

Project Desc.: Plan: C:\Users\Tom\onenote\Drawings\Linfield\3-26-20\LOC-Verus\9810321.dwg Plot Date/Time: Wed Sep 7, 2022 / 10:56:24  
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# LINFIELD CORPORATE CENTER INDUSTRIAL BUILDING

SITUATED IN: LIMERICK TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

## GENERAL NOTES:

1. OWNER: LINFIELD CORPORATE CENTER, LP  
1030 WEST GERMANTOWN PIKE  
EAST WORTON, PA 15403  
CONTACT: TED KOCHEN, P.E.  
PH: 610-539-4700
- DEVELOPER: Verus Partners, LLC  
155 N. Rucker Drive, Suite 4250  
Owensboro, IL 60066  
Tel: 773-680-8970  
Principal: Bob McCormick  
bmc@veruspartners.com
- |  |  |  |  |  |
|--|--|--|--|--|
| DEV 5563, PG 2238<br>TAX MAP#370344074<br>PAR 10# 37-00-01240-15-4 | DEV 5563, PG 2238<br>TAX MAP#370344075<br>PAR 10# 37-00-01240-17-2 | DEV 5563, PG 2238<br>TAX MAP#370344031<br>PAR 10# 37-00-05753-51-9 | DEV 5563, PG 2238<br>TAX MAP#370344028<br>PAR 10# 37-00-05753-54-6 | DEV 5563, PG 2238<br>TAX MAP#370344013<br>PAR 10# 37-00-05753-05-1 |
| DEV 5563, PG 2238<br>TAX MAP#370344075<br>PAR 10# 37-00-01240-16-3 | DEV 5563, PG 2238<br>TAX MAP#370344077<br>PAR 10# 37-00-01240-18-1 | DEV 5563, PG 2238<br>TAX MAP#370344030<br>PAR 10# 37-00-05753-52-8 | DEV 5563, PG 2238<br>TAX MAP#370344029<br>PAR 10# 37-00-05753-53-7 | DEV 5563, PG 2238<br>TAX MAP#370344014<br>PAR 10# 37-00-05753-10-5 |

2. ZONING: O/LI CLASS 1 - OFFICE/LIMITED INDUSTRIAL DISTRICT

	REQUIRED	PROPOSED	PARCEL A
MIN. LOT AREA	10 ACRES	(GR) 24.14 AC. (1,051,686 FT <sup>2</sup> ) (NET) 23.05 AC. (1,004,229.66 FT <sup>2</sup> )	2.08 AC. (90,451 FT <sup>2</sup> ) 935 FT. ±
MIN. LOT WIDTH	400 FT.	558	0
MAX. IMPERVIOUS COVERAGE (BASED ON LOT AREA)	70% OF LOT AREA	26%	N/A
MAX. BUILDING COVERAGE (BASED ON NET BUILDABLE ACREAGE)	35%	0.256	N/A
MAX. FLOOR AREA RATIO	0.40		N/A

BUILDING SETBACKS	50 FT.	70 FT.	N/A
FROM U/LI R/W	100 FT.	165 FT.	N/A
FROM A LOT ABUTTING RESIDENTIAL DISTRICT	30 FT.	100 FT.	N/A
FROM ANY OTHER LOT LINE			
PARKING, SERVICE AREA OR INTERNAL DRIVEWAY SETBACKS	30 FT.	30 FT.	N/A
FROM U/LI R/W	100 FT.	165 FT.	N/A
FROM A LOT ABUTTING RESIDENTIAL DISTRICT	30 FT.	100 FT.	N/A
FROM LAND ZONED FOR NONRESIDENTIAL	10 FT.	15 FT.	N/A
FROM A BUILDING (EXCEPT LOADING DOCKS)	10 FT.	15 FT.	N/A
OUTDOOR STORAGE AREA	35 FT.	45 FT.	N/A
MAX. BUILDING HEIGHT	3 STORIES	1 STORY	N/A
MAX. NUMBER OF STORIES			
SITE CAPACITY CALCULATION			
LOT 48R GROSS ACREAGE:	26.22 ACRES (1,142,137.0 SQ. FT.)		
EXISTING ROAD RIGHT-OF-WAY	0.00		
1.1 TRACT RIGHT-OF-WAY	1.08 AC. (47,456.59 SQ. FT.)		
NONCONTIGUOUS LAND	2.08 AC. (90,450.75 SQ. FT.)		
100% OF FLOODPLAIN LAND	0.00 ACRES		
100% OF WETLANDS	0.00 ACRES		
100% OF PONDS OR LAKES	0.00 ACRES		
50% OF 15%-25% SLOPES	0.00 ACRES		
50% OF 25% SLOPES	0.00 ACRES		
50% OF EXISTING UTILITY RIGHT-OF-WAY	0.00		
LOT 48R NET BUILDABLE ACREAGE	23.05 ACRES (1,004,229.66 SQ. FT.)		
TOTAL EXISTING WOODLAND ON SITE =	29,472 SQ. FT.		
EXISTING WOODLANDS TO BE REMOVED =	11,524 SQ. FT. (40%)		
EXISTING WOODLANDS TO REMAIN =	17,948 SQ. FT. (60%)		

3. SOILS DATA:
- |  |  |
|--|--|
| ABR - ABBOTTSTOWN SILT LOAM, 3-8% SLOPES                 |  |
| CRB - CROTON SILT LOAM, 3-8% SLOPES                      |  |
| PER - PENN SILT LOAM, 3-8% SLOPES                        |  |
| PCB - PENN SILT LOAM, 8-15% SLOPES                       |  |
| PKO - PENN-KILNEVILLE CHANNERY SILT LOAMS, 15-25% SLOPES |  |
| REB - READINGTON SILT LOAM, 3-8% SLOPES                  |  |
| RNB - REVILLE SILT LOAM, 3-8% SLOPES                     |  |

4. DEVELOPMENT TO USE PUBLIC SEWER & PUBLIC WATER
5. SOLID WASTE STORAGE AND DISPOSAL SHALL BE THE RESPONSIBILITY OF THE DEVELOPER.

6. LOT48R PROPOSED USE IS A WAREHOUSE. PARCEL A IS A NON-BUILDING LOT.
7. PARKING DATA:
- |  |                          |
|--|--------------------------|
| REQUIRED:  |                          |
| 1 SPACE PER 1,500 SQ. FT. OF GROSS FLOOR AREA OR             |                          |
| 1 SPACE PER EMPLOYEE ON LARGEST SHIFT, WHICHEVER IS GREATER. |                          |
| 257,404 SQ. FT. / 1,500=171.9                                |                          |
| 75 EMPLOYEES / 25 SPACES                                     |                          |
| TOTAL SPACES REQUIRED = 172 SPACES TOTAL                     |                          |
| PROVIDED: 241 STANDARD                                       | 59 TRAILER SPACES        |
| 5 ADA SPACES   | 50 LOADING DOCK SPACES   |
| 247 TOTAL AUTO PARKING SPACES                                | 109 TRUCK PARKING SPACES |

8. FLOOD STATEMENT:
- Said described property is located within an area having a Zone designation of (Flood Insurance Rate Map Nos. 42091C0208 & 6 42091C0210 & 6 with a date of identification of March 2, 2016 in the Township of Limerick, Montgomery County, State of Pennsylvania, which is the current Flood Insurance Rate Map for the community in which said property is situated.

9. THE PROPOSED SITE DEVELOPMENT SHALL CONFORM TO THE LIMERICK TOWNSHIP SITE LIGHTING AND LANDSCAPE REQUIREMENTS.

10. THERE ARE NO WETLANDS ON SITE.

11. THE APPLICANT OFFERS A BLANKET EASEMENT TO LIMERICK TOWNSHIP FOR ACCESS TO AND INSPECTION OF ALL BWP STORMWATER FACILITIES.

12. ALL SIGHT DISTANCE OBSTRUCTIONS (INCLUDING BUT NOT LIMITED TO EMBANKMENTS AND VEGETATION) SHALL BE REMOVED BY THE APPLICANT TO PROVIDE A MINIMUM OF 250 FEET DRIVE "A" AND 235 FEET DRIVE "C" OF CONTINUOUS SIGHT DISTANCE TO THE LEFT AND 242 FEET DRIVE "A" AND 250 FEET DRIVE "C" AND OF CONTINUOUS SIGHT DISTANCE TO THE RIGHT FROM A DRIVER EXITING THE PROPOSED DRIVEWAY ONTO ENTERING DRIVE. THE DRIVER MUST BE CONSIDERED TO BE POSITIONED 10 FEET FROM THE NEAR EDGE OF THE CLOSEST HIGHWAY THROUGH TRAVEL LANE AT AN EYE HEIGHT OF THREE FEET-SIX INCHES (3'-6") ABOVE THE PAVEMENT. THE POINT SIGHTED BY THE EXITING DRIVER SHALL BE THREE FEET-SIX INCHES (3'-6") ABOVE THE PAVEMENT SURFACE LOCATED IN THE CENTER OF THE CLOSEST HIGHWAY TRAVEL LANE DESIGNATED FOR USE BY APPROACHING TRAFFIC. THIS SIGHT DISTANCE SHALL BE MAINTAINED BY THE APPLICANT AND/OR THE APPLICANT'S SUCCESSORS AND ASSIGNS.

13. THE APPLICANT SHALL NOTIFY THE TOWNSHIP ENGINEER OR DESIGNATED PERSON FORTY-FOUR (48) HOURS IN ADVANCE OF THE COMMENCEMENT OF ANY CONSTRUCTION OPERATION. IN ORDER THAT PROVISIONS MAY BE MADE FOR THE INSPECTION BY THE TOWNSHIP.

14. AN NPDES PERMIT IS REQUIRED FOR THIS PROJECT.

15. ELEVATION DATUM: NAVD 88  
BENCH MARK: SANITARY MANHOLE AT THE INTERSECTION OF KEYSTONE DRIVE AND ENTERPRISE DRIVE ELEV.=231.23

16. THE EXISTING FEATURES WITHIN LIMIT OF DISTURBANCE AND CONTOURS SHOWN PER LUDGATE ENGINEERING CORPORATION FIELD SURVEY ON 8-6-15. OTHER FEATURES SHOWN PER AERIAL MAPPING OR RECORD PLAN DATA.

17. IMPROVEMENT CONSTRUCTION REQUIREMENTS WILL BE COMPLETED IN ACCORDANCE WITH SPECIFICATIONS CONSISTENT WITH ALL OTHER REQUIREMENTS OF THIS CHAPTER AND THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION, THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, THE MONTGOMERY COUNTY CONSERVATION DISTRICT OR OTHER APPROPRIATE AGENCIES, OR THE SPECIFICATIONS INCLUDED WITHIN THE SUBDIVISION AND LAND DEVELOPMENT ORDINANCE-CHAPTER 155, WHICHEVER SPECIFICATIONS SHALL RESULT IN THE MORE STRINGENT REQUIREMENTS BEING APPLIED TO THE APPLICANT.

18. REFERENCES:
- DEEDS AS LISTED
  - MONTGOMERY COUNTY TAX MAPS
  - PDV, A-23 PG. 52

19. ALL TRAFFIC CONTROL SIGNS SHALL BE POSTED IN ACCORDANCE WITH THE MOST RECENT VERSION OF PENNDOT PUBLICATION 235M, "HANDBOOK OF APPROVED SIGNS".

20. A BMP OPERATIONS AND MAINTENANCE PLAN FOR CONSISTENCY WITH THE PURPOSES OF CHAPTER 151 OF THE CODE OF THE TOWNSHIP OF LIMERICK AND ANY PERMITS ISSUED BY THE PAEPER SHALL BE SUBMITTED FOR REVIEW BY THE TOWNSHIP.

21. UPON COMPLETION OF CONSTRUCTION AN AS-BUILT SURVEY PLAN CONSISTING OF, BUT NOT LIMITED TO BUILDING FOUNDATION, ALL STORMWATER BMP'S, STORMWATER STRUCTURES, CURB, SIDEWALK, PAVING, LANDSCAPING, LIGHTING AND UNDERGROUND UTILITIES SHALL BE SUBMITTED TO THE TOWNSHIP FOR REVIEW.

22. IT SHALL BE UNLAWFUL TO ALTER OR REMOVE ANY PERMANENT STORMWATER BMP REQUIRED BY AN APPROVED BMP OPERATIONS AND MAINTENANCE PLAN, OR ALLOW THE PROPERTY TO REMAIN IN A CONDITION WHICH DOES NOT CONFORM TO AN APPROVED BMP OPERATIONS AND MAINTENANCE PLAN, UNLESS AN EXCEPTION IS GRANTED IN WRITING BY THE TOWNSHIP.

23. THE PROPERTY OWNER SHALL SIGN AN OPERATIONS AND MAINTENANCE AGREEMENT WITH THE TOWNSHIP COVERING ALL BMPs THAT ARE TO BE PRIVATELY OWNED. A SAMPLE AGREEMENT IS INCLUDED IN APPENDIX G OF CHAPTER 151 OF THE CODE OF THE TOWNSHIP OF LIMERICK.

24. THE OWNER OF ANY LAND UPON WHICH PERMANENT BMP'S WILL BE PLACED, CONSTRUCTED OR IMPLEMENTED, AS DESCRIBED IN THE BMP OPERATIONS AND MAINTENANCE PLAN, SHALL RECORD THE FOLLOWING DOCUMENTS IN THE OFFICE OF THE RECORDER OF DEEDS FOR MONTGOMERY COUNTY WITHIN 15 DAYS OF THE APPROVAL OF THE BMP OPERATIONS PLAN BY THE TOWNSHIP:
- THE OPERATIONS AND MAINTENANCE PLAN OR A SUMMARY THEREOF
  - OPERATIONS AND MAINTENANCE AGREEMENTS
  - STORMWATER MANAGEMENT EASEMENTS

25. THE PROPERTY OWNER SHALL HAVE THE RESPONSIBILITY FOR THE PERPETUAL MAINTENANCE OF THE PERMANENT WATER DETENTION BASIN, BASIN OUTLET STRUCTURES AND PIPES WHICH ARE LOCATED ON HIS PROPERTY. NO CHANGES SHALL BE MADE TO THE STRUCTURES, PIPES OR FINISH GRADING WITHOUT PRIOR WRITTEN APPROVAL FROM THE TOWNSHIP. THE TOWNSHIP HAS THE RIGHT TO ENTER THE LOT TO PERFORM AND REQUIRED MAINTENANCE WHICH HAS NOT BEEN PROPERLY PERFORMED OR CARRIED OUT IN A TIMELY MANNER. THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR THE COST OF ANY MAINTENANCE WHICH IS PERFORMED BY THE TOWNSHIP. THE TOWNSHIP SHALL LEASE THE PROPERTY FOR SAID COSTS UNTIL THE TOWNSHIP HAS BEEN REIMBURSED IN FULL.

26. THIS PROJECT IS LOCATED WITHIN THE TOWNSHIP-LIMERICK AIRPORT OVERLAY DISTRICT. THE APPLICANT SHALL COMPLY WITH THE REQUIREMENTS IN ARTICLE XXVII.

27. THE ERROR OF CLOSURE IS 1/437,432.

28. THE APPLICANT SHALL OBTAIN A CONDITIONAL PERMIT FROM THE TOWNSHIP ENGINEER FOR REMOVAL OF TOPSOIL TO AN OFFSITE AREA PER SECTION 151-51.1.C.(3).

29. ANY DRAIN OR CONVEYANCE, WHETHER ON THE SURFACE OR SUBSURFACE, WHICH ALLOWS ANY NONSTORMWATER DISCHARGE, INCLUDING SEWAGE, PROCESS WASTEWATER, AND WASHWATER TO ENTER THE SEPARATE STORM SEWER SYSTEM AND ANY CONNECTIONS TO THE STORM DRAIN SYSTEM FROM INDOOR DRAINAGE AND SINKS.

30. PARCEL A SHALL NOT BE CONSIDERED A BUILDING LOT.

31. THE PROPOSED WAREHOUSE/DISTRIBUTION CENTER WILL COMPLY WITH THE VISUAL EMISSIONS, PARTICULATE, VARIOUS EMISSIONS, GASEOUS EMISSIONS, VARIOUS AIR EMISSION, ODOOR, NOISE, VIBRATION CONTROL, GLARE OR HEAT CONTROL, CONTROL OF RADIOACTIVITY OR ELECTRICAL DISTURBANCE, FIRE, EXPLOSIVE HAZARDS, OUTDOOR DISPOSAL, ELECTRICAL POWER, PUBLIC WATER SERVICE INDUSTRIAL STANDARDS LISTED UNDER §184-83, A THRU J.

32. Obstructions within sight triangles. Within the sight triangle area, no building, tree, hedge or other obstruction to visibility shall be permitted, from curb to height to a minimum height of 12 feet, with the following exceptions:
- (a) One private sign post, provided that the post does not exceed one foot square or diameter and the sign itself is above the minimum height limit.
  - (b) One shade tree, provided that as the tree grows, the lower branches are kept pruned to the minimum height limit.
  - (c) Existing shade trees, provided that the lower branches are kept pruned up to the minimum height limit and the arrangement of trees does not impede adequate visibility.

33. No topsoil shall be removed from the site or used as spoil. Topsoil must be removed from the areas of construction of the building separately. Upon a completion of the construction, the topsoil must be uniformly redistributed on the site. All areas of the site shall be stabilized by seeding or planting on the slopes of less than 7% and shall be stabilized by sodding on slopes of 7% or more and planted in ground cover on slopes of 20%, provided that riprap shall be utilized for banks exceeding 25%.

## CONSTRUCTION NOTES

THE FOLLOWING NOTES LIST THE GENERAL GUIDELINES TO BE UTILIZED BY THE CONTRACTORS ACTUALLY PERFORMING THE CONSTRUCTION OF THE IMPROVEMENTS AND REQUIREMENTS AS INDICATED ON THE PLANS.

1. ALL SANITARY SEWER CONSTRUCTION SHALL BE COMPLETED IN ACCORDANCE WITH THE DESIGN, CONSTRUCTION REQUIREMENTS AND DETAIL DRAWINGS FOR WASTEWATER FACILITIES ADQA PENNSYLVANIA WASTEWATER, INC., MONTGOMERY COUNTY, PENNSYLVANIA.

2. ALL GRADING TO PROMOTE POSITIVE DRAINAGE AWAY FROM THE BUILDING. CONTRACTOR SHALL ENSURE THAT THE LOT GRADING THAT IS DEPICTED ON THIS PLAN IS ACHIEVED TO THE SATISFACTION OF THE BOROUGH ENGINEER.

3. BEFORE ANY CONSTRUCTION COMMENCES, CONTRACTORS SHALL LOCATE AND VERIFY ALL EXISTING UTILITIES AND EXISTING UTILITY TIE-IN INVERT ELEVATIONS. IF TIE-IN INVERTS DIFFER FROM THOSE SHOWN ON THE PLAN, NOTIFY THE ENGINEER. DO NOT PROCEED WITH CONSTRUCTION UNLESS APPROVAL HAS BEEN GRANTED BY THE ENGINEER. CONTRACTOR WILL BE REQUIRED TO REPAIR ALL DAMAGED UTILITY LINES.

4. UNLESS OTHERWISE SPECIFIED, ALL SITE CONSTRUCTION METHODS AND MATERIALS SHALL BE IN GENERAL CONFORMANCE WITH PENNDOT PUBLICATION 408, LATEST REVISION.

5. LUDGATE ENGINEERING CORPORATION HAS NOT PROVIDED ON THIS PLAN THE DESIGN OF SHORING, TRENCHING, EXCAVATION, SUPPORT, SHIELDING, OR BENCHING ASSOCIATED WITH THE INSTALLATION OF UTILITIES, GRADING, ETC. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE LOCATION OF UTILITIES AND TO COMPLY WITH OSHA TRENCHING REQUIREMENTS 29 CFR PART 1926.

6. CONTRACTOR SHALL HAVE ALL PROPERTY LINES LOCATED BEFORE CONSTRUCTION COMMENCES. THE CONTRACTOR SHALL MAKE SURE NO CONSTRUCTION ACTIVITY OCCURS OUTSIDE PROPERTY LIMITS.

7. ALL FILL SLOPES ARE TO BE KEPT WITH EXISTING EMBANKMENTS.

8. ALL STORM SEWER PIPES SHALL CONFORM TO INTERIOR CATOBASIN WALLS. FIELD MODIFY PIPES AS REQUIRED.

9. CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN DETAILED "AS-BUILT" INFORMATION OF LATERALS, BENDS, VALVES, ETC. OF ALL UTILITY LINE CONSTRUCTION. THIS IS TO INCLUDE DIMENSIONED "TIE-INS" OF ALL FITTINGS AND VALVES.

10. CONTRACTOR SHALL PROVIDE EXPANDED INLET BOXES WHERE STORM SEWER PIPES CANNOT FIT INTO STANDARD SIZES.

11. MAINTAIN AT LEAST 24 INCHES OF COVER OVER ALL STORMSEWER PIPES.

12. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. LUDGATE ENGINEERING CORPORATION MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. LUDGATE ENGINEERING CORPORATION DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. LUDGATE ENGINEERING CORPORATION HAS NOT PHYSICALLY LOCATED UNDERGROUND LINES.

13. ALL PAVING THICKNESSES SHOWN ARE THE COMPACTED THICKNESS. PURSUANT TO PA ACT 38 (AMENDING ACT 287 AND 172) NOTIFICATION TO THE FINISHED PROJECT SHALL BE FILED WITH A Knox Box Pad Lock.

14. PRIOR TO DISTURBING EARTH WITH ANY TYPE OF POWERED EQUIPMENT, CALL TOLL FREE 1-800-242-1776.

15. IF IT RELATES TO CONSTRUCTION ACTIVITY, AS NEEDED TO CONSTRUCT IMPROVEMENTS AS INDICATED ON THE PLANS, THE CONTRACTOR SHALL REMOVE AND/OR DISPOSE OF ANY BY-PRODUCTS, UNUSED STOCK, DEMOLITION DEBRIS, ETC. IN ACCORDANCE WITH FEDERAL, STATE, AND/OR FEDERAL REGULATIONS GOVERNING SUCH DISPOSAL.

16. CONTRACTOR TO CONFIRM BUILDING DIMENSIONS PRIOR TO ANY SUCH CONSTRUCTION.

17. FINAL SEWER, WATER, GAS, AND ELECTRIC SERVICE LOCATIONS AT THE BUILDING SHALL BE VERIFIED BY THE BUILDING DESIGNER PRIOR TO ANY SUCH CONSTRUCTION.

18. AT LEAST 10 HORIZONTAL FEET OR 48" VERTICAL INCHES SHALL BE MAINTAINED BETWEEN THE PROPOSED SANITARY SEWER LINE AND ANY WATERLINE OR WATER SERVICE. IN CASES WHERE THIS CAN NOT BE MAINTAINED, THE WATERLINE OR WATER SERVICE SHALL BE ENCASED IN CONCRETE FOR THE AREA IN QUESTION AND 10 FEET BEYOND THE AREA IN EACH DIRECTION. ANY SANITARY SEWER THAT DOES NOT HAVE TWO FEET OF ALL CONCRETE ENCASEMENTS MUST EXTEND TO THE NEXT JOINT BEYOND THE REQUIRED LENGTH. ALL ENCASEMENTS MUST BE SHOWN ON THE PLANS AND NO MODIFICATIONS WILL BE APPROVED IN THE FIELD WITHOUT A WRITTEN LETTER FROM THE DEVELOPER'S ENGINEER THAT IS REVIEWED AND APPROVAL OF THE AUTHORITY OF THE TOWNSHIP.

19. NO TREE MAY BE PLACED WITHIN 10 FEET OF ANY SANITARY SEWER LINE OR LATERAL.

20. THE EXISTING SANITARY LINE NEEDS TO BE VIDEO INSPECTED PRIOR TO CONNECTING INTO IT.

21. UNLESS NOTED / SHOWN OTHERWISE ON THE PLANS, THE ROOF LEADERS FROM ANY PROPOSED BUILDING WILL NEED TO TIE DIRECTLY TO THE EXISTING MAIN AND/OR CONVEYANCE SYSTEM. THE CONTRACTOR WILL NEED TO INSTALL ANY TEE, WYE, FITTINGS, PIPING, ETC. AS NEEDED TO MAKE THE CONNECTION(S).

22. ALL PVC SANITARY SEWER PIPE SHALL BE SPORE.

23. STANDARD WYE LATERAL CONNECTION SHOULD BE MADE IN ACCORDANCE WITH PROCEDURES OUTLINED AND THE TYPICAL CONSTRUCTION DETAIL AS FOUND IN DESIGN, CONSTRUCTION REQUIREMENTS AND DETAIL DRAWINGS FOR WASTEWATER FACILITIES ADQA PENNSYLVANIA WASTEWATER, INC.

24. SANITARY SEWER CLEAN OUTS TO USE CONCRETE PAD IN PAVING AREA.

25. THE CONSTRUCTION OF THE BASINS SHALL HAVE A LOW PROBABILITY FACTOR ("X" FACTOR) ACCORDING TO SECTION 151-26.A.(6) IN.

26. UNDERGROUND UTILITIES: ALL GAS AND WATER MAINS SHALL BE INSTALLED UNDERGROUND. ALL ELECTRIC, TELEPHONE AND COMMUNICATION SERVICES, BOTH MAIN AND SERVICE LINES, SHALL BE PROVIDED BY UNDERGROUND CABLES INSTALLED IN ACCORDANCE WITH THE PREVAILING STANDARDS AND PRACTICES OF THE UTILITY OR OTHER COMPANIES PROVIDING SUCH SERVICES, EXCEPT WHERE IT IS DEMONSTRATED TO THE SATISFACTION OF THE TOWNSHIP SUPERVISORS THAT UNDERGROUND INSTALLATIONS HEREIN REQUIRED ARE NOT FEASIBLE BECAUSE OF PHYSICAL CONDITIONS OF THE LAND INVOLVED. ALL MAIN AND SERVICE CABLES WHICH ARE WITHIN THE RIGHT-OF-WAY OF A STREET SHALL BE LOCATED AS SPECIFIED BY THE TOWNSHIP SUPERVISORS OR THEIR DESIGNATED AGENT.

27. CONTRACTORS ARE RESPONSIBLE FOR PROVIDING THEIR OWN ON SITE WATER AND ARE NOT PERMITTED TO UTILIZE PUBLIC FIRE HYDRANTS DURING CONSTRUCTION.

28. ALL RETAINING WALLS DESIGN OVER 4' HIGH MUST BE SUBMITTED FOR REVIEW AND APPROVAL TO LIMERICK TOWNSHIP. FOR WALLS WITH GUIDE RAIL ADJACENT, THE WALL DESIGN MUST INCORPORATE THE GUIDE RAIL.

29. ALL STORM PIPES ARE TO BE CLASS V.

30. ALL CONCRETE EXPOSED TO THE ENVIRONMENT AND WITH THE RIGHT-OF-WAY SHALL BE RATED FOR A 500 PSI AT 28 DAYS, 0.45 MAX. WATER/CEMENT RATIO, 5-8% AIR ENTRAINMENT AND A CURING COMPOUND.

## WAIVERS REQUESTED

- § 155-17.C. TO PROVIDE STREET LIGHTING ALONG KEYSTONE DRIVE
- § 155-27.D. PLANTING 52 ADDITIONAL TREES ON SITE
- § 151-20.B.(1) PROVIDE AN EXISTING RESOURCE AND SITE ANALYSIS MAP (VERSAM)
- § 155-15.B.(B) (i) PROVIDE SIDEWALK ALONG REED ROAD FROM KEYSTONE TO SOLES PROPERTY

## FIRE/EMERGENCY SERVICE NOTES

1. The design and construction of all building systems that may affect emergency services shall be coordinated with the Township Fire Marshal's Office (i.e., Fire Department Connections, Fencing or other barriers, Internal evac plans)
2. The property and all lots shall always be marked and readily identifiable for public safety and inspection purposes.
3. The marketing name of any development shall be submitted and approved by the Fire Marshal's Office.
4. Burning of refuse and construction debris is prohibited.
5. Owner's representative contact information:

Ryan D. Hahn, Vice President Development  
Verus Partners, LLC  
3208 West Smith Valley Road, Suite #241  
Greenwood, Indiana 46142  
Phone: (317) 721-6720  
rhanh@veruspar.com

6. If there are any chains and/or gates utilized for security or other purposes, during construction, they shall be secured in an approved fashion and shall be approved by the Township Fire Marshal's Office.

7. If smoking is permitted on the grounds, designated smoking areas shall be established and maintained.

8. A means of contacting 9-1-1, in the event of an emergency, shall be provided and maintained.

9. All procedures for fire protection during construction shall be in accordance with the 2015 International Fire Code, Chapter 33 (Fire Safety During Construction and Demolition).

10. An Emergency Contact Information Form shall be submitted.

11. Alerting, Notification, and Suppression Permits shall be submitted, as applicable, in addition to any requirements established by the Code Services Department.

12. Knox boxes to be located at the fire pump room door and each entrance location.

13. Any exterior security gates and/or emergency access gates or chains that are part of the finished project shall be fitted with a Knox Box Pad Lock.

14. If there will be an Emergency Access Road on a trail that doubles as an Emergency Access Road that is part of the finished project, there shall be bollards installed at each end of the access road. These bollards shall meet Limerick Township's specifications, which can be found on the Township's website, or a copy can be provided to you from the Township.

## CONDITIONAL USE NOTE

ORDER OF THE BOARD OF SUPERVISORS  
OF LIMERICK TOWNSHIP

DATE OF DECISION: September 7, 2021

IT IS HEREBY ORDERED AND DECREED that the Boards finds that the Applicant presented sufficient testimony to grant a conditional use pursuant to Limerick Township Zoning Ordinance, Chapter 184, Article XXII, Section 184-155.D. This approval is conditioned upon the following:

- 1) Applicant shall comply with the testimony and exhibits submitted at the hearing on August 17, 2021;

- 2) Applicant shall install a traffic signal at the intersection of Linfield Road and Keystone Drive, as well as all other improvements required by the Preliminary Traffic Assessment to the satisfaction of the Township Traffic Engineering;

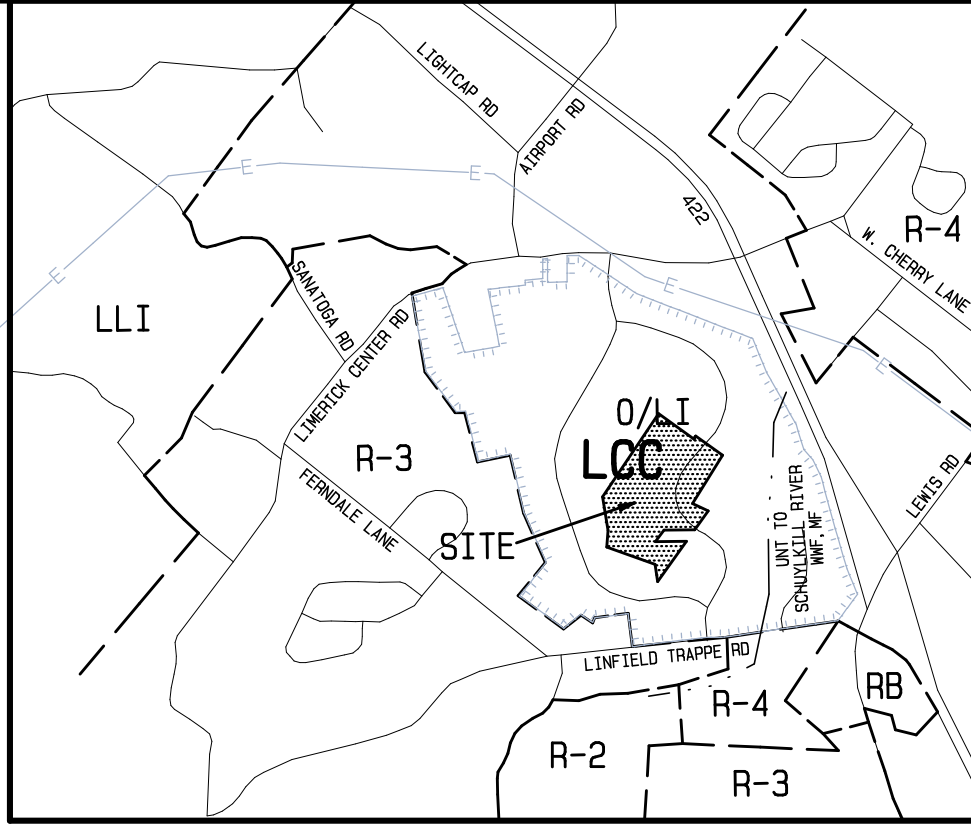
- 3) Applicant shall submit with their preliminary land development for the Project, a traffic study that identifies the necessary traffic improvements required for ITE Land Codes 150 and 156 of warehouse uses that are allowed under the ITE's Trip Generation Manual. Furthermore, Applicant shall install all improvements identified in their traffic study for the type of warehouse proposed before the certificate of occupancy is issued by the Township for the building.

- 4) Applicant shall also provide a traffic study that details the traffic operations and trip generation characteristics for the Project. This traffic study shall detail the following: 1) Weekday AM and PM commuter peak hour, 2) The peak house of the generator and peak hour of truck/delivery operations for the Property.

- 5) Prior to preliminary plan approval, Applicant shall submit the project to PennDOT and receive concurrence on the scope of improvements which will be identified in their traffic study for the Project, and prior to issuance of the certificate of occupancy for the building, shall install those improvements at their expense. Prior to recording of plans, a PennDOT Highway Occupancy Permit for all required improvements shall be obtained.

- 6) Applicant shall deed restrict the orphan parcel created by realignment of Keystone Drive from future development. Alternatively, if Applicant proposes to annex the orphan land to an adjacent parcel, then no deed restriction from future development shall be required.

- 7) Applicant shall install a high intensity buffer as defined in Section 155-27.1 along all shared property lines with 41 S. Reed Road.



LOCATION MAP  
SCALE: 1"=2000'

## SHEET INDEX

TITLE SHEET  
LAND DEVELOPMENT PLAN  
EASEMENT PLAN  
LANDSCAPING PLANS  
EXISTING CONDITIONS PLANS  
PCSM/UTILITY & GRADING PLAN  
BMP PLANS  
ADA PARKING GRADING  
EASTON & SEDIMENTATION POLLUTION CONTROL PLAN  
UTILITY PLAN  
PROFILES  
LOT CONSOLIDATION/SUBDIVISION PLAN  
PUDX/TURNING PLANS  
LIGHTING PLAN  
DETAIL SHEETS  
DRAINAGE PLANS  
EMERGENCY ACCESS PLAN  
TRAFFIC MARKING AND SIGNAGE PLAN  
\* PLANS TO BE RECORDED

SHEET 1\*  
SHEET 2\*  
SHEET 3\*  
SHEET 4, 5  
SHEET 6  
SHEET 7\*  
SHEET 8, 9, 10, 11  
SHEET 12  
SHEET 13, 14  
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SHEET 16, 17, 18  
SHEET 19  
SHEET 20  
SHEET 21  
SHEET 22, 23, 24, 25, 26, 27\*, 28\*  
SHEET 29, 30, 31  
SHEET 32  
SHEET 33

PENNSYLVANIA ONE CALL SYSTEM, INC.

925 IRWIN RUN ROAD  
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15122-1078



BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA! CALL 1-800-242-1776. NON-MEMBERS MUST BE CONTACTED DIRECTLY. PA LAW REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL, BLAST OR DEMOLISH.

## FINAL PLAN TITLE SHEET

MONTGOMERY COUNTY PLANNING COMMISSION		RECORDER OF DEEDS		CERTIFICATE OF MUNICIPAL APPROVAL		PLANNING COMMISSIONS' CERTIFICATE		CERTIFICATION OF ACCURACY		SITUATE IN: LIMERICK TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA		Ludgate Engineering Corporation ENGINEERS SURVEYORS PLANNERS ENVIRONMENTAL SCIENTISTS © 2021	
MCPC No. _____ PROCESSED AND REVIEWED. A report has been prepared by the Montgomery County Planning Commission in accordance with the Municipalities Planning Code.				At a meeting held on _____ 2022, the Board of Supervisors of the Township of Limerick, by resolution duly enacted, approved the subdivision plan of the property of Linfield Corp. Center Lot #47R, as shown hereon.		At a meeting held on _____ 2022, the planning Commission of the Township of Limerick, by resolution duly enacted, approved the subdivision plan of the property of Linfield Corp. Center Lot #47R, as shown							



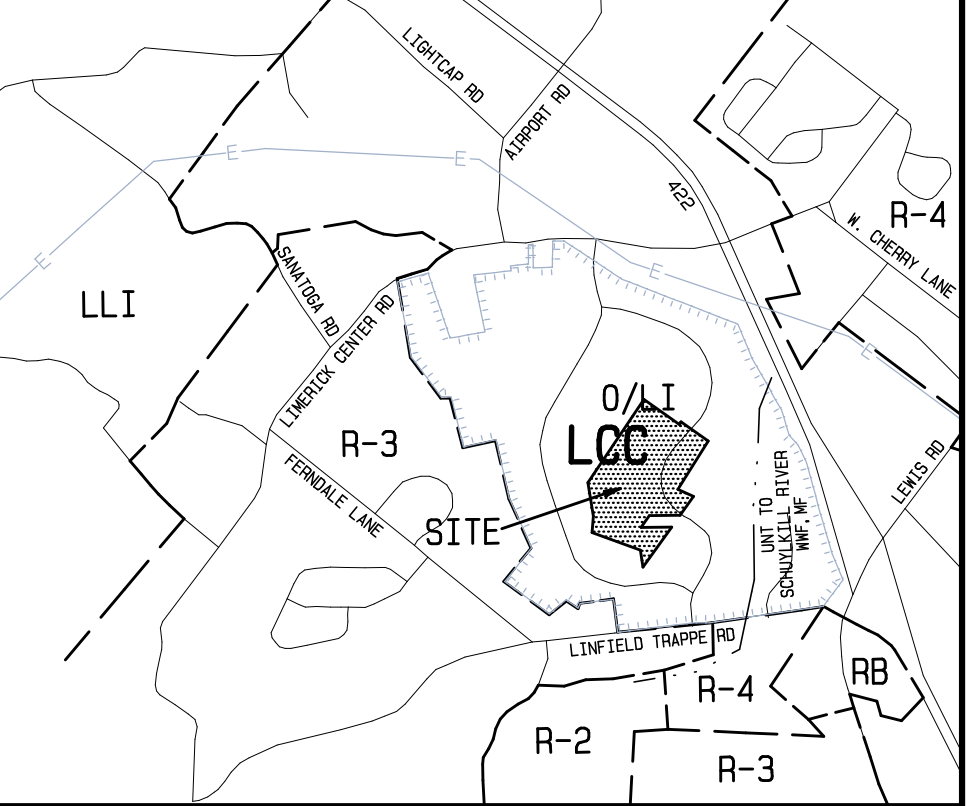
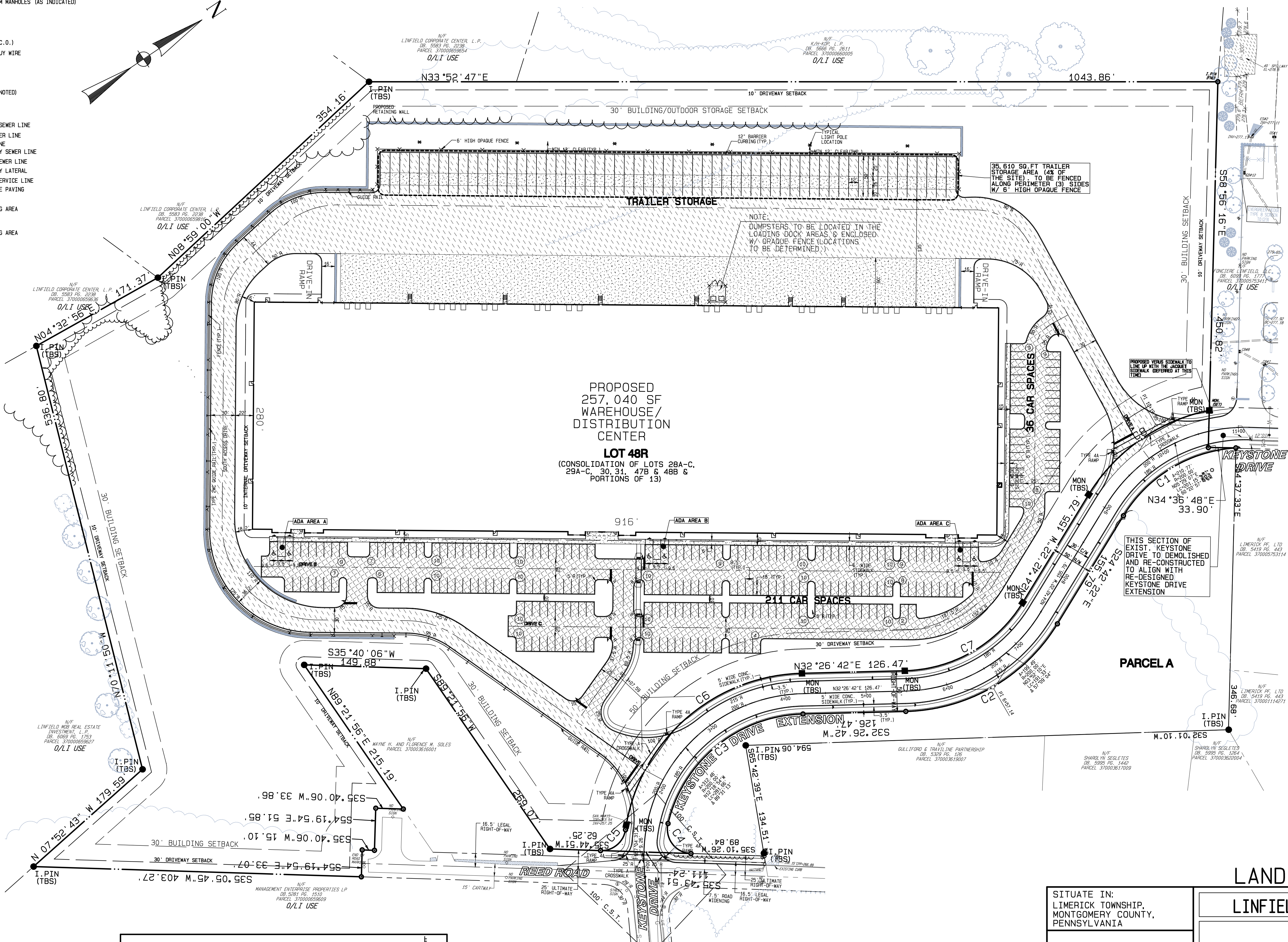
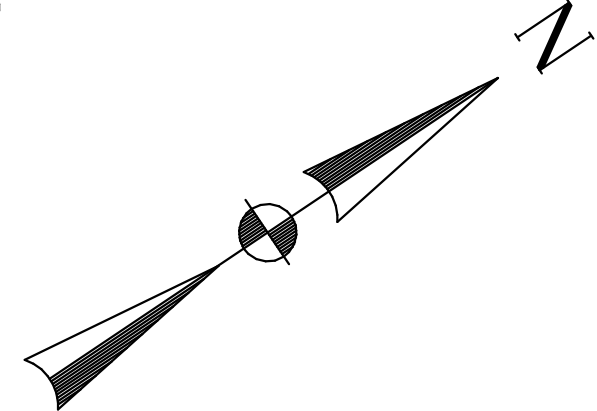
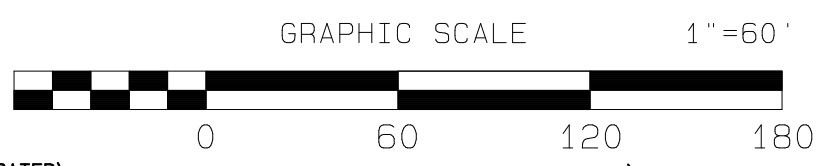
LEGEND

- EXIST. WELL
- CATCH BASIN (C.B.)
- SANITARY OR STORM MANHOLES (AS INDICATED)
- WATER VALVE CAP
- LIGHT POLE
- FIRE HYDRANT
- CLEAN OUT/VENT (C.O.)
- UTILITY POLE W/GUY WIRE
- ELECTRIC BOX
- GAS VALVE
- GAS METER
- STREET SIGN (AS NOTED)

EXISTING TREES

- EXIST. SANITARY SEWER LINE
- EXIST. STORM SEWER LINE
- PROPOSED WATERLINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED STORM SEWER LINE
- PROPOSED SANITARY LATERAL
- PROPOSED WATER SERVICE LINE
- PROPOSED CONCRETE PAVING

- LIGHT DUTY PAVING AREA
- HEAVY DUTY PAVING AREA



LOCATION MAP

SCALE: 1"=2000'

LINE	ARC	CHORD BEARING	RADIUS	DELTA	CHORD
C1	167.87'	S02°46'29"W	175.00'	54°57'42"	161.51'
C2	224.43'	S03°52'10"W	225.00'	57°09'04"	215.24'
C3	229.92'	S05°11'38"E	175.00'	75°16'40"	213.74'
C4	53.09'	N06°28'02"E	30.00'	101°24'00"	46.43'
C5	43.74'	N06°10'12"W	30.00'	83°32'34"	39.97'
C6	315.10'	N07°40'31"W	225.00'	80°14'25"	289.98'
C7	174.56'	N03°52'10"E	175.00'	57°09'04"	167.41'
C8	186.02'	N01°01'17"W	225.00'	47°22'09"	180.77'

FINAL PLAN  
LAND DEVELOPMENT PLAN

SITUATE IN:  
LIMERICK TOWNSHIP,  
MONTGOMERY COUNTY,  
PENNSYLVANIA

LINFIELD CORPORATE CENTER: VERUS

**Ludgate Engineering Corporation**  
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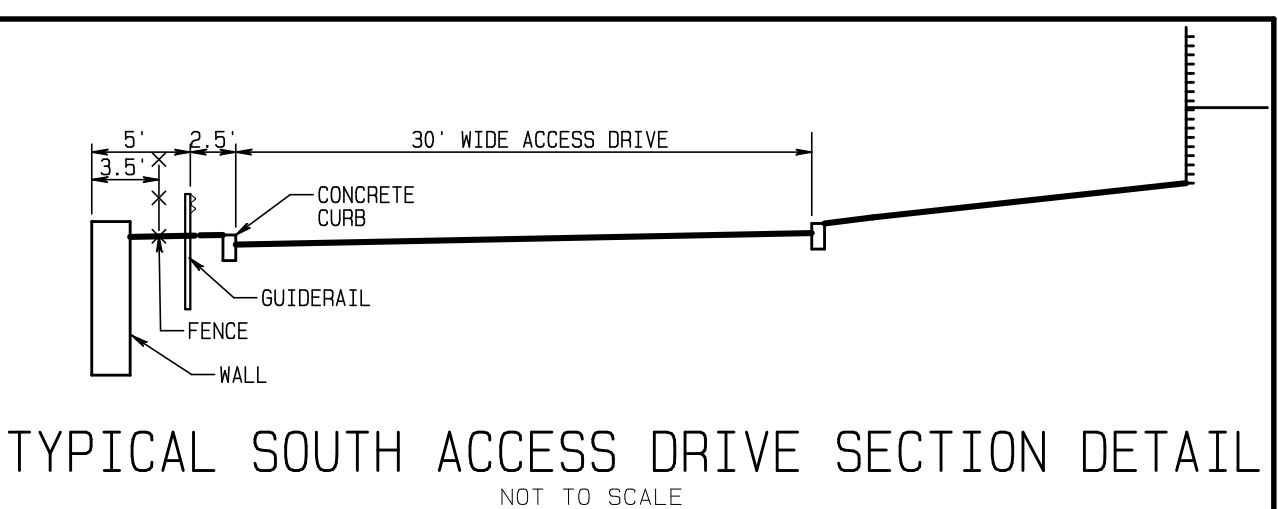
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READING, PA 19606  
PHONE 610/404-7330  
FAX 610/404-7371

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TCD				c:\Users\ton dawson\Desktop\H06W06R 3
12-21-21				
SCALE	TAX MAP PARCEL			DRAWING NUMBER
1"=60'				D-7810321 SHEET 2

#	TO	DATE	DESCRIPTION
#4	TCD	9-7-22	
#3	TCD	6-22-22	
#2	TCD	6-3-22	
#1	TCD	5-3-22	
REVISION		DATE	DESCRIPTION





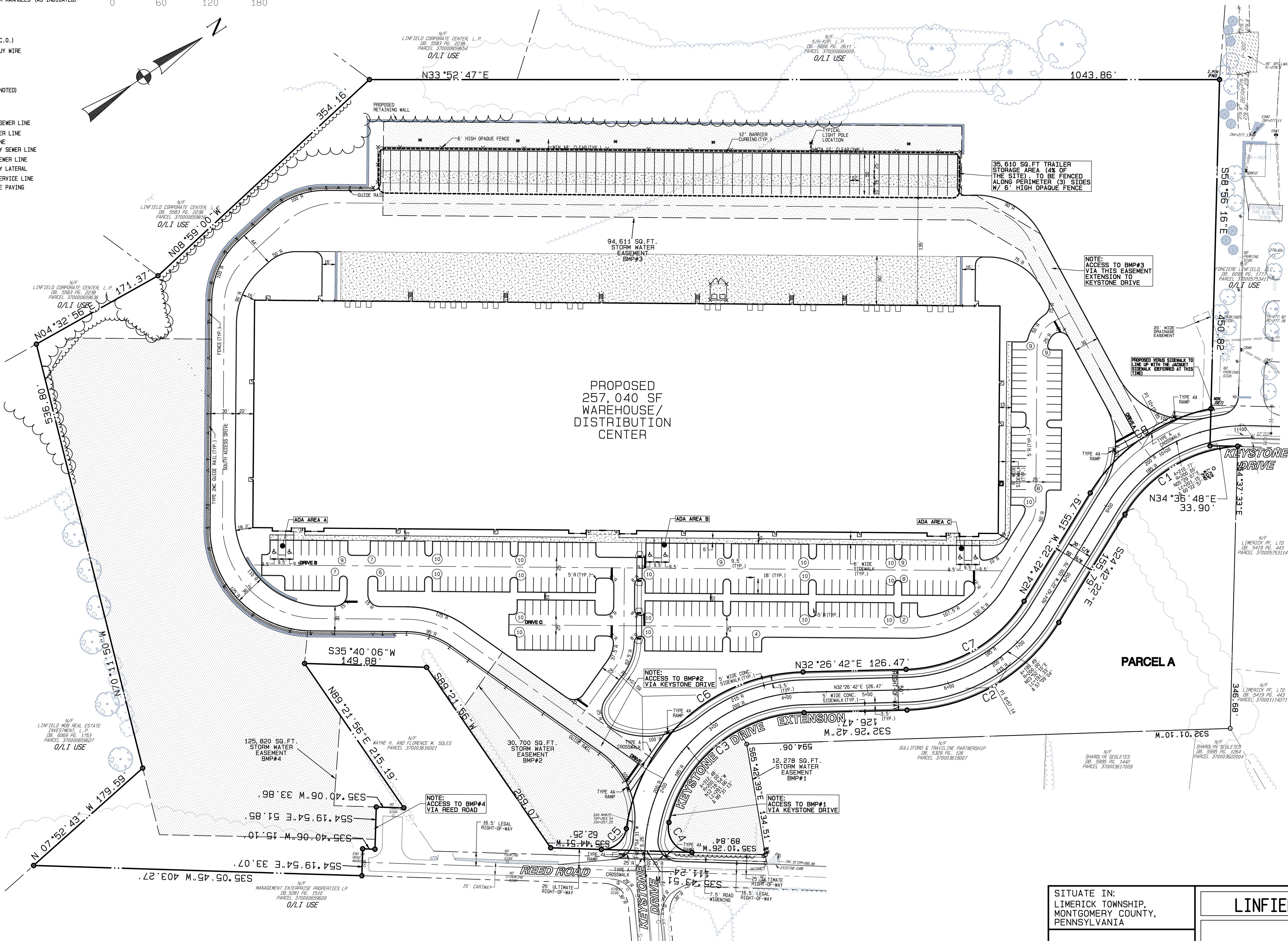
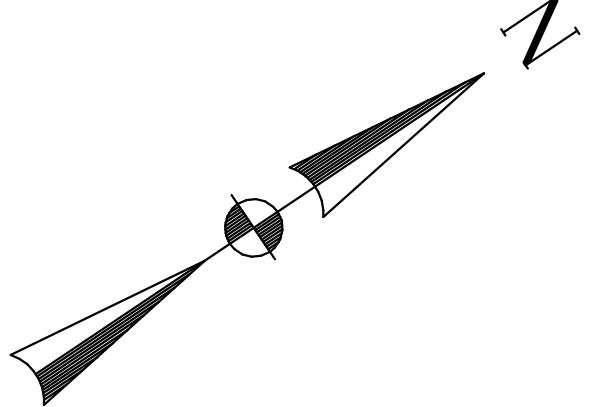
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- ⊕ = STREET SIGN (AS NOTED)

EXISTING TREES

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- S—S— = PROPOSED STORM SEWER LINE
- SL—SL— = PROPOSED SANITARY LATERAL
- WS—WS— = PROPOSED WATER SERVICE LINE
- = PROPOSED CONCRETE PAVING

GRAPHIC SCALE 1"=60'



LINE	ARC	CHORD BEARING	RADIUS	DELTA	CHORD
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FINAL PLAN  
EASEMENT PLAN

SITUATE IN:  
LIMERICK TOWNSHIP,  
MONTGOMERY COUNTY,  
PENNSYLVANIA

LINFIELD CORPORATE CENTER: VERUS

**Ludgate Engineering Corporation**

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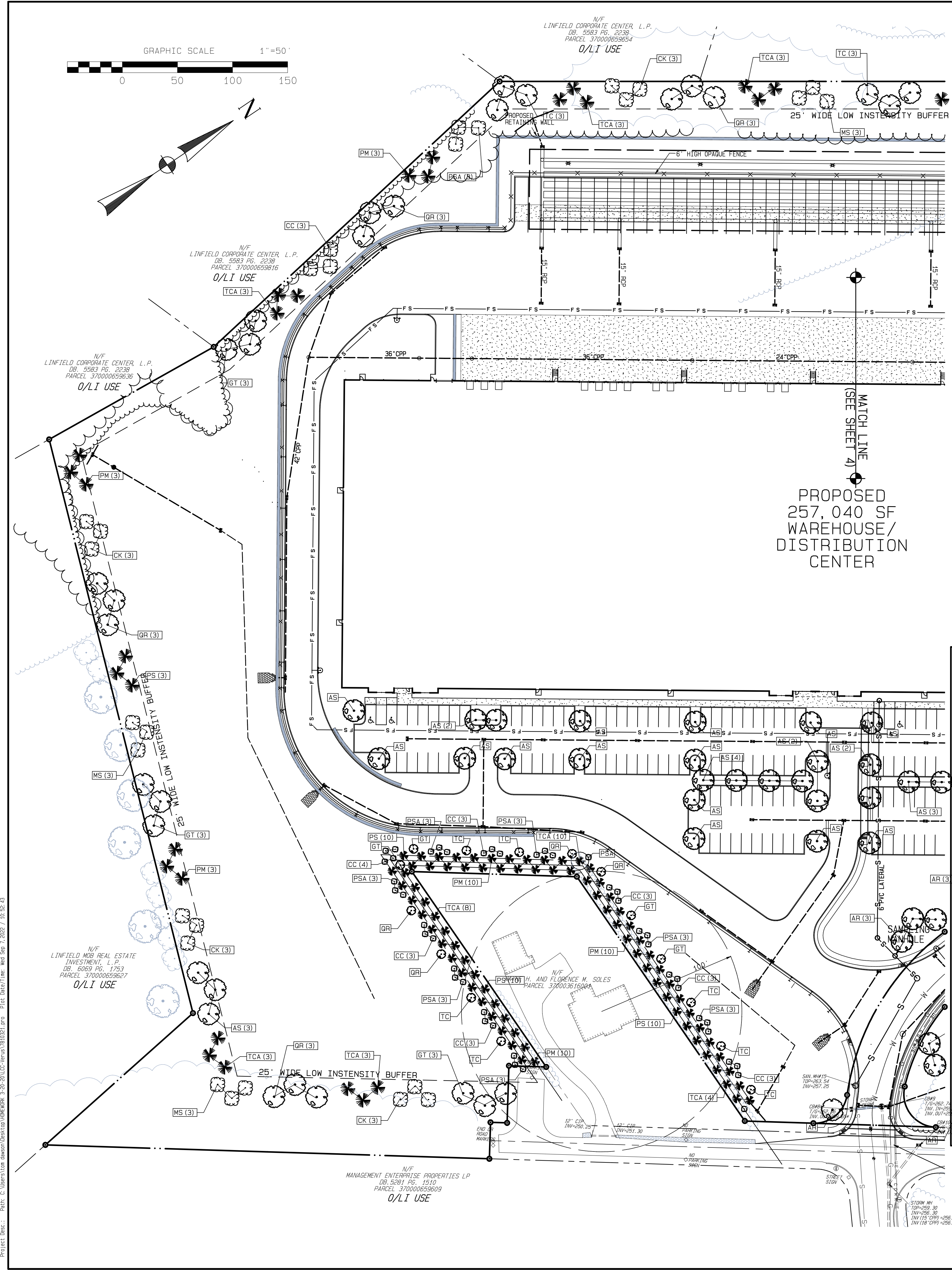
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12-21-21				
SCALE	TAX MAP PARCEL			DRAWING NUMBER
1"=60'				D-7810321 SHEET 3

#	DATE	DESCRIPTION
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#3 TCD	6-22-22	
#2 TCD	6-3-22	
#1 TCD	5-3-22	
REVISION	DATE	DESCRIPTION



Project: 2022-01-10; User: J. Dawson; Date: 1/10/2022; 10:25:43



LANDSCAPE NOTES

- 1. NO TREE MAY BE PLACED WITHIN 10 FEET OF ANY SANITARY SEWER LINE OR LATERAL.
- 2. PROPOSED LIMITS OF WOODLAND SHALL BE ESTABLISHED IN THE FIELD PRIOR TO CONSTRUCTION. THESE AREAS SHALL BE PROTECTED (VIA "SNOW FENCE") AS PER SUBDIVISION REGULATION SECTION 155-19.C(4).
- 3. THE REQUIRED PLANT MATERIAL AS SHOWN ON THE LANDSCAPE AND LIGHTING PLAN SHALL BE MAINTAINED FOR THE LIFE OF THE PROJECT TO ACHIEVE THE REQUIRED VISUAL EFFECT OF THE BUFFER OR SCREEN. IT SHALL BE THE ULTIMATE RESPONSIBILITY OF SUCCESSIVE PROPERTY OWNERS TO ENSURE THAT THE REQUIRED PLANTINGS ARE PROPERLY MAINTAINED. DEAD OR DISEASED PLANT MATERIAL SHALL BE REMOVED PROMPTLY BY THE PROPERTY OWNER AND REPLACED AT THE NEXT GROWING SEASON.
- 4. ALL SIGHT TRIANGLES SHALL REMAIN CLEAR AND ANY PLANT, WHICH WOULD ENDANGER SAFETY SUCH AS UNSTABLE LIMBS, SHALL BE REMOVED AND THE PLANT MATERIAL REPLACED. IT SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER AND SUCCESSIVE PROPERTY OWNERS TO ENSURE ALL PLANTING AND ARCHITECTURAL ELEMENTS ARE MAINTAINED TO PROVIDE A SAFE ENVIRONMENT. OBSTRUCTIONS WITHIN SIGHT TRIANGLES, NO BUILDING, TREE, HEDGE OR OTHER OBSTRUCTION TO VISIBILITY SHALL BE PERMITTED, FROM CURB TO HEIGHT TO A MIN. HEIGHT OF 12' WITH THE FOLLOWING EXCEPTIONS:
  - a.) ONE PRIVATE SIGN POST, PROVIDED THAT THE POST DOES NOT EXCEED ON FOOT SQUARE OR DIA. AND THE SIGN ITSELF IS ABOVE THE MIN. HEIGHT LIMIT.
  - b.) ONE SHADE TREE, PROVIDED THAT AS THE TREE GROWS, THE LOWER BRANCHES ARE KEPT PRUNED UP TO THE MIN. HEIGHT LIMIT.
  - c.) EXISTING SHADE TREES, PROVIDED THAT THE LOWER BRANCHES ARE KEPT PRUNED UP TO THE MIN. HEIGHT LIMIT AND THE ARRANGEMENT OF TREES DOES NOT IMPEDE ADEQUATE VISIBILITY.
- 5. STREET TREES SHALL BE PLANTED A MINIMUM DISTANCE OF 5-15 FEET FROM RIGHT-OF-WAY LINE, 15 FEET FROM OVERHEAD UTILITIES AND 10 FEET FROM UNDERGROUND UTILITIES.
- 6. EXISTING VEGETATION INTENDED TO REMAIN AS PART OF THE LANDSCAPING OF A SUBDIVISION OF LAND DEVELOPMENT SHALL BE IDENTIFIED IN THE FIELD PRIOR TO ANY CLEARING AND PHYSICALLY PROTECTED THROUGHOUT THE CONSTRUCTION PROCESS. A TEMPORARY PHYSICAL BARRIER SHALL BE ERRECTED A MIN. OF ONE FOOT OUTSIDE THE CRIP LINE ON ALL SIDES OF INDIVIDUAL TREES, TREE MASSES OR WOODLANDS PRIOR TO MAJOR CLEARING OR CONSTRUCTION. THE BARRIER SHALL REMAIN UNTIL CONSTRUCTION IS COMPLETE.
- 7. THE LOCATION, DIMENSIONS AND SPACING OF REQUIRED PLANTINGS SHOULD BE ADEQUATE FOR THEIR PROPER GROWTH AND MAINTENANCE, TAKING INTO ACCOUNT THE SIZES OF SUCH PLANTINGS AT MATURITY AND THEIR PRESENT AND FUTURE ENVIRONMENTAL REQUIREMENTS, SUCH AS WIND, SOIL, MOISTURE AND SUNLIGHT.
- 8. ALL PLANTS SHALL MEET THE MIN. STANDARDS FOR HEALTH, FORM AND ROOT CONDITION AS OUTLINED IN THE AMERICAN ASSOCIATION OF NURSERMEN (AAN) STANDARDS.
- 9. ALL PLANT MATERIAL SHALL BE HARDY WITHIN THE UNITED STATES DEPT. OF AGRICULTURE (USDA) HARDINESS ZONE 6, APPLICABLE TO LIMERICK TOWNSHIP.
- 10. CANOPY TREES SHALL REACH A MIN. HEIGHT AND SPREAD OF 30' AT MATURITY AS DETERMINED BY THE AAN STANDARDS AND SHALL BE DECIDUOUS. NEW TREES SHALL HAVE A MIN. CALIPER OF 2 1/2" AT PLANTING.
- 11. ORNAMENTAL TREES OR LARGE SHRUBS SHALL REACH A TYPICAL MIN. HEIGHT OF 10' AT MATURITY BASED ON AAN STANDARDS. TREES AND SHRUBS MAY BE DECIDUOUS OR EVERGREEN AND SHALL HAVE A DISTINCTIVE ORNAMENTAL CHARACTER SUCH AS SHOWY FLOWERS, FRUIT, HABIT, FOLIAGE OR BARK. NEW ORNAMENTAL TREES SHALL HAVE A MIN. HEIGHT OF 6' OR A 1-1/2" CALIPER. NEW LARGE SHRUBS SHALL HAVE A MIN. SIZE OF 5'-12" TO 3' AT TIME OF PLANTING.
- 12. SMALL SHRUBS MAY BE EVERGREEN OR DECIDUOUS AND SHALL HAVE A MIN. HEIGHT AT MATURITY OF 4' BASED ON AAN STANDARDS FOR THAT SPECIES. NEW SHRUBS SHALL HAVE A MIN. SIZE OF 16" AT TIME OF PLANTING.
- 13. EVERGREEN TREES SHALL REACH A TYP. MIN. HEIGHT OF 20' AT MATURITY BASED ON AAN STANDARDS FOR THAT SPECIES AND SHALL REMAIN EVERGREEN THROUGHOUT THE YEAR. NEW EVERGREENS SHALL HAVE A MIN. HEIGHT AT PLANTING OF 6'.
- 14. MAINTENANCE GUIDELINES FOR THE PLANTINGS ARE ENCOURAGED TO BE PUBLISHED BY THE PLANTING PLAN DESIGNER, TO BE USED BY GROUNDS MAINTENANCE PERSONNEL TO ENSURE THE DESIGN'S VISUAL BUFFERING AND SCREENING CONCEPTS ARE CONTINUED.
- 15. ANY TREE OR SHRUB WHICH DIES WITHIN 18 MONTHS OF PLANTING SHALL BE REPLACED. ANY TREE OR SHRUB WHICH, WITHIN 18 MONTHS OF PLANTING OR REPLANTING, IS DEEMED, IN THE OPINION OF THE TOWNSHIP, NOT TO HAVE SURVIVED OR TO HAVE GROWN IN A MANNER UNCHARACTERISTIC OF ITS TYPE SHALL BE REPLACED. SUBSTITUTIONS FOR CERTAIN SPECIES OF PLANTS MAY BE MADE ONLY WHEN APPROVED BY THE TOWNSHIP.
- 16. STREET TREES: REQUIRED - ONE TREE PER 50' OF FRONTAGE
  - 1,926' OF FRONTAGE (BOTH SIDES OF KEYSTONE DRIVE) = 39 REQUIRED, 57 PROVIDED
  - 1,926/50=39 REQUIRED, 57 (ACER RUBRUM) PROVIDED
  - 114' OF FRONTAGE (RED ROAD) = 3 REQUIRED, 3 (ACER RUBRUM) PROVIDED
- 17. BMP'S TO BE NATURALIZED WITH A WILD FLOWER MIX THAT DOES NOT REQUIRE MOVING.
- 18. 563,430 SQ. FT. OF NEW IMPERVIOUS ON SITE @ 1 TREE/10,000 SQ. FT. = 57 ADDITIONAL TREES REQUIRED, 4 TREES PROVIDED.
- 19. THE PROPOSED PLANT MATERIAL HAS BEEN SELECTED FROM THE LIMERICK TOWNSHIP LIST OF RECOMMENDED PLANT MATERIAL.

THE LANDSCAPING ON-SITE MUST BE MAINTAINED SO THAT A MINIMUM SIGHT DISTANCE AT THE ACCESS DRIVES IS NOT INHIBITED.

LANDSCAPE CALCULATIONS

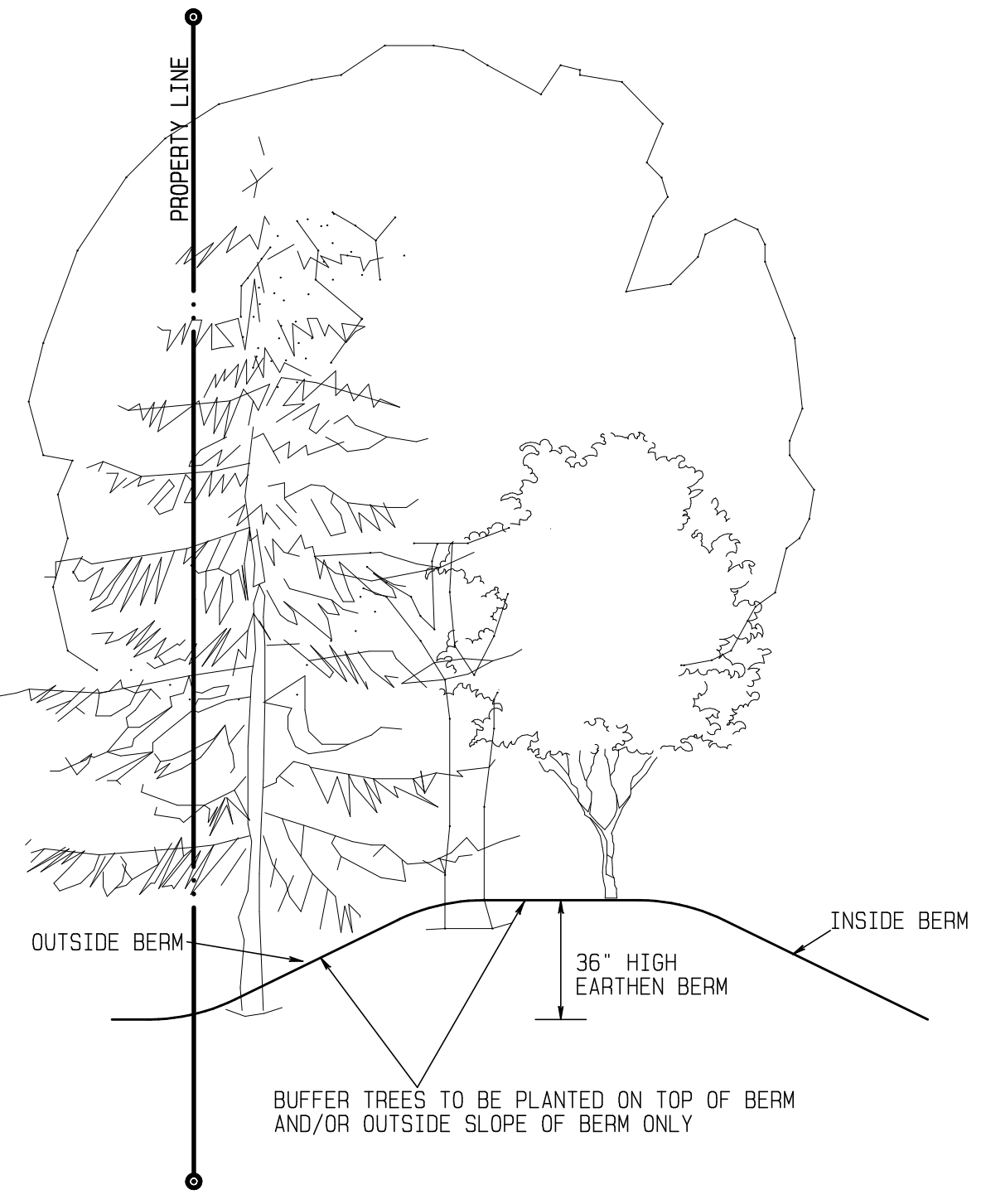
STREET TREES:  
KEYSTONE DRIVE = 1926' @ 1 TREE/50 L.F. = 39 REQUIRED, 57 PROVIDED

BUFFER SPECIES CALCULATIONS

SHADE TREE TOTAL = 69	EVERGREEN SHRUB TOTAL=55
AS= 6 (33%)	JV=15 (27%)
GT=23 (33%)	IG=20 (36.5%)
TC=17 (25%)	IV=20 (36.5%)
QR=23 (33%)	

ORNAMENTAL TREE TOTAL = 101

MS= 24 (23%)	PM= 54 (36%)
PSA=25 (25%)	PS= 52 (34%)
CC= 26 (26%)	TCA=46 (30%)
CK= 26 (26%)	



TYPICAL BUFFER BERM PLANTING DETAIL  
NOT TO SCALE

#	CD	DATE	DESCRIPTION
#4	TCD	9-7-22	
#3	TCD	6-22-22	
#2	TCD	6-3-22	
#1	TCD	5-3-22	
REVISION		DATE	DESCRIPTION

LEGEND

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- S—S— = PROPOSED CONCRETE PAVING

LANDSCAPE PLANTING SCHEDULE

SYM	CODE	BOTANICAL NAME	COMMON NAME	SIZE	TYPE	QTY.
SHADE/CANOPY TREES						
AR	ACER RUBRUM	OCTOBER GLORY	OCTOBER GLORY RED MAPLE	2.5" CAL	B & B	66
AS	ACER SACCHARW		SUGAR MAPLE	2.5" CAL	B & B	55
GT	GLEDITSIA TRICANTHOS INERMIS		THORNLESS HONEYLOCUST	2.5" CAL	B & B	23
QR	QUERCUS RUBRA		RED OAK	2.5" CAL	B & B	23
TC	TILIA CORDATA		LITTLELEAF LINDEN	2.5" CAL.	B & B	17
EVERGREEN TREES						
PM	PSEUDOTSUGA MENZIESII		DOUGLAS FIR	6-7'	B & B	54
PS	PINUS STROBUS		WHITE PINE	6-7'	B & B	52
TCA	TSUGA CANADENSIS		CANADIAN HEMLOCK	6-7'	B & B	46
ORNAMENTAL TREES						
MS	MALUS SPECIES		CRAP APPLE SPECIES	6-7'	B & B	24
PSA	PRUNUS SARGENTI		SARGENT CHERRY	6-7'	B & B	25
CC	CERCIS CANADENSIS 'FOREST PANSY'		RED BUD, TREE FORM	6-7'	B & B	25
CK	CORNUS KOUSA		JAPANESE DOGWOOD	2.0" CAL.	B & B	26
SHRUBS						
TO	THUJA OCCIDENTALIS		AMERICAN ARBORVITAE	3' HIGH	B & B	38
IG	ILEX GABRA		INKBERRY HOLLY	1 GAL.	C.G.	30
IV	ILEX VERTICILLATA		WINTERBERRY HOLLY	1 GAL.	C.G.	25
JV	JUNIPERIS VIRGINIANA		EASTERN RED CEDAR	1 GAL.	C.G.	25

- PLANTING NOTES :
1. PARKING ISLANDS TO HAVE GRASS GROUNDCOVER, UNLESS OTHERWISE NOTED.
  2. PLANTS TO BE MULCHED PER DIAGRAMS BELOW, UNLESS OTHERWISE NOTED.
  3. THE DEVELOPER WILL BE RESPONSIBLE TO REPLACE ALL LANDSCAPING INSTALLED BY THE DEVELOPER WITHIN EIGHTEEN (18) MONTHS FROM ISSUANCE OF THE USE AND OCCUPANCY PERMIT IF DETERMINED TO BE DISEASED OR DEAD.
  4. NO STRUCTURES OR PLANT MATERIAL ARE TO BE LOCATED WITHIN TEN (10) FEET OF THE SANITARY SEWER MAIN, SEWER LATERALS AND WITHIN THE UTILITY EASEMENTS.
  5. THE EXISTING VEGETATION TO REMAIN AS NOTED.
  6. ALL PROPOSED BASINS WILL BE MAINTAINED IN ACCORDANCE WITH §155-27.2 .

FINAL PLAN  
LANDSCAPING PLAN

SITUATE IN:  
LIMERICK TOWNSHIP,  
MONTGOMERY COUNTY,  
PENNSYLVANIA

LINFIELD CORPORATE CENTER: VERUS

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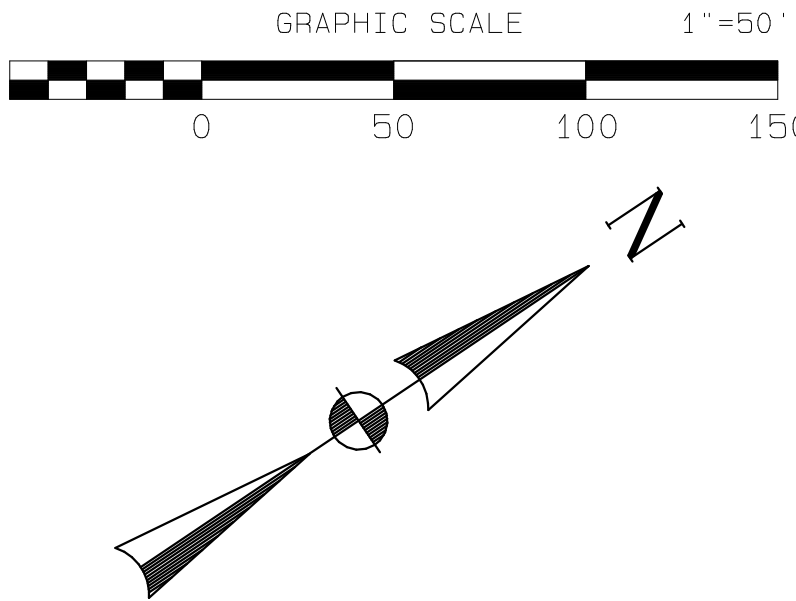
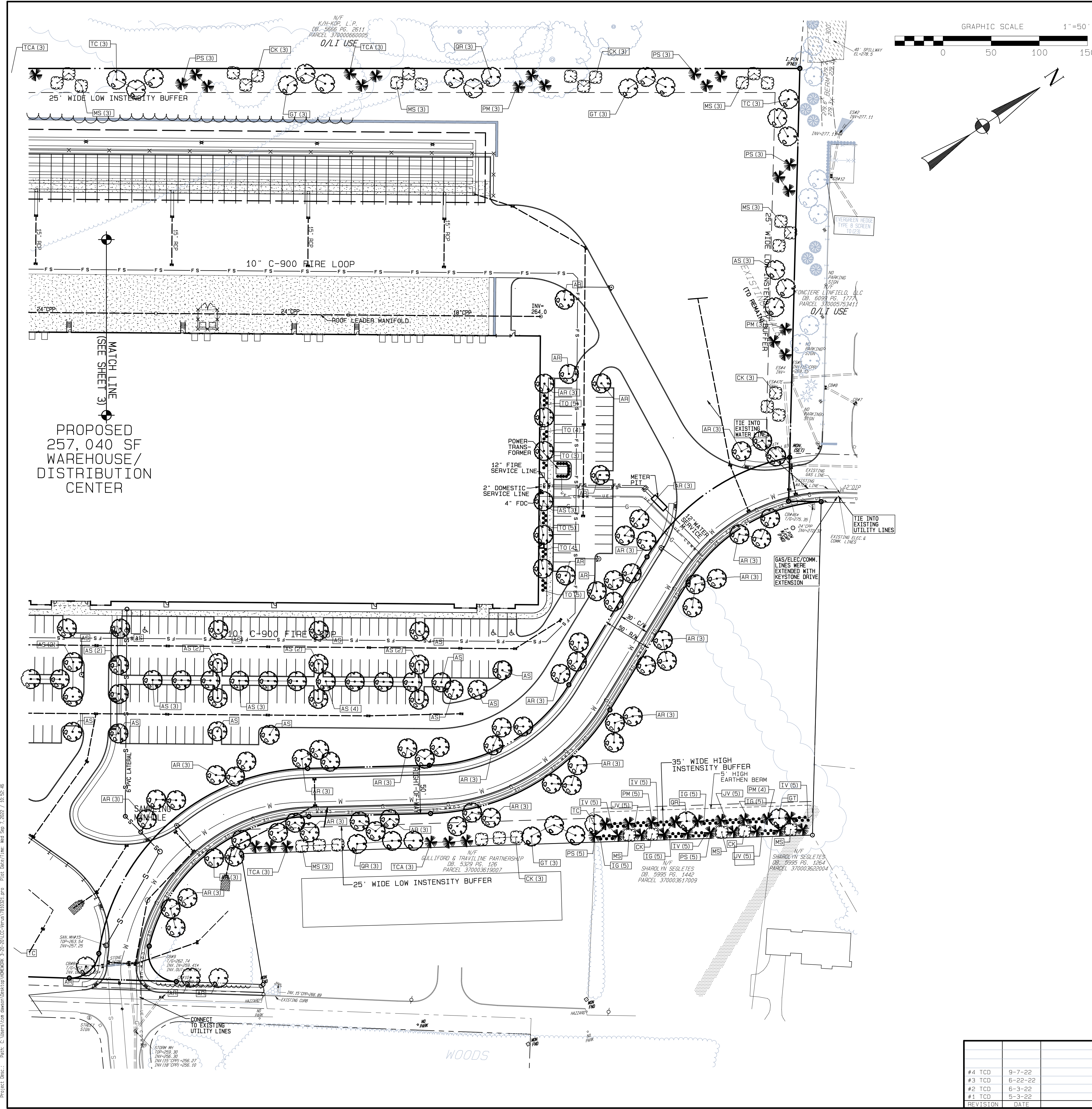
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12-21-21				C:\Users\ton dawson\Desktop\HOWE\WRK 3
SCALE	TAX MAP PARCEL	DRAWING NUMBER		
1"=50'		D-7810321 SHEET 4		

Project: 2022-01-10; User: J. Dawson; Date: 1/10/2022; 10:25:43





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**FINAL PLAN  
LANDSCAPING PLAN**

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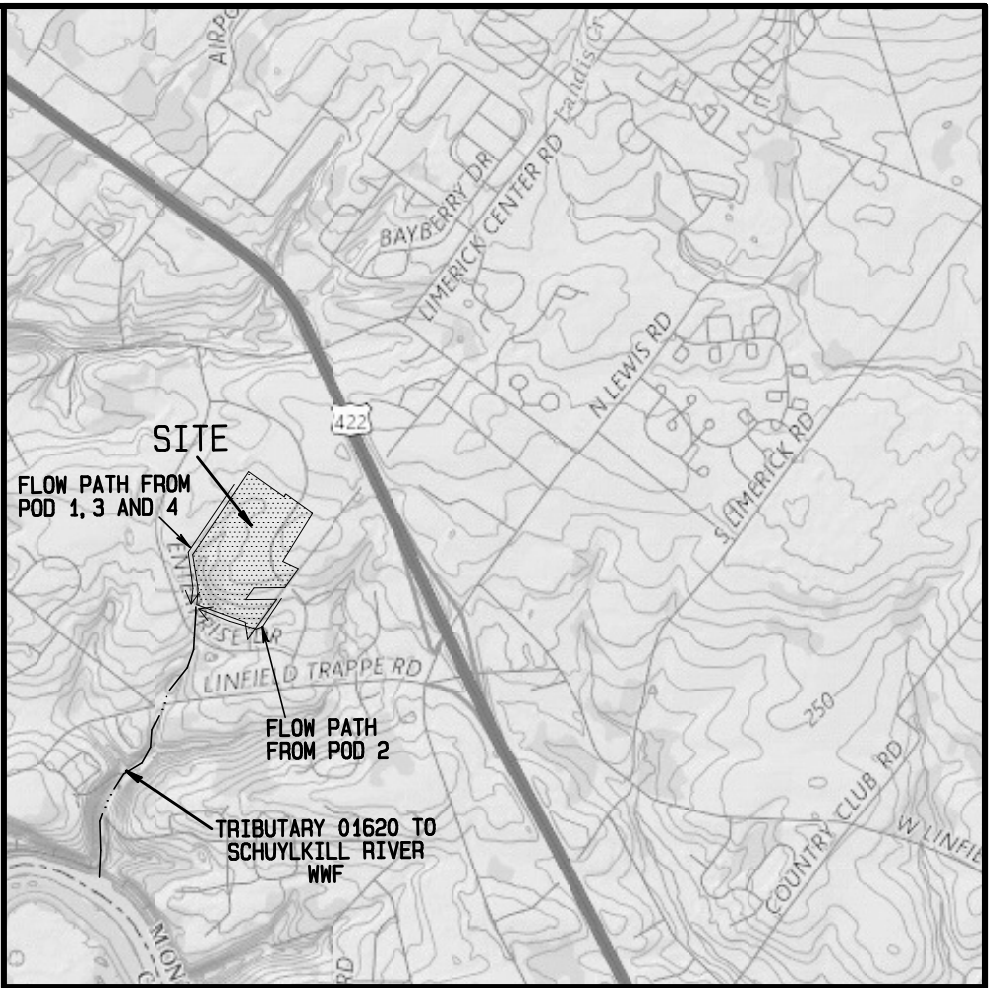
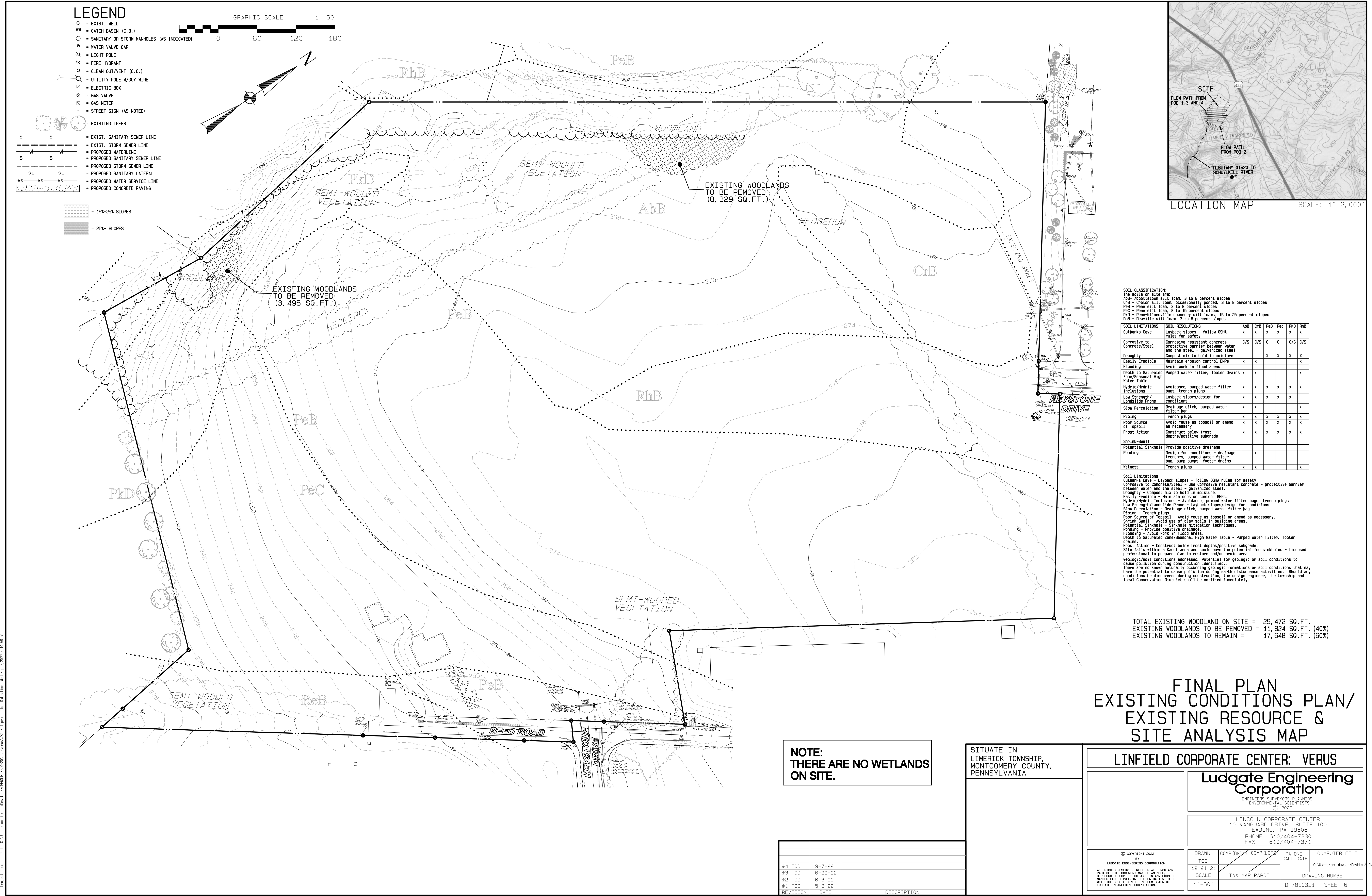
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					SCALE 1"=50'	TAX MAP PARCEL		DRAWING NUMBER D-7810321 SHEET 5	

REVISION	DATE	DESCRIPTION
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#3 TCD	6-22-22	
#2 TCD	6-3-22	
#1 TCD	5-3-22	



Project: 260-1 - Path: C:\Users\lms\desktop\260-1\260-1.dwg Date: 7/20/2022 10:36:51



LOCATION MAP SCALE: 1"=2,000'

SOIL CLASSIFICATION:  
The soils on site are:  
ABB- Abbottstown silt loam, 3 to 8 percent slopes  
CrB - Oron silt loam, occasionally ponded, 3 to 8 percent slopes  
PeB - Penn silt loam, 3 to 8 percent slopes  
PeC - Penn silt loam, 8 to 15 percent slopes  
PKD - Penn-Klinesville clayey silt loam, 15 to 25 percent slopes  
RhB - Reaville silt loam, 3 to 8 percent slopes

SOIL LIMITATIONS	SOIL RESOLUTIONS	ABB	CrB	PeB	PeC	PKD	RhB
Cutbanks Cave	Layback slopes - follow OSHA rules for safety	x	x	x	x	x	x
Corrosive to Concrete/Steel	Corrosive resistant concrete - protective barrier between water and the steel - galvanized steel	C/S	C/S	C	C	C/S	C/S
Droughty	Compost mix to hold in moisture			x	x	x	x
Easily Erodes	Maintain erosion control BMPs	x	x				x
Flooding	Avoid work in flood areas						
Depth to Saturated Zone/Seasonal High Water Table	Pumped water filter, footer drains	x	x				x
Hydric/Hydric Inclusions	Avoidance, pumped water filter bags, trench plugs	x	x	x	x	x	x
Low Strength/Landslide Prone	Layback slopes/design for conditions	x	x	x	x	x	
Slow Percolation	Drainage ditch, pumped water filter bag	x	x				x
Piping	Trench plugs	x	x	x	x	x	x
Poor Source of Topsoil	Avoid reuse as topsoil or amend as necessary	x	x	x	x	x	x
Frost Action	Construct below frost depths/positive subgrade	x	x	x	x	x	x
Shrink-Swell	Provide positive drainage						
Potential Sinkhole	Design for conditions - drainage trenches, pumped water filter bag, sump pumps, footer drains		x				
Ponding							
Metness	Trench plugs	x	x				x

Soil Limitations  
Cutbanks Cave - Layback slopes - follow OSHA rules for safety  
Corrosive to Concrete/Steel - use Corrosive resistant concrete - protective barrier between water and the steel - galvanized steel  
Droughty - Compost mix to hold in moisture  
Easily Erodes - Maintain erosion control BMPs  
Hydric/Hydric Inclusions - Avoidance, pumped water filter bags, trench plugs  
Low Strength/Landslide Prone - Layback slopes/design for conditions  
Slow Percolation - Drainage ditch, pumped water filter bag  
Piping - Trench plugs  
Poor Source of Topsoil - Avoid reuse as topsoil or amend as necessary  
Shrink-Swell - Avoid use of clay soils in building areas  
Potential Sinkhole - Sinkhole mitigation techniques  
Ponding - Provide positive drainage  
Frost Action - Construct below frost depths/positive subgrade  
Site falls within a karst area and could have the potential for sinkholes - Licensed professional to prepare plan to restore and/or avoid area.  
Geologic/soil conditions addressed, Potential for geologic or soil conditions to cause pollution during construction identified.  
There are no known naturally occurring geologic formations or soil conditions that may have the potential to cause pollution during earth disturbance activities. Should any conditions be discovered during construction, the design engineer, the township and local Conservation District shall be notified immediately.

TOTAL EXISTING WOODLAND ON SITE = 29,472 SQ. FT.  
EXISTING WOODLANDS TO BE REMOVED = 11,824 SQ. FT. (40%)  
EXISTING WOODLANDS TO REMAIN = 17,648 SQ. FT. (60%)

FINAL PLAN  
EXISTING CONDITIONS PLAN/  
EXISTING RESOURCE &  
SITE ANALYSIS MAP

NOTE:  
THERE ARE NO WETLANDS  
ON SITE.

REVISION	DATE	DESCRIPTION
#4 TCD	9-7-22	
#3 TCD	6-22-22	
#2 TCD	6-3-22	
#1 TCD	5-3-22	

SITUATE IN:  
LIMERICK TOWNSHIP,  
MONTGOMERY COUNTY,  
PENNSYLVANIA

LINFIELD CORPORATE CENTER: VERUS

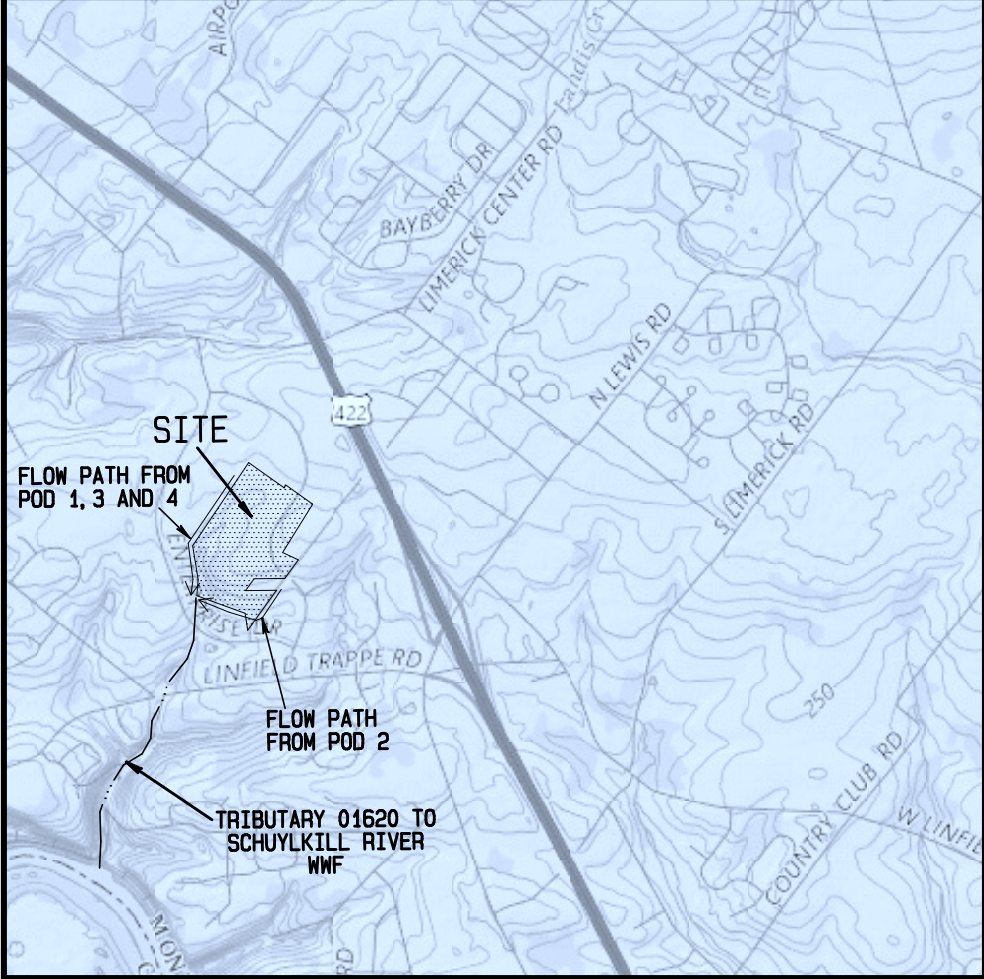
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LINCOLN CORPORATE CENTER  
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DRAWN TCD	COMP (BND) TCD	COMP (LOT) TCD	PA ONE CALL DATE 12-21-21	COMPUTER FILE c:\Users\lms\desktop\260-1\260-1.dwg
SCALE 1"=60'	TAX MAP PARCEL	DRAWING NUMBER D-7810321 SHEET 6		





LOCATION MAP SCALE: 1"=2,000'

SOIL CLASSIFICATION:  
The soils on site are:  
ABd - Abbotstown silt loam, 3 to 8 percent slopes  
CrB - Cruton silt loam, occasionally ponded, 3 to 8 percent slopes  
PdB - Penn silt loam, 3 to 8 percent slopes  
PeC - Penn silt loam, 8 to 15 percent slopes  
PKd - Penn-Klinesville channelry silt loams, 15 to 25 percent slopes  
RdB - Reaville silt loam, 3 to 8 percent slopes

SOL LIMITATIONS	SOL RESOLUTIONS	A	B	C	PeB	Pec	Px	R	Rb
Suburbs Cane	Layback slopes - follow OSHA rules for safety	x	x	x	x	x	x	x	x
Corrosive to Concrete/Steel	Corrosive resistant concrete - protective barrier between water and the steel - galvanized steel	C/S	C/S	C	C	C	C/S	C/S	C/S
Droughty	Moisture exion to hold in moisture	x	x	x	x	x	x	x	x
Easily Eroding	Maintain erosion control BMPs	x	x	x	x	x	x	x	x
Flooding	Avoid work in flood areas	x	x	x	x	x	x	x	x
Depth to Saturated Zone/Seasonal High Water Table	Pumped water filter, footer drains	x	x	x	x	x	x	x	x
Hydric/Hydric Inclusions	Avoidance, pumped water filter bags, trench pumps	x	x	x	x	x	x	x	x
Low Strength/Landslide Prone	Layback slopes/design for conditions	x	x	x	x	x	x	x	x
Slow Percolation	Drainage ditch, pumped water filter bag	x	x	x	x	x	x	x	x
Piping	Trench bags	x	x	x	x	x	x	x	x
Poor Source of Topsoil	Avoid reuse as topsoil or amend as necessary	x	x	x	x	x	x	x	x
Frost Action	Construct below frost depths/positive subgrade	x	x	x	x	x	x	x	x
Shrink-Swell									
Potential Sinkhole	Provide positive drainage	x	x	x	x	x	x	x	x
Ponding	Design for conditions - drainage trenches, pumped water filter bags, sump pumps, footer drains	x	x	x	x	x	x	x	x
Wetness	Trench pumps	x	x	x	x	x	x	x	x

**Soil Limitations**

Cutbanks Cave - Layback slopes - follow OSHA rules for safety

Corrosive to Concrete/Steel - Use Durocrete resistant concrete - protective barrier

Drought and/or the area - water conservation

Broughty - Compost mix to hold in moisture

Easily Eroded - Minimum 60% topsoil control

Hydric/Hydric Inclusions - Avoidance, pumped water filter bags, trench plugs.

Ponding - Provide positive drainage

Seepage - Seepage Prevention - Pumped water filter bag

Nose Percolation - Drainage ditch, pumped water filter bag

Piping - Trench plugs.

Power Source of Casing - Avoid reuse as topsoil or amend as necessary.

Shrink-Swell - Avoid use of clay soils in building areas.

Potential Sinkhole - Sinkholes - Avoidance techniques

Ponding - Provide positive drainage

Flooding - Avoid water in buildings

Depth to Saturated Zone/Seasonal High Water Table - Pumped water filter, footer drains

Freeze Action - Construct below frost depths/positive subsgrade

Site fills within a Karst area and could have the potential for sinkholes - Licensed Professional Engineer prepare site plan

Geologic/soil conditions addressed, Potential for geologic or soil conditions to cause pollution during construction identified.

The project may potentially occurring geologic formations or soil conditions that may have the potential to cause pollution during earth disturbance activities. Should any such potential exist, it shall be discussed by a professional engineer, the township and local Conservation District shall be notified immediately.

I, \_\_\_\_\_, UNDERSTAND THAT ALL OF THE BMP AND  
(LANDOWNER)  
STORMWATER CONTROLS ARE FIXTURES THAT CAN NOT BE ALTERED OR  
REMOVED WITHOUT APPROVAL BY THE TOWNSHIP OF LIMERICK AND THE  
MONTGOMERY COUNTY CONSERVATION DISTRICT.

I, \_\_\_\_\_, ON THIS DATE, \_\_\_\_\_ HEREBY  
(DESIGN ENGINEER) (DATE)  
CERTIFY THAT THE DRAINAGE PLAN MEETS ALL DESIGN STANDARDS AND  
CRITERIA OF THE LIMERICK TOWNSHIP STORMWATER MANAGEMENT ORDINANCE.

I, \_\_\_\_\_, ON THIS DATE, \_\_\_\_\_ HEREBY  
(APPLICANT) (DATE)  
ACKNOWLEDGE THAT ANY REVISION TO THE APPROVED PLAN MUST BE  
APPROVED BY THE MUNICIPALITY AND THE MONTGOMERY COUNTY  
CONSERVATION DISTRICT. I ALSO ACKNOWLEDGE THAT A REVISED EROSION  
AND SEDIMENT CONTROL PLAN MUST BE SUBMITTED TO THE CONSERVATION  
DISTRICT FOR A DETERMINATION OF ADEQUACY BEFORE ANY CHANGES CAN  
BE MADE TO THE SITE.

SOIL TESTING DATA			
TEST POINT	INFILTRATION RESULTS (IN/HR)	WATER TABLE ELEVATION	DEEPPOD ELEV.
5	0.25	262	267.5
6	0.5	264.5	265
7	2.5	259.5	256.5
8	1.5	260.5	260.5
9	0.25	259	251.5
10	0.70	262	252
GED	1.0	BMP 3	
11	0.25	246.0	243.5
12	0.25	244.5	241.5
13	0.5	237.5	235.5
14	0.25	240	236
15	0.5	247	243
16	0.25	242	241
17	0.25	240	238
18	0.25	242	239
19	0.35	236.5	232
GED	0.5	BMP 4	241
20	0.25	240	237
23	1.5	-	256
24	3	-	256
GED	2.12	BMP 2	-
25	0	-	249
28	0	276	275

NOTE:  
ALL UTILITIES INCLUDING GAS LINES, ELECTRIC LINES  
AND COMMUNICATION LINES TO BE UNDERGROUND AND  
WITHIN THE LIMITS OF THE PROPOSED DRIVEWAY/PAVING.

FINAL PLAN  
POST CONSTRUCTION  
STORM WATER MANAGEMENT PLAN

SITUATE IN:  
LIMERICK TOWNSHIP,  
MONTGOMERY COUNTY,  
PENNSYLVANIA

## LINFIELD CORPORATE CENTER: VERUS

**Ludgate Engineering Corporation**

ENGINEERS SURVEYORS PLANNERS  
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FAX 610/404-7371

DRAWN	COMP (BND)	COMP (LOTS)	PA ONE	CO
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PA ONE	CALL DATE			
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12-21-21				C: 10
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SCALE	TAX MAP PARCEL	DRAWING
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1"=60'	D-7810321
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**Post Construction Storm Water Management Notes:**  
**MANAGED RELEASE CONCEPT:** Managed Release Concept (MRC) is a post-construction stormwater management (PSCM) strategy that comprises the collection, storage, infiltration, and treatment of runoff through best management practices (BMPs) that is preferably vegetated and includes release of a portion of the captured runoff to the receiving water body. The MRC is a form of stormwater management that uses areas or subareas where infiltration is considered not feasible to meet regulatory requirements. The MRC is used when the BMP is not vegetated, then pretreatment is required to meet water quality requirements.

Preserve the integrity of stream channels and maintain and protect the physical, biological and chemical qualities of the receiving stream.  
 The C&D is being installed through the best management practice (BMP) of the integrity of the stream and physical, biological and chemical qualities will be preserved with the usage of approved BMPs. The BMPs will control the runoff's volume to be below predevelopment levels. The BMPs will also provide for the prevention of erosion. Plantings of trees, shrubs and grass on the site will also provide for erosion control and prevent sediment from entering the stream.

Prevent an increase in the rate of stormwater runoff:  
 The runoff rate will be controlled by the rate control BMPs which will reduce the runoff rate to below predevelopment levels.

Minimize any increase in stormwater runoff volume:  
 The runoff volume will be controlled by the volume control BMPs which will reduce the runoff volume to below predevelopment levels.

Minimize impervious areas:  
 Impervious areas will be minimized. The planting of trees, shrubs and grass will minimize the effect of the impervious areas.

The impervious areas have been reduced as much as possible in the design.

Maximize the protection of existing drainage features and existing vegetation:  
 The BMPs will also include the protection of existing vegetation. Vegetation and drainage features that currently exist in this area will not be disturbed. The proposed BMPs will maintain the runoff volume to below predevelopment levels which will prevent erosion in the existing drainage features.

**Minimize land clearing and grading:**

Where necessary, the project shall be designed with appropriate temporary stabilization methods to minimize the duration of the earth disturbance.

In no case should an area exceeding 15,000 square feet, which is to be stabilized by vegetation, be disturbed for a period exceeding 90 days. Areas not to be stabilized by vegetation for a period exceeding 4 days, the operator shall stabilize all disturbed areas with erosion and sediment control during the earth disturbance activities. During non-erosion and sediment control periods, the project shall be stabilized in accordance with the plan. Areas not to be finished within a grade which will be reactivated within 90 days, may be stabilized with temporary stabilization specifications and procedures. Areas not to be finished within 90 days shall be stabilized in accordance with the permanent stabilization specifications.

**Clearing, grading, and fossil stripping:** shall be limited to those areas described in the EIS and EIS Supplemental Information. General clearing, grubbing and fossil stripping may not commence in any stage or phase of the project until the EIS RMP and EIS Supplemental Information have been approved. Clearing, grubbing and fossil stripping as described in this EIS plan.

The entire limit of disturbance boundary must be identified and made visible with stakes and flags prior to beginning work. All work and equipment must remain inside this boundary.

**Minimize soil compaction:**

The entire limit of disturbance boundary must be identified and made visible with stakes and flags prior to beginning work. All work and equipment must remain inside this boundary.

**Minimize or change construction fencing prior to beginning work.** All work and equipment must remain inside this boundary.

**Utilize other structural or nonstructural BMPs that prevent or minimize changes to stream channels.**

Immediately after earth disturbance activities cease in any area or subarea of the project, the project shall be stabilized in accordance with the plan. Areas not to be finished within a grade which will be reactivated within 90 days, may be stabilized with temporary stabilization specifications and procedures. Areas not to be finished within 90 days shall be stabilized in accordance with the permanent stabilization specifications.

**Clearing, grading, and fossil stripping:** shall be limited to those areas described in the EIS and EIS Supplemental Information. General clearing, grubbing and fossil stripping may not commence in any stage or phase of the project until the EIS RMP and EIS Supplemental Information have been approved. Clearing, grubbing and fossil stripping as described in this EIS plan.

stabilized in accordance with the temporary stabilization specifications. Those areas not stabilized within one year shall be stabilized in accordance with the permanent stabilization specifications.

Vegetation shall be planted in bare exposed soil, grass and trees.

Structural BMPs will also be provided to reduce the runoff volume and rate to below predevelopment levels.

Thermal impacts addressed, Description provided of how thermal impacts of the proposed project site were avoided, minimized, or mitigated (PCSM 9(b)).

Thermal impacts will be addressed with the use of infiltration BMPs and underground conveyance. Grass, shrubs and trees in green space will also reduce the thermal impacts of the site.

Type of Cover:

Covered area: meadow and build out will be building, parking lot and other related structures for business. Reainforests, infiltration basins and the site will be vegetated.

Critical Ditches/BMP Installation:

A LICENSED PROFESSIONAL MUST BE ON-SITE TO OVERSEE THE CONSTRUCTION OF RAIN GARDEN

A LICENSED PROFESSIONAL MUST BE ON-SITE TO OVERSEE THE CONSTRUCTION OF RAIN GARDEN

A LICENSED PROFESSIONAL MUST BE ON-SITE TO OVERSEE THE CONVERSION OF THE SEGMENT BASIN 1 TO AN INFILTRATION BASIN BMP 3

A LICENSED PROFESSIONAL MUST BE ON-SITE TO OVERSEE THE CONVERSION OF THE SEGMENT BASIN 2 TO AN INFILTRATION BASIN BMP 3

Protection provided for infiltration BMPs until drainage areas completely stabilized

For the construction sequence the site will be stabilized before infiltration BMPs installed. Conveyance pipes will also be blocked off or have EGS controls to prevent infiltration BMPs from being blocked off. The site will be placed over the infiltration BMPs and if basins are to be converted from an EGS design the bottom will be covered with a layer of gravel.

Recycling or disposal of material:

All building materials and wastes shall be removed from the site and recycled or disposed of in accordance with the Department's Solid Waste Management Regulations (Chapter 200, Title 19, RCW) and the Department's rules. Recyclable materials and wastes or unused building materials shall not be burned, buried, dumped, or discharged at the site.

Construction wastes include, but are not limited to, excess soil materials, building materials, concrete masonry water, sanitary wastes, etc. that could adversely impact water quality.

Recycling of waste materials must be done where feasible. This includes housekeeping items, materials management and litter control. It is important to keep recyclable items out of landfills.

Building materials and wastes or unused building materials should be analyzed. Mud, dirt, or debris can be spread on the site for proper disposal or recycling.

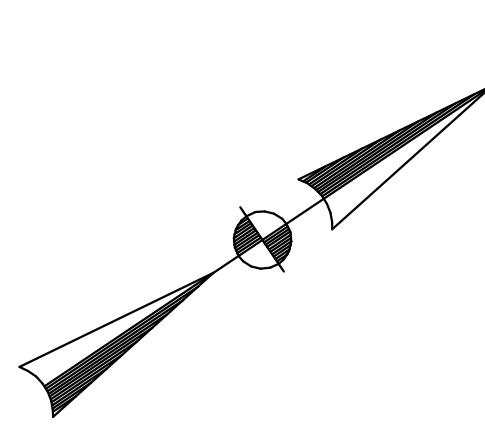
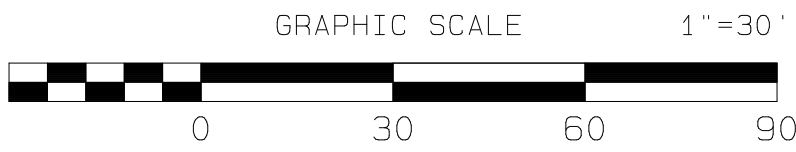
Use or properly disposed. Metal items can be recycled. Paper and plastic must be disposed of properly. Concrete masonry must be disposed of properly. Remove all trash.

Post construction waste includes warehouse building trim including cardboard boxes, plastic wrapping, pallets and other storage items. The site will not produce any industrial waste and all waste will be removed from the site for proper disposal or recycling.

Other PGM waste includes lawn and garden waste from the lawns and planting around the site. This includes lawn clippings, weeds, mulch, seed and other plant matter. These items should be disposed of per the local ordinance or composted. Excess fertilizer should also be disposed of and not allowed to drain into pond or other surface waters.

#4 TCD	9-7-22	
#3 TCD	6-22-22	
#2 TCD	6-3-22	
#1 TCD	5-3-22	
REVISION	DATE	DESCRIPTION





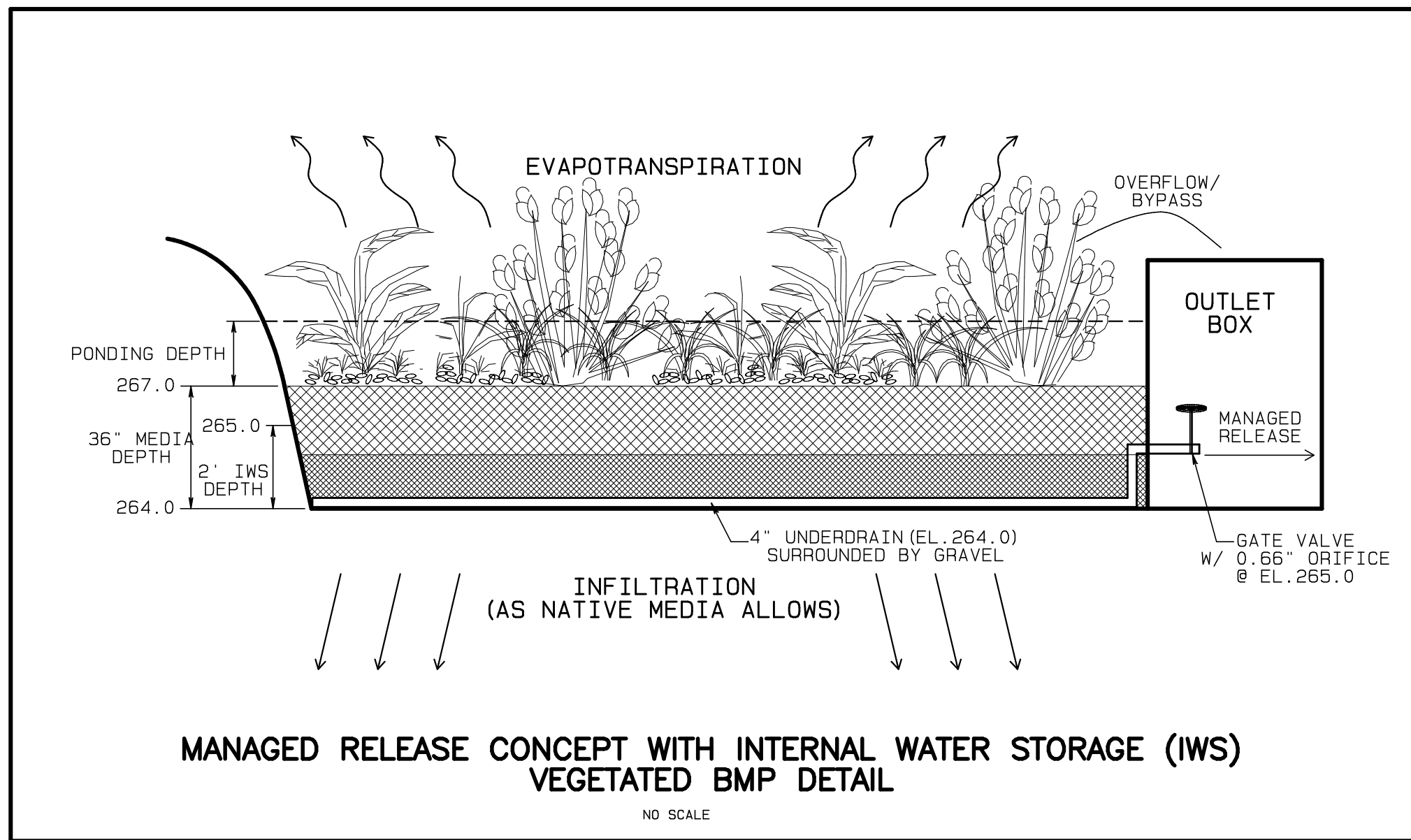
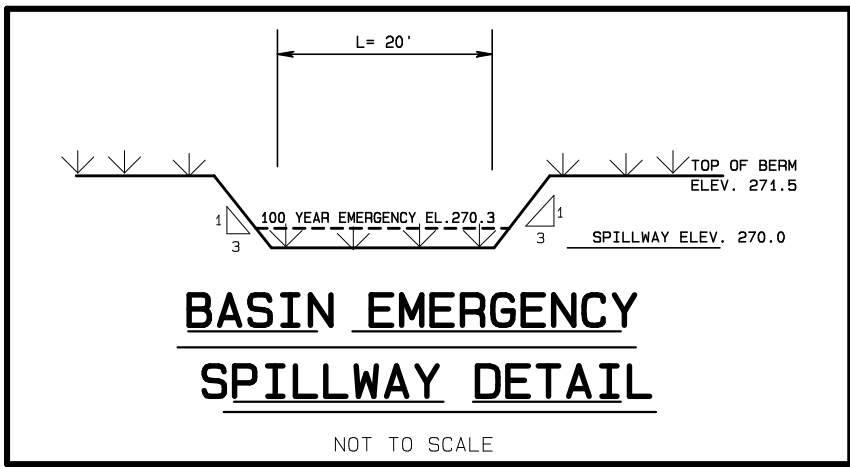
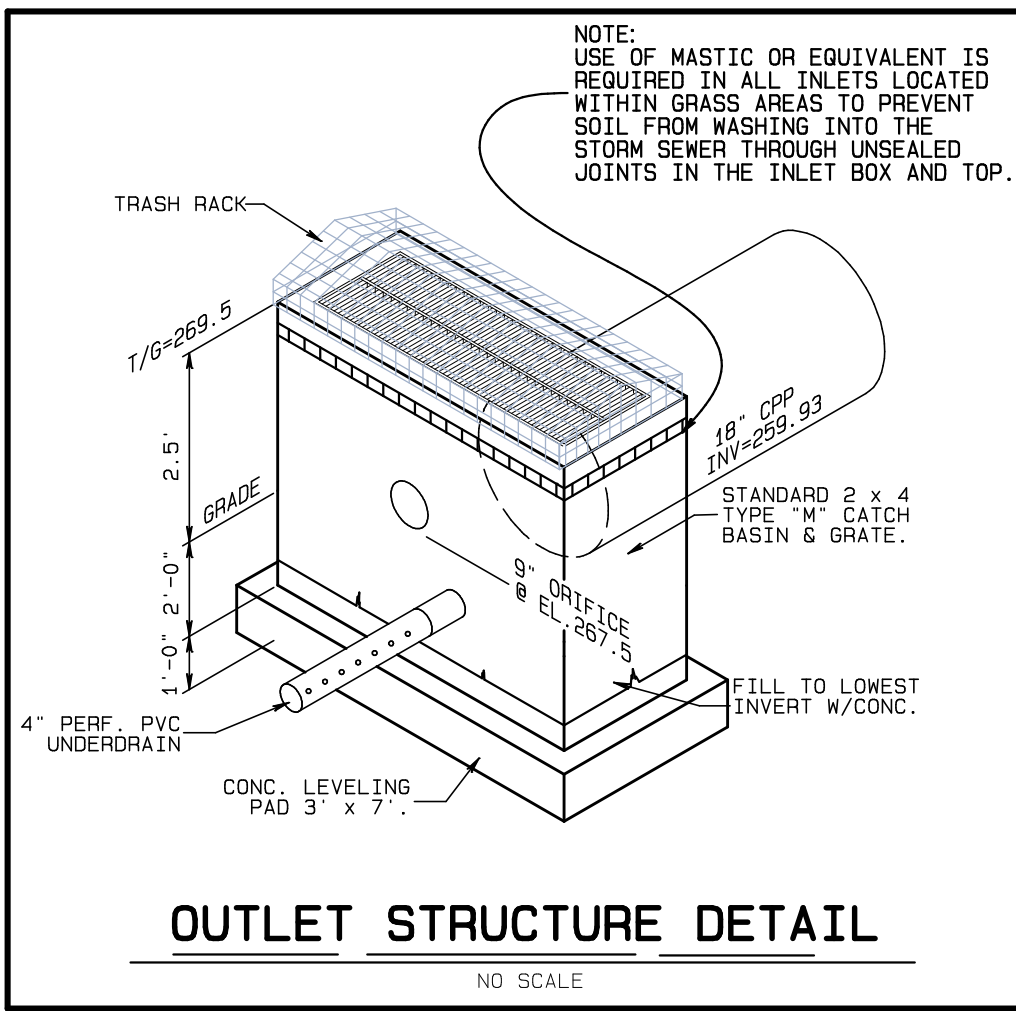
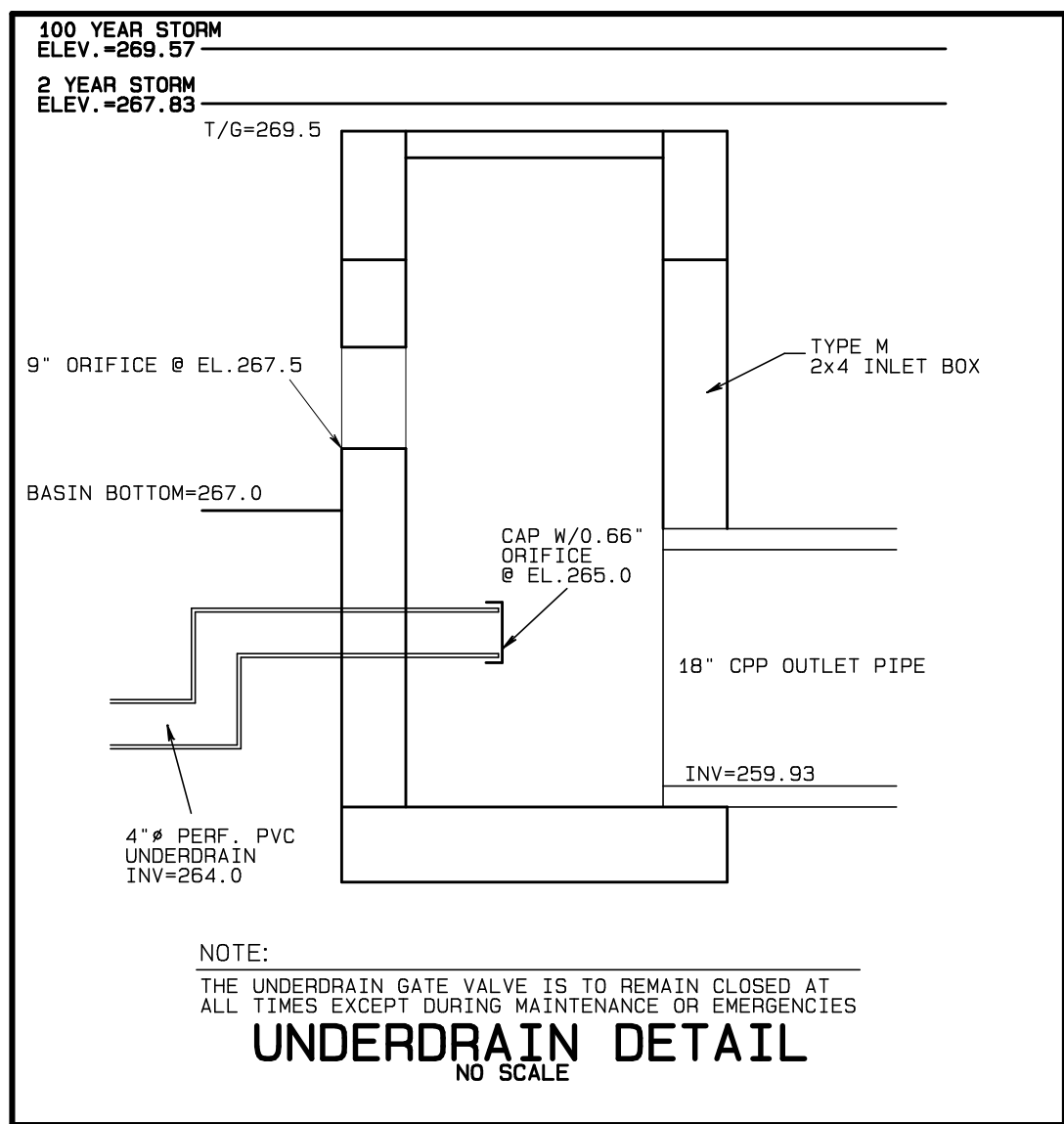
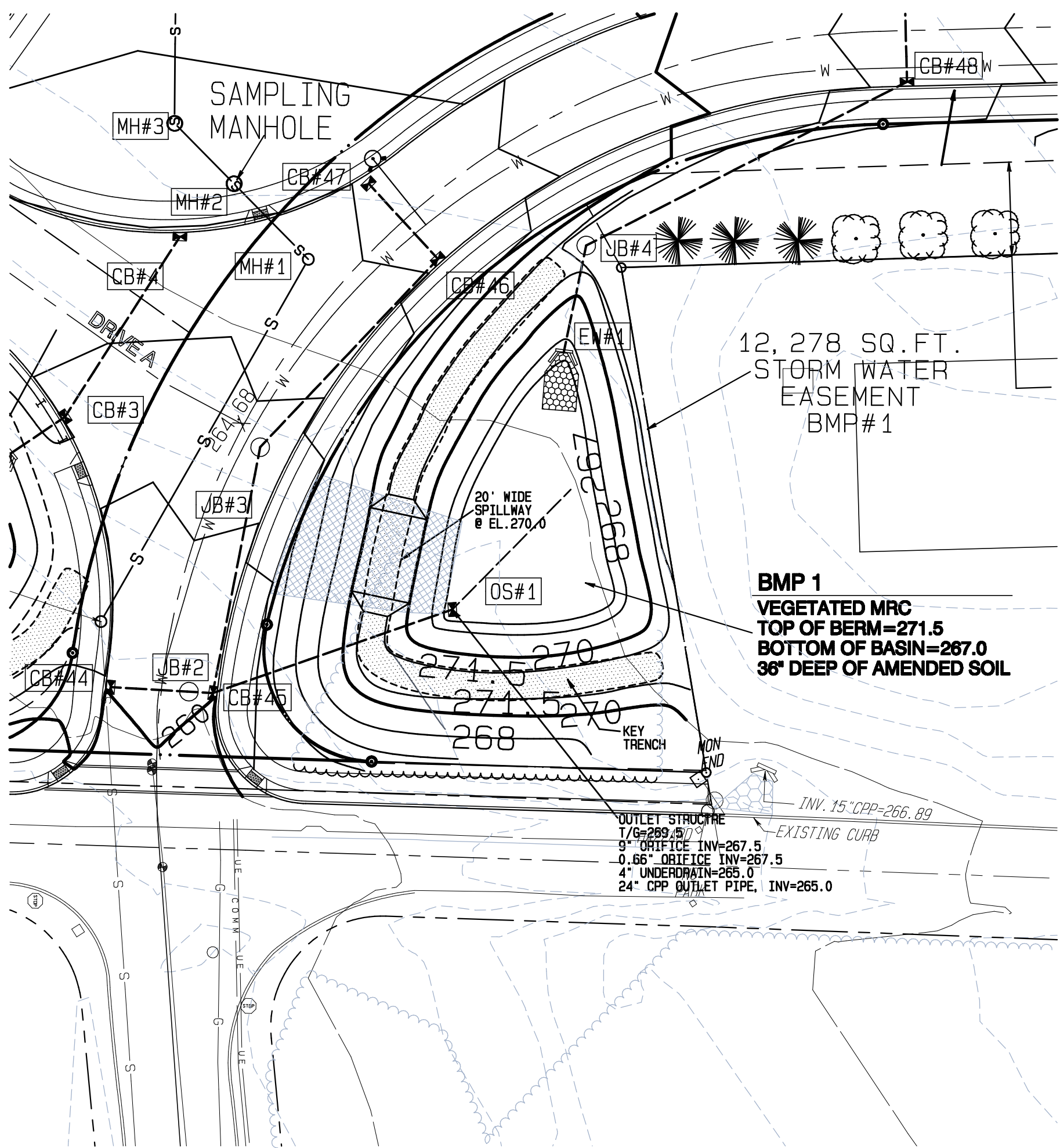
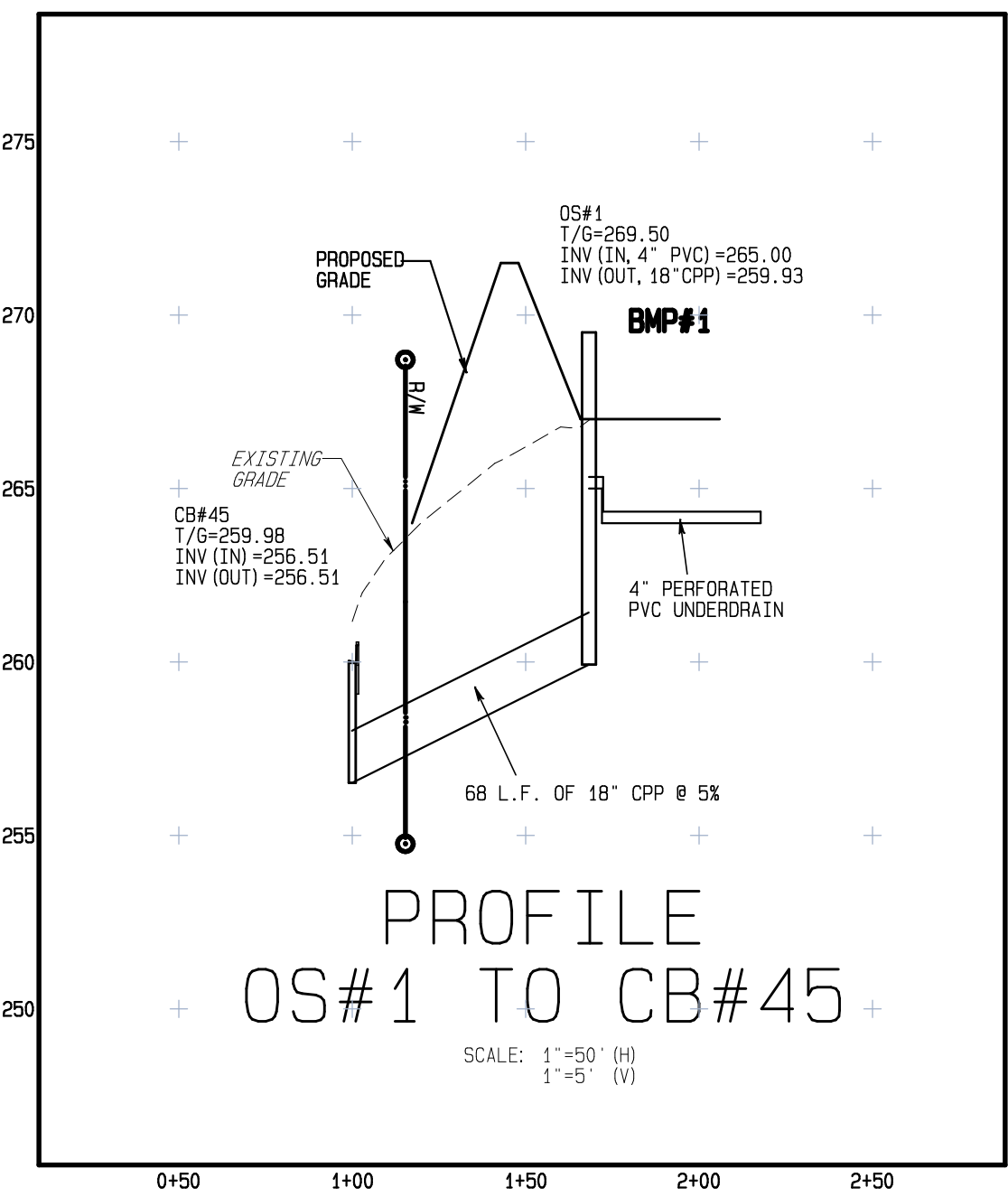
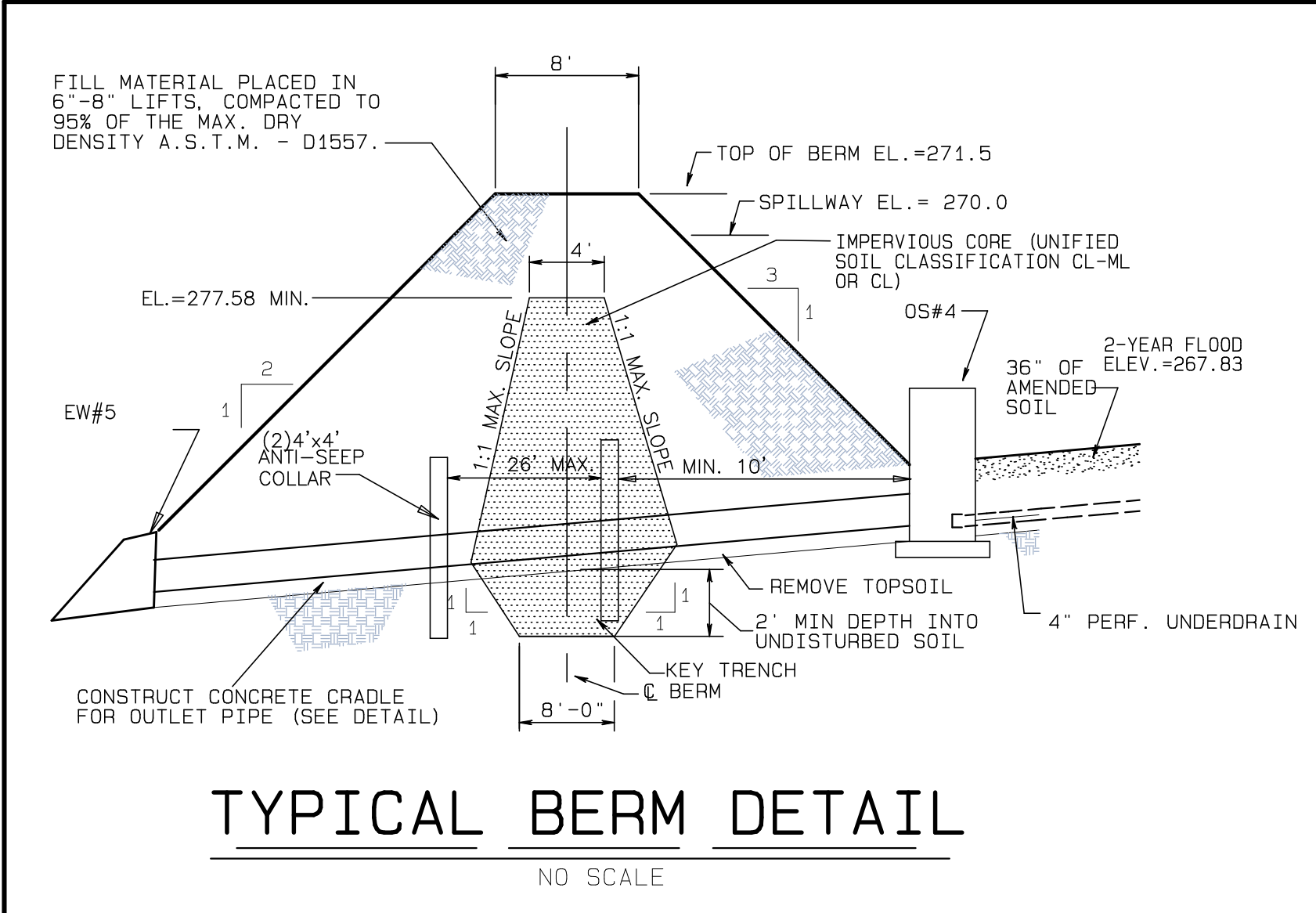
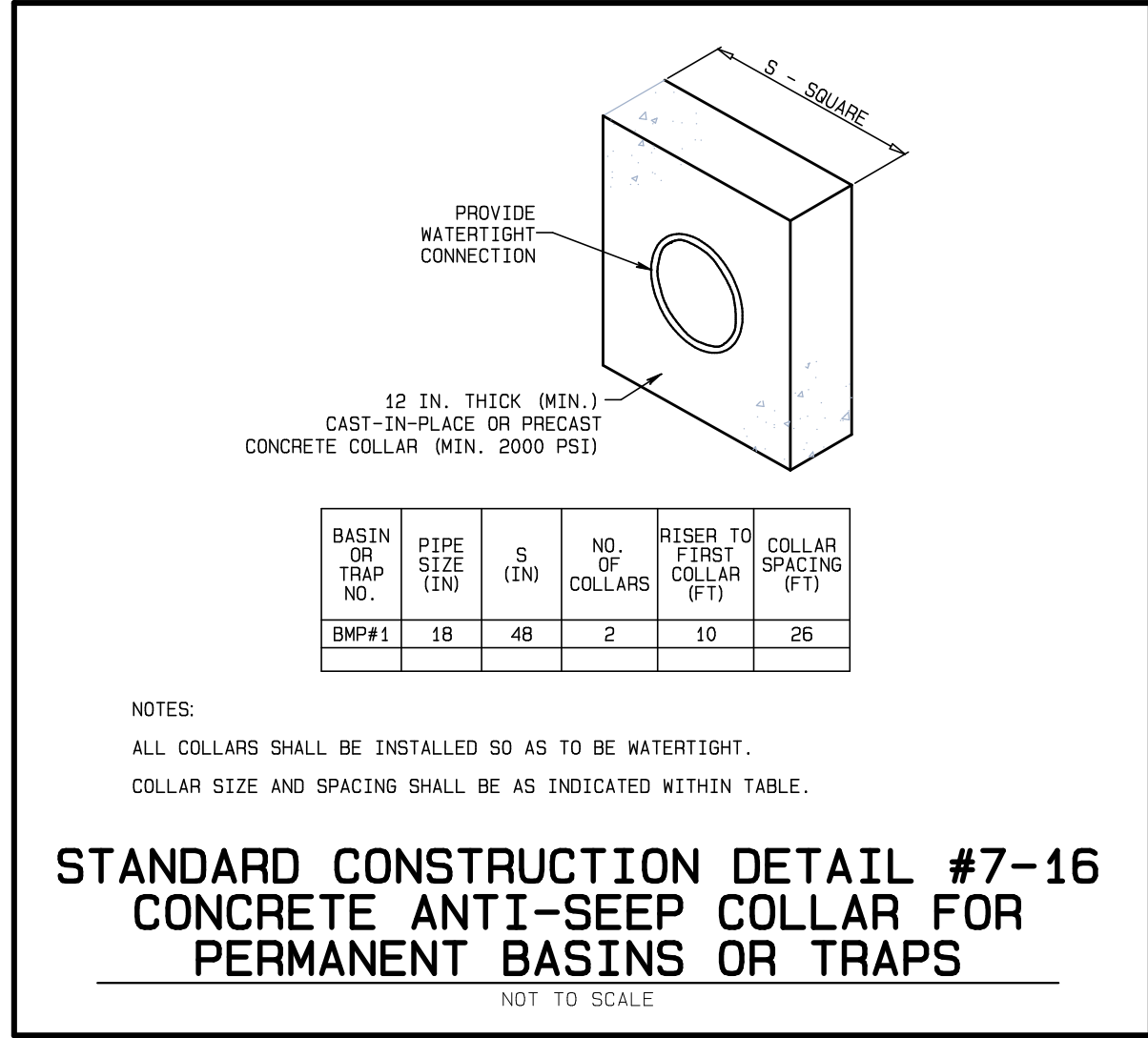
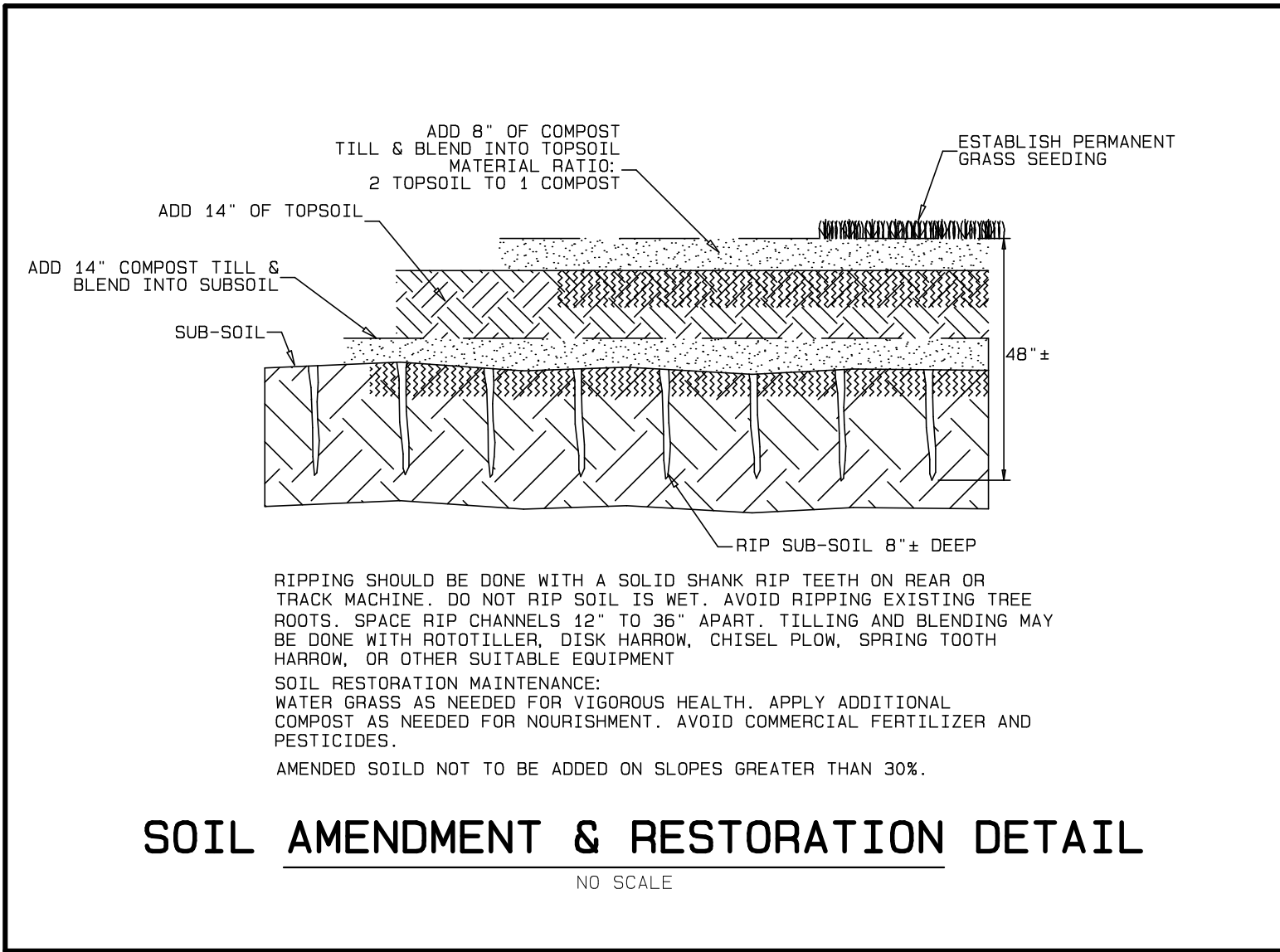
## LEGEND

- ⊙ = EXIST. WELL
- ⊕ = CATCH BASIN (C.B.)
- = SANITARY OR STORM MANHOLES (AS INDICATED)
- ⊗ = WATER VALVE CAP
- ⊙ = LIGHT POLE
- ⊙ = FIRE HYDRANT
- ⊙ = CLEAN OUT/VENT (C.O.)
- ⊙ = UTILITY POLE W/GUY WIRE
- ⊙ = ELECTRIC BOX
- ⊙ = GAS VALVE
- ⊙ = GAS METER
- ⊙ = STREET SIGN (AS NOTED)



- S-S- = EXIST. SANITARY SEWER LINE
- W-W- = EXIST. STORM SEWER LINE
- S-S- = PROPOSED WATERLINE
- S-S- = PROPOSED SANITARY SEWER LINE
- S-S- = PROPOSED STORM SEWER LINE
- SL-SL- = PROPOSED SANITARY LATERAL
- WS-WS- = PROPOSED WATER SERVICE LINE
- P-P- = PROPOSED CONCRETE PAVING

■ = NAG P300



SITUATE IN:  
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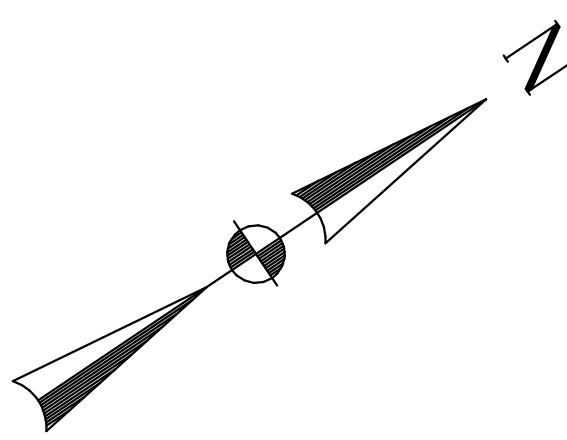
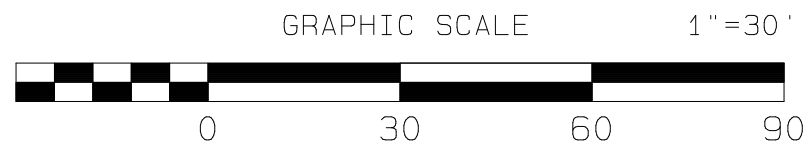
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DRAWN	COMP (BNG)	COMP (LOT)	PA ONE CALL DATE	COMPUTER FILE
TCD				C:\Users\ton dawson\Desktop\104040321
12-21-21				
SCALE	TAX MAP PARCEL			DRAWING NUMBER
1"=30'				D-7810321 SHEET 8

REVISION	DATE	DESCRIPTION
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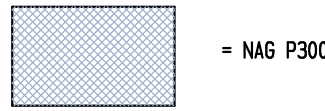
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- ⊗ = GAS VALVE
- ⊗ = GAS METER
- ⊗ = STREET SIGN (AS NOTED)

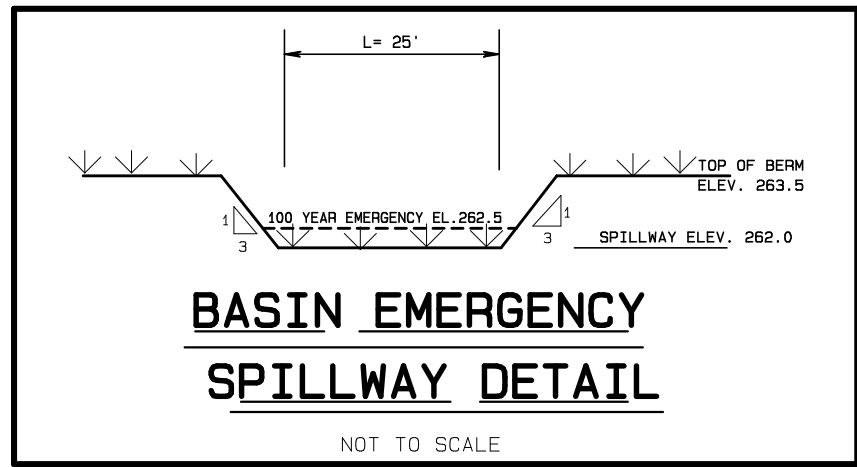
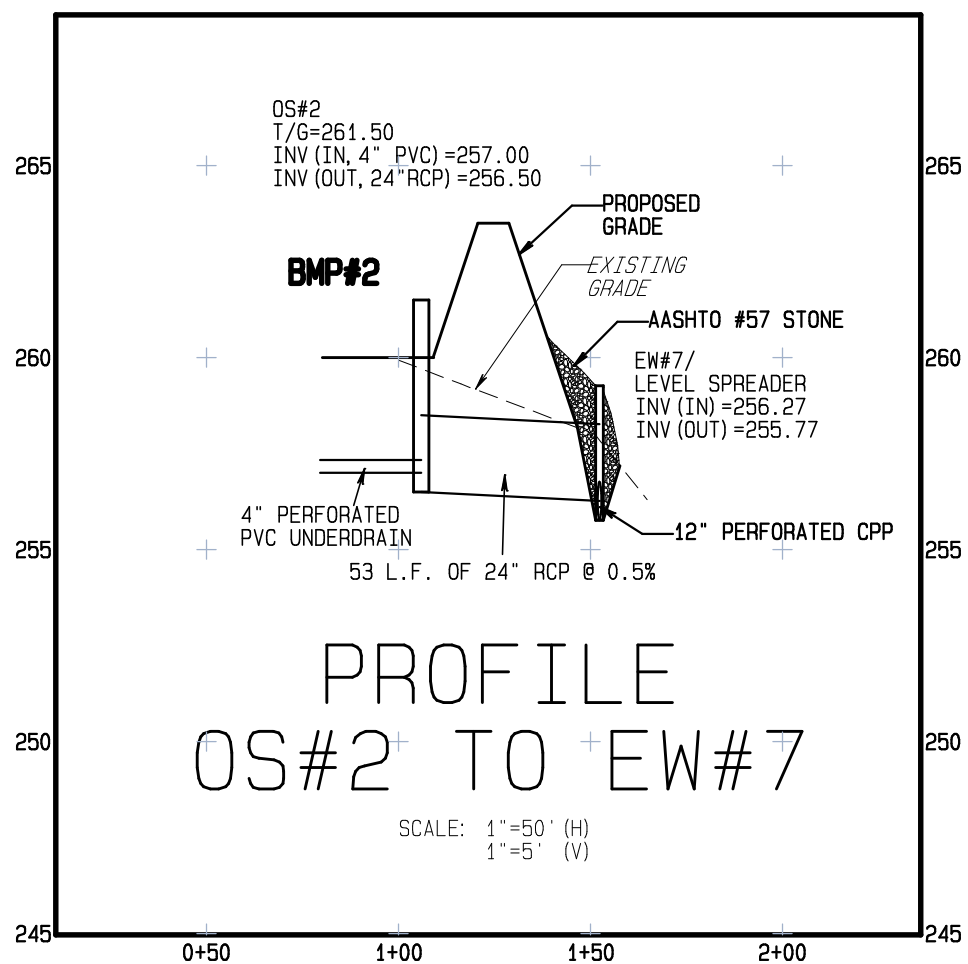
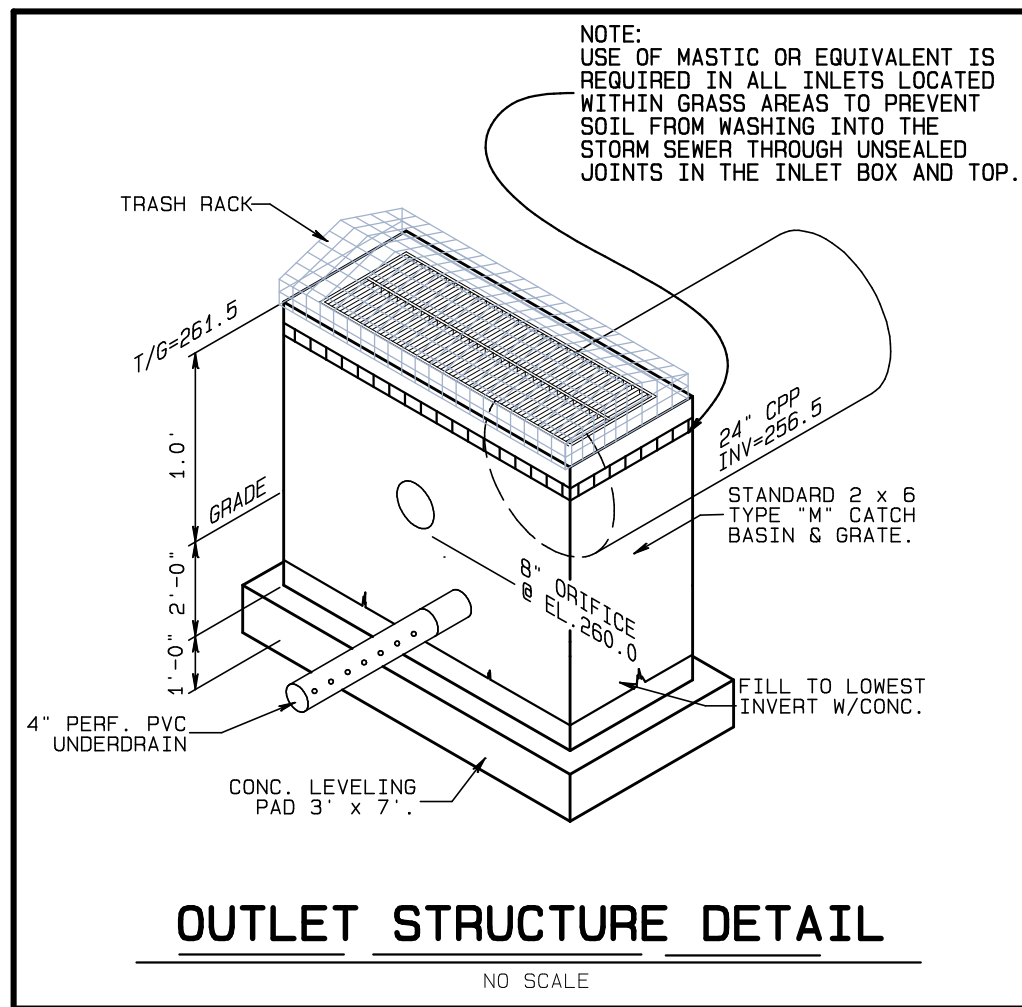
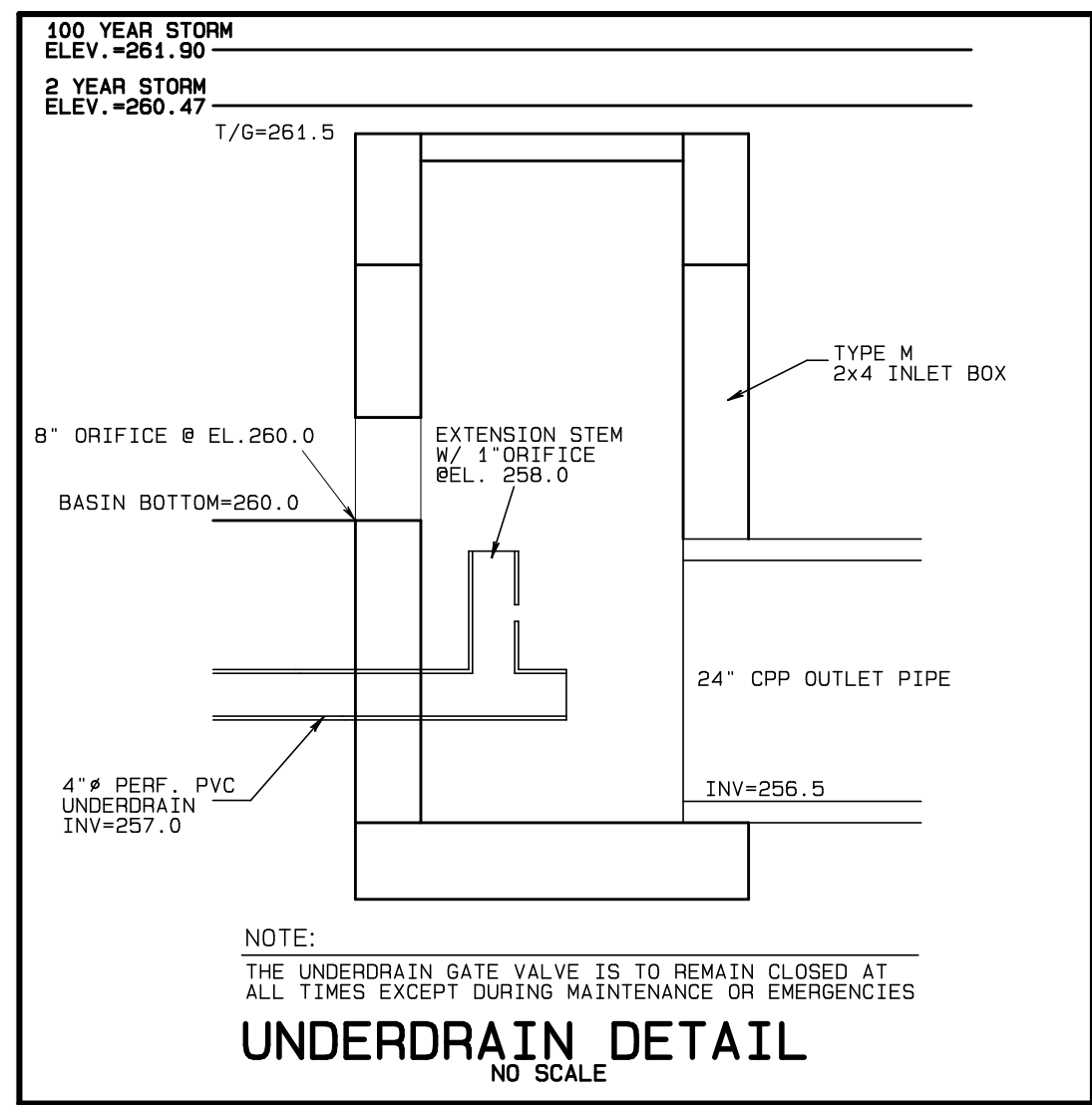
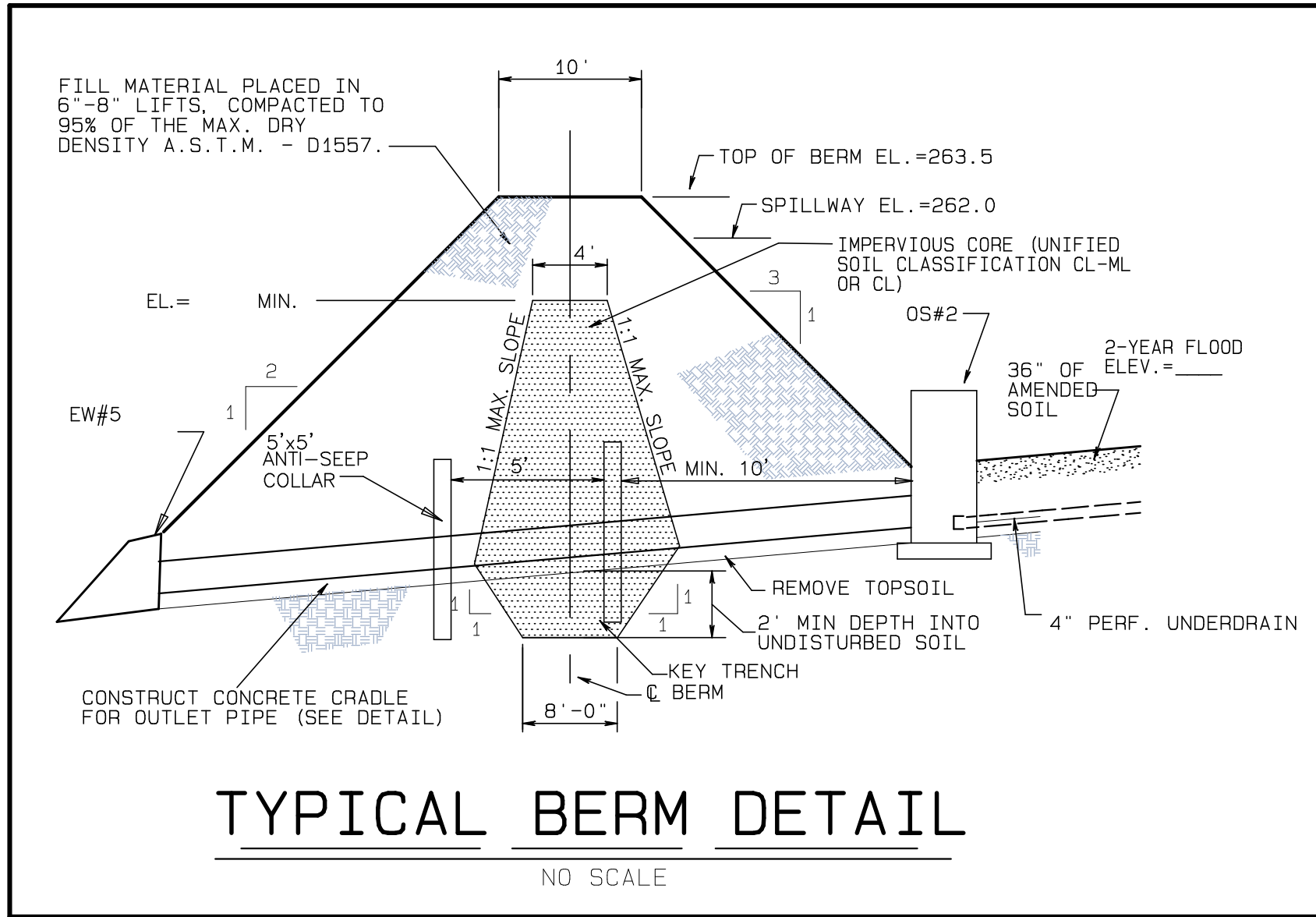
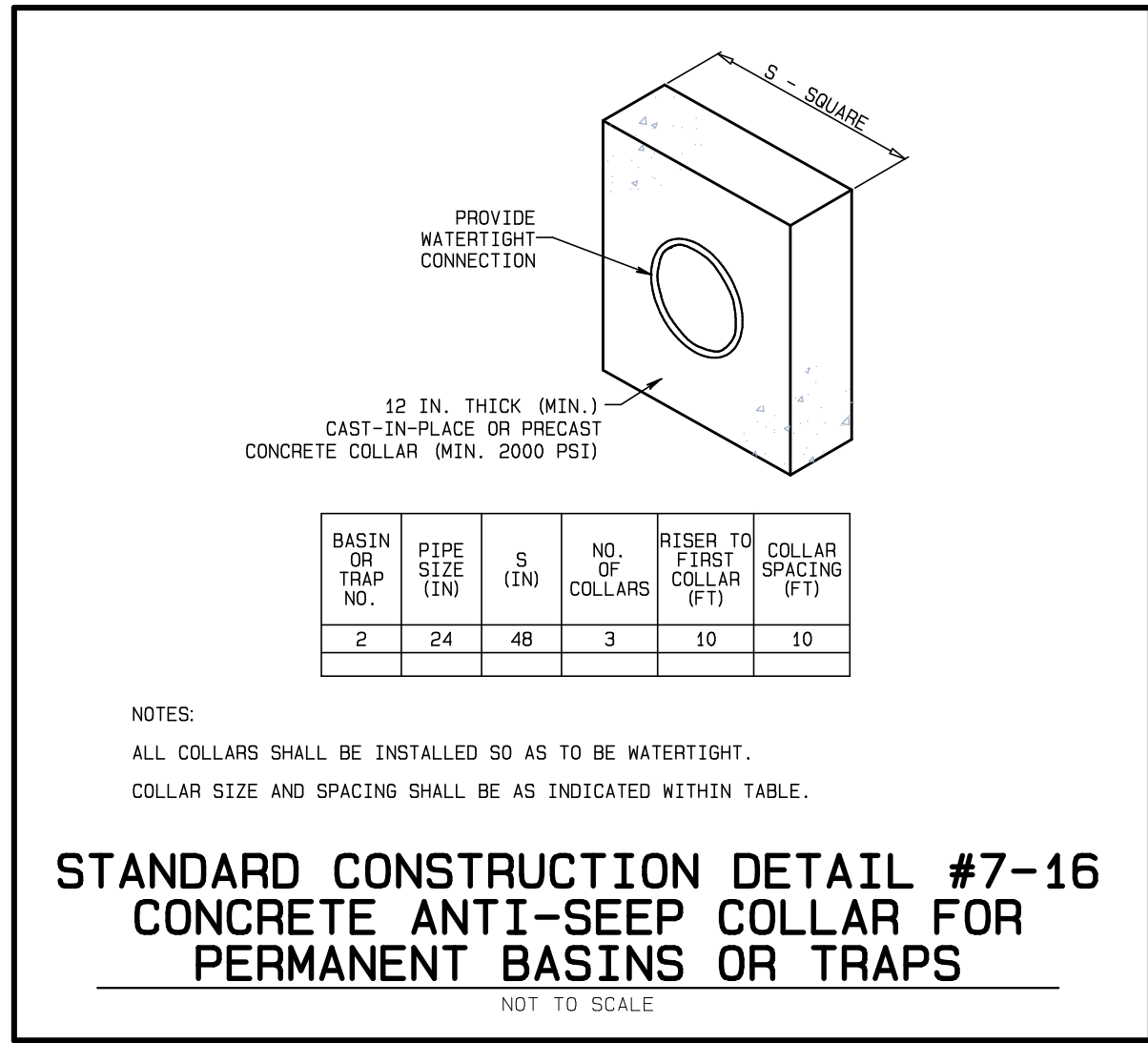
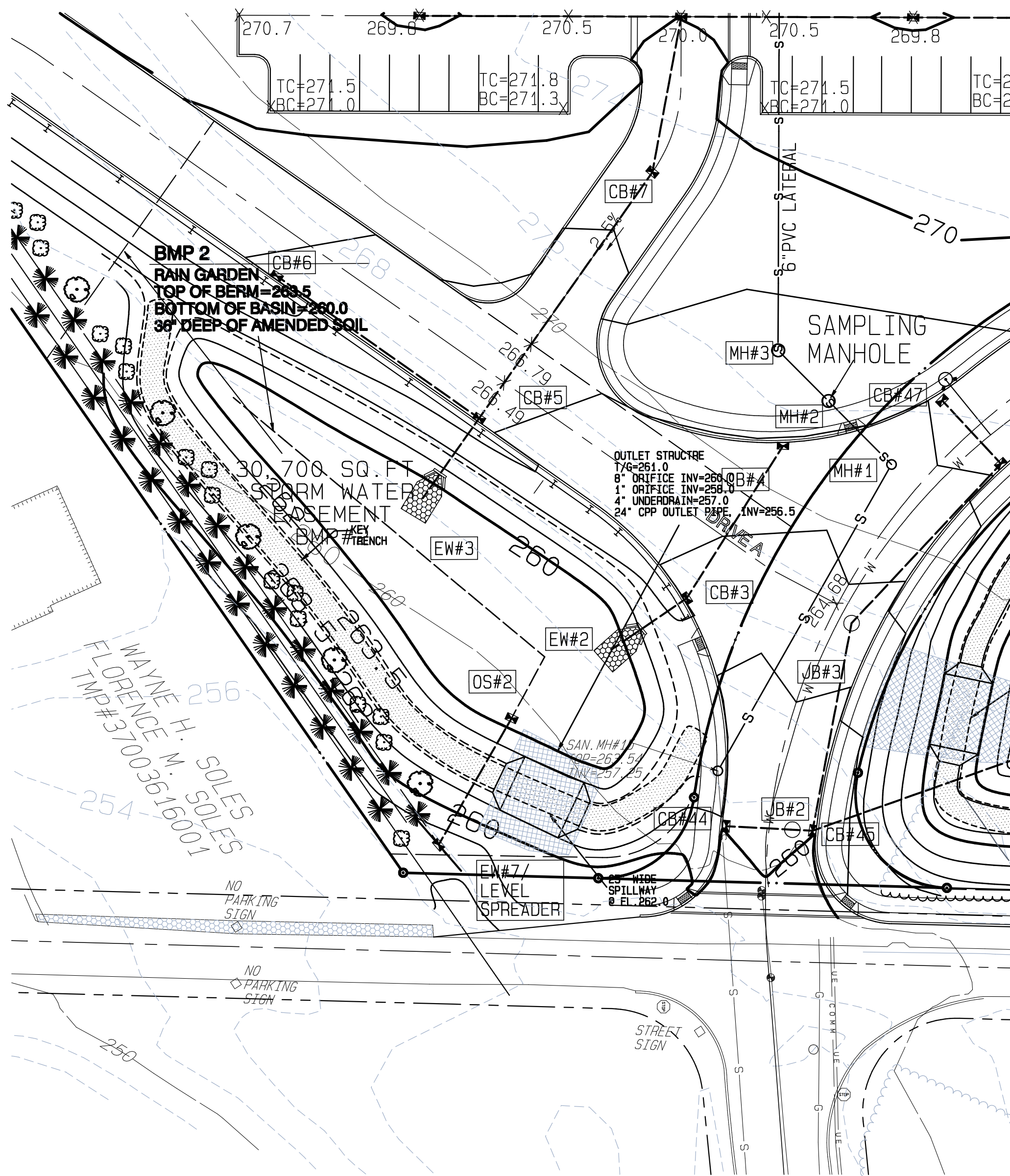
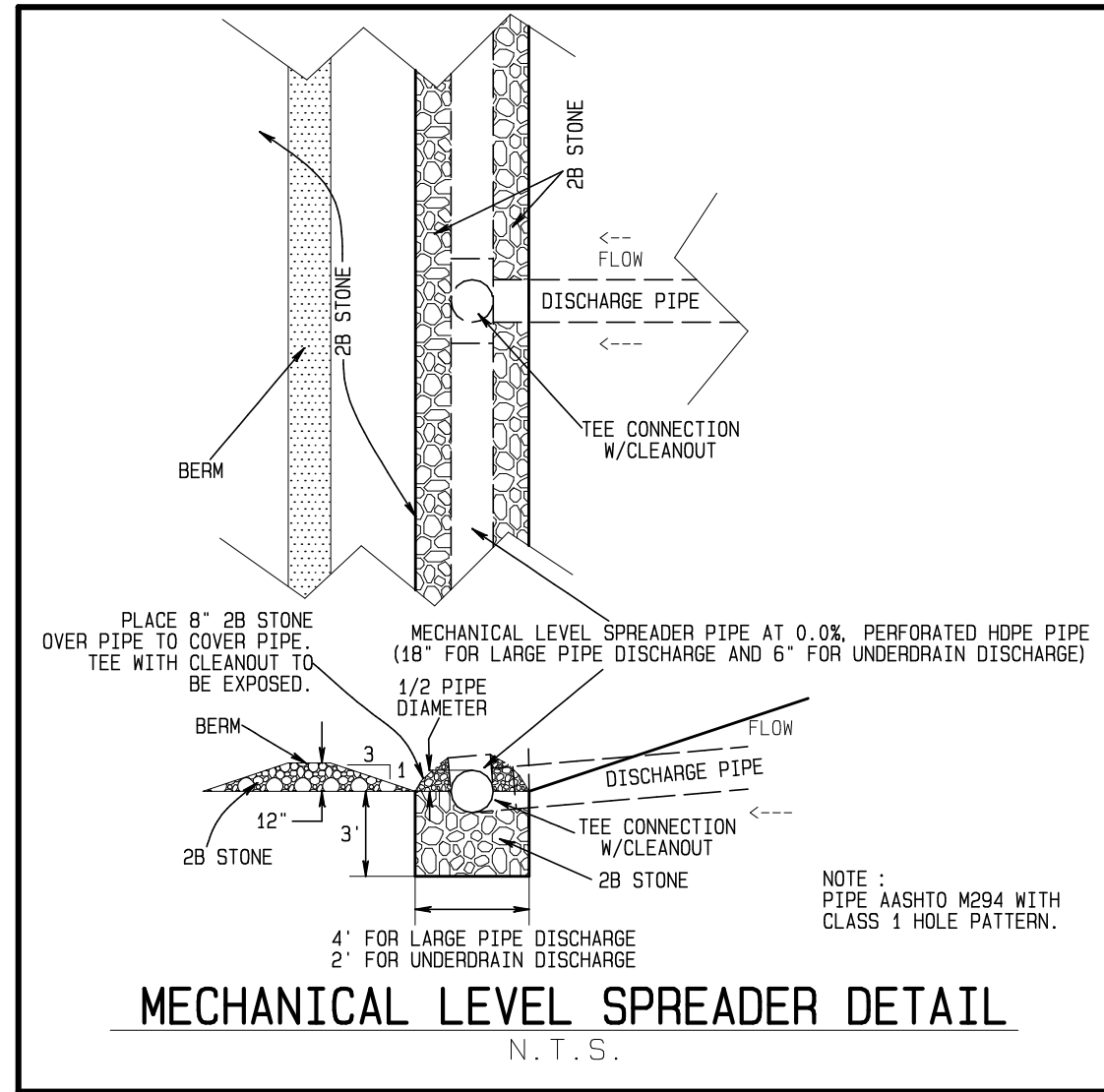


EXISTING TREES

- S—S— = EXIST. SANITARY SEWER LINE
- W—W— = EXIST. STORM SEWER LINE
- W—W— = PROPOSED WATERLINE
- S—S— = PROPOSED SANITARY SEWER LINE
- W—W— = PROPOSED STORM SEWER LINE
- S—L—S— = PROPOSED SANITARY LATERAL
- W—S—W— = PROPOSED WATER SERVICE LINE
- ▨ = PROPOSED CONCRETE PAVING



NAG P300



## FINAL PLAN BMP 2 PLAN

SITUATE IN:  
LIMERICK TOWNSHIP,  
MONTGOMERY COUNTY,  
PENNSYLVANIA

## LINFIELD CORPORATE CENTER: VERUS

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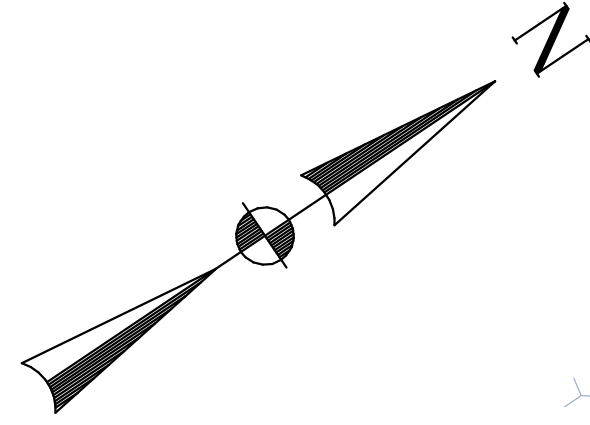
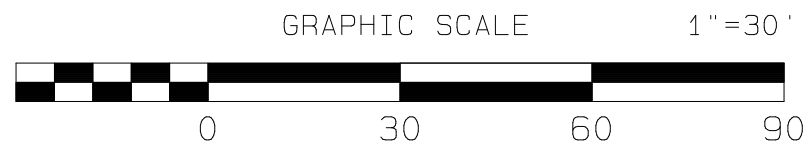
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1"=30'				D-7810321 SHEET 9

NO.	DATE	DESCRIPTION
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#2 TCD	6-3-22	
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REVISION	DATE	DESCRIPTION

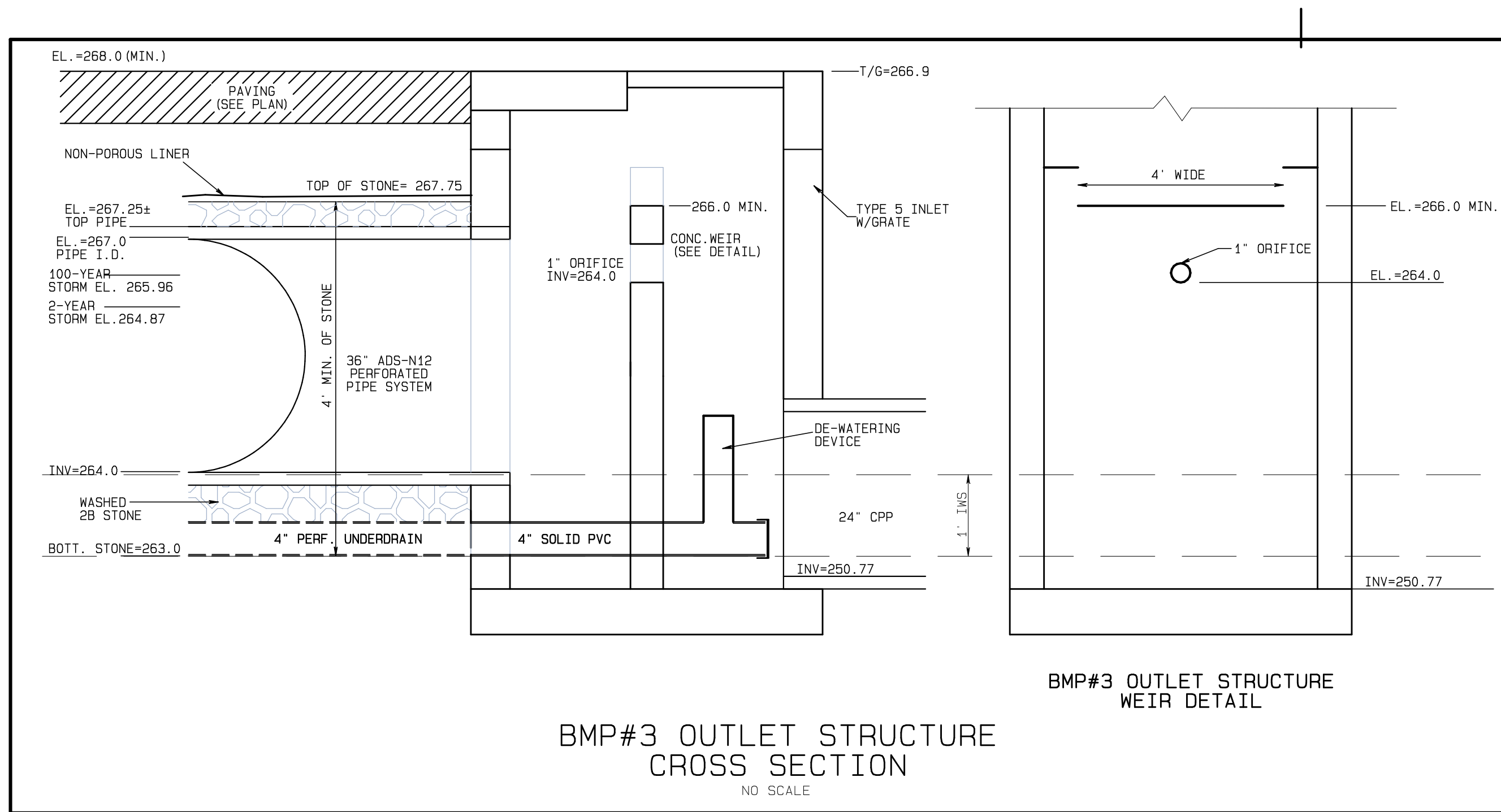
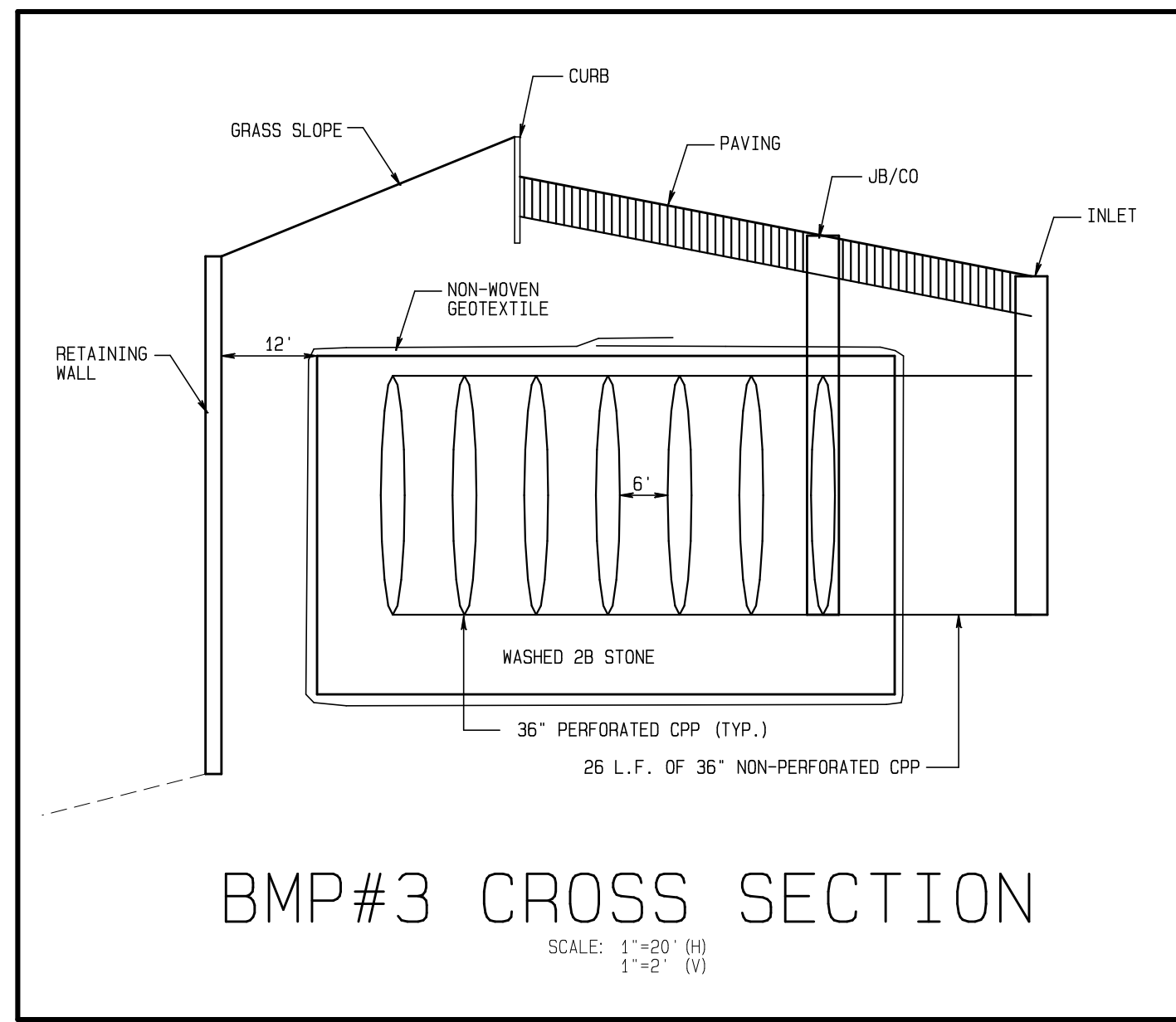
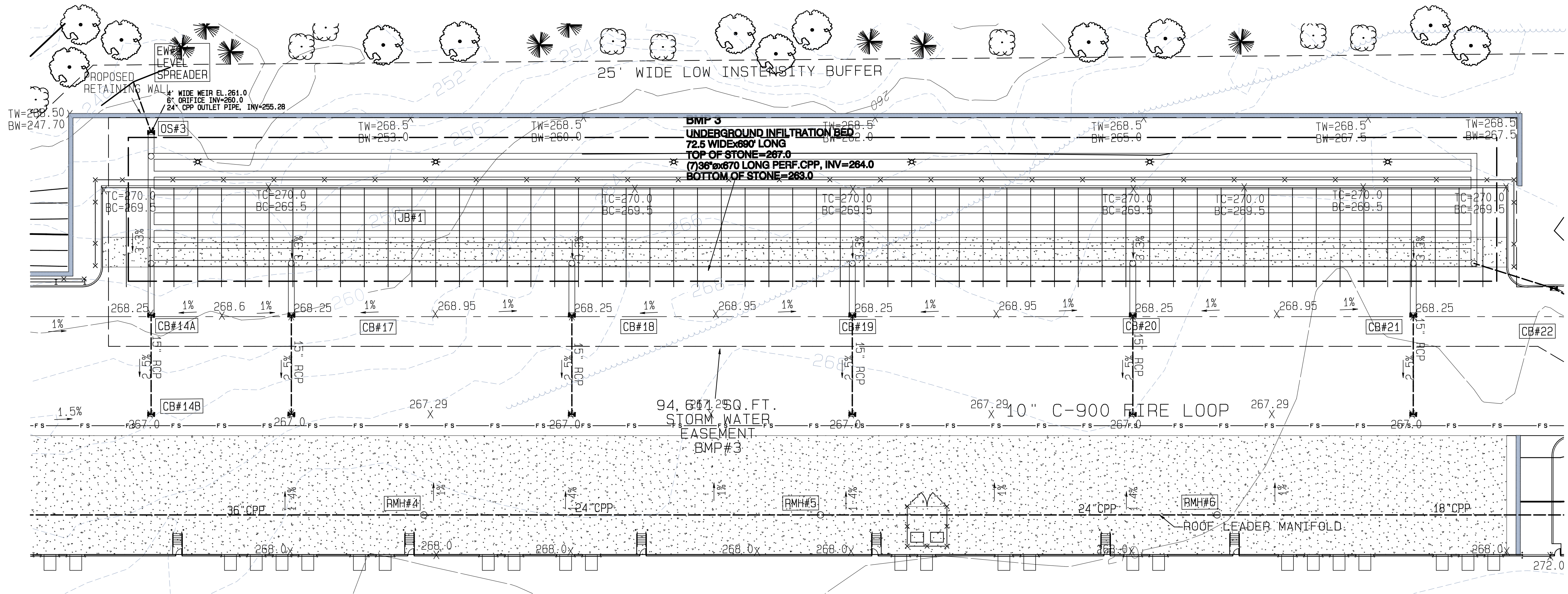




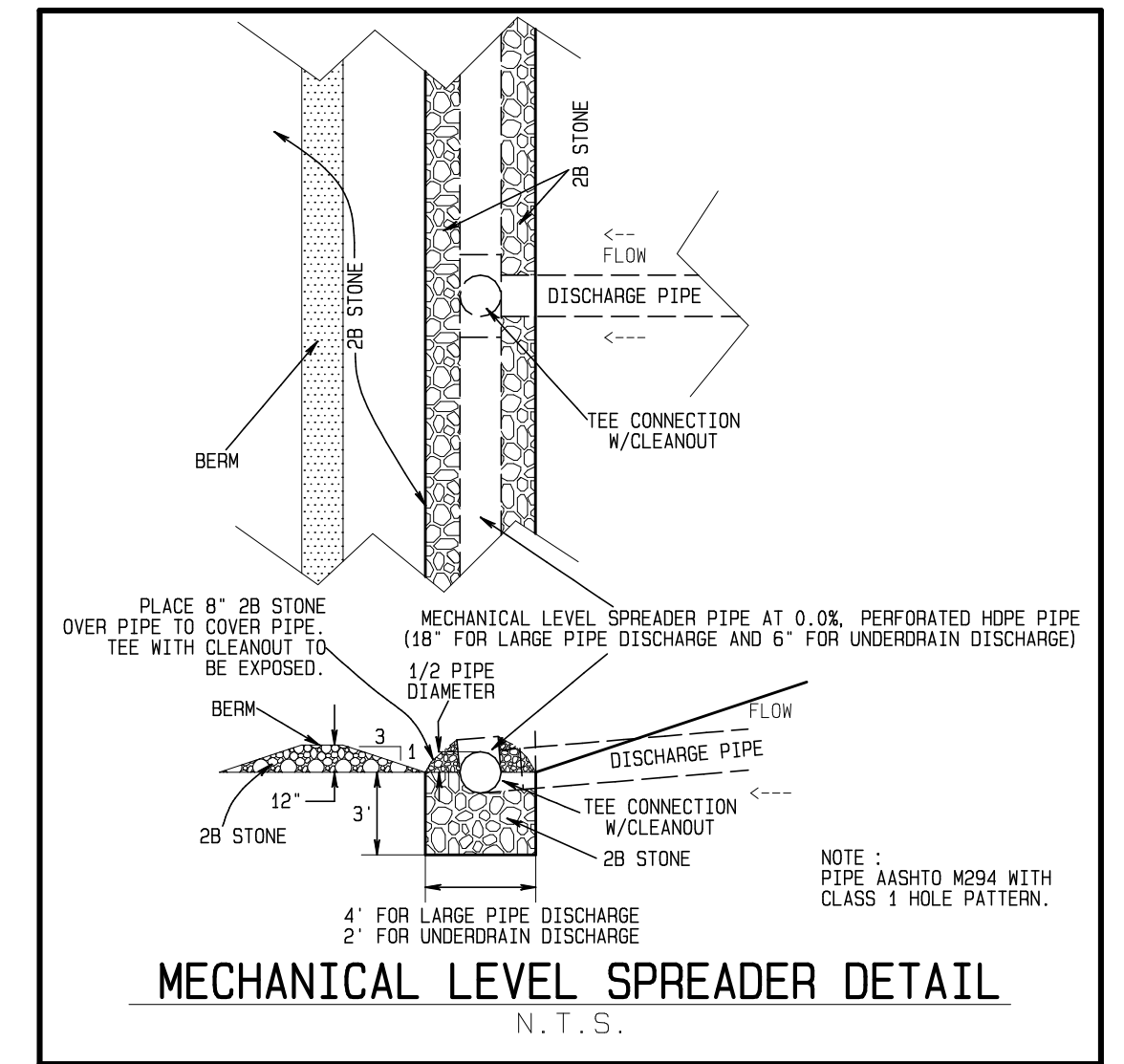
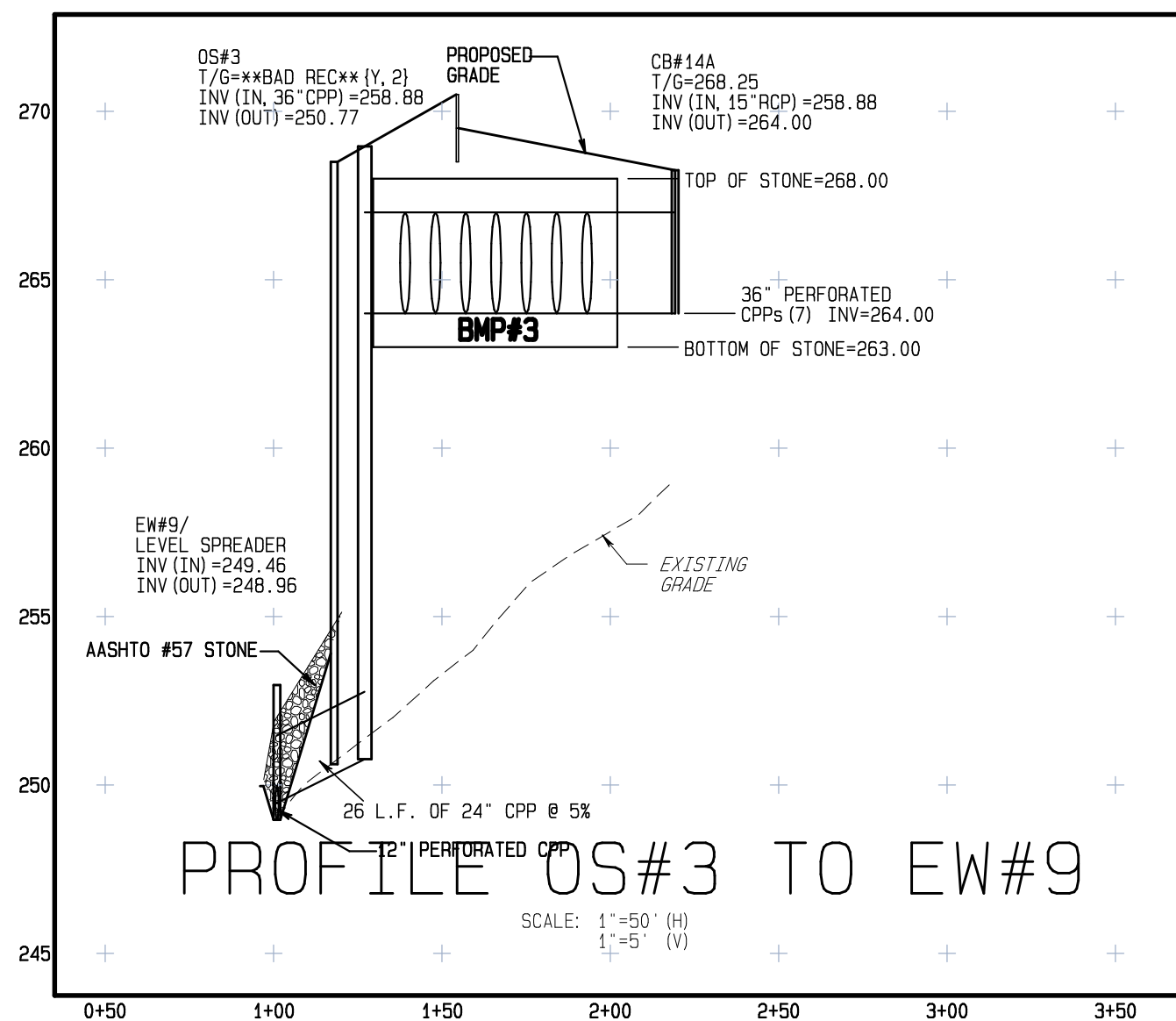
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- EXIST. WELL
- ⊠ CATCH BASIN (C.B.)
- SANITARY OR STORM MANHOLES (AS INDICATED)
- WATER VALVE CAP
- ✕ LIGHT POLE
- ⊕ FIRE HYDRANT
- CLEAN OUT/VENT (C.O.)
- UTILITY POLE W/GUY WIRE
- ⊠ ELECTRIC BOX
- ⊕ GAS VALVE
- ⊕ GAS METER
- ▲ STREET SIGN (AS NOTED)
- EXISTING TREES

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- S-S- = PROPOSED STORM SEWER LINE
- S-L-S-L- = PROPOSED SANITARY LATERAL
- W-S-W-S- = PROPOSED WATER SERVICE LINE
- [Pattern] = PROPOSED CONCRETE PAVING



BMP#3 OUTLET STRUCTURE WEIR DETAIL



## FINAL PLAN BMP 3 PLAN

SITUATE IN:  
LIMERICK TOWNSHIP,  
MONTGOMERY COUNTY,  
PENNSYLVANIA

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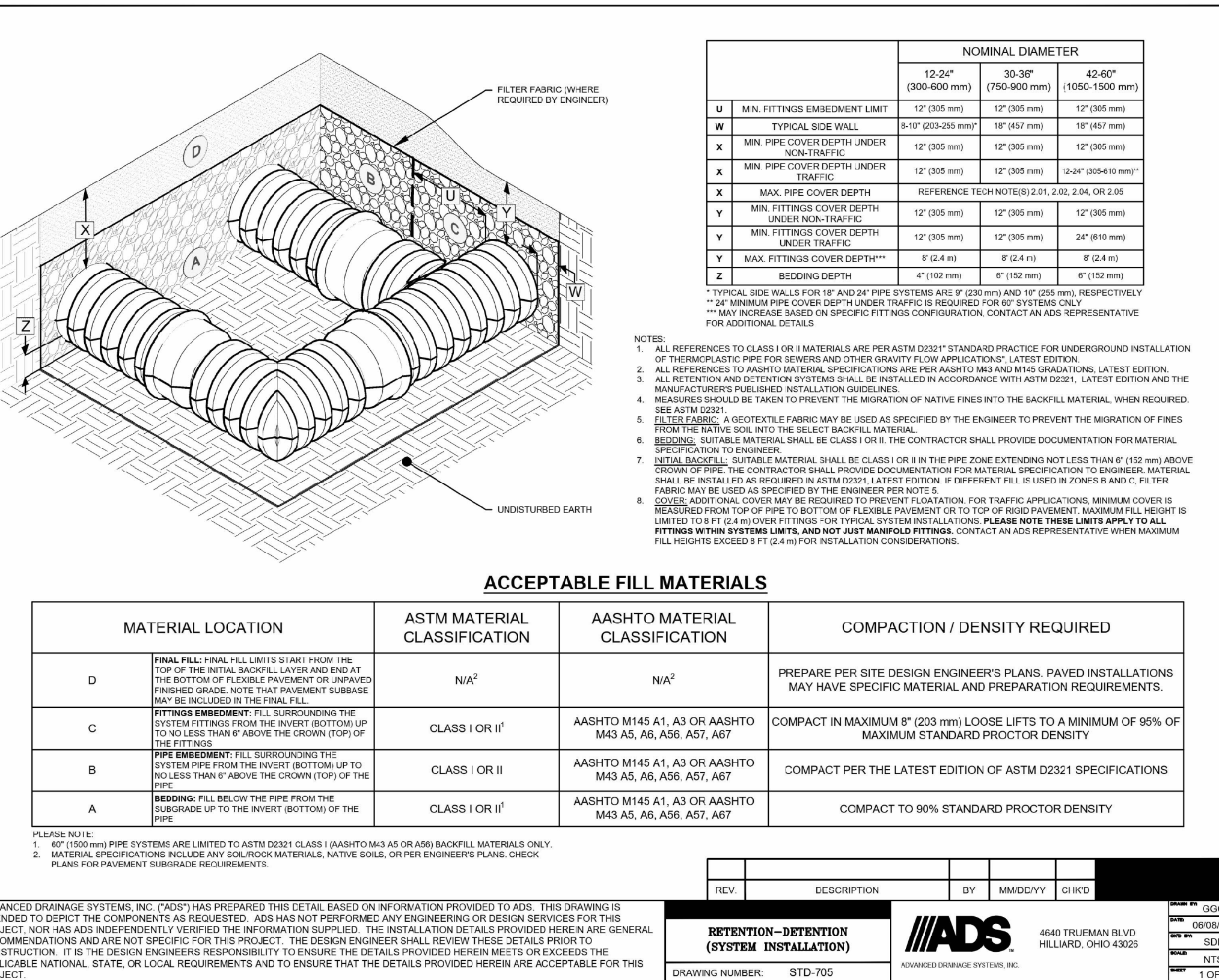
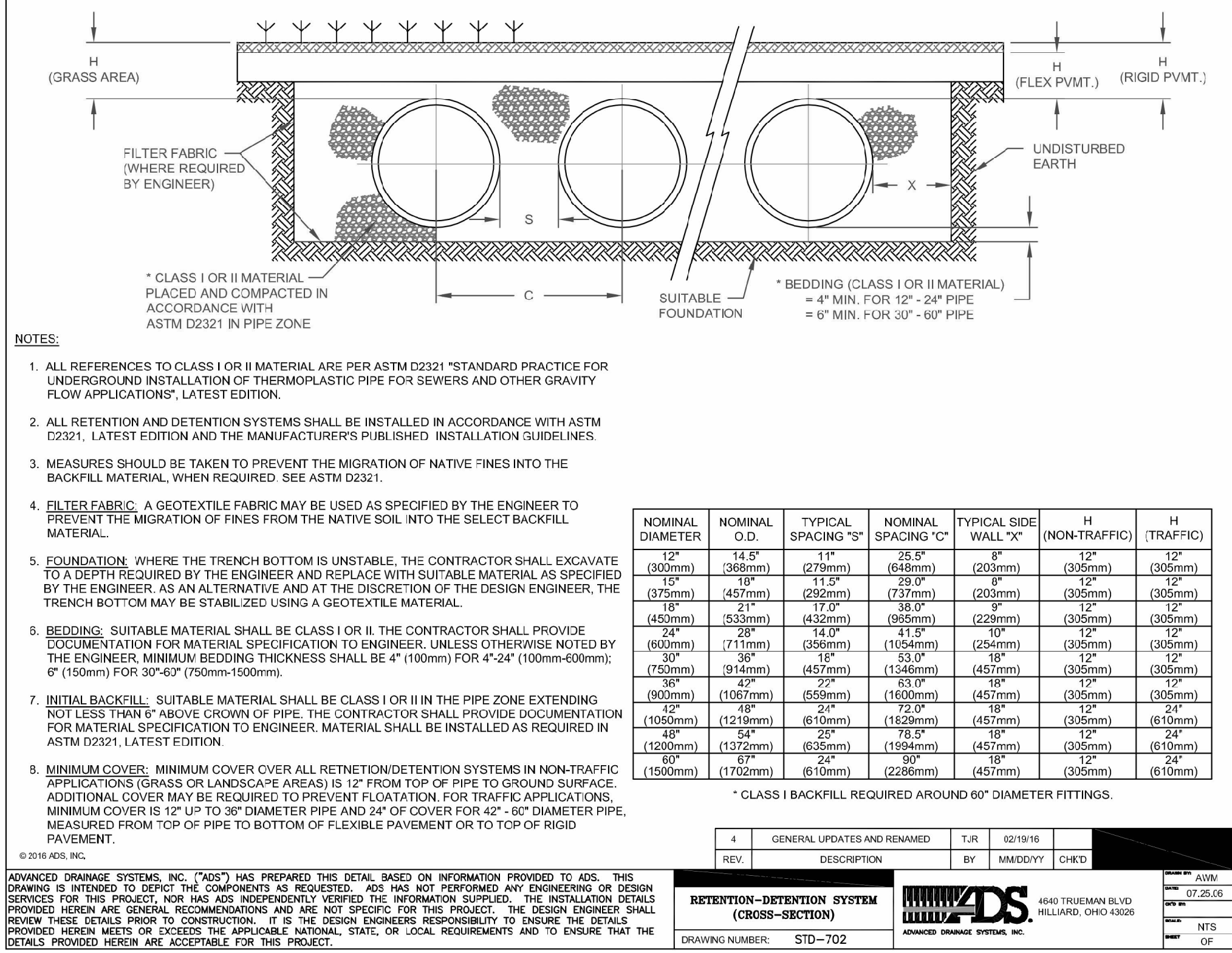
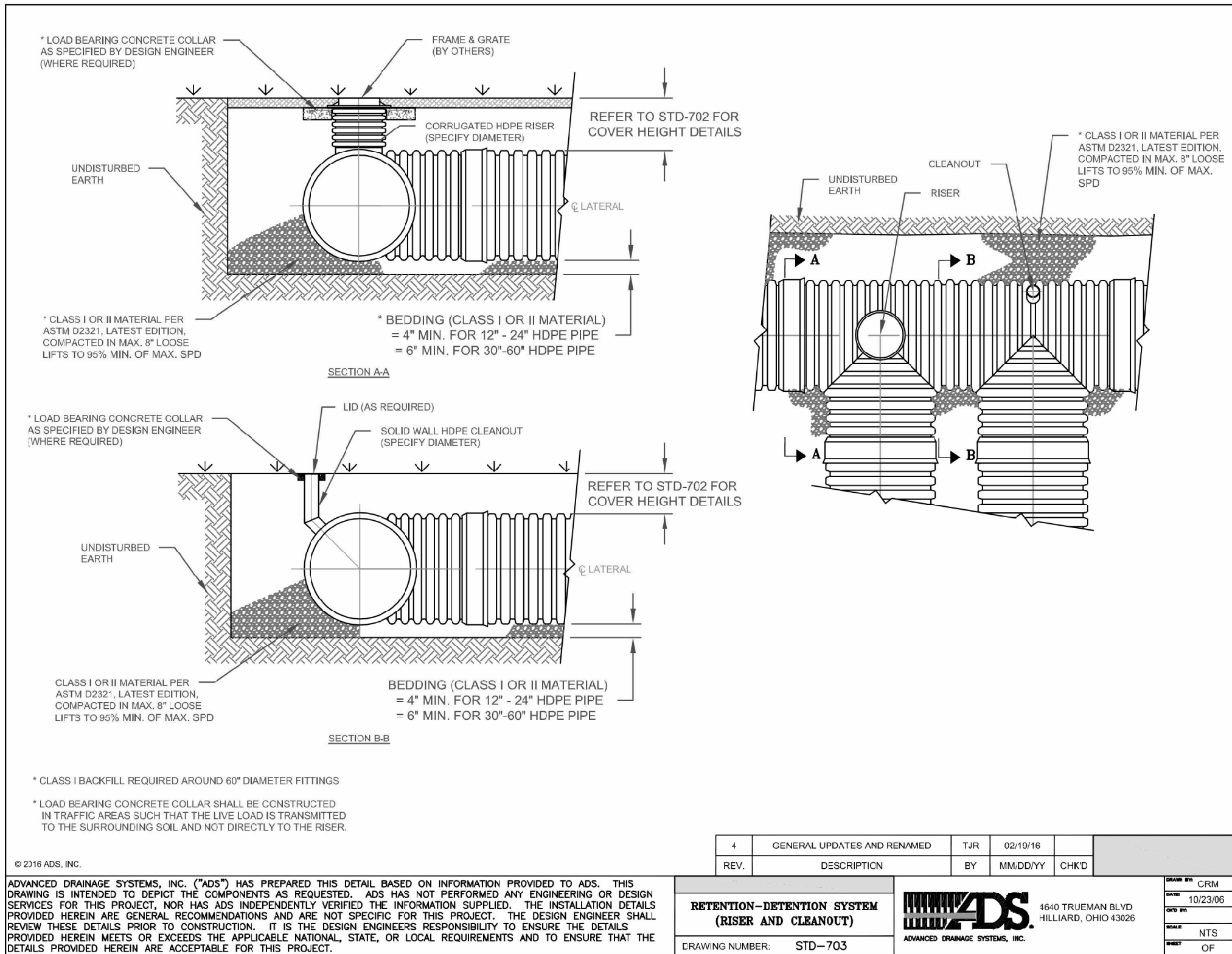
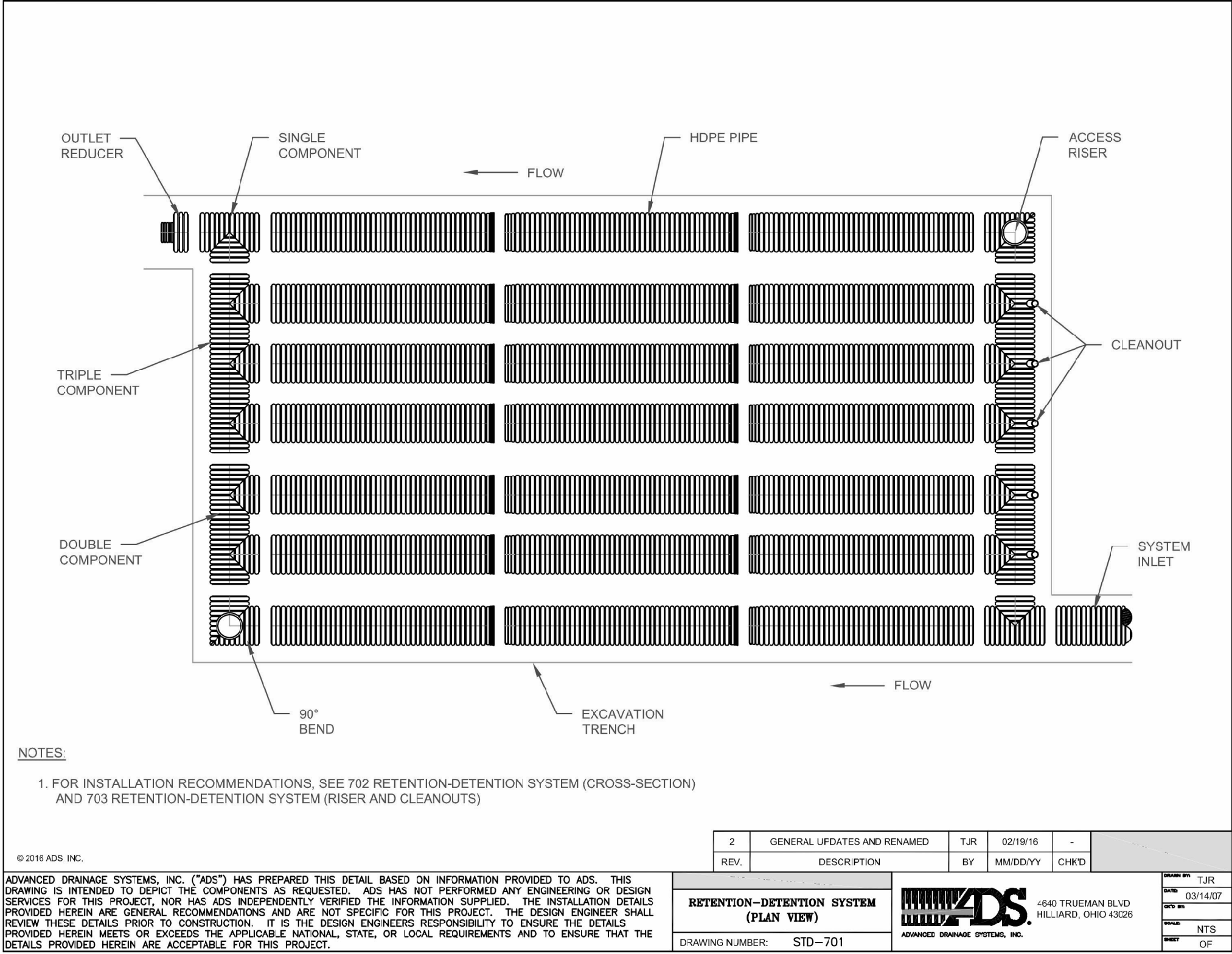
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#3 TCD	6-22-22	
#2 TCD	6-3-22	
#1 TCD	5-3-22	





# FINAL PLAN BMP 3 PLAN

SITUATE IN:  
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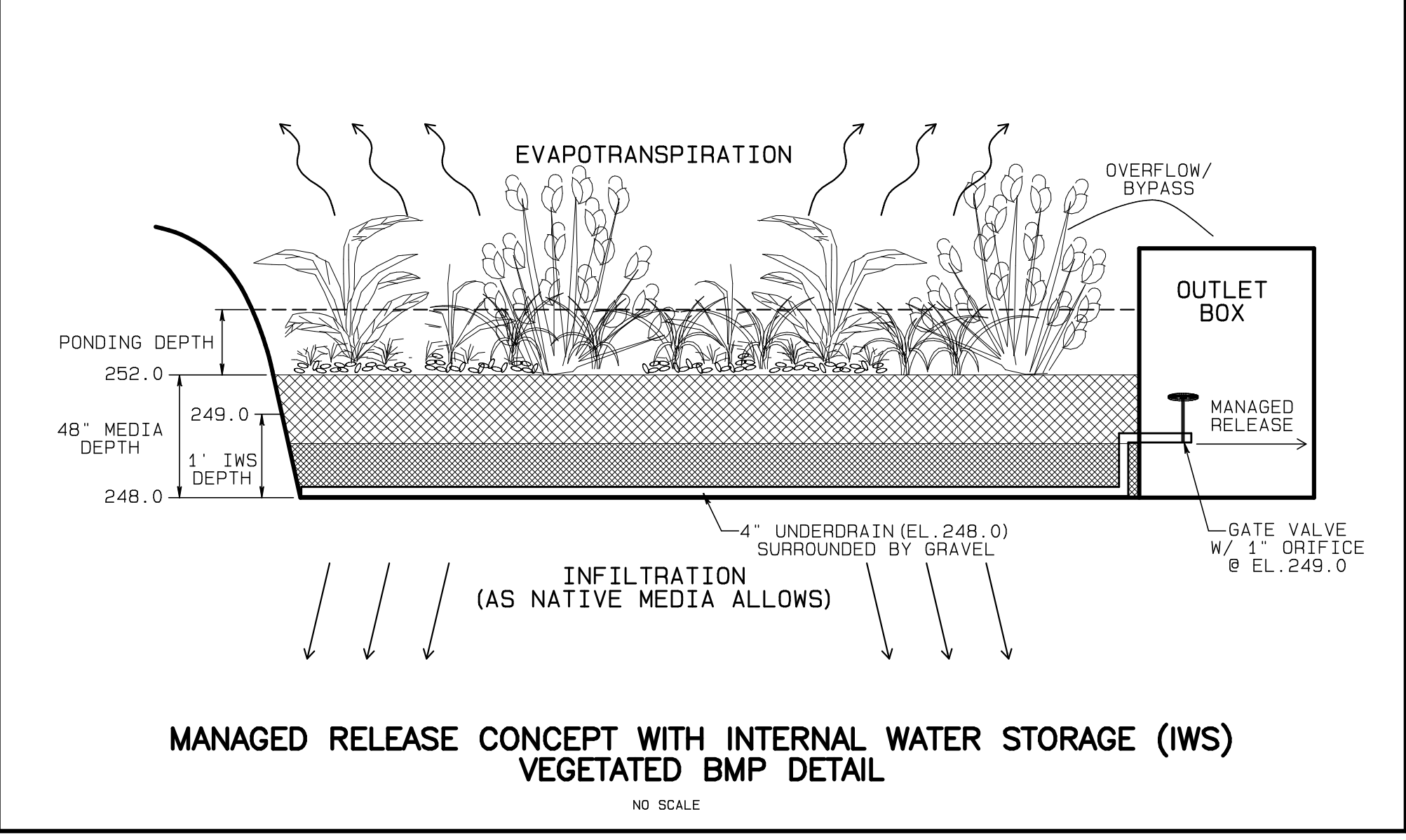
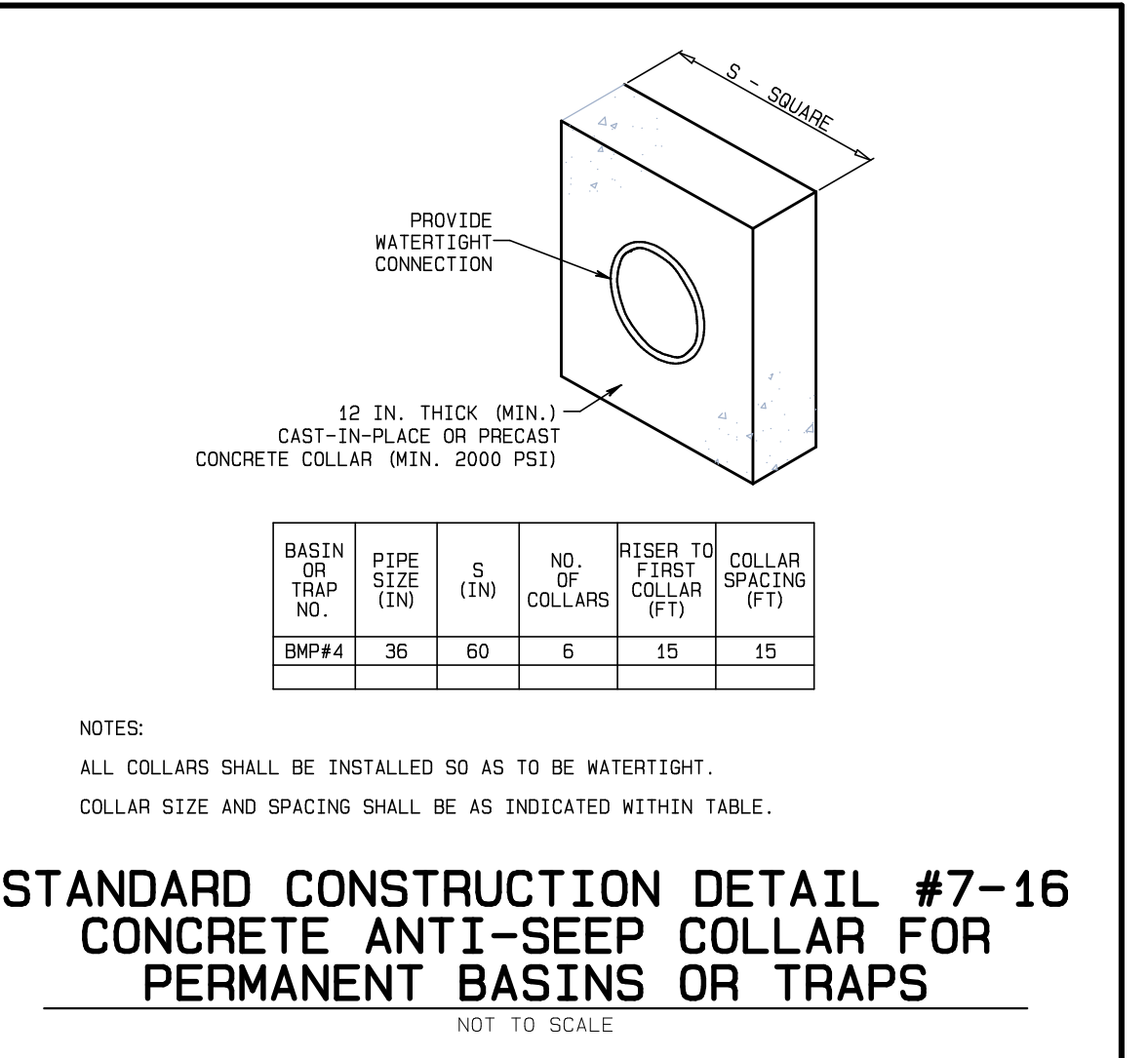
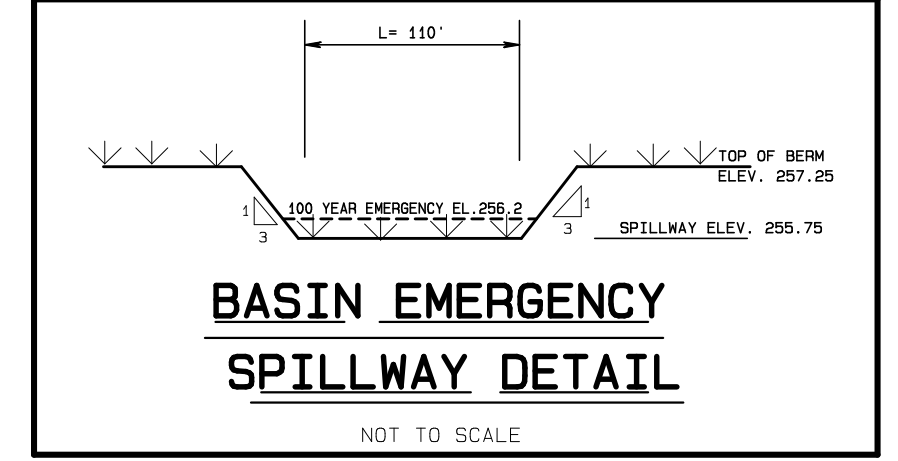
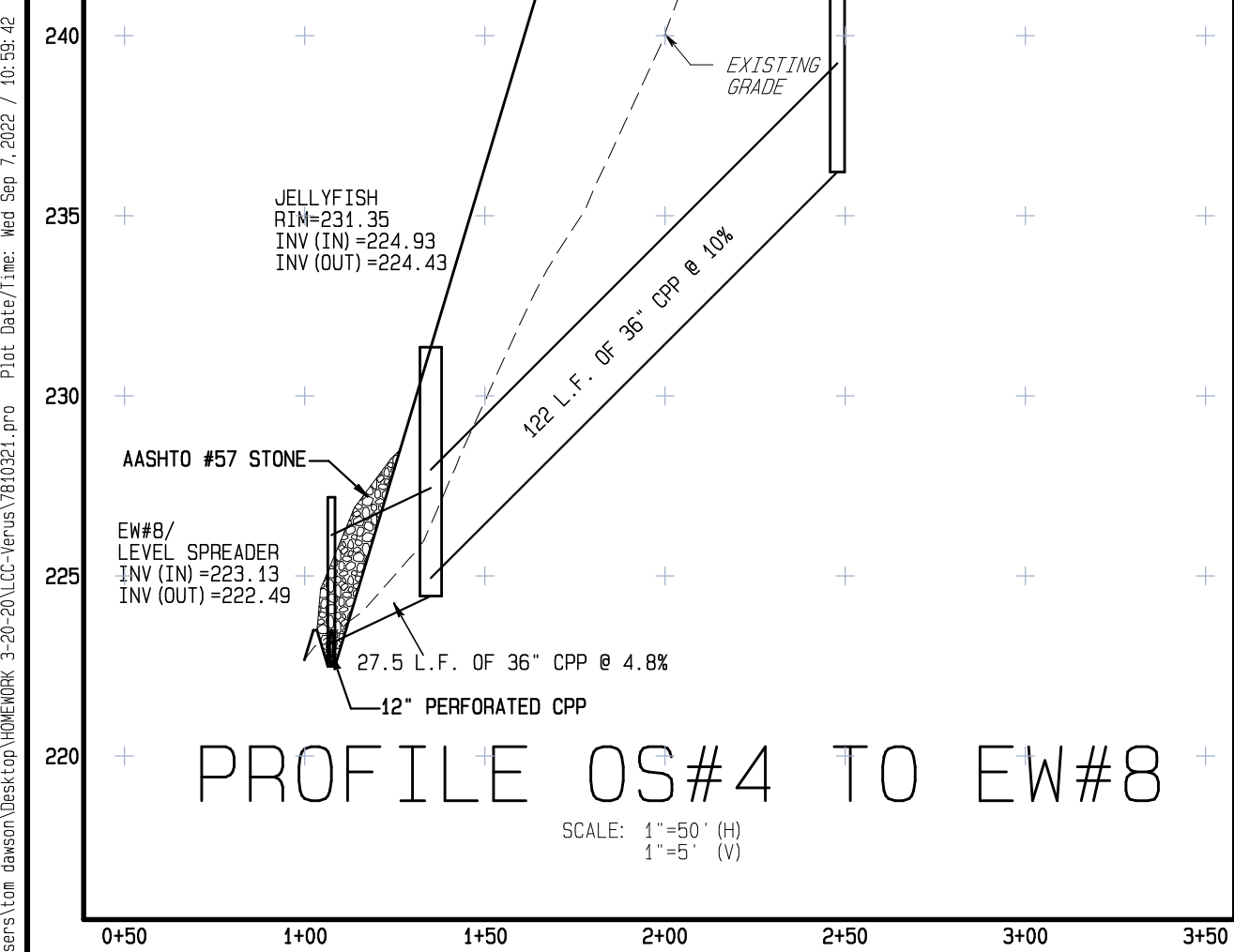
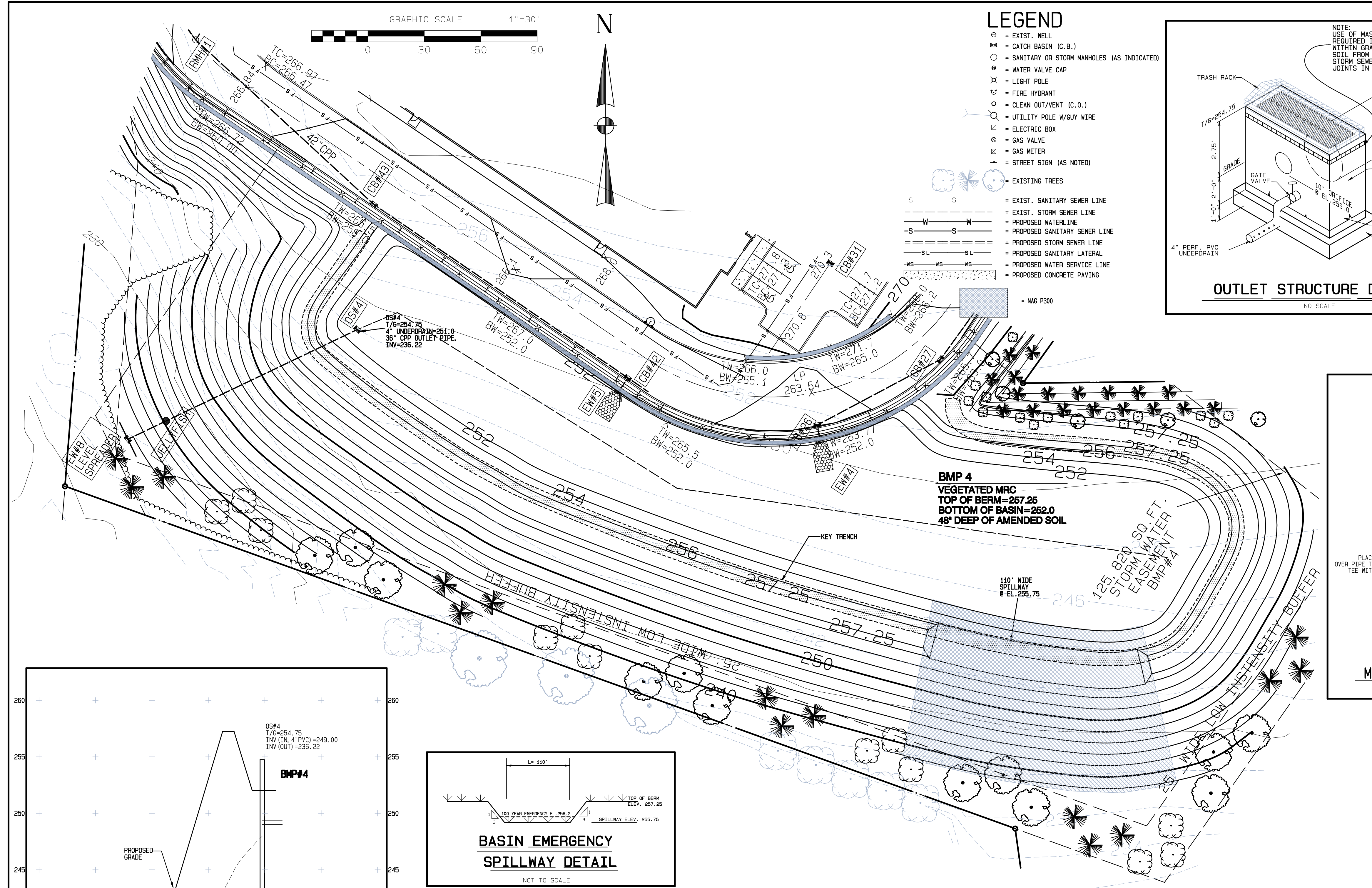
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12-21-21  
SCALE  
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D-7810321  
COMP (LOT)  
TCD  
DRAWING NUMBER  
SHEET 10B  
PA ONE  
CALL DATE  
COMPUTER FILE  
C:\Users\ton dawson\Desktop\BMP3 PLAN

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#3	TCD	6-22-22	
#2	TCD	6-3-22	
#1	TCD	5-3-22	
REVISION			





FINAL PLAN BMP 4 PLAN

SITUATE IN: LIMERICK TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

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Ludgate Engineering Corporation

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COMP (BNG) 12-21-21 TAX MAP PARCEL

PA ONE CALL DATE

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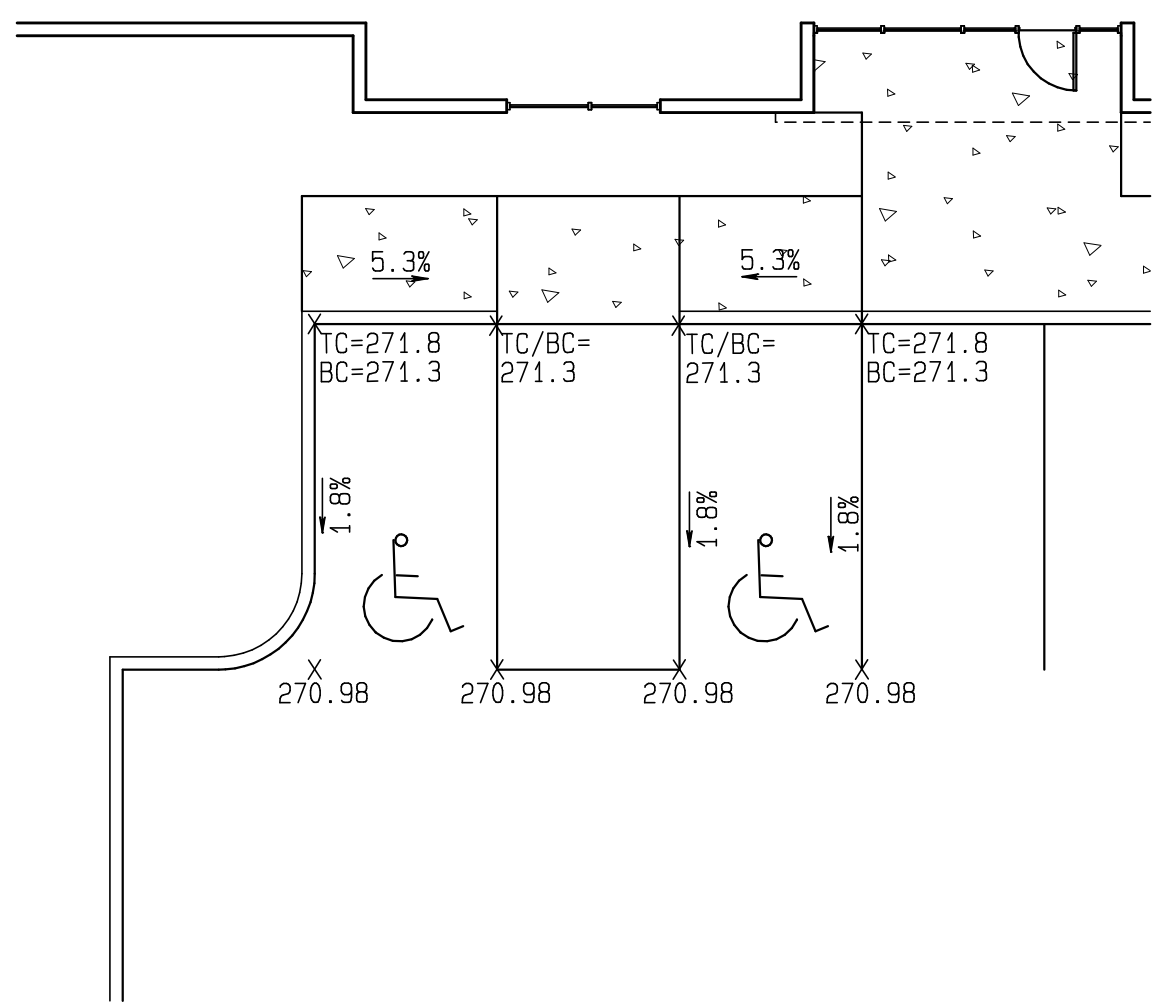
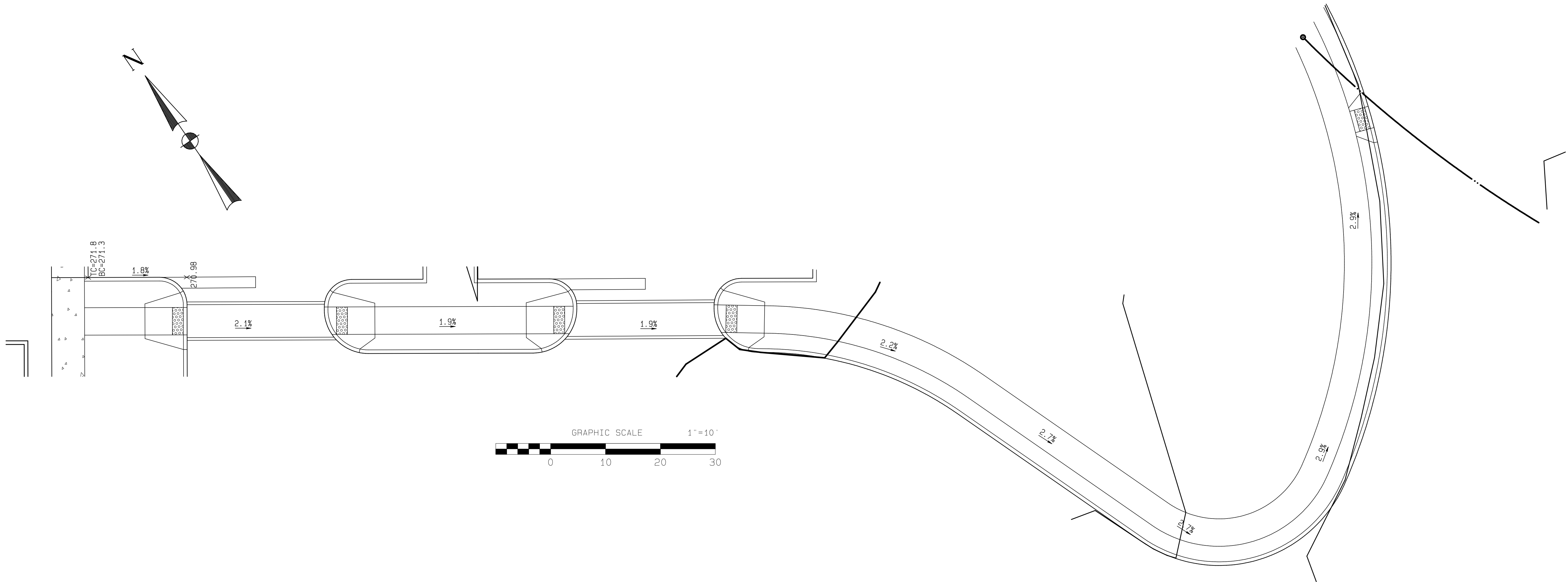
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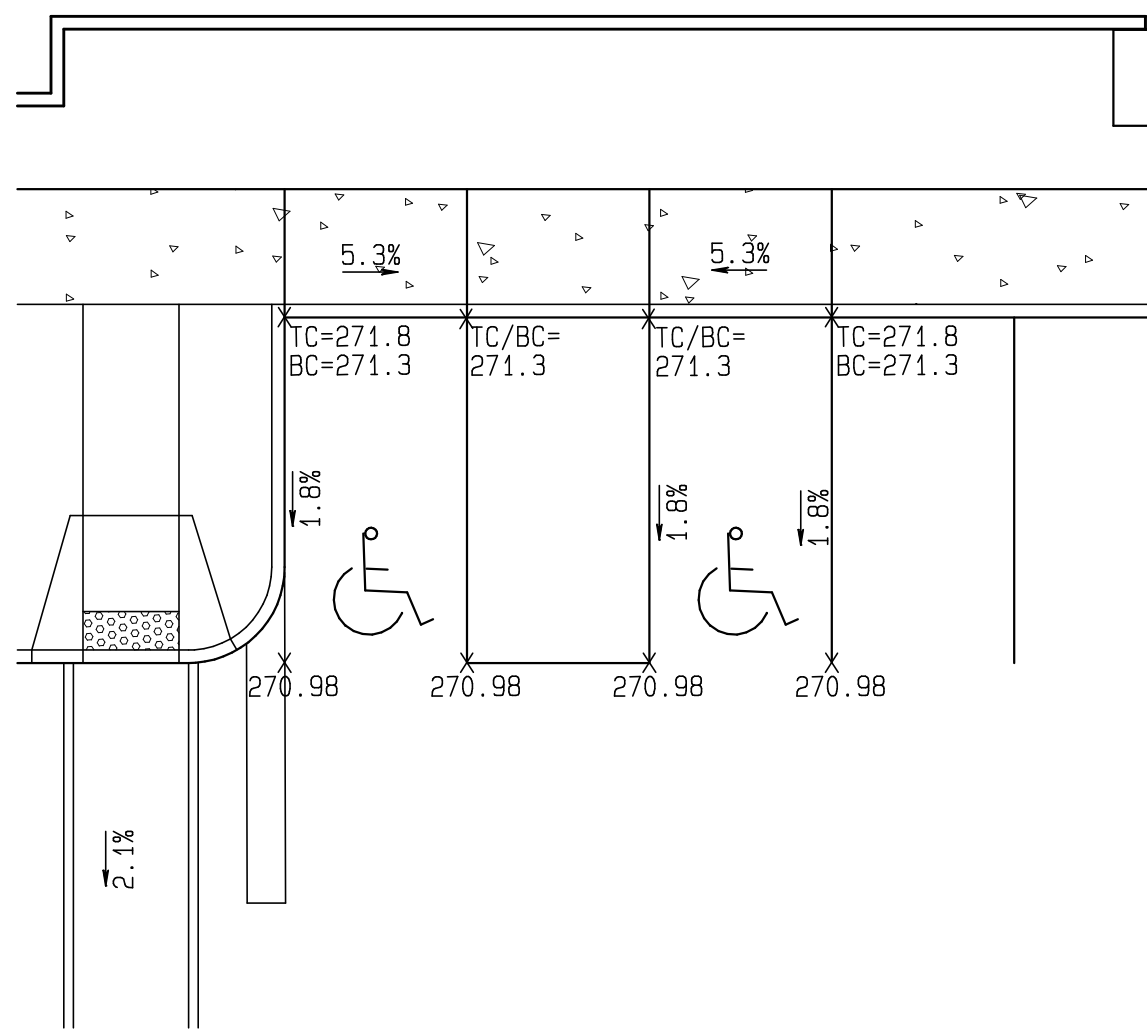


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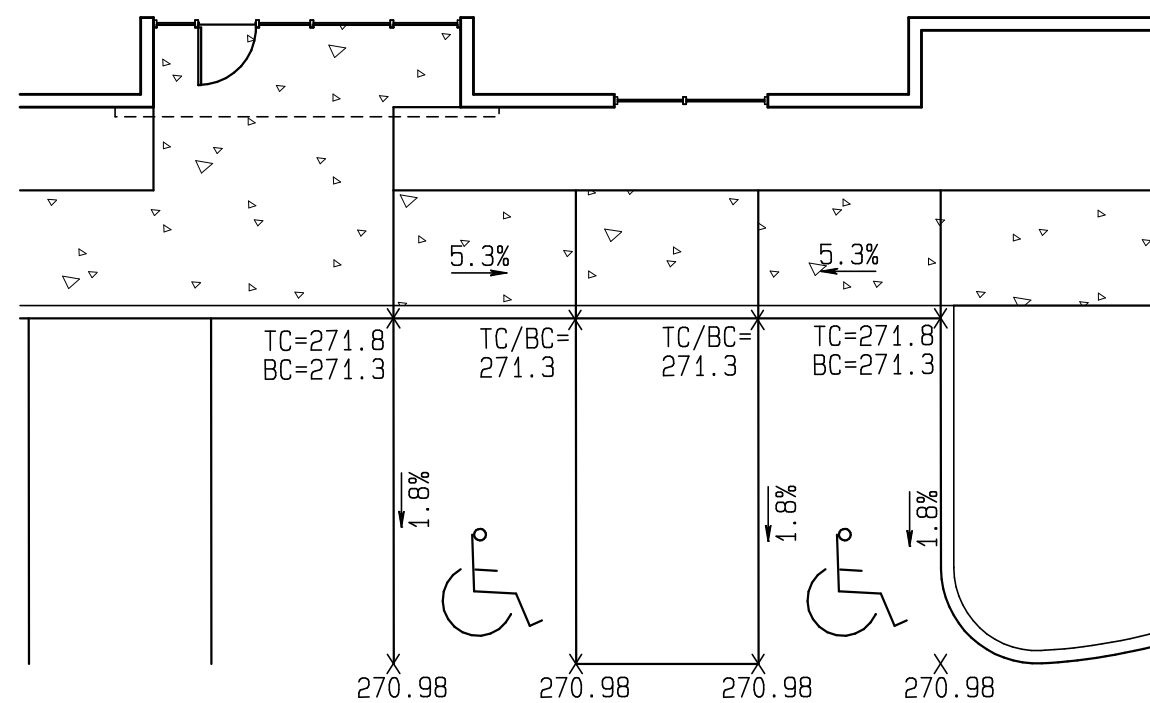
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- ⊞ = CATCH BASIN (C.B.)
- = SANITARY OR STORM MANHOLES (AS INDICATED)
- ⊙ = WATER VALVE CAP
- ✱ = LIGHT POLE
- ⊕ = FIRE HYDRANT
- = CLEAN OUT/VENT (C.O.)
- ⊕ = UTILITY POLE W/GUY WIRE
- ⊞ = ELECTRIC BOX
- ⊙ = GAS VALVE
- ⊞ = GAS METER
- ⊕ = STREET SIGN (AS NOTED)
- ⊙ = EXISTING TREES
- S- -S- = EXIST. SANITARY SEWER LINE
- W- -W- = EXIST. STORM SEWER LINE
- S- -S- = PROPOSED WATERLINE
- S- -S- = PROPOSED SANITARY SEWER LINE
- S- -S- = PROPOSED STORM SEWER LINE
- SL- -SL- = PROPOSED SANITARY LATERAL
- WS- -WS- = PROPOSED WATER SERVICE LINE
- ▨ = PROPOSED CONCRETE PAVING



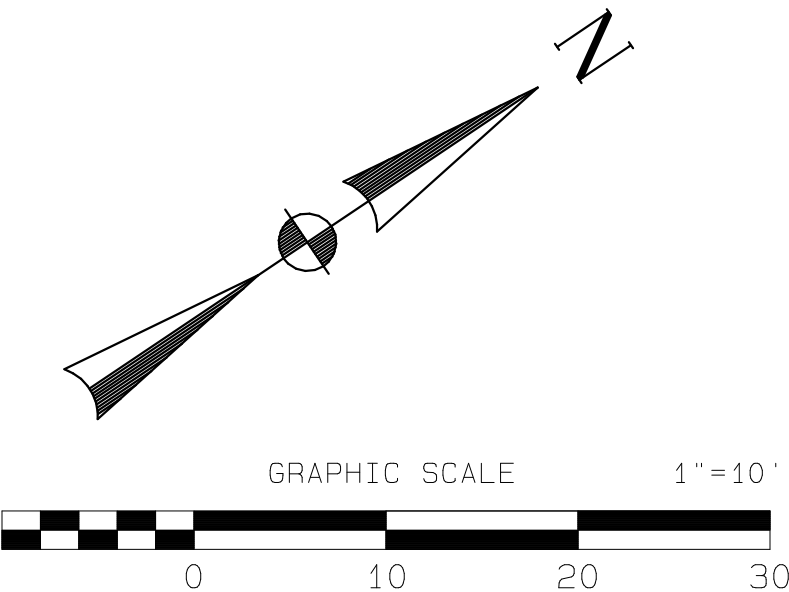
ADA PARKING AREA A



ADA PARKING AREA B



ADA PARKING AREA C



FINAL PLAN  
ADA PARKING GRADING

SITUATE IN:  
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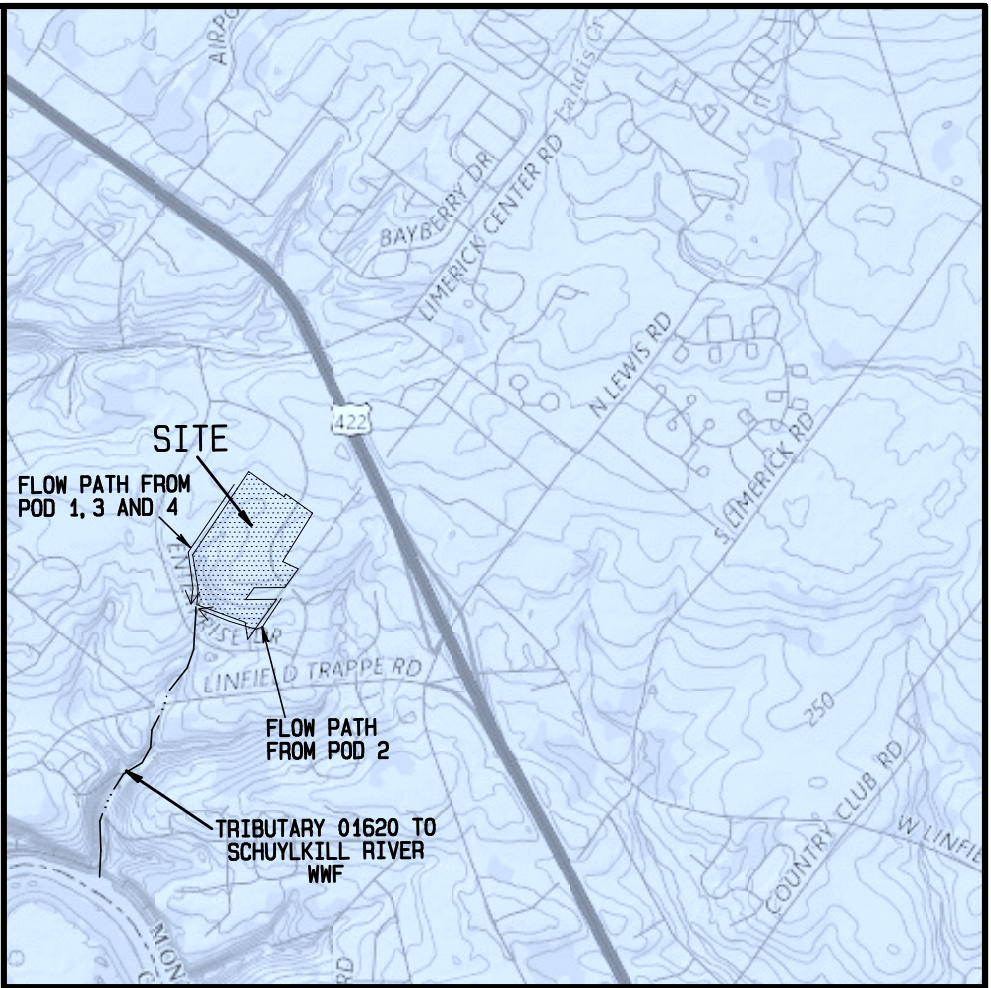
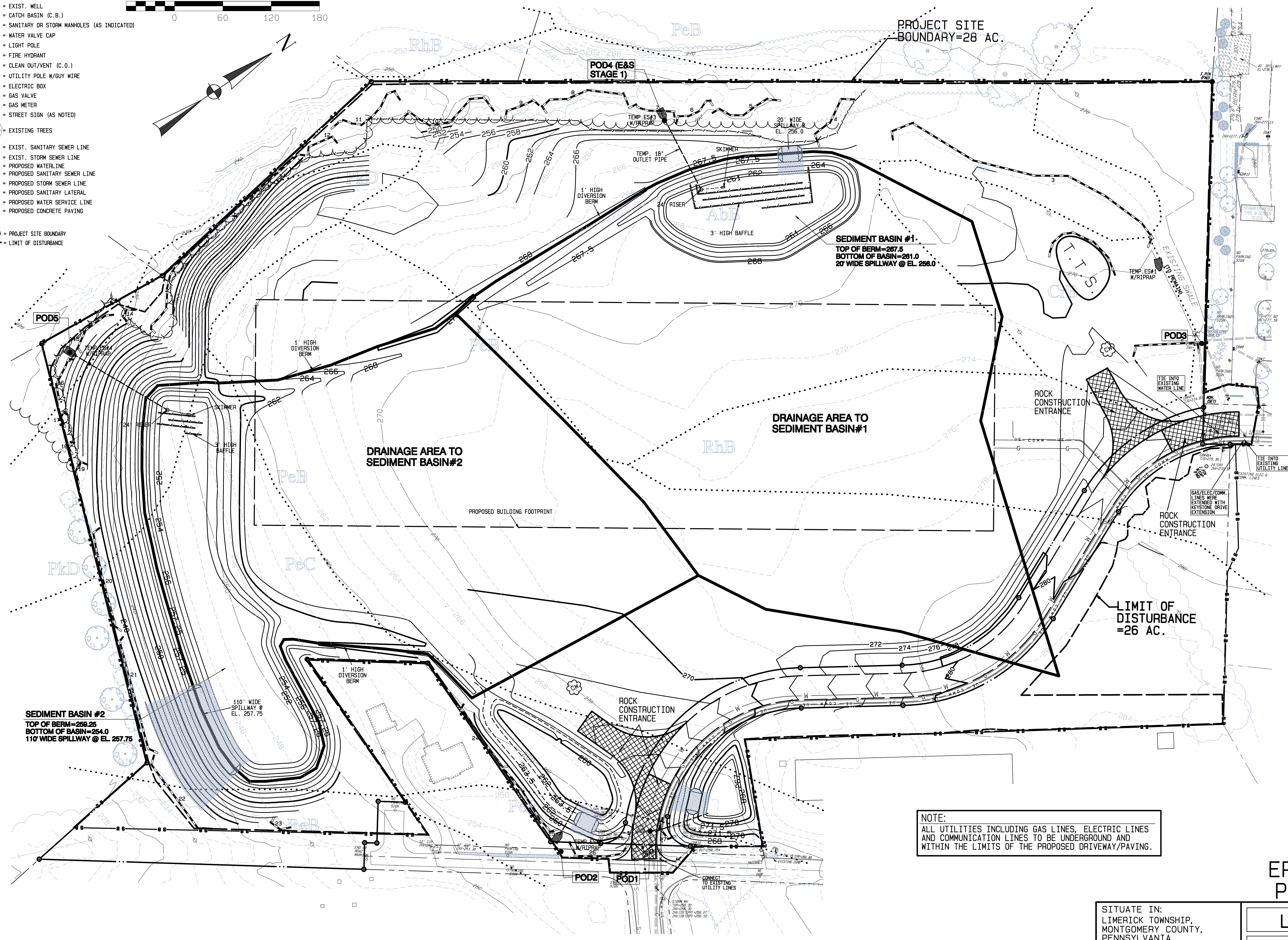
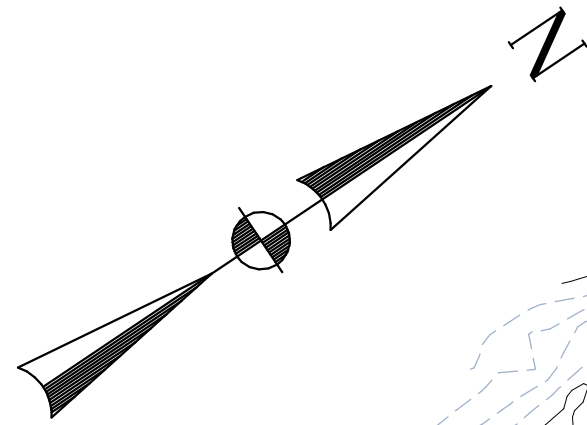
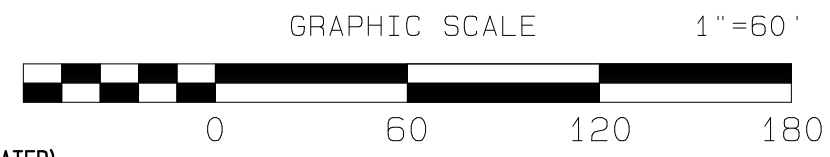
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12-21-21				
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1"=10'				D-7810321 SHEET 12

REVISION	DATE	DESCRIPTION
#4 TCD	9-7-22	
#3 TCD	6-22-22	
#2 TCD	6-3-22	
#1 TCD	5-3-22	



LEGEND

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- S—S— = PROPOSED SANITARY SEWER LINE
- SL—SL— = PROPOSED STORM SEWER LINE
- WS—WS— = PROPOSED SANITARY LATERAL
- WS—WS— = PROPOSED WATER SERVICE LINE
- = PROPOSED CONCRETE PAVING
- = PROJECT SITE BOUNDARY
- = LIMIT OF DISTURBANCE



LOCATION MAP SCALE: 1"=2,000'

SOIL CLASSIFICATION:

The soils on site are:

- AbB - Abbotstown silt loam, 3 to 8 percent slopes
- CrB - Croton silt loam, occasionally ponded, 3 to 8 percent slopes
- PeB - Penn silt loam, 3 to 8 percent slopes
- PcC - Penn silt loam, 8 to 15 percent slopes
- PkD - Penn-Klinesville clayey silt loam, 15 to 25 percent slopes
- RhB - Reaville silt loam, 3 to 8 percent slopes

SOIL LIMITATIONS	SOIL RESOLUTIONS	AbB	CrB	PeB	PcC	PkD	RhB
Cutbanks Cave	Layback slopes - follow OSHA rules for safety	x	x	x	x	x	x
Corrosive to Concrete/Steel	Corrosive resistant concrete - protective barrier between water and the steel - galvanized steel	C/S	C/S	C	C	C/S	C/S
Droughty	Compost mix to hold in moisture	x	x	x	x	x	x
Easily Erodeable	Maintain erosion control BMPs	x	x	x	x	x	x
Flooding	Avoid work in flood areas						
Depth to Saturated Zone/Seasonal High Water Table	Pumped water filter, footer drains	x	x				x
Hydrolytic Inclusions	Avoidance, pumped water filter bags, trench plugs	x	x	x	x	x	x
Low Strength/Landslide Prone	Layback slopes/design for conditions	x	x	x	x	x	x
Slow Percolation	Drainage ditch, pumped water filter bag	x	x				x
Piping	Trench plugs	x	x	x	x	x	x
Poor Source of Topsoil	Avoid reuse as topsoil or amend as necessary	x	x	x	x	x	x
Frost Action	Construct below frost depths/positive subgrade	x	x	x	x	x	x
Shrink-Swell	Provide positive drainage						
Potential Sinkhole	Design for conditions - drainage trenches, pumped water filter bag, sump pumps, footer drains		x				
Ponding	Design for conditions - drainage trenches, pumped water filter bag, sump pumps, footer drains		x				
Wetness	Trench plugs	x	x				x

Soil Limitations

Cutbanks Cave - Layback slopes - follow OSHA rules for safety

Corrosive to Concrete/Steel - use Corrosive resistant concrete - protective barrier between water and the steel - galvanized steel

Droughty - Compost mix to hold in moisture

Easily Erodeable - Maintain erosion control BMPs

Hydrolytic Inclusions - Avoidance, pumped water filter bags, trench plugs

Low Strength/Landslide Prone - Layback slopes/design for conditions

Slow Percolation - Drainage ditch, pumped water filter bag

Piping - Trench plugs

Poor Source of Topsoil - Avoid reuse as topsoil or amend as necessary

Shrink-Swell - Avoid use of clay soils in building areas

Potential Sinkhole - Sinkhole mitigation techniques

Ponding - Provide positive drainage

Flooding - Avoid work in flood areas

Depth to Saturated Zone/Seasonal High Water Table - Pumped water filter, footer drains

Frost Action - Construct below frost depths/positive subgrade

Site falls within a Karst area and could have the potential for sinkholes - Licensed professional to prepare plan to restore and/or avoid area

Geologic/soil conditions addressed. Potential for geologic or soil conditions to cause pollution during construction identified.

There are no known naturally occurring geologic formations or soil conditions that may have the potential to cause pollution during earth disturbance activities. Should any conditions be discovered during construction, the design engineer, the township and local Conservation District shall be notified immediately.

E&S LEGEND

- = COMPOST FILTER SOCK
- = LIMIT OF DISTURBANCE
- = ORANGE CONSTRUCTION FENCE
- ⊗ = CONSTRUCTION SITE ENTRANCE
- ⊗ = T.T.S. = TEMPORARY TOPSOIL STOCKPILE
- ⊗ = CONCRETE WASHOUT
- ⊗ = BAFFLE
- ⊗ = INLET PROTECTION

STAGE 1  
EROSION & SEDIMENTATION  
POLLUTION CONTROL PLAN

SITUATE IN:  
LIMERICK TOWNSHIP,  
MONTGOMERY COUNTY,  
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CALL DATE

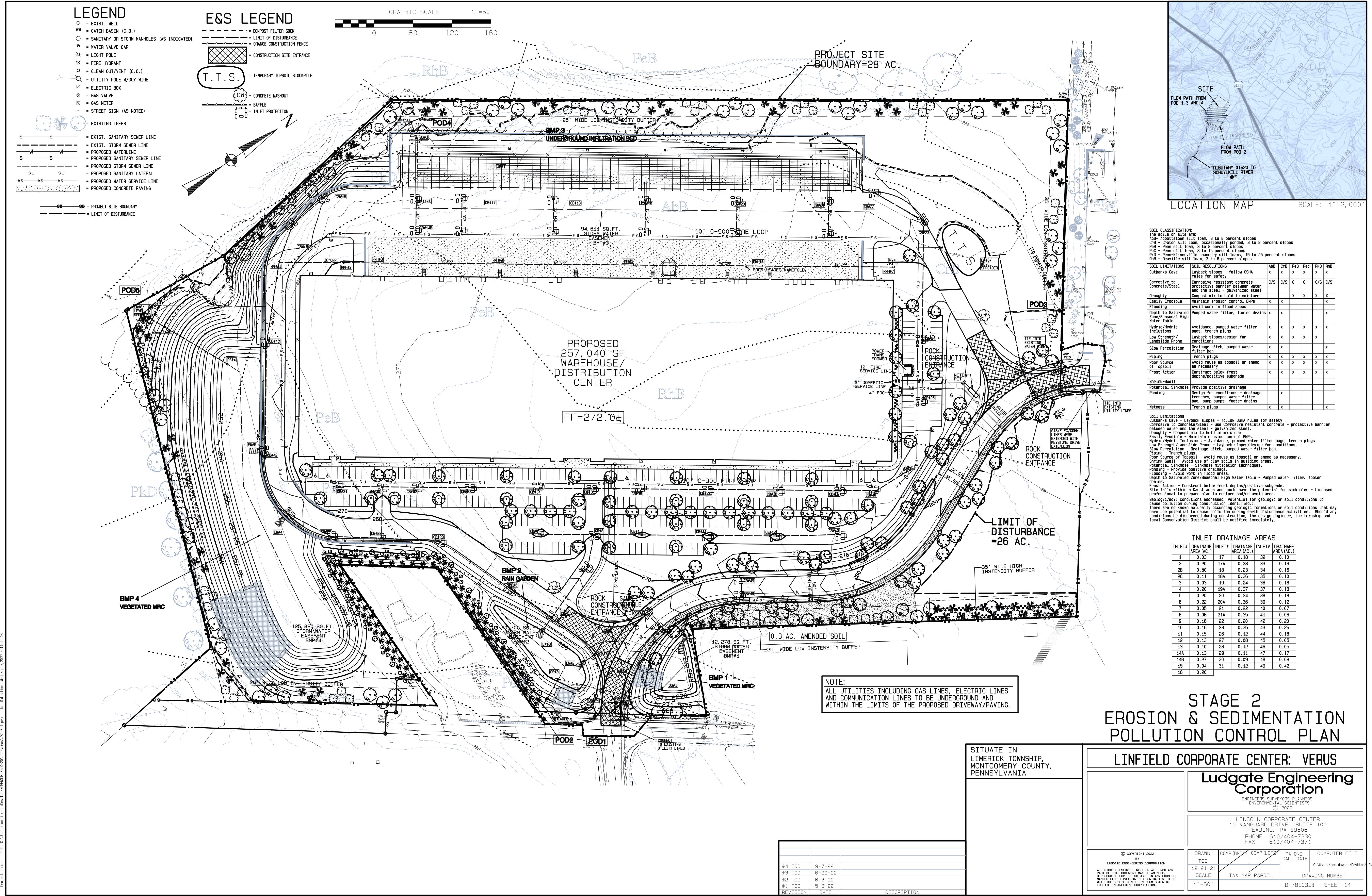
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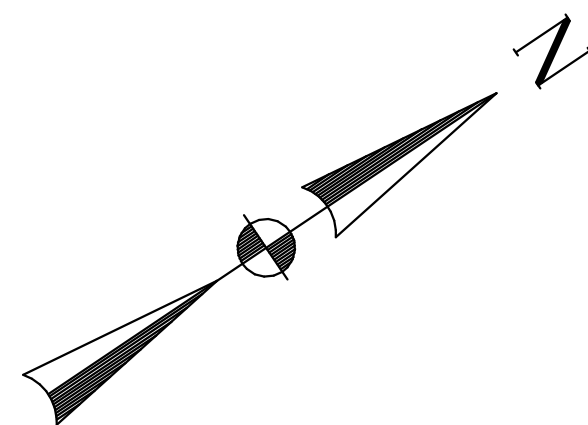
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#3 TCD	6-22-22	
#2 TCD	6-3-22	
#1 TCD	5-3-22	



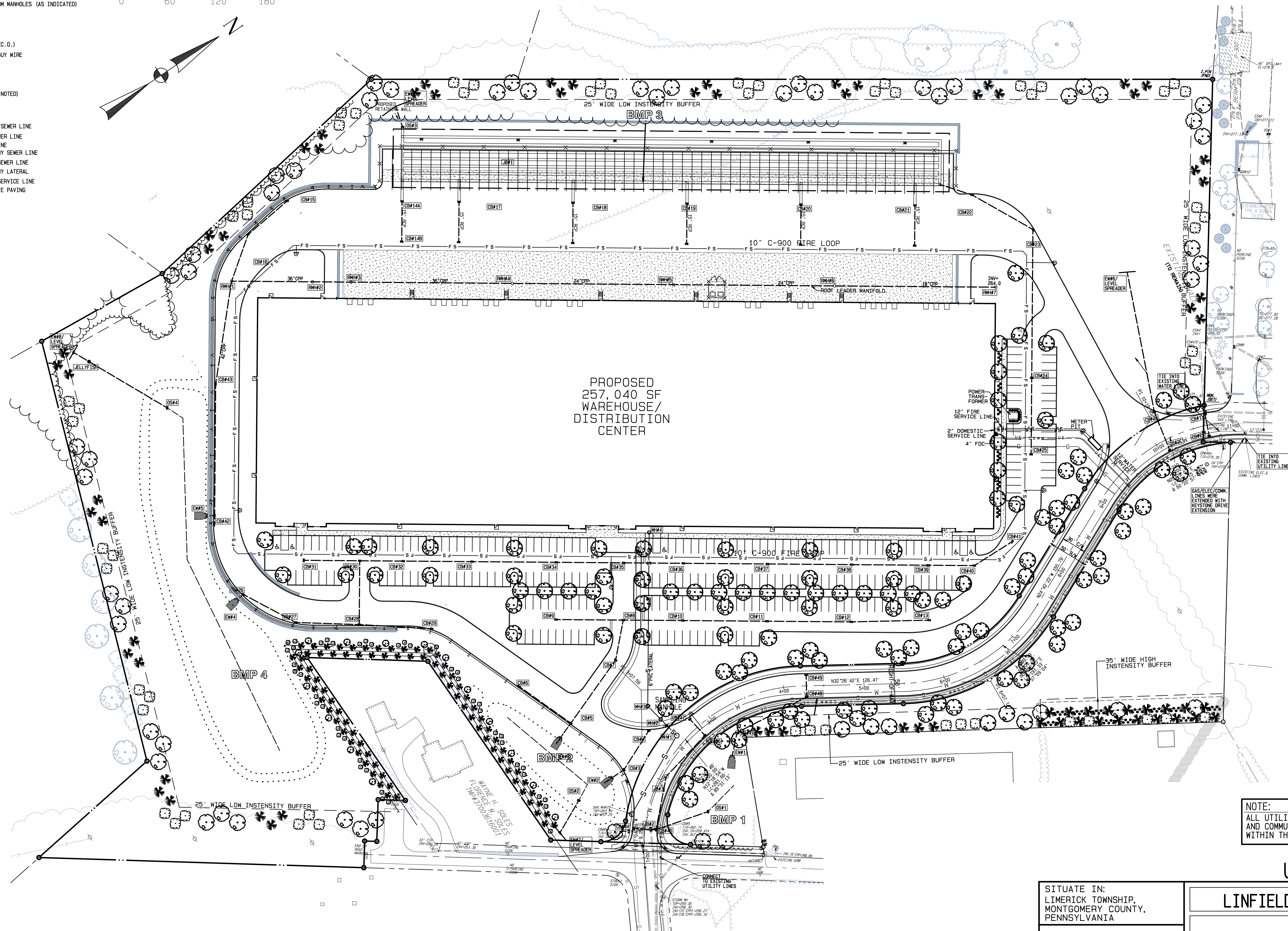




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 ⊗ = GAS METER  
 🚧 = STREET SIGN (AS NOTED)



- EXISTING TREES
- S- S- = EXIST. SANITARY SEWER LINE  
= = = EXIST. STORM SEWER LINE  
-W- W- = PROPOSED WATER LINE  
-S- S- = PROPOSED SANITARY SEWER LINE  
= = = PROPOSED STORM SEWER LINE  
-SL- SL- = PROPOSED SANITARY LATERAL  
-NS- NS- NS- = PROPOSED WATER SERVICE LINE  
= = = PROPOSED CONCRETE PAVING



NOTE:  
ALL UTILITIES INCLUDING GAS LINES, ELECTRIC LINES  
AND COMMUNICATION LINES TO BE UNDERGROUND AND  
WITHIN THE LIMITS OF THE PROPOSED DRIVEWAY/PAVING

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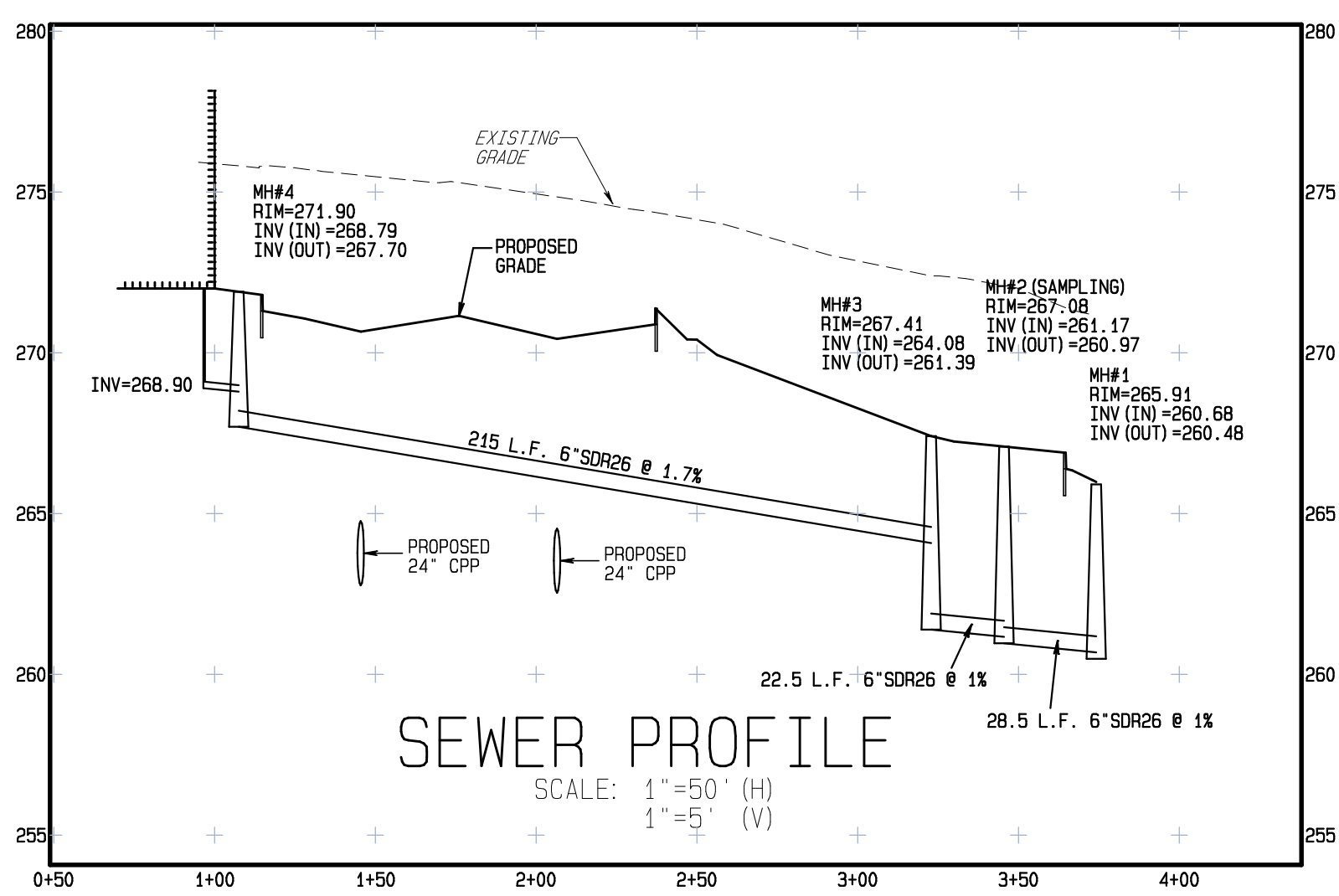
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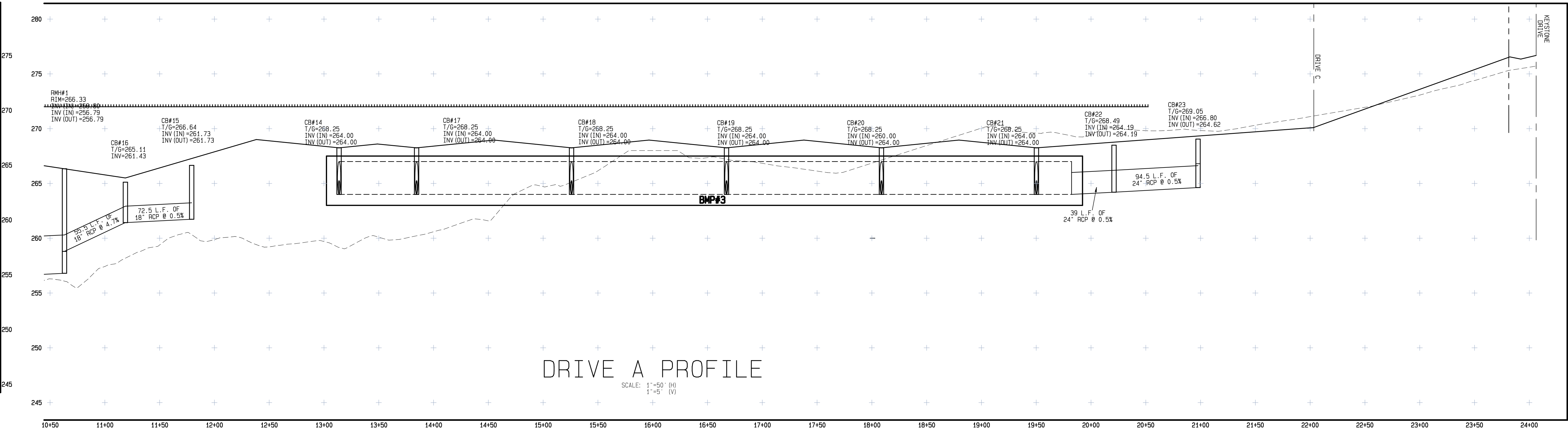
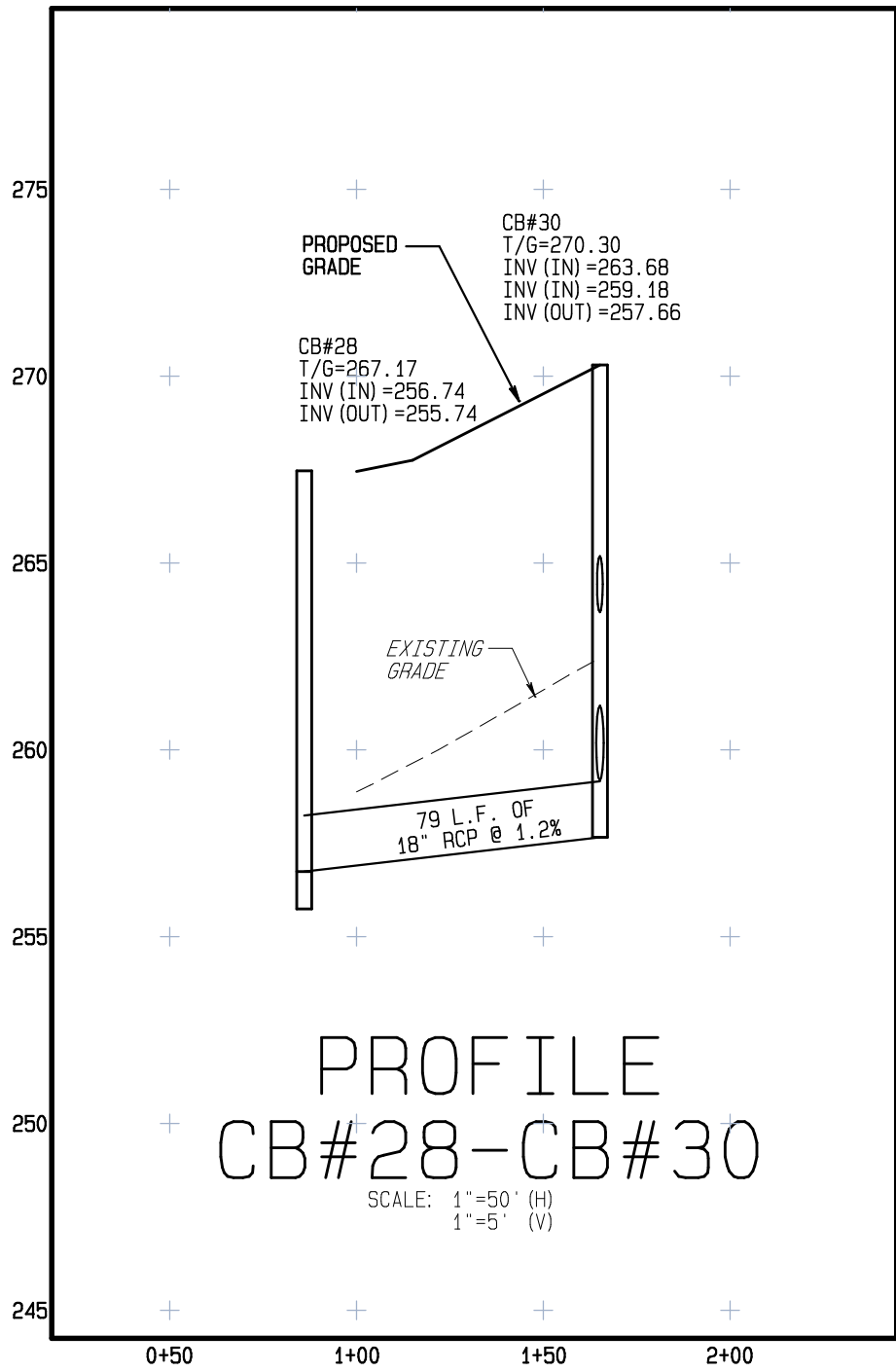
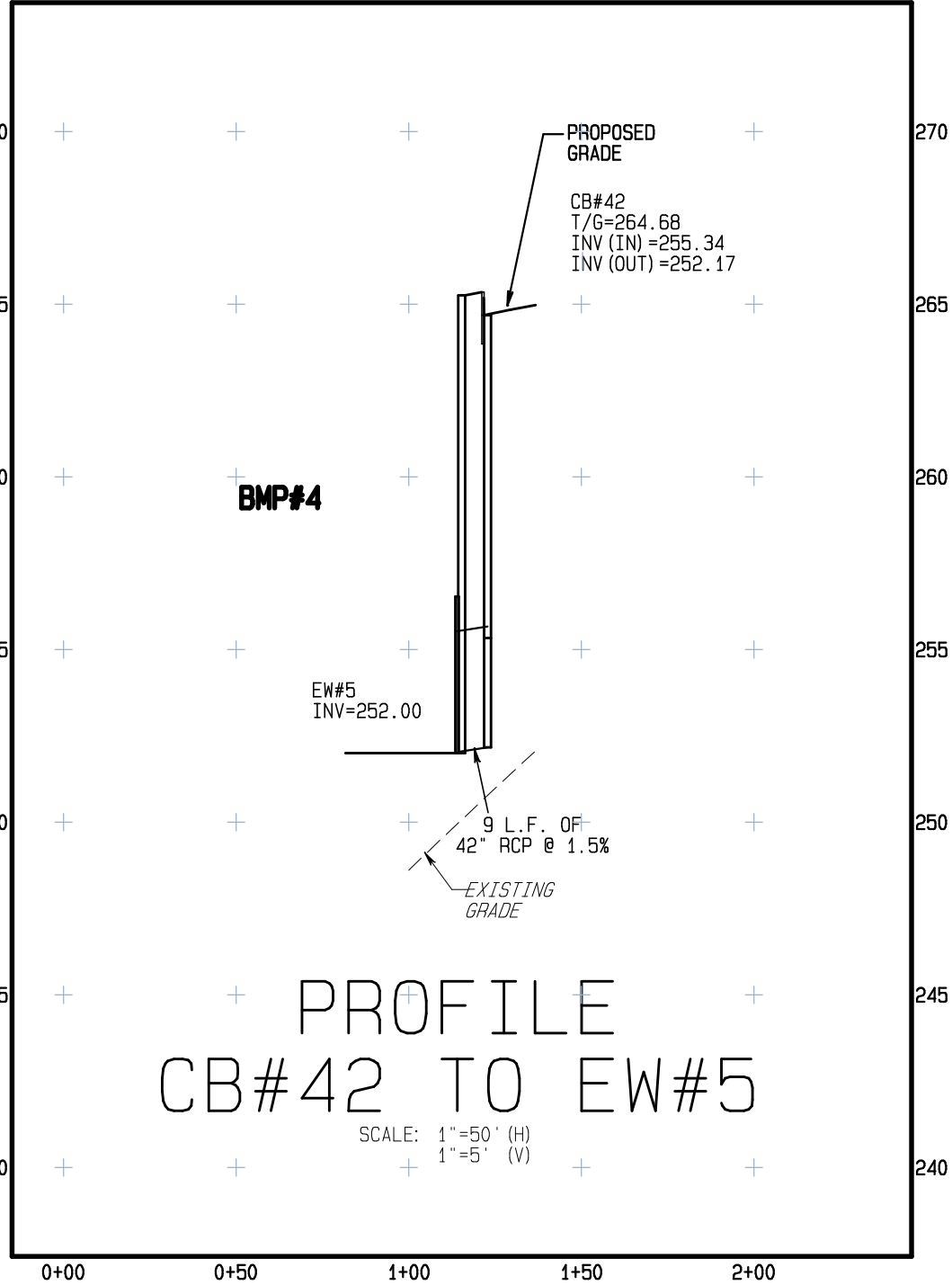
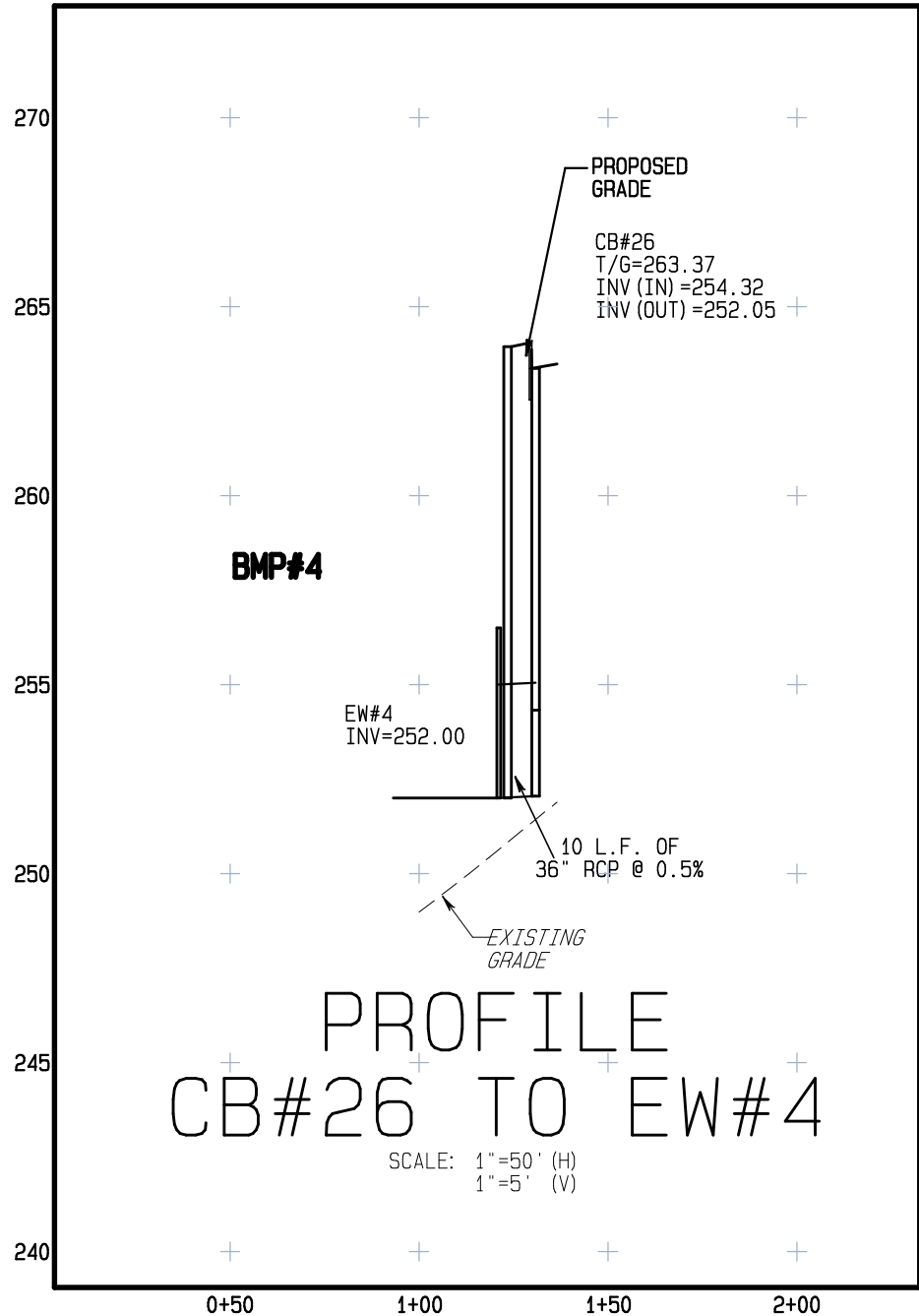
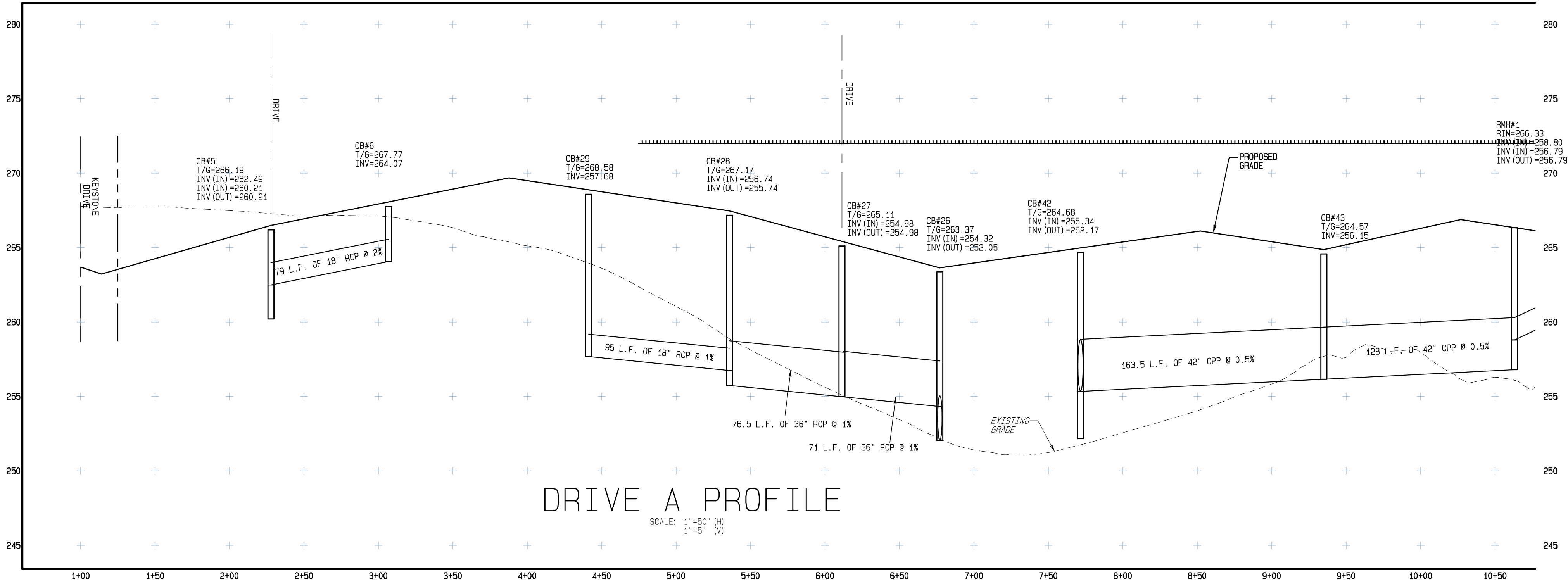
SITUATE IN:  
LIMERICK TOWNSHIP,  
MONTGOMERY COUNTY,  
PENNSYLVANIA

#4 TCD	9-7-22	
#3 TCD	6-22-22	
#2 TCD	6-3-22	
#1 TCD	5-3-22	
REVISION	DATE	DESCRIPTION









PROFILES

SITUATE IN:  
LIMERICK TOWNSHIP,  
MONTGOMERY COUNTY,  
PENNSYLVANIA

LINFIELD CORPORATE CENTER: VERUS

Ludgate Engineering  
Corporation

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READING, PA 19606  
PHONE 610/404-7330  
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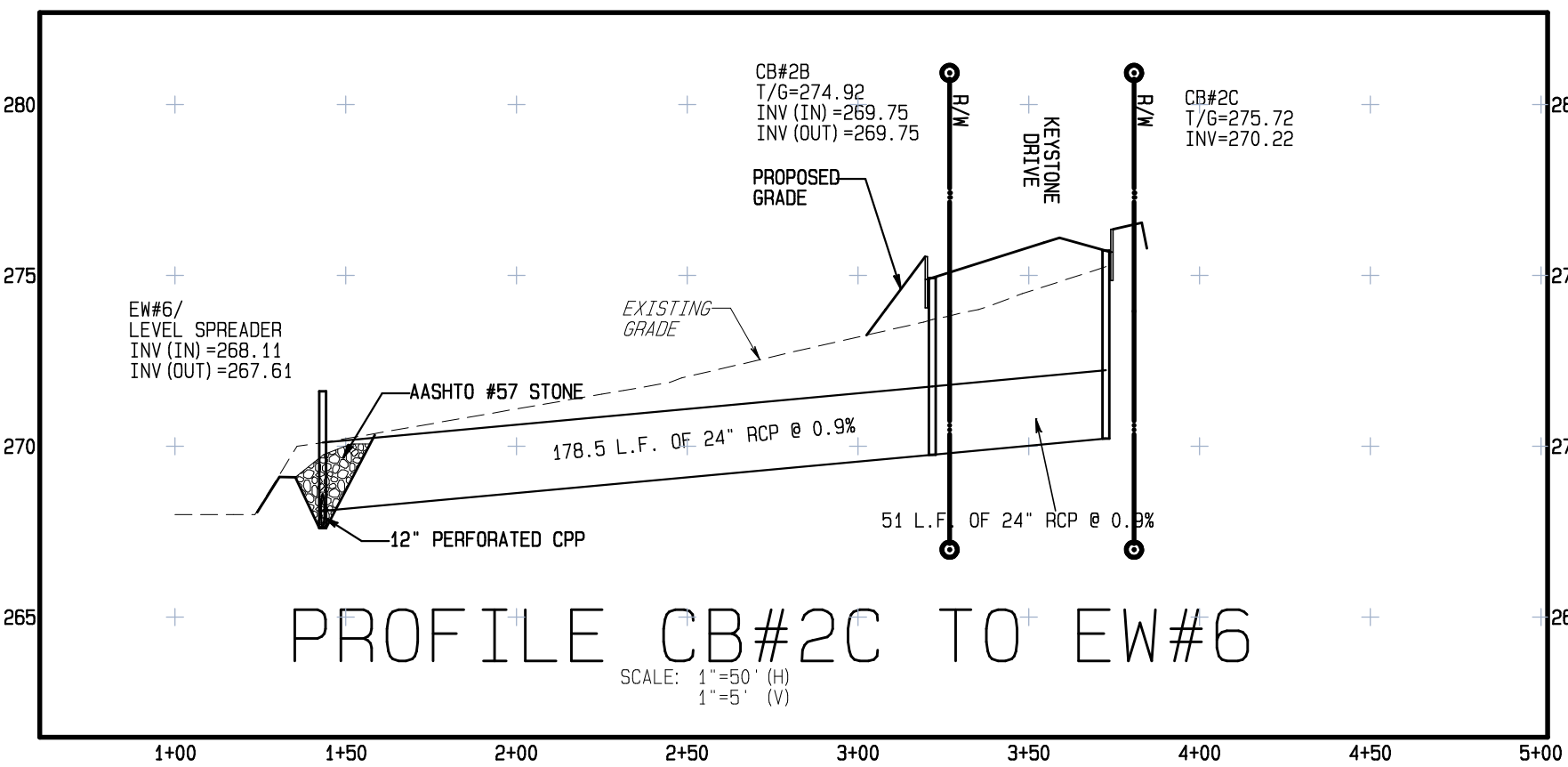
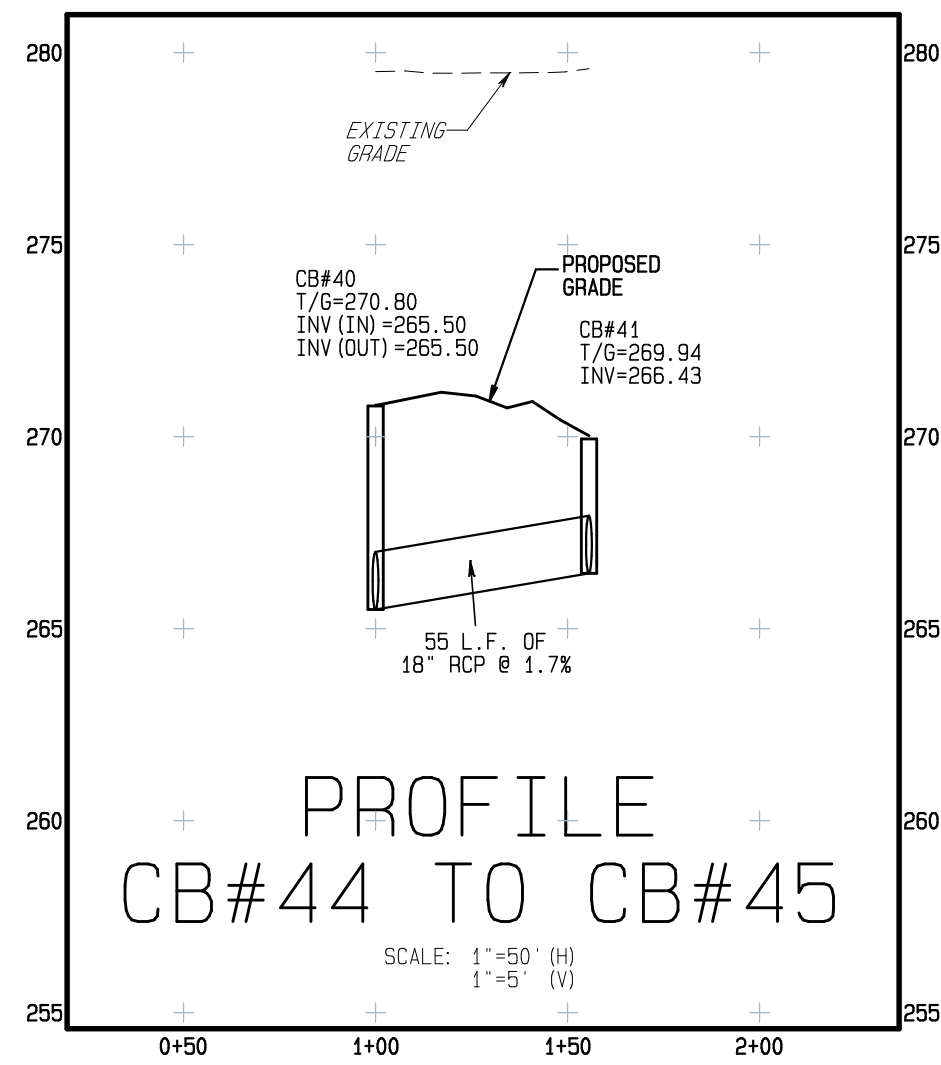
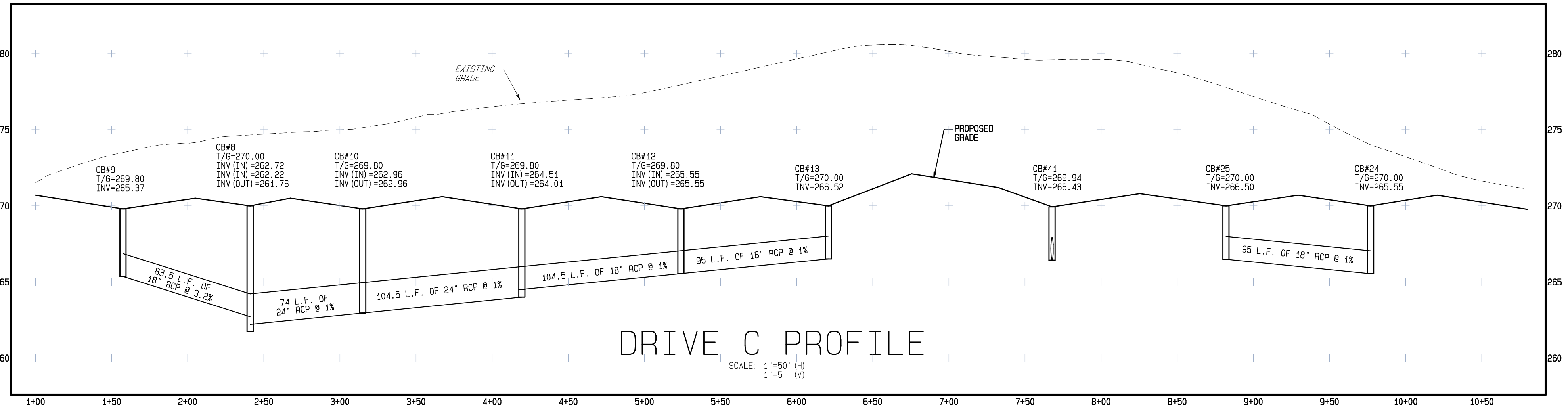
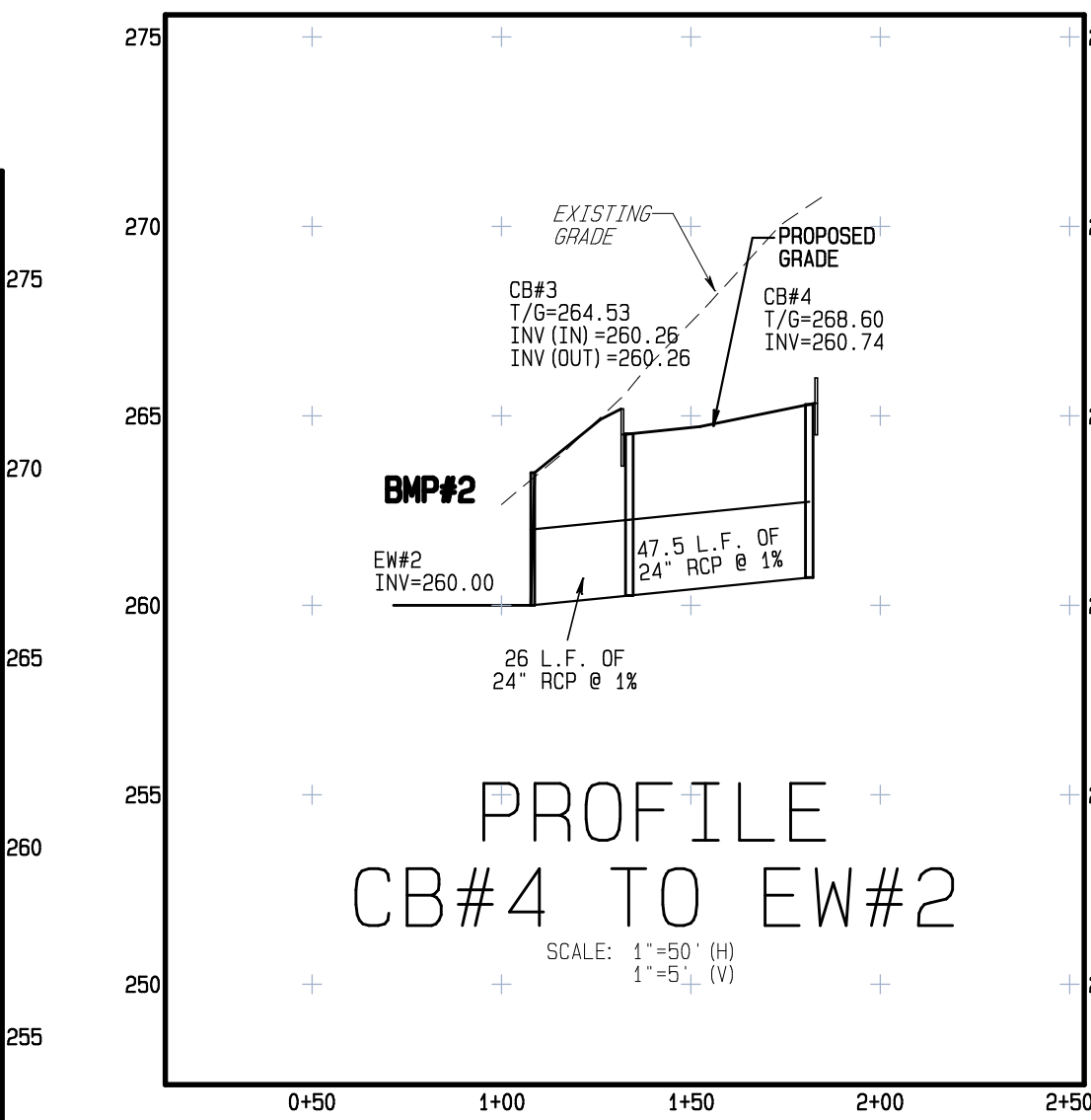
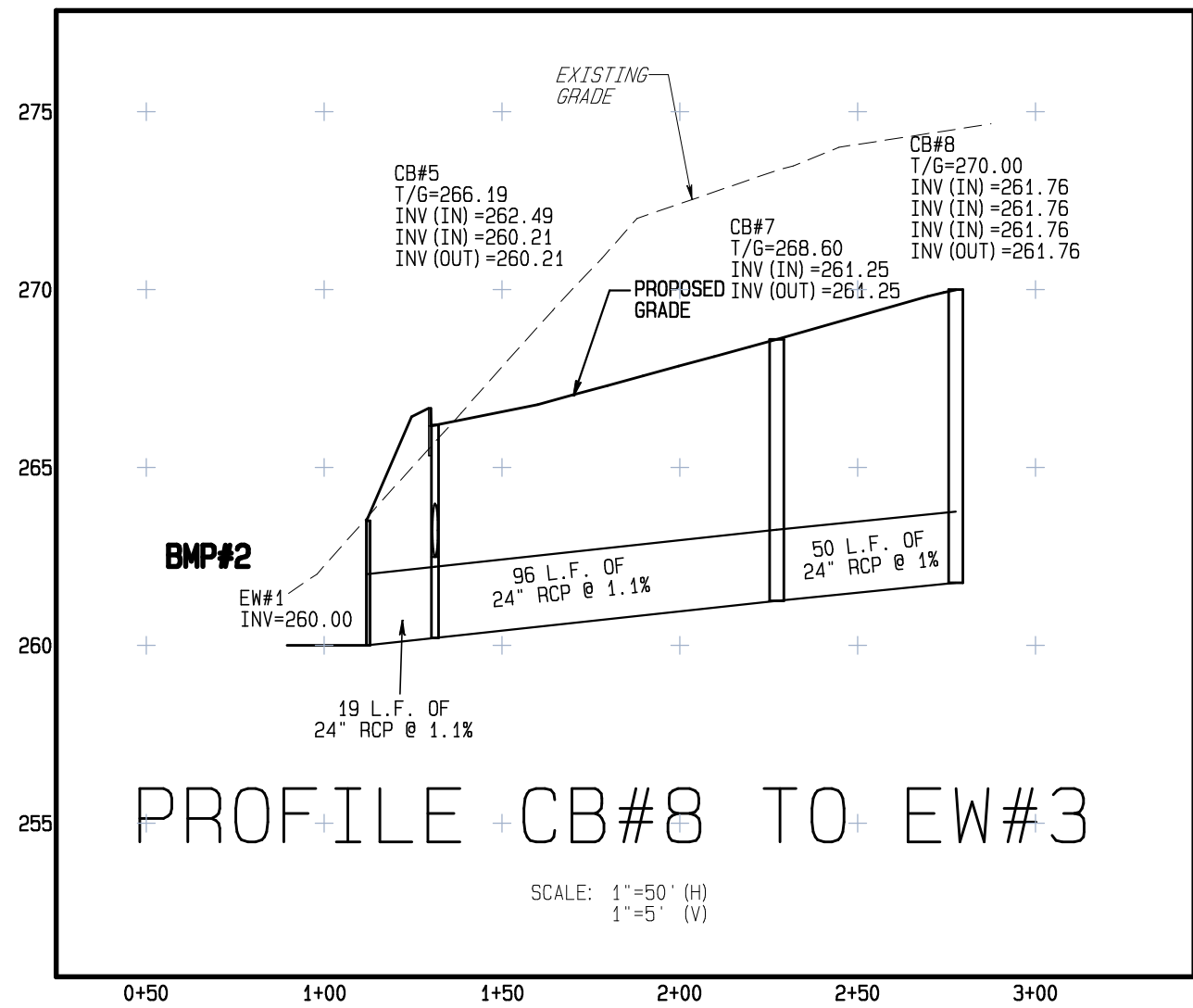
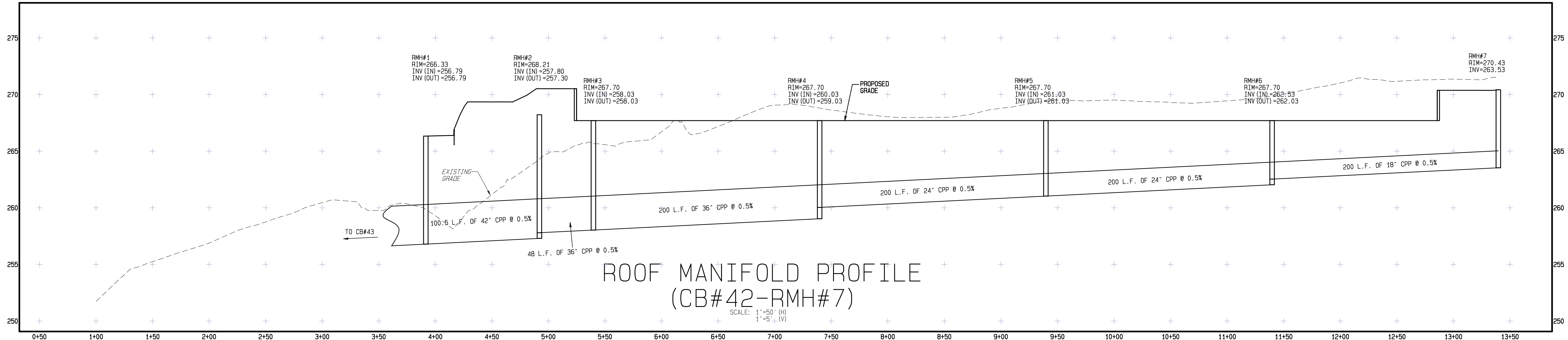
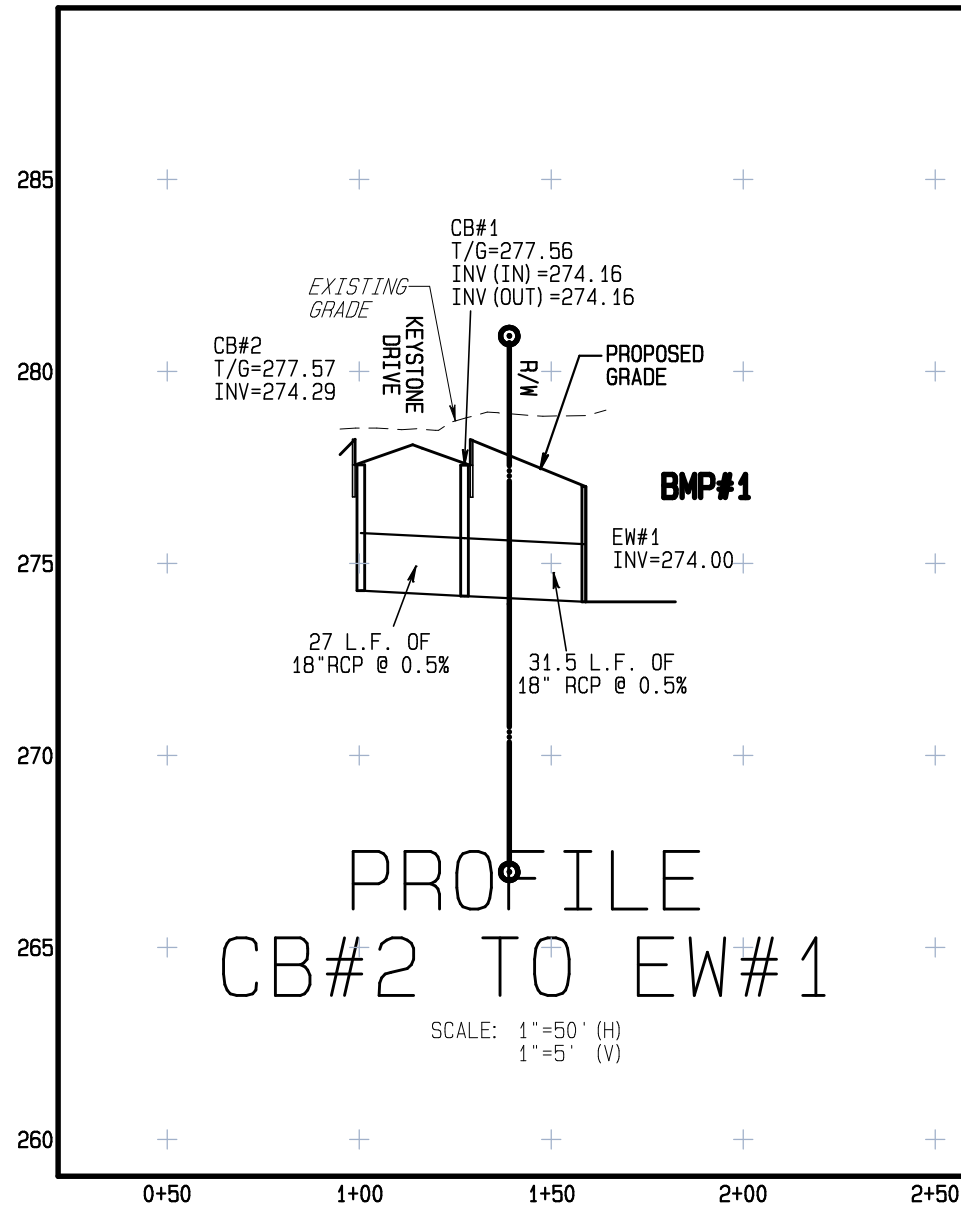
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DRAWN TCD 12-21-21 SCALE 1"=50'	COMP (BND) TCD 12-21-21 TAX MAP PARCEL	COMP (LOT) TCD 12-21-21 DRAWING NUMBER D-7810321	PA ONE CALL DATE 12-21-21 SHEET 17	COMPUTER FILE C:\Users\ton dawson\Desktop\VERUS\
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REVISION	DATE	DESCRIPTION
#4 TCD	9-7-22	
#3 TCD	6-22-22	
#2 TCD	6-3-22	
#1 TCD	5-3-22	





## PROFILES

SITUATE IN:  
LIMERICK TOWNSHIP,  
MONTGOMERY COUNTY,  
PENNSYLVANIA

LINFIELD CORPORATE CENTER: VERUS

**Ludgate Engineering  
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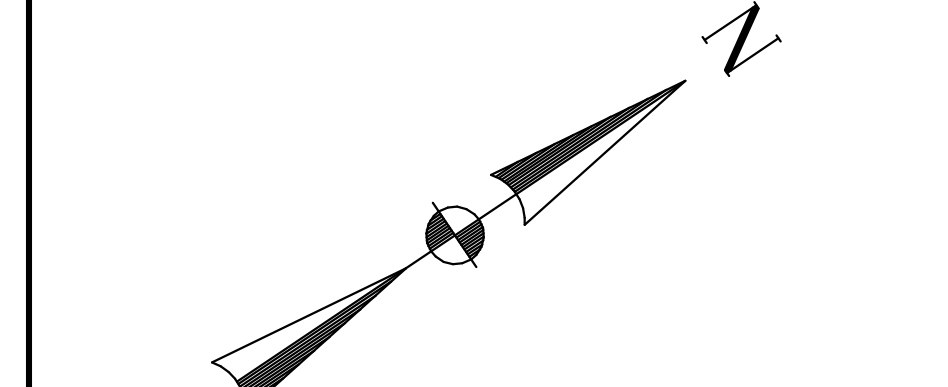
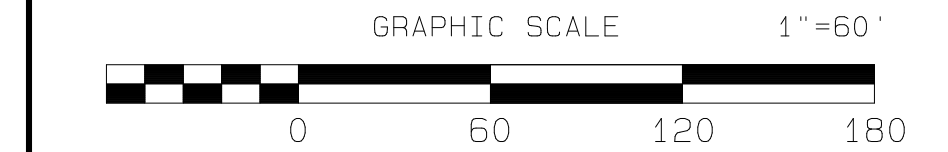
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  - = CATCH BASIN (C.B.)
  - = SANITARY OR STORM MANHOLES (AS INDICATED)
  - = WATER VALVE CAP
  - ✱ = LIGHT POLE
  - ⊕ = FIRE HYDRANT
  - = CLEAN OUT/VENT (C.O.)
  - = UTILITY POLE W/GUY WIRE
  - ⊠ = ELECTRIC BOX
  - ⊕ = GAS VALVE
  - ⊕ = GAS METER
  - ⊕ = STREET SIGN (AS NOTED)
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  - S—S— = PROPOSED SANITARY SEWER LINE
  - S—S— = PROPOSED STORM SEWER LINE
  - SL—SL— = PROPOSED SANITARY LATERAL
  - MS—MS— = PROPOSED WATER SERVICE LINE
  - = PROPOSED CONCRETE PAVING
  - = PROPOSED RIGHT-OF-WAY
  - = EXISTING LEGAL RIGHT-OF-WAY

TOWNSHIP ENGINEER'S CERTIFICATE

TOWNSHIP ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

MONTGOMERY COUNTY PLANNING COMMISSION

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

RECORDER OF DEEDS

CERTIFICATE OF MUNICIPAL APPROVAL

At a meeting held on \_\_\_\_\_ 2022, the Board of Supervisors of the Township of Limerick, by resolution duly enacted, approved the subdivision plan of the property of Linfield Corp. Center Lot #48R, as shown hereon.

CHAIRPERSON \_\_\_\_\_

SECRETARY \_\_\_\_\_

PLANNING COMMISSIONS' CERTIFICATE

At a meeting held on \_\_\_\_\_ 2022, the planning commission of the Township of Limerick, by resolution duly enacted, approved the subdivision plan of the property of Linfield Corp. Center Lot #48R, as shown hereon.

CHAIRPERSON \_\_\_\_\_

CERTIFICATION OF ACCURACY

I hereby certify that the plan shown and described hereon, as well as all drawings bearing my seal, are true and correct to the accuracy required by the land subdivision ordinance, and were prepared by me or under my direction and for which I accept full responsibility.

THOMAS BRYAN LUDGATE  
REGISTERED PROFESSIONAL ENGINEER  
PENNSYLVANIA  
PE076985

CERTIFICATION OF CORPORATION

I (we) do hereby Certify that I am (we are) the sole registered owner (s) of the land herein subdivided and that there are no suits pending affecting the title of the same and that I (we) do hereby adopt this plan and desire the same to be recorded.

(print) Name and Title \_\_\_\_\_ OWNER

State of \_\_\_\_\_ County of \_\_\_\_\_

On this, the \_\_\_\_\_ day of \_\_\_\_\_, 2022, the undersigned officer, Personally appeared \_\_\_\_\_, who Acknowledged himself to be the \_\_\_\_\_ of \_\_\_\_\_ a corporation, and that he as such Being authorized to do so, executed the foregoing instrument for the purpose therein contained By signing the name of the corporation by himself as \_\_\_\_\_ Executed the same for the purposes therein contained. In witness whereof, I hereunto set my hand and official seals

Notary Public \_\_\_\_\_

SITUATE IN:  
LIMERICK TOWNSHIP,  
MONTGOMERY COUNTY,  
PENNSYLVANIA

LINFIELD CORPORATE CENTER: VERUS

**Ludgate Engineering Corporation**  
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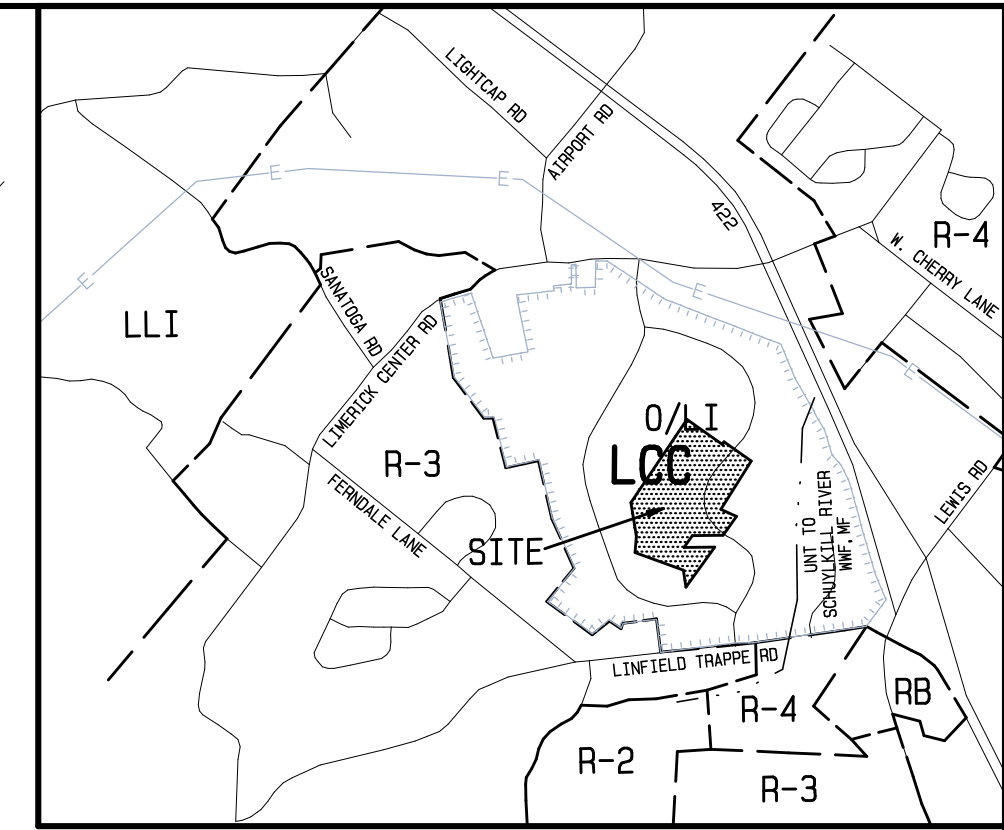
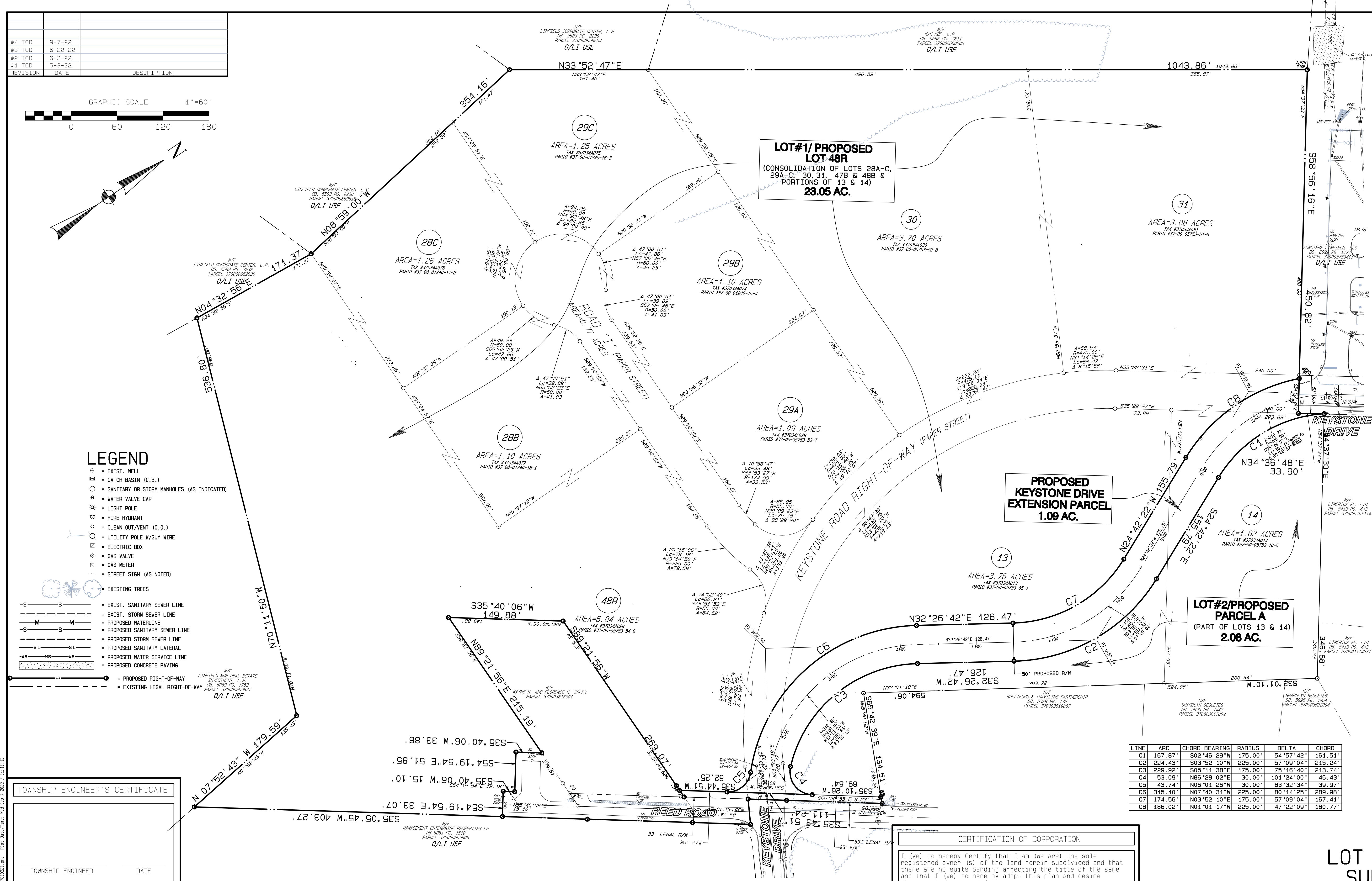
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DRAWN TCD	COMP (BNG)	COMP (LOTS)	PA ONE CALL DATE	COMPUTER FILE
12-21-21				C:\Users\ton dawson\Desktop\H06W0R3
SCALE 1"=60'	TAX MAP PARCEL	DRAWING NUMBER D-7810321 SHEET 19		

Project Desc.: 1948, C:\Users\ton dawson\Desktop\H06W0R3 3-28-2016 10:45:30 AM 3/28/2022 11:11:13



- LOCATION MAP**  
SCALE: 1"=2000'
- THE PURPOSE OF THIS PAN IS CONSOLIDATE LOTS 28B-C, 29A-C, 30, 31, 48R AND PARTS OF 13 AND 14 AND PART OF THE RECORD KEYSTONE R/W TO LOT 1 (AS SHOWN ON THIS PLAN). ALSO THE REVISED KEYSTONE R/W IS SHOWN AND PARCEL A WILL BE CREATED AS PART OF THIS PLAN THIS PLAN IS ONLY A SUBDIVISION PLAN. NO IMPROVEMENTS ARE ASSOCIATED WITH THIS PLAN. ALL IMPROVEMENTS INCLUDING KEYSTONE DRIVE WILL BE INSTALLED WITH THE LAND DEVELOPMENT PLAN OF LOT 48R.
1. OWNER:  
LINFIELD CORPORATE CENTER, LP  
1530 WEST GERMANTOWN PIKE  
EAST NORRITON, PA 19403  
CONTACT: TED KOCHEN, P.E.  
Tel: 773-680-9270  
Principle: Bob McCormick  
bmcormickeverpan.com
- DEVELOPER:  
Verus Partners, LLC  
195 N. Macker Drive, Suite 4250  
Chicago, IL 60606  
Tel: 773-680-9270  
Principle: Bob McCormick  
bmcormickeverpan.com
2. ZONING: O/LI CLASS 1 - OFFICE/LIMITED INDUSTRIAL DISTRICT
- | MIN. LOT AREA   | REQUIRED        |
|---|-----------------|
| 10 ACRES  | 10 ACRES        |
| MIN. LOT WIDTH  | 400 FT.         |
| MAX. IMPERVIOUS COVERAGE (BASED ON LOT AREA)          | 70% OF LOT AREA |
| MAX. BUILDING COVERAGE (BASED ON NET BUILDABLE ACRES) | 35%             |
| MAX. FLOOR AREA RATIO                                 | 0.40            |
- BUILDING SETBACKS  
FROM ULT./R/W 50 FT.  
FROM A LOT ABUTTING RESIDENTIAL DISTRICT 100 FT.  
FROM ANY OTHER LOT LINE 30 FT.  
PARKING, SERVICE AREA OR INTERNAL DRIVEWAY SETBACKS  
FROM ULT./R/W 30 FT.  
FROM A LOT ABUTTING RESIDENTIAL DISTRICT 10 FT.  
FROM LAND ZONED FOR NONRESIDENTIAL 10 FT.  
FROM A BUILDING (EXCEPT LOADING DOCKS) 30 FT.  
OUTDOOR STORAGE AREA 35 FT.  
MAX. BUILDING HEIGHT 35 FT.  
MAX. NUMBER OF STORIES 3 STORIES
3. SOILS DATA  
C1B - ABBOTTSTOWN SILT LOAM, 3-8% SLOPES  
C2B - CROTON SILT LOAM, 3-8% SLOPES  
P2B - PENN SILT LOAM, 3-8% SLOPES  
P2C - PENN SILT LOAM, 8-15% SLOPES  
P2D - PENN-KILNESVILLE CHANNERY SILT LOAMS, 15-25% SLOPES  
P2E - READINGTON SILT LOAM, 3-8% SLOPES  
P2F - HEAVILLE SILT LOAM, 3-8% SLOPES
4. DEVELOPMENT TO USE PUBLIC SEWER & PUBLIC WATER
5. SOLID WASTE STORAGE AND DISPOSAL SHALL BE THE RESPONSIBILITY OF THE DEVELOPER.
6. FLOOD STATEMENT:  
Said described property is located within an area having a Zone Designation X (Areas determined to be outside 500-year Floodplain). Flood Insurance Rate Map Nos. 42051C0208 6 & 42051C0210 6 with a date of identification of March 2, 2016 in the Township of Limerick, Montgomery County, State of Pennsylvania, which is the current Flood Insurance Rate Map for the community in which said property is situated.
7. THERE ARE NO WETLANDS ON SITE.
8. ELEVATION DATUM: NAVD 83  
BENCH MARK: SANITARY MANHOLE AT THE INTERSECTION OF KEYSTONE DRIVE AND ENTERPRISE DRIVE. ELEV. =251.23
9. REFERENCES:  
DEEDS AS LISTED  
- MONTGOMERY COUNTY TAX MAPS  
- P2V, A-23 P6.52
10. PARCEL A SHALL NOT BE CONSIDERED A BUILDING LOT.
11. THE APPLICANT SHALL COMPLY WITH ALL THE CONDITIONS OF THE APPROVED LOT#2/PARCEL "A" NOT TO BE A BUILDING LOT. TO BE HELD AS OPEN SPACE OR CONVEYED TO AN ADJOINING LOT/PARCEL
- NOTE:  
LOT#1/48R TO BE USED FOR O/LI ZONING USE  
LOT#2/PARCEL "A" NOT TO BE A BUILDING LOT. TO BE HELD AS OPEN SPACE OR CONVEYED TO AN ADJOINING LOT/PARCEL

LINE	ARC	CHORD BEARING	RADIUS	DELTA	CHORD
C1	167.87'	S02°46'29"W	175.00'	54°57'42"	161.51'
C2	224.43'	S03°52'10"W	225.00'	57°09'04"	215.24'
C3	229.92'	S05°11'38"E	175.00'	75°16'40"	213.74'
C4	53.09'	N86°28'02"E	30.00'	101°24'00"	46.43'
C5	43.74'	N06°01'26"W	30.00'	83°32'34"	39.97'
C6	315.10'	N07°40'31"W	225.00'	80°14'25"	289.98'
C7	174.56'	N03°52'10"E	175.00'	57°09'04"	167.41'
C8	186.02'	N01°01'17"W	225.00'	47°22'02"	180.77'

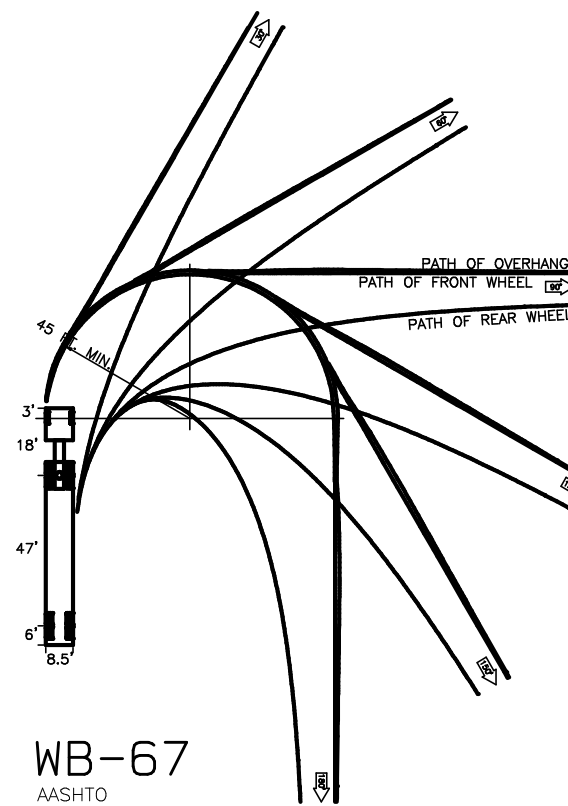
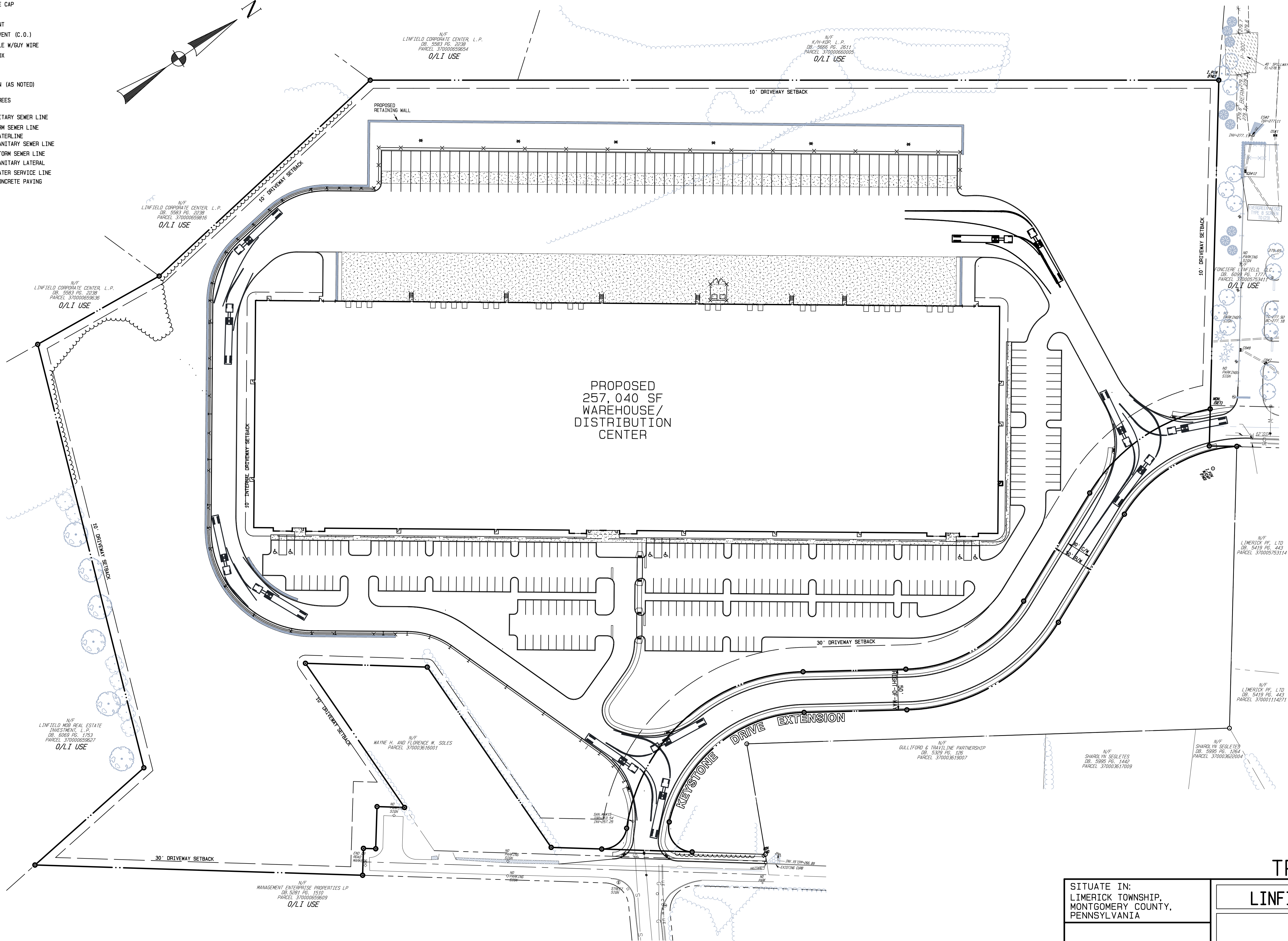
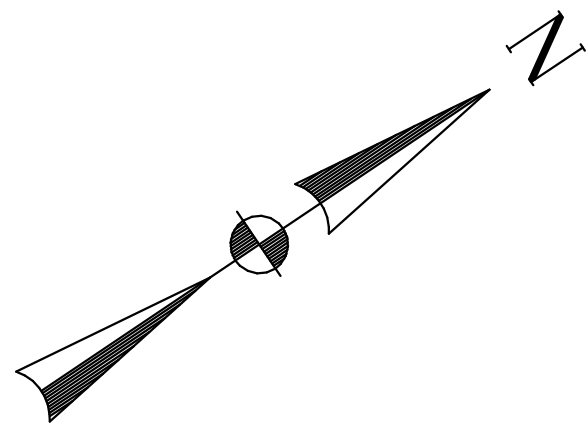
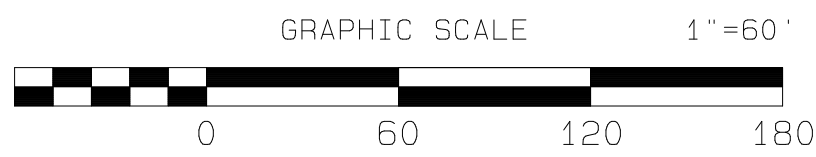


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- ⊙ = CLEAN OUT/VENT (C.O.)
- ⊙ = UTILITY POLE W/GUY WIRE
- ⊙ = ELECTRIC BOX
- ⊙ = GAS VALVE
- ⊙ = GAS METER
- ⊙ = STREET SIGN (AS NOTED)

EXISTING TREES

- S- -S- = EXIST. SANITARY SEWER LINE
- W- -W- = EXIST. STORM SEWER LINE
- S- -S- = PROPOSED WATERLINE
- S- -S- = PROPOSED SANITARY SEWER LINE
- S- -S- = PROPOSED STORM SEWER LINE
- SL- -SL- = PROPOSED SANITARY LATERAL
- WS- -WS- = PROPOSED WATER SERVICE LINE
- ===== = PROPOSED CONCRETE PAVING



FINAL PLAN  
TRUCK TURNING PLAN

SITUATE IN:  
LIMERICK TOWNSHIP,  
MONTGOMERY COUNTY,  
PENNSYLVANIA

LINFIELD CORPORATE CENTER: VERUS

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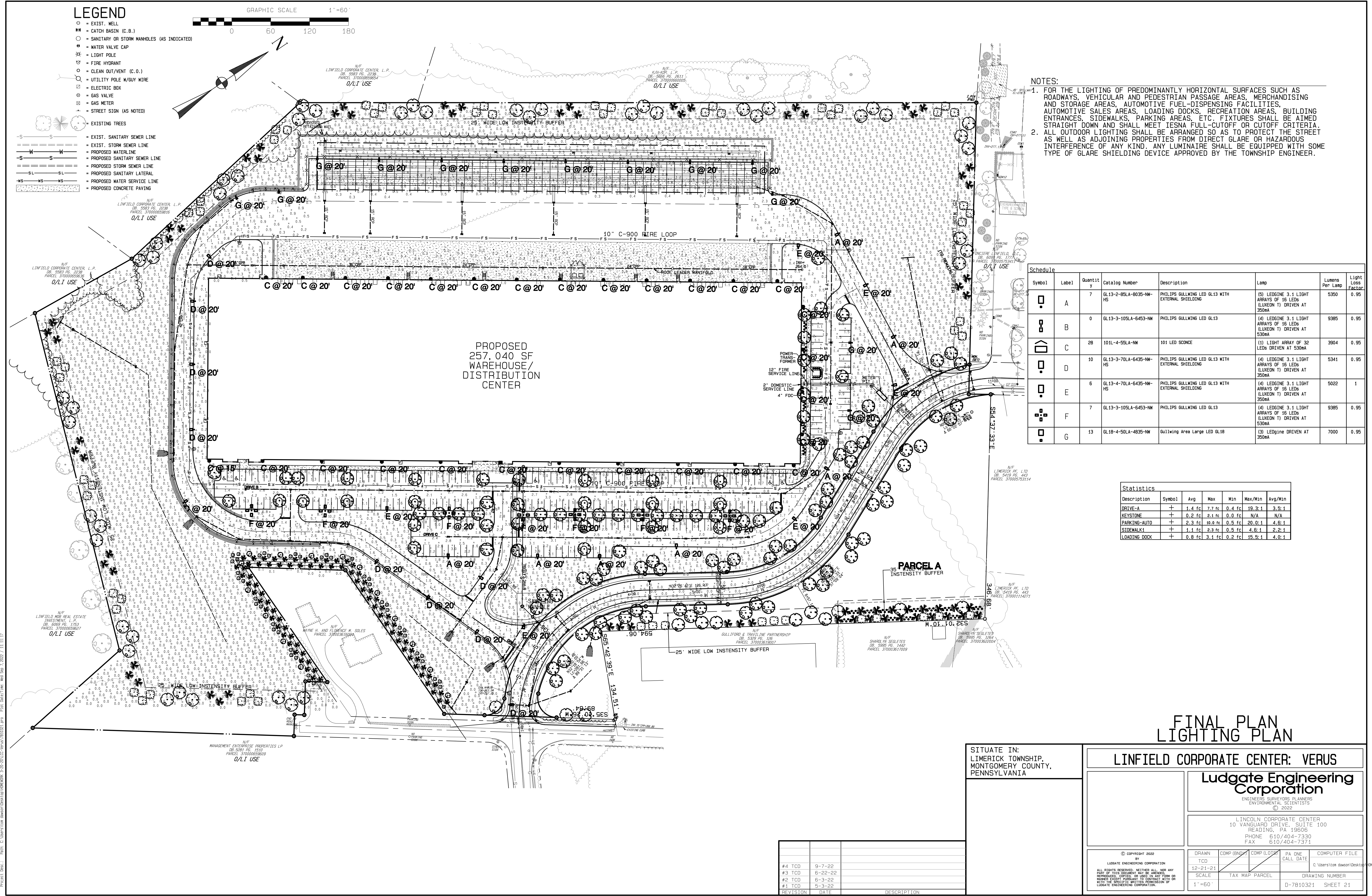
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TCD			12-21-21	C:\Users\ton dawson\Desktop\HOWEWORK
SCALE	TAX MAP PARCEL			DRAWING NUMBER
1"=60'				D-7810321 SHEET 20

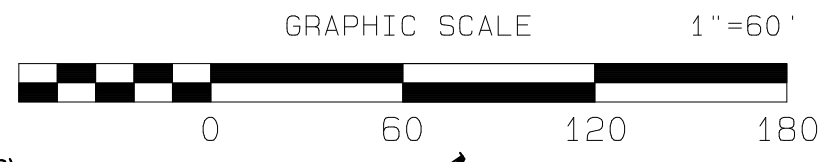
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- S—S— = PROPOSED SANITARY LATERAL
- WS—WS— = PROPOSED WATER SERVICE LINE
- ▨ = PROPOSED CONCRETE PAVING



- NOTES:
- FOR THE LIGHTING OF PREDOMINANTLY HORIZONTAL SURFACES SUCH AS ROADWAYS, VEHICULAR AND PEDESTRIAN PASSAGE AREAS, MERCHANDISING AND STORAGE AREAS, AUTOMOTIVE FUEL-DISPENSING FACILITIES, AUTOMOTIVE SALES AREAS, LOADING DOCKS, RECREATION AREAS, BUILDING ENTRANCES, SIDEWALKS, PARKING AREAS, ETC. FIXTURES SHALL BE AIMED STRAIGHT DOWN AND SHALL MEET IESNA FULL-CUTOFF OR CUTOFF CRITERIA.
  - ALL OUTDOOR LIGHTING SHALL BE ARRANGED SO AS TO PROTECT THE STREET AS WELL AS ADJOINING PROPERTIES FROM DIRECT GLARE OR HAZARDOUS INTERFERENCE OF ANY KIND. ANY LUMINAIRE SHALL BE EQUIPPED WITH SOME TYPE OF GLARE SHIELDING DEVICE APPROVED BY THE TOWNSHIP ENGINEER.

Schedule						
Symbol	Label	Quantity	Catalog Number	Description	Lamp	Lumens Per Lamp
⊙	A	7	GL13-2-85LA-8035-NW-HS	PHILIPS GULLWING LED GL13 WITH EXTERNAL SHIELDING	(5) LEDSGINE 3.1 LIGHT ARRAYS OF 16 Leds (LUXEON T) DRIVEN AT 350mA	5350
⊙	B	0	GL13-3-105LA-6453-NW	PHILIPS GULLWING LED GL13	(4) LEDSGINE 3.1 LIGHT ARRAYS OF 16 Leds (LUXEON T) DRIVEN AT 530mA	9385
⊙	C	28	101L-4-55LA-NW	101 LED SCONCE	(1) LIGHT ARRAY OF 32 Leds DRIVEN AT 530mA	3904
⊙	D	10	GL13-3-70LA-6435-NW-HS	PHILIPS GULLWING LED GL13 WITH EXTERNAL SHIELDING	(4) LEDSGINE 3.1 LIGHT ARRAYS OF 16 Leds (LUXEON T) DRIVEN AT 350mA	5341
⊙	E	6	GL13-4-70LA-6435-NW-HS	PHILIPS GULLWING LED GL13 WITH EXTERNAL SHIELDING	(4) LEDSGINE 3.1 LIGHT ARRAYS OF 16 Leds (LUXEON T) DRIVEN AT 350mA	5022
⊙	F	7	GL13-3-105LA-6453-NW	PHILIPS GULLWING LED GL13	(4) LEDSGINE 3.1 LIGHT ARRAYS OF 16 Leds (LUXEON T) DRIVEN AT 530mA	9385
⊙	G	13	GL18-4-50LA-4835-NW	Gullwing Area Large LED GL18	(3) LEDsgine DRIVEN AT 350mA	7000

Statistics					
Description	Symbol	Avg	Max	Min	Avg/Min
DRIVE-A	+	1.4 fc	7.7 fc	0.4 fc	19.3:1
KEYSTONE	+	0.2 fc	2.1 fc	0.0 fc	N/A
PARKING-AUTO	+	2.3 fc	16.0 fc	0.5 fc	20.0:1
SIDEWALK1	+	1.1 fc	2.3 fc	0.5 fc	4.6:1
LOADING DOCK	+	0.8 fc	3.1 fc	0.2 fc	15.5:1

FINAL PLAN  
LIGHTING PLAN

SITUATE IN:  
LIMERICK TOWNSHIP,  
MONTGOMERY COUNTY,  
PENNSYLVANIA

LINFIELD CORPORATE CENTER: VERUS

**Ludgate Engineering Corporation**  
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[illegible][illegible]

# GL13 Gullwing LED area luminaire, small

## Site & Area

### Dimensions and EPA

### EPA Data

	1	2	3, 4
30A-4445	4.8	1.0	2.1
30A-4445	27.65"	11.63"	27.65"

### Approximate Weight

Single Luminaire

33 lbs / 14,950 kg

## Technical Data

			Type 2				Type 3			
Ordering Code	Total Units	LED Current (mA)	Average System Watts	Color Temp.	Lumen Output	Efficiency (lm/W)	BUS Voltage	Lumen Output	Efficiency (lm/W)	BUS Voltage
30A-4445	4	300	30	4000K	8842	85	85-10-02	8700	85	85-10-02
30A-4445	45	300	88	4000K	8544	85	85-10-02	8775	85	85-10-02
100A-4445	4	300	101	4000K	9670	87	85-10-02	9000	87	85-10-02
			Type 4				Type 5			
Ordering Code	Total Units	LED Current (mA)	Average System Watts	Color Temp.	Lumen Output	Efficiency (lm/W)	BUS Voltage	Lumen Output	Efficiency (lm/W)	BUS Voltage
30A-4445	4	300	33	4200K	8737	95	87-10-02	8657	95	87-10-02
30A-4445	45	300	88	4200K	8827	94	87-10-02	8805	94	87-10-02
100A-4445	4	300	105	4200K	9348	95	87-10-02	9339	95	87-10-02

Notes from photometric tests performed in accordance with IESNA LM-79 and are representative of the configurations shown. Actual performance may vary due to installation and environmental conditions. LED luminaire frame, fan, and heat management components are not included in the photometric test results. All performance values are for reference only.

NOTE: Some data may be located below that of similar (but not identical) luminaires. Contact Factory for configurations and notes.

Gullwing\_GL13\_LED\_10-21 page 3 of 3

# GL18 Gullwing LED area luminaire, large

## Site & Area

### Ordering guide

Part	Options	Detail Number	Settings	LED Color	Settings	Finish	Options
<b>GL18</b> 18" x 54" LED 4000K LED	<b>RM</b> RM 0° x 0° Viewing with Automatic Hutch/Dimming	1-001 1-002 1-003 1-004 1-005 1-006 1-007 1-008 1-009 1-010 1-011 1-012 1-013 1-014 1-015 1-016 1-017 1-018 1-019 1-020 1-021 1-022 1-023 1-024 1-025 1-026 1-027 1-028 1-029 1-030 1-031 1-032 1-033 1-034 1-035 1-036 1-037 1-038 1-039 1-040 1-041 1-042 1-043 1-044 1-045 1-046 1-047 1-048 1-049 1-050 1-051 1-052 1-053 1-054 1-055 1-056 1-057 1-058 1-059 1-060 1-061 1-062 1-063 1-064 1-065 1-066 1-067 1-068 1-069 1-070 1-071 1-072 1-073 1-074 1-075 1-076 1-077 1-078 1-079 1-080 1-081 1-082 1-083 1-084 1-085 1-086 1-087 1-088 1-089 1-090 1-091 1-092 1-093 1-094 1-095 1-096 1-097 1-098 1-099 1-100 1-101 1-102 1-103 1-104 1-105 1-106 1-107 1-108 1-109 1-110 1-111 1-112 1-113 1-114 1-115 1-116 1-117 1-118 1-119 1-120 1-121 1-122 1-123 1-124 1-125 1-126 1-127 1-128 1-129 1-130 1-131 1-132 1-133 1-134 1-135 1-136 1-137 1-138 1-139 1-140 1-141 1-142 1-143 1-144 1-145 1-146 1-147 1-148 1-149 1-150 1-151 1-152 1-153 1-154 1-155 1-156 1-157 1-158 1-159 1-160 1-161 1-162 1-163 1-164 1-165 1-166 1-167 1-168 1-169 1-170 1-171 1-172 1-173 1-174 1-175 1-176 1-177 1-178 1-179 1-180 1-181 1-182 1-183 1-184 1-185 1-186 1-187 1-188 1-189 1-190 1-191 1-192 1-193 1-194 1-195 1-196 1-197 1-198 1-199 1-200 1-201 1-202 1-203 1-204 1-205 1-206 1-207 1-208 1-209 1-210 1-211 1-212 1-213 1-214 1-215 1-216 1-217 1-218 1-219 1-220 1-221 1-222 1-223 1-224 1-225 1-226 1-227 1-228 1-229 1-230 1-231 1-232 1-233 1-234 1-235 1-236 1-237 1-238 1-239 1-240 1-241 1-242 1-243 1-244 1-245 1-246 1-247 1-248 1-249 1-250 1-251 1-252 1-253 1-254 1-255 1-256 1-257 1-258 1-259 1-260 1-261 1-262 1-263 1-264 1-265 1-266 1-267 1-268 1-269 1-270 1-271 1-272 1-273 1-274 1-275 1-276 1-277 1-278 1-279 1-280 1-281 1-282 1-283 1-284 1-285 1-286 1-287 1-288 1-289 1-290 1-291 1-292 1-293 1-294 1-295 1-296 1-297 1-298 1-299 1-300 1-301 1-302 1-303 1-304 1-305 1-306 1-307 1-308 1-309 1-310 1-311 1-312 1-313 1-314 1-315 1-316 1-317 1-318 1-319 1-320 1-321 1-322 1-323 1-324 1-325 1-326 1-327 1-328 1-329 1-330 1-331 1-332 1-333 1-334 1-335 1-336 1-337 1-338 1-339 1-340 1-341 1-342 1-343 1-344 1-345 1-346 1-347 1-348 1-349 1-350 1-351 1-352 1-353 1-354 1-355 1-356 1-357 1-358 1-359 1-360 1-361 1-362 1-363 1-364 1-365 1-366 1-367 1-368 1-369 1-370 1-371 1-372 1-373 1-374 1-375 1-376 1-377 1-378 1-379 1-380 1-381 1-382 1-383 1-384 1-385 1-386 1-387 1-388 1-389 1-390 1-391 1-392 1-393 1-394 1-395 1-396 1-397 1-398 1-399 1-400 1-401 1-402 1-403 1-404 1-405 1-406 1-407 1-408 1-409 1-410 1-411 1-412 1-413 1-414 1-415 1-416 1-417 1-418 1-419 1-420 1-421 1-422 1-423 1-424 1-425 1-426 1-427 1-428 1-429 1-430 1-431 1-432 1-433 1-434 1-435 1-436 1-437 1-438 1-439 1-440 1-441 1-442 1-443 1-444 1-445 1-446 1-447 1-448 1-449 1-450 1-451 1-452 1-453 1-454 1-455 1-456 1-457 1-458 1-459 1-460 1-461 1-462 1-463 1-464 1-465 1-466 1-467 1-468 1-469 1-470 1-471 1-472 1-473 1-474 1-475 1-476 1-477 1-478 1-479 1-480 1-481 1-482 1-483 1-484 1-485 1-486 1-487 1-488 1-489 1-490 1-491 1-492 1-493 1-494 1-495 1-496 1-497 1-498 1-499 1-500 1-501 1-502 1-503 1-504 1-505 1-506 1-507 1-508 1-509 1-510 1-511 1-512 1-513 1-514 1-515 1-516 1-517 1-518 1-519 1-520 1-521 1-522 1-523 1-524 1-525 1-526 1-527 1-528 1-529 1-530 1-531 1-532 1-533 1-534 1-535 1-536 1-537 1-538 1-539 1-540 1-541 1-542 1-543 1-544					

# 101L LED wall sconce

## Luminaire Accessories<sup>1</sup> (order separately)

Mounting accessories	
Wall Mount	
WS	Wall Mounted Box for Surface Duct

1. Consult E8974 to confirm whether specific accessories are BAA-compliant.

## Dimensions

## Motion Response

## Luminaire Weights

LED Wall Sconce 101L	Weight
Luminaire	13.2 lbs
Luminaire + BPPC (BPPC battery pack)	17.0 lbs

## Optical Distributions

Based on configuration 101L-02L-150-150-W-02 (02W) mounted at 15ft.

**Type 1**

**Type 3**



**Type 4**

101L 10/21 page 2 of 5

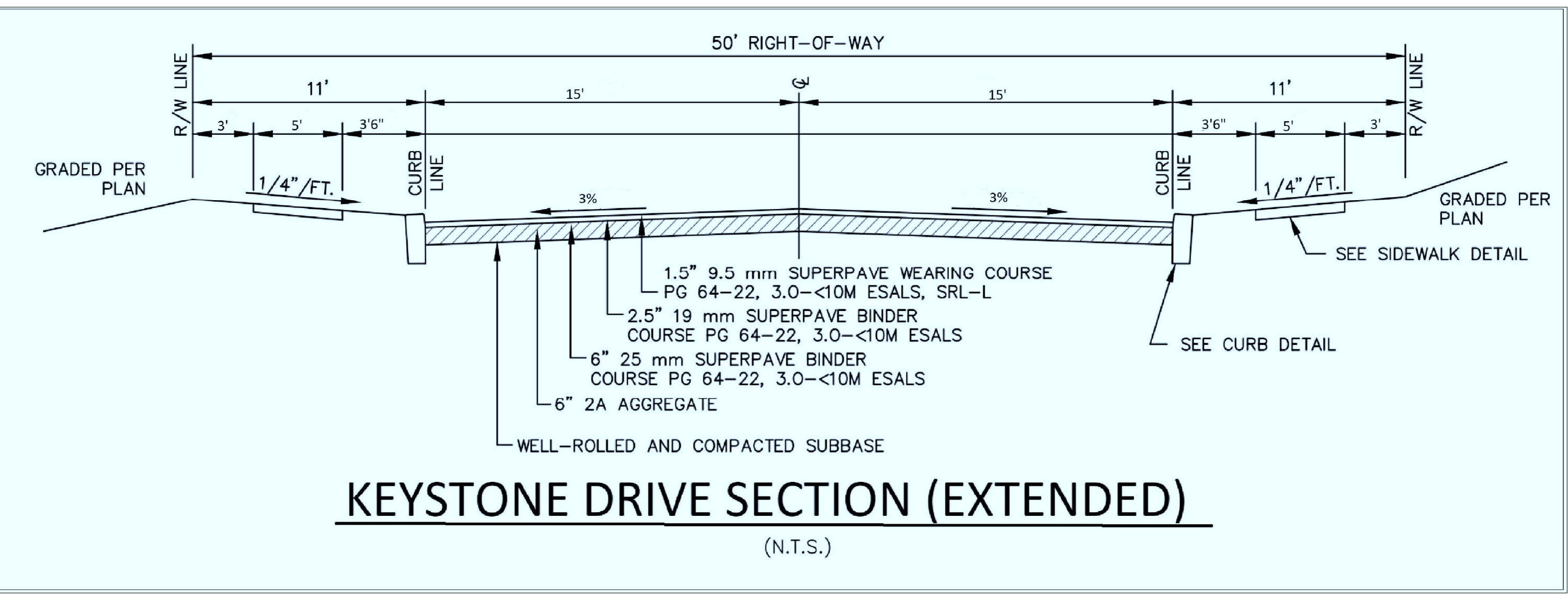
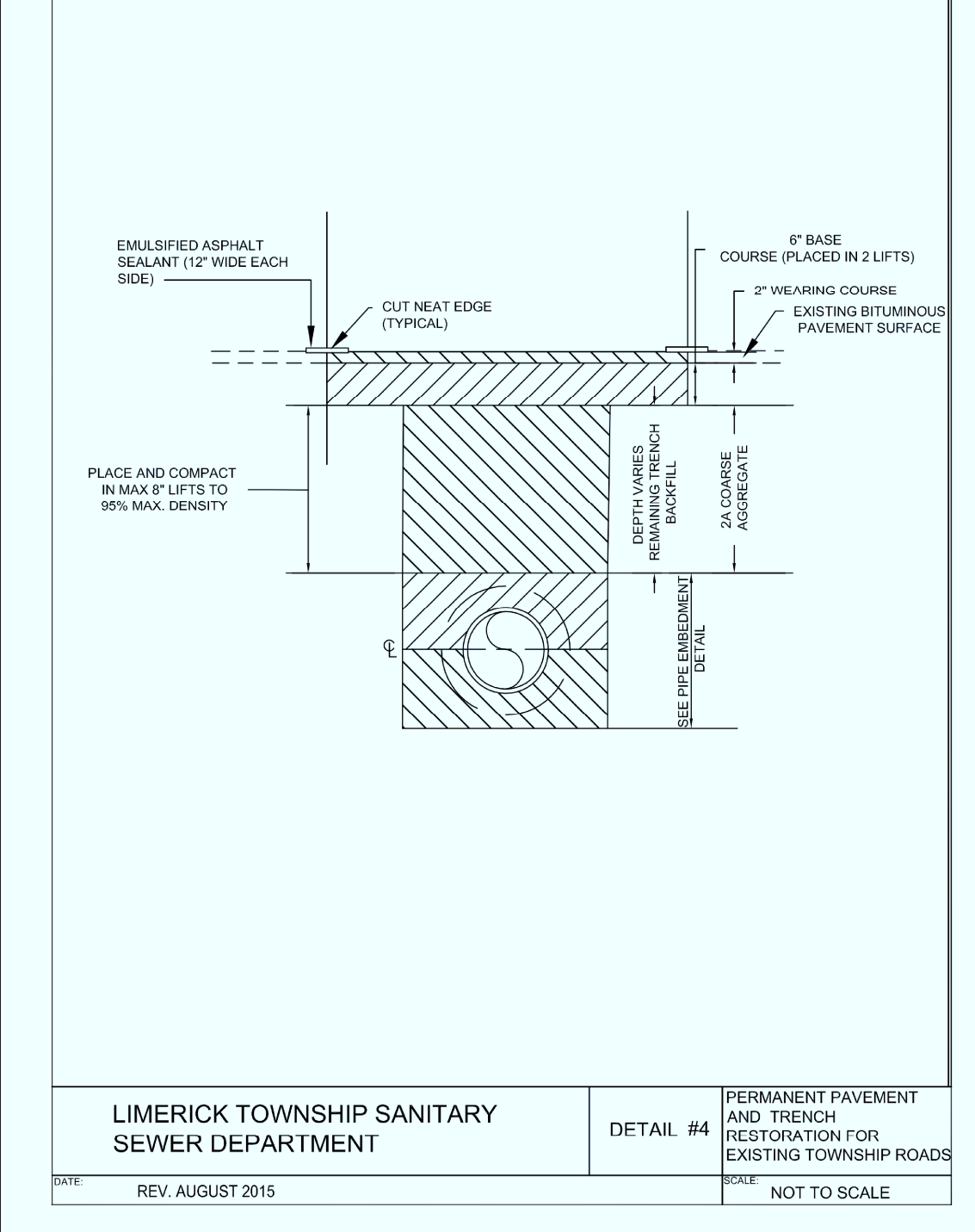
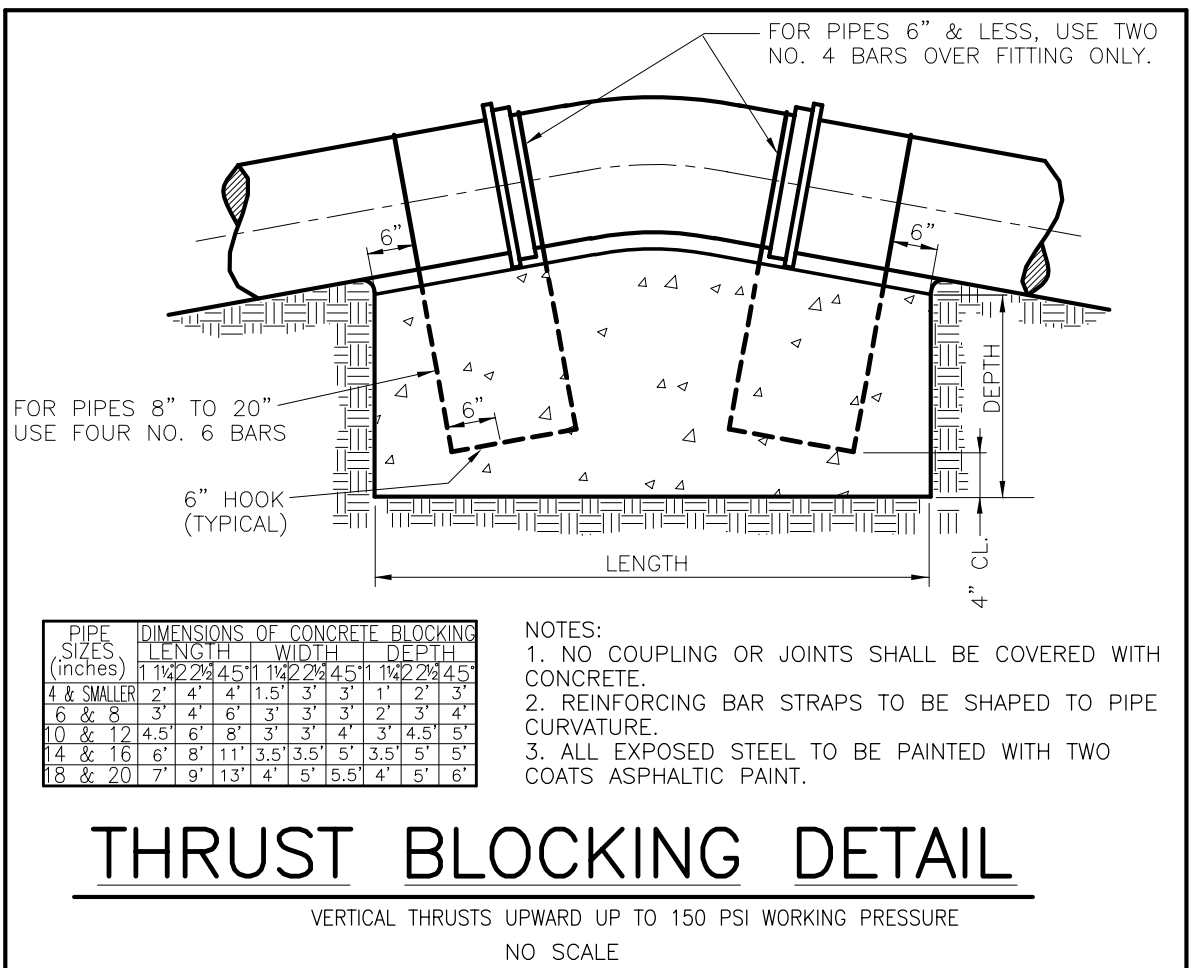
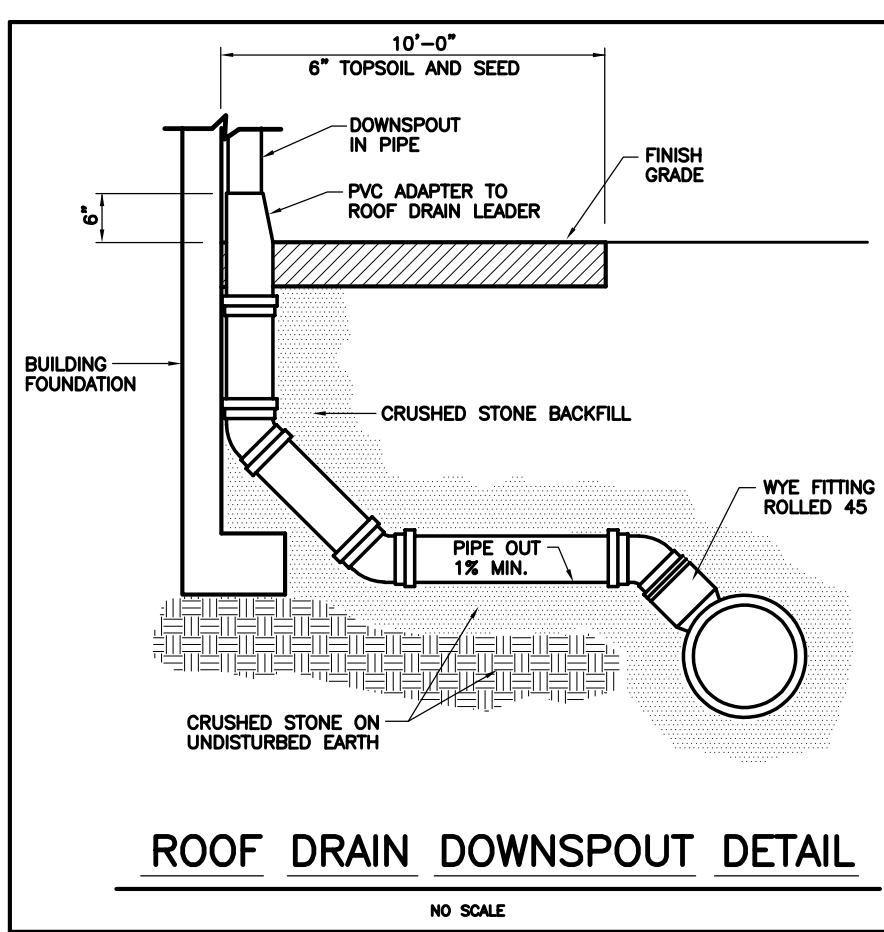
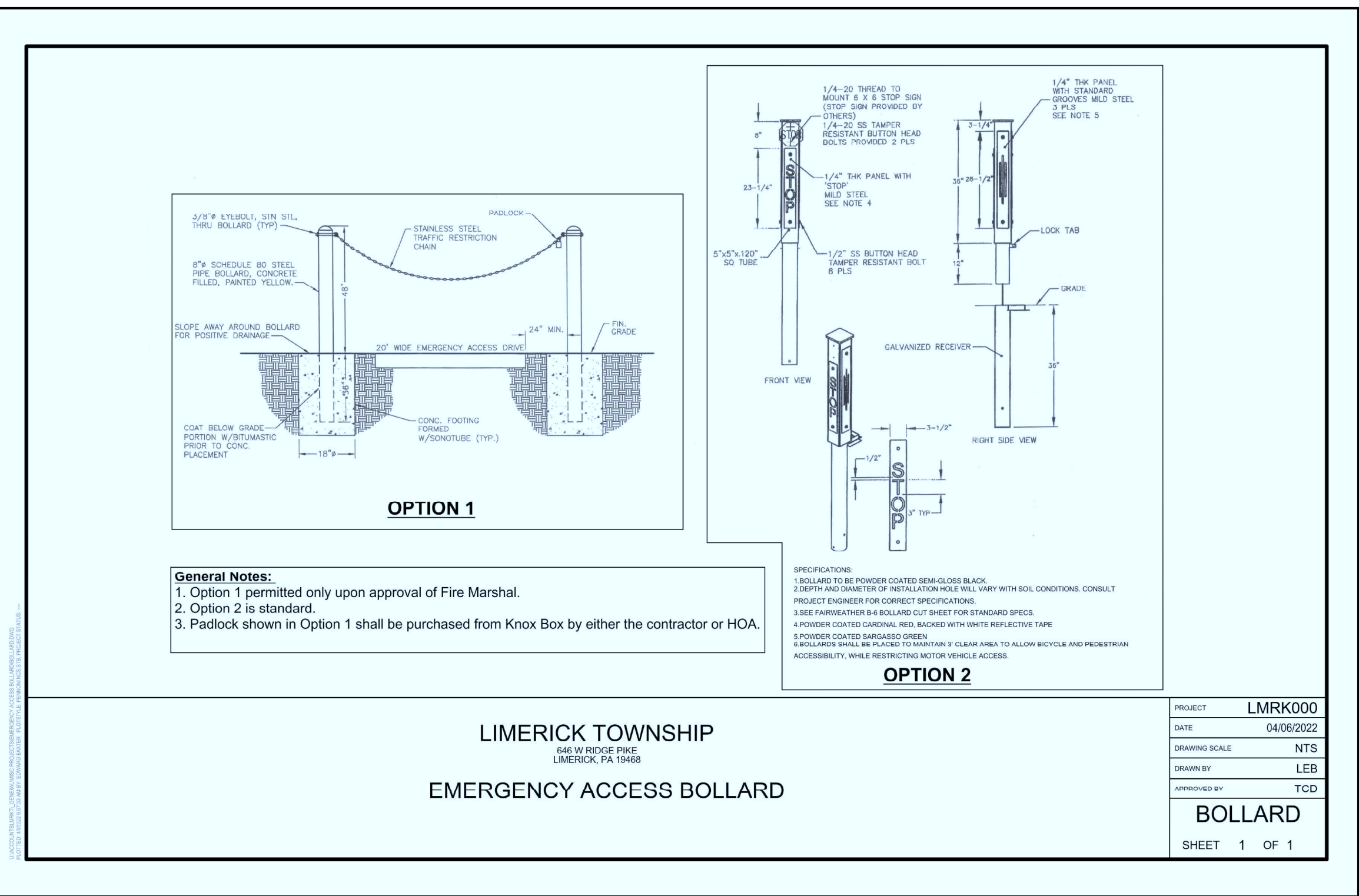
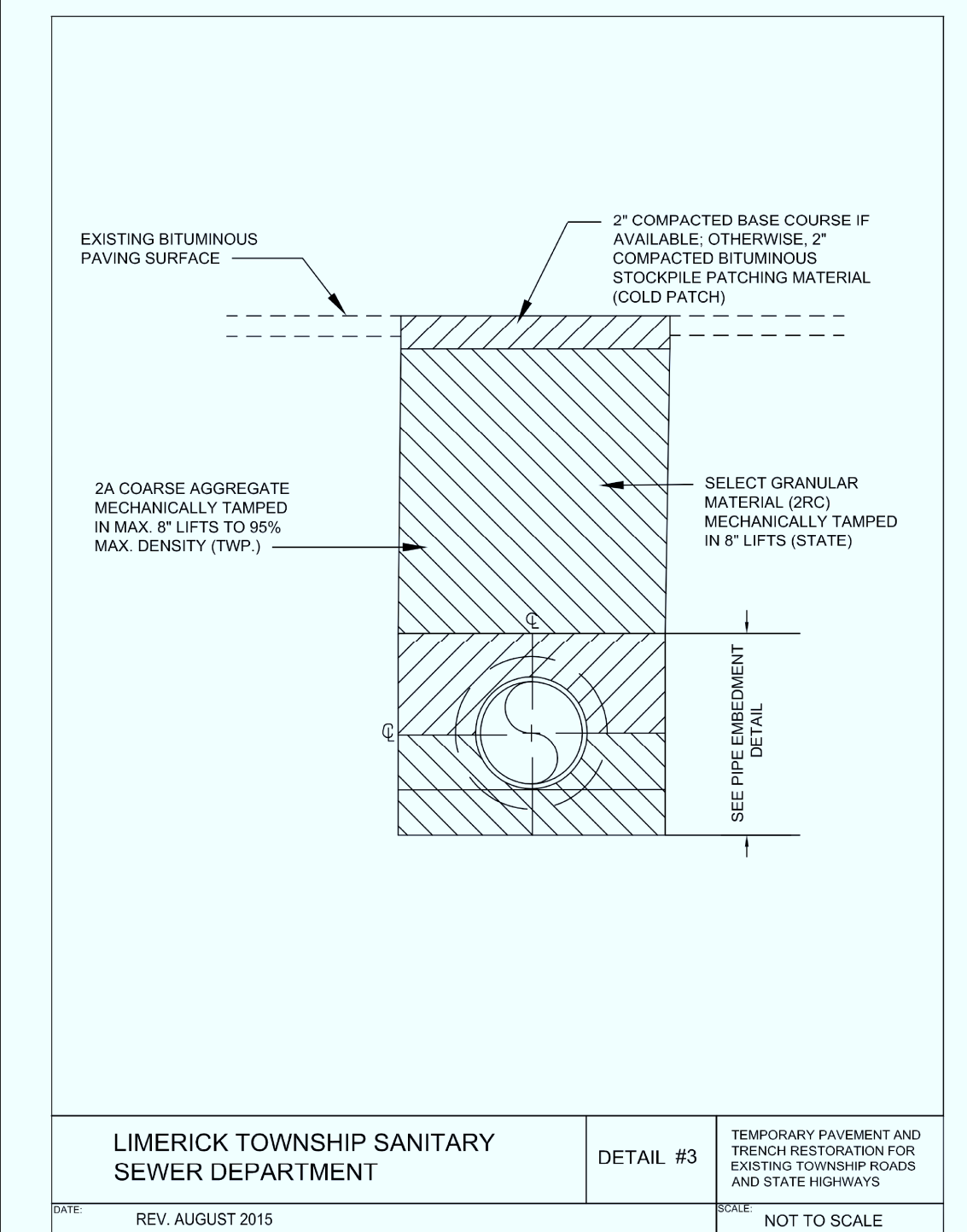
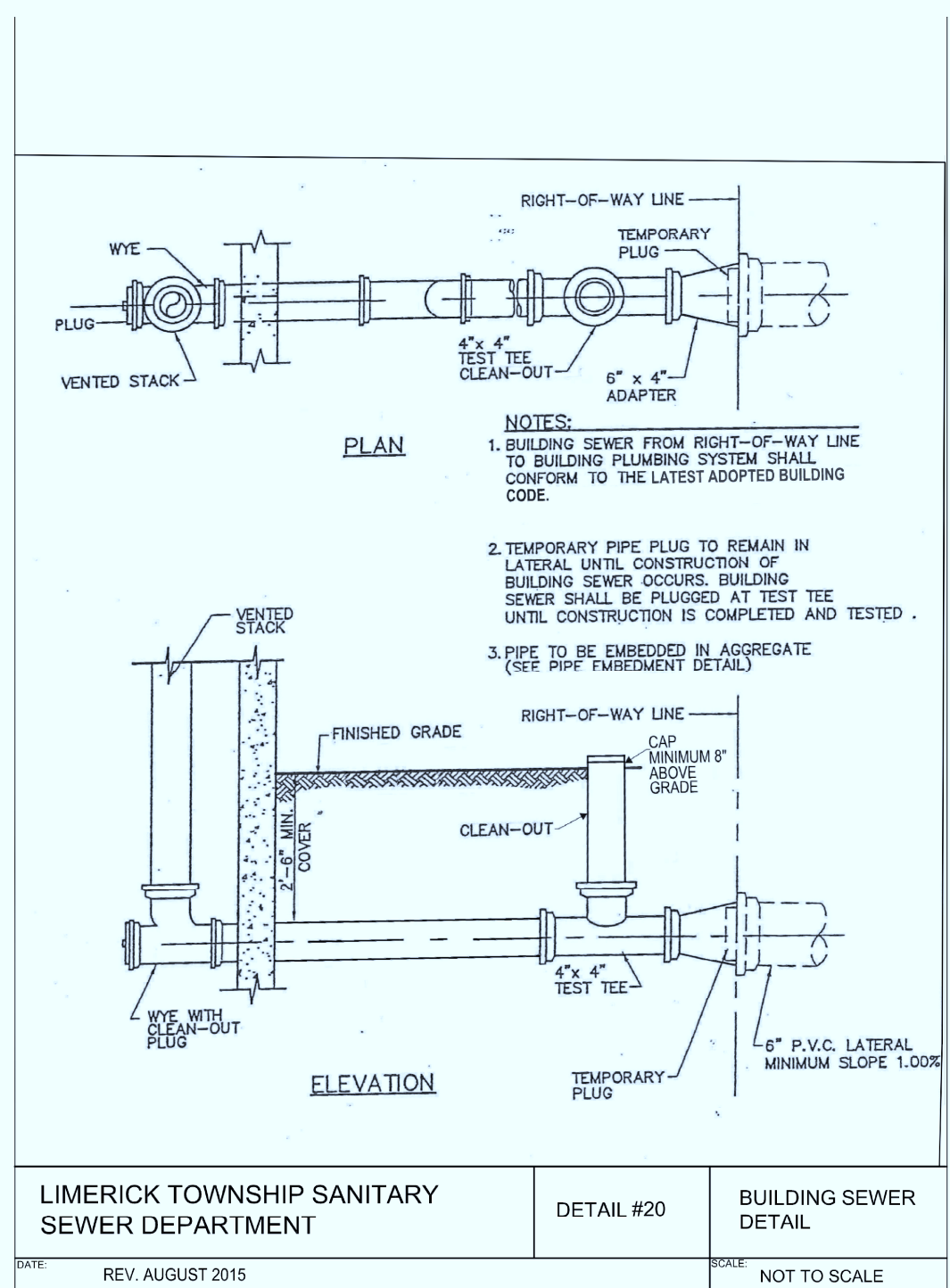
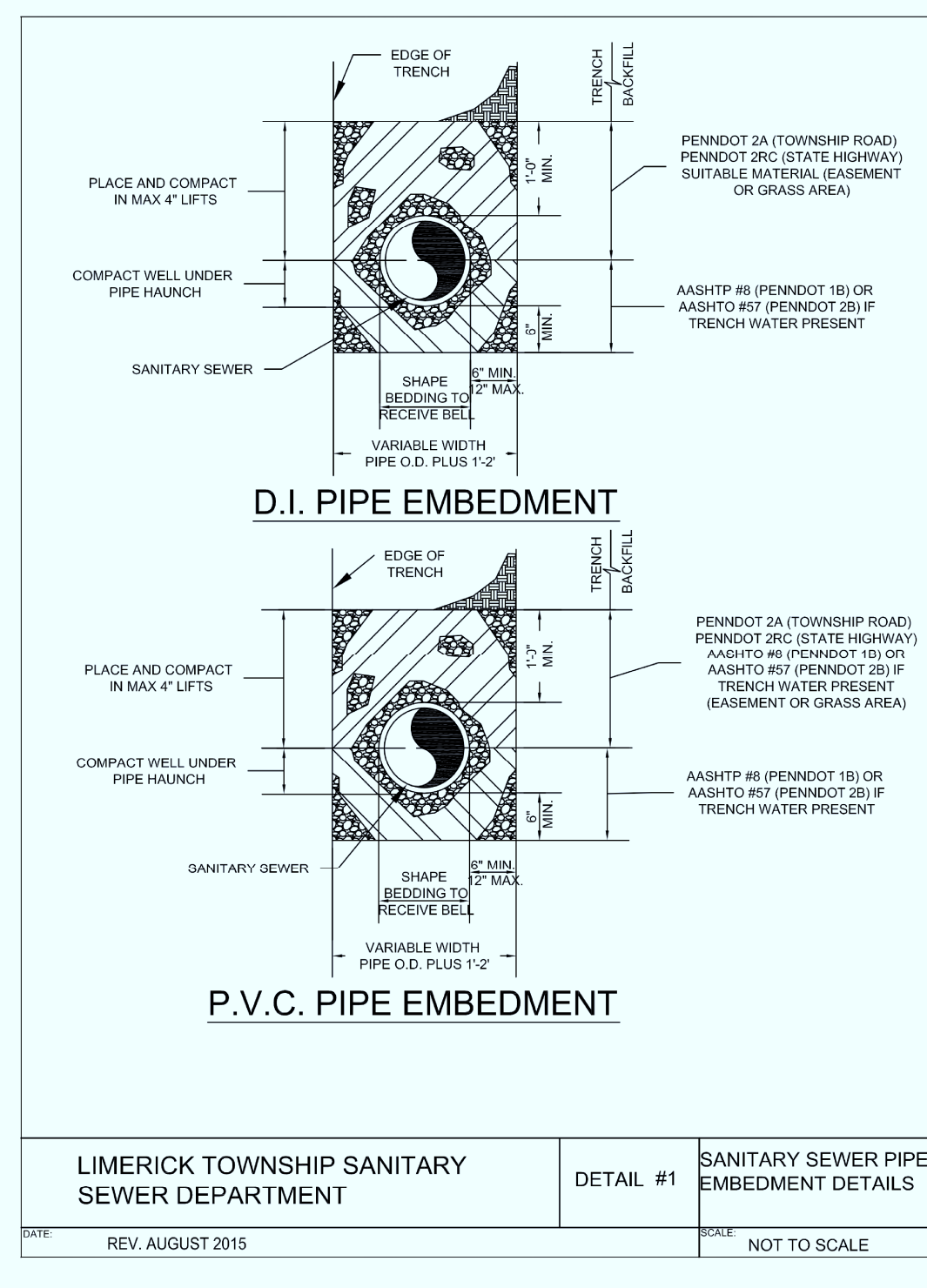
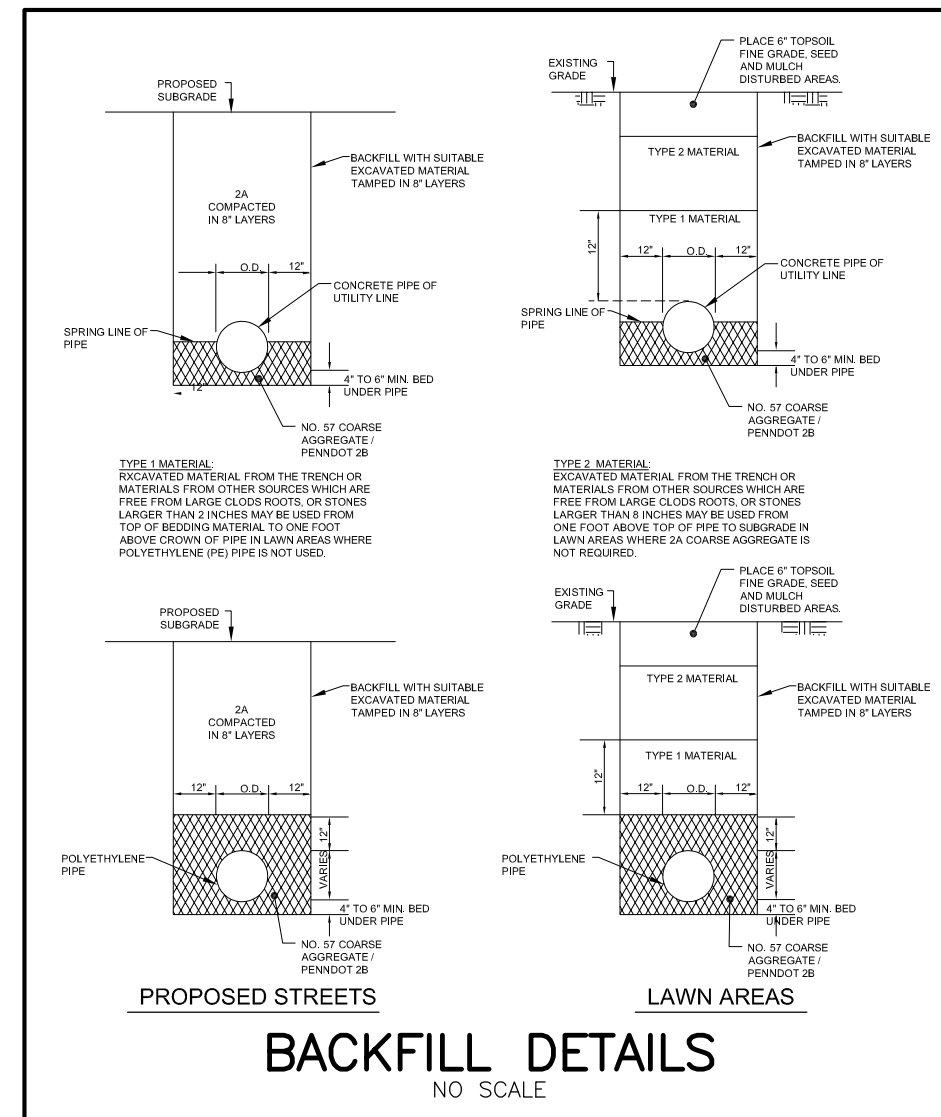
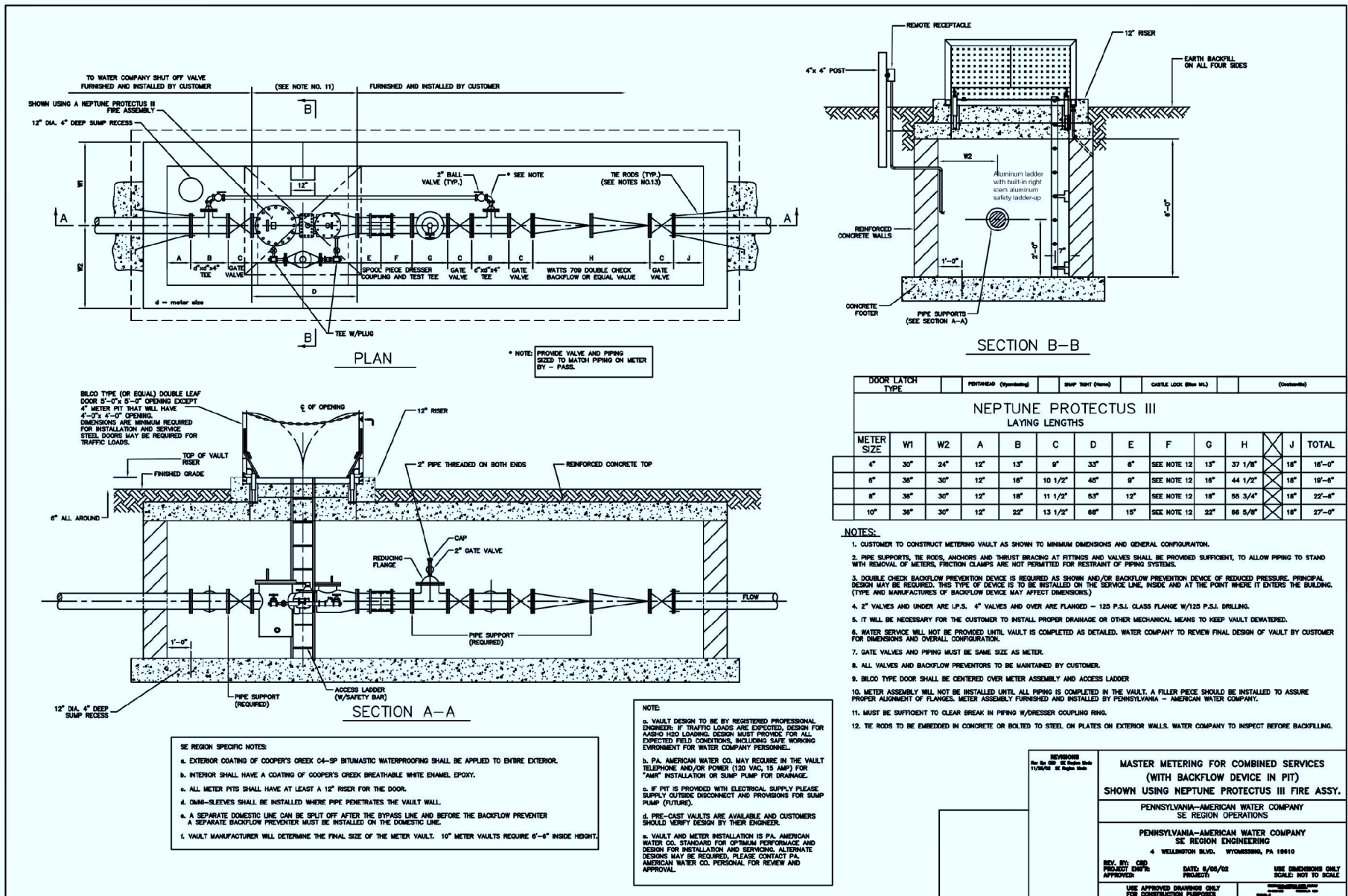
Technical drawing showing the base and fixture detail for outdoor lighting. The drawing includes the following components and dimensions:

- BASE COVER
- 4"X6" ACCESS PANEL
- CONNECT GROUND TO POLE
- PROJECT ANCHOR BOLTS 3" ABOVE BASE GROUT SOLID UNDER BASE PLATE.
- 1" CHAMFER
- ANCHOR BOLTS BY POLE MFG.
- FINISH GRADE
- 1/2" RIGID CONDUIT
- #2 TIES
- REINF. CONC. BASE
- (4) #5 REBAR
- POLES 14' - 30' USE 24" DIA. SONOTUBE.
- 5/8"X8" COPPER GROUND ROD. CLAMP TO BE BURNDY #GAR 644C W#12 WIRE.
- 2'-6"
- 2'-6"
- 4" MIN.

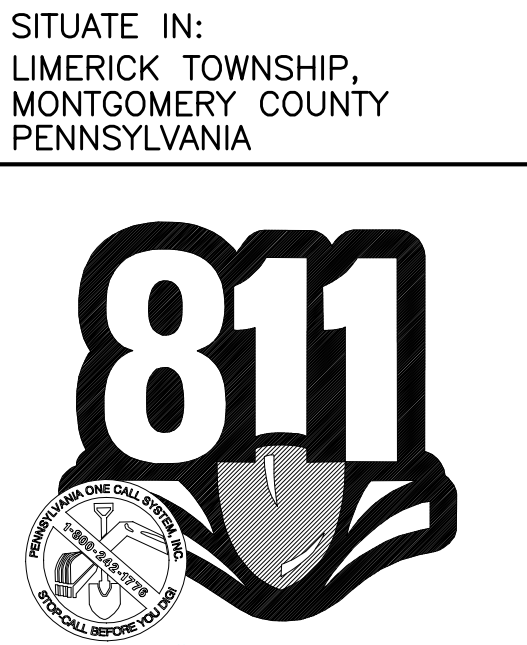
**BASE & FIXTURE DETAIL**  
**OUTDOOR LIGHTING**  
 NOT TO SCALE

SITUATE IN: LIMERICK TOWNSHIP, MONTGOMERY COUNTY PENNSYLVANIA	<div style="border: 2px solid black; padding: 10px; margin-bottom: 10px;"> <h1 style="margin: 0;">LINFIELD CORPORATE CENTER: VERUS</h1> </div> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%; text-align: center;">  <p>THOMAS BRYAN LUDGATE ENGINEER PEO76996</p> </div> <div style="width: 50%; text-align: center;"> <h2 style="margin: 0;">Ludgate Engineering Corporation</h2> <p style="margin: 5px 0;">ENGINEERS SURVEYORS PLANNERS ENVIRONMENTAL SCIENTISTS</p> <p style="margin: 0;">© 2021</p> </div> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px; text-align: center;">         LINCOLN CORPORATE CENTER          10 VANGUARD DRIVE, SUITE 100          READING, PA 19606          PHONE 610/404-7330          FAX 610/404-7371       </div>																				
	<div style="text-align: center; margin-bottom: 10px;"> <p>© COPYRIGHT 2021</p> <p>BY LUDGATE ENGINEERING CORPORATION</p> <p>ALL RIGHTS RESERVED. NEITHER ALL, NOR ANY PART OF THIS DOCUMENT MAY BE REPRODUCED, REPRODUCED, COPIED, OR USED IN ANY FORM OR MANNER WITHOUT PERMISSION TO CONTRADICT WITH THE SPECIFIC WRITTEN PERMISSION OF LUDGATE ENGINEERING CORPORATION.</p> </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 15%;">DRAWN</th> <th style="width: 15%;">COMP(BAS)</th> <th style="width: 15%;">COMP(LOSS)</th> <th style="width: 55%;">COMPUTER FILE</th> </tr> <tr> <td>TCD</td> <td></td> <td></td> <td>P:7810321D.DWG</td> </tr> <tr> <td>12-21-21</td> <td></td> <td></td> <td></td> </tr> <tr> <th>SCALE</th> <th colspan="2">MAP</th> <th>DRAWING NUMBER</th> </tr> <tr> <td>AS NOTED</td> <td colspan="2"></td> <td>D-7810321 SHEET 22</td> </tr> </table>	DRAWN	COMP(BAS)	COMP(LOSS)	COMPUTER FILE	TCD			P:7810321D.DWG	12-21-21				SCALE	MAP		DRAWING NUMBER	AS NOTED			D-7810321 SHEET 22
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12-21-21																					
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AS NOTED			D-7810321 SHEET 22																		





REVISION	DATE	DESCRIPTION
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#2 TCD	6-3-22	
#1 TCD	5-3-22	

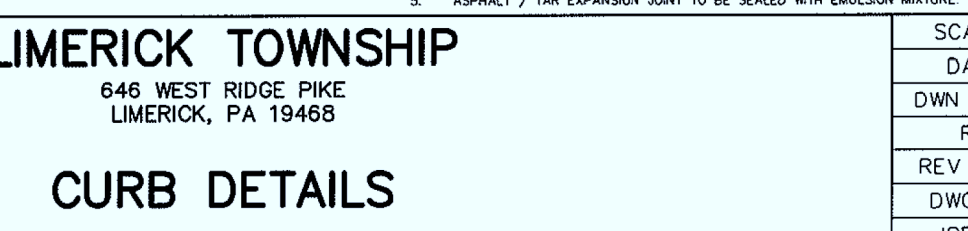
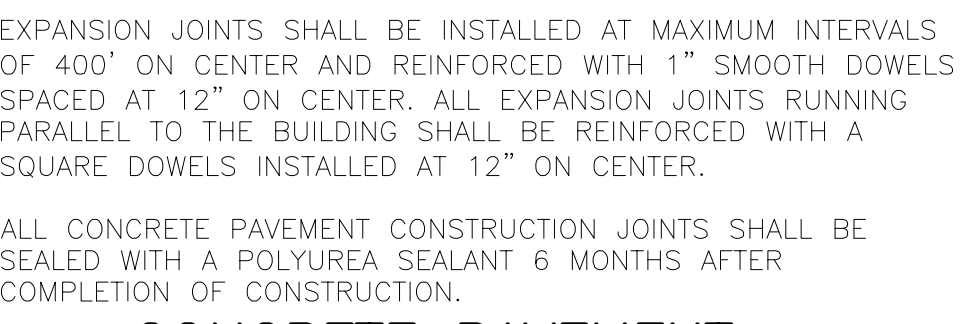
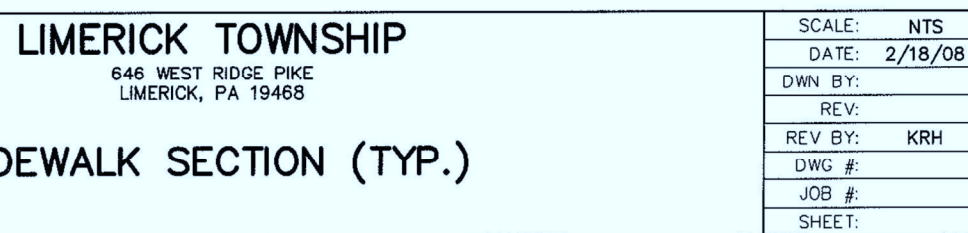
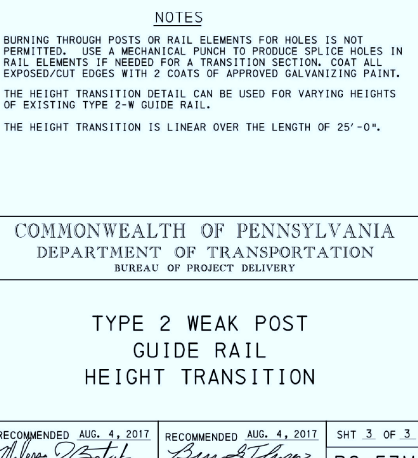
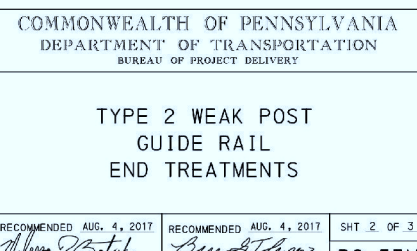
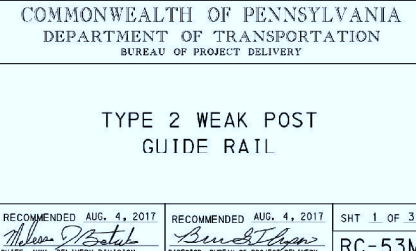


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 FAX 610/404-7371

DRAWN: TCD  
 COMP: BNP  
 SCALE: AS NOTED  
 COMPUTER FILE: P:7810321D.DWG  
 DRAWING NUMBER: D-7810321 SHEET 23

## FINAL PLAN DETAILS





## FINAL PLAN DETAILS

SITUATE IN:  
LIMERICK TOWNSHIP,  
MONTGOMERY COUNTY  
PENNSYLVANIA

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12-21-21			
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AS NOTED			D-7810321 SHEET 24

COMMONWEALTH OF  
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PE076995  
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Ludgate Engineering Corporation  
10 Vanguard Drive, Suite 100  
Reading, PA 19606-3763  
Phone: (610)404-7330

Plan prepared by: Ludgate Engineering Corporation  
Julie Parish

Formal Education:  
Technical Institute: Pennsylvania College of Technology  
Dates of Attendance: 2007 to 2011  
Degree received: Bachelor of science in Civil Engineering

Recent Erosion and Sedimentation Control Plans Prepared:  
Name of Project: 467 Tulpehocken Street  
County: Berks  
Municipality: City of Reading

Under direct supervision of Thomas B. Ludgate, PE, PLS and LEED AP

PROJECT NARRATIVE:  
The propose project is a 257,040 sqft warehouse/distribution center within the Linfield corporate center subdivision. Several smaller tracks have been combined to create the warehouse lot. Surrounding the warehouse will be parking and PCSM BMPs. An extension to keystone drive is also being added as part of this project.

The Site Boundary is 28.0 acres and the Limit of Disturbance is 26 acres.

Land Uses: Land uses past 50 years has been agricultural field. Land uses past 5 years has been agricultural as well as vacant meadow. Proposed land uses is the construction of a warehouse/distribution center.

PCSM BMPs to be used:  
BMP 1 will be a Vegetated MRC.  
BMP 2 will be a rain garden 6.4.5  
BMP 3 will be an underground infiltration bed.  
BMP 4 will be a Vegetated MRC.

STREAM CLASSIFICATION:  
The receiving stream is unnamed tributary to the Schuylkill river and is classified as WWF in the PA Code Chapter 93.

SOIL CLASSIFICATION:  
The soils on site are:  
ADB - Abbottstown silt loam, 3 to 8 percent slopes  
CRB - Crotan silt loam, occasionally ponded, 3 to 8 percent slopes  
PeB - Penn silt loam, 3 to 8 percent slopes  
PeC - Penn silt loam, 8 to 15 percent slopes  
PKD - Penn-Klinesville channery silt loams, 15 to 25 percent slopes  
RHB - Reaville silt loam, 3 to 8 percent slopes

SOIL LIMITATIONS	SOIL RESOLUTIONS	AB	CRB	PeB	PeC	PKD	RHB
Outbanks Cave	Layback slopes - follow OSHA rules for safety	x	x	x	x	x	x
Corrosive to Concrete/Steel	Corrosive resistant concrete - protective barrier between water and the steel - galvanized steel	C/S	C/S	C	C	C/S	C/S
Droughty	Compost mix to hold in moisture			x	x	x	x
Easily Erodeble	Maintain erosion control BMPs	x	x				x
Flooding	Avoid work in flood areas						
Depth to Saturated Zone/Seasonal High Water Table	Pumped water filter, footer drains	x	x				x
Hydric/Hydric Inclusions	Avoidance, pumped water filter bags, trench plugs	x	x	x	x	x	x
Low Strength/Landslide Prone	Layback slopes/design for conditions	x	x	x	x	x	x
Slow Percolation	Drainage ditch, pumped water filter bag	x	x				x
Piping	Trench plugs	x	x	x	x	x	x
Poor Source of Topsoil	Avoid reuse as topsoil or amend as necessary	x	x	x	x	x	x
Frost Action	Construct below frost depths/positive subgrade	x	x	x	x	x	x
Shrink-Swell							
Potential Sinkhole	Provide positive drainage						
Ponding	Design for conditions - drainage trenches, pumped water filter bag, sump pumps, footer drains		x				
Wetness	Trench plugs	x	x				x

Soil Limitations  
Outbanks Cave - Layback slopes - follow OSHA rules for safety  
Corrosive to Concrete/Steel - Use Corrosive resistant concrete - protective barrier between water and the steel - galvanized steel  
Droughty - Compost mix to hold in moisture  
Easily Erodeble - Maintain erosion control BMPs  
Hydric/Hydric Inclusions - Avoidance, pumped water filter bags, trench plugs.  
Low Strength/Landslide Prone - Layback slopes/design for conditions.  
Slow Percolation - Drainage ditch, pumped water filter bag.  
Piping - Trench plugs.  
Poor Source of Topsoil - Avoid reuse as topsoil or amend as necessary.  
Shrink-Swell - Avoid use of clay soils in building areas.  
Potential Sinkhole - Sinkhole mitigation techniques.  
Ponding - Provide positive drainage.  
Flooding - Avoid work in flood areas.  
Depth to Saturated Zone/Seasonal High Water Table - Pumped water filter, footer drains.  
Frost Action - Construct below frost depths/positive subgrade.  
Site falls within a Karst area and could have the potential for sinkholes - Licensed professional to prepare plan to restore and/or avoid area.

Geologic/soil conditions addressed. Potential for geologic or soil conditions to cause pollution during construction identified:  
There are no known naturally occurring geologic formations or soil conditions that may have the potential to cause pollution during earth disturbance activities. Should any conditions be discovered during construction, the design engineer, the township and local Conservation District shall be notified immediately.

#### GENERAL EROSION AND SEDIMENT CONTROL PLAN NOTES

- The contractor is advised to become thoroughly familiar with the provisions of the Appendix E4, Erosion Control Rules and Regulations, Title 25, Part 1, Department of Environmental Protection, Subpart C, Protection of Natural Resources, Article III, Water Resources, Chapter 102 Erosion Control.
- The operator shall assure that the approved erosion and sediment control plan is properly and completely implemented.
- All earth disturbances, including clearing and grubbing as well as cuts and fills shall be done in accordance with the approved E&S plan. 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 may require a written submission of those changes for review and approval at its discretion.
- The operator shall assure that an erosion and sediment control plan has been prepared, approved by the reviewing agency, and is being implemented and maintained for all soil and/or rock spoil and borrow areas, regardless of their locations.
- Before initiating any revisions to the erosion and sediment control plan or revisions to other plans which may affect the effectiveness of the approved E&S control plan, the operator must receive approval of the revisions from the reviewing agency.
- Only limited disturbance will be permitted to provide access to (construct sediment traps, diversion terraces, etc.) for grading and acquiring borrow to construct those controls.
- All pumping of water from any work area that is done according to the procedure described in this plan, over undisturbed vegetated areas. Discharge points should be established to provide for maximum distance to active waterways.
- Seeps or springs encountered during construction shall be handled in accordance with the standard and specification for the subsurface drain or other approved method.
- At stream crossings, 50-foot buffer areas should be maintained. On buffers, clearing, soil disturbance, excavation and equipment traffic should be minimized. Activities such as stacking logs, burning/clearing brush, discharging rainwater from trenches, welding pipe sections, relining and maintaining equipment should be accomplished outside of the buffers.
- Concrete washout shall be handled in the manner described on the plan drawings. In no case shall it be allowed to enter any surface waters or groundwater systems. Concrete washout must be a minimum of 50 feet from drains, ditches and waterways on a maximum slope of 2%. Material must be removed when it reaches 75% of total storage and liners must be replaced with clean cleaning.

#### Sediment Basins and Traps

- Approval of the use of skimmer(s) does not approve use of any skimmer(s) in violation of any patent, patent rights, and/or patent laws.
- Baffles must be installed to allow basin maintenance and clean out.
- Upon installation of the temporary sediment basin riser(s), an immediate inspection of the riser(s) shall be conducted by a qualified site representative and the Local County Conservation District shall be notified in writing that the riser is sealed.
- Sediment basins must be structurally sound and protected from unauthorized acts of third parties.
- Sediment basins and/or traps shall be kept free of all construction waste, wash water, and other debris having potential to clog the basin/trap outlet structures and/or pollute the surface waters.

- Any damage that occurs in whole or in part as a result of basin or trap discharge shall be immediately repaired by the permittee in a permanent manner satisfactory to the municipality, Local County Conservation District, and the owner of the damaged property.
- Upon request, the applicant or his contractor shall provide an as-built (record drawing) for any sediment basin or trap to the municipal inspector, Local County Conservation District or DEP.

#### Channels

- All channels shall be kept free of obstructions including but not limited to fill, rocks, leaves, wood debris, accumulated sediment, excess vegetation, and construction material/wastes.
- Underground utilities cutting through any active channel shall be immediately backfilled and the channel restored to its original cross-section and protective lining. Any base flow within the channel shall be conveyed past the work area in the manner described in this plan until such restoration is complete.
- Channel flowing Riprap, Reno Mattress, or Gabion linings must be sufficiently over-excavated so that the design dimensions will be provided after placement of the protective lining.

#### Protection of Infiltration BMPs

- Compaction of the BMP area shall be avoided and minimized during construction.

- E&S BMPs shall be installed and maintained during and after construction of the infiltration BMPs to prevent sediment from clogging or filling the PCSM BMP or storage facility.

#### Utility Line Trench Excavation Notes

- All excavation for utility line installation shall be limited to the amount that can be excavated, installed, backfilled and stabilized within one working day. All excavated material shall be deposited on the upslope side of the trench.
- Limit advanced clearing and grubbing operations to a distance equal to two times the length of pipe installation that can be completed in one day.
- Work crews and equipment for trenching, placement of pipe, plug construction and backfilling will be self-contained and separate from clearing and grubbing and site restoration and stabilization operations.
- Water which accumulates in the open trench will be completely removed by pumping before pipe placement and/or backfilling begins. Water removed from the trench shall be pumped through a filtration device.
- Soils excavated from existing surface layer should be stockpiled separately and returned as final surface layer following backfilling. A minimum of 6" of topsoil must top the backfilled area.
- On the day following pipe placement and trench backfilling, the disturbed area will be graded to final contours and immediately stabilized.

#### SOIL AMENDMENT AND RESTORATION

- Use soil amendment media. Soil amendment media usually consists of compost, but can include mulch, manures, sand, and manufactured microbial solutions.
- Compost should be added at a rate of 2:1 (soil/compost). If a proprietary product is used, the manufacturer's instructions should be followed in terms of mixing and application rate.
- Soil restoration should not take place within the drip line of a tree to avoid damaging the root system.
- On-site soils shall with an organic content of at least 5% percent can be properly stockpiled (to maintain organic content) and reused.
- Spread 3" of approved compost on top of existing soil. Till added soil in to existing soil with a rotary tiller set at a depth of 6 inches. Add an additional 4 inches of engineered soil to bring the area up to grade.
- After permanent planting/seeding, 2-3 inches of compost blanket will be applied to all areas not protected by grass or other plants.
- If additional information is required, refer to the Pennsylvania Stormwater Best Management Practices Manual at <http://www.ehbrary.dep.state.pa.us>

#### INFILTRATION COMPOST MIX FOR BASIN BOTTOM

- Place a mix of 1/3 sand, 1/3 compost and 1/3 triple shredded mulch in basin bottom.

#### RECYCLING

All building materials and wastes shall be removed from the site and recycled or disposed of in accordance with the Department's Solid Waste Management Regulations at 25 Pa. Code 260.1 et seq., 271.1 and 287.1 et seq. No building materials or wastes or unused building materials shall be burned, buried, dumped, or discharged at the site.

#### BORROW/WASTE AREAS/FILL

- 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.
- The contractor is responsible for ensuring that any material brought on site is Clean Fill. Form FP-001 must be retained by the property owner for any fill material affected by a spill or release of a regulated substance but qualifying as Clean Fill due to analytical testing.
- If the site will need to import or export material from another site, the responsibility for performing environmental due diligence and determination of clean fill will rest with Permittee.
  - Clean fill is defined as: Uncontaminated, non-water soluble, non-decomposable, inert, solid material. The term includes soil, rock, stone, dredged material, used asphalt, and brick, block or concrete from construction and demolition activities that is separate from other 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)
  - Clean fill affected by a spill or release of a regulated substance: Fill materials affected by a spill or release of a regulated substance still qualifies as clean fill provided the testing reveals that the fill material contains concentrations for regulated substances that are below the residential limits in Tables FP-1a and FP-1b found in the Department's policy "Management of Fill". Any person placing clean fill that has been affected by a spill or release of a regulated substance must use 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 retained by the owner of the property receiving the fill.
  - Environmental due diligence: The applicant must perform environmental due diligence to determine if the fill materials associated with the project qualify as clean fill. Environmental due diligence is defined as: 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, transaction screens, analytical testing, environmental assessments or audits. 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 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 the Department's policy "Management of Fill". Fill material that does not qualify as clean fill is regulated fill. Regulated fill is waste and must be managed in accordance with the Department's municipal or residual waste regulations based on 25 PA Code Chapters 287 Residual Waste Management or 271 Municipal Waste Management, whichever is applicable. These regulations are available on-line at [www.pacode.com](http://www.pacode.com)
- All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence or other related problems. Fill related to support buildings, structures and conduits, etc. shall be compacted in accordance with local requirements or codes.

- All earthen fills shall be placed in compacted layers not to exceed 9 inches in thickness.
- Areas to be filled are to be cleared, grubbed, and striped of topsoil to remove trees, vegetation, roots and other objectionable material.
- 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.
- Fill shall not be placed on saturated or frozen surfaces.
- Fill material for embankments shall be free of roots, or other woody vegetation, organic material, large stones and other objectionable materials. The embankments shall be compacted in maximum 8" layered lifts at 95% density.

#### Temporary and Permanent Stabilization

- Erosion and sediment control BMPs shall be implemented and maintained until permanent stabilization is completed and PCSM BMPs are operational.
- Areas which are to be topsoiled shall be scarified to a minimum depth of 3 to 5 inches - 6 to 12 inches on compacted soils - prior to placement of topsoil. Areas to be vegetated shall have a minimum of 4 inches of topsoil in place prior to seeding and mulching. Fill outcrops shall have a minimum of 2 inches of topsoil.
- In no case should an area exceeding 15,000 square feet, which is to be stabilized by vegetation, reach final grade without being seeded and mulched.
- Immediately after earth disturbance activities cease in any area or subarea of the project for a period exceeding 4 days, the operator shall stabilize all disturbed areas. The site shall be immediately seeded, mulched or otherwise protected from accelerated erosion and sedimentation pending future earth disturbance activities. During non-germinating months, mulch or protective blanketing shall be applied as described in the plan. Areas not at finished grade, which will be reactivated within 1 year, may be stabilized in accordance with the temporary stabilization specifications. Those areas which will not be reactivated within 1 year shall be stabilized in accordance with the permanent stabilization specifications.
- Hay or straw mulch must be applied at 3.0 tons per acre. Straw mulch should be anchored immediately after application to prevent being windblown. Straw mulch shall be applied in long strands, not chopped or finely broken.
- 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.
- 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.
- An erosion control blanket will be installed on all disturbed slopes 3:1 or steeper, all areas of concentrated flows, and disturbed areas within 50' of a surface water.
- Diversion channels, sedimentation basins, sediment traps and stockpiles must be stabilized immediately.

#### DUST CONTROL MEASURES:

- Dust control measures should be implemented on all construction sites where there will be major soil disturbances or heavy construction activity, such as clearing, excavation, demolition or excessive vehicle traffic.
- The owner, operator and contractors are responsible for dust control at a site and will need to determine which practices serve their needs based on specific site and weather conditions.
- Sprinkling/Irrigation - sprinkling the ground surface with water until it is moist.
- Vegetative Cover - in areas not expected to handle vehicle traffic, vegetative stabilization of disturbed soil is desirable.
- Mulch - a quick and effective means of dust control for a recently disturbed area.
- Wind breaks - barriers (either natural or constructed) that reduce wind velocity through the site. Wind breaks can be trees or shrubs left in place during site clearing or constructed barriers such as wind fence, snow fence, tarp curtain, hay bales, crate wall or sediment wall.
- Tillage - Deep tillage in large open areas brings soil clods to the surface where they rest top of dust, preventing it from becoming airborne.
- Stone - stone may be an effective dust deterrent for construction roads and entrances, or as a mulch in areas where vegetation cannot be established.

- Failure to correctly install E&S BMPs, failure to prevent sediment-laden runoff from leaving the construction site, or failure to take immediate corrective action to resolve failure of E&S BMPs may result in administrative, civil, and/or criminal penalties being instituted by the Department as defined in Section 602 of the Pennsylvania Clean Streams Law. The Clean Streams Law provides 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.
- Sediment tracked onto any public roadway or sidewalk shall be returned to the construction site by the end of each work day and disposed in the manner described in this plan. Removal can be completed through use of mechanical or hand tools, in no case shall the sediment be washed, shoveled, or swept into any roadside ditch, storm sewer, or surface water.
- All sediment removed from BMPs shall be disposed of in the manner described on the plan drawings. The sediment trapping controls, as may be shown, shall be cleaned out as per the corresponding detail. Sediment shall be disposed of in landscape areas outside of steep slopes, wetlands, floodplains or drainage swales and immediately stabilized, or placed in topsoil stockpiles.

- Immediately upon discovering unforeseen circumstances posing the potential for accelerated erosion and/or sediment pollution, the operator shall implement appropriate best management practices to minimize the potential for erosion and sediment pollution and notify the local conservation district and/or regional office of the Department. Stockpiles of wood chips, hay bales, crushed stone or other mulches shall be held in readiness to deal immediately with emergency problems with erosion.
- Until the site achieves final stabilization, all erosion and sediment BMPs shall be maintained properly. The operator shall assure that the best management practices (BMPs) are implemented, operated, and maintained properly and completely. Maintenance shall include inspections of all erosion and sediment BMPs after each runoff event and on a weekly basis. All preventative and remedial maintenance work, including clean out, repair, replacement, regrading, reseeded, re-mulching and re-netting must be performed immediately. If the E&S BMPs fail to perform as expected, replacement BMPs, or modifications of those installed will be required. Only after disturbed areas are stabilized with a 70% uniform perennial growth shall temporary erosion and sedimentation control structures be removed.
- 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 made available to regulatory agency officials at the time of the inspection.
- Sediment must be removed from stormwater inlet protection after each storm event, or when the distance between the grate and the sediment level is reduced to 18".
- Stormwater inlets, which do not discharge to sediment traps or basins, must be protected until the tributary areas are stabilized.

#### TEMPORARY SEEDING

- Fertilization - The following shall be spread and worked into topsoil to a depth of 3 to 4 inches:  
Agricultural Lime: 1 ton per acre, 40 lbs. per 1,000 sq.ft. or 410 lbs. per 1,000 sqyd.  
10-20-20 Fertilizer: 500 lbs. per acre, 12.5 lbs. 1,000 sq. ft. or 100 lbs. per sqyd.
- Temporary Seeding (or mulching in winter) shall be done immediately. Areas that shall be undisturbed for one year shall be permanently seeded.
  - Seeding (Temporary) - According to season, at rate of one (1) lb. 1,000 sq. ft. Annual Rye Grass - March 1 to June 15, Sudan Grass - May 15 to August 15 at rate of 55 lbs per acre, Winter Rye - September 15 to October 15 at rate of 168 lbs. per acre. Apply seed uniformly. October 15 - March 1, use 2 in. of mulch as ground cover over winter. Mulch with straw.

#### PERMANENT SEEDING

Permanent Seeding - The disturbed areas, drainage channels and swales shall be permanently seeded (stabilized) as follows:

- Fertilization - The following shall be spread and worked into topsoil to a depth of 3 to 4 inches:  
Agricultural Lime: 6 tons per acre, 240 lb. per 1,000 sq. ft. or 2,480 lb. per 1,000 sqyd.  
10-20-20 Fertilizer: 1,000 lb. per acre, 25 lb. per 1,000 sqft. Or 210 lb. per 1,000 sqyd.
- Temporary Seeding (or mulching in winter) shall be done immediately. Areas that shall be undisturbed for one year shall be permanently seeded.  
a. Grass Seeding - KY 31 Tall Fescue 88%, Redtop 12% - 2 lb. per 1,000 sq. ft. Apply from April 1 to June 15 or August 15 - October 1. When seedings are watered regularly, seeding dates may be extended from June 15 to August 15. Apply seed uniformly by broadcasting, hydraulic application. Cover grass with 1/4" of soil and straw mulch.

#### MULCHING SPECIFICATIONS

All seeded areas should be mulched or blanketed to minimize potential for failure to establish adequate vegetative cover.

Mulching may also be used as a temporary stabilization of some disturbed areas in non-germinating seasons.

Mulches should be applied as follows:

- Straw - 3 tons per acre, 140 lbs. per 1,000 sqft. or 1,240 lbs. per 1,000 sqyds - either wheat or oat straw, free of weeds, not chopped or finely broken
- Hay - 3 tons per acre, 140 lbs. per 1,000 sqft. or 1,240 lbs. per sqyd. - Timothy, mixed clover and timothy, or other native forage grasses
- Wood chips - 4-6 tons per acre, 185-275 lbs. per 1,000 sq.ft. or 1,650-2,500 lbs. per 1,000 sq. yd. - May prevent germination of grasses and legumes.
- Hydromulch - 1 ton per acre, 47 lbs. per 1,000 sq.ft. or 415 lbs. per sqyd.

Straw and hay mulch should be anchored or tackified immediately after application to prevent being windblown. A tractor-drawn implement may be used to "crimp" the straw or hay into the soil - about 3 inches. This method should be limited to slopes not steeper than 3:1V. The machinery should be operated on the contour. Note: Crimping of hay or straw by running over with tracked machinery is not recommended.

Polymeric and gum tackifiers mixed and applied according to manufacturer's recommendations may be used to tack mulch. Avoid application during rain and on windy days - A 24-hour curing period and a soil temperature higher than 45°F are typically required. Application should generally be heaviest at edges of seeded areas and at crests of ridges and banks to prevent loss by wind. The remainder of the area should have binder applied uniformly. Binders may be applied where mulch is spread or sprayed into the mulch as it is being blown onto the soil. Applying straw and binder together is generally more effective.

Synthetic binders, or chemical binders, may be used as recommended by the manufacturer to anchor mulch provided sufficient documentation is provided to show they are non-toxic to native plant and animal species.

Mulch on slopes of 8% or steeper should be held in place with netting. Lightweight plastic, fiber, or paper nets may be stapled over the mulch according to manufacturer's recommendations.

Shredded paper hydromulch should not be used on slopes steeper than 5%. The application rate for any hydromulch should be 2,000 lb./acre at a minimum.

Where excessive soil erosion, tracking or flowing of sediment is evident or anticipated, a minimum of 4" of crushed stone shall be placed within the affected area and maintained until permanent stabilization is achieved. Crushed stone shall conform to AASHTO designation M43, Size No. 2(2-1/2" to 1-1/2")

Maintenance - Mulched areas shall be checked periodically and immediately after each rainfall event for damage, until the mulching is no longer necessary for protection against erosion. Damaged portions of the mulch or tie down/material shall be repaired as soon as discovered.

#### PCSM REPORTING AND RECORDKEEPING:

The PCSM Plan, inspection reports and monitoring records shall be available for review and inspection by the Department or the conservation district.

#### FINAL CERTIFICATION:

- The permittee shall include with the Notice of Termination "Record Drawings" with a final certification statement from a licensed professional.
  - The permittee shall retain a copy of the record drawings as part of the approved PCSM Plan.
- The permittee shall provide a copy of the Record Drawings as part of the approved PCSM Plan to the person identified in this section as being responsible for the long-term operation and maintenance of BMPs.

#### MONITORING, INSPECTION AND REPORTING REQUIREMENTS

Visual Inspection

The Permittee and Co-Permittee(s) must ensure that visual site inspections are conducted weekly, and within 24 hours after each measurable rainfall event of 0.25 inch per 24 hours throughout the duration of construction and until the receipt and acknowledgment of the NOT by the department or Local County 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 kept and include at a minimum:

- a summary of site conditions, E&S BMP and PCSM BMP, implementation and maintenance and compliance actions; and
- the date, time, name and signature of the person conducting the inspection.

#### Noncompliance Reporting

Where E&S, PCSM or PPC BMPs are found to be inoperative is ineffective during an inspection, or any other time, the Permittee and Co-Permittee(s) shall, within 24 hours, contact the department or the Local County Conservation District, by phone or personal contact, followed by the submission of a written report within 5 days of initial contact. Noncompliance reports shall include the following information:

- any condition on the project site which may endanger public health, safety, or the environment, or involve incidents which cause or threaten pollution;
- the period on noncompliance, including exact dates and times and/or anticipated time when the activity will return to compliance;
- steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance; and
- 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 shall take immediate action to restore the BMPs or provide an alternative method of treatment. Such restored BMPs or alternative treatment shall be at least as effective as the original BMPs.

#### Termination of Coverage

NOT: Upon permanent stabilization of earth disturbance activities associated with construction activity that are authorized by this permit and when BMPs identified in the PCSM Plan have been properly installed, the Permittee and/or Co-Permittee of the facilities must submit a NOT form that is signed in accordance with Part B, Section 1.c, Signatory Requirements, of this permit. All letters certifying discharge termination are to be sent to the department or the Local County Conservation District. The NOT must contain the following information: facility name, address, and location, operator name and address, permit number, identification and proof of acknowledgment from the person(s) who will be responsible for the operation and maintenance of the PCSM BMPs in accordance with the approved PCSM Plan, and the reason for permit termination. Until the Permittee has received written acknowledgment of the NOT, the Permittee will remain responsible for operating and maintaining all E&S BMPs and

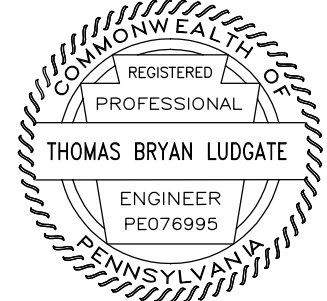
REVISION	DATE	DESCRIPTION
#4	TCD	9-7-22
#3	TCD	6-22-22
#2	TCD	6-3-22
#1	TCD	5-3-22

PCSM BMPs on the project site and will be responsible for violations occurring on the project site.

#### Completion Certification and Final Plans

Within 30 days after the completion of earth disturbance activities authorized by this permit, including the permanent stabilization of the site and proper installation of PCSM BMPs in accordance with the approved PCSM Plan, or upon submission of the NOT if sooner, the Permittee shall file with the department or Local County Conservation District a statement signed by a licensed professional and by the Permittee certifying that work has been performed in accordance with the terms and conditions of this permit and approved E&S and PCSM Plans.

## PCSM AND E&S NARRATIVE

<b>SITUATE IN:</b> LIMERICK TOWNSHIP, MONTGOMERY COUNTY PENNSYLVANIA		<b>LINFIELD CORPORATE CENTER: VERUS</b>	
		<b>Ludgate Engineering Corporation</b> ENGINEERS SURVEYORS PLANNERS ENVIRONMENTAL SCIENTISTS © 2021	
LINCOLN CORPORATE CENTER 10 VANGUARD DRIVE, SUITE 100 READING, PA 19606 PHONE 610/404-7330 FAX 610/404-7371			
DRAWN TCD	COMP(BMP) 12-21-21	COMP(LOTS) MAP	COMPUTER FILE P:7810321D.DWG
SCALE AS NOTED		DRAWING NUMBER D-7810321	SHEET 25



CONSTRUCTION SEQUENCE – NOTES:

All earth disturbances, including clearing and grubbing as well as cuts and fills shall be done in accordance with the approved E&S plan. 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 will be notified of any changes to the approved plan prior to implementation of those changes. The reviewing agency may require a written submittal of those changes for review and approval at its discretion.

At least 7 days prior to starting any earth disturbance activities, including clearing and grubbing, the owner and/or operator shall invite all contractors, the landowner, appropriate municipal officials, the E&S plan preparer, the PCSM plan preparer, the licensed professional responsible for oversight of critical stages of implementation of the PCSM plan, and a representative from the Local County Conservation District to an on-site preconstruction meeting. The owner and/or operator must bring a copy of their NPDES permit and a copy of the stamped plan which must be available at the conference upon request.

At least 3 days prior to starting any earth disturbance activities, or expanding into an area previously unmarked, the Pennsylvania One Call System, the site shall be notified at 1-800-242-1776 for the location of existing underground utilities.

All earth disturbance activities shall proceed in accordance with the sequence provided on the plan drawings. Deviation from that sequence must be approved in writing from the Local County Conservation District or by the Department of Environmental Protection prior to implementation.

Upon installation or stabilization of all perimeter sediment control BMPs and at least 3 days prior to proceeding with the bulk earth disturbance activities, the Permittee or Co-Permittee shall provide notification to the department or authorized Local County Conservation District.

Erosion and sediment BMPs must be constructed, stabilized and functional before site disturbance begins within the tributary areas of those BMPs.

E&S BMPs shall remain functional as such until all areas tributary to them are permanently stabilized or until they are replaced by another BMP approved by the Local County Conservation District or the department.

Areas to be filled are to be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots and other objectionable material.

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 not commence 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.

At no time shall construction vehicles be allowed to enter areas outside the limit of disturbance boundaries as shown on the plan maps. These areas must be clearly marked and fenced off before clearing and grubbing operations begin.

The limits of disturbance (LOD), streams and wetlands should be marked prior to disturbance activities (i.e. survey stakes, posts & rods, construction fence, etc.).

Topsoil required for the establishment of vegetation shall be stockpiled at the location(s) shown on the plan map(s). In the amount necessary to complete the finish grading of all exposed areas that are to be stabilized by vegetation. 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.

Erosion control blanketing shall be installed on all slopes 3H:1V or steeper within 50 feet of a surface water and on all other disturbed areas specified on the plan maps and/or detail sheets.

After final stabilization has been achieved, temporary E&S BMPs must be removed or converted to permanent post construction stormwater management BMPs. Areas disturbed during the removal or conversion of the BMPs must be stabilized immediately. In order to ensure rapid revegetation of disturbed areas, such removal/conversions should be done only during the germinating season. The Local County Conservation District should be contacted prior to conversion or removal of primary BMPs and may require a site inspection.

Upon completion of all earth disturbance activities and permanent stabilization of all disturbed areas, the owner and/or operator shall contact the Local County Conservation District for an inspection prior to removal/conversion of the E&S BMPs.

Per new NPDES requirements, "within 30 days after the completion of earth disturbance activities authorized by this permit, including the permanent stabilization of the site and proper installation of the PCSM BMPs in accordance with the approved PCSM plan, or upon submission of the NOI if sooner, the permittee shall file with the department or authorized conservation district a statement signed by a licensed professional and by the permittee certifying that the work has been performed in accordance with the terms and conditions of this permit and the approved E&S and PCSM Plans. Completion certificates are needed to ensure that the permit is sealed in accordance with the terms and conditions of the permit and the approved E&S and PCSM Plans."

Before disposing of soil or receiving borrow for the site, the operator must assure that each spoil or borrow area has an erosion and sediment control plan approved by the local conservation district, and which is being implemented and maintained according to Chapter 102 regulations for all soil and/or rock spoil and borrow areas, regardless of their locations. The operator must notify the local County Conservation District in writing of all receiving spoil and borrow areas when they have been identified.

Permittees and Co-Permittees are responsible for ensuring that a licensed professional has oversight responsibilities for the design and proper installation of BMPs identified in the PCSM Plan prior to the submission of the NOI for this permit. The licensed professional shall certify that the BMPs identified in the plan have been installed in accordance with the approved plan. The installation schedule of PCSM BMPs and maintenance requirements contained within the approved PCSM Plan must be followed; failure to comply with the installation schedule is a violation of this permit, the Clean Streams Law, and the Clean Water Act.

CONSTRUCTION SEQUENCE:

Note: Some Critical Stages of BMP Installation will require oversight by a Licensed Professional. Licensed Professionals are Professional Engineers, Landscape Architects, Geologists and Land Surveyors licensed to practice in this Commonwealth.

- The entire limit of disturbance (LOD) boundary must be identified and made visible with stakes, flagging or orange construction fencing prior to beginning work. All work and equipment must remain inside this boundary.
- Install rock construction entrance.
- Clear and grub only as needed to install compost socks as shown on the plans.
- After compost socks are in place, begin clearing and grubbing.
  - All discharges should be to stable drainage courses or to well- vegetated areas.
  - Avoid steep slopes, rock outcrops and other potential hazards.
  - Inspect weekly and after each runoff event. Damages should be repaired immediately.
  - If any seeps are found on site, the design engineer should be contacted and the seep intercept detail shown on the design plans should be used to direct the seep to the nearest downstream surface waters of POT.
- Begin grading site. Excavated topsoil is to be placed on a temporary topsoil stockpile. Topsoil required for the establishment of vegetation shall be stockpiled at the location(s) shown on the plan map(s) in the amount necessary to complete the finish grading of all exposed areas that are to be stabilized by vegetation. Stockpile heights shall not exceed 35 feet. Stockpile slopes shall be 2H:1V or flatter.
- Grade Sediment Basin 1 and sediment Basin 2 first, followed by Diversion berms and then rest of site per plans.
- Install sediment basin 1 and sediment basin 2's outlet structure, baffles and skimmers following plan details. Once the sediment basins are fully installed the rest of the site may be graded.
- All graded areas shall be permanently stabilized immediately upon reaching finished grade. Cut slopes in compacted 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.
- Place excavated topsoil on temporary topsoil pile. Place other soil or fragments of previous building pads, etc. on a temporary stockpile. When work is completed, stockpiles may be used for fill sites if approved by the county conservation district. All other material from the stockpile must be disposed of properly.
- Immediately place NAG erosion control blanket where shown on plan when grading has been completed within 50' of the existing surface water.

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 fill slopes shall be capable of resisting failure due to slumping, sliding, or other movements.

- Place stone base on areas to be paved (driveways and parking areas) and on building pads.
- Install concrete washouts.

- Install underground utilities where shown on plan. Install fire hydrants and water stub.
- Install sewer line where shown. Please refer to the Utility Line Trench Excavation Notes for proper installation of the sewer line.
- Existing water and sewer lines to be abandoned in-place (cap existing utility ends with gravel/concrete.)
- All proposed waterways to be Dip Class 52.
- All manholes located in a flood area shall have flood-tight manhole covers installed.
- Grade keystone drive roadway and cover with stone then begin grading for rain garden 1

A LICENSED PROFESSIONAL MUST BE ON-SITE TO OVERSEE THE CONSTRUCTION OF VEGETATED MRC BMP 2.

- Preparation of installation of Rain Garden BMPs 1. Begin with subgrade preparation.
  - Existing subgrade in Rain Garden/Bioretenation areas shall NOT be compacted or subject to excessive equipment traffic.
  - Initial excavation can be performed during rough site grading but shall not be carried to within one foot of the final bottom elevation. Final excavation should not take place until all disturbed areas in the drainage area have been stabilized.
  - Where erosion of the subgrade has caused accumulation of fine materials and/or surface ponding in the graded bottom, this material shall be removed with light equipment and the underlying soils scarified to a minimum depth of 6 inches with a York rake or equivalent light tractor.
  - Bring subgrade of bioretention area to line, grade, and elevations indicated. Fill and lightly regrade any areas damaged by erosion, ponding, or traffic compaction. All bioretention areas shall be level grade on the bottom.

- Installation of Vegetated MRC BMP 1.
  - Upon completion of subgrade work, the Engineer shall be notified and shall inspect at his/her discretion before proceeding with bioretention installation.
  - Install underdrain piping system as shown on plans.
  - Amended soils shall be placed on the bottom to the specified depth.
  - Planting soil shall be placed immediately after approval of subgrade preparation/bed installation. Soil shall be amended. Refer to Soil Amendment Notes. Any accumulation of debris or sediment that takes place after approval of subgrade shall be removed prior to installation of amended soil at no extra cost to the Owner.
  - Install amended soil (exceeding all criteria) in 18-inch maximum lifts and lightly compact (tamp with backhoe bucket or by hand). Keep equipment movement over planting soil to a minimum – do not over compact. Overfilling is recommended to account for settlement. Install planting soil to grades indicated on the drawings.
  - Presoak the amended soil prior to planting vegetation to aid in settlement.
  - Plant trees and shrubs according to supplier's recommendations and only from mid-March through the end of June or from mid-September through mid-November.
  - Install 2-3" shredded hardwood mulch (minimum age 6 months) or compost mulch evenly as shown on plans. Do not apply mulch in areas where ground cover is to be grass or where cover will be established by seeding.

- Seed with Ernst Seed Mix (ERMMX-180-1) Rain Garden Grass Mix. Seeding rate is 15 lb. per acre with cover crop of grain rye at 30 lb. per acre.
  - Protect Rain Gardens from sediment at all times during construction. Hay bales, diversion berms and/or other appropriate measures shall be used at the toe of slopes that are adjacent to Rain Gardens to prevent sediment from washing into these areas during site development.
  - When the site is fully vegetated and the soil mantle stabilized, the plan designer shall be notified and shall inspect the MRC Rain Garden drainage area at their discretion before the area is brought online and sediment control devices removed.
  - Water vegetation at the end of each day for two weeks after planting completed.

- After proper maintenance, if rain garden does not drain within 72 hours, check inlets and orifices for possible blockages. If it still doesn't drain, contact the Design Engineer
- Install stormwater conveyance system to BMP 1 and existing manhole at southern end of site. Install inlet protection on all inlets.
- Install curbs along keystone drive

- Move RCE to site entrances and being Verus site work. Move concrete washout to Verus site.
- Pave keystone drive

A LICENSED PROFESSIONAL MUST BE ON-SITE TO OVERSEE THE CONSTRUCTION OF RAIN GARDEN BMP 2

- Preparation of installation of Rain Garden BMPs 2. Begin with subgrade preparation.
  - Existing subgrade in Rain Garden/Bioretenation areas shall NOT be compacted or subject to excessive equipment traffic.
  - Initial excavation can be performed during rough site grading but shall not be carried to within one foot of the final bottom elevation. Final excavation should not take place until all disturbed areas in the drainage area have been stabilized.
  - Where erosion of the subgrade has caused accumulation of fine materials and/or surface ponding in the graded bottom, this material shall be removed with light equipment and the underlying soils scarified to a minimum depth of 6 inches with a York rake or equivalent light tractor.
  - Bring subgrade of bioretention area to line, grade, and elevations indicated. Fill and lightly regrade any areas damaged by erosion, ponding, or traffic compaction. All bioretention areas shall be level grade on the bottom.

- Installation of Rain Garden BMPs 2
  - Upon completion of subgrade work, the Engineer shall be notified and shall inspect at his/her discretion before proceeding with bioretention installation.
  - Install underdrain piping system as shown on plans.
  - Amended soils shall be placed on the bottom to the specified depth.
  - Planting soil shall be placed immediately after approval of subgrade preparation/bed installation. Soil shall be amended. Refer to Soil Amendment Notes. Any accumulation of debris or sediment that takes place after approval of subgrade shall be removed prior to installation of amended soil at no extra cost to the Owner.
  - Install amended soil (exceeding all criteria) in 18-inch maximum lifts and lightly compact (tamp with backhoe bucket or by hand). Keep equipment movement over planting soil to a minimum – do not over compact. Overfilling is recommended to account for settlement. Install planting soil to grades indicated on the drawings.
  - Presoak the amended soil prior to planting vegetation to aid in settlement.
  - Plant trees and shrubs according to supplier's recommendations and only from mid-March through the end of June or from mid-September through mid-November.
  - Install 2-3" shredded hardwood mulch (minimum age 6 months) or compost mulch evenly as shown on plans. Do not apply mulch in areas where ground cover is to be grass or where cover will be established by seeding.

- Seed with Ernst Seed Mix (ERMMX-180-1) Rain Garden Grass Mix. Seeding rate is 15 lb. per acre with cover crop of grain rye at 30 lb. per acre.
  - Protect Rain Gardens from sediment at all times during construction. Hay bales, diversion berms and/or other appropriate measures shall be used at the toe of slopes that are adjacent to Rain Gardens to prevent sediment from washing into these areas during site development.
  - When the site is fully vegetated and the soil mantle stabilized, the plan designer shall be notified and shall inspect the MRC Rain Garden drainage area at their discretion before the area is brought online and sediment control devices removed.
  - Water vegetation at the end of each day for two weeks after planting completed.

- After proper maintenance, if rain garden does not drain within 72 hours, check inlets and orifices for possible blockages. If it still doesn't drain, contact the Design Engineer
- Install stormwater conveyance system to BMP 2. Install inlet protection on all inlets.

A LICENSED PROFESSIONAL MUST BE ON-SITE TO OVERSEE THE CONVERSION OF THE SEDIMENT BASIN 1 TO AN INFILTRATION BED BMP 3

- When upslope areas are stabilized, install Underground infiltration bed and outlet pipe to EW with rip rap. Temporally pop outlets.
  - Grade for infiltration Bed BMP 3.
  - If groundwater is found during construction, a liner should be used to prevent the BMP from filling.
  - If bedrock or groundwater is encountered at any time during excavation of the BMP, excavation is to be discontinued in the affected area and the owner and engineer notified at once.
  - The existing subgrade under the BMP may not be compacted or subject to excessive construction equipment traffic prior to the placement of impervious geotextiles and stone bed.

- Bed bottom should be level after final grading.
  - Prior to placement of geotextile, upgradient areas shall be sufficiently stabilized to prevent the washing of sediment into stone. It is the contractor's responsibility to prevent the deposition of sediment or sediment-laden waters into the BMP structure after final grading.
  - Upon approval of final subgrade preparation, geotextile and aggregate shall be placed immediately. Any accumulation of debris or sediment which has taken place after approval of the subgrade shall be removed prior to installation of geotextile at no extra cost to owner. Erosion has caused accumulation of fine materials and/or surface ponding.
  - Place geotextile in accordance with manufacturer's standards and recommendations. Unplug existing outlet to include it in the construction of BMP #2
  - Adjacent strips of geotextile shall overlap a minimum of 12". Secure fabric at least 4' outside of bed and take steps necessary to prevent any sediment from entering trench.
  - Aggregate shall be clean with a wash loss of no more than 0.5%.
  - Installation of the stone should be checked by the design or site engineer prior to installation into the infiltration BMP to determine that it is clean washed stone. Aggregate that does not meet this criteria will be removed at no extra cost to the owner and the beds restored to the owner's satisfaction.
  - Following placement of bed aggregate, the geotextile shall be folded overtop the bed, with appropriate fabric overlap, to protect from sediment washout along bed edges.
  - The underground bed will ultimately be paved when the remainder of the site is paved.

- After proper maintenance, if infiltration bed does not drain within 72 hours, check inlets and orifices for possible blockages. If it still doesn't drain, contact the Design Engineer

- When upslope areas are stabilized, install stormwater conveyance system to BMP 3. Install inlet protection on all inlets.

A LICENSED PROFESSIONAL MUST BE ON-SITE TO OVERSEE THE CONVERSION OF THE SEDIMENT BASIN 2 TO A VEGETATED MRC BMP 4.

- Preparation of installation of Vegetated MRC BMP 4. Begin with subgrade preparation.
  - Existing subgrade in basin areas shall NOT be compacted or subject to excessive equipment traffic.
  - Initial excavation can be performed during rough site grading but shall not be carried to within one foot of the final bottom elevation. Final excavation should not take place until all disturbed areas in the drainage area have been stabilized.
  - Where erosion of the subgrade has caused accumulation of fine materials and/or surface ponding in the graded bottom, this material shall be removed with light equipment and the underlying soils scarified to a minimum depth of 6 inches with a York rake or equivalent light tractor.
  - Bring subgrade of bioretention area to line, grade, and elevations indicated. Fill and lightly regrade any areas damaged by erosion, ponding, or traffic compaction. All bioretention areas shall be level grade on the bottom.

- Installation of BMP 4
  - Upon completion of subgrade work, the Engineer shall be notified and shall inspect at his/her discretion before proceeding with bioretention installation.
  - Install underdrain piping system as shown on plans.
  - The washed 2B stone mix and Amended soils shall be placed on the bottom to the specified depth, see profile.
  - Amended soil shall be placed immediately after approval of subgrade preparation/bed installation. Refer to Soil Amendment Notes. Any accumulation of debris or sediment that takes place after approval of subgrade shall be removed prior to installation of amended soil at no extra cost to the Owner.

- Install amended soil (exceeding all criteria) in 18-inch maximum lifts and lightly compact (tamp with backhoe bucket or by hand). Keep equipment movement over planting soil to a minimum – do not over compact. Overfilling is recommended to account for settlement. Install amended soil to grades indicated on the drawings.
  - Presoak the amended soil prior to planting vegetation to aid in settlement.
  - Plant trees and shrubs according to supplier's recommendations and only from mid-March through the end of June or from mid-September through mid-November.
  - Install 2-3" shredded hardwood mulch (minimum age 6 months) or compost mulch evenly as shown on plans. Do not apply mulch in areas where ground cover is to be grass or where cover will be established by seeding.

- Seed with Ernst Seed Mix (ERMMX-180-1) Rain Garden Grass Mix. Seeding rate is 15 lb. per acre with cover crop of grain rye at 30 lb. per acre.
  - Protect basin from sediment at all times during construction. Hay bales, diversion berms and/or other appropriate measures shall be used at the toe of slopes that are adjacent to Rain Gardens to prevent sediment from washing into these areas during site development.
  - When the site is fully vegetated and the soil mantle stabilized, the plan designer shall be notified and shall inspect the basin drainage area at their discretion before the area is brought online and sediment control devices removed.
  - Water vegetation at the end of each day for two weeks after planting completed.

- After proper maintenance, if infiltration bed does not drain within 72 hours, check inlets and orifices for possible blockages. If it still doesn't drain, contact the Design Engineer

- When upslope areas are stabilized, install stormwater conveyance system to BMP 3. Install inlet protection on all inlets.

- Begin construction on buildings.

- Once building is complete install roof leaders to appropriate BMPs as shown on the plans.

- Complete curbing and other concrete work on site.
- Pave parking areas and driveways.
- Remove concrete washout and properly dispose of waste.
- When site work is completed, remove temporary topsoil stockpile by spreading on site within limit of disturbance and re-stabilizing. Remove inlet protection from all inlets.
- Contact the conservation district to get permission to place within Site Boundary and stabilize.
- Contact the Montgomery County Conservation District (MCCD) when completely stabilized. A site visit may be required.
- After final stabilization has been achieved and upon approval by MCCD, the BMPs must be stabilized immediately.
- Upon MCCD approval, remove all E&S BMPs. Compost socks can be slit open and compost spread on site. Areas disturbed during removal of BMPs must be immediately stabilized.
- Upon permanent stabilization of earth disturbance activities associated with construction activity that are authorized by this permit and when BMPs identified in the PCSM Plan have been properly installed, the Permittee and/or Co-Permittee of the facilities must submit a NOT form – refer to Termination of Coverage at the end of this narrative for details.

- Please refer to Completion Certification and Final Plans at end of this narrative for details. This must be completed by the Design Engineer. It is the permittee's responsibility to inform the Design Engineer when the site is ready for termination of coverage so the certification can be produced and presented to the conservation district.

Operation and Maintenance Notes

Maintenance of each BMP – Inspection Schedule and Log Info  
Maintenance shall include inspections of all erosion and sediment BMPs conducted weekly, and within 24 hours after each measurable rainfall event of 0.25 inch per 24 hours throughout the duration of construction.  
All preventative and remedial maintenance work, including clean out, repair, replacement, re-grading, re-seeding, re-mulching and re-netting must be performed immediately. If the E&S BMPs fail to perform as expected, replacement BMPs or modifications of those installed will be required.  
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 made available to regulatory agency officials at the time of inspection.

MONITORING, INSPECTION AND REPORTING REQUIREMENTS

- Visual Inspection  
The Permittee and Co-Permittee(s) must ensure that visual site inspections are conducted weekly, and within 24 hours after each measurable rainfall event of 0.25 inch per 24 hours throughout the duration of construction and until the receipt and acknowledgment of the NOI by the department or Local County 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 kept and include at a minimum:  
(1) a summary of site conditions, E&S BMP and PCSM BMP, implementation and maintenance and compliance actions; and  
(2) the date, time, name and signature of the person conducting the inspection.

Noncompliance Reporting  
Where E&S, PCSM or PFC 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 the Local County Conservation District, by phone or personal contact, followed by the submission of a written report within 5 days of initial contact. Noncompliance reports shall include the following information:

- any condition on the project site which may endanger public health, safety, or the environment, or involve incidents of such pollution or threaten pollution;
- the period on noncompliance, including exact dates and times and/or anticipated time when the activity will return to compliance;
- steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance; and
- the date or schedule of dates, and identifying remedies for correcting noncompliance conditions.

E&S BMP Type Maintenance Requirements

The Permittee and Co-Permittee(s) must ensure that visual site inspections of all E&S BMPs are conducted weekly, and within 24 hours after each measurable rainfall event of 0.25 inch per 24 hours throughout the duration of construction. 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 kept (see below for inspection report Requirements)

OPERATION AND MAINTENANCE OF E&S BMPs:

The NPDES applicant and his contractor will be responsible for the Operation and Maintenance of the E&S facilities which are located on his project.  
All wastes removed from BMPs must be handled properly. Plastics and paper items can be recycled. Low/yard waste can be placed with a compost center to be made into compost or mulch. Sediment removed from BMPs can be spread on site and immediately stabilized by adding seed and straw so it can be incorporated into the soil structure. Find source of sediment pollution and stabilize immediately.  
Oil and other debris should be disposed of per environmental laws.  
Maintenance shall include inspections of all BMPs on a weekly basis and after each runoff event of 0.25 inches in 24-hour period. All preventative and remedial maintenance work, including clean out, repair, replacement, re-grading, re-seeding, re-mulching and re-netting must be performed immediately. If the BMPs fail to perform as expected, replacement BMPs, or modifications of those installed will be required.  
A log showing dates that BMPs were inspected, as well as any deficiencies found, and the date they were corrected shall be maintained on the site and be made available to regulatory agency officials at the time of the inspection.  
Please Note – If after performing maintenance routines, the following do not operate properly, contact Design Engineer.

E&S O&M Notes

ROCK CONSTRUCTION ENTRANCE:

- Rock construction entrance thickness shall be constantly maintained to the specified dimensions by adding rock to the entrance and sediment control plan approved by the local conservation district.
- 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 and condition is alleviated or install wash rock.
- Washing the roadway or sweeping the deposits into roadway ditches, sewers, culverts, or other drainage courses is not acceptable.

COMPOST SOCKS:

- No traffic should be permitted to cross compost socks.
- Compost socks shall not be placed in areas of concentrated flow.
- Accumulated sediment shall be removed when it reaches half the aboveground height of the sock and disposed in the manner described elsewhere in the plan.
- Socks shall be inspected weekly and after each runoff event. Damaged socks shall be repaired immediately.
- Biodegradable filter socks shall be replaced after 6 months; photodegradable socks after 1 year.

TEMPORARY TOPSOIL STOCKPILE

- 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. Ensure that stockpile remains protected and at a 2:1 ratio.

EROSION CONTROL BLANKETS

- 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.

PUMPED WATER FILTER BAG:

- Filter bags shall be inspected daily. If any problem is detected, pumping shall cease immediately and not resume until the problem is corrected. Contact Design Engineer.

E&S SWALES/CHANNELS:

- Channels should be maintained to ensure that the specified design dimensions and protective linings are always available.
- A channel should be cleaned whenever total channel depth is reduced by 25% at any location.
- Damaged channel linings should be repaired or replaced immediately.

FILTER BAG INLET PROTECTION:

- Inlet filter bags shall be inspected on a weekly basis and after each runoff event.
- Filter bags shall be cleaned and/or replaced when the bag is half full or when flow capacity has been reduced so as to cause flooding or bypassing of the inlet.
- Accumulated sediment should be disposed in the approved manner.
- Bags that will be reused should be rinsed at a location where the rinse water will enter a sediment trap or sediment basin.
- Damaged filter bags should be replaced.
- Needed repairs should be initiated immediately after the inspection.

RIPRAP APRON

- All aprons shall be constructed to the dimensions shown in detail. 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.

COMPOST SOCK DIVERSION BERM:

- Inspect weekly to ensure that compost sock is still staked in place.
- When sediment reaches 1/3 the aboveground height of the berm, the sediment must be removed.
- Any section of the compost filter berm which has been undermined or topped shall be immediately replaced. Concentrated flows shall not be directed toward any compost filter berm.

CONCRETE WASHOUT:

- A suitable impervious membrane shall be placed at the location of the washout prior to installing the socks adapted from Filtertex.
- All concrete washout facilities should be inspected daily. Damaged or leaking washouts should be deactivated and repaired or replaced immediately.
- Accumulated materials should be removed when they reach 75% capacity.
- Plastic liners should be replaced with each cleaning of the washout facility.

SEDIMENT BASIN:

After initial 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 layers of lifts of not more than 6" to 9". 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 basins 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 should be immediately. Displaced riprap within the outlet energy dissipator 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. Rack filters shall be added as necessary.

PCSM O&M Notes

Please Note – If after performing maintenance routines, the following do not operate properly, contact Design Engineer.  
All wastes removed from BMPs must be handled properly. Plastics and paper items can be recycled. Low/yard waste can be placed with a compost center to be made into compost or mulch. Sediment removed from BMPs can be spread on site and immediately stabilized by adding seed and straw so it can be incorporated into the soil structure. Find source of sediment pollution and stabilize immediately.  
Oil and other debris should be disposed of per environmental laws.  
Maintenance shall include inspections of all BMPs on a weekly basis and after each runoff event of 1/4 inch in 24-hour period. All preventative and remedial maintenance work, including clean out, repair, replacement, re-grading, re-seeding, re-mulching and re-netting must be performed immediately. If the BMPs fail to perform as expected, replacement BMPs, or modifications of those installed will be required.  
A log showing dates that BMPs were inspected, as well as any deficiencies found, and the date they were corrected shall be maintained on the site and be made available to regulatory agency officials at the time of the inspection.

Please Note – If after performing maintenance routines, the following do not operate properly, contact Design Engineer.

Facility & Maintenance Requirements

- Parking Areas & Access Road
  - Inspect regularly for oil and debris accumulation; remove as encountered.

Catch Basins/Pipes

- Inspect at least twice per year for debris and after each 0.25" + rain event for accumulated sediment and other blockages.
  - Remove foreign objects as encountered. Inspect after runoff events to make sure that runoff drains down within 72 hours.

Grass Lawn Area

- Monitor regularly (weekly). Inspect grass areas regularly (weekly) for garbage/other debris; remove as encountered. Maintain existing vegetation.
  - Re-vegetate any bare spots as soon as possible.

Vegetated MRC BMP 1 & BMP 4

- Upgradient catch basins and inlets should be inspected and cleaned annually, or more often if historical maintenance records suggest a more frequent cleaning.
- The vegetation (for the MRC BMP and contributing drainage area) should be maintained in good condition, and any bare spots revegetated.
- Once the vegetation is established, the vegetation should be maintained as appropriate for vegetative species.
- Inspect at least two times per year after runoff events greater the 0.8 inches and make sure that runoff drains down within the design parameters (a licensed professional engineer should clearly identify what these parameters are).
- At least two times per year, or more if historical maintenance indicates it is necessary, inspect for accumulation of sediment, damage to outlet control structures, erosion, signs of water contamination/spills, and instability. Leaf litter needs to be removed annually.
- As needed, remove accumulated sediment as required to maintain infiltration through the MRCs soil media and to maintain water quality functionality. Restore cross section of the basin to original condition.
- If porous pavement is included in the design, vacuum at least twice per year. Vacuum should have sufficient suction power and be designed for use with porous pavement.
- All MRC BMP components should be maintained as indicated in the Stormwater BMP Manual.

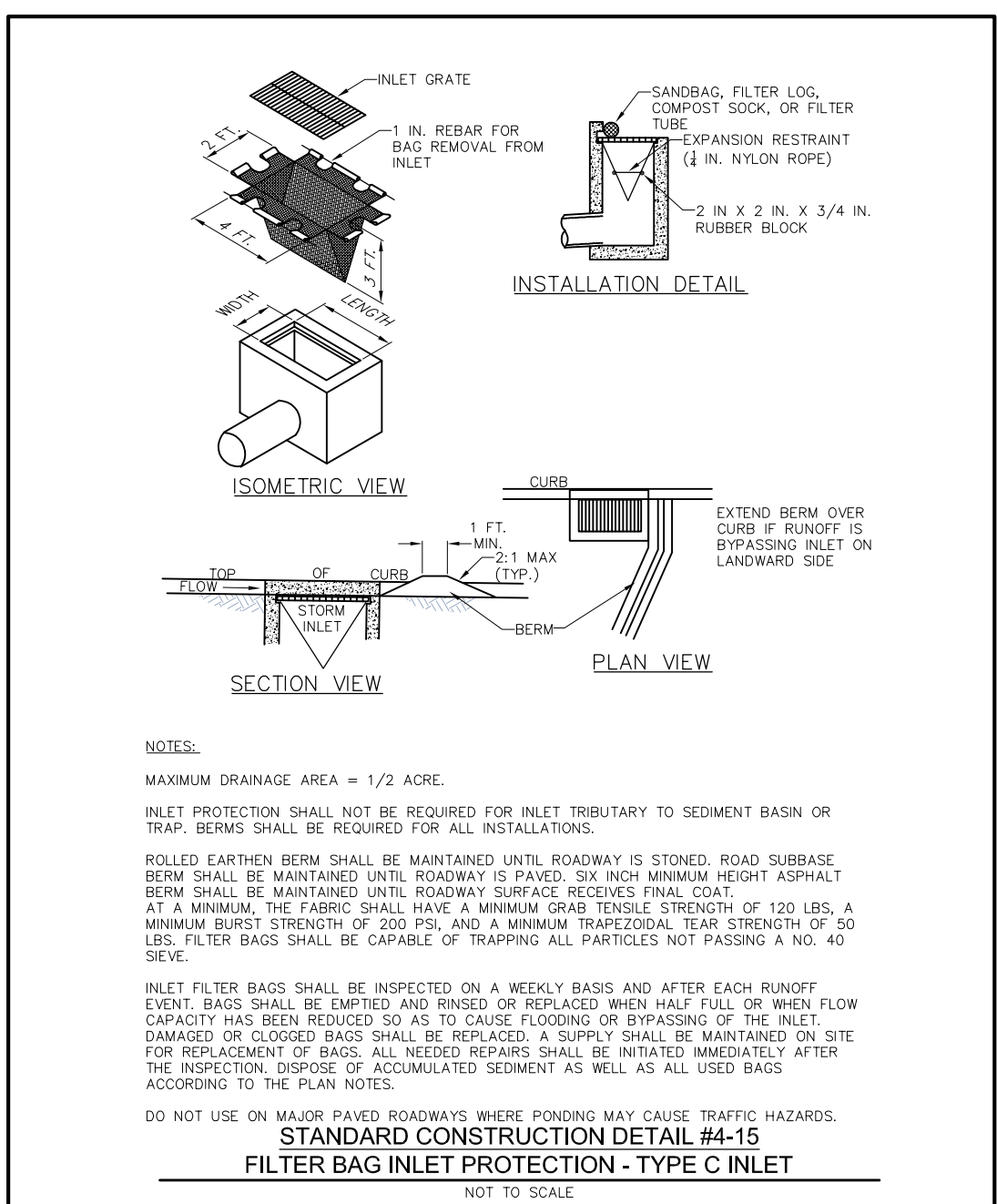
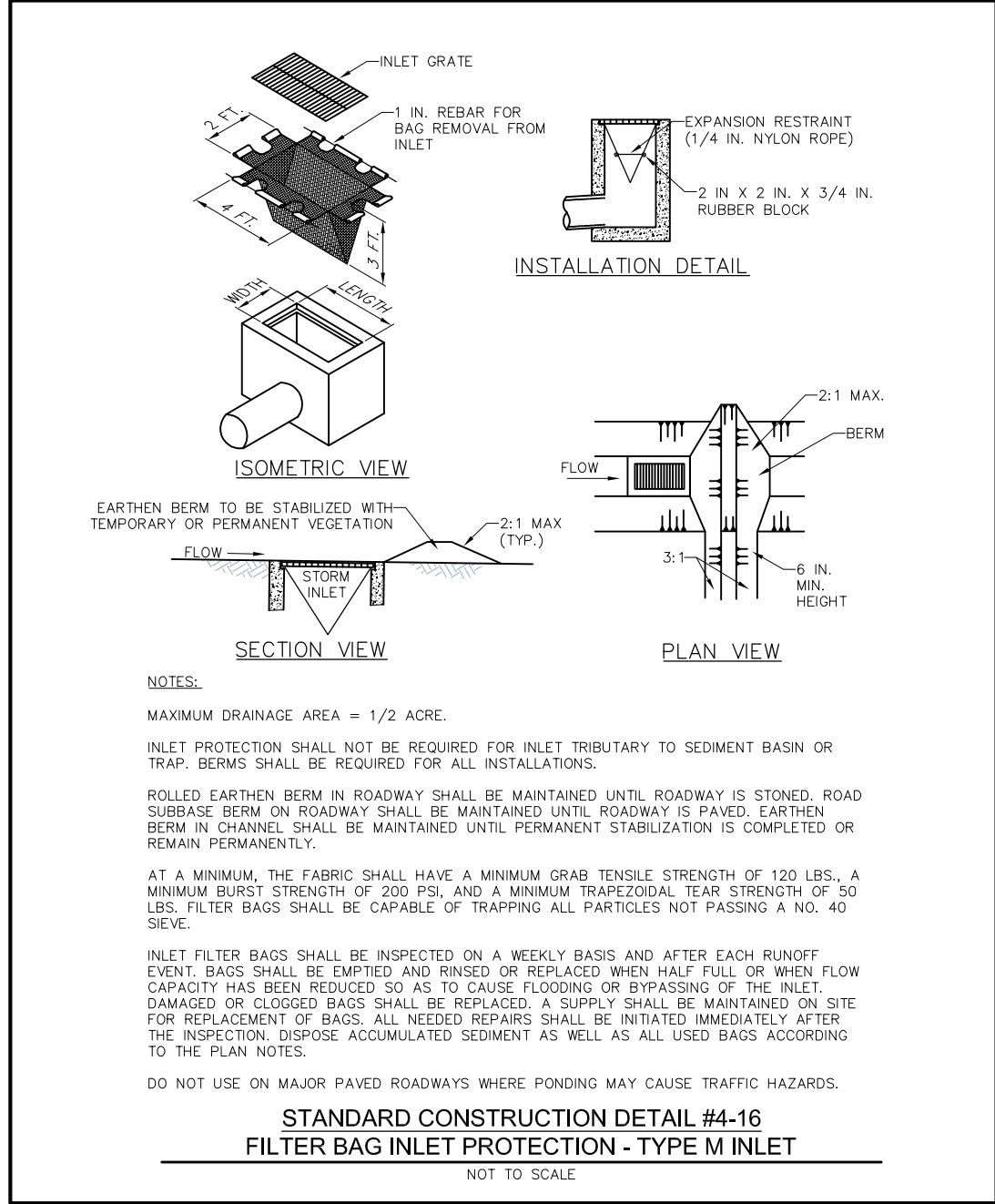
- If the MRC BMP will manage peak flows in excess of the 2-year/24-hour storm event, increased inspection and maintenance frequency will typically be necessary.

Vegetated MRC BMP 1 & BMP 4

Maintenance and Inspection Issues

- Catch Basins and Inlets (upgradient of infiltration basin) should be inspected and cleaned at least two times per year and each runoff event of 1/4 inch in 24-hour period.
- The vegetation along the surface of the infiltration basin should be maintained in good condition, and any bare spots re-vegetated as soon as possible.
- Vehicles should not be parked or driven on infiltration Basin, and care should be taken to avoid excessive compaction by mowers.
- Inspect the basin after runoff events and make sure that runoff drains down within 72 hours. Mosquitoes should not be a problem if the water drains in 72 hours. Mosquitoes require a considerably long breeding period with relatively static water levels.
- Also inspect for accumulation of sediment, damage to outlet control structures, erosion control measures, signs of water contamination/spills, and slope stability in the berms.
- Monitor as appropriate for vegetative cover species.
- Remove accumulated sediment from basin as required. Restore original cross section and infiltration rate. Properly dispose of sediment.
- Inspect internal and external infiltration site slopes for evidence of sparse vegetative cover, erosion or slumping, and make necessary repairs immediately.
- If basin does still does not drain down within 72 hours, steps must be taken to remediate:
  - Check piping to ensure that there are no clogs.
  - Filter bags should be cleaned and/or replaced when the bag is half full or when flow capacity has been reduced so as to cause flooding or bypassing of the inlet.
  - Remove siltation and debris from basin bottom.
  - Scarify (till) basin bottom and re-vegetate using seed mix appropriate for infiltration basin, preferably one specified in design.
  - If above steps don't cure the problem, the basin will need to be re-constructed as designed.
  - Construct infiltration basin – use lighter equipment to limit compaction. Refer to detail.
  - Excavate bottom of basin 2' deeper than finished elevation.
  - Scarify bottom of basin.
  - Work clay into





## COMPOST SOCK FABRIC MINIMUM SPECIFICATIONS

MATERIAL TYPE	3 mil HDPE	5 mil HDPE	5 mil HDPE	MULTI-FILAMENT POLYPROPYLENE (MPP)	HEAVY DUTY MULTI-FILAMENT POLYPROPYLENE (HDMPP)
MATERIAL CHARACTERISTICS	PHOTO-DEGRADABLE	PHOTO-DEGRADABLE	BIO-DEGRADABLE	PHOTO-DEGRADABLE	PHOTO-DEGRADABLE
SOCK DIAMETERS	12" 18"	12" 24" 18" 32"	12" 24" 18" 32"	12" 24" 18" 32"	12" 24" 18" 32"
MESH OPENING	3"	3"	3"	3"	3"
TENSILE STRENGTH		26 psi	26 psi	44 psi	202 psi
ULTRAVIOLET STABILITY % ORIGINAL STRENGTH (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
MINIMUM FUNCTIONAL LONGEVITY	6 months	9 months	6 months	1 year	2 years

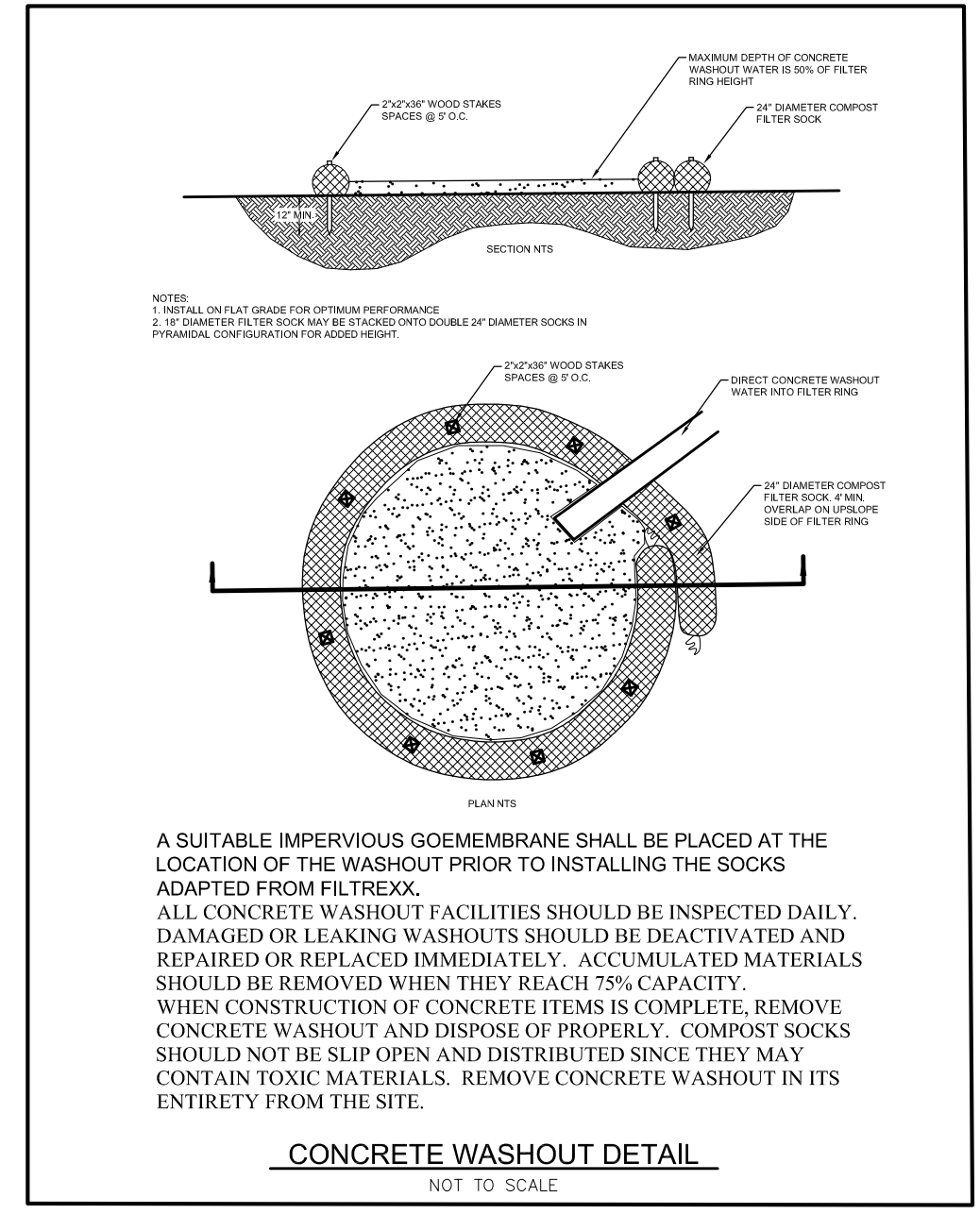
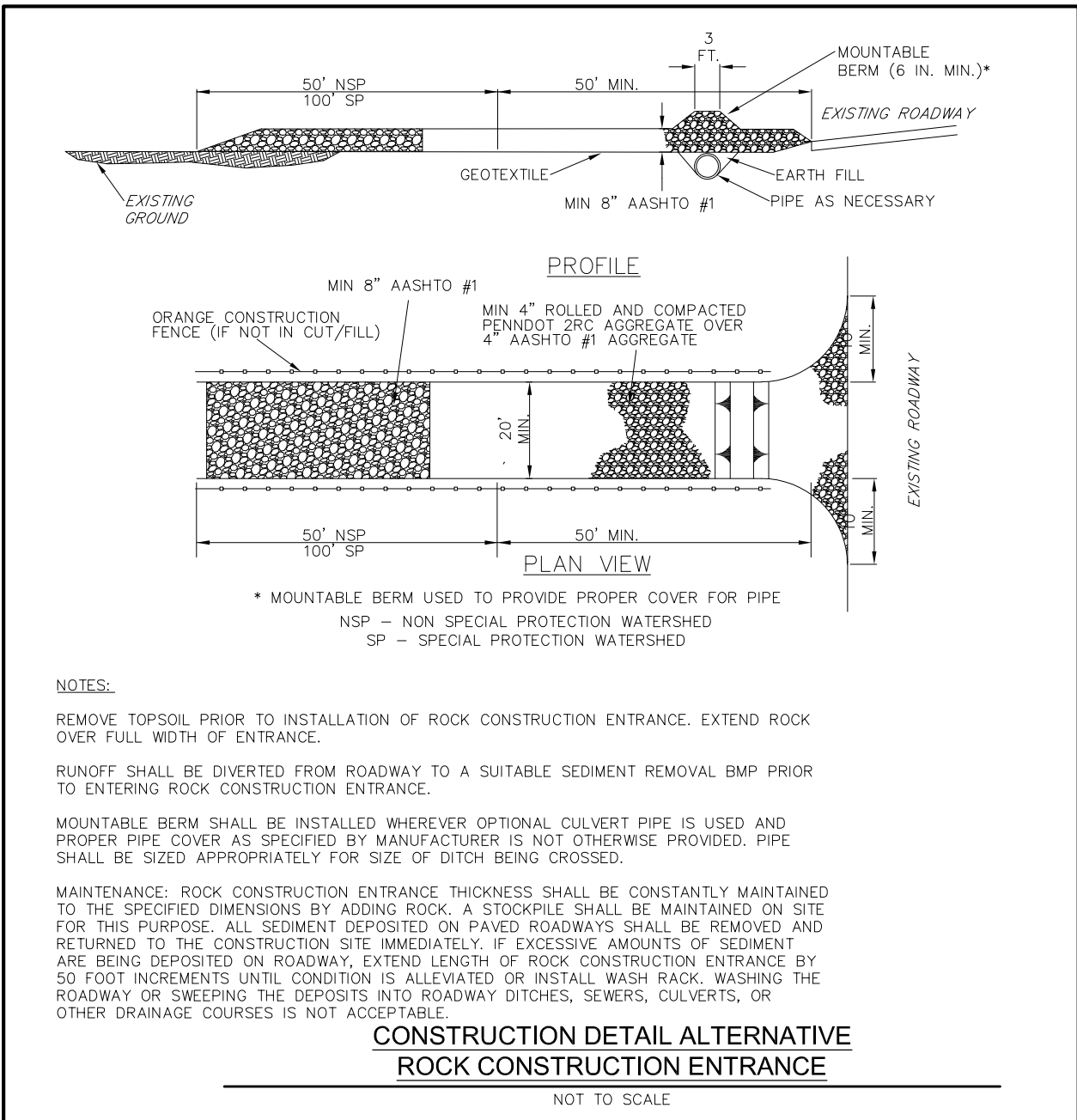
TWO-PLY SYSTEMS	
INNER CONTAINMENT NETTING	HDPE BIAXIAL NET
	CONTINUOUSLY WOUND
	FUSION-WELDED JUNCTIONS
OUTER FILTRATION MESH	3" x 3" MAX. APERTURE SIZE
	COMPOSITE POLYPROPYLENE FABRIC (WOVEN LAYER AND NON-WOVEN FLEECE MECHANICALLY FUSED VIA NEEDLE PUNCH)
	3" MAX. APERTURE SIZE

SOCK FABRICS COMPOSED OF BURLAP MAY BE USED ON PROJECTS LASTING 6 MONTHS OR LESS.

COMPOST SHOULD BE A WELL DECOMPOSED, WEED-FREE ORGANIC MATTER DERIVED FROM AGRICULTURE, FOOD, STUMP GRINDINGS, AND YARD OR WOOD/BARK ORGANIC MATTER SOURCES. THE COMPOST SHOULD BE AEROBICALLY COMPOSTED, THE COMPOST SHOULD POSSESS NO OBJECTIONABLE ODORS AND SHOULD BE REASONABLY FREE (<1% BY DRY WEIGHT) OF MAN-MADE FOREIGN MATTER. THE COMPOST PRODUCT SHOULD NOT RESEMBLE THE RAW MATERIAL FROM WHICH IT WAS DERIVED. WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS OR REPROCESSED WOOD PRODUCTS ARE NOT ACCEPTABLE AS THE ORGANIC COMPONENT OF THE MIX.

THE PHYSICAL PARAMETERS OF THE COMPOST SHOULD COMPLY WITH THE FOLLOWING STANDARDS. THE STANDARDS CONTAINED IN THE PENNDOT PUB. 408 ARE AN ACCEPTABLE ALTERNATIVE.

COMPOST STANDARDS	
ORGANIC MATTER CONTENT	25% - 100% (DRY WEIGHT BASIS)
ORGANIC PORTION	FIBROUS AND ELONGATED
pH	5.5 - 8.5
MOISTURE CONTENT	30% - 60%
PARTICLE SIZE	30% - 50% PASS THROUGH 3/8" SIEVE
SOLUBLE SALT CONCENTRATION	5.0 dS/m (mmhos/cm) MAXIMUM



**STANDARD E&S WORKSHEET #1**  
**Compost Filter Socks**

PROJECT NAME: Unified Corporate Center: verus

LOCATION: Limerick Township

PREPARED BY: Julie Parish

CHECKED BY:

DATE: 1/25/2022

DATE:

**2" X 2" WOODEN STAKES PLACED 10' O.C.**

**COMPOST FILTER SOCK**

**UNDISTURBED AREA**

**BLOWN/PLACED FILTER MEDIA**

**DISTURBED AREA**

SOCK NO.	Dia. In	Location	Slope Percent	Slope Length Above Barrier (ft)
1	12	North side	3%	300
2	12	North side	3%	80
3	12	North side	23%	341
4	12	West side	4%	101
5	12	West side	10%	40
6	12	West side	25%	60
7	32	West side	33%	85
8	32	West side	33%	124
9	12	West side	13%	143
10	24	West side	20%	233
11	12	West side	5%	240
12	32	West side	18%	260
13	32	West side	29%	231
14	32	South Side	22%	160
15	32	South Side	30%	105
16	32	South Side	30%	120
17	32	South Side	30%	110
18	32	South Side	30%	94
19	32	South Side	30%	91
20	18	South Side	10%	70
21	18	South Side	10%	75
22	18	South Side	10%	84
23	24	South Side	8%	270
24	24	Along keystone	7%	310
25	24	Along keystone	7%	320
26	24	Along keystone	7%	360
27	24	Along keystone	7%	153

## Erosion & Sedimentation Pollution Control Plan Notes:

E&S Plan minimizes the extent and duration of earth disturbance. We have sequenced the construction with appropriate temporary stabilization methods to minimize the duration of the earth disturbance.

In no case should an area exceeding 15,000 square feet, which is to be stabilized by vegetation, reach final grade without being seeded and mulched.

Immediately after earth disturbance activities cease in any area or subarea of the project for a period exceeding 4 days, the operator shall stabilize all disturbed areas. The site shall be immediately seeded, mulched or otherwise protected from accelerated erosion and sedimentation pending future earth disturbance activities. During non-germinating months, mulch or protective blanketing shall be applied as described in the plan. Areas not at finished grade, which will be reactivated within 1 year, may be stabilized in accordance with the temporary stabilization specifications. Those areas which will not be reactivated within 1 year shall be stabilized in accordance with the permanent stabilization specifications.

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 not commence 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.

The entire limit of disturbance boundary must be identified and made visible with stakes, flagging or orange construction fencing prior to beginning work. All work and equipment must remain inside this boundary.

E&S Plan maximizes protection of existing drainage features and vegetation. The CG-1 is being met and downstream watercourses will not be degraded. Compost socks are installed on undisturbed ground and stormwater will flow through to a vegetated area before entering wetland area.

E&S Plan minimizes soil compaction. The entire limit of disturbance boundary must be identified and made visible with stakes, flagging or orange construction fencing prior to beginning work. All work and equipment must remain inside this boundary. Topsoil will be protected and respread on site after most of the earth disturbance. Care will be taken to minimize compaction through minimal machinery usage and post development amending of the soil.

E&S Plan utilizes other measures or controls that prevent or minimize generation of increased stormwater runoff. Immediately after earth disturbance activities cease in any area or subarea of the project for a period exceeding 4 days, the operator shall stabilize all disturbed areas. The site shall be immediately seeded, mulched or otherwise protected from accelerated erosion and sedimentation pending future earth disturbance activities. During non-germinating months, mulch or protective blanketing shall be applied as described in the plan. Areas not at finished grade, which will be reactivated within 1 year, may be stabilized in accordance with the temporary stabilization specifications. Those areas which will not be reactivated within 1 year shall be stabilized in accordance with the permanent stabilization specifications.

Impervious coverage will only be added to the site after stormwater rate and volume BMPs have been installed and brought online. Before BMPs are installed proposed impervious areas will remain stabilized with stone or other pervious material.

Anticipated construction wastes and Recycling or disposal of materials: Anticipated construction wastes are existing asphalt/concrete materials as well as normal construction materials during building.

Anticipated construction wastes are normal construction materials during building. All building materials and wastes shall be removed from the site and recycled or disposed of in accordance with the Department's Solid Waste Management Regulations at 25 Pa. Code 260.1 at sen., 271.1 and 287.1 et seq. No building materials or wastes or unused building materials shall be burned, buried, dumped, or discharged at the site.

Construction wastes include, but are not limited to, excess soil materials, building materials, concrete wash water, sanitary wastes, etc. that could adversely impact water quality. The concrete washout will be handled as required.

Wood used as concrete forms, etc. will need to be disposed of properly. Wood chips can be spread on site. Wooden boards and leftover materials can be recycled, re-used or properly disposed. Metal items can be recycled. Paper and plastic must be disposed of properly. Concrete washout must also be disposed of properly. Also dispose of bricks, possibly at a clean fill site. Check with the conservation district first. Remove all trash.

Recycling of waste materials must be done where feasible. This includes housekeeping items, materials management and litter control. It is important to keep recyclable items out of landfills.

During clearing and grubbing, limbs, wood, etc. can be chipped & placed within the limit of disturbance for future use. If not required for an emergency E&S problem, the chips can be used later.

Topsoil should be placed on its own stockpile for later use.

Also dispose of bricks, possibly at a clean fill site. Check with the conservation district first.

All trash must be removed from the site and properly disposed.

Plastic/papers removed from stocks of materials, etc., must be disposed of properly. Steel banding must be separated and recycled.

A PPC (Preparedness, Prevention and Contingency) Plan should be prepared by contractor. Workers on site should be aware of the PPC plan and the items that should be followed for continual safety of workers and downstream, especially waterways and the general public.

All BMPs should be checked on a regular basis as well as after 1" rain events. Equipment should be checked for oil leakage and/or other contaminants.

Where potential for pollution identified, measures provided to avoid/minimize/or mitigate: No pollution has been identified on site. No pollution could come from diesel or gas engines, construction waste and human waste.

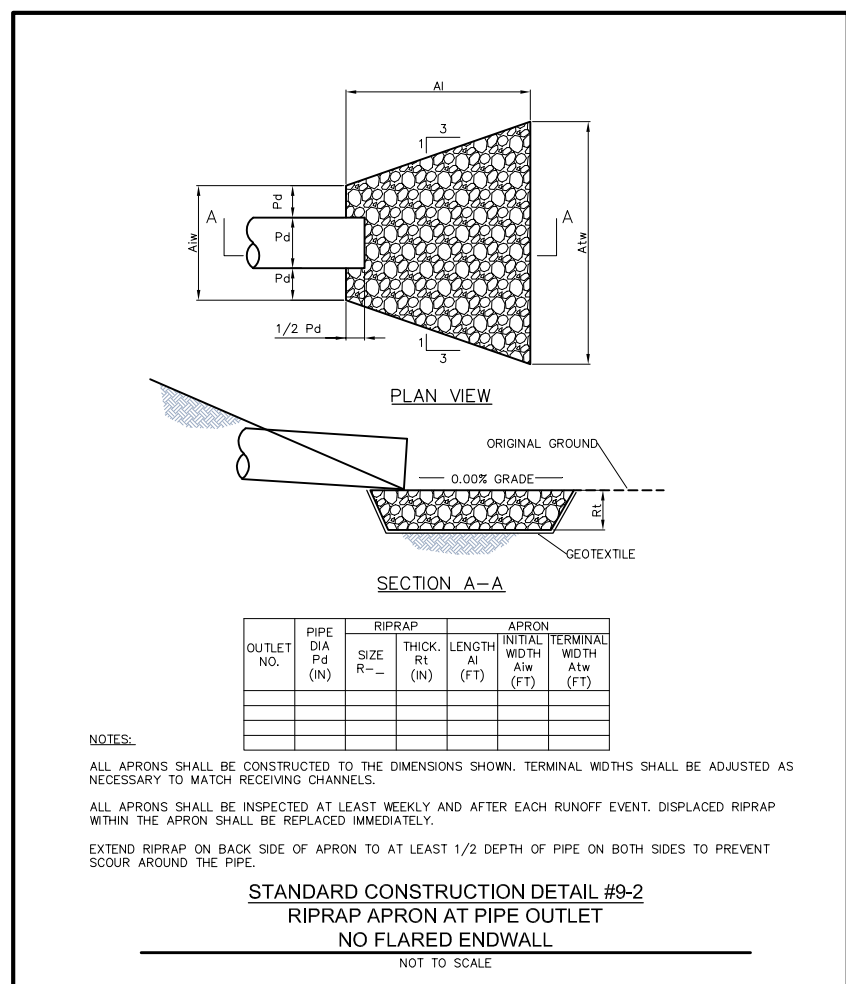
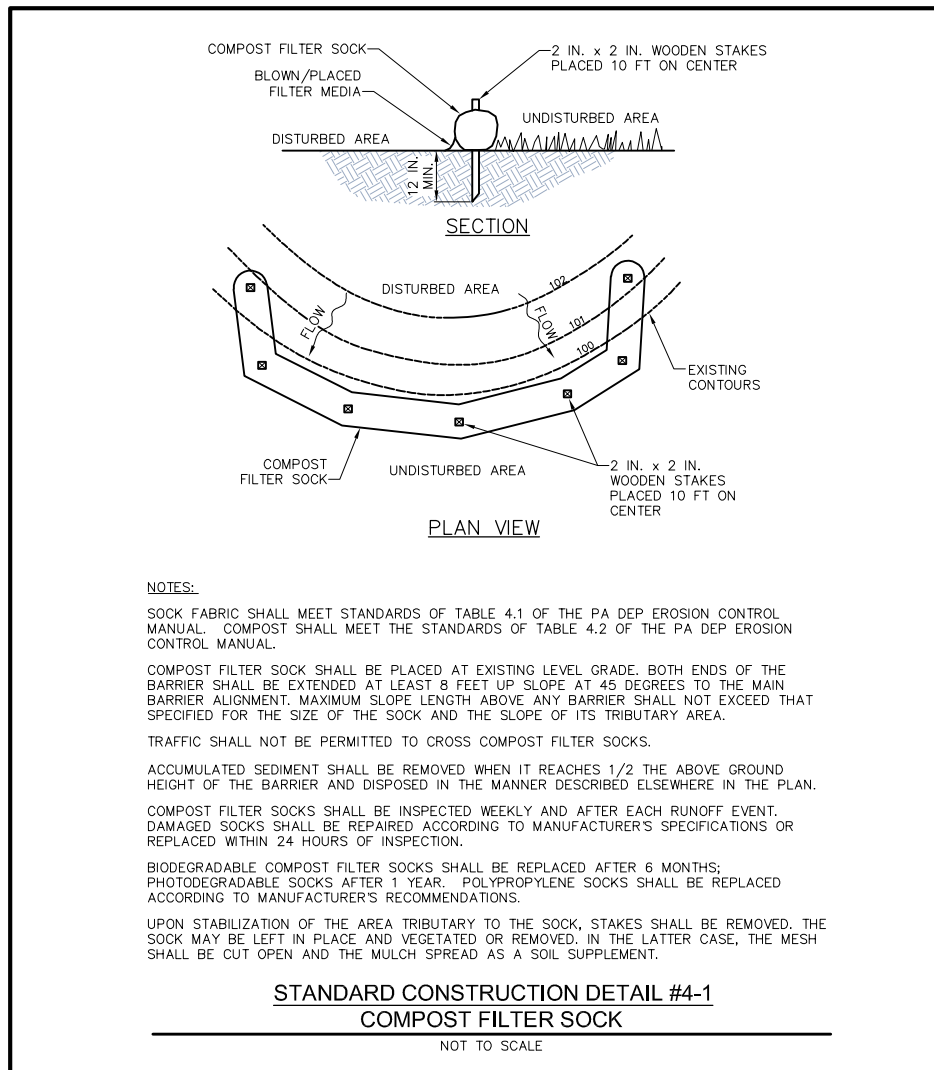
Engines should be kept in good order to prevent leakage and excessive gas pollution. Oil and other pollutant liquids should be kept in approved containers and disposed of properly if used on site. Any spills should be reported to the proper authority or township and cleaned up immediately.

Construction waste should be disposed of per the above notes.

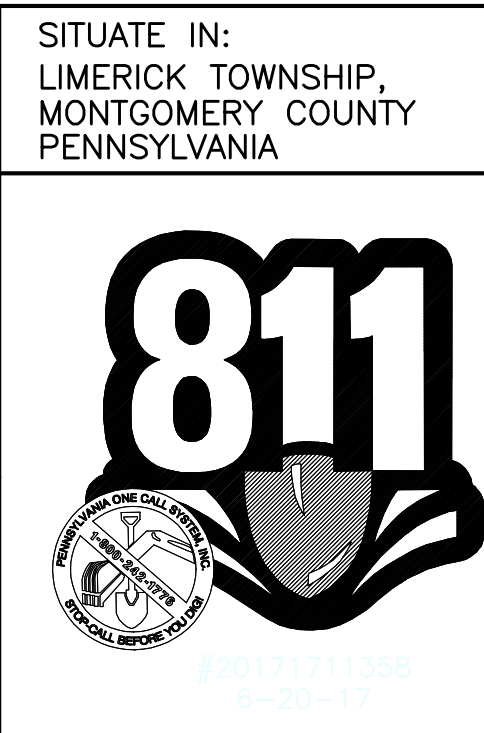
Human waste should be contained and disposed of per relevant regulations.

Thermal impacts addressed (E&S), where potential for thermal impacts exists, measures provided to avoid/minimize/or mitigate: Thermal impacts will be reduced with the use of compost socks and other E&S BMPs as listed in the BMP list. The plantings of trees, shrubs and grass will also reduce thermal impacts.

Impervious areas and other surfaces that can cause increased thermal impacts.



REVISION	DATE	DESCRIPTION
#4 TCD	9-7-22	
#3 TCD	6-22-22	
#2 TCD	6-3-22	
#1 TCD	5-3-22	



**SITUATE IN:**  
LIMERICK TOWNSHIP,  
MONTGOMERY COUNTY  
PENNSYLVANIA

**LINFIELD CORPORATE CENTER: VERUS**

**Ludgate Engineering Corporation**  
ENGINEERS SURVEYORS PLANNERS  
ENVIRONMENTAL SCIENTISTS  
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10 VANGUARD DRIVE, SUITE 100  
READING, PA 19606  
PHONE 610/404-7330  
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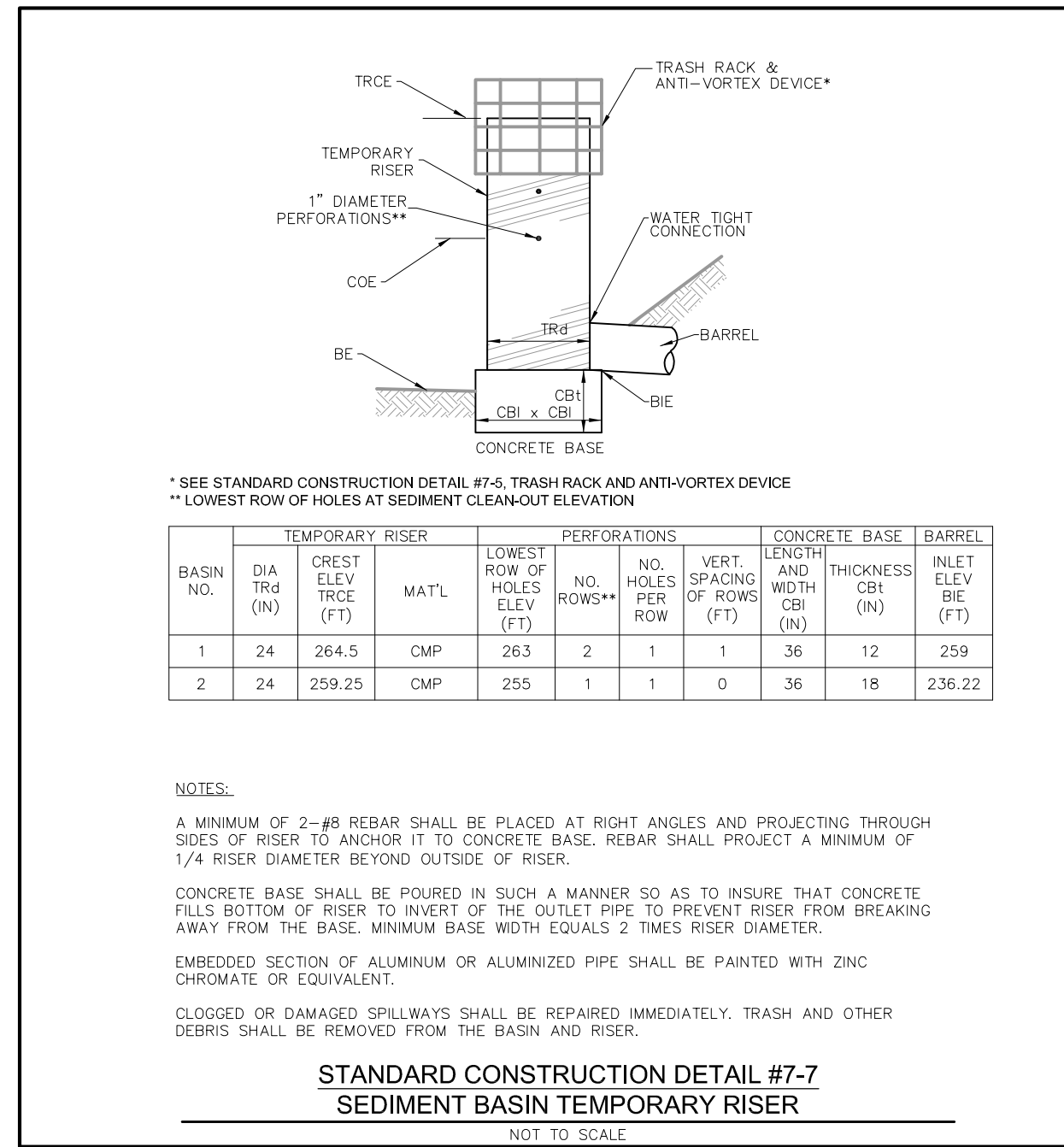
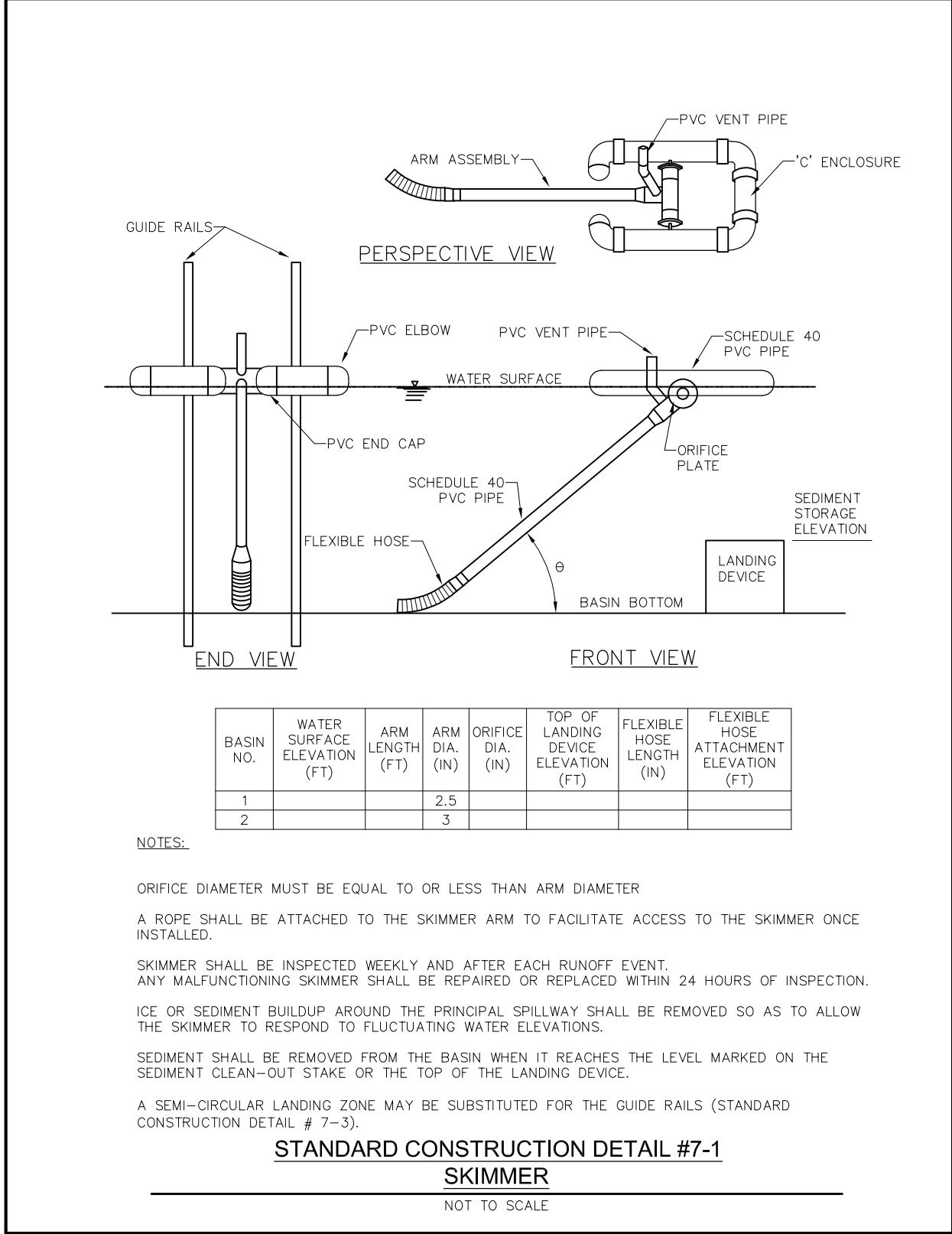
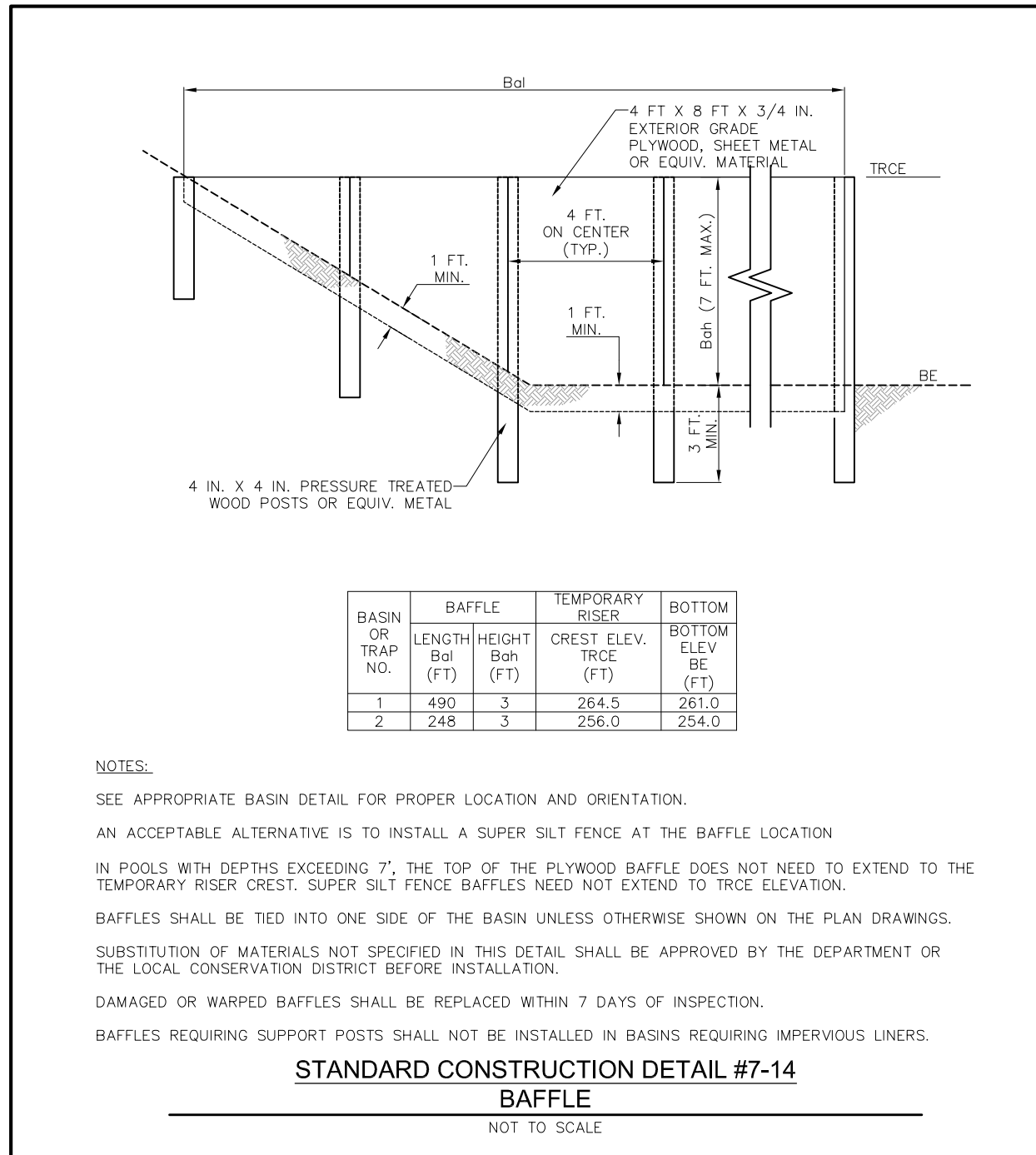
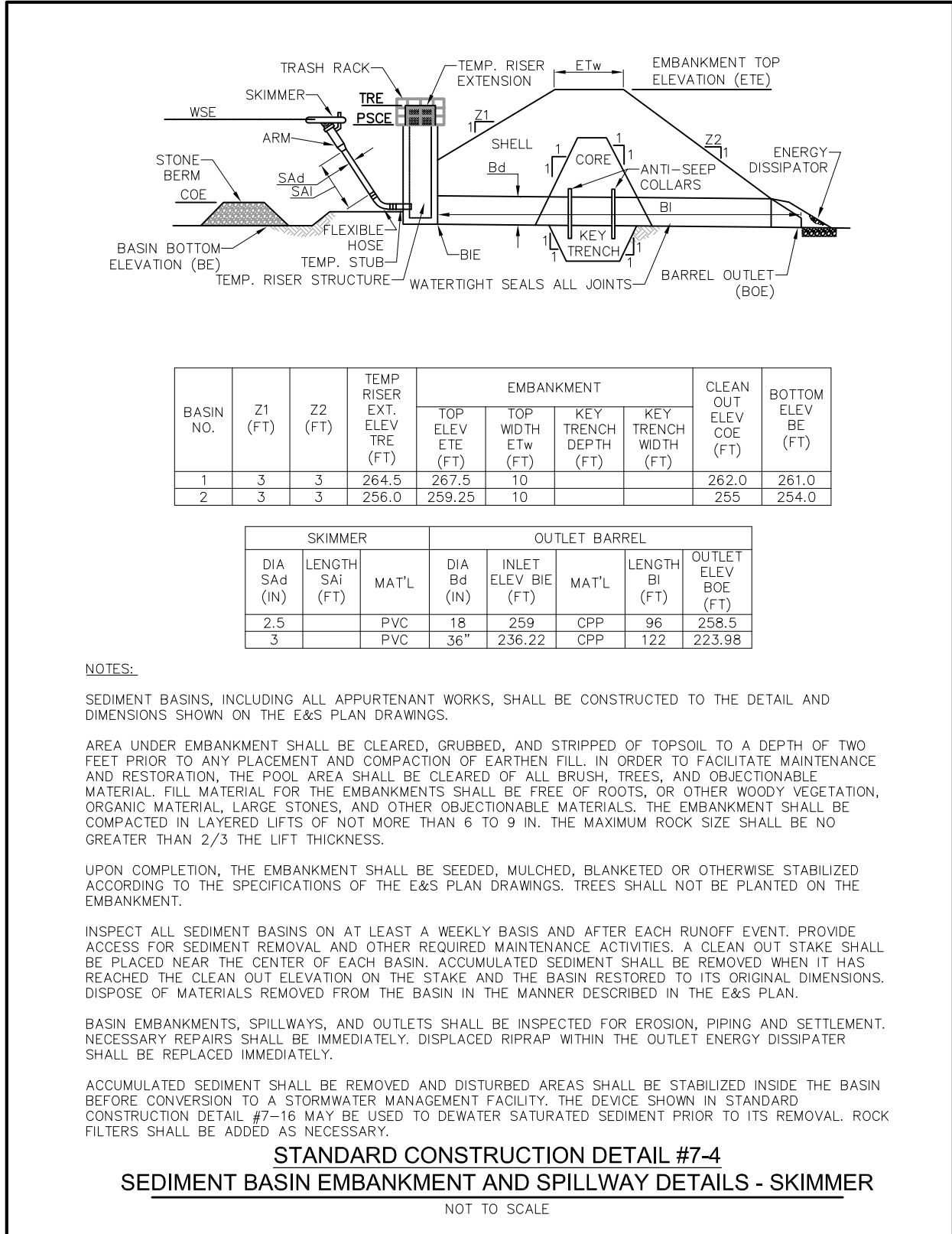
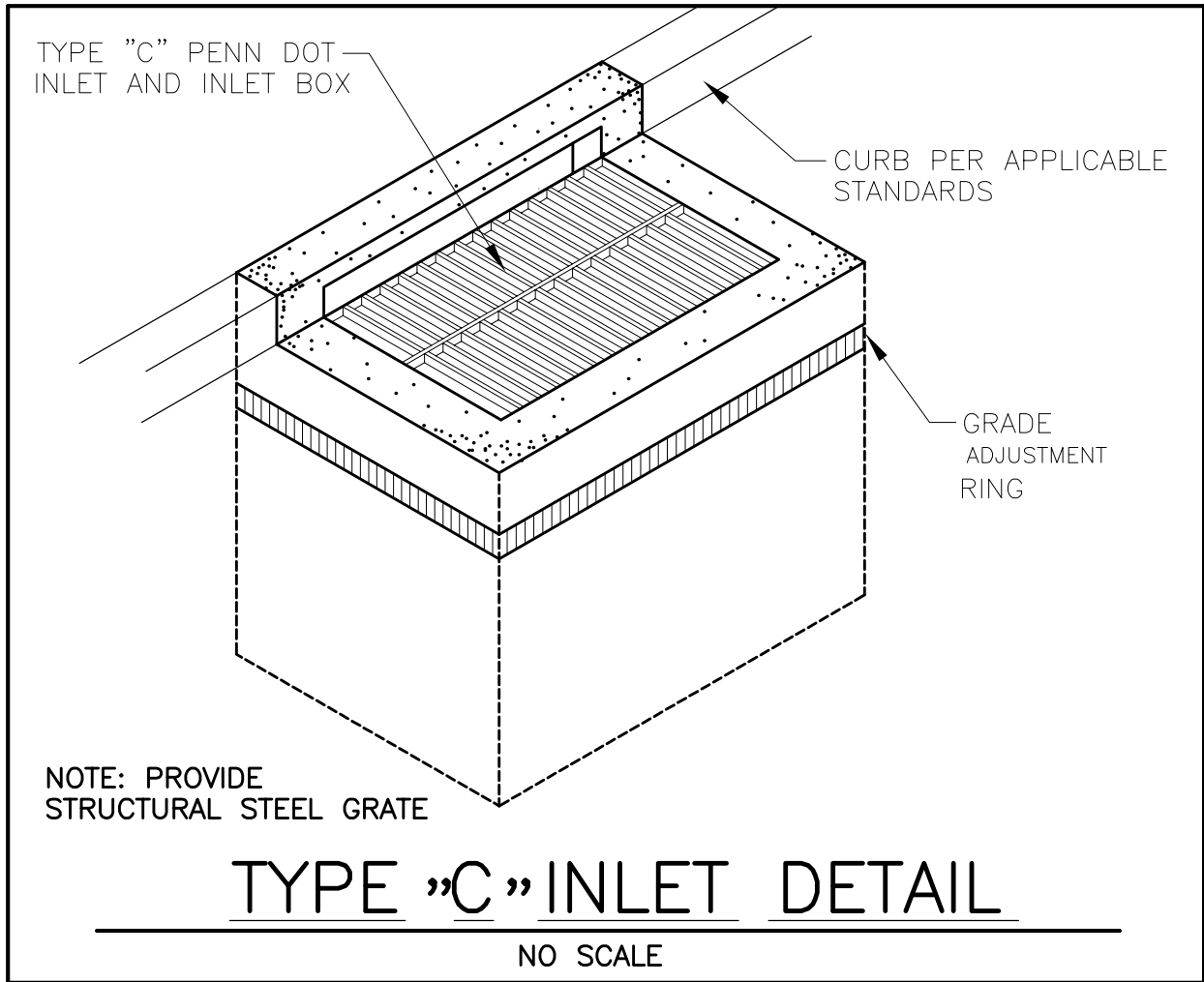
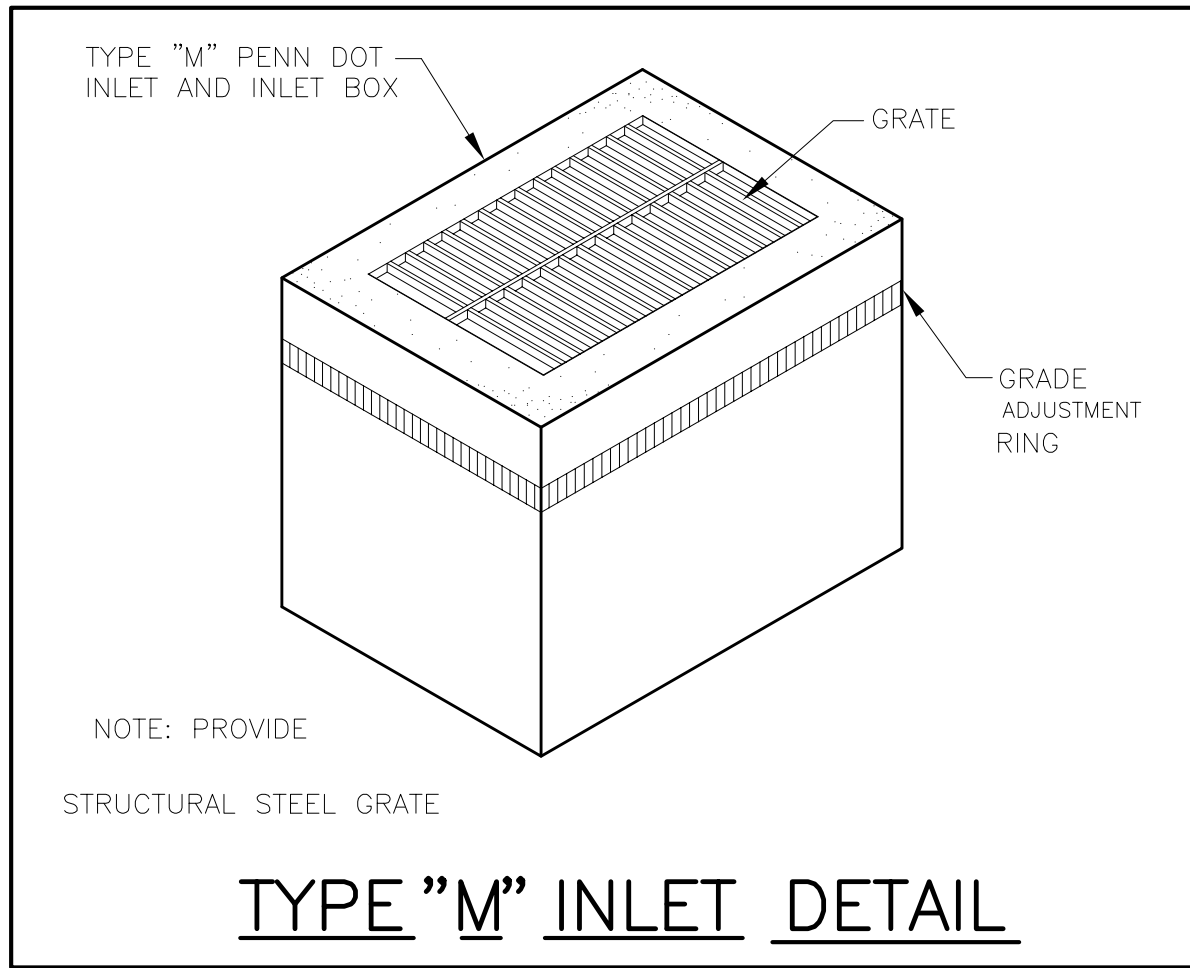
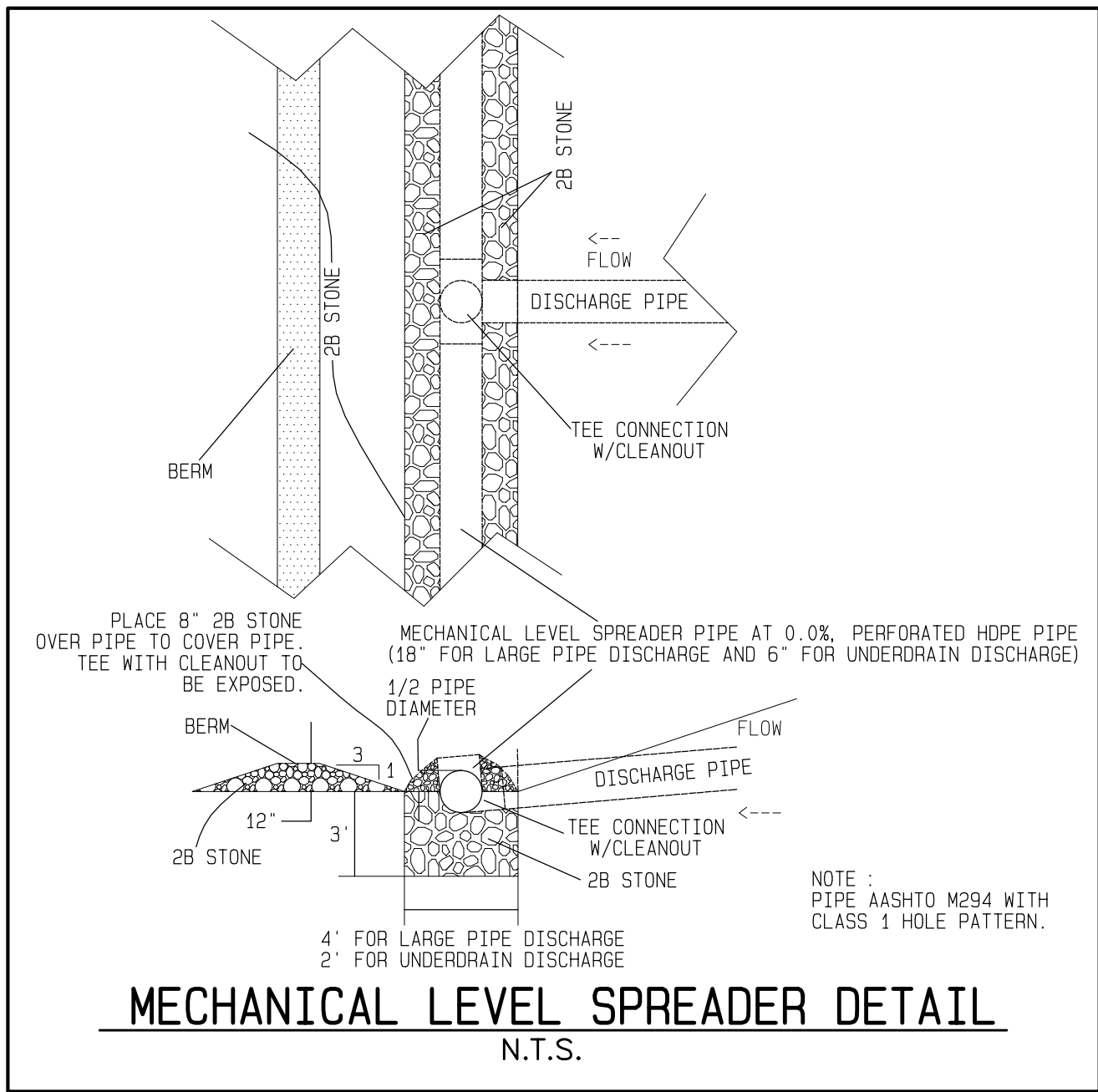
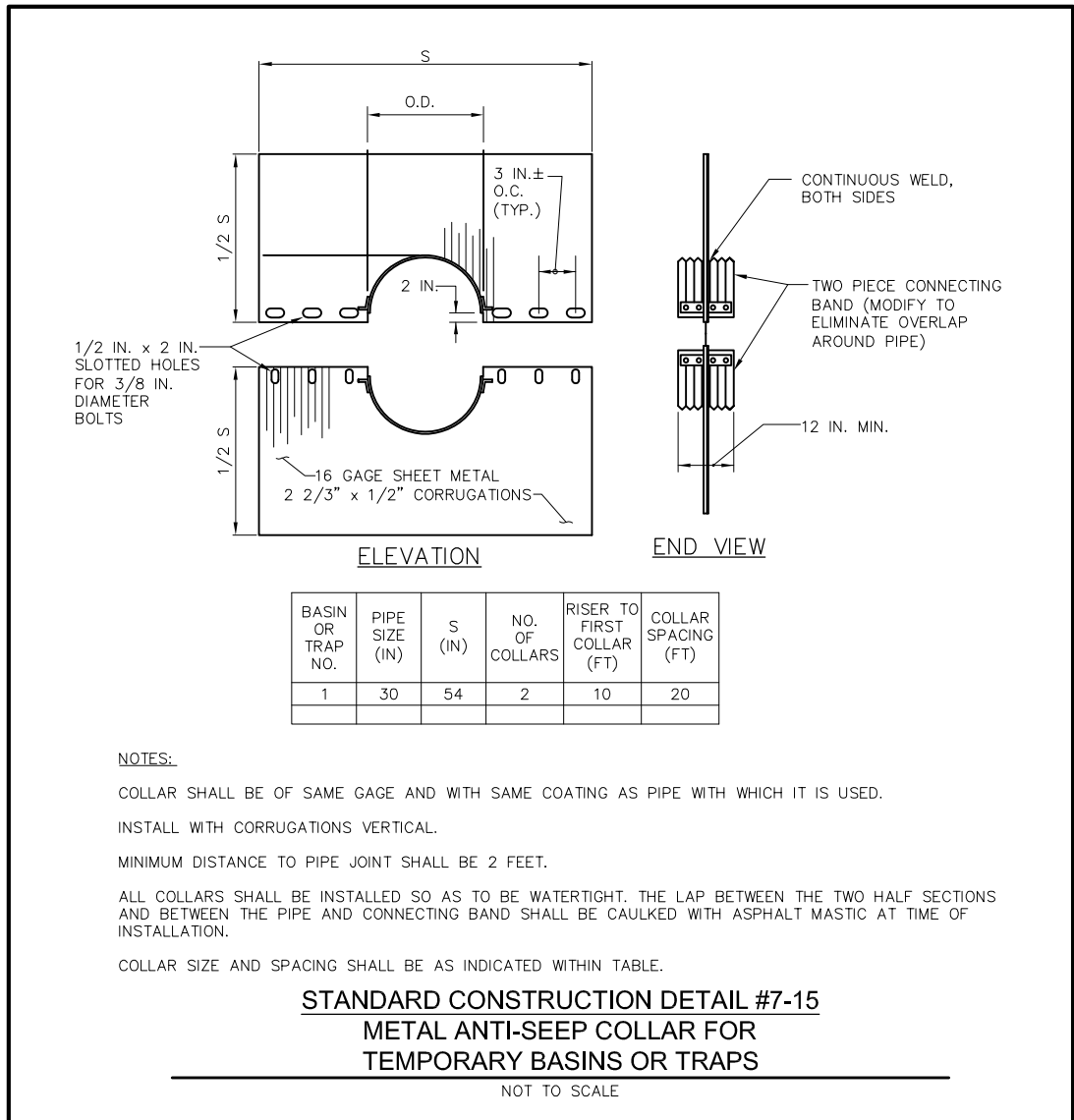
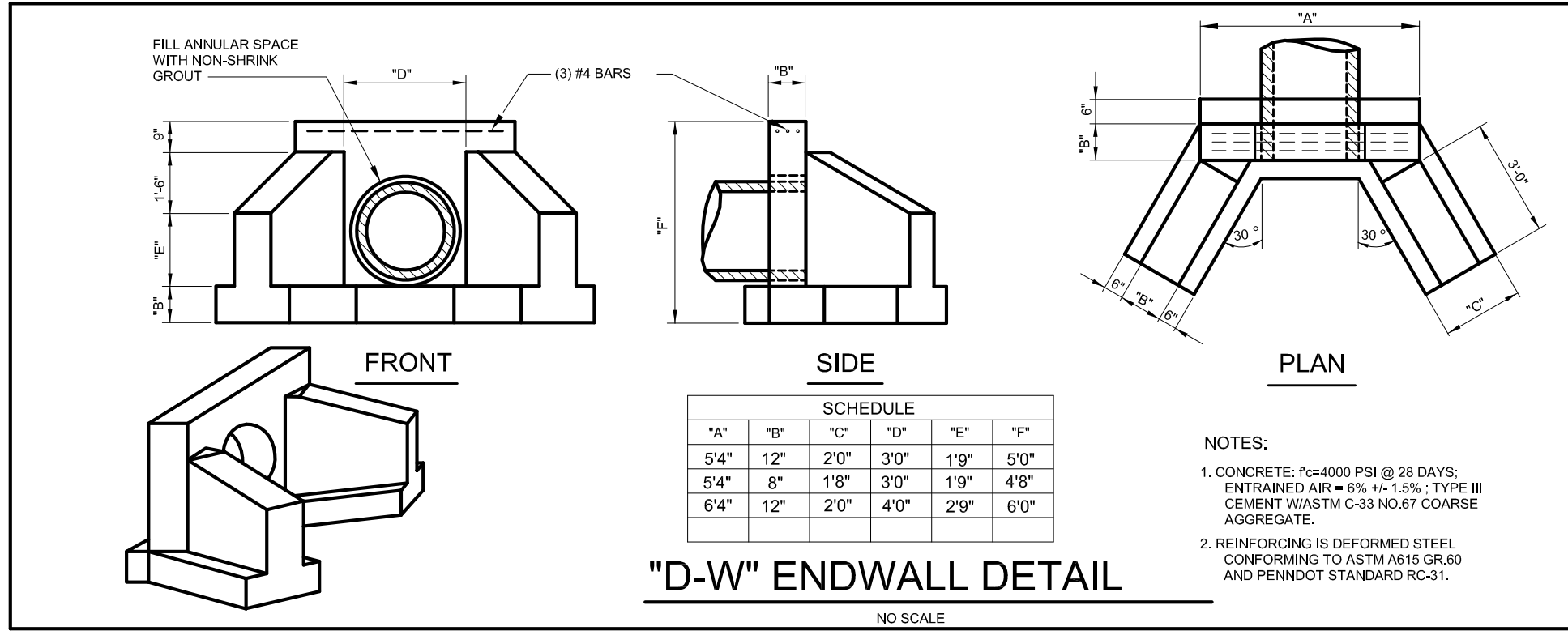
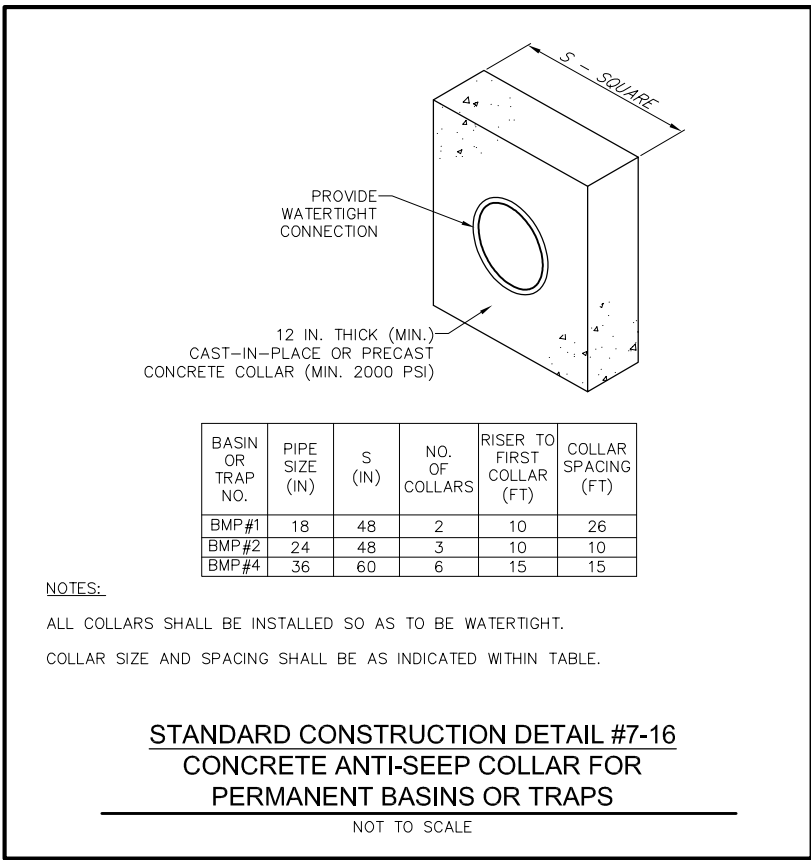
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COMP(BMP):  
COMP(LOT):  
COMPUTER FILE: P:7810321D.DWG

SCALE: MAP  
DRAWING NUMBER: D-7810321  
SHEET 27

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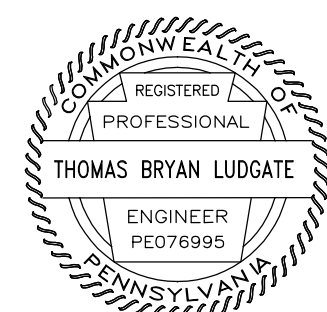


## E&S DETAILS

SITUATE IN:  
LIMERICK TOWNSHIP,  
MONTGOMERY COUNTY  
PENNSYLVANIA



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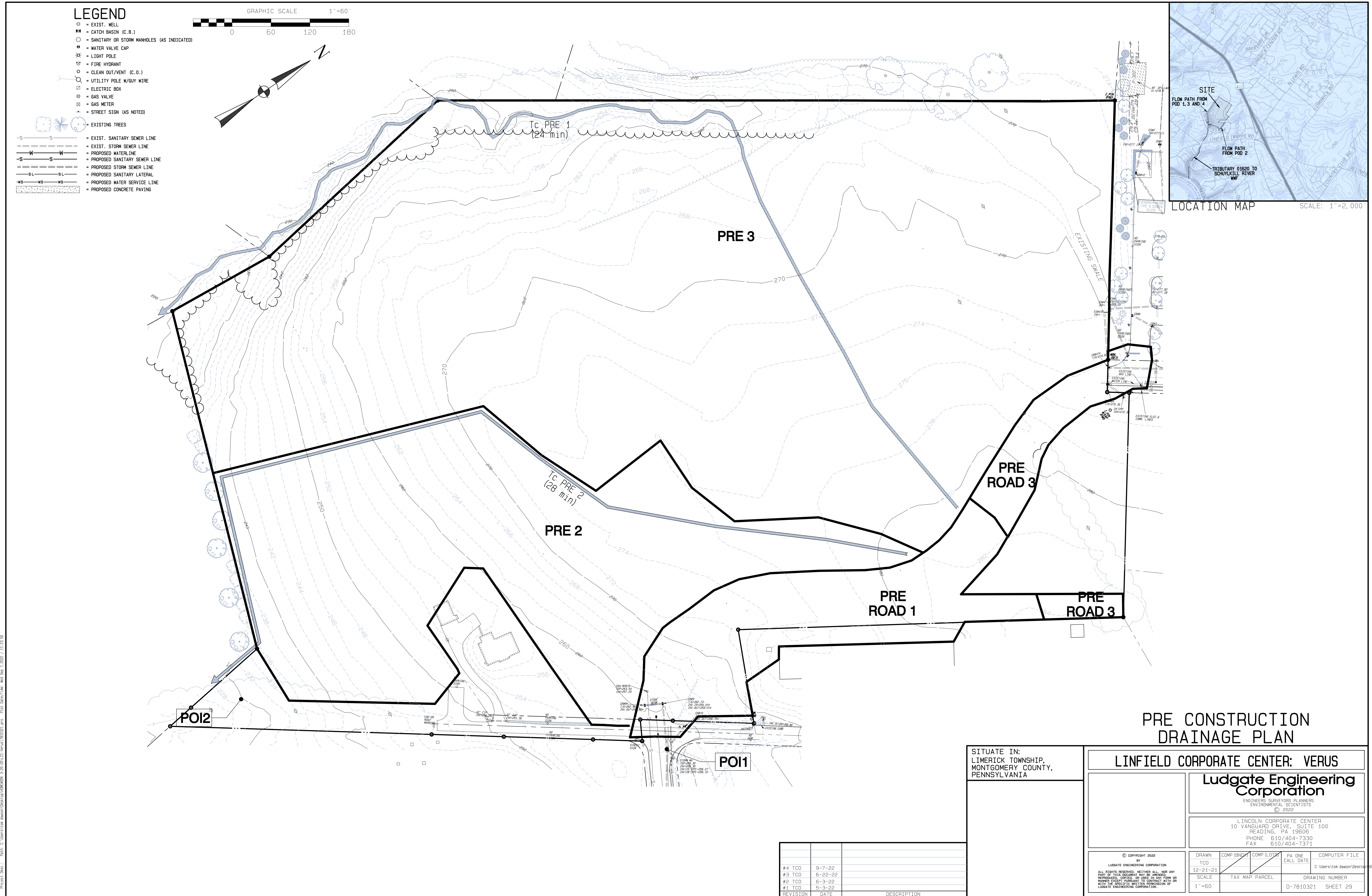
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12-21-21			
SCALE	MAP		DRAWING NUMBER
AS NOTED			D-7810321 SHEET 28

#	REVISION	DATE	DESCRIPTION
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#3	TCD	6-22-22	
#2	TCD	6-3-22	
#1	TCD	5-3-22	



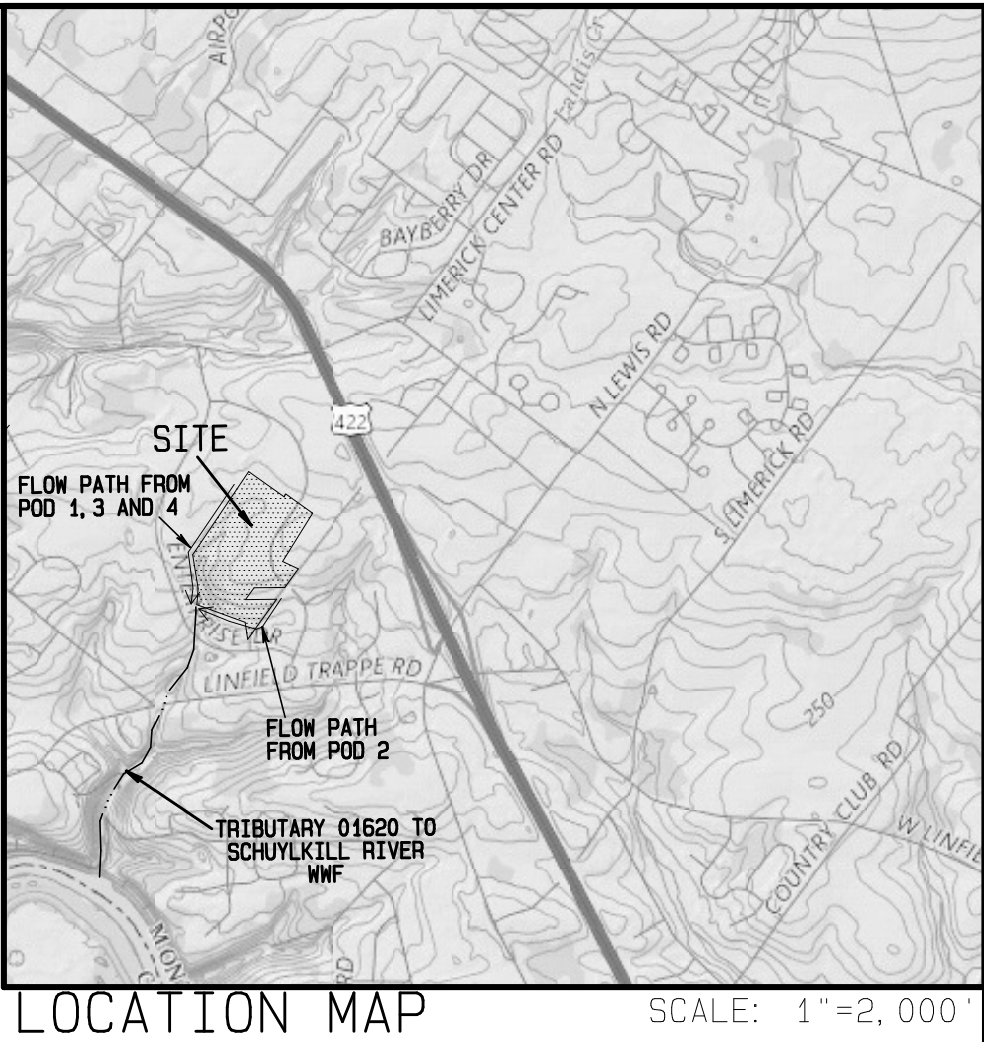
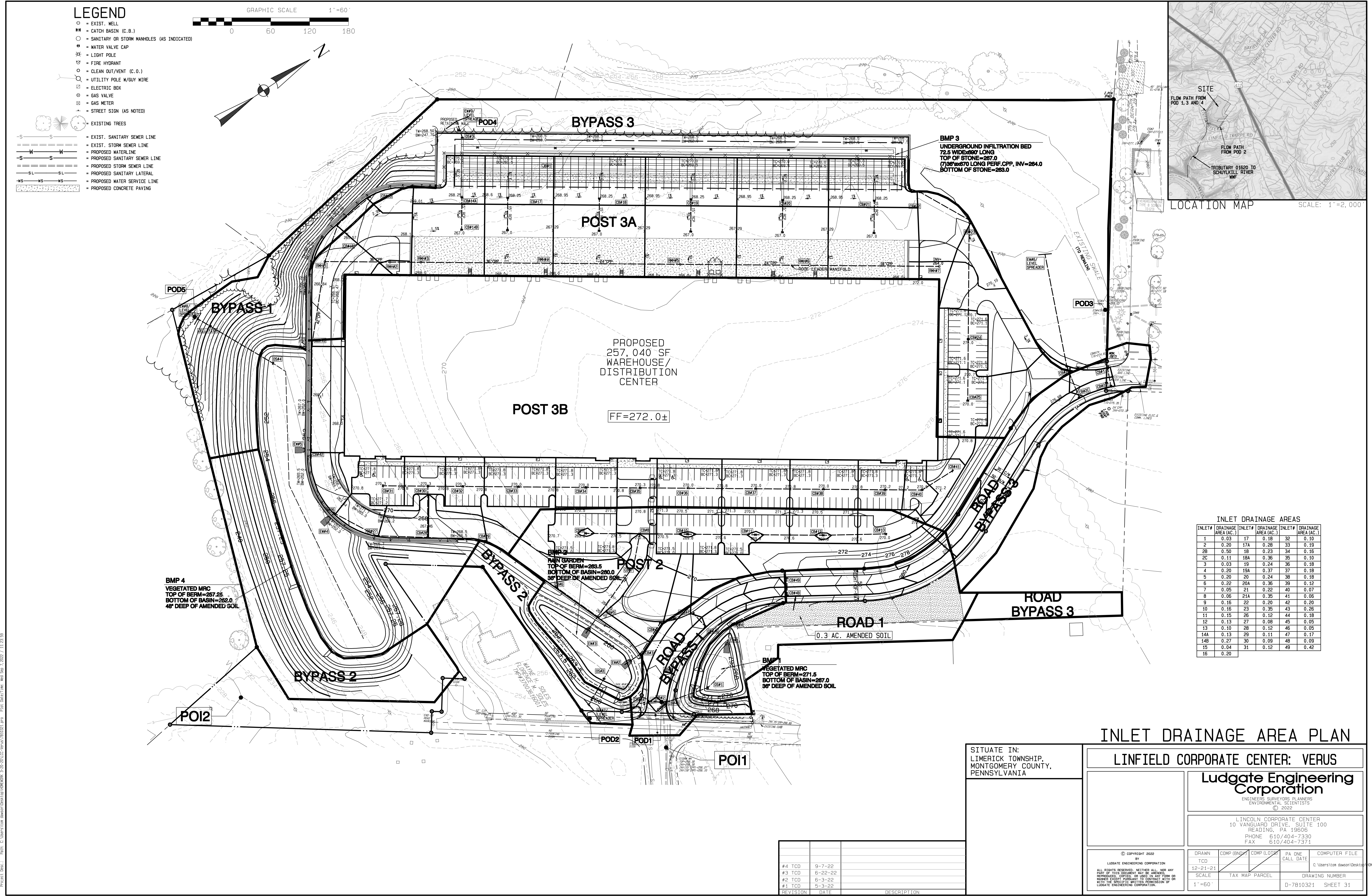








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INLET DRAINAGE AREAS							
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2	0.20	17A	0.28	33	0.19		
2B	0.50	18	0.23	34	0.15		
2C	0.11	18A	0.36	35	0.10		
3	0.03	19	0.24	36	0.18		
4	0.20	19A	0.37	37	0.18		
5	0.20	20	0.24	38	0.18		
6	0.22	20A	0.36	39	0.12		
7	0.05	21	0.22	40	0.07		
8	0.06	21A	0.35	41	0.06		
9	0.16	22	0.20	42	0.20		
10	0.16	23	0.35	43	0.26		
11	0.15	26	0.12	44	0.18		
12	0.13	27	0.08	45	0.05		
13	0.10	28	0.12	46	0.05		
14A	0.13	29	0.11	47	0.17		
14B	0.27	30	0.09	48	0.09		
15	0.04	31	0.12	49	0.42		
16	0.20						

INLET DRAINAGE AREA PLAN

SITUATE IN:  
LIMERICK TOWNSHIP,  
MONTGOMERY COUNTY,  
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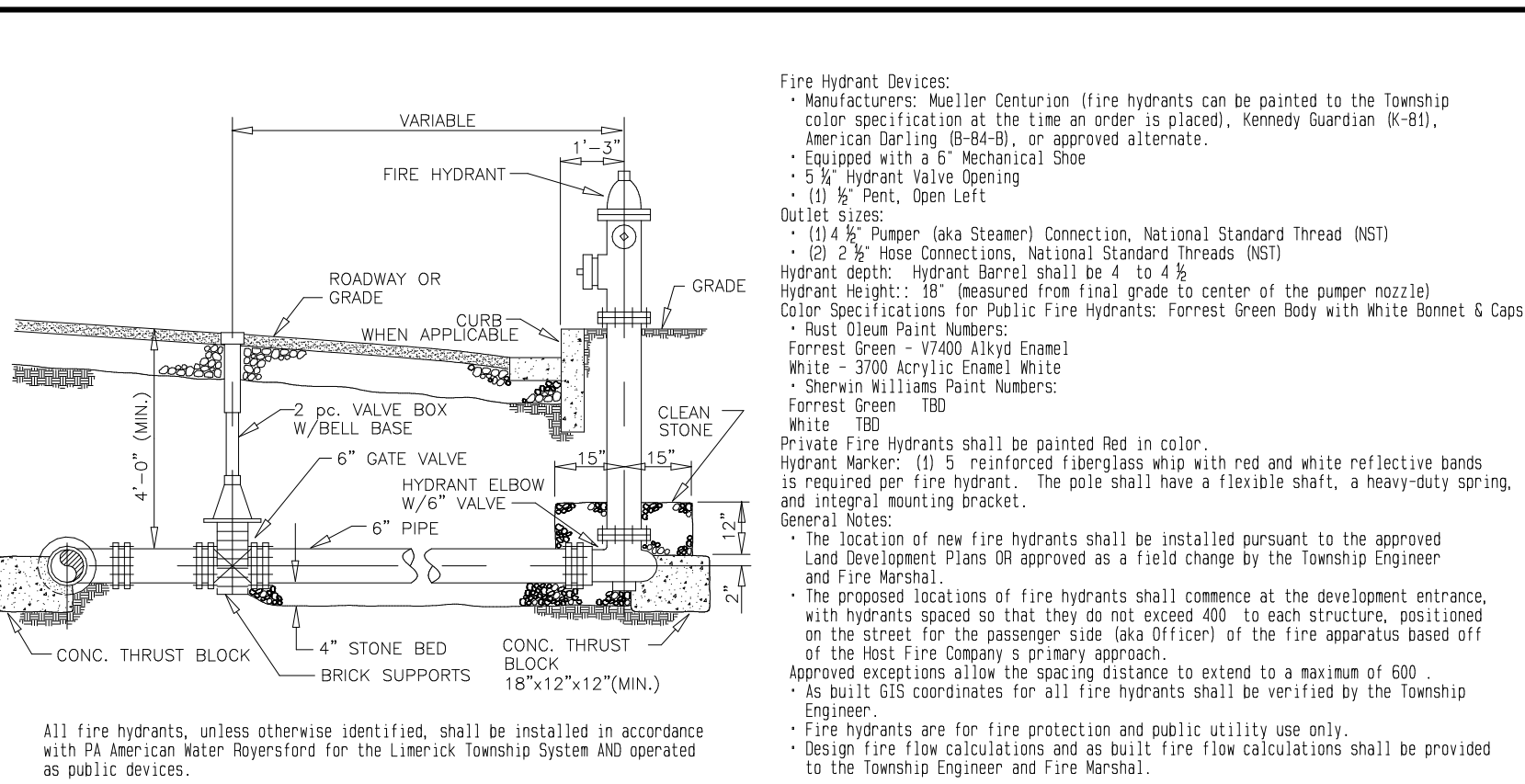
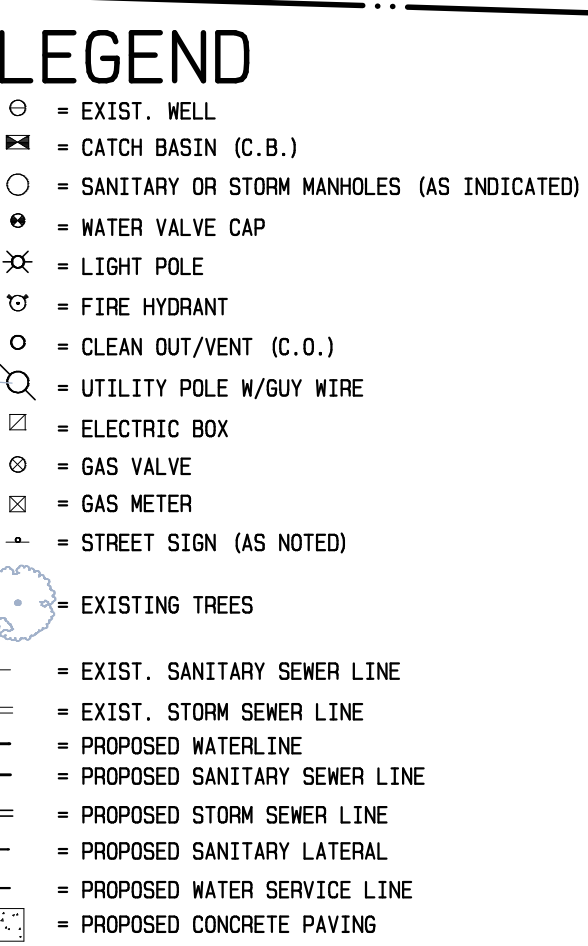
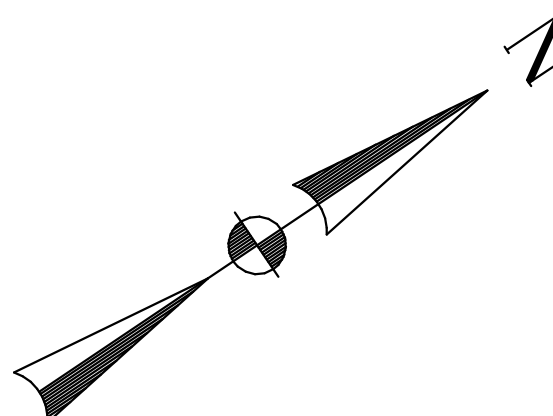
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SCALE	TAX MAP PARCEL			DRAWING NUMBER
1"=60'				D-7810321 SHEET 31

#	DATE	DESCRIPTION
#4 TCD	9-7-22	
#3 TCD	6-22-22	
#2 TCD	6-3-22	
#1 TCD	5-3-22	
REVISION	DATE	DESCRIPTION





## FIRE/EMERGENCY ACCESS NOTE

1. The design and construction of all building systems that may affect emergency services shall be coordinated with the Township Fire Marshal's Office.  
(i.e., Fire Department Connections, Fencing or other barriers, Internal evac plans)
2. The property and all lots shall always be marked and readily identifiable for public safety and inspection purposes.
3. The marketing name of any development shall be submitted and approved by the Fire Marshal's Office.
4. Burning of refuse and construction debris is prohibited.
5. Owner's representative contact information:  
Ryan D. Hahn, Vice President Development  
Venus Partners, LLC  
2009 West Smith Valley Road, Suite #241  
Greenwood, Indiana 46142  
Phone: (317) 721-6720  
rhahn@venuspar.com
6. If there are any chains and/or gates utilized for security or other purposes, during construction, they shall be secured in an approved fashion and shall be approved by the Township Fire Marshal's Office.
7. If smoking is permitted on the grounds, designated smoking areas shall be established and posted.
8. A means of contacting 9-1-1, in the event of an emergency, shall be provided and maintained.
9. All procedures for fire protection during construction shall be in accordance with the 2015 International Fire Code, Chapter 33 (Fire Safety During Construction and Demolition).
10. An Emergency Contact Information Form shall be submitted.
11. Alerting, Notification, and Suppression Permits shall be submitted, as applicable, in addition to any requirements established by the Code Services Department.
12. Knox boxes to be located at the fire pump room door and each entrance location.
13. Any exterior security gates and/or emergency access gates or chains that are part of any enclosed area shall be fitted with a Knox Box Pad Lock.
14. If there will be an Emergency Access Road or a trail that doubles as an Emergency Access Road that is part of the finished project, there shall be bollards installed at the end of the access road. All residents shall meet Liemick Township's specifications, which can be found on the Township's website, or a copy can be provided to you from the Township.

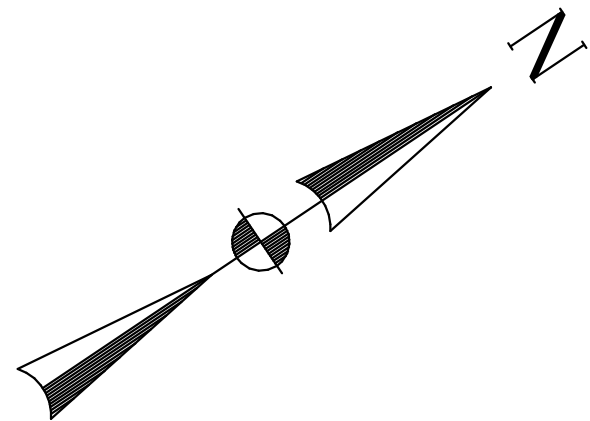
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#3 TCD	6-22-22	
#2 TCD	6-3-22	
#1 TCD	5-3-22	
REVISION	DATE	DESCRIPTION

12-21-21				C:\Users\ton dawson\Des
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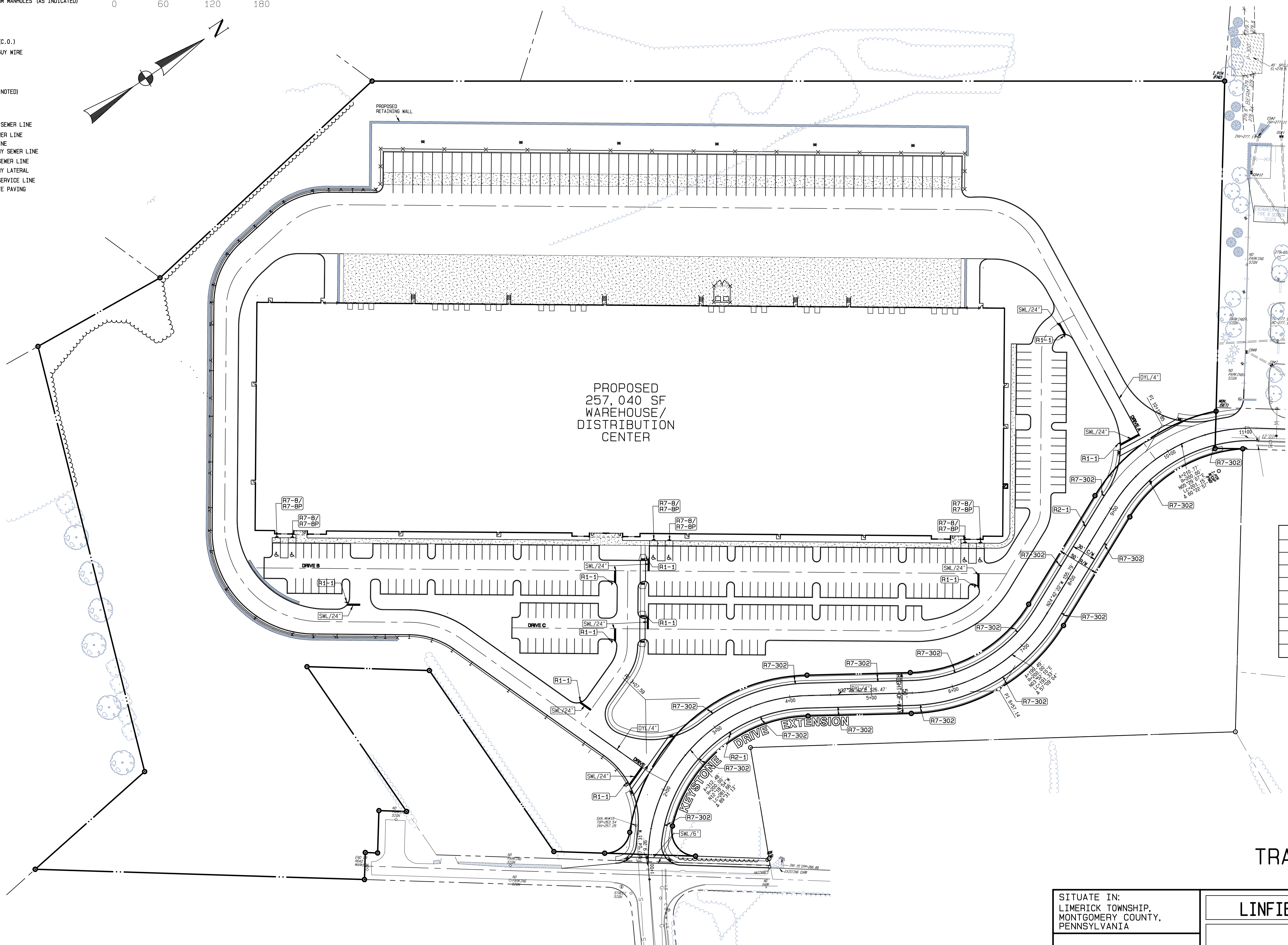







○ = EXIST. WELL  
 ☒ = CATCH BASIN (C.B.)  
 ○ = SANITARY OR STORM MANHOLE  
 ● = WATER VALVE CAP  
 ✖ = LIGHT POLE  
 ⚓ = FIRE HYDRANT  
 ○ = CLEAN OUT/VENT (C.O.)  
 ○ = UTILITY POLE W/GUY WIRE  
 ☒ = ELECTRIC BOX  
 ⊗ = GAS VALVE  
 ⊗ = GAS METER  
 — = STREET SIGN (AS NOTED)



EXISTING TREES

-S- S- = EXIST. SANITARY SEWER LINE  
== == = EXIST. STORM SEWER LINE  
-W- W- = PROPOSED WATERLINE  
-S- S- = PROPOSED SANITARY SEWER LINE  
== == = PROPOSED STORM SEWER LINE  
-SL- SL- = PROPOSED SANITARY LATERAL  
-WS- WS- WS- = PROPOSED WATER SERVICE LINE  
== == = PROPOSED CONCRETE PAVING



SECTION 05100 - PAINTING					
	DESCRIPTION	QTY.	SIZE	#	DATE
	STOP	10	30"x30"	R1-1	2-29-12
	RESERVED PARKING	6	12"x18"	R7-8	2-29-12
	VAN ACCESSIBLE	6	12"x6"	R7-8P	2-29-12
	SPEED LIMIT	2	24"x30"	R2-1	2-29-12
	NO PARKING SYMBOL/ARROW SIGN	17	12"x18"	R7-302	2-29-12

SITUATE IN:  
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SCALE	TAX MAP	PARCEL	DRAWING NUMBER	
1"=60'			D-7810321	SHEET 33

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#2 TCD	6-3-22	
#1 TCD	5-3-22	
REVISION	DATE	DESCRIPTION