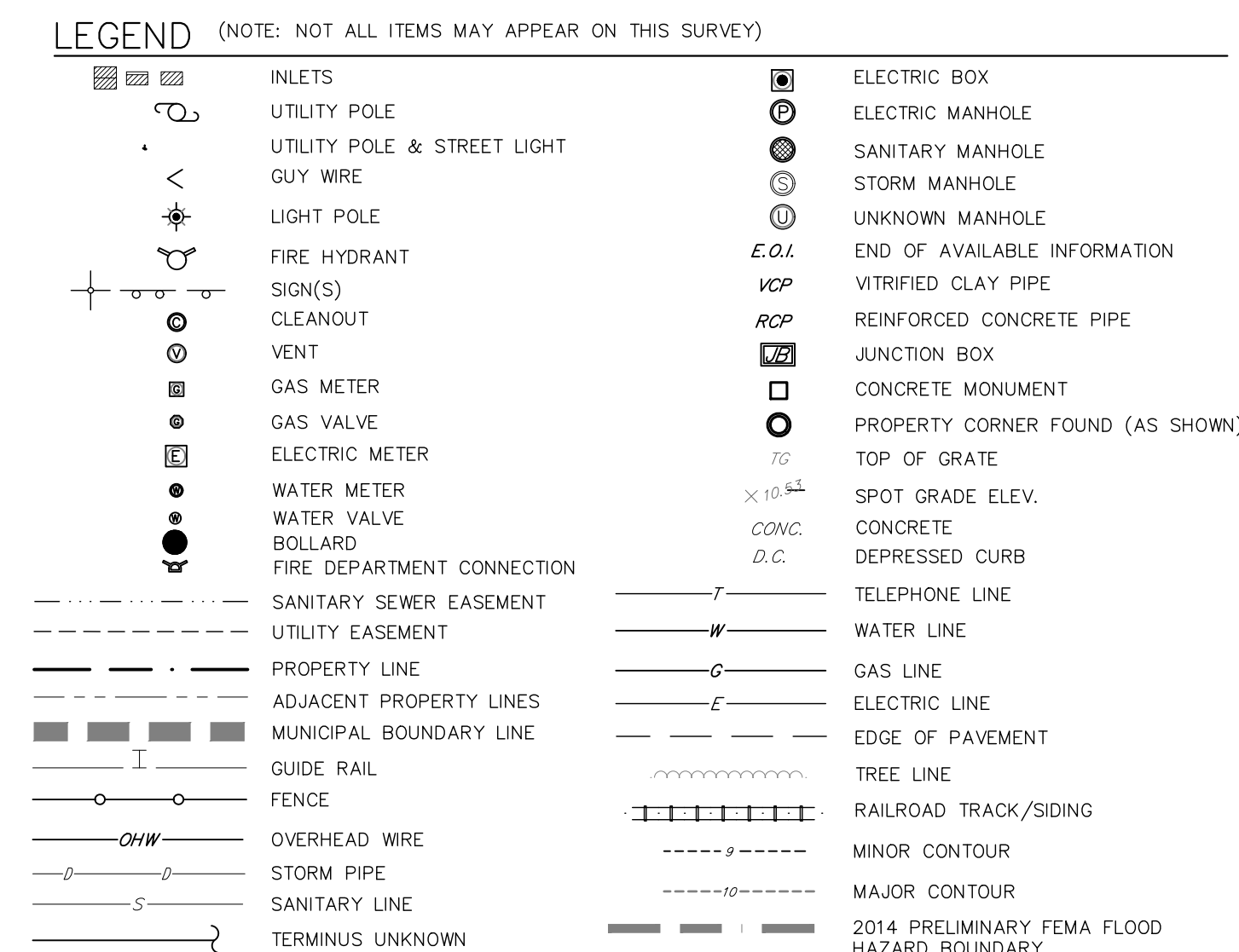
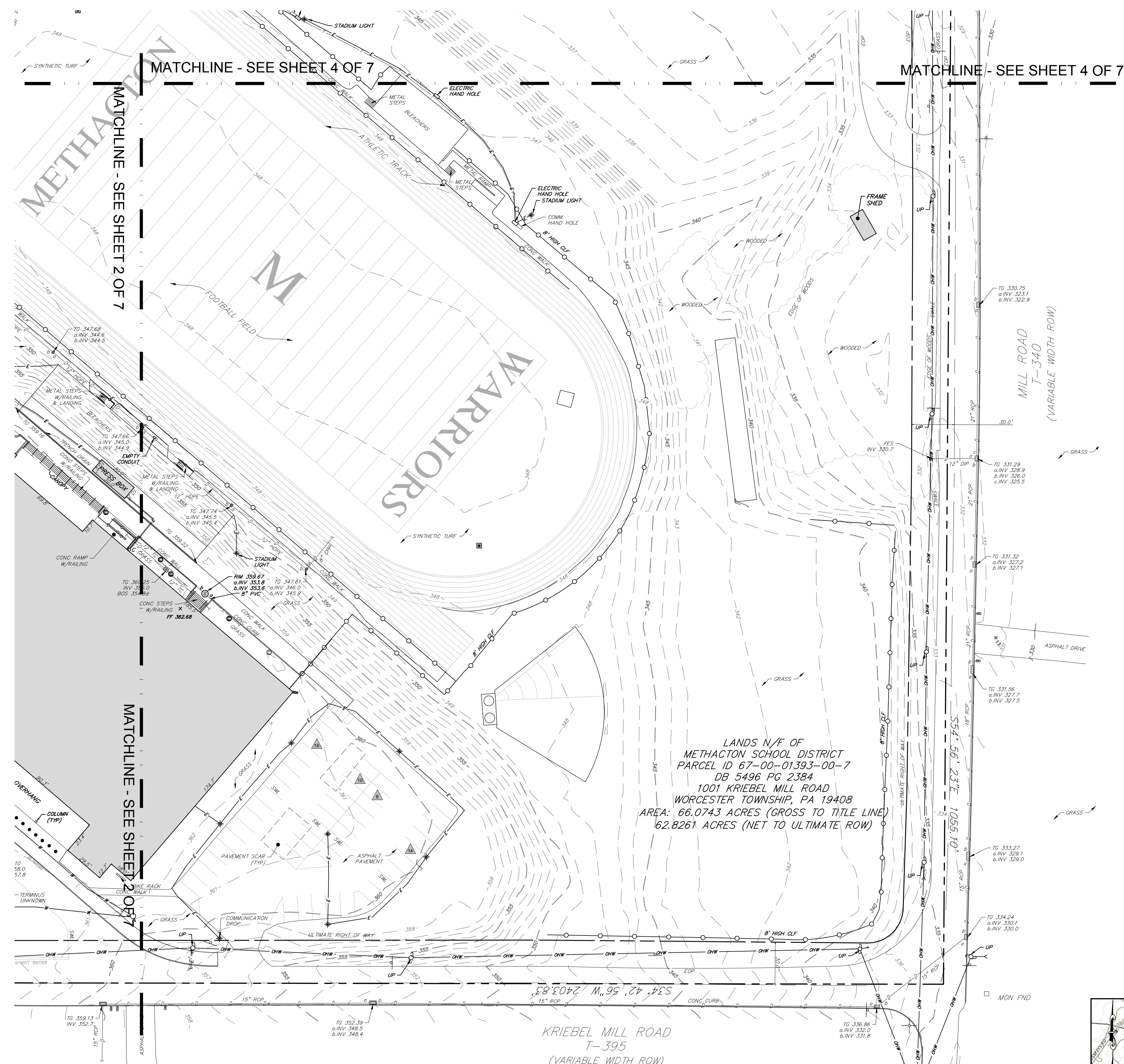
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JOB NO	<u>24-1500.00</u>

DSG BY	-----
DWN BY	R.J.P.
CKD BY	S.R.M.
SCALE	1"=40'

DRAWER NUMBER _____

SHEET 7 OF 7 SHEETS

DRAWING NUMBER
1

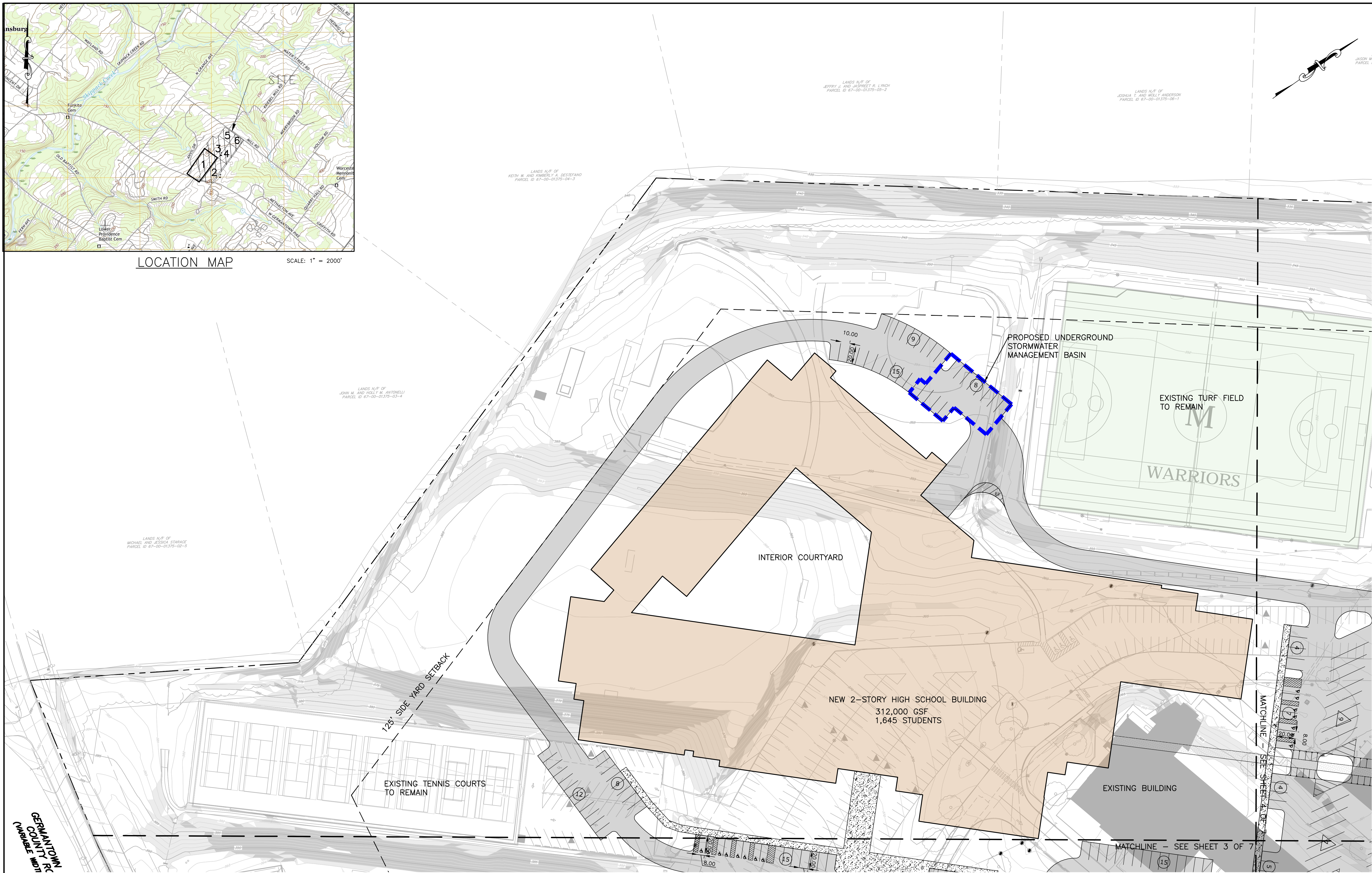
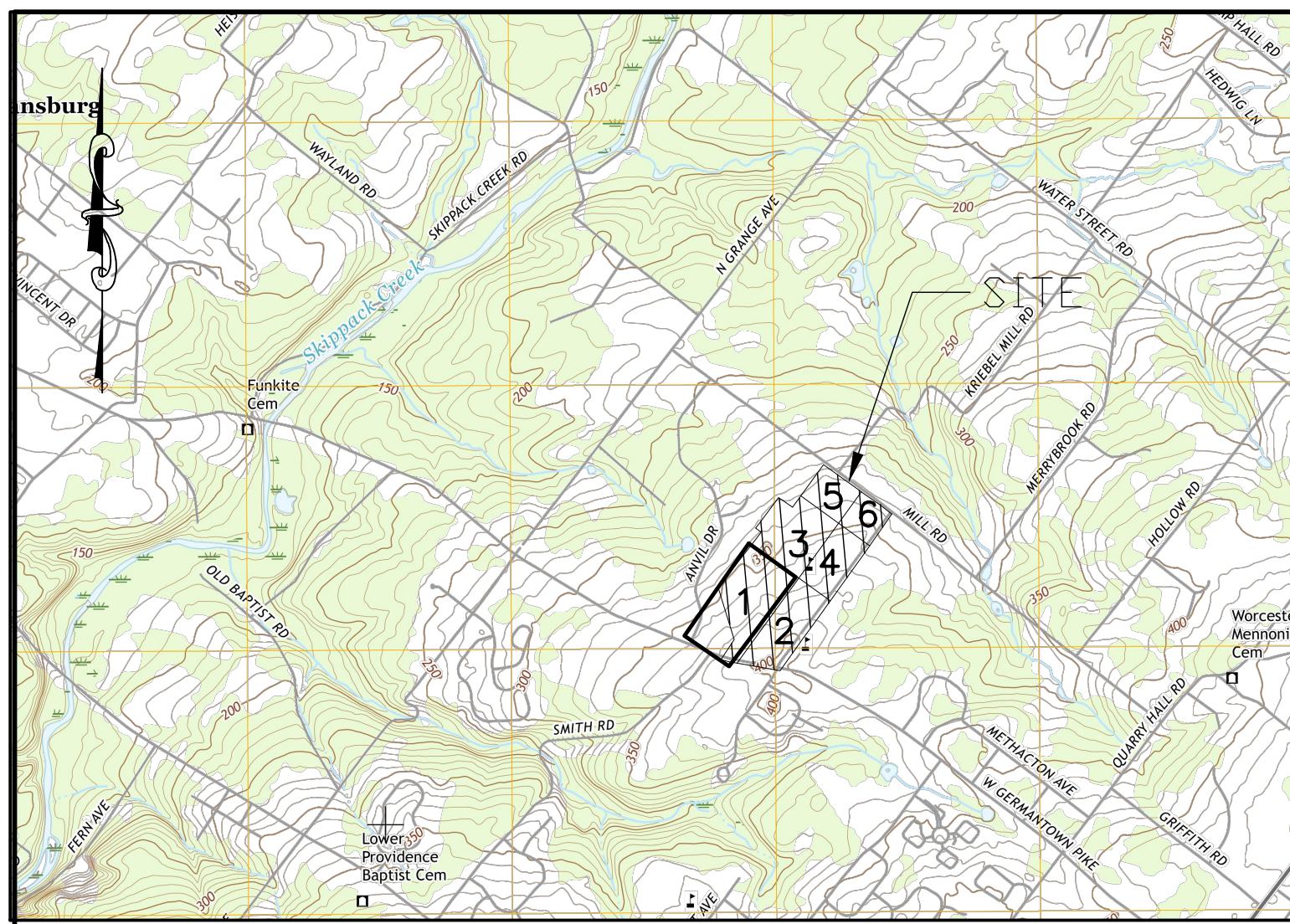


LOCATION MAP
NOT TO SCALE

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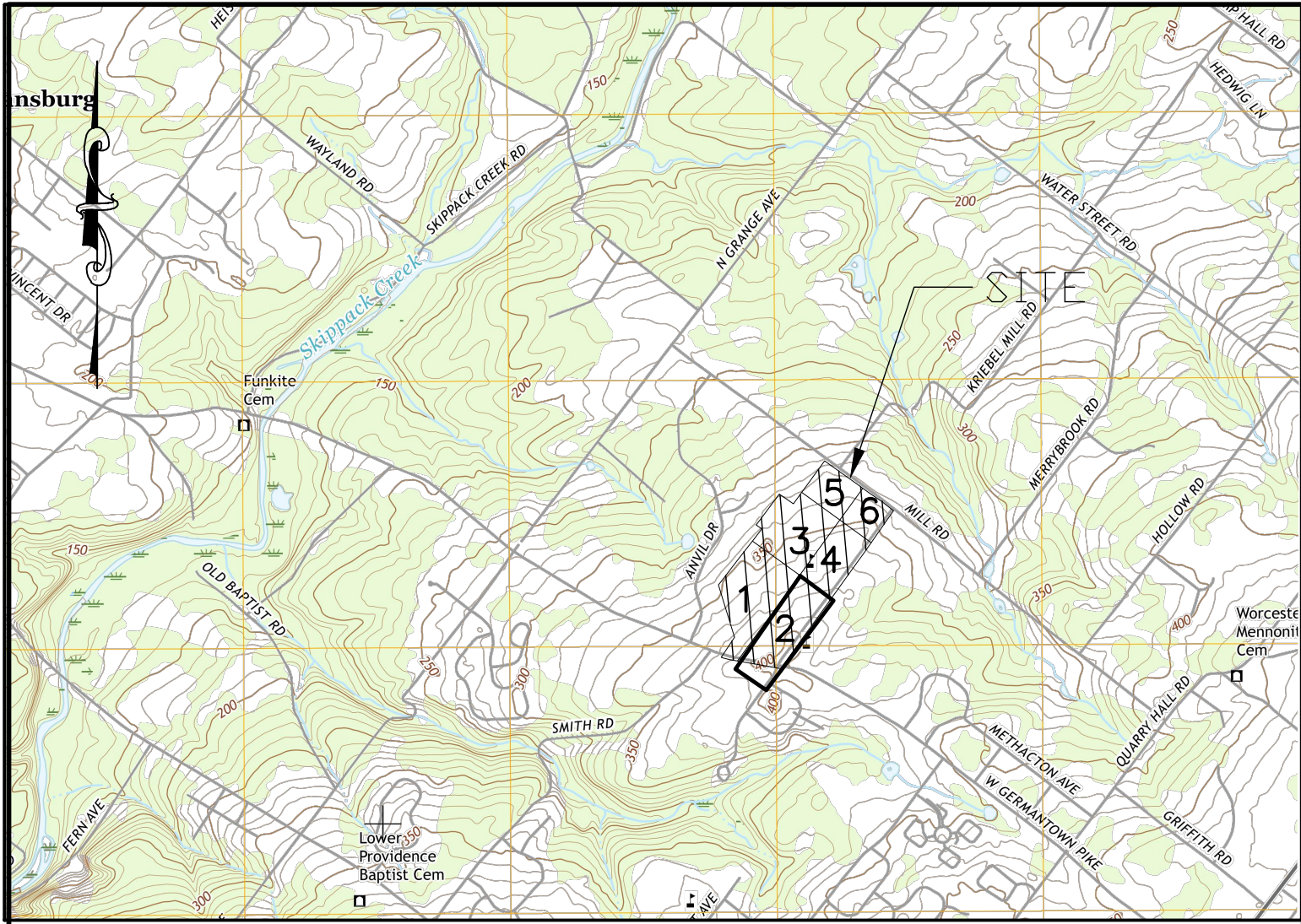
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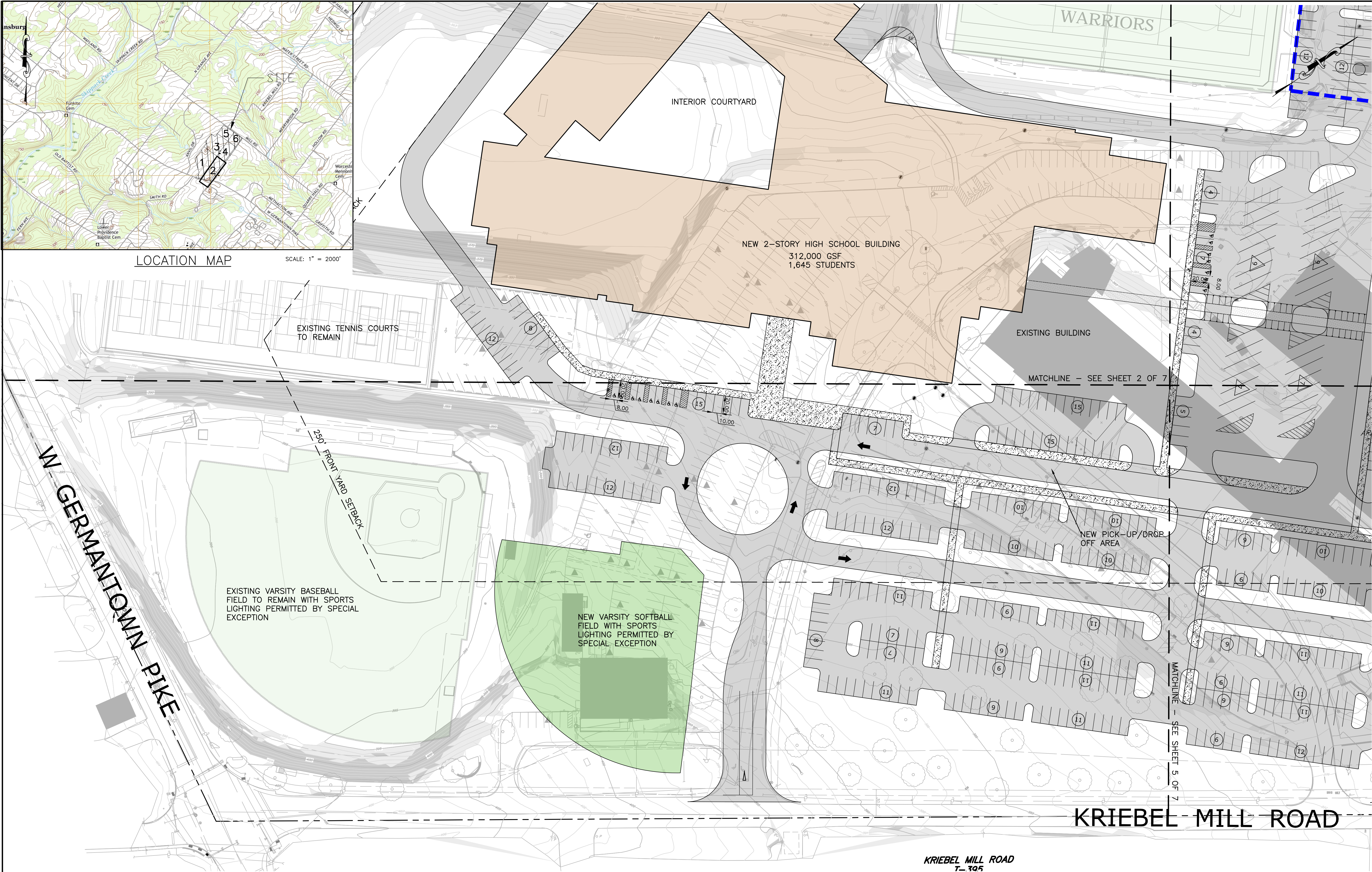
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LAST SAVE DATE AND TIME: 07 Jan 2025, 9:44AM
LAST SAVE BY: Brandon

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LOCATION MAP

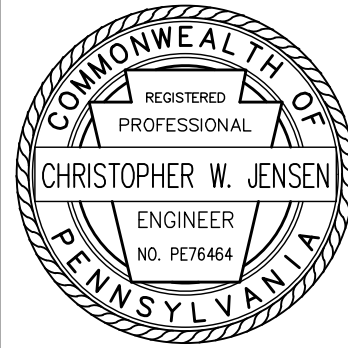
SCALE: 1" = 2000'



KRIEBEL MILL ROAD

KRIEBEL MILL ROAD
T-105

50' 25' 0 50' 100'
1" = 50'



CHRISTOPHER W. JENSEN, PE

LICENSED PROFESSIONAL ENGINEER

METHACTON SCHOOL DISTRICT
METHACTON HIGH SCHOOL CAMPUS
REDEVELOPMENT
1005 KRIEBEL MILL ROAD, EAGLEVILLE, PA 19403
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

SKETCH PLAN



1700 MARKET STREET, SUITE 3110
PHILADELPHIA, PA 19103
TEL 215-282-7850
FAX 215-427-3459

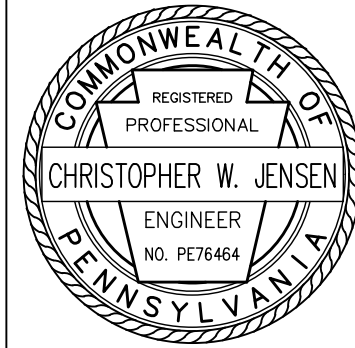
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CALIFORNIA, INDIANA, KENTUCKY,
MASSACHUSETTS, MICHIGAN, NEW JERSEY,
OHIO AND PENNSYLVANIA

DESIGNED BY
CHECKED BY
DRAWN BY
DATE
SCALE
PROJ. NO.

DRAWING
STE-2
SHEET
3
OF
7

PROJECT INFORMATION:
FILE PATH: G:\Projects\SGAL\000713\Plans\Zoning Plan\
FILE NAME: SGAL000713_Zoning Plan_recover.dwg
LAST SAVE DATE: 01/03/2025, 9:44AM
LAST SAVE BY: B. Brandt

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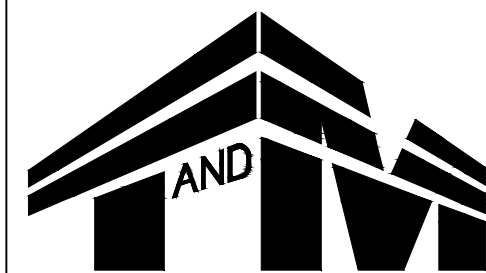


CHRISTOPHER W. JENSEN, PE
LICENSED PROFESSIONAL ENGINEER

LICENSED PROFESSIONAL ENGINEER
STATE OF PA. LICENSE NO. PE-076464

METHACTON SCHOOL DISTRICT
METHACTON HIGH SCHOOL CAMPUS
REDEVELOPMENT
1005 KRIEBEL MILL ROAD, EAGLEVILLE, PA 19403
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

SKETCH PLAN



1700 MARKET STREET, SUITE 3110
PHILADELPHIA, PA 19103
TEL 215-282-7850
FAX 215-427-3459

OFFICES LOCATED IN:
CALIFORNIA, INDIANA, KENTUCKY,
MASSACHUSETTS, MICHIGAN, NEW JERSEY,
OHIO AND PENNSYLVANIA

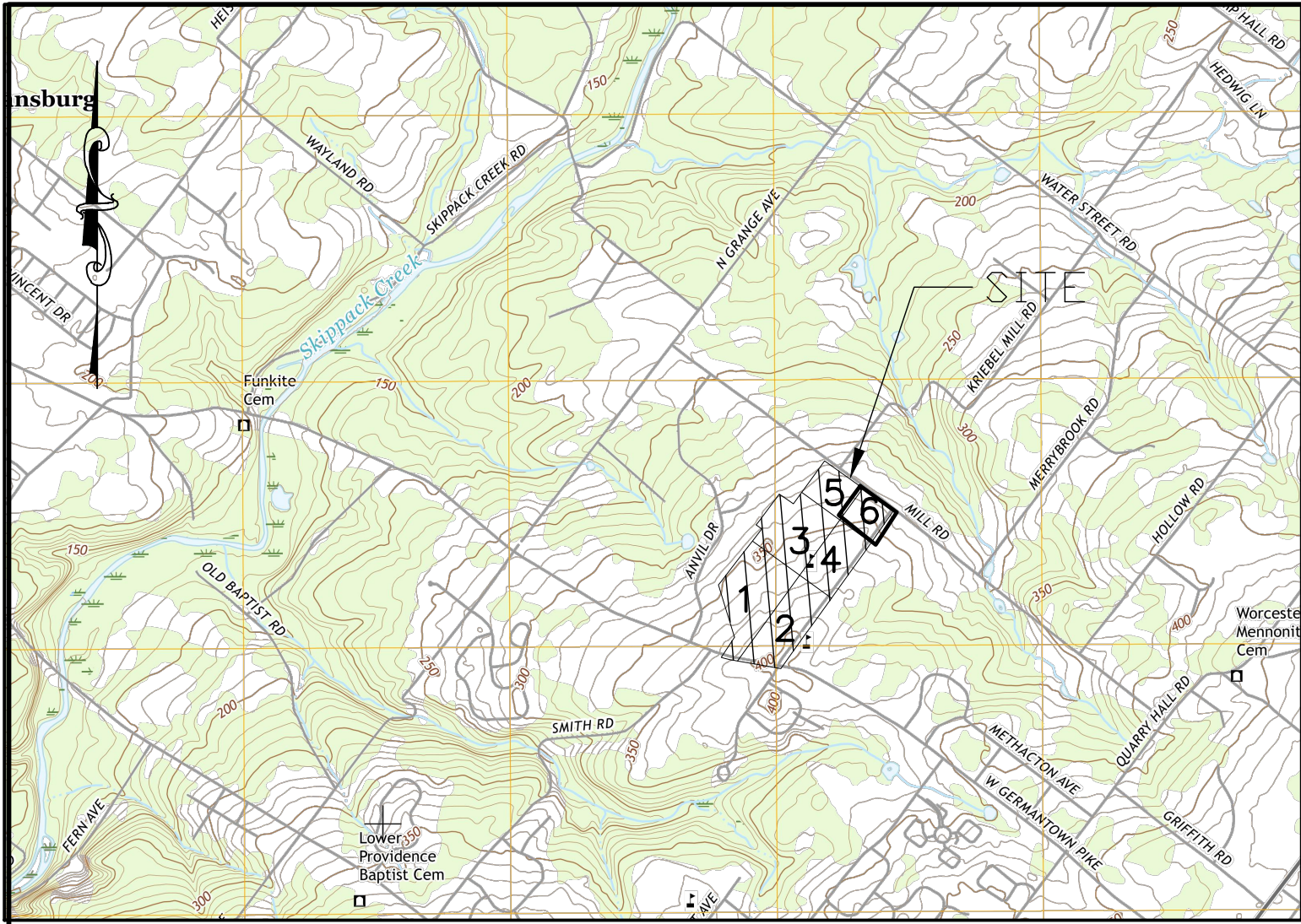
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CHECKED BY DS
DRAWN BY JPK
DATE 01/03/2025
SCALE AS SHOWN
PROJ. NO. SGAL000713

DRAWING
STE-4
SHEET
5
OF 7

50' 25' 0 50' 100'
1" = 50'

PROJECT INFORMATION:
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LAST SAVE BY: Brandon

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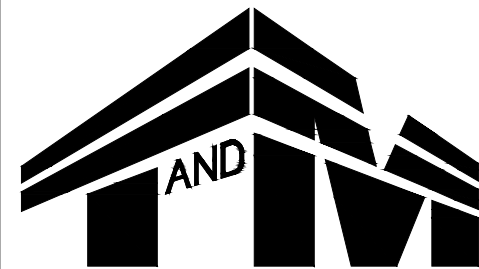
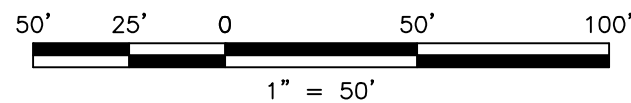
LOCATION MAP

SCALE: 1" = 2000'



MILL ROAD

MILL ROAD
T-340
(VARIABLE WIDTH ROW)



1700 MARKET STREET, SUITE 3110
PHILADELPHIA, PA 19103
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FAX 215-427-3459

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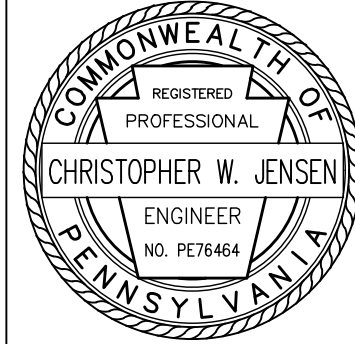
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METHACTON SCHOOL DISTRICT
METHACTON HIGH SCHOOL CAMPUS
REDEVELOPMENT
1005 KREBEL MILL ROAD, EAGLEVILLE, PA 19403
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

SKETCH PLAN

CHRISTOPHER W. JENSEN, PE
LICENSED PROFESSIONAL ENGINEER



LICENSED PROFESSIONAL ENGINEER
STATE OF PA
LICENSE NO. PE-076464

NO. DATE REVISIONS BY CHKD



February 4, 2025

Mr. Dan Demeno
Township Manager
Worcester Township
1721 Valley Forge Road
P.O. Box 767
Worcester, PA 19490

Attention: Christian R. Jones, Assistant Township Manager
Mr. Robert D'Hulster, Public Works Director

RE: **Traffic Review #1 – Sketch Plan**
Methacton High School Campus Redevelopment
Worcester Township, Montgomery County, PA
Project No. 313982-24-005

Dear Dan:

In response to the Township's request, Bowman Consulting Group (Bowman) has completed our initial traffic engineering review associated with the proposed Methacton High School campus redevelopment that is proposed to enhance and modernize this school and its associated facilities that is located at 1005 Kriebel Mill Road in Worcester Township, Montgomery County, PA. We attended technical working meeting with the applicant's team and Township staff/engineering consultants back on November 11, 2024 to discuss their draft concept plan variations and the work with the school board and community to date. It is our understanding from that meeting and the sketch plan enclosed that the proposed project involves the demolition of the existing Methacton High School and the construction of a new 2-story high school building, a new field house near the existing stadium, all new parking lot areas, circulation roads, modified access points, relocation and construction of a new softball field near the baseball field along Kriebel Mill Road, the addition of two new natural turf, multi-purpose fields on the campus, and other site improvements. Access to the campus is proposed to consolidate five existing driveways along Kriebel Mill Road to provide primary access to the campus via two, new full movement driveways on that road, and a bus/emergency vehicle-only access that is proposed to/from Mill Road as the 4th leg opposite the existing T-intersection of the northern leg of Kriebel Mill Road.

The following document was received January 7, 2025 and was reviewed in preparation of our comments:

- Sketch Plan – Methacton High School Campus Redevelopment, prepared by T and M Associates, dated January 1, 2025.

It is our understanding that a Transportation Impact Study (TIS) Scoping Application will soon be submitted for our review, as well. This was not included in the submission, and comments will be generated under separate cover specific to the scope of traffic study once that is received.

Based on our review of the document listed above, Bowman offers the following comments for consideration by the Township and action by the applicant:

General

1. Based on our review, the applicant must address the comments below and provide revisions to the plans in a land development submission to the Township and our office for further review and approval recommendations, should the Township Supervisors grant approval of the sketch plan. The applicant's engineer must provide a response letter that describes how each specific review comment has been addressed, where each can be found in the plan set or materials, as opposed to general responses. This will aid in the detailed review and subsequent review timeframes.
2. According to the Township's Roadway Sufficiency Analysis completed to determine the capital improvement program for area roadways and the transportation impact fee, the proposed development is located in Transportation Service Area South, which has a corresponding impact fee of \$3,125 per "new" weekday afternoon peak hour trip and the applicant will be required to pay a Transportation Impact Fee in accordance with the Township's Transportation Impact Fee Ordinance. In order to determine if a transportation impact fee is applicable for the proposed site modifications, the applicant must minimally provide details on the existing number of students/faculty/staff at Methacton High School on a typical school day, as well as the increase in the number of students/faculty/staff and activities associated with the campus redevelopment during the weekday afternoon peak hour that is expected with the site modifications. A final determination of the transportation impact fee will be calculated at upon submission of land development plans and the associated traffic study.
3. A Montgomery County Highway Occupancy Permit (HOP) is required for this project since West Germantown Pike is a County Roadway for any work that may be completed within the legal right-of-way on West Germantown Pike. Kriebel Mill Road (T-395) and Mill Road (T-340) are Township owned and maintained roads that will involve Township and Township consultant review and approvals. Furthermore, if modifications will be required to the signal at West Germantown Pike and Kriebel Mill Road to mitigate development impacts or to accommodate other improvements to the intersection, a PennDOT modified signal permit approval will be required, and if improvements are to be implemented at any off-site intersection with a state roadway, then a PennDOT HOP permit would be required.. The Township and our office must be copied on all TIA, HOP, and signal plan submissions, as well as correspondence between the applicant, Montgomery County, and PennDOT and invited to any and all meetings between the applicant team and these parties. **If it would be beneficial to all parties involved with this application, we recommend that the applicant and their team schedule a (virtual or in-person) technical meeting with Township and County representatives, and PennDOT if necessary, to go over the project during the scoping application phase for the traffic study, as well as future meetings to go through comment letters and discuss technical items.**
4. Upon resubmission, our office will evaluate the information in concert with Montgomery County and will provide additional reviews of engineering and supplemental submission details as we receive them.

Sketch Plan

5. Due to the overall magnitude of the proposed site modifications, the site's location along the highly trafficked road of West Germantown Pike, and located adjacent to the intersection of West Germantown Pike and Kriebel Mill Road which currently experiences congestion during the weekday commuter peak periods, the applicant must submit a transportation impact study (TIS) in conjunction with detailed plans for the proposed site modifications. The applicant should provide a TIS scoping meeting application to Montgomery County and Worcester Township so the TIS is scoped concurrently between both agencies to obtain their guidance and concurrence on the scope of the proposed study. Our office

initially recommends that the TIS scoping meeting application should include, but may not be limited to the following, also subject to our further review and official county/state agency scoping:

- Analysis of the weekday morning and weekday afternoon commuter peak hours to be extended to include the peak traffic hours for the start and end of the school day for existing traffic conditions, as well as opening-year conditions, both without and with the proposed site modifications, at the site adjacent intersections of West Germantown Pike/Kriebel Mill Road, Kriebel Mill Road/Mill Road, North Kriebel Mill Road/Mill Road, as well as the proposed site accesses.
 - Additional off-site intersections that should be included in a study based on our initial “area of impact” review prior to receipt of the scoping application should include: West Germantown Pike/North Grange Avenue, West Germantown Pike/Smith Road, North Grange Avenue/Mill Road, West Germantown Pike/East Mt. Kirk Avenue, Mill Road/Quarry Road, West Germantown Pike/Quarry Road, West Germantown Pike/Valley Forge Road (S.R. 0363), Water Street Road/Valley Forge Road (S.R. 0363).
 - Student, faculty and bus routing information, as well as trip generation information, should be provided to determine applicability of the intersections above or if a modified scope should be considered. Controlling the bus routing and timing of arrivals and departures, compared to student drivers and parent drop-offs/pick-ups, will be an important consideration of scope and the potential impacts for the redevelopment on area intersections.
 - Mitigation improvements, as applicable, to address levels-of-service and queuing issues, as well as degradation must be provided as recommendations in the traffic study and how they will be addressed by the applicant.
 - Provide sight distance analysis at the driveways along Kriebel Mill Road and Mill Road.
 - Conduct auxiliary lane warrant analysis at the site driveways along Kriebel Mill Road and Mill Road, and other study intersections.
 - As discussed in a previous meeting, determine the need during regular school functions and event functions on the campus, along with satisfying the requirements of the Township Ordinance, the limits of additional frontage widening necessary to satisfy cartway width requirements along with auxiliary lane functional needs.
 - Provide a crash analysis at all study intersections, as well as along the West Germantown Pike, Kriebel Mill Road, and Mill Road site frontages.
 - Provide a detailed look at multimodal needs and infrastructure surrounding the high school property frontages, as well as trail and connection opportunities to nearby neighborhoods.
 - The applicant must include the electronic Synchro files with the TIS submission for review.
 - Additional comments on the scope **will follow upon receipt of the formal TIA scoping application** to Montgomery County and Worcester Township, as well as PennDOT as applicable.
6. The study should address the issues being experienced at the intersection of West Germantown Pike and Kriebel Mill Road, most specifically during the peak times of arrival to the high school campus, that impact the Chadwick Place townhome neighborhood on the opposite side of West Germantown Pike from the high school, and how the new campus and intersection operations will be improved to remedy the issues.
7. Provide any information on the expected number of buses that will pick-up and drop-off at school in the future condition, as well as parent drop-off/pick-up vehicles, and demonstrate that they will be able to stage and fit into the proposed drop-off/pick-up areas for each vehicle type.
8. Provide the vehicle tracking and bus turning circulation plan to confirm that the path and roadway/curbline design is optimal for the largest buses, as well as turning and circulation templates for emergency vehicles, large delivery trucks, etc.

9. Provide a plan sheet showing how parking, parent drop-off/pick-up and bus operations during the morning arrival and afternoon dismissal will be accommodated for the high school after the opening of the new Methacton high school building, within and around the parking and drop-off/pick-up areas. The plan should show the expected internal travel routes and graphically depict the queuing areas with vehicles for the buses and parents in order to show that operations will work efficiently.
10. We have initial concerns about how the new parking areas, especially between the two new access points along Kriebel Mill Road will function, be signed, etc. for arrival and dismissal times. Please provide details on any submitted plans. Furthermore, the proposed roundabout has six (6) legs that extend from it, and the function of that roundabout should be further described and evaluated in the study using typical arrival and dismissal conditions that exist for the school.
11. Document/provide information regarding the sufficiency of typical weekday parking during the school day, any utilization of the drive aisles, and how the parking lots currently function for the existing Methacton High School, as well as note any use of frontage parking along Kriebel Mill Road.
12. Document/provide information on the number of high school-based pedestrians and their walking paths to/from the school, and how any patterns must be redirected during construction and/or upon completion of the project.
13. The applicant should provide information on the approximate number of visitors that can be expected to attend large events such as sporting events at the football stadiums and fields, back-to-school night, school concerts, and other large events to confirm that the proposed parking supply on-site can accommodate the proposed parking demand of these large events. Of concern is the possibility of visitors attending these large events to park along the site frontage of Kriebel Mill Road and/or Mill Road which may then create unsafe conditions for vehicles traveling along Kriebel Mill Road and Mill Road, vehicles exiting the school with restricted sight distances, and the safety of pedestrian activity in the vicinity of the site. The study should discuss and evaluate the existing conditions and how these events have impact on the community and adjacent roadways, and how the proposed plan will remedy any issues with the campus and related improvements for multimodal users.
14. At a later time should the project move into land development, the applicant should provide details, with a narrative and any supporting plans, for the expected on-site traffic operations during the construction phases on the campus. Of concern is vehicular and pedestrian activity for students/faculty/staff/visitors of the site interacting with construction vehicles and equipment and that safe conditions can be provided.
15. The ultimate right-of-way width and cartway width along the West Germantown Pike, Kriebel Mill Road, and Mill Road site frontages should be clearly labeled on the plans and be in accordance with **Section 130-16.C** of the **Subdivision and Land Development Ordinance**.
16. A note must be added to the plans stating that the area between legal right-of-way line and ultimate right-of-way line along the West Germantown Pike, Kriebel Mill Road, and Mill Road site frontages will be offered for dedication to the authority having jurisdiction over the road as required by **Section 130-16.C(2)(c)** of the **Subdivision and Land Development Ordinance**.
17. Adequate sight distance measurements should be shown on the plan for the proposed driveways along Kriebel Mill Road and Mill Road as required by **Section 130-17.B(1)** of the **Subdivision and Land Development Ordinance**. Specifically, vehicular egress sight distances looking in both directions must

be provided, as well as for the ingressing left-turn vehicle sight distance to the front and rear, and achievable sight distances must be sufficient for the speed and conditions to allow for all ingress and egress turning movements and the roadway/driveway locations as they exist/are proposed on the plan. Vegetation and physical restrictions along the property frontage must be cleared and maintained to allow for at least the minimum safe stopping distances to be achieved at 10 feet back from the edge of the road for the proposed driveways.

18. According to **Section 130-18.A** of the **Subdivision and Land Development Ordinance**, sidewalk should be provided along the site frontages of West Germantown Pike, Kriebel Mill Road, and Mill Road. The plans currently do not show any sidewalk along the West Germantown Pike, Kriebel Mill Road, and Mill Road site frontages, thereby not satisfying the ordinance requirement. The plans should be either be revised to show sidewalk along the West Germantown Pike, Kriebel Mill Road, and Mill Road site frontages, or a waiver must be requested from the ordinance requirement. We do note that there is currently no sidewalk along either side of West Germantown Pike, Kriebel Mill Road, and Mill Road in the vicinity of the site. While we recommend sidewalk be provided along West Germantown Pike, Kriebel Mill Road, and Mill Road under this application with the provision of any necessary grading and barriers to protect pedestrians using the walkway from steep grades, the Board of Supervisors may consider deferring this obligation that is required of the applicant until such a time as may be required by the Township for the future development of this property, whether under present or future land ownership, and at no cost to Worcester Township, or the Township may desire to consider a fee in lieu of sidewalk to be kept in escrow for future sidewalk installations in the Township and/or area of these properties.
19. According to **Section 130-18.B** of the **Subdivision and Land Development Ordinance**, curbing should be provided along the site frontages of West Germantown Pike, Kriebel Mill Road, and Mill Road. The plans currently do not show any curbing along the West Germantown Pike, Kriebel Mill Road, and Mill Road site frontages, thereby not satisfying the ordinance requirement. The plans should either be revised to show curbing along the site frontages of West Germantown Pike, Kriebel Mill Road, and Mill Road, or a waiver must be requested from this ordinance requirement. There is currently no curbing provided along either side of West Germantown Pike, the western side of Kriebel Mill Road, and the southern side for Mill Road in the vicinity of the site. However, curb is provided along the eastern side of Kriebel Mill Road from the southern property line for 1050 Kriebel Mill Road to Mill Road, and along the northern side of Mill Road from the eastern leg of Kriebel Mill Road to western leg of Kriebel Mill Road. Alternatively, the Board of Supervisors may consider deferring this obligation that is required of the applicant until such a time as may be required by the Township or PennDOT for this property, whether under present or future land ownership, and at no cost to Worcester Township, or may desire to consider a fee in lieu of curb to be kept in escrow for future curb installations in the Township and/or area of these properties.
20. The curb radii should be labeled on the plans at the proposed driveway intersections with Kriebel Mill Road and Mill Road and be in accordance with **Section 130-17.B(3)** of the **Subdivision and Land Development Ordinance**.
21. The curb radii throughout the parking areas should be shown on the plans and be in accordance with **Section 130-17.D(10)** of the **Subdivision and Land Development Ordinance**.
22. The parking space and drive aisle dimensions must be shown on the plans throughout the parking areas on site and be in accordance with **Section 130-17.D(11)** of the **Subdivision and Land Development Ordinance**.

23. According to **Section 150-153.B(1)** of the **Zoning Ordinance**, one space per every 3 seats provided for the greater of the indoor or outdoor assembly area is the required number of parking for a school. Based on 1600 seats provided in the stadium, the required number of parking spaces for the site is 534. The plan shows 877 parking spaces, thereby satisfying the ordinance requirements. However, the applicant should provide a section in their traffic study citing and summarizing any prior studies on parking supply demand for the high school campus based upon the needs for this high school campus, and how the proposed redevelopment of the site and new parking areas may solve parking supply and demand issues, as well as addressing any overflow parking needs that are occurring beyond the designated parking areas on the existing site.
24. The plans currently show 18 ADA parking spaces for the proposed site modifications. Based on the total number of parking spaces provided for the site, the number of ADA parking spaces meets current ADA requirements.
25. ADA ramps should be shown on the plan at all locations where the sidewalk meets the drive aisles/parking lots, as well as in the immediate vicinity of all proposed ADA parking spaces.
26. Turning templates must be provided demonstrating the ability of emergency vehicles, trash trucks, buses, and the largest expected delivery vehicle to maneuver into and out of the proposed driveways along Kriebel Mill Road and Mill Road, as well as entirely through the site.
27. The Township Fire Marshal should review the proposed site modifications for accessibility and circulation needs of emergency apparatus. Ensure that any correspondence, including any review comments and/or approvals, is included in subsequent submissions.
28. All proposed signs should be clearly labeled on the plan. Due to the size of this site, we recommend that a separate signing and pavement marking plan be provided in all subsequent submissions. Additional comments pertaining to the signing and pavement markings for this site will be provided upon receipt and review of the signing and pavement marking plan(s).
29. Appropriate signage (i.e., one-way signs, Do Not Enter signs, etc.) and pavement markings should be provided through the roundabout located along the drive aisle leading to/from the southern Kriebel Mill Road driveway.
30. Backstops of sufficient height and any extension of netting must be planned and considered for the new softball field and any further needs of the baseball field to protect pedestrians and vehicles along West Germantown Pike, Kriebel Mill Road, and nearby areas of these play fields.
31. If any recreational/sporting field is proposed to be illuminated for play after dark, lighting details and design must be provided to the Township Engineer and copied also to our office for review in accordance with Township requirements, and any necessary conditional use and zoning approvals must be obtained.
32. Additional information (i.e., expected use of the lot, parking restrictions, etc.) for the existing parking lot along Mill Road should be provided as we have concerns with its close proximity to the proposed full access driveway along Mill Road.
33. A more detailed review of the site and all transportation-related engineering elements on the plan will be conducted, if and as the application advances into and through the land development process at the Township. Additional comments should be expected to be raised upon submission of any detailed land

development plans and associated studies, as well as how the comments herein are satisfactorily addressed.

We trust that this review letter responds to your request. If you or the Township have any questions, or require clarification, please contact me, Michelle Eve, P.E., or Brian Jones, PTP, TOPS.

Sincerely,



Casey A. Moore, P.E
EVP/Regional Manager - Transportation

BMJ/MEE/CAM

cc: John Evarts, P.E., CKS Engineers (Township Engineer)
Wendy Feiss McKenna, Esq. (Township Solicitor)
Devin Ralph, Esq. (Township Solicitor)
Andy Parker, McCormick Taylor (Montgomery County Review Consultant)
Paul Lutz, PennDOT District 6-0
Dr. David Zerbe, Methacton School District (Applicant)
David Stewart, T and M Associates (Applicant's Engineer)
Christopher Jensen, P.E., T and M Associates (Applicant's Engineer)
Matt Hammond, P.E., TPD, Inc. (Applicant's Traffic Engineer)

V:\313982 - Worcester Twp PA\313982-24-005 (TRA) - Methacton HS - Redevelopment Master Plan\Engineering\Submissions\2025-01-07 Sketch Plan\Review\2025-02-04 Review Letter #1 - Methacton High School (finalized).docx

**MONTGOMERY COUNTY
BOARD OF COMMISSIONERS**

NEIL K. MAKHIJA, CHAIR
JAMILA H. WINDER, VICE CHAIR
THOMAS DIBELLO, COMMISSIONER

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**MONTGOMERY COUNTY
PLANNING COMMISSION**

MONTGOMERY COUNTY • PO Box 311
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SCOTT FRANCE, AICP
EXECUTIVE DIRECTOR

February 13, 2025

Dan DeMeno, Manager
Worcester Township
1721 South Valley Forge Road
P.O. Box 767
Worcester, PA 19490

Re: MCPC #25-0008-001
Plan Name: Methacton High School
(1 lots comprising 62.83 acres, 312,000 sf building)
Situate: Kriebel Mill Road at Germantown Pike
Worcester Township

Dear Mr. DeMeno:

We have reviewed the above-referenced subdivision and land development plan in accordance with Section 502 of Act 247, "The Pennsylvania Municipalities Planning Code," as you requested on January 14, 2025. We forward this letter as a report of our review.

BACKGROUND

The applicant, the Methacton School District, has submitted a sketch plan proposing the construction of a new high school and various site improvements on the site of the existing Methacton High School. The new two-story building is a proposed 312,000 square feet and would have capacity for an anticipated 1,645 students. There is existing public sewer and water service on this site. Proposed parking spaces on this site would increase the capacity for vehicles on this site, from an existing 603 spaces to 877 spaces. Other proposed site additions include new above ground stormwater basins, new natural turf playing fields, a new field house and adjacent plaza area, and a new varsity softball field. This property is in the township's AGR Agricultural District

COMPREHENSIVE PLAN COMPLIANCE

Montco 2040: A Shared Vision, the county's current comprehensive plan, identifies the future land use of this tract as a Suburban Residential Area, which is appropriate for both the current and future (unchanged) use. *Montco 2040* encourages new development to be placed in areas that have existing



infrastructure to accommodate growth. This proposal is consistent with the county's comprehensive plan.

RECOMMENDATION

The Montgomery County Planning Commission (MCPC) generally supports the applicant's proposal, however, in the course of our review we have identified the following issues that the applicant and township may wish to consider prior to final plan approval. Our comments are as follows:

REVIEW COMMENTS

TRANSPORTATION

- 1) Mill Road Access. The proposed plan contains a full access driveway onto Mill Road that would be for bus access and emergency purposes only. However, Mill Road is rather rural. It's a paved road without shoulders and may require additional improvements to allow for heavier daily use.
- 2) Separation of Cars and Buses. It is unclear from the current submitted plans what routes buses and cars would take through the property to drop students off and if there is sufficient spaces for vehicles to idle/queue at afternoon pickup times.
- 3) Sidewalks. We strongly encourage the provision of new sidewalks along Kriebel Mill Road, particularly between the first entrance onto the property and Germantown Pike, as well as the appropriate curb cuts, crosswalks, and other infrastructure, to make it possible and safe to walk to and from school from nearby neighborhoods (particularly the townhouse development on the other side of Germantown Pike). While there may not be a large population of students who live close enough to this school to walk regularly, providing this infrastructure is an important part of school culture. Since Germantown Pike at this intersection is a county road, please copy Jennifer Payne through the county's Office of Roads and Bridges on any future correspondence on this topic.

CONCLUSION

We wish to reiterate that MCPC generally supports the applicant's proposal but we believe that our suggested revisions will better achieve the school district's and Worcester Township's planning objectives.

Please note that the review comments and recommendations contained in this report are advisory to the municipality and final disposition for the approval of any proposal will be made by the municipality.

Should the governing body approve a final plat of this proposal, the applicant must present the plan to our office for seal and signature prior to recording with the Recorder of Deeds office. A paper copy bearing the municipal seal and signature of approval must be supplied for our files.

Please print the assigned MCPC number #25-0008-001 on any plans submitted for final recording.

Sincerely,

A handwritten signature in dark ink that reads "Anne Leavitt-Gruberger". The script is cursive and fluid, with the first name "Anne" being the most prominent.

Anne Leavitt-Gruberger, County Planning Manager

anne.leavitt-gruberger@montgomerycountypa.gov – 610-278-3727

c: Methacton School District
David Stewart, T&M Associates, Applicant's Representative
Christian Jones, Assistant Township Manager

Attachment A: Aerial Image of Site

Attachment B: Reduced Copy of Applicant's Proposed Site Plan

ATTACHMENTS



Methacton High School
MCPC#250008001

Montgomery
County
Planning
Commission
Montgomery County Courthouse - Planning Commission
PO Box 311, Norristown, PA 19384-0311
(p) 610-278-3722 (f) 610-278-3961
www.montcopa.org/plancm
Aerial photography provided by NeaMap

0 200 400 800 Feet







CKS Engineers
4259 West Swamp Road, Suite 410
Doylestown, PA 18902
P: 215.340.0600
www.cksengineers.com

February 13, 2025
Ref: #7563

Worcester Township
1721 Valley Forge Road
PO Box 767
Worcester, PA 19490-0767

Attention: Dan DeMeno, Township Manager

Reference: Methacton High School
Sketch Plan Review
TMP No. 67-00-01393-00-7

Dear Dan:

We have reviewed the Sketch Plan pertaining to the above-referenced Land Development that you forwarded to our office for review. The subject plan consists of (7) sheets prepared by T&M Associates (hereinafter "T&M") dated January 3, 2025, with no revisions, and an ALTA Land Title Survey consisting of (7) sheets prepared by Carroll Engineering Corporation (hereinafter "CEC") dated September 13, 2024, with no revisions.

Relative to this matter, we note the application proposes demolition of an existing two-story school building and reconstruction of the same on an approximately 62.9-acre site located on Kriebel Mill (T-395) Road between W. Germantown Pike (County Route 6170) and Mill Road (T-340). The site is in the AGR – Agricultural Zoning District Zoning District. The plan proposes a new two-story high school with a courtyard, having 312,000 s.f. of gross floor area and a noted capacity of 1,645 students. The existing bus depot, varsity baseball, tennis courts, turf field, and track/stadium are to remain. In addition to the new school building, a new varsity softball field, two natural turf multi-purpose fields, a field house, and varsity baseball field lighting are proposed. The existing 603-space parking lot will be replaced with an approximately 877-space lot served by two new access drives along Kriebel Mill Road, replacing the existing six access driveways. One new emergency vehicle and bus access driveway is proposed along the Mill Road frontage, north of where an existing parking area and access driveway are to remain. Stormwater management facilities are conceptually shown to include two aboveground and three subsurface stormwater management basins. The site is proposed to be served by public sanitary sewer and water service.

As per your request, we have performed a cursory review of the Sketch Plan submitted to determine if it is in compliance with the Township's Zoning Ordinance and offer comments on Subdivision and Land Development, Stormwater Management, Sanitary Sewer and General Observation as follow:

I. ZONING

1. The proposed use of a public school is permitted by conditional use in the AGR – Agricultural Zoning District provided that the following conditions are met:

- a. The use is located on a lot 25 acres or larger;

The subject tract is 66.07 acres to the title line and 62.82 acres net per the CEC survey.

- b. The building coverage does not exceed 15% of the gross lot area;

Proposed building coverage is to be reduced from 8.7% to 8.0% per Sheet 1 of the T&M Plan. This area cannot be verified as the school building shape is irregular and the plans lack exterior wall dimensions on all new buildings. However, the new building does appear to have a smaller footprint than the current school building.

- c. The impervious coverage does not exceed 40% of the gross lot area;

Impervious coverage will be increased from an existing 43% to 45%. The applicant should provide a tabulation of all existing and proposed impervious coverage by surface type for review by the Township. The plan indicates an existing non-conforming condition of 43%; however, detailed data supporting this figure is not provided within the T&M plan nor CEC survey. If impervious coverage is increased, a zoning variance will be required. If impervious coverage were kept at the existing non-conforming percentage, the Zoning Officer should indicate if any relief from the Zoning Hearing Board would be needed due to the complex project scope.

- d. A safe and efficient off-street passenger drop-off/pick-up area is provided;

We defer to the Township Traffic Engineer for review of this requirement; however, we note a significant improvement in the site access from Kriebel Mill Road and internal circulation. A one-way pick-up/drop-off driveway is provided near the proposed building front. The primary building entrance is assumed to be north of the proposed interior roundabout. The applicant should revise the plans to highlight anticipated points of building ingress/egress for the school building.

We note the site currently contains an active high school. The Township must determine if the current proposal will require a conditional use.

2. Future plan submissions must include all setback dimensions on the plans, including existing setbacks.
3. The front yard setback requirement is 250 feet yet the plan proposes a setback of 234.82 feet from the centerline of Kriebel Mill Road to the new field house. This setback must be recalculated from the ultimate right-of-way line per ordinance definitions found in Section 150-9. We note the ultimate right-of-way width for Kriebel Mill Road is to be 60 feet; therefore, a 30-foot half-width applies. The applicant may wish to relocate the new field house since, if it were shifted west partially into the proposed plaza area or its footprint

was reduced, the front yard encroachment could be eliminated. Otherwise, a zoning variance would be required. (150-13.B)

4. The plan properly considers each yard along a street frontage to be a front yard as this is a corner lot bounded by three streets. We recommend the provided yard depth be noted separately for each street frontage in the Zoning Data table on Sheet 1 of the T&M plans to demonstrate compliance for each frontage. (150-13.B & 150-196)
5. Due to the ultimate right-of-way width of W. Germantown Pike being greater than 75 feet (100 feet), this road must be considered a "highway." Therefore, the front yard setback requirement is to be doubled from 250 feet to 500 feet along this street frontage. While the building envelope will be reduced, it appears the proposed school building location will still be compliant with the increased setback. (150-199)
6. The Township Zoning Officer should determine if the existing bus depot is permitted as an accessory use to the public school. We note that the bus depot portion of the site will remain unchanged with the exception of a new driveway access to Mill Road that will also provide interconnection with the proposed school parking lot. (150-11.D)
7. Screening of bus storage must be addressed in future submissions if not already provided, or, if to be altered as a result of the proposed improvements. (150-194.A)
8. The existing side and rear setbacks of the bus depot building appear to be an existing non-conformity. The plan must be revised to indicate the setback dimensions from the respective property lines. The Township Zoning Officer should review this condition and make a determination of the building's non-conforming status. (150-13.B.2)
9. The height of accessory structures, such as the proposed field house, must be noted in the Zoning Data table on Sheet 1 of the T&M Plan. The Zoning Officer should provide guidance to the applicant on the allowable structure height as the ordinance does not explicitly regulate field houses at school sports facilities, but rather, only features such as backstops, scoreboards, and dugouts. (150-17.H and 150-177.C)
10. Parking may not be located within 100 feet of any property line. Several proposed spaces in the lots along Kriebel Mill Road are within 100 feet of the property line. We also note that an "existing parking area to remain" along Mill Road does not meet this requirement. The plans note this as an existing non-conformity. (150-16.B.2)
11. Expansion of "other" non-conforming improvements shall conform to the area, height, setback, width, and yard coverage and all other applicable regulations of the district in which the non-conforming improvement is located. The existing parking being located in the front yard setback of the site does not allow reconfiguration and replacement of the parking lot within the required front yard. The yard may no longer be encroached by parking as the school building will be demolished; therefore, its associated parking areas may not maintain a non-conformity if the building they are associated with is to be removed and newly constructed. Approximately 285 of the proposed parking spaces are in the required front yard along Kriebel Mill Road. (150-162.1)

12. The proposed quantity of 877 parking spaces could not be verified. Our office observed 847 vehicle and 32 bus spaces for a total of 879 spaces. The applicant should differentiate between vehicle and bus parking in their listed total. The number of available parking spaces to remain in the aforementioned parking lot northeast of the proposed multi-purpose turf field near Mill Road must be included in the total. Lastly, the quantity of existing bus spaces to remain at the bus depot must be separately noted in the bus parking tabulation.
13. In calculating the required parking, the applicant indicates the 1,600 seat stadium results in 534 spaces being required. If the new school will provide an indoor assembly area with a greater seating capacity, that space shall be used in determining the minimum parking requirement. Seating capacities at other existing and proposed outdoor fields must also be considered as there is potential for two sporting events occurring simultaneously on different fields. (150-153.B.1)
14. The location of off-street loading space(s) must be shown on the plan. The applicant should also comment if box trucks and combination vehicles will be permitted to access the site from Mill Road. (150-156)
15. Exterior lighting of a building or grounds, in any district in the Township, shall not be more than 12 feet above grade, and shall be screened so as not to permit the source of illumination to be seen from off the premise. In future submissions, details of the proposed lighting must be provided. Field lighting may exceed this height threshold only if approved as a conditional use by the Board of Supervisors. We note a conditional use was approved by the Township for the football field. The Township must determine if a new conditional use is required for new lighting at the proposed softball and existing baseball fields. (150-200.A and 150-200.B.2)
16. Illumination intensities on the school athletic fields shall be limited to the minimum safe levels appropriate for the type of activity on the illuminated fields in accordance with available industry, sport, or league standards. Safe levels shall be specified in the conditional use decision of Board of Supervisors. (150-200.B.8)
17. On future Record Plans, a note must be included stating that "No music shall be allowed accessory to any event or activity, on any illuminated athletic field under this section except live music provided by the school band or bands from visiting schools." (150-200.B.13.a)

II. SUBDIVISION & LAND DEVELOPMENT

1. Curbing and sidewalk should be provided as required on W. Germantown Pike, Kriebel Mill Road, and Mill Road. We note that there is an existing pedestrian crossing at the intersection of W. Germantown Pike with Kriebel Mill Road. As part of the improvements, the applicant should consider the installation of frontage sidewalk or a trail from this intersection to the westerly site access, allowing students residing in Lower Providence Township to reach the school by walking or cycling. Improvements to Germantown Pike will be regulated by Montgomery County as this is a County route. (130-16.C.1.a.6.a and 130-18)

2. Existing cartway widths must be labeled on future submissions; roadway widening may be required. (130-16.C.2.a)
3. The applicant should indicate if areas between the title lines and ultimate rights-of-way lines will be offered for dedication to Montgomery County and/or the Township. (130-16.C.2.c)
4. A demolition plan will be required with future submissions detailing the extents of improvements that will be removed. If the project is to be phased, the applicant should detail the anticipated activities occurring within each phase. The anticipated project timeline should also be discussed with the Township. (130-20.B.4)
5. Regrading in steep slope areas shall be minimized to the greatest extent possible. Existing landscaping on steep slope areas shall be preserved, except where regrading is proposed. Sheet 1 of the T&M plan notes steep slopes to be disturbed are "manmade." The applicant must clarify if all on-site steep slopes are manmade. (130-32.1.C)
6. The Township shall require the developer to verify the presence of existing trees on a site by field investigation or by the use of aerial photographs. With future submissions, a separate tree survey plan at a scale of not less than one inch to 50 feet shall be submitted showing the location of existing live trees with DBH of six inches or more. (130-28.E.1.a)
7. Future submissions will need to show proposed plantings on a landscaping plan prepared by a Registered Landscape Architect. Lighting plans will also be required. (130-28)

III. STORMWATER MANAGEMENT, GRADING, EROSION & SEDIMENT CONTROL

1. An NPDES permit will be required from the Montgomery County Conservation District and PADEP. Future submissions must provide a complete Erosion and Sedimentation Control Plan and Narrative. (130-32)
2. The plan conceptually shows two aboveground and three subsurface stormwater management facilities. The complete conveyance system, along with a narrative, design calculations, drainage maps, and other supporting documentation must be provided with future submissions.
3. Due to the significant amount on on-site paving with potential for limited use during weekends and the summer season, the Township encourages the applicant to consider implementing innovative measures which will help offset the effects of the impervious surfaces, such as porous paving, a vegetated rooftop, absorbent parking islands, and the like.

IV. SANITARY SEWER

1. Note 4 on Sheet 1 states that the new high school will be connected to public sewer and water. Currently, sanitary sewer from the existing high school is treated on site by a small package wastewater treatment plant and the building is connected to public water. Existing and proposed sewer flows must be provided in future submissions. Additionally, sewage planning will be required and an update to the Township's 537 Plan may also be required.

The Applicant is encouraged to discuss their sewer options with the Township early in the land development process.

2. All utilities, existing and proposed, must be shown on the plans in future submissions.
3. As stated previously in this letter, a description of what type of field house is being proposed, including amenities which may include bathrooms, showers, and kitchens is needed. Depending on the proposed kitchen equipment, a grease trap may be required.

V. GENERAL ENGINEERING

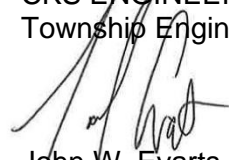
The following are general comments and considerations generated during the course of our review:

1. The applicant should determine if there are any deed restrictions or covenants that may affect the proposed development.
2. The interior roundabout will have six points of vehicle access. We defer to the Township Traffic Engineer but recommend the driveway layout be modified to reduce the quantity of potential points of conflict.
3. The applicant should discuss with the Township what methods will be employed to prohibit vehicles which are not buses or emergency apparatuses from utilizing the Mill Road driveway. If the Mill Road driveway will be restricted to bus and emergency use, signage indicating this restriction must be posted. The applicant should also indicate if there will be signage, knock-down style bollards, etc., where this driveway interconnects with the school's main parking lot.
4. We recommend additional directional arrows be added to the overall plan to clearly illustrate intended vehicular circulation throughout the parking lots and driveways. The pedestrian way interconnecting the school and plaza/field house building should be labeled as to its function relative to the adjacent parking rows. (e.g. raised crosswalk and/or dead-end parking aisles with islands)
5. While a sufficient quantity of accessible parking spaces is proposed, the applicant should consider distribution of the spaces throughout the site, namely, one space should be provided in the vicinity of the existing turf field to remain and one space provided near the varsity baseball/softball fields and tennis courts.
6. Architectural elevations and renderings should be shown to the Township to ensure that the building design conforms to the Township's character.
7. The applicant should specify if concession sales of packaged and/or prepared food items will be an incidental activity offered at the field house. If prepared food items are offered, the applicant should comment if there will be odors generated via commercial kitchen exhaust systems. (150-11.D)
8. Approval by the Township Traffic Engineer will be required.

9. Approval by the Township Fire Marshal will be required.
10. Review by the following outside agencies will be required:
 - a. Montgomery County Planning Commission
 - b. Montgomery County Conservation District
 - c. Montgomery County Road and Bridge Department
 - d. PADEP Sewage Facilities Planning

The above represents our comments on the submitted Sketch Plan. Please do not hesitate to contact our office with any questions.

Very truly yours,
CKS ENGINEERS
Township Engineer



John W. Evarts, P.E.

JWE/klk

cc: Christian Jones, Assistant Township Manager
Wendy F. McKenna, Esq., Township Solicitor
Casey Moore, PE, Township Traffic Engineer
Dr. David Zerbe, Methacton School District (Applicant)
David Stewart, T&M Associates
Christopher Jensen, P.E., T&M Associates
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