WYOMING VALLEY SANITARY AUTHORITY

Regional Chesapeake Bay Pollutant Reduction Plan Amendment No. 2

September 6, 2022
Revised March 25, 2024

WYOMING VALLEY SANITARY AUTHORITY
Together, we put water in its place.

FOR PUBLIC REVIEW

Wyoming Valley Sanitary Authority
1000 Wilkes-Barre Street
Hanover Township, Luzerne County, Pennsylvania

Regional Chesapeake Bay Pollutant Reduction Plan
Amendment No. 2

September 2022
Revised March 25, 2024

WYOMING VALLEY SANITARY AUTHORITY
LUZERNE COUNTY, PENNSYLVANIA

TABLE OF CONTENTS

INTRODUCTION & EXECUTIVE SUMMARY

As authorized by Pennsylvania Act 68 of 2013, the Wyoming Valley Sanitary Authority (WVSA) expanded their purpose and powers to include stormwater management in 2017. This Chesapeake Bay Pollutant Reduction Plan (CBPRP) **Amendment No. 2** represents a regional effort by WVSA to meet a component of the Pennsylvania Department of Environmental Protection (PADEP) Municipal Separate Storm Sewer System (MS4) permitting requirements. More specifically, the permitting requirements covered by this plan include Pollutant Reduction Plans (PRPs) for stormwater discharges to local surface waters that are impaired for nutrients and/or sediment, and Chesapeake Bay Pollutant Reduction Plans (CBPRPs) for stormwater discharges to surface waters located within the Chesapeake Bay watershed. As a regional plan, this CBPRP **Amendment No. 2** addresses both the local impairment PRP and CBPRP requirements.

This document serves to **amend** WVSA's CBPRP dated September 2017, revised August 2019, amended September 2020, and approved by PADEP in December 2019 and May 2021 respectively. Specifically, this CBPRP **Amendment No. 2** addresses changes limited to the proposed structural Best Management Practices (BMPs) Projects to achieve annual pollutant load reduction goals.

In summary, the changes to the proposed list of BMPs and parsing of planning area in this **Amendment No. 2** are as follows:

1. Addition of twelve (12) Stormwater Basin Retrofit projects,
2. Deletion of three (3) Stormwater Basin Retrofit projects,
3. Deletion of eleven (11) segments of Streambank Restoration,
4. Addition of one (1) Vegetated Open Channel projects,
5. Parsing of (2) planning areas located within combined sewer service areas, and
6. Parsing of State-owned property (SCI-Dallas).

The updated **Annual Pollutant Load Reduction Goal is ~~2,373,102~~ 2,343,547** Total Suspended Solids in pounds per year (TSS lbs/ Year), taking into account additional parsed areas from the planning area**.** Inclusion of the proposed BMP changes in this **Amendment No. 2** will have an estimated net increase on the projected Annual Pollutant Load Reduction of TSS (lbs/ Year) from ~~2,647,916~~ lbs to **2,787,057 TSS (lbs /Year).**

This CBPRP **Amendment No. 2** was prepared following the guidance provided in the Pennsylvania Department of Environmental Protection (PADEP) Document 3800-PM-BCW0100k - National Pollutant Discharges Elimination Systems (NPDES) Stormwater Discharges from Small Municipal Separate Storm Sewer Systems Pollutant Reduction Plan (PRP) Instructions, as well as Expert Panel papers on stormwater basin retrofits/restorations.

The general format of this **Amendment No. 2** presents only the sections and appendices from the September 2020 approved CBPRP that are being revised and are material to the proposed BMP Project changes. All revisions are shown in **strikeout (e.g. ~~xxxx~~)** format, and/or **RED** or **GREEN** font as indicated in the respective sections.

General Information
Plan Administrator: Wyoming Valley Sanitary Authority
Mailing Address: PO Box 33A
City, State Zip: Wilkes-Barre, PA 18703-1333
Contact: Samantha Albert, PE
Title: Director of Engineering
Phone: 570.825.3416 Ext 2210
Email: samantha.albert@wvsa.net

SECTION A: PUBLIC PARTICIPATION

A complete copy of the CBPRP, dated September 2017, revised August 2019, Amendment No. 1 dated September 2020, and this **Amendment No. 2 dated March 25, 2024** is available for the public to review at Wyoming Valley Sanitary Authority and on their website at **https://www.wvsa.org/** from March 25, 2024 through April 25, 2024. These documents will be available on the WVSA website for at least 30 days as advertised in the Wilkes-Barre Citizens' Voice. The published public notice contained a brief description of the plan amendment, the dates and locations at which the plan amendment was available for review by the public, and the length of time provided for the receipt of comments. Copies of the public notice as posted on the WVSA website and published in Wilkes-Barre Citizen's Voice is included in Appendix II.

Written comments will be accepted for 30 days following the publication date of the public notice. A **public meeting will be held on April 10, 2024, 5:30PM EST** at Wyoming Valley Sanitary Authority's public meeting room at 1000 Wilkes-Barre Street, Hanover Township, Luzerne County, PA to present the information contained in this Amendment No. 2 to the public. A copy of the CBPRP Amendment No. 2 presentation and any public comment meeting minutes will be included in Appendix II after the public comment period is completed as part of the final submission of this Amendment No. 2 to PADEP.

SECTION E.2: PROPOSED BMPs

This section outlines the BMP implementation strategy developed to achieve the required annual pollutant load reduction goals. The proposed BMPs were determined through a review of previously submitted PRPs from municipalities included in the CBPRP planning area, meetings with the Luzerne Conservation District, and public outreach meetings with elected officials and municipal staff.

Proposed projects have been evaluated in terms of feasibility and anticipated pollutant load reductions in order to meet the goals of this plan. During plan implementation, the proposed BMPs will be designed in accordance with the Pennsylvania Department of Environmental Protection (PADEP) BMP Manual design guidance and all local ordinances. Additional details and calculations for each proposed project developed during the design and implementation project phases will be documented in the Annual MS4 Status Reports. All existing basin retrofit projects will require a hydraulic evaluation to ensure that modifications for stormwater quality improvements will not negatively impact rate mitigation or detrimentally affect neighboring properties.

Multiple BMPs can be retrofitted and/or created to reduce the pollutant load entering the CBPRP Planning Area. Several publicly owned basins already exist within the CBPRP Planning Area; however, they are designed primarily for flood management and rate attenuation. These basins could be retrofitted to increase the water quality management of each basin, which in turn increases the pollutant load reduction. Basin retrofits can be achieved by retrofitting outfall structures, increasing flow paths, creating sediment forebays, introduce meanders to existing low flow channels, amend soils, install water quality vegetation plantings, and develop operations and maintenance programs to ensure the long-term efficacy of the retrofitted BMPs. New basins within the CBPRP area will follow the same pollutant load reduction strategies as retrofit basins; however, they will be constructed in locations where basins do not already exist. The details for these proposed basins can be found in Appendix VI-A.

A summary of the type and scale of BMP projects included in the WVSA strategy is listed in Table 7. The pollutant loading reductions for each proposed BMP were calculated in terms of pounds per year using PADEP's standard BMP Effectiveness Values and the Chesapeake Bay Program Expert Panel Report[7]. Details on individual BMP projects to be implemented in each planning area is provided in Appendix VI.

Edits shown in **GREEN** are additions or revisions to the Plan, and edits shown in **RED** are deletions from the Plan.

Table 7: WVSA BMP Strategy Summary – Amendment No. 2

BMP Type	Planning Area **	Stream	Watershed	# of Projects	Pollutant Load Reduction TSS (lbs/yr)
~~Toby Creek Impoundment~~	~~CBPRP~~	~~Toby Creek~~	~~Toby Creek~~	~~1~~	~~133,682~~
Exeter – Donna's Way Basin Retrofit	CBPRP	Hicks Creek	Hicks Creek	1	~~10,300~~ 7,397
Swoyersville – Townsend Avenue Basin Retrofit	CBPRP	Abrahams Creek	Abrahams Creek	1	~~143,100~~ 124,247
Swoyersville – Creek Street Basin Retrofit	CBPRP	Abrahams Creek	Abrahams Creek	1	~~138,200~~ 243,183
~~Swoyersville – Dana Street Basin Retrofit~~	~~CBPRP~~	~~Abrahams Creek~~	~~Abrahams Creek~~	~~1~~	~~69,000~~
~~Swoyersville – Simpson Street Basin Retrofit~~	~~CBPRP~~	~~Abrahams Creek~~	~~Abrahams Creek~~	~~1~~	~~28,700~~
Swoyersville –Slocum Street Basin Retrofit	CBPRP	Toby Creek	Swoyersville Borough/Susquehanna River	1	~~101,000~~ 95,018
Jenkins Township– Main Street & East Saylor Ave - New Water Quality Basin	CBPRP	Susquehanna River	City of Wilkes-Barre/Susquehanna River	1	~~83,500~~ 97,072
Jenkins Township– Demark St Northeast Extension – New Water Quality Basin	CBPRP	Susquehanna River	City of Wilkes-Barre/Susquehanna River	1	~~77,400~~ 128,960
Plains Township – Wyndtree Oaks Basin Retrofit	CBPRP	Susquehanna River	City of Wilkes-Barre/Susquehanna River	1	~~22,700~~ 20,628
City of Wilkes-Barre – Motor World Basin Retrofit	CBPRP	Laurel Run	Laurel Run	1	17,345
Wilkes-Barre Township – Wyoming Valley Mall Basin Retrofit	CBPRP	Laurel Run	Laurel Run	1	80,263
Jenkins Township – Main Street/Pittston By-Pass Basin Retrofit & Vegetated Channel	CBPRP	Susquehanna River	Susquehanna River	2	58,412
Hanover Township – 300 Lasley Ave Basin Retrofit	CBPRP	UNT to Warrior Creek	Warrior Creek	1	14,327
Hanover Township – 325 Lasley Ave Basin Retrofit	CBPRP	UNT to Warrior Creek	Warrior Creek	1	3,356
Hanover Township – 600 Lasley Ave Basin Retrofit	CBPRP	UNT to Warrior Creek	Warrior Creek	1	8,159
Hanover Township – 1065 Hanover St Basin 1 Retrofit	CBPRP	UNT to Warrior Creek	Warrior Creek	1	2,507
Hanover Township – 1065 Hanover St Basin 2 Retrofit	CBPRP	UNT to Warrior Creek	Warrior Creek	1	5,610

BMP Type	Planning Area **	Stream	Watershed	# of Projects	Pollutant Load Reduction TSS (lbs/yr)
Sugar Notch Borough – 1072 Hanover St Basin Retrofit	CBPRP	UNT to Warrior Creek	Warrior Creek	1	9,290
Sugar Notch Borough – 1110 Hanover St Basin Retrofit	CBPRP	UNT to Warrior Creek	Warrior Creek	1	7,156
Hanover Township – 165 New Commerce Blvd Basin Retrofit	CBPRP	UNT to Warrior Creek	Warrior Creek	1	12,357
Hanover Township – 335 New Commerce Blvd, Basin 1 Basin Retrofit	CBPRP	UNT to Warrior Creek	Warrior Creek	1	3,010
Stormwater Park (Plains Township)	CBPRP	Susquehanna River	City of Wilkes-Barre/Susquehanna River	1	30,000
Stream Restoration	CBPRP	Unnamed Tributary from Abrahams Creek (Wyoming Borough)	Abrahams Creek	2 segments	~~151,200~~ 160,466
	CBPRP	Abrahams Creek (Forty Fort Borough)	Abrahams Creek	~~3~~ 1 segment	~~176,960~~ 235,440
	CBPRP	Mill Creek (The Bog - Wilkes-Barre & Plains Township)	City of Wilkes-Barre/Susquehanna River	~~3~~ 1 segment	~~89,600~~ 10,098
	~~CBPRP~~	~~Unnamed Tributary to Susquehanna River~~	~~Susquehanna River~~	~~1~~	~~12,096~~
	Newport Creek	Newport Creek	Newport Creek	~~3~~ 1 segment	~~76,160~~ 40,392
	Warrior Creek/ Susquehanna River	Warrior Creek	Warrior Creek/Susquehanna River	~~3~~ 2 segments	~~244,160~~ 178,409
	Sugar Notch Run/Solomon Creek	Spring Run & Solomon Creek	Sugar Notch Run/Solomon Creek	3 segments	~~100,800~~ 261,517
	~~City of Wilkes-Barre/ Mill Creek~~	~~Laurel Run~~	~~City of Wilkes-Barre/ Mill Creek~~	~~1~~	~~26,880~~
	City of Wilkes-Barre/Mill Creek	Gardner Creek & Mill Creek	City of Wilkes-Barre/Mill Creek & Gardner Creek	2 segments	~~71,680~~ 248,458
	~~Lackawanna River/ Susquehanna River~~	~~Unnamed Tributary & Mill Creek~~	~~Lackawanna River/Susquehanna River~~	~~2~~	~~26,880~~
Street Sweeping & Catch Basin Cleaning	CBPRP	Each Stream within the Planning Area	Each Watershed within the Planning Area	Various	~~800,000~~ 650,000
Community Based BMPs	CBPRP	Various *	Various *	18	34,000
			TOTALS	~~**52**~~ **51**	~~**2,647,916**~~ **2,787,057**

*See BMP Maps in CBPRP, dated August 2019.

** All Planning Areas are included in the CBPRP planning area as outlined in Section E.1. of PRP, dated August 2019.

[6] PADEP, "Consideration of Stream Restoration Projects in Pennsylvania for Eligibility as an MS4 Best Management Practice" (June 22, 2017).

[7] PADEP Document 3899-PM-BCW0100M, NPDES Stormwater Discharges from Small MS4s, BMP Effectiveness Values (6/2018), Chesapeake Bay Program Expert Panel, Recommendation of the Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices (5/26/2016), Recommendations of the Expert Panel to Define Removal Rates for Urban Stormwater Retrofit Projects (January 20, 2015).

The BMP strategy outlined in Table 7 represents the best selection of projects after evaluation with respect to various criteria including cost-effectiveness (cost compared to pollutant load reduction - $/pounds TSS removed), feasibility of implementing MS4 BMP design requirements, environmental impact. property ownership, opportunity for public education, and ability to obtain easements and/or partnerships. This BMP strategy will meet the required annual pollutant reductions while also improving the quality of local impaired waterways. The proposed BMPs include large regional BMPs (Basin Retrofits and Stream Restoration Projects) to achieve a major sediment load reduction and smaller Community Based BMPs to target specific impaired waters.

Explanation of the revisions identified in Table 7 are as follows:

- **Toby Creek Impoundment –** Project removed from the Pollutant Reduction Plan (PRP) due to concerns with ability to obtain required agency permitting for proposed impoundment modifications and low cost-effectiveness.

- **Exeter Donna's Way Basin Retrofit** – The drainage area, pollutant loading number, and pollutant reduction numbers were estimated as part of planning phase during PRP preparation. Since the last publication of PRP and Amendment No. 1, this project was designed. As part of design, a detailed delineation of the basin drainage area was completed which produced revised final pollutant reduction number.

- **Swoyersville Dana Street Basin Retrofit and Swoyersville Simpson Street Basin Retrofit** – These projects were removed from PRP due to low cost-effectiveness and changes that would be required to the operation of a municipal stormwater pump station.

  During most storm events, stormwater in the drainage areas to these basins flows to a municipal stormwater pump station which pumps to the Swoyersville Creek Street Basin. The Dana Street and Simpson Street basins are only utilized during the infrequent larger storm events, where they function as surcharge basins for the pump station when the rate of stormwater runoff exceeds the pump station capacity. In these larger storm events, the basins serve as holding ponds/overflow areas for the pump station wet well until the pump station can pump this stormwater.

- **Swoyersville Creek Street Basin Retrofit –** The pollutant load reduction number increased due to the elimination of the Dana and Simpson Street basin projects. The drainage areas for those basins are now included in the Creek Street Basin drainage area, pollutant loading number, and pollutant reduction number.

- **Swoyersville Slocum Street Basin Retrofit -** The drainage area, pollutant loading number, and pollutant reduction numbers were estimated as part of planning phase during PRP

preparation. Since the last publication of PRP and Amendment No. 1, this project was designed. As part of design, a detailed delineation of the basin drainage area was completed which produced revised final reduction number.

- **Swoyersville Slocum Street Basin Retrofit -** The drainage area, pollutant loading number, and pollutant reduction numbers were estimated as part of planning phase during PRP preparation. Since the last publication of PRP and Amendment No. 1, a detailed delineation of the basin drainage area was completed which produced revised final pollutant reduction number.

- **Jenkins Township Main Street & East Saylor Ave New Water Quality Basin -** The drainage area, pollutant loading number, and pollutant reduction numbers were estimated as part of planning phase during PRP preparation. Since the last publication of PRP and Amendment No. 1, this project was designed. As part of design, a detailed delineation of the basin drainage area was completed which produced revised final pollutant reduction number.

- **Jenkins Township Demark St Northeast Extension New Water Quality Basin** - The drainage area, pollutant loading number, and pollutant reduction numbers were estimated as part of planning phase during PRP preparation. Since the last publication of PRP and Amendment No. 1, a detailed delineation of the basin drainage area was completed which produced revised final pollutant reduction number.

- **Plains Township Wyndtree Oaks Basin Retrofit -** The drainage area, pollutant loading number, and pollutant reduction numbers were estimated as part of planning phase during PRP preparation. Since the last publication of PRP and Amendment No. 1, this project was designed. As part of design, a detailed delineation of the basin drainage area was completed which produced revised final pollutant reduction number.

- **City of Wilkes-Barre – Motor World Basin Retrofit**
  Wilkes-Barre Township – Wyoming Valley Mall Basin Retrofit
  Hanover Township – 300 Lasley Ave Basin Retrofit
  Hanover Township – 325 Lasley Ave Basin Retrofit
  Hanover Township – 600 Lasley Ave Basin Retrofit
  Hanover Township – 1065 Hanover St Basin 1 Retrofit
  Hanover Township – 1065 Hanover St Basin 2 Retrofit
  Sugar Notch Borough – 1072 Hanover St Basin Retrofit
  Sugar Notch Borough – 1110 Hanover St Basin Retrofit
  Hanover Township – 165 New Commerce Blvd Basin Retrofit
  Hanover Township – 335 New Commerce Blvd, Basin 1 Basin Retrofit

  All above basin retrofit projects were added to the PRP due to their high cost-effectiveness and WVSA's successful implementation of partnership agreements with the respective private property owners.

- **Jenkins Township – Main Street/Pittston By-Pass Basin Retrofit & Vegetated Channel** – This project was added to the PRP to address a localized flooding issue from stormwater runoff due to the lack of adequate interior drainage for this area.

- **Unnamed Tributary to Susquehanna River Stream Restoration, Laurel Run Stream Restoration, and the Unnamed Tributary & Mill Creek (Lackawanna River Watershed) Stream Restoration** – These stream restoration projects were removed from the PRP due to site constraints and low cost-effectiveness relative to other projects.

- **Unnamed Tributary from Abrahams Creek Streambank Restoration, Wyoming Borough** – The pollutant reduction number was revised to reflect the actual surveyed length of streambank proposed for restoration as part of the design phase of the project.

- **Abrahams Creek Streambank Restoration, Forty Fort Borough** – The pollutant reduction number was revised to reflect additional length of the streambank restoration added to the project. The project was previously 3 non-contiguous segments of streambank proposed for restoration and is now 1 contiguous larger segment of stream proposed for bank restoration.

- **Newport Creek, Nanticoke City** – Segments of the stream had to be removed from the PRP due to inability to obtain Partnership and Easements from private property owners. The pollutant reduction number was revised to reflect the actual length of streambank proposed for restoration in the final design of the project.

- **Mill Creek (The Bog - Wilkes-Barre & Plains Township)** – One segment of stream on the Wilkes-Barre City side of project was removed due to site constraints; this streambank is part of an existing flood levee system and should not be modified. The other segment of Mill Creek included in this project is located much further downstream and is now included as part of the Gardner & Mill Creek Streambank Restoration project. These revisions changed the length of stream proposed for restoration and the pollutant reduction number for this project.

- Gardner Creek & Mill Creek (Mohegan Sun, Plains Township) – Segments of Gardner Creek were removed from the project due to WVSA's inability to obtain partnership and easement agreements with private property owners. A segment of Gardner Creek located at the confluence of Gardner Creek and Mill Creek was added to the project. The pollutant load reduction number increased due to stream segment revisions as well as utilizing accepted Chesapeake Bay Expert Panel protocols 1 & 3 for credit calculations in addition to the PADEP default rate.

- **Warrior Creek, Hanover Township**- The downstream segments of stream located close to the Susquehanna River were removed from the project due to sensitive archeological issues identified during an archeological site assessment required by the Pennsylvania Historical and Museum Commission (PHMC) review for the project during the preliminary design phase. An upper (i.e. upstream) segment of stream was removed from the project due to inability to obtain partnership and easement with private property owner.

- **Spring Run & Solomon Creek, Hanover Township** - The pollutant load reduction number increased due to utilizing the accepted Chesapeake Bay Expert Panel protocols 1 & 3 for credit calculations in addition to the PADEP default rate.

- **Street Sweeping & Catch Basin Cleaning** – The pollutant load reduction number for this operational best management practice was reduced to be in line with actual annual sediment removed from this activity performed by WVSA since its inception in 2019.

The updated **Annual Pollutant Load Reduction goal is ~~2,367,572~~ 2,343,547 TSS (lbs/year),** taking into account parsing of additional planning areas identified in this **Amendment No. 2**. The pollutant load reductions achieved by the proposed BMPs changes listed above exceed the pollutant load reduction requirements by ~~274,814~~ **443,510 TSS (lbs/yr)**. As allowed during the five (5) year permit cycle, this Plan will be revised based upon actual progress made and new project opportunities.

APPENDIX II

PUBLIC PARTICIPATION DOCUMENTATION

THE CITIZENS' VOICE
PO BOX 3478
SCRANTON PA 18505-0478
(860)241-3054

ORDER CONFIRMATION

Salesperson: ESCALANTE JESSICA — Printed at 03/22/24 11:08 by jesca-st

Acct #: 185380 — Ad #: 82783715 — Status: New WHOLD

WVSA -WYOMING VALLEY SANITARY AUTH
ATTN: KATHLEEN
PO BOX 33A
WILKES-BARRE PA 18703

Start: 03/24/2024 — Stop: 04/02/2024
Times Ord: 3 — Times Run: ***
TSLEG 1.00 X 70.00 — Words: 214
Total TSLEG 70.00
Class: X1010 LEGALS & PUBLIC NOTICES
Rate: CLL — Cost: 557.30
Affidavits: 1
Ad Descrpt: PUBLIC MTG
Descr Cont: NOTICE OF PUBLIC PARTICIP
Given by: *
P.O. #:
Created: jesca 03/22/24 11:06
Last Changed: jesca 03/22/24 11:08

Contact: KATHLEEN
Phone: (570)825-3416
Fax#: (570)825-5039
Email: kathleend@wvsa.net; wendy.wi
Agency:

PUB	ZONE	EDT	TP	RUN DATES
CVCV	CL	3	S	03/24,26 04/02
CVIN	INTR	6	S	03/24,26 04/02

AUTHORIZATION

Under this agreement rates are subject to change with 30 days notice. In the event of a cancellation before schedule completion, I understand that the rate charged will be based upon the rate for the number of insertions used.

_____ _____
Name (print or type) Name (signature)

(CONTINUED ON NEXT PAGE)

THE CITIZENS' VOICE
PO BOX 3478
SCRANTON PA 18505-0478
(860)241-3054

ORDER CONFIRMATION (CONTINUED)

Salesperson: ESCALANTE JESSICA Printed at 03/22/24 11:08 by jesca-st

Acct #: 185380 Ad #: 82783715 Status: New WHOLD WHOL

NOTICE OF PUBLIC PARTICIPATION AND PUBLIC MEETING FOR AMENDED CHESAPEAKE BAY POLLUTANT REDUCTION PLAN

Wyoming Valley Sanitary Authority (WVSA) hereby gives notice of the 30-day public comment period for its amended National Pollutant Discharge Elimination (NPDES) Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) Pollutant Reduction Plan (PRP). Best Management Practices (BMPs) are proposed in the regional Plan to satisfy PRP requirements for the Chesapeake Bay and local stream impairments.

The public is invited to review this document, which can be found on the WVSA website at www.wvsa.org , and provide written comments to:
Samantha Albert, PE
Director of Engineering
1000 Wilkes-Barre Street
Hanover Township, PA 18703
Email: samantha.albert@wvsa.net

The 30-day public comment period begins March 25, 2024 and ends April 25, 2024.

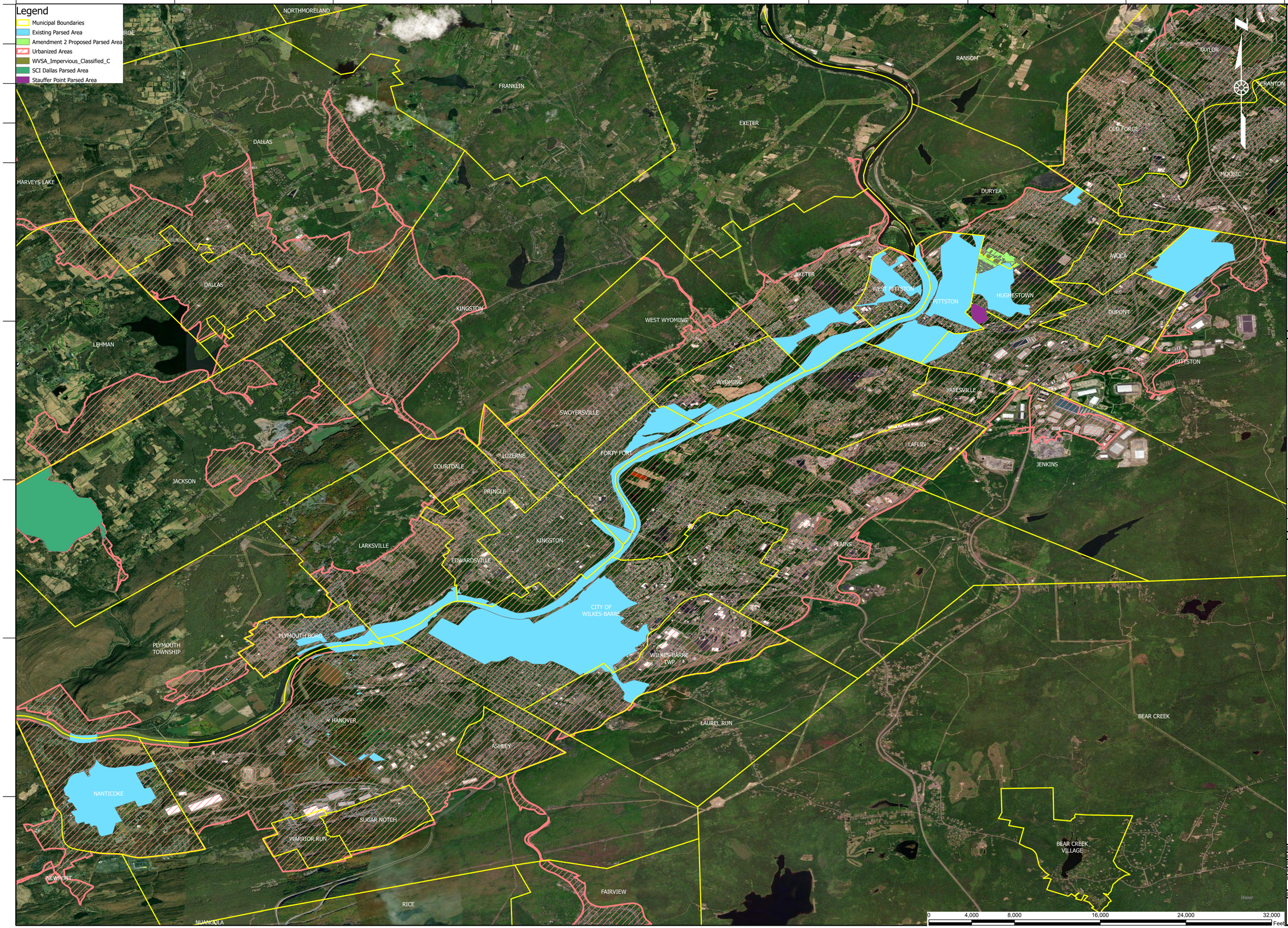
The Plan will be discussed at a public meeting on April 10th, 2024 beginning 5:30 PM at the offices of WVSA at 1000 Wilkes-Barre Street, Hanover Township, PA.

The municipalities participating in the regional Plan include the Cities of Nanticoke, Pittston, and Wilkes-Barre; the Boroughs of Ashley, Courtdale, Duryea, Edwardsville, Exeter, Forty Fort, Harveys Lake, Hughestown, Kingston, Laflin, Larksville, Luzerne, Plymouth, Pringle, Sugar Notch, Swoyersville, West Pittston, West Wyoming, Wyoming, and Yatesville; and the Townships of Hanover, Jackson, Jenkins, Newport, Pittston, Plains, Plymouth, and Wilkes-Barre.

PHILLIP LATINSKI, Secretary

APPENDIX III-A

PARSING MAPS



BORTON LAWSON

Wilkes-Barre
613 Baltimore Dr. Suite 300
Wilkes-Barre, Pa 18702
570-821-1999

SEALS

STORMWATER MANAGEMENT ORDINANCE
WYOMING VALLEY SANITARY AUTHORITY
You 'sitter know... we all live downstream.

REVISIONS

NO.	DATE	DESCRIPTION

DRAWING TITLE & PROJECT NAME

PARSED AREAS

WYOMING VALLEY SANITARY AUTHORITY PRP AMENDMENT #2

LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY	MCF
CHECKED BY	SGA
DATE	2022-08-08
PROJECT NO.	2018-3759-001
PROJECT STATUS	PRELIMINARY

DRAWING NO.

EXH-A

PARSED AREA #1
STORMWATER DRAINAGE
DISCHARGES TO EXISTING
COMBINED SEWER AREA

DRAINAGE DITCH

DURYEA BOROUGH

HUGHESTOWN BOROUGH

DRAINAGE DITCH

SWALE

CLARK ROAD

FOOTE AVE

CROSS PIPE

CONVEYANCE POINT

CROSS PIPE

OUTFALL DISCHARGING TO ROADSIDE SWALE LEADING TO COMBINED SEWER AREA LOOKING IN A SOUTHWESTERLY DIRECTION ON FOOTE AVE (SR 2032)

COMBINED SEWER LOCATION

PARSONAGE STREET (S.R. 2032)

S.R. 2032

0 75 150 300 FEET

SCALE:1"=150'

LEGEND

- MUNICIPAL BOUNDARY
- LOCAL ROAD
- PRIVATE ROAD
- STORM PIPE
- STORM INLET
- COMBINED SEWER AREA
- STORM MANHOLE
- PARSE AREA #1

NOTE:

PRIVATE ROADS HAVE BEEN DETERMINED USING WVSA BILLING SYSTEM, DEED INFORMATION, AND PENNDOT TYPE 5 MAPS.

P.E. SEAL

P.E. SEAL

REV.	REVISION DESCRIPTION	DATE	BY

DRAWN C.B. | CHECKED J.C. | APPROVED J.C | SCALE 1"=150'

STORMWATER MANAGEMENT PROGRAM
WYOMING VALLEY SANITARY AUTHORITY

You 'otter know... we all live downstream.

PARSED AREA MAP

DURYEA BOROUGH, HUGHESTOWN BOROUGH
LUZERNE COUNTY, PENNSYLVANIA

WYOMING VALLEY SANITARY AUTHORITY
Together, we put water in its place.

SHIPPING:
1000 WILKES-BARRE STREET
HANOVER TOWNSHIP, PA 18706

MAILING:
P.O. BOX 33A
WILKES-BARRE, PA 18703-1333

PROJECT NUMBER

SHEET NUMBER

PA-1

DATE 8-2-2022

COMBINED SEWER AREA PARSED FROM THE WVSA CBPRP

COMBINED SEWER AREA PARSED FROM THE WVSA CBPRP

PARSED AREA #2 STORMWATER DRAINAGE DISCHARGES TO EXISTING COMBINED SEWER AREA

SEARLE ST (SR 2025)

HUGHESTO

PITTSTON CITY

PITTSTON TWP

ROCK ST (SR 2025)

EXISTING BMP #1

CONNECTION POINT SANITARY MANHOLE

DRAINAGE AREA #1

DRAINAGE AREA #2

DRAINAGE AREA #3

DRAINAGE AREA #4

EXISTING BMP #2

EXISTING BMP #3

EXISTING BMP #4

HUGHESTOWN BOROUGH

PITTSTON TWP

CENTER ST (SR 2030)

WILLIAMS ST (SR 0011)

LAUREL ST (SR 2035)

JAMES A MUSTO BY-PASS (SR 0011)

BROAD ST (SR 2023)

PITTSTON CITY

PITTSTON TWP

CONNECTION POINT SANITARY MANHOLE

LEGEND

- MUNICIPAL BOUNDARY
- LOCAL ROAD
- DRAINAGE AREA BOUNDARY
- STORM PIPE
- STORM INLET
- COMBINED SEWER AREA
- STORM MANHOLE
- PARSE AREA #2

0 75 150 300 FEET

SCALE:1"=150'

NOTE:

1. DRAINAGE AREAS AND STORM SYSTEM MAPPING PROVIDED BY TIMOTHY J. CONNOLLY P.E. AS SHOWN ON PCSM PLANS FOR STAUFFER POINT.
2. STORM TO SANITARY CONNECTION POINTS CONFIRMED FROM FIELD COLLECTION DATA AND BY REILLY ASSOCIATES THE CITY OF PITTSTONS ENGINEER OF RECORD.

P.E. SEAL

P.E. SEAL

REV.	REVISION DESCRIPTION	DATE	BY

DRAWN C.B. | CHECKED J.C. | APPROVED S.A. | SCALE 1" = 150'

STORMWATER MANAGEMENT PROGRAM WYOMING VALLEY SANITARY AUTHORITY

You later know... we all live downstream.

PARSED AREA MAP #2

PITTSTON TOWNSHIP, HUGHESTOWN BOROUGH, & PITTSTON CITY
LUZERNE COUNTY, PENNSYLVANIA

SHIPPING:
1000 WILKES-BARRE STREET
HANOVER TOWNSHIP, PA 18706

MAILING:
P.O. BOX 33A
WILKES-BARRE, PA 18703-1333

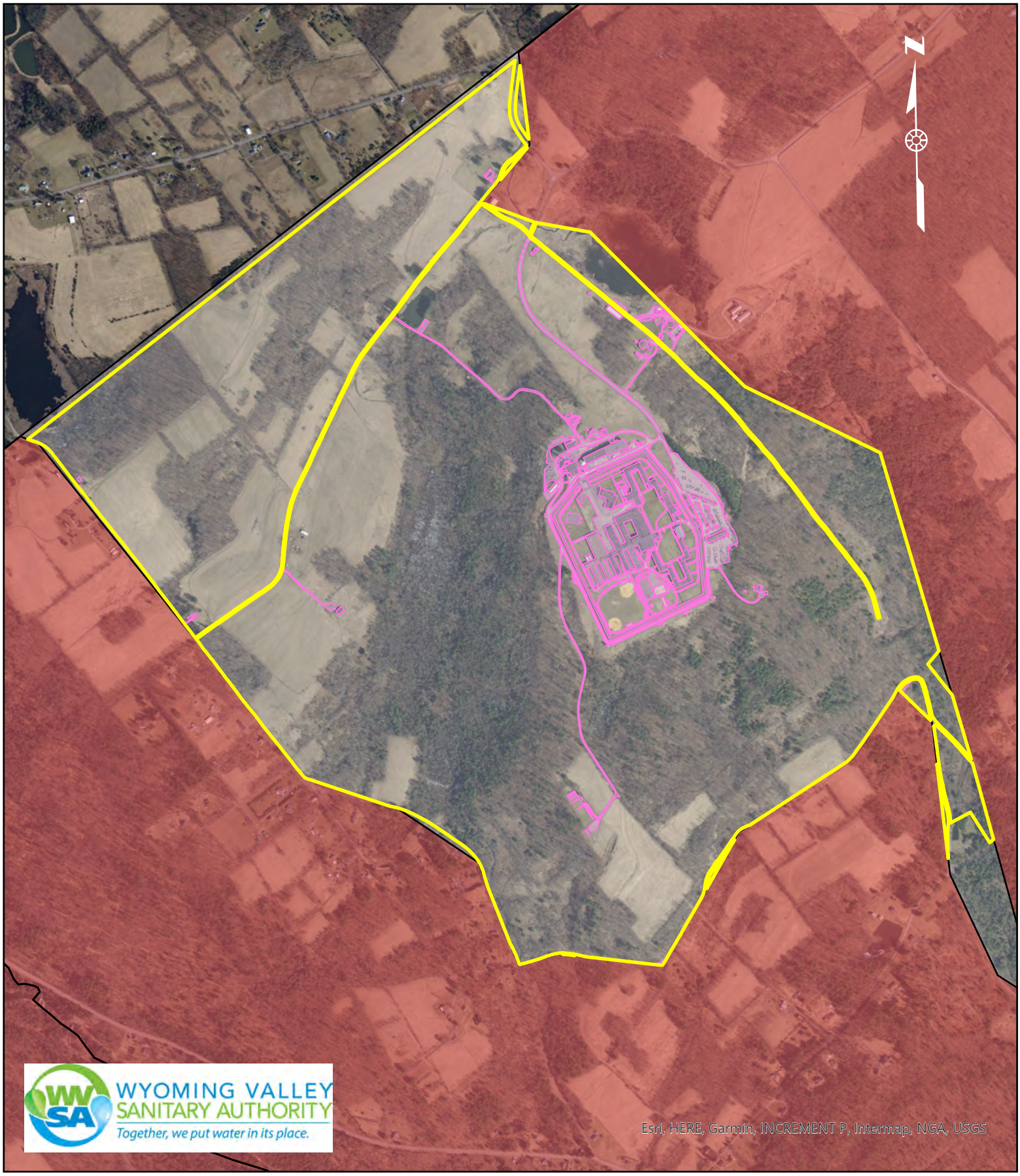
WYOMING VALLEY SANITARY AUTHORITY
Together, we put water in its place.

PROJECT NUMBER

SHEET NUMBER

PA-2

DATE 12-22-2023



Legend

- IMPERVIOUS AREA
- SCI DALLAS
- Outside Urbanized Area

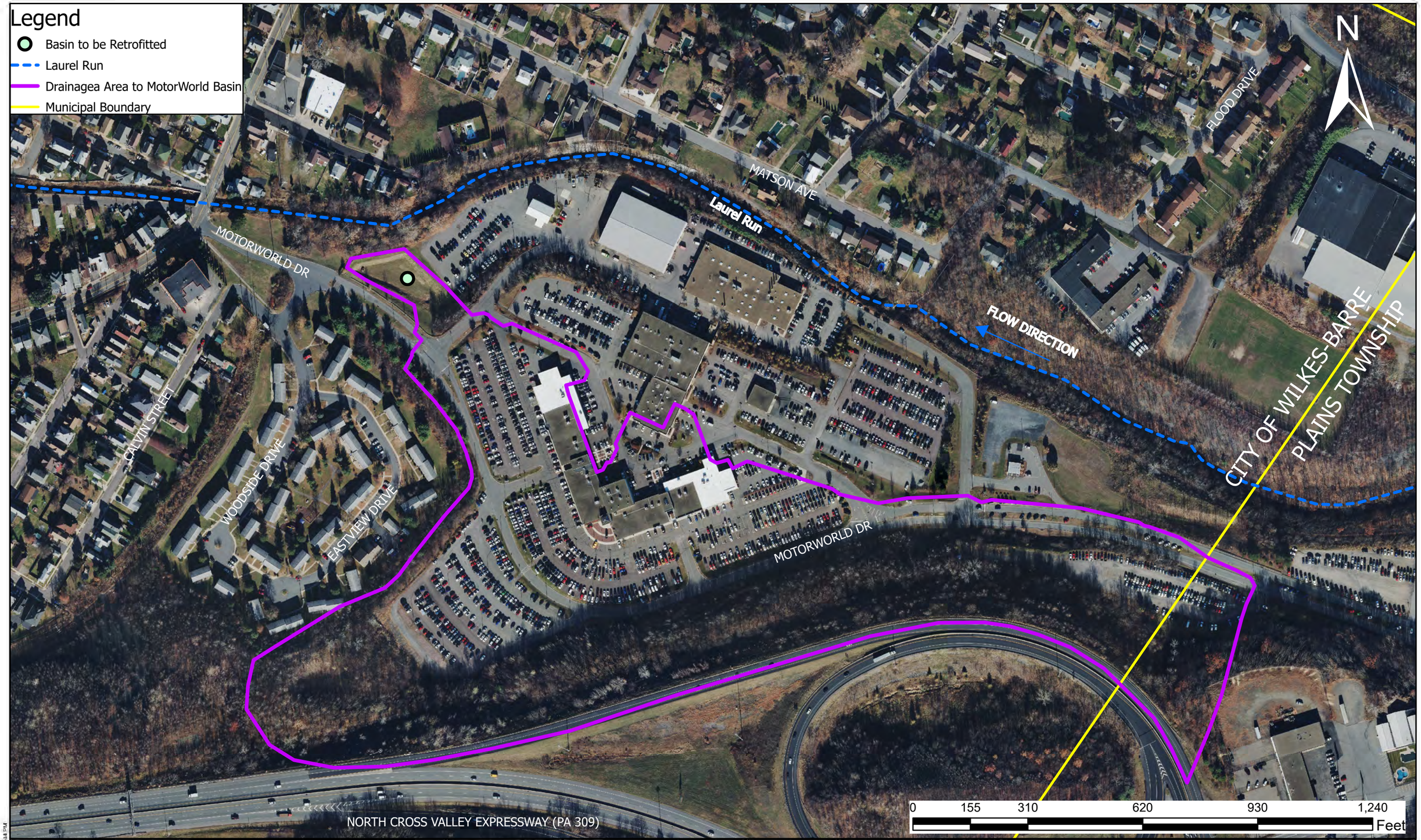
PARSED AREA MAP
SCI DALLAS
JACKSON TOWNSHIP, LUZERNE COUNTY,
PENNSYLVANIA

1,100 550 0 1,100

Scale: 1"=1100'

APPENDIX III-B

PROPOSED BMP MAPS



Borton Lawson
ENGINEERING
ARCHITECTURE
www.borton-lawson.com

WYOMING VALLEY SANITARY AUTHORITY
Together, we put water in its place.

811
Know what's below. Call before you Dig
CALL PA ONE CALL SYSTEM TOLL FREE THREE DAYS BEFORE YOU DIG 811 or 1-800-242-1776

REVISIONS		
NO.	DATE	DESCRIPTION

STORMWATER MANAGEMENT POLICIES
WYOMING VALLEY SANITARY AUTHORITY
You 'otter know... we all live downstream

DRAWING TITLE & PROJECT NAME:
MOTORWORLD BASIN RETROFIT

WYOMING VALLEY SANITARY AUTHORITY
PRP AMENDMENT #2

CITY OF WILKES-BARRE, LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY	MCF
CHECKED BY	SGA
DATE	6/20/2022
PROJECT NUMBER	2022-5487-001
DRAWING NUMBER	BSN-3

Drawing3.dwg - 3/19/2018 12:44 PM

Legend

- Basin to be Retrofitted
- Drainage Area to Wyoming Valley Mall Basin
- UNT To Laurel Run
- Municipal Boundary

N

CITY OF WILKES-BARRE

WILKES-BARRE TOWNSHIP

PLAINS TOWNSHIP

EAST END BLVD

WYOMING VALLEY MALL BLVD

MUNDY STREET

FLOW DIRECTION

UNT to Laurel Run

0 175 350 700 1,050 1,400 Feet

Drawing3.dwg, 3/19/2018 12:34 PM

Borton Lawson
ENGINEERING
ARCHITECTURE
www.borton-lawson.com

WYOMING VALLEY SANITARY AUTHORITY
Together, we put water in its place.

811 Know what's below. Call before you dig.

CALL
PA ONE CALL
SYSTEM TOLL FREE
THREE DAYS BEFORE YOU DIG
811
OR
1-800-242-1776

REVISIONS

NO.	DATE	DESCRIPTION

STORMWATER MANAGEMENT PROGRAM
Wyoming Valley Sanitary Authority
You better know... we all live downstream

DRAWING TITLE & PROJECT NAME:

WYOMING VALLEY MALL BASIN RETROFIT

WYOMING VALLEY SANITARY AUTHORITY
PRP AMENDMENT #2

WILKES-BARRE TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY	MCF
CHECKED BY	SGA
DATE	6/20/2022
PROJECT NUMBER	2022-5487-001
DRAWING NUMBER	BSN-4

JENKINS TOWNSHIP

STOP:
620.90±

CLEAN OUT & REGRADE EXISTING SWALE @ 0.50%

16.50%

START:
622.70±

THOMPSON ST

SOUTH MAIN ST

PROPOSED INLETS INV:651.68 (24"HDPE)

INLET
TG(ADJ):654.18
PLAN:654.26
FIELD:489.81
DIFF:164.45
INV12":651.68

REPLACE EX. WITH 31 LF 24" HDPE @ 0.3%

MH-SAN
RIM:654.46

MH-SAN
RIM:655.34

INLET
TG:651.81
INV18":657.66
INV18":657.51

MH-SAN
RIM:660.30

0.3%

12"

PROPOSED INLETS INV:651.58 (24"HDPE)

REPLACE EX. INLET INV:651.38 (24"HDPE)

15"

1.0%

INLET
TG:656.14
INV15":650.69
INV15":650.66

INLET
TG:654.22
INV12":651.47
INV15":651.38

REPLACE EX. WITH 486 LF 24" HDPE @ 2.0%

2.0%

REPLACE EX. MH INV:640.70" (24"HDPE)

EX. 30" ADS

MH-SAN
INV:637.05

MH-SAN
INV:640.70

EXTENT OF MODIFIED BASIN

REPLACE EX. WITH 88 LF 24" HDPE @ 1.0%

PROPOSED CHANNEL

CITY LINE BUILDING

0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
3+95

655.50

655
650

REPLACE EX. INLET INV:650.66 (24"HDPE)

650 NEW BOTTOM

PROPOSED FOREBAY

EXISTING BASIN

PROPOSED FOREBAY

REPLACE OUTLET STRUCTURE

FIELD:
24" PIPE &
OUTLET STRUCTURE
INV: 650.28

PLAN:
27" CMP
RIM:656.02
4"ORIFICE:655.02
(2)12"ORIFICE:654.72
12"ORIFICE:654.02
INV:650.22

BYPASS RD

18"PIPE
INV:655.26

INLET
TG(ADJ):646.76
PLAN:646.76
FIELD:482.39
DIFF:164.37

MH-STM
RIM(ADJ):646.01
PLAN:646.12
FIELD:481.64
DIFF:164.48

MH-SAN
RIM:648.05

INLET
TG(ADJ):647.75
PLAN:647.72
FIELD:483.38
DIFF:164.34

INLET
TG(ADJ):646.77
PLAN:646.77
FIELD:482.40
DIFF:164.37

YATESVILLE RD/ STOUT ST

GRAPHIC SCALE

60 0 30 60 120 240

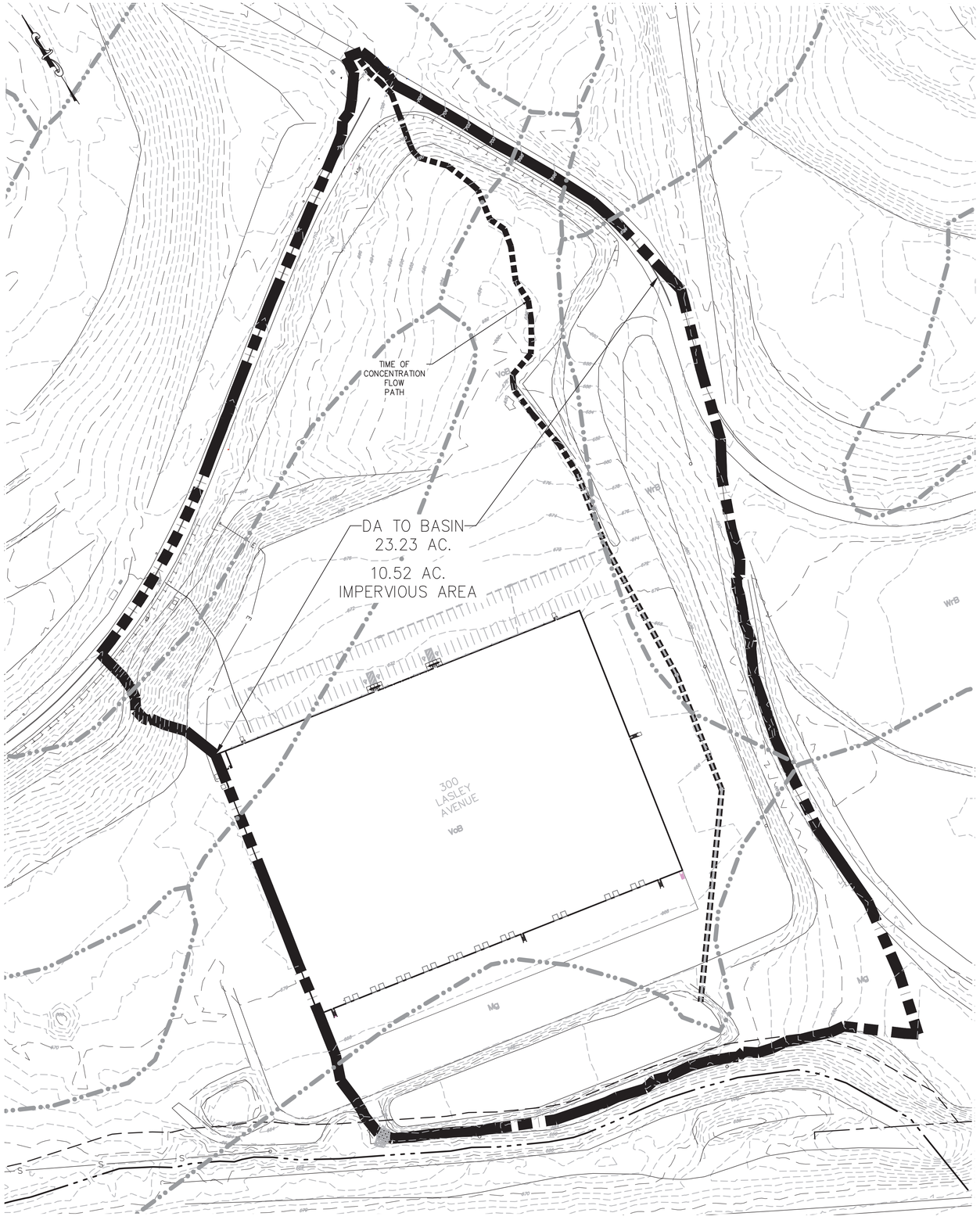
(IN FEET)
1 inch = 60 ft.

PENNEASTERN ENGINEERS, L.L.C.
165 north wilkes-barre boulevard, wilkes-barre, pennsylvania, 18702 phone: (570) 208-3130

JENKINS TWP MS4
JENKINS TWP, LUZERNE COUNTY, PENNSYLVANIA

PROPOSED BASIN RETROFIT

DRAWN BY	DATE	JOB NO.	SHEET NO.
ND	04/2022		BSN-5
CHECKED BY	SCALE	SURVEY BK.	
TH	1"=60'		



MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

300 LASLEY AVENUE DRAINAGE AREA

DEVELOPED IMPERVIOUS AREA = 10.52 ACRES
DEVELOPED PERVIOUS AREA = 12.71 ACRES

TOTAL DRAINAGE AREA = 23.23 ACRES

LEGEND

TIME OF CONCENTRATION FLOW PATH

DRAINAGE AREA BOUNDARY

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
PA1 1-800-242-1776
POCS SERIAL NUMBER # 2020063264
WWW.PAONECALL.ORG

0 80' 160' 240'
SCALE: 1"=80'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
300 LASLEY AVENUE
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

DRAINAGE AREA PLAN

SEAL

SEAL

Origin Date: 07/23/2023

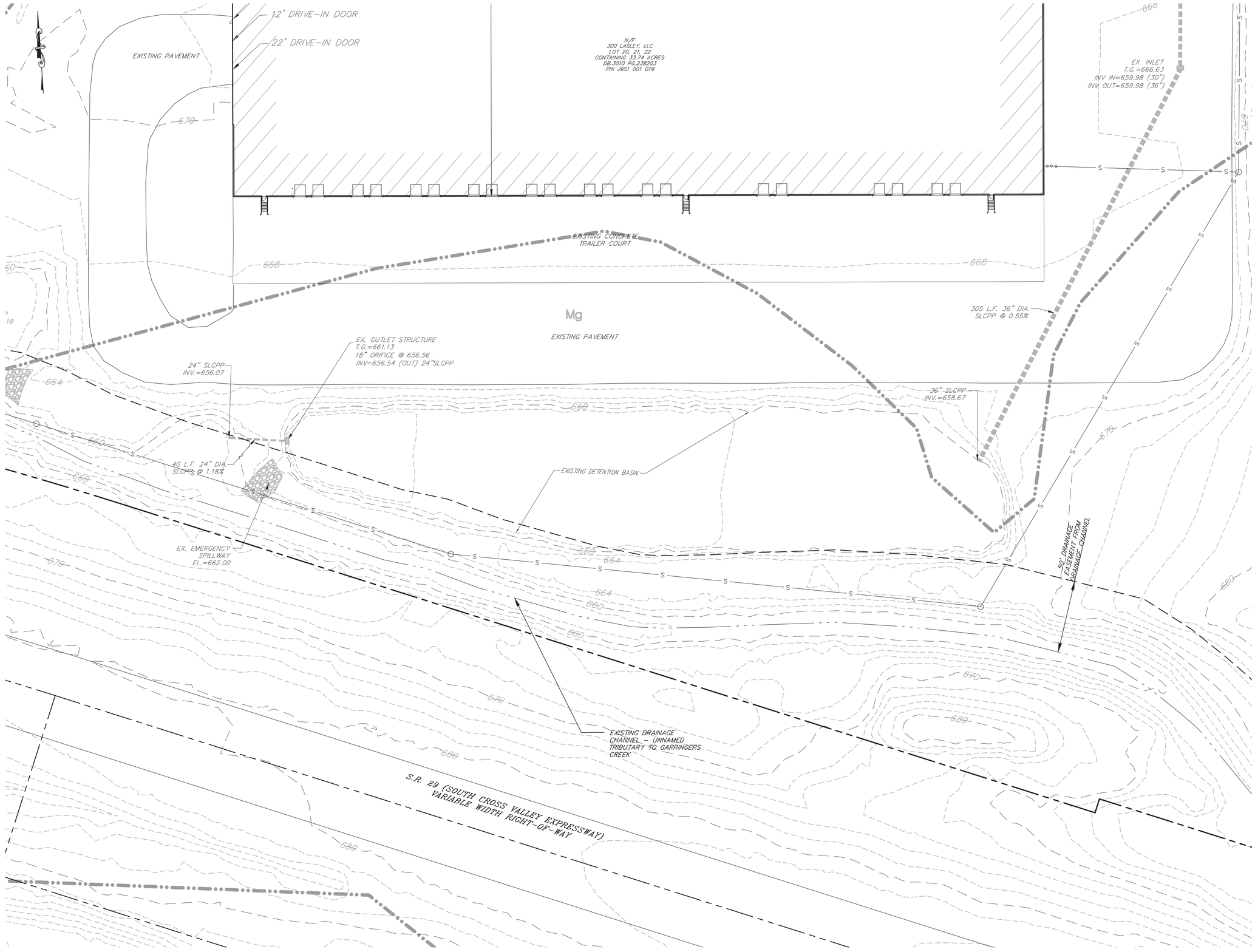
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:

DA-1

File: Q:\Shared\Properties\HIE\300 Lasley (20 21 22) | U2311\2311\Base Bldg. (U2311)\2311\mdc\dwg-spec\Civil\Submissions\WVSA\Plot\DAB.dwg



MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
PA1 One Call 1-800-242-1776
POCS SERIAL NUMBER # 20200632264
WWW.PAONECALL.ORG

0 30' 60' 90'
SCALE: 1"=30'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
300 LASLEY AVENUE
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

PARTIAL EXISTING FEATURES PLAN

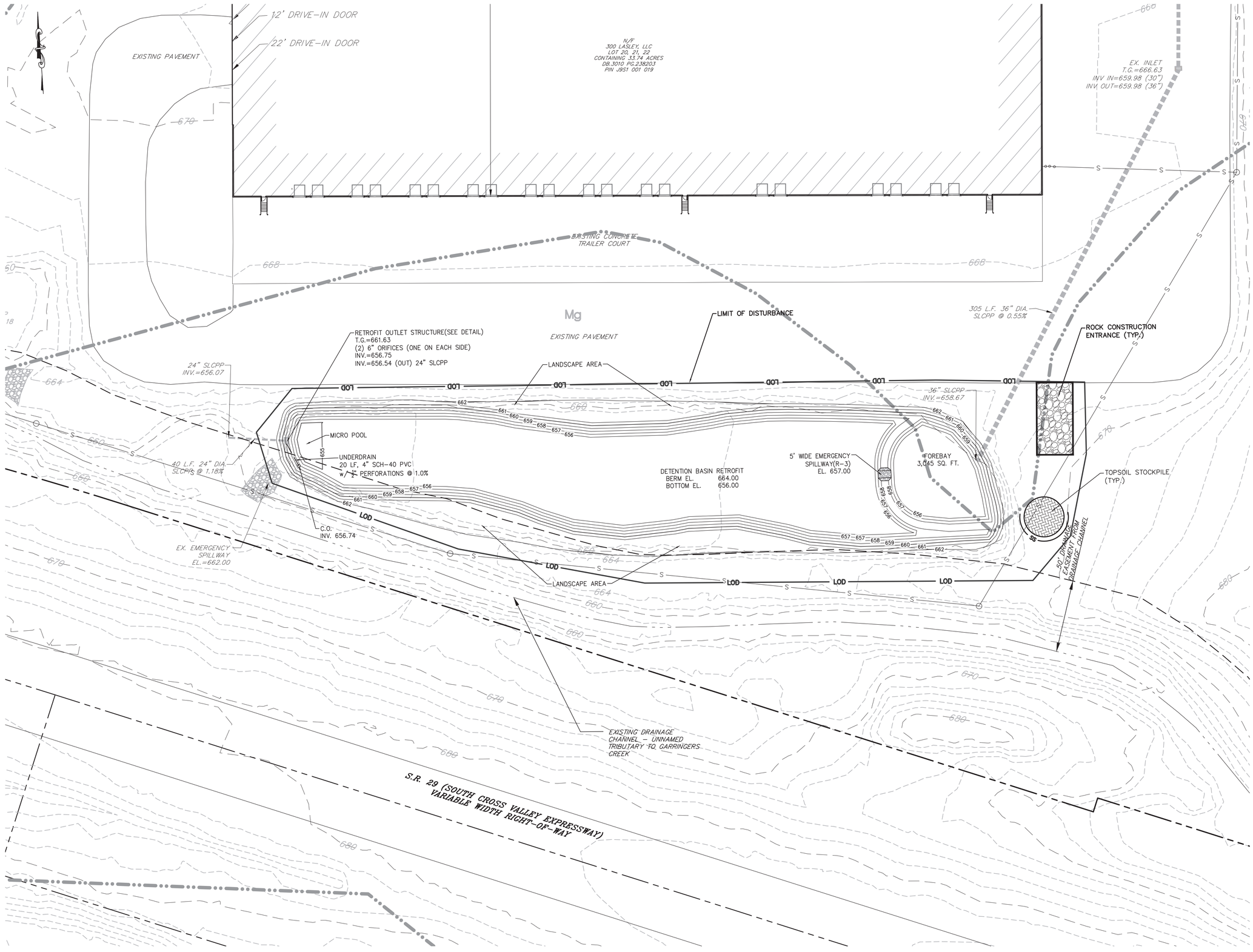
SEAL SEAL

Origin Date:	07/23/2023
Drawn By / Project Manager	BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number: C-002

File: Q:\Shared\Properties\HIE\300 Lasley (20 21 22) (J2311)\Base Bldg. (J2311)\2311mdc\dwg-spec\Civil\Submissions\WVSA\Plot\C-001 EFP.dwg



MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
PA1 1-800-242-1776 # 2020063264 POCS SERIAL NUMBER
WWW.PAONECALL.ORG

0 30' 60' 90'
SCALE: 1"=30'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
300 LASLEY AVENUE
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

GRADING, DRAINAGE AND EROSION AND SEDIMENTATION CONTROL PLAN

SEAL

SEAL

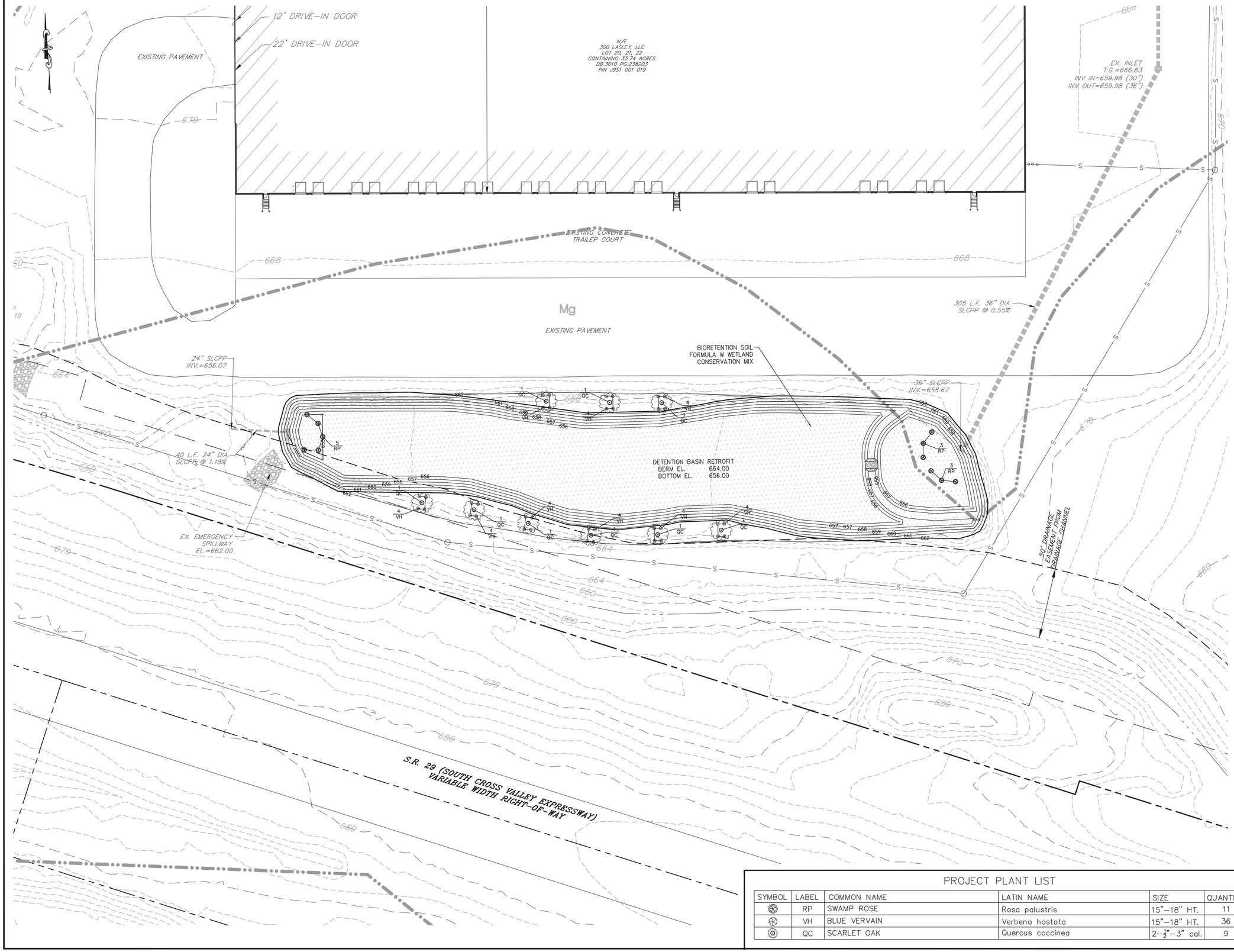
Origin Date:	07/23/2023
Drawn By / Project Manager	BKE/MC

If stamped VOID this drawing is not for construction. See Project Manager for Revised Drawing.

Drawing Number:

C-200

File: Q:\Shared\Properties\HIE\300 Lasley (20 21 22) [J2311]\2311\Base Bldg. (J2311)\2311mdc\dwg-spec\Civil\Submissions\WVSA\PlotC-200 Grading.dwg



PROJECT PLANT LIST

SYMBOL	LABEL	COMMON NAME	LATIN NAME	SIZE	QUANTITY
	RP	SWAMP ROSE	Rosa palustris	15"–18" HT.	11
	VH	BLUE VERVAIN	Verbena hostata	15"–18" HT.	36
	QC	SCARLET OAK	Quercus coccinea	2–1/2"–3" cal.	9

MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
PA1 CALL 1-800-242-1776
POCS SERIAL NUMBER # 2020063264
WWW.PAONECALL.ORG

0 30' 60' 90'
SCALE: 1"=30'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
300 LASLEY AVENUE
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

LANDSCAPE PLAN

SEAL SEAL

Origin Date: 07/23/2023

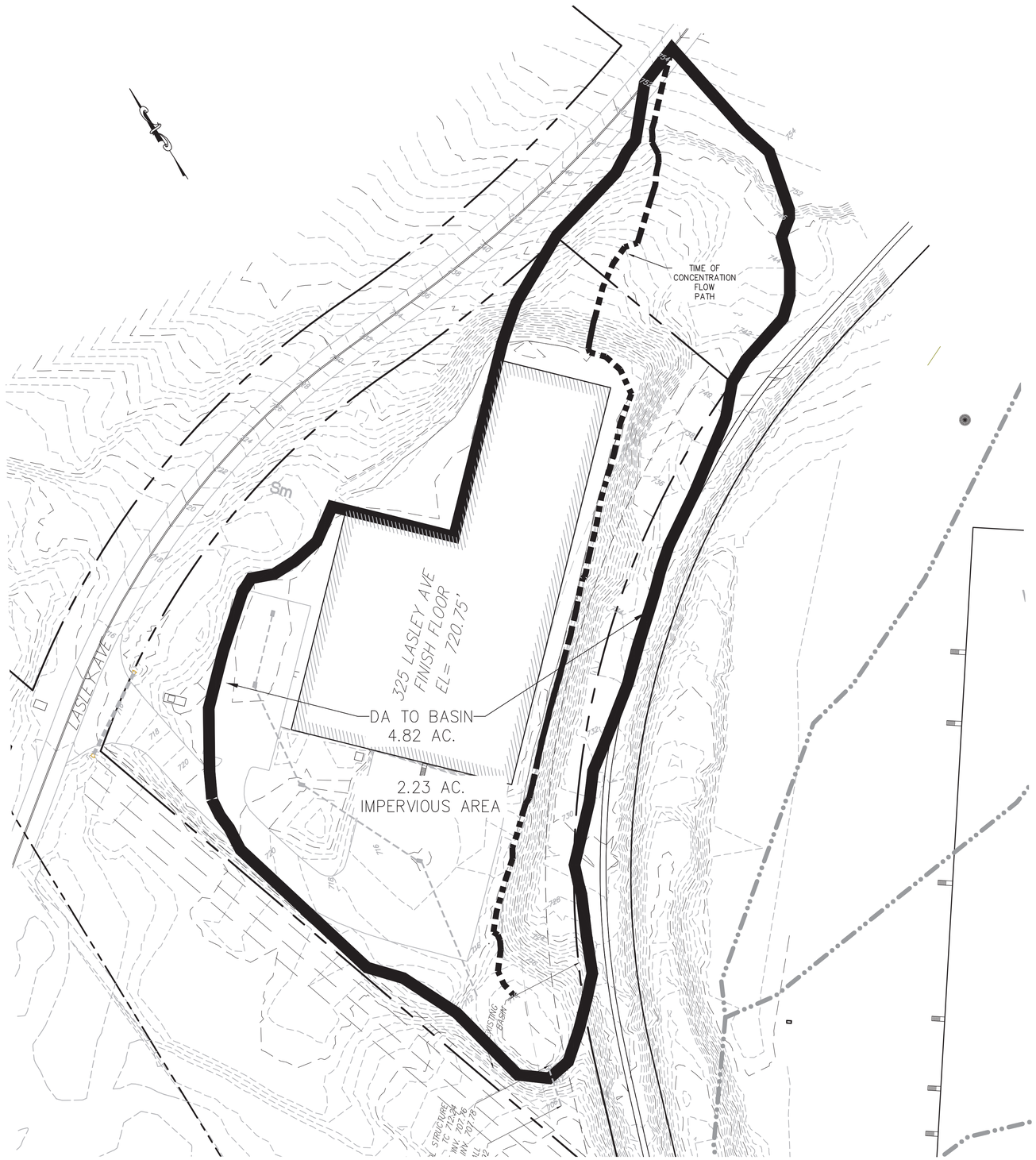
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction. See Project Manager for Revised Drawing.

Drawing Number:

C-700

File: Q:\Shared\Properties\HIE\300 Lasley (20 21 22) (U2311)\2311\mdc\dwg-spec\Civil\Submissions\WVSA\Plot\C-700 Landscape.dwg



MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

325 LASLEY AVENUE
DRAINAGE AREA

DEVELOPED IMPERVIOUS AREA = 2.23 ACRES
DEVELOPED PERVIOUS AREA = 2.59 ACRES

TOTAL DRAINAGE AREA = 4.82 ACRES

LEGEND

TIME OF CONCENTRATION FLOW PATH

DRAINAGE AREA BOUNDARY

0 50' 100' 150'
SCALE: 1"=50'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
325 LASLEY AVENUE
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

DRAINAGE AREA PLAN

SEAL

SEAL

Origin Date: 07/23/2023

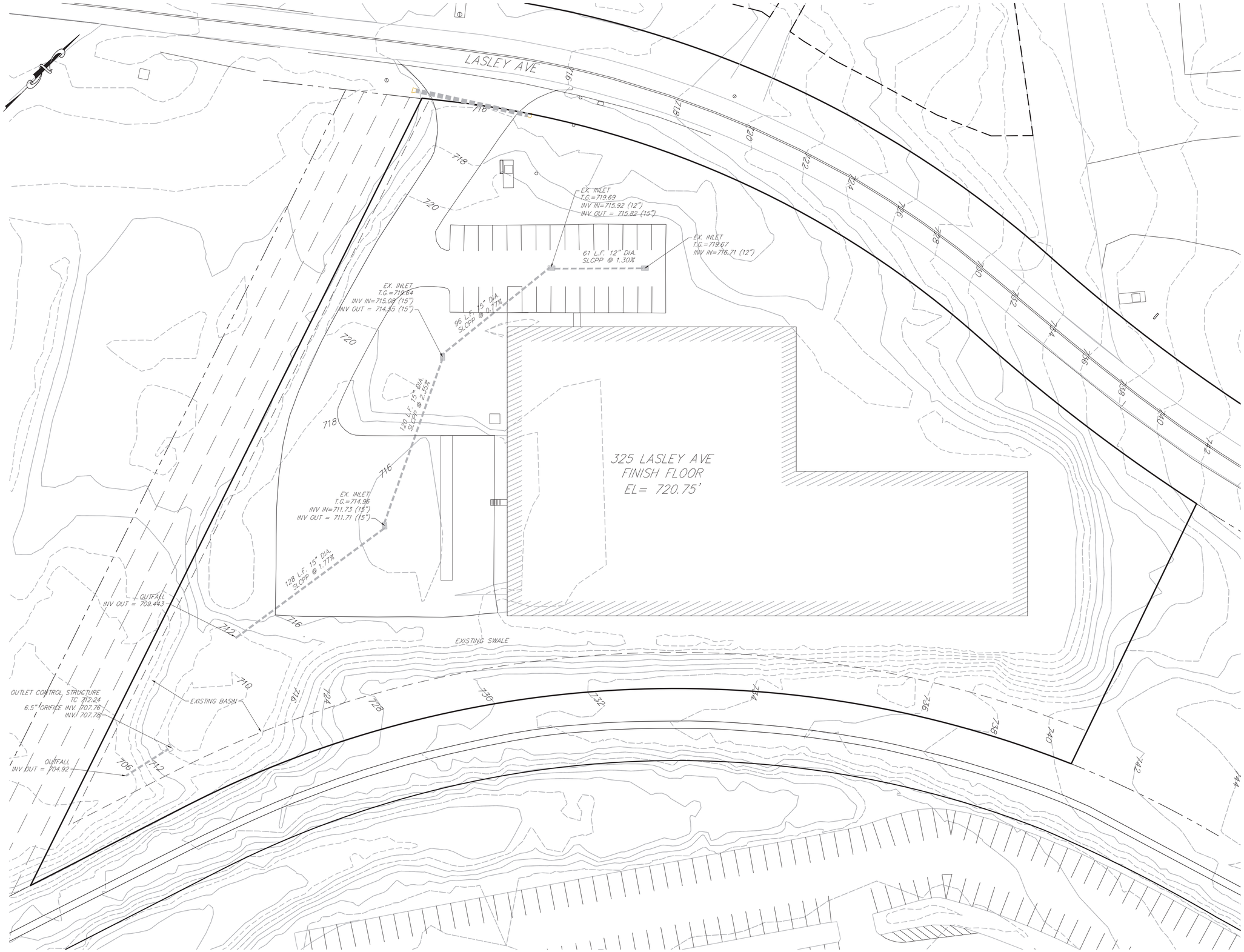
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:

DA-1

File: Q:\Shared\Properties\HHE\025 Lasley (14) (J2312)\Base Bldg. (J2312)\2312\mdc\dwg-spec\CIVIL\Submissions\WVSA\Plot\DAB.dwg



MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION PHASE AND 10 WORKING
DAYS IN DESIGN STAGE - STOP CALL
POCS SERIAL NUMBER
PA1 1-800-242-1776
20220063264
WWW.PAONE-CALL.ORG

0' 30' 60' 90'
SCALE: 1"=30'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
325 LASLEY AVENUE
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

EXISTING FEATURES PLAN

SEAL

SEAL

Origin Date: 07/23/2023

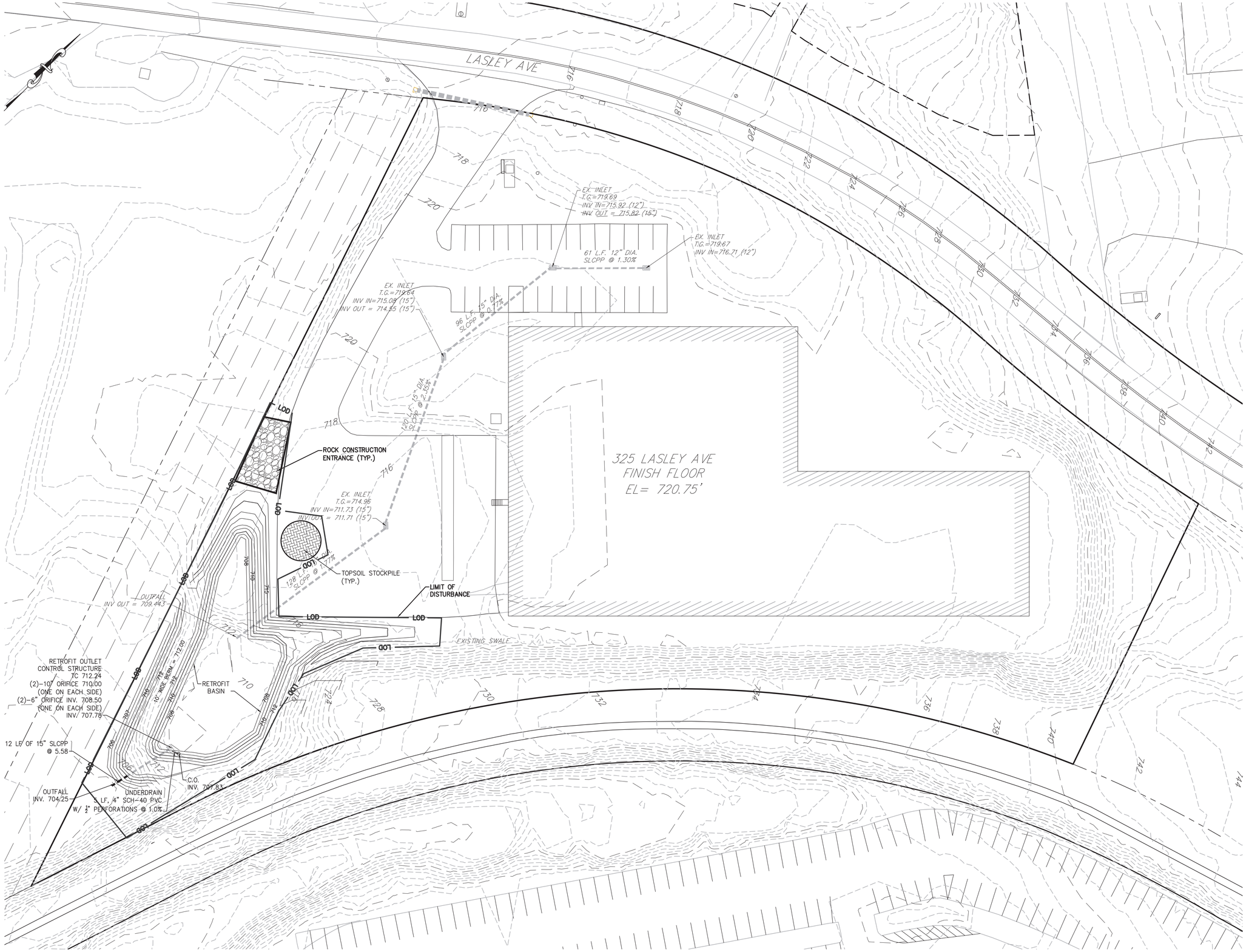
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:

C-001

File: Q:\Shared Properties\HIE\325 Lasley (14) (J2312)\Base Bldg. (J2312)\2312\mdc\dwg-spec\CIVILS\Submissions\WVSA\Plot\C-Existing Feature Plan.dwg



MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL.
POCS SERIAL NUMBER
PA1 1-800-242-1776 # 20200632 64 WWW.PAONECALL.COM

0' 30' 60' 90'
SCALE: 1"=30'

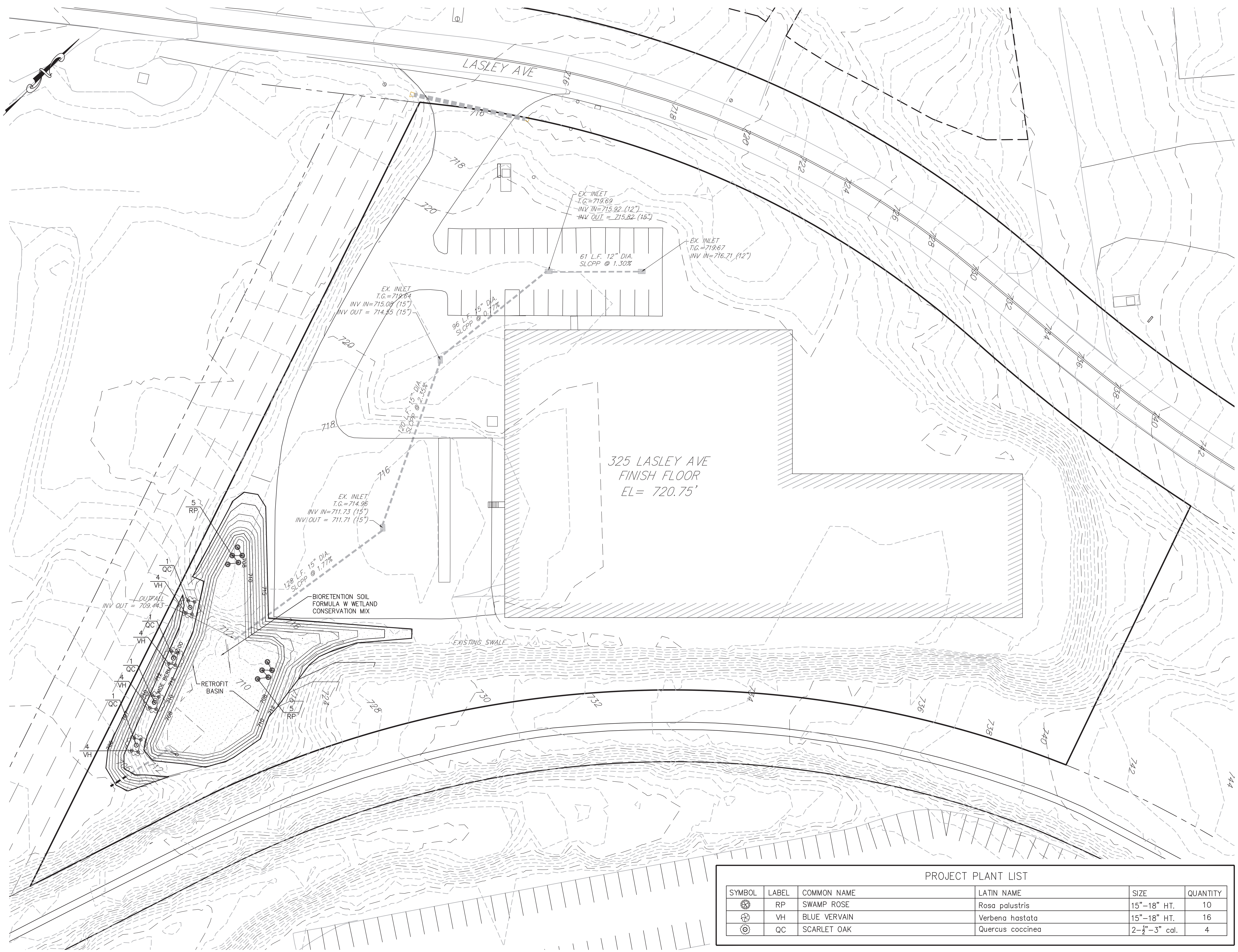
Project Information:
WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
325 LASLEY AVENUE
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:
GRADING, DRAINAGE, EROSION AND SEDIMENTATION CONTROL PLAN

SEAL SEAL

Origin Date: 07/23/2023
Drawing Number: C-200
Drawn By / Project Manager BKE/MC
If stamped VOID this drawing is not for construction. See Project Manager for Revised Drawing.

File: Q:\Shared\Properties\HIE\025 Lasley (14) (J2312)\Base Bldg. (J2312)\2312\civil\dwg-spec\CIVIL\Submissions\WVSA\PlotC-200 Grading.dwg



PROJECT PLANT LIST

SYMBOL	LABEL	COMMON NAME	LATIN NAME	SIZE	QUANTITY
	RP	SWAMP ROSE	Rosa palustris	15"–18" HT.	10
	VH	BLUE VERVAIN	Verbena hastata	15"–18" HT.	16
	QC	SCARLET OAK	Quercus coccinea	2–½"–3" cal.	4

MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
325 LASLEY AVENUE
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

LANDSCAPE PLAN

SEAL

SEAL

Origin Date: 07/23/2023

Drawn By / Project Manager: BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:

C-700

File: Q:\Shared\Properties\HE\325 Lasley (14) (J2312)\Base Bldg. (J2312)\2312\mdc\dwg-spec\CIVIL\Submissions\WVSA\Plot\C-700 Landscaping.dwg

MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

600 LASLEY AVENUE DRAINAGE AREA

DEVELOPED IMPERVIOUS AREA = 5.91 ACRES
DEVELOPED PERVIOUS AREA = 7.84 ACRES

TOTAL DRAINAGE AREA = 13.75 ACRES

LEGEND

TIME OF CONCENTRATION FLOW PATH

DRAINAGE AREA BOUNDARY

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
PA1 SYSTEM INC. 1-800-242-1776
POCS SERIAL NUMBER # 20200632 64
WWW.PAONECALL.ORG

0 50' 100' 150'
SCALE: 1"=50'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
600 LASLEY AVENUE
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

DRAINAGE AREA PLAN

SEAL

SEAL

Origin Date: 07/23/2023

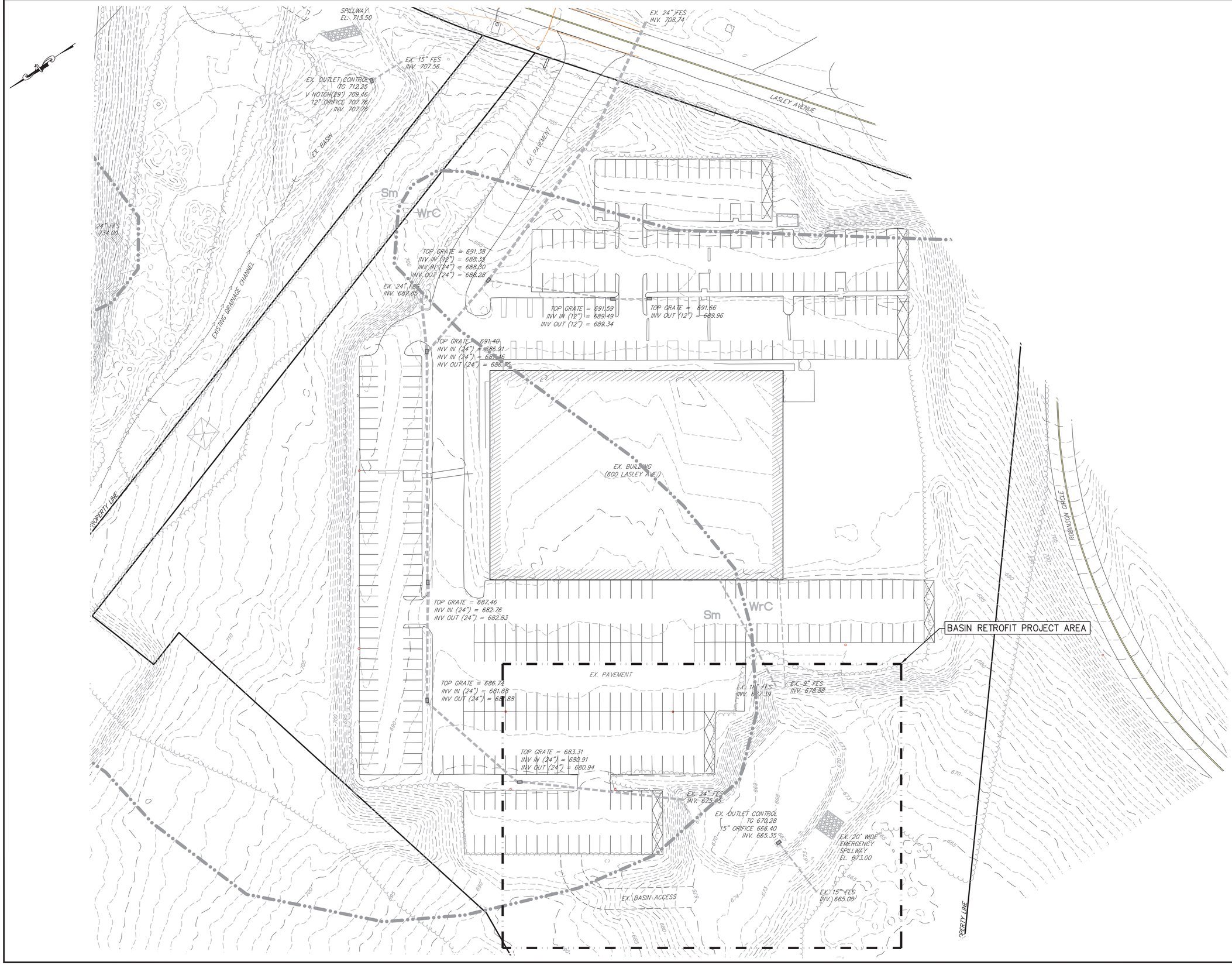
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction. See Project Manager for Revised Drawing.

Drawing Number:

DA-1

File: Q:\Shared\Properties\HIE\600 Lasley (29) (J2151)\Base Bldg. (J2151)\2151\MDC\DWG-SPEC\Civil\Submissions\WVSA\Plot\DAB.dwg



MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
PA1 CALL 1-800-242-1776 — POCS SERIAL NUMBER # 20200632164 — WWW.PAONECALL.ORG

0 40' 80' 120'
SCALE: 1"=40'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
600 LASLEY AVENUE
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

EXISTING FEATURES PLAN

SEAL

SEAL

Origin Date: 07/23/2023

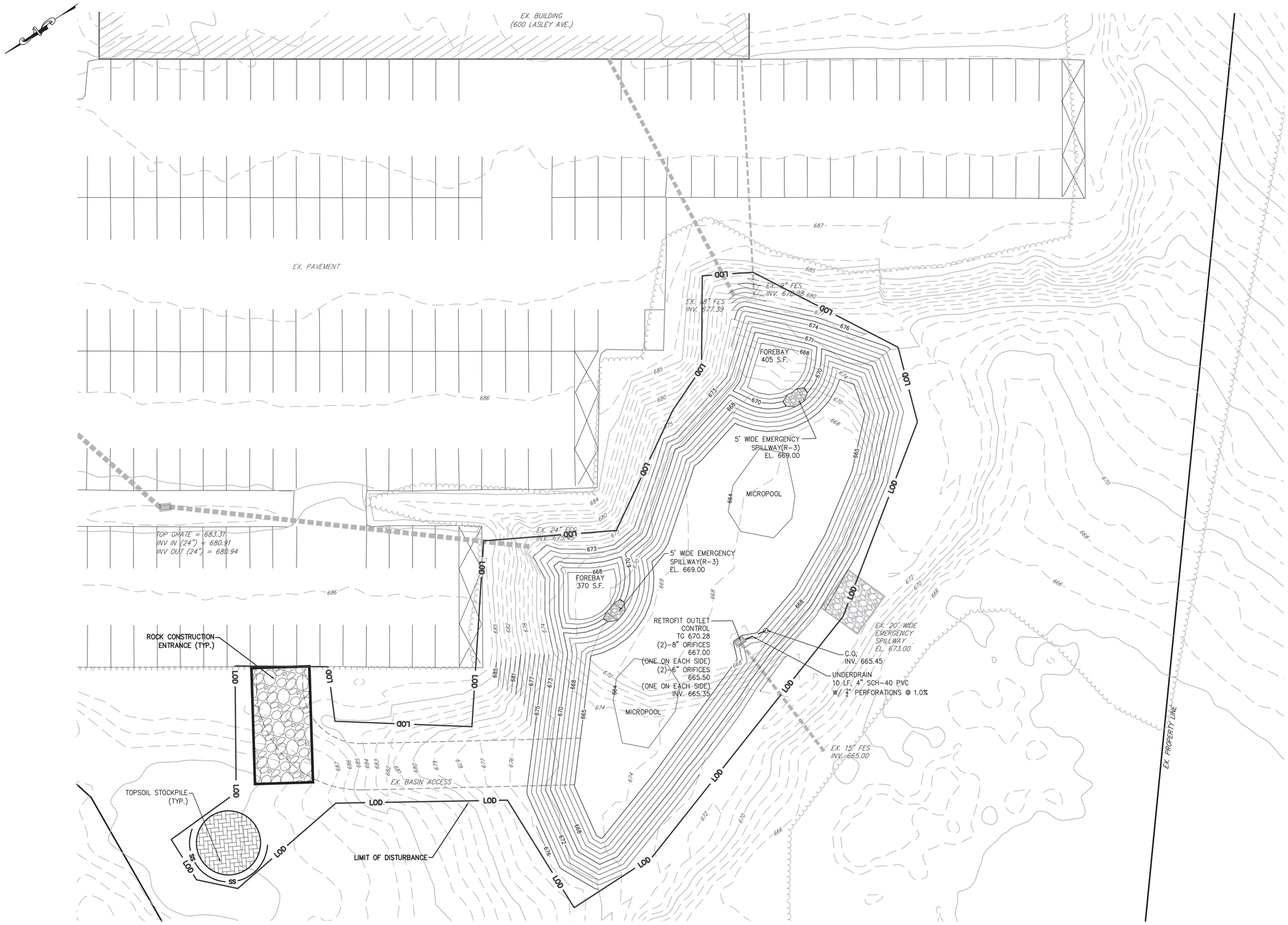
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:

C-001

File: Q:\Shared\Properties\HIE\600 Lasley (29) (J2151)\Base Bldg. (J2151)\2151\MDC\DWG-SPEC\Civil\Submissions\WVSA\Plot\C-001 EFP.dwg



MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION PHASE AND 10 WORKING
DAYS IN DESIGN STAGE - STOP CALL
PA1 1-800-242-1776
POCS SERIAL NUMBER
2020063264
WWW.PAONECALL.COM

0 20' 40' 60'
SCALE: 1"=20'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
600 LASLEY AVENUE
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

GRADING, DRAINAGE AND EROSION AND SEDIMENTATION CONTROL PLAN

SEAL

SEAL

Origin Date: 07/23/2023

Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:

C-200

File: Q:\Shared\Properties\HIE\600 Lasley (29) (J2151)\Base Bldg. (J2151)\2151\MDC\DWG-SPEC\Civil\Submissions\WVSA\Plot\C-200 GRA.dwg

PROJECT PLANT LIST

SYMBOL	LABEL	COMMON NAME	LATIN NAME	SIZE	QUANTITY
	RP	SWAMP ROSE	Rosa palustris	15"–18" HT.	6
	VH	BLUE VERVAIN	Verbena hastata	15"–18" HT.	12
	QC	SCARLET OAK	Quercus coccinea	2–½"–3" cal.	3

MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
PA1 CALL 1-800-242-1776
POCS SERIAL NUMBER # 20200063264
www.PAONECALL.ORG

0 20' 40' 60'
SCALE: 1"=20'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
600 LASLEY AVENUE
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

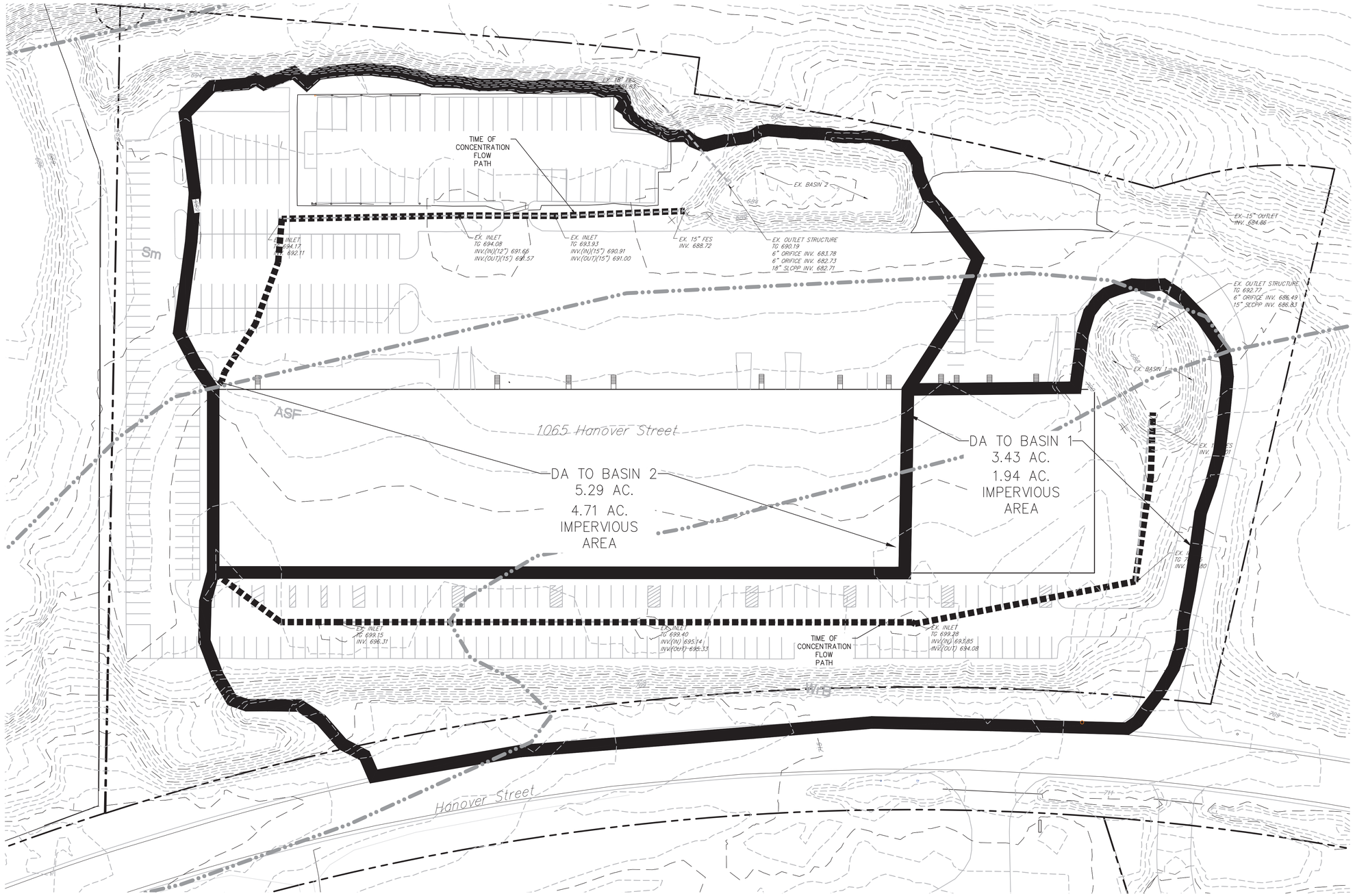
LANDSCAPE PLAN

SEAL SEAL

Origin Date: 07/23/2023
Drawn By / Project Manager BKE/MC
If stamped VOID this drawing is not for construction. See Project Manager for Revised Drawing.

Drawing Number: C-700

File: Q:\Shared Properties\HIE\600 Lasley (29) (J2151)\Base Bldg. (J2151)\2151\MDC\DWG-SPEC\Civil\Submissions\WVSA\Plot\C-700 Landscape.dwg



MERICLE

100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702

Phone: 570.823.1100
Fax: 570.823.3524

Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....
-	-	

1065 HANOVER STREET DRAINAGE AREA

BASIN 1

DEVELOPED IMPERVIOUS AREA = 1.94 ACRES
DEVELOPED PERVIOUS AREA = 1.49 ACRES

TOTAL DRAINAGE AREA = 3.43 ACRES

BASIN 2

DEVELOPED IMPERVIOUS AREA = 4.71 ACRES
DEVELOPED PERVIOUS AREA = 0.58 ACRES

TOTAL DRAINAGE AREA = 5.29 ACRES

LEGEND

TIME OF CONCENTRATION FLOW PATH

DRAINAGE AREA BOUNDARY

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
POCS SERIAL NUMBER
PA1 One Call 1-800-242-1776
20200632064
WWW.PAONECALL.ORG

0' 120' 80' 40'
SCALE: 1"=40'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
1065 HANOVER STREET
HANOVER INDUSTRIAL ESTATES
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

DRAINAGE AREA PLAN

SEAL

SEAL

Origin Date: 09/20/23

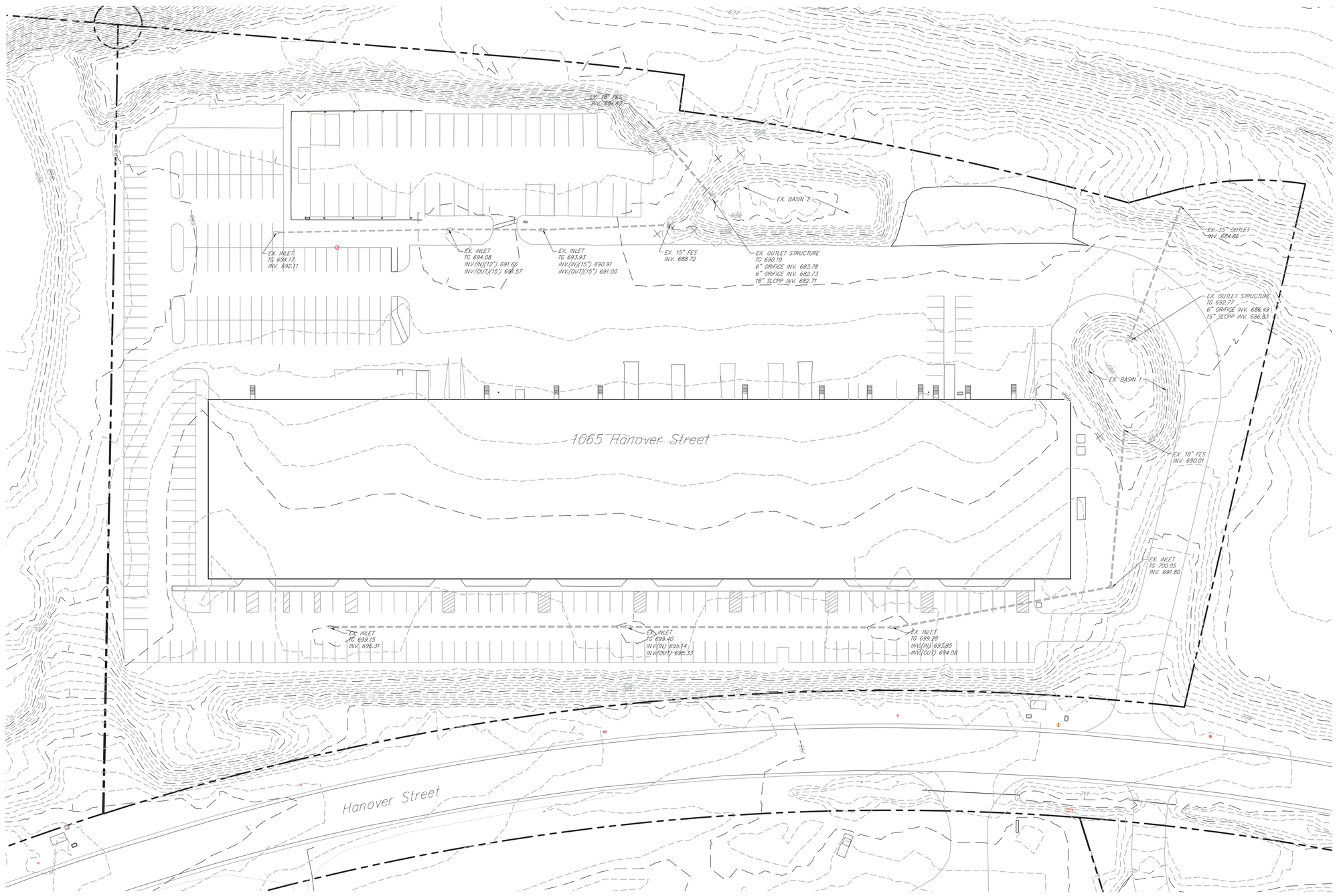
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction. See Project Manager for Revised Drawing.

Drawing Number:

DA-1

File: Q:\Shared\Properties\HIE\1065 Hanover (11A) (J2302)\Base Bldg. (J2302)\2302\mdc\dwg-spec\Civil\Submissions\WVSA\Plot\DAE.dwg



MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....
–	–	

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION PHASE AND 10 WORKING
DAYS IN DESIGN STAGE - STOP CALL
PA1 1-800-242-1776
POCS SERIAL NUMBER
20220063264
WWW.PAONECALL.ORG

0' 120' 80' 40'
SCALE: 1"=40'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
1065 HANOVER STREET
HANOVER INDUSTRIAL ESTATES
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

EXISTING FEATURES PLAN

SEAL SEAL

Origin Date: 09/20/23

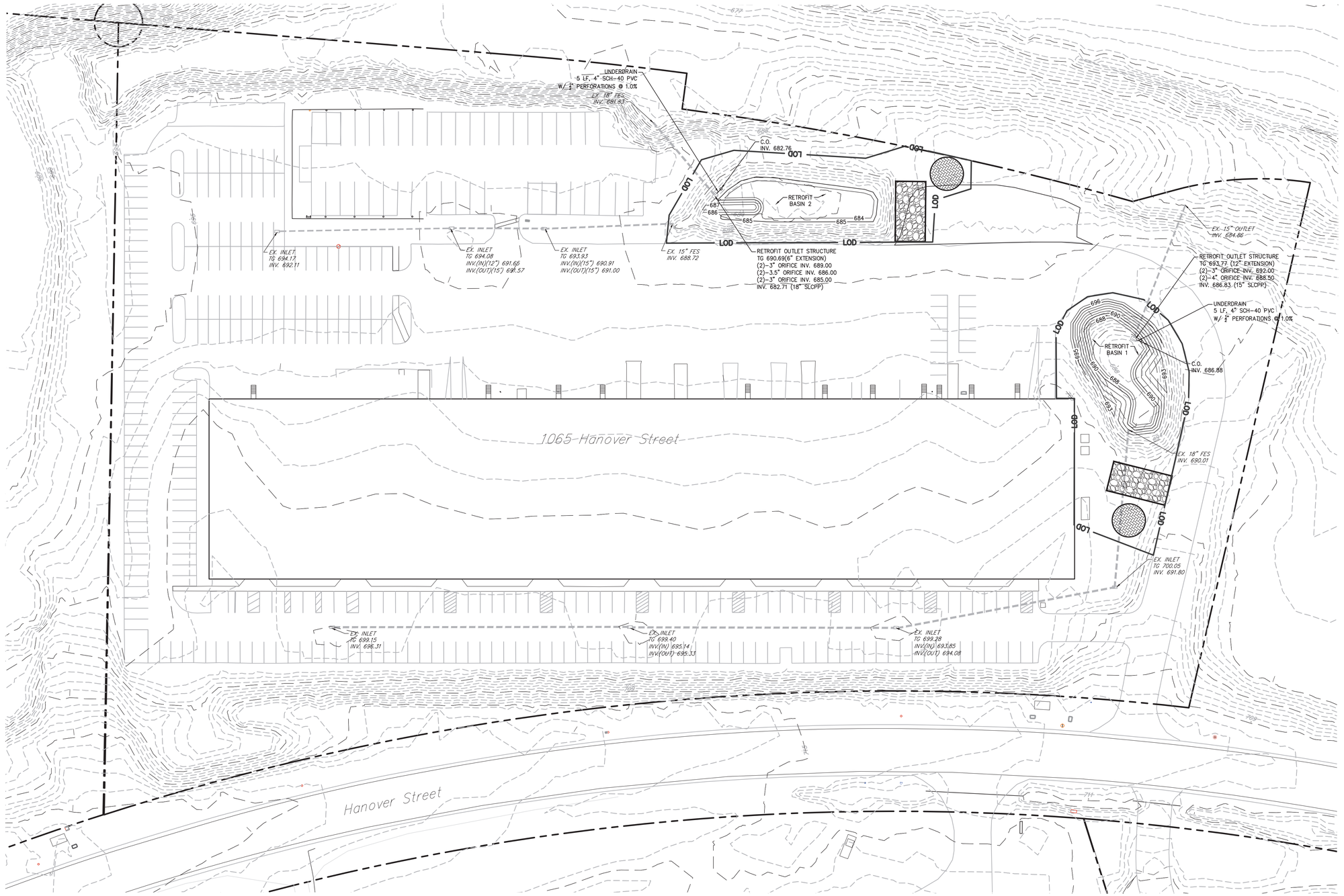
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:

C-001

File: Q:\Shared\Properties\HIE\1065 Hanover (11A) (J2302)\Base Bldg. (J2302)\2302mdcdwg-spec\Civil\Submissions\WVSA\PlotEFP.dwg



MERICLE

100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702

Phone: 570.823.1100
Fax: 570.823.3524

Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....
–		–

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION PHASE AND 10 WORKING
DAYS IN DESIGN STAGE - STOP CALL
PA1 1-800-242-1776
POCS SERIAL NUMBER
20220063264
WWW.PAONECALL.ORG

0' 120' 80' 40'
SCALE: 1"=40'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
1065 HANOVER STREET
HANOVER INDUSTRIAL ESTATES
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

GRADING, DRAINAGE AND EROSION AND SEDIMENTATION CONTROL PLAN

SEAL

SEAL

Origin Date: 09/20/23

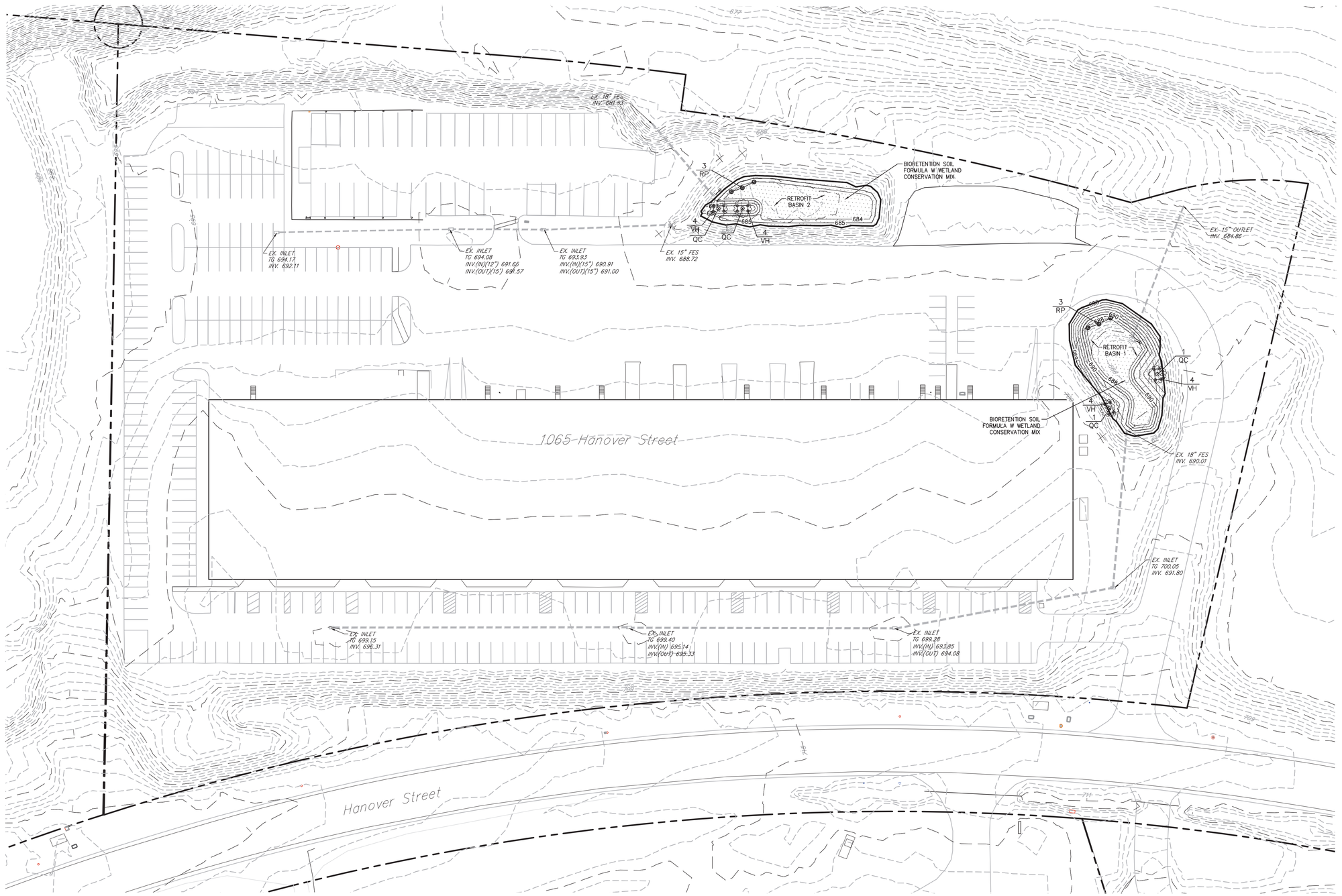
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:

C-200

File: Q:\Shared\Properties\HIE\1065 Hanover (11A) (J2302)\Base Bldg. (J2302)\2302\mdc\dwg-spec\Civil\Submissions\WVSA\Plot\GRADING.dwg



PROJECT PLANT LIST

SYMBOL	LABEL	COMMON NAME	LATIN NAME	SIZE	QUANTITY
	RP	SWAMP ROSE	Rosa palustris	15"–18" HT.	6
	VH	BLUE VERVAIN	Verbena hastata	15"–18" HT.	16
	QC	SCARLET OAK	Quercus coccinea	2–½"–3" cal.	4

MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....
–	–	

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION PHASE AND 10 WORKING
DAYS IN DESIGN STAGE - STOP CALL
PO'CS SERIAL NUMBER
PA1 1-800-242-1776
2020063264
WWW.PAONECALL.ORG

0' 120' 80' 40'
SCALE: 1"=40'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
1065 HANOVER STREET
HANOVER INDUSTRIAL ESTATES
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

LANDSCAPE PLAN

SEAL

SEAL

Origin Date: 09/20/23

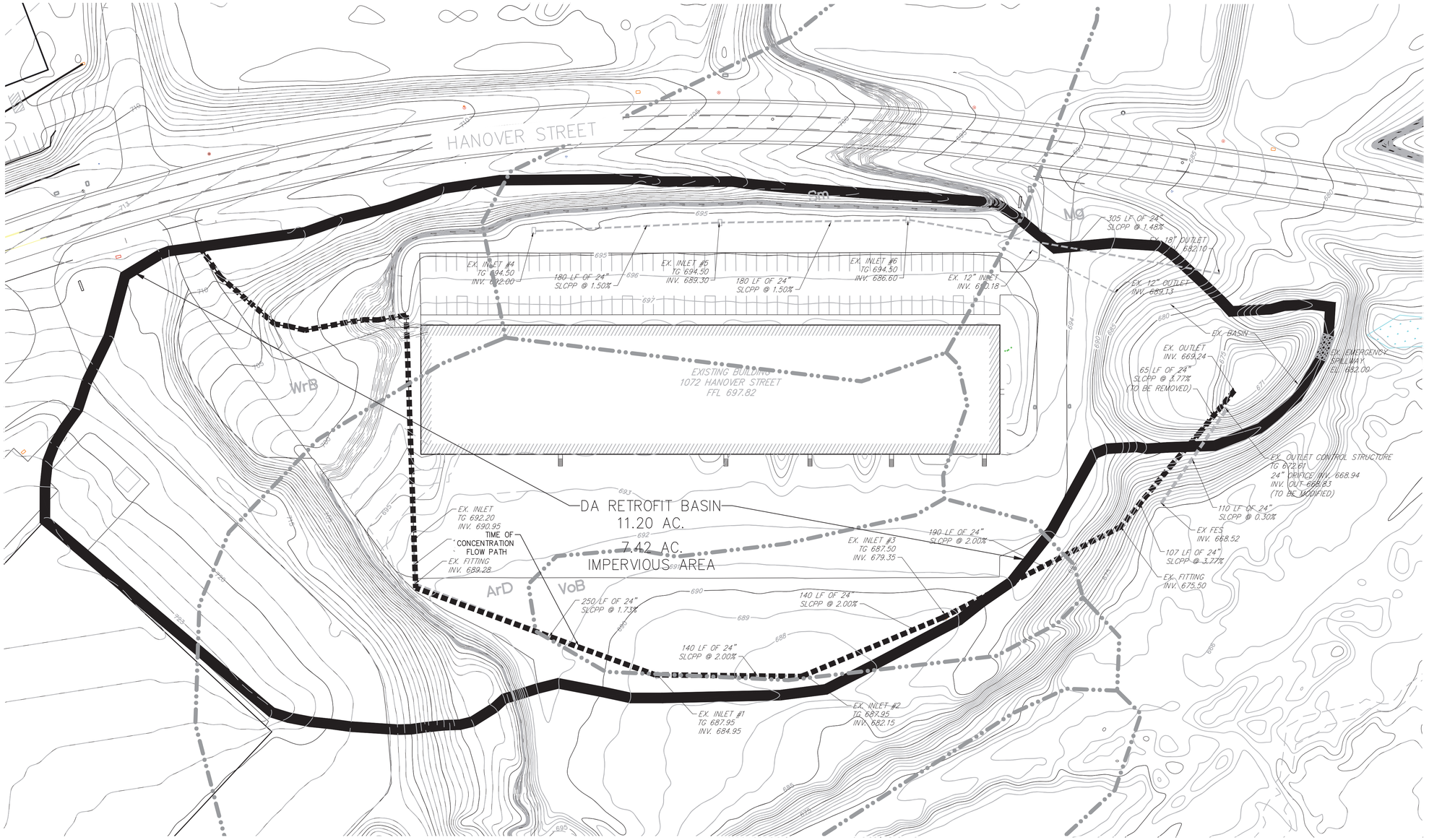
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:

C-700

File: Q:\Shared\Properties\HIE\1065 Hanover (11A) (J2302)\Base Bldg. (J2302)\2302\mdc\dwg-spec\Civil\Submissions\WVSA\Plot\LANDSCAPE.dwg



MERICLE

100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702

Phone: 570.823.1100
Fax: 570.823.3524

Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

1072 HANOVER DRAINAGE AREA

DEVELOPED IMPERVIOUS	= 7.42 ACRES
DEVELOPED PERVIOUS	= 3.78 ACRES
TOTAL DRAINAGE AREA	= 11.20 ACRES

LEGEND

TIME OF CONCENTRATION PATH

DRAINAGE AREA BOUNDARY

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION PHASE AND 10 WORKING
DAYS IN DESIGN STAGE - STOP CALL
PA1 CALL 1-800-242-1776
POCS SERIAL NUMBER
2020063264
"PAONE-CALL.ORG"

0' 50' 100' 150'

SCALE: 1"=50'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
1072 HANOVER STREET
HANOVER INDUSTRIAL ESTATES
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

DRAINAGE AREA PLAN

SEAL

SEAL

Origin Date: 09/20/23

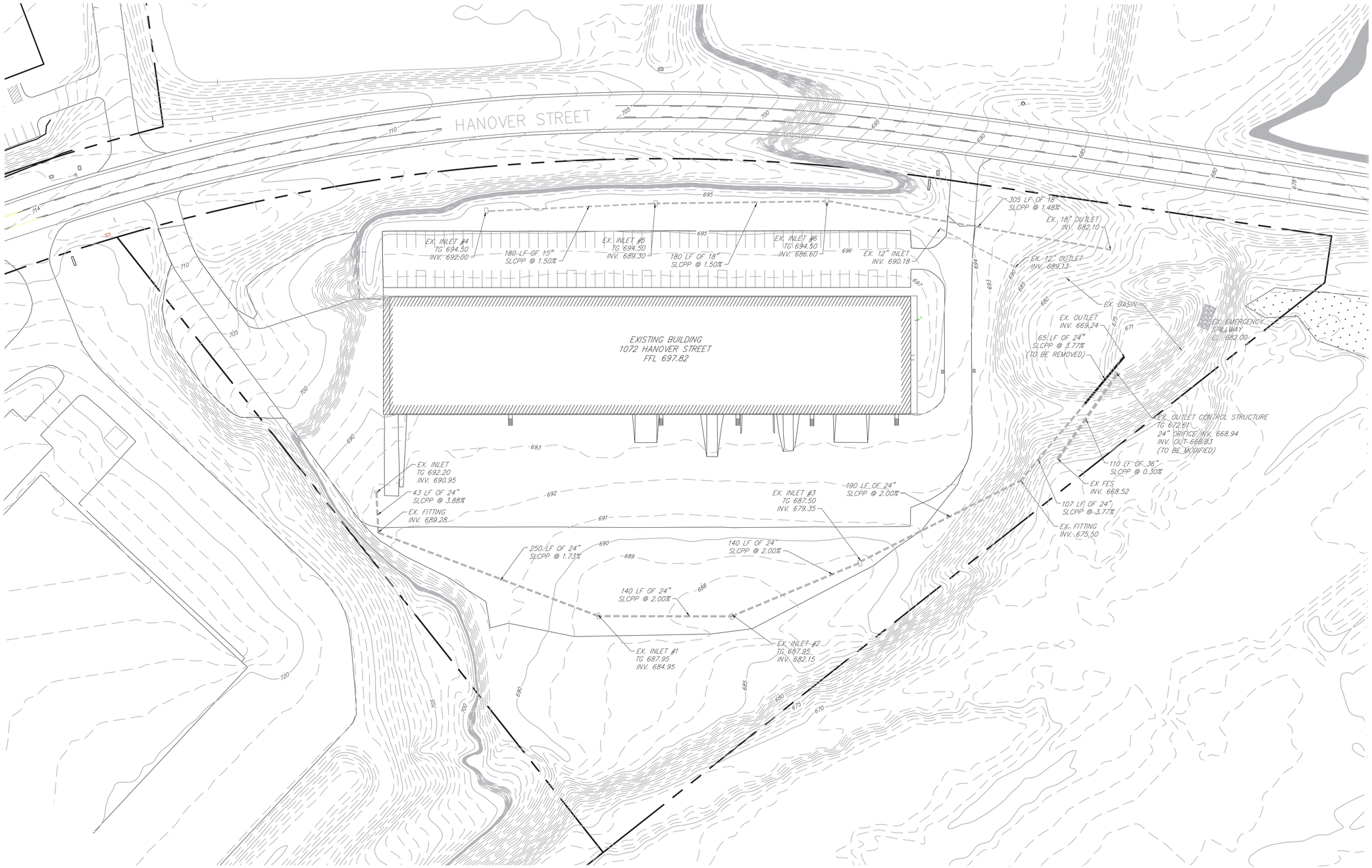
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:

DA-1

File: Q:\Shared\Properties\HIE\1072 Hanover (7) (J2094)\Base Bldg. (J2094)\WDC\DWG-SPEC\Civil\Submissions\WVSA\Plot\DAB.dwg



MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION PHASE AND 10 WORKING
DAYS IN DESIGN STAGE - STOP CALL
PA1 One Call, Inc. 1-800-242-1776
POCS SERIAL NUMBER
2020063264
WWW.PAONECALL.ORG

0' 50' 100' 150'
SCALE: 1"=50'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
1072 HANOVER STREET
HANOVER INDUSTRIAL ESTATES
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

EXISTING FEATURES PLAN

SEAL

SEAL

Origin Date: 09/20/23

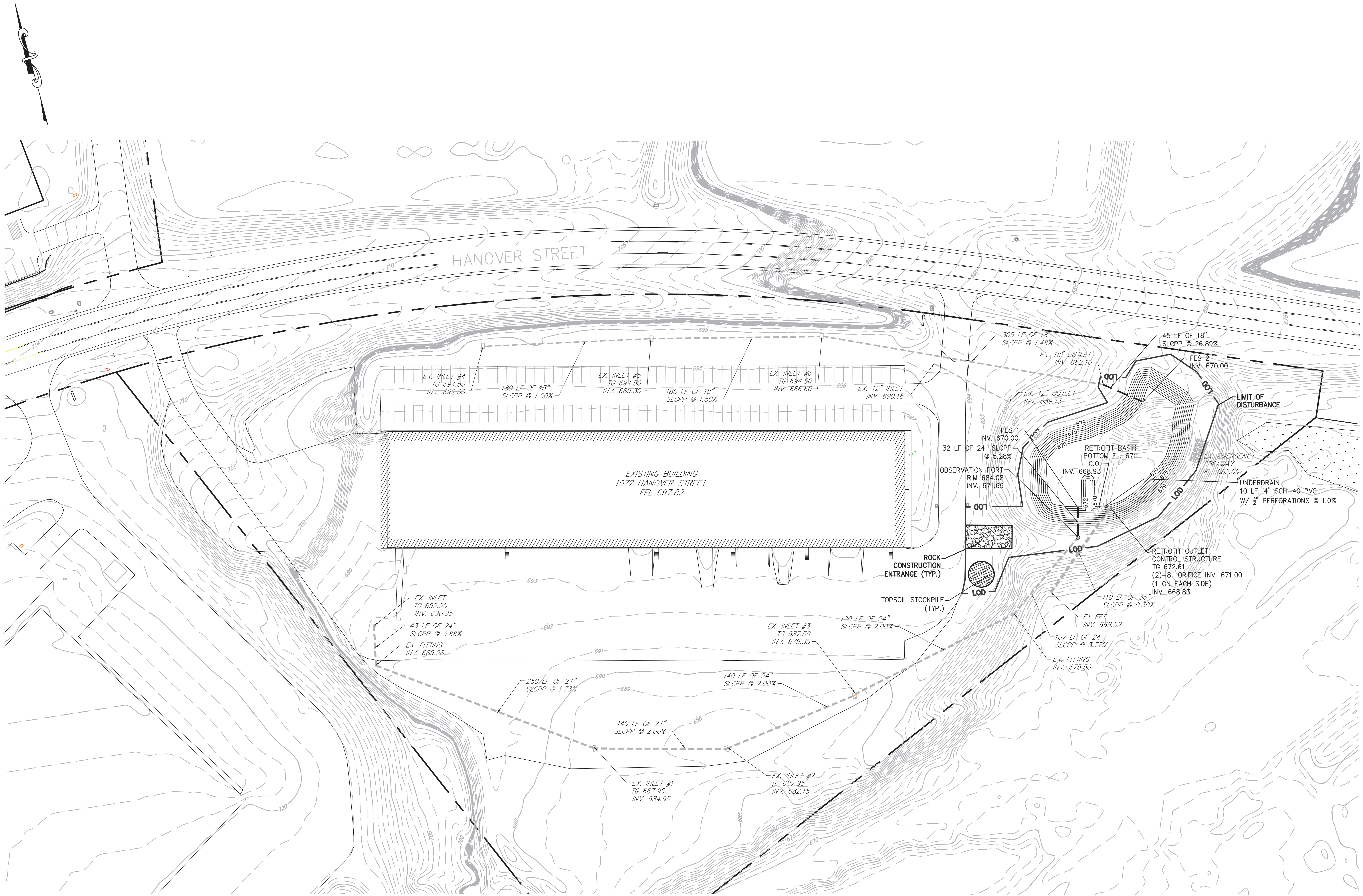
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:

C-001

File: Q:\Shared\Properties\HIE\1072 Hanover (7) (J2094)\Base Bldg. (J2094)\MDC\DWG-SPEC\Civil\Submissions\WVSA\Plot\EFP.dwg



MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
POCS SERIAL NUMBER
PA1
1-800-242-1776
2020063264
WWW.PAONECALL.ORG

0' 50' 100' 150'
SCALE: 1"=50'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
1072 HANOVER STREET
HANOVER INDUSTRIAL ESTATES
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

GRADING, DRAINAGE AND EROSION AND SEDIMENTATION CONTROL PLAN

SEAL

SEAL

Origin Date: 09/20/23

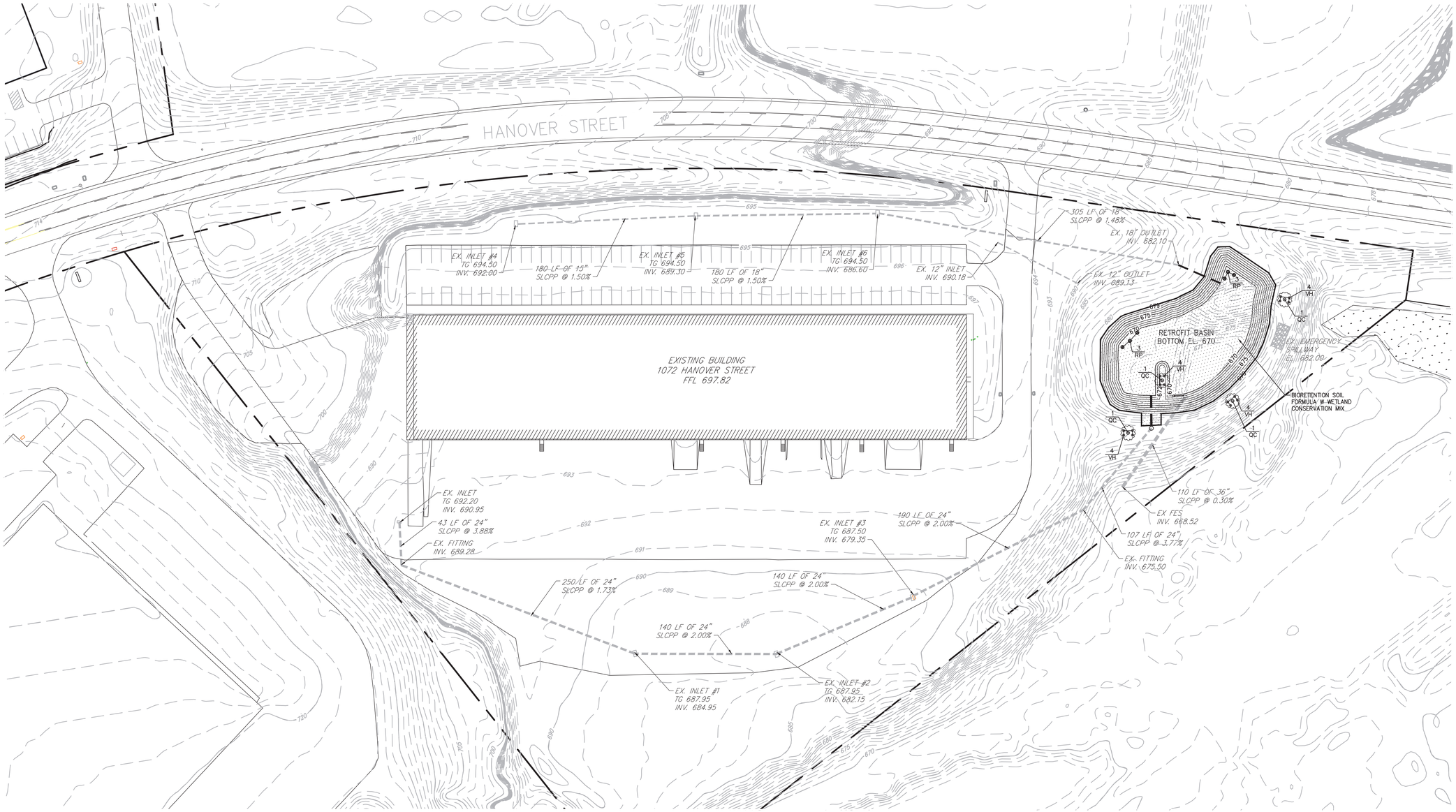
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:

C-200

File: Q:\Shared\Properties\HIE\1072 Hanover (7) (J2094)\Base Bldg. (J2094)\2094\MDC\DWG-SPEC\Civil\Submissions\WVSA\Plot\GRADING.dwg



PROJECT PLANT LIST

SYMBOL	LABEL	COMMON NAME	LATIN NAME	SIZE	QUANTITY
	RP	SWAMP ROSE	Rosa palustris	15"–18" HT.	6
	VH	BLUE VERVAIN	Verbena hastata	15"–18" HT.	16
	QC	SCARLET OAK	Quercus coccinea	2–½"–3" cal.	4

MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
PA1 1-800-242-1776 — POCS SERIAL NUMBER # 2020063264 WWW.PAONECALL.COM

0' 50' 100' 150'
SCALE: 1"=50'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
1072 HANOVER STREET
HANOVER INDUSTRIAL ESTATES
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

LANDSCAPE PLAN

SEAL

SEAL

Origin Date: 09/20/23

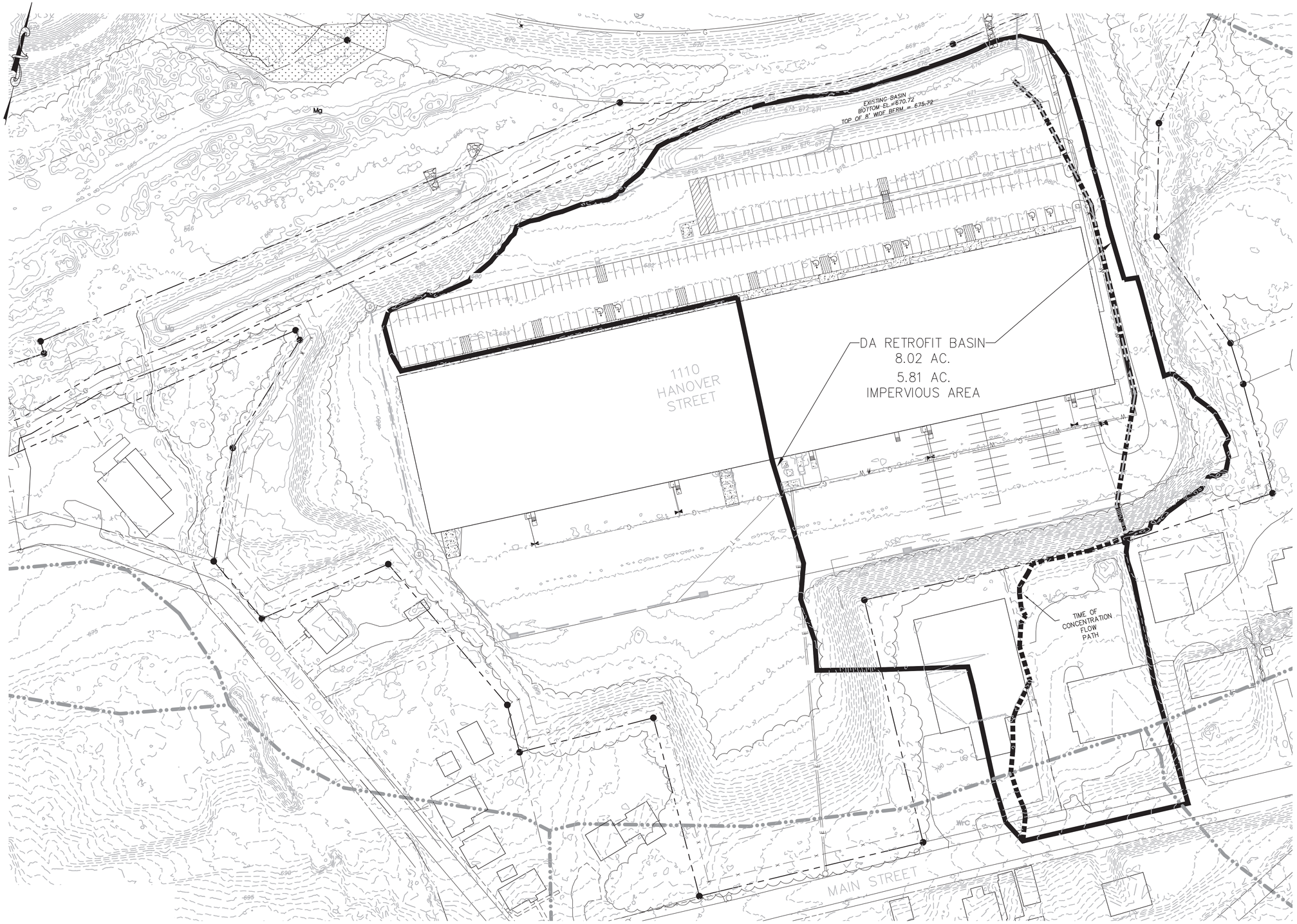
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction. See Project Manager for Revised Drawing.

Drawing Number:

C-700

File: Q:\Shared Properties\HIE\1072 Hanover (7) (J2094)\Base Bldg. (J2094)\2094MDCDWG-SPEC\Civil\Submissions\WVSA\Plot\LANDSCAPE.dwg



MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

1110 HANOVER DRAINAGE AREA

DEVELOPED IMPERVIOUS	= 5.81 ACRES
DEVELOPED PERVIOUS	= 2.21 ACRES
TOTAL DRAINAGE AREA	= 8.02 ACRES

LEGEND

TIME OF CONCENTRATION PATH

DRAINAGE AREA BOUNDARY

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
PA1 1-800-242-1776
POCS SERIAL NUMBER 20200063264
WWW.PAONECALL.ORG

0 50' 100' 150'
SCALE: 1"=50'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
1110 HANOVER STREET
SUGAR NOTCH BOROUGH
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

DRAINAGE AREA PLAN

SEAL

SEAL

Origin Date: 09/13/23

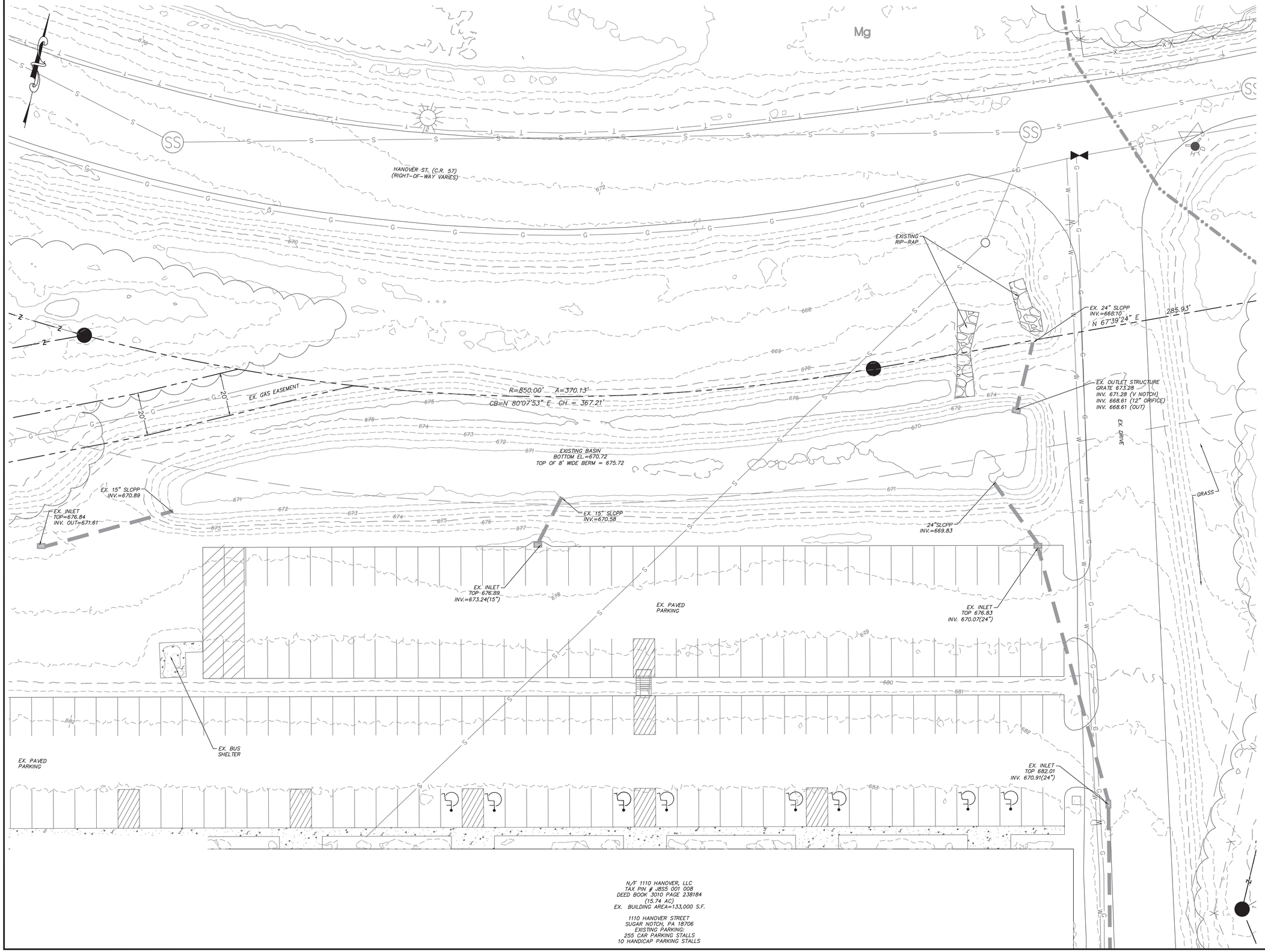
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction. See Project Manager for Revised Drawing.

Drawing Number:

DA-1

File: Q:\Shared\Properties\HIE\1110 Hanover (8) (J2309)\Base Bldg. (J2309)\2309\mdc\dwg\specCivil\Submissions\WVSA\PlotC-DAB.DWG



MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

LEGEND

- EXISTING PROPERTY LINE
- EXISTING LEGAL R/W
- BUILDING SETBACK LINE
- EXISTING EASEMENT
- ZONING DISTRICT BOUNDARY
- EXISTING DRAINAGE SWALE
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING STORM SEWER
- EXISTING ELECTRIC LINE
- EXISTING TELECOMMUNICATION LINE
- EXISTING GAS LINE WITH VALVE
- EXISTING WATER LINE WITH HYDRANT
- EXISTING SANITARY LINES
- EXISTING STORM MANHOLE
- EXISTING FENCE
- EXISTING TREELINE
- EXISTING SOIL BOUNDARY

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
PA1 1-800-242-1776
POCS SERIAL NUMBER 20200063264
WWW.PAONECALL.ORG/

0 20' 40' 60'
SCALE: 1"=20'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
1110 HANOVER STREET
SUGAR NOTCH BOROUGH
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

EXISTING FEATURES PLAN

SEAL

SEAL

Origin Date:	09/13/23
Drawn By / Project Manager	BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:

C-001

File: Q:\Shared\Properties\HIE\1110 Hanover (8) (J2309)\Base Bldg. (J2309)\2309fmdc\dwg-spec\Civil\Submissions\WVSA\Plot\C-001 Ex Features.dwg

HANOVER ST. (C.R. 57)
(RIGHT-OF-WAY VARIES)

EXISTING RIP-RAP

EX. 24" SLOPP
INV.=668.10

UNDERDRAIN
10 LF, 4" SCH-40 PVC
W/ ¼" PERFORATIONS @ 1.0%

LIMIT OF DISTURBANCE

EX. GAS EASEMENT

TOP OF 8' WIDE BERM =675.00

EX. OUTLET STRUCTURE
GRATE 673.28
INV. 670.00 2-(4" ORIFICES)
(ONE ON EACH SIDE)
INV. 668.61 (OUT)

EX. DRIVE

C.O.
INV. 668.71

EXISTING BASIN
BOTTOM EL.=670.72
TOP OF 8' WIDE BERM = 675.72

NEW RETROFIT BASIN
TOP OF 8' WIDE BERM =675.00
BOTTOM OF BASIN 669.00

EX. 15" SLOPP
INV.=670.89

EX. INLET
TOP=676.84
INV. OUT=671.61

STILLING BASIN

EX. 15" SLOPP
INV.=670.58

STILLING BASIN

24" SLOPP
INV.=669.83

GRASS

I.P.

ROCK CONSTRUCTION ENTRANCE

EX. INLET
TOP 676.89
INV.=673.24(15")

EX. PAVED PARKING

EX. INLET
TOP 676.83
INV. 670.07(24")

TOPSOIL STOCKPILE
(SEE DETAIL)

EX. BUS SHELTER

EX. PAVED PARKING

EX. INLET
TOP 682.01
INV. 670.91(24")

N/F 1110 HANOVER, LLC
TAX PIN # J8S5 001 008
DEED BOOK 3010 PAGE 238184
(15.74 AC)
EX. BUILDING AREA=133,000 S.F.

1110 HANOVER STREET
SUGAR NOTCH, PA 18706
EXISTING PARKING:
255 CAR PARKING STALLS
10 HANDICAP PARKING STALLS

MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

LEGEND

- EXISTING PROPERTY LINE
- EXISTING LEGAL R/W
- BUILDING SETBACK LINE
- EXISTING EASEMENT
- Z — Z — ZONING DISTRICT BOUNDARY
- EXISTING DRAINAGE SWALE
- EXISTING MINOR CONTOUR
- 1000 — EXISTING MAJOR CONTOUR
- EXISTING STORM SEWER
- E — EXISTING ELECTRIC LINE
- T — EXISTING TELECOMMUNICATION LINE
- G — EXISTING GAS LINE WITH VALVE
- W — EXISTING WATER LINE WITH HYDRANT
- S — EXISTING SANITARY LINES
- D — EXISTING STORM MANHOLE
- x — EXISTING FENCE
- EXISTING TREELINE
- Mg — EXISTING SOIL BOUNDARY

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
PA1 1-800-242-1776
POCS SERIAL NUMBER 20200063264
WWW.PAONECALL.ORG

0 20' 40' 60'
SCALE: 1"=20'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
1110 HANOVER STREET
SUGAR NOTCH BOROUGH
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

GRADING, DRAINAGE AND EROSION AND SEDIMENTATION CONTROL PLAN

SEAL

SEAL

Origin Date: 09/13/23

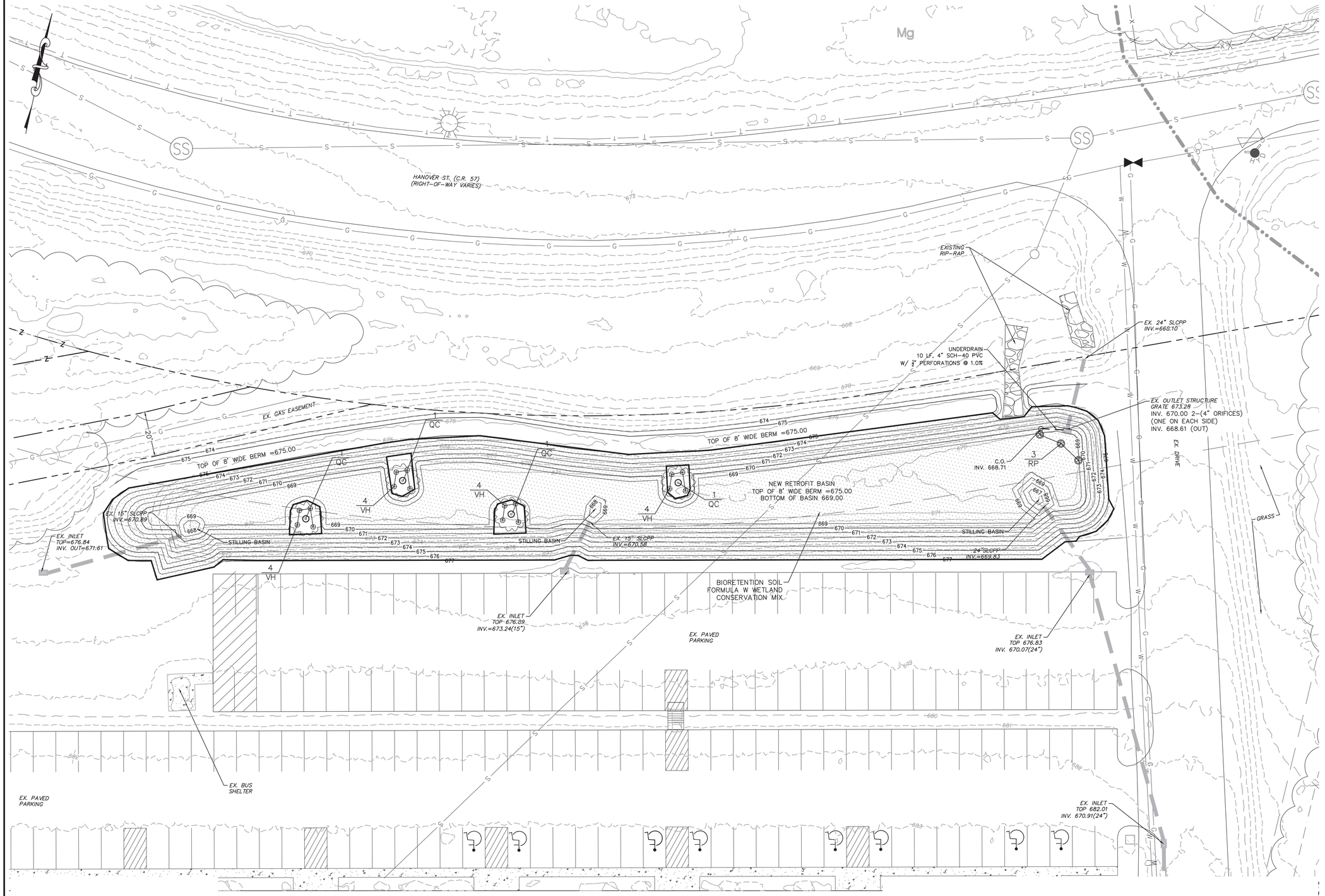
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction. See Project Manager for Revised Drawing.

Drawing Number:

C-200

File: Q:\Shared\Properties\HIE\1110 Hanover (8) (J2309)\Base Bldg. (J2309)\2309\mdc\dwg-spec\Civil\Submissions\WVSA\Plot\C-200 Grading.dwg



N/F 1110 HANOVER, LLC
TAX PIN # J8S5 001 008
DEED BOOK 3010 PAGE 238184
(15.74 AC)
EX. BUILDING AREA=133,000 S.F.

1110 HANOVER STREET
SUGAR NOTCH, PA 18706
EXISTING PARKING:
255 CAR PARKING STALLS
10 HANDICAP PARKING STALLS

PROJECT PLANT LIST

SYMBOL	LABEL	COMMON NAME	LATIN NAME	SIZE	QUANTITY
	RP	SWAMP ROSE	Rosa palustris	15"–18" HT.	3
	VH	BLUE VERVAIN	Verbena hastata	15"–18" HT.	16
	QC	SCARLET OAK	Quercus coccinea	2–½"–3" cal.	4

MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

LEGEND

- EXISTING PROPERTY LINE
- EXISTING LEGAL R/W
- BUILDING SETBACK LINE
- EXISTING EASEMENT
- ZONING DISTRICT BOUNDARY
- EXISTING DRAINAGE SWALE
- EXISTING MINOR CONTOUR
- 1000 EXISTING MAJOR CONTOUR
- EXISTING STORM SEWER
- E EXISTING ELECTRIC LINE
- T EXISTING TELECOMMUNICATION LINE
- G EXISTING GAS LINE WITH VALVE
- W EXISTING WATER LINE WITH HYDRANT
- S EXISTING SANITARY LINES
- D EXISTING STORM MANHOLE
- x EXISTING FENCE
- EXISTING TREELINE
- Mg EXISTING SOIL BOUNDARY

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
PA1 1-800-242-1776
POCS SERIAL NUMBER 20200063264
WWW.PAONECALL.ORG

0 20' 40' 60'
SCALE: 1"=20'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
1110 HANOVER STREET
SUGAR NOTCH BOROUGH
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

LANDSCAPE PLAN

SEAL

SEAL

Origin Date: 09/13/23

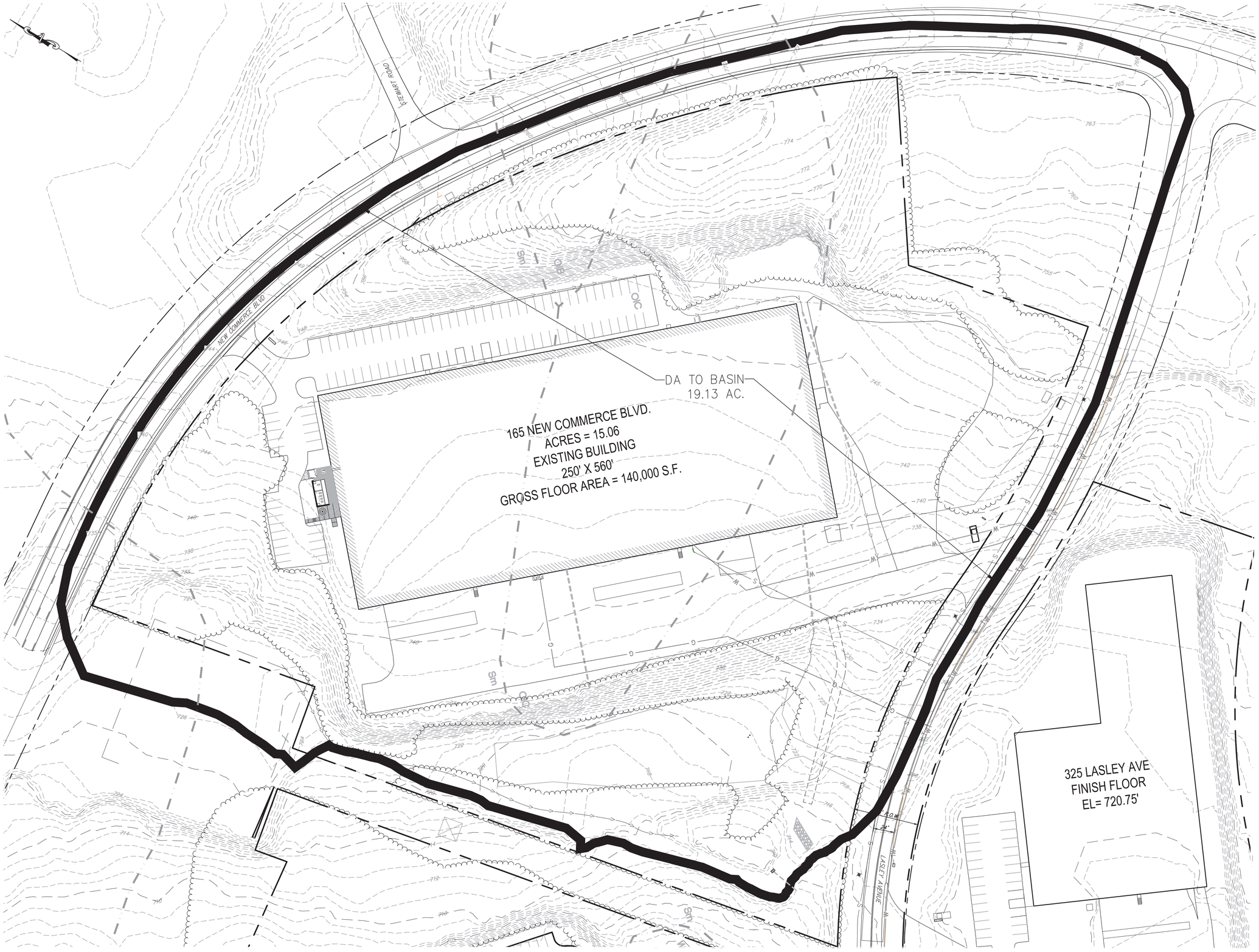
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:

C-700

File: Q:\Shared\Properties\HIE\1110 Hanover (8) (J2309)\Base Bldg. (J2309)\2309\mdc\dwg-spec\Civil\Submissions\WVSA\Plot\C-700 Landscaping.dwg



MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

165 NEW COMMERCE ROAD DRAINAGE AREA

BASIN

DEVELOPED IMPERVIOUS AREA = 9.53 ACRES
DEVELOPED PERVIOUS AREA = 9.60 ACRES
TOTAL DRAINAGE AREA = 19.13 ACRES

LEGEND

DRAINAGE AREA BOUNDARY TO BASIN

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
PA1 CALL 1-800-242-1776
POCS SERIAL NUMBER # 20200632 64
WWW.PAONECALL.ORG

0 50' 100' 150'
SCALE: 1"=50'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
165 NEW COMMERCE BLVD
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

DRAINAGE AREA PLAN

SEAL

SEAL

Origin Date: 07/28/2023

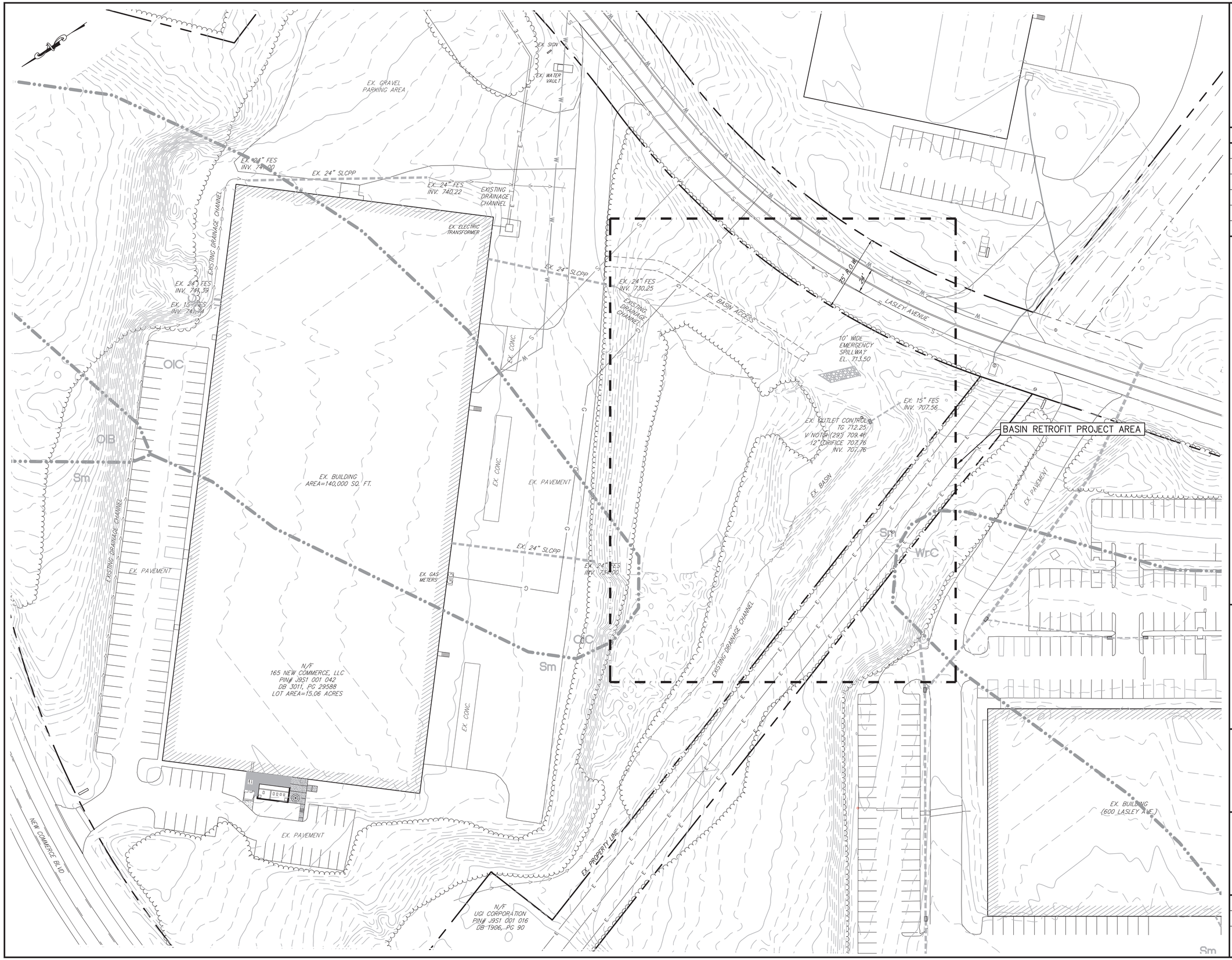
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction. See Project Manager for Revised Drawing.

Drawing Number:

DA-1

File: Q:\Shared\Properties\HIE\165 New Commerce (4 5) (J2297)\J2297\mdc\dwg-spec\Civil\Submissions\WVSA\Plot\DA8.dwg



MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
POCS SERIAL NUMBER
PA1 1-800-242-1776 # 20220063264 WWW.PAONECALL.ORG

0 40' 80' 120'
SCALE: 1"=40'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
165 NEW COMMERCE BLVD
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

EXISTING FEATURES PLAN

SEAL SEAL

Origin Date: 07/28/2023

Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction. See Project Manager for Revised Drawing.

Drawing Number:

C-001

File: Q:\Shared\Properties\HIE\165 New Commerce (4.5) (J2297)\Base Bldg. (J2297)\2297mdcidwg-spec\Civil\Submissions\WVSA\PlotC-001 EFP.dwg

MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
PA1 CALL 1-800-242-1776
POCS SERIAL NUMBER # 2020063264
WWW.PAONECALL.ORG

0 20' 40' 60'
SCALE: 1"=20'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
165 NEW COMMERCE BLVD
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

GRADING, DRAINAGE AND EROSION AND SEDIMENTATION CONTROL PLAN

SEAL

SEAL

Origin Date: 07/28/2023

Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction. See Project Manager for Revised Drawing.

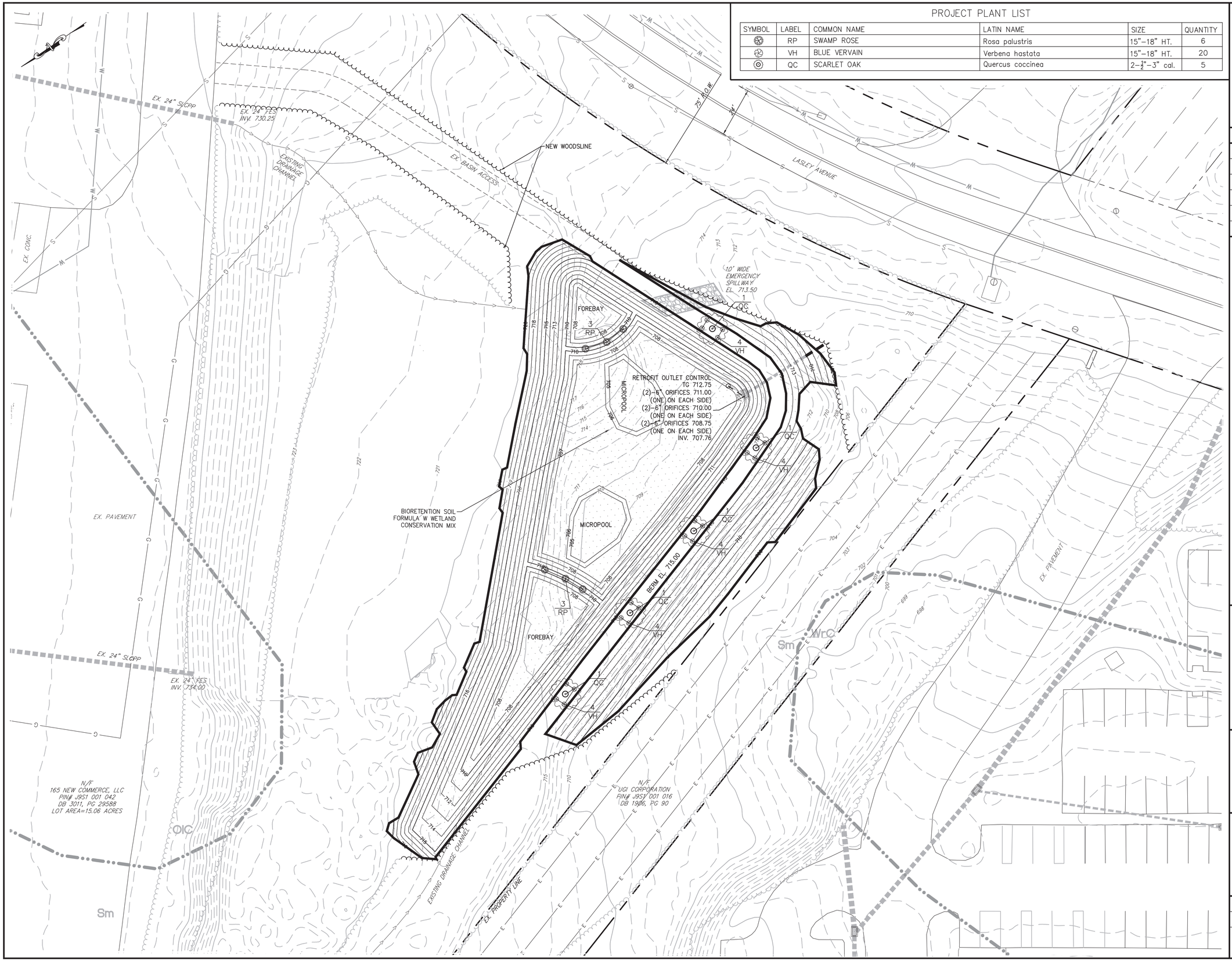
Drawing Number:

C-200

File: Q:\Shared\Properties\HIE\165 New Commerce (4-5) \J2297\1Base Bldg\ (J2297)\J2297\mdc\dwg-spec\Civil\Submissions\WVSA\Plot\C-200 Grading.dwg

PROJECT PLANT LIST

SYMBOL	LABEL	COMMON NAME	LATIN NAME	SIZE	QUANTITY
	RP	SWAMP ROSE	Rosa palustris	15"–18" HT.	6
	VH	BLUE VERVAIN	Verbena hastata	15"–18" HT.	20
	QC	SCARLET OAK	Quercus coccinea	2–1"–3" cal.	5



MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE – STOP CALL
PA One Call 1-800-242-1776 — # 2020063264 — POCS SERIAL NUMBER — WWW.PAONECALL.ORG

0 20' 40' 60'
SCALE: 1"=20'

Project Information:
WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
165 NEW COMMERCE BLVD
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:
LANDSCAPE PLAN

SEAL

SEAL

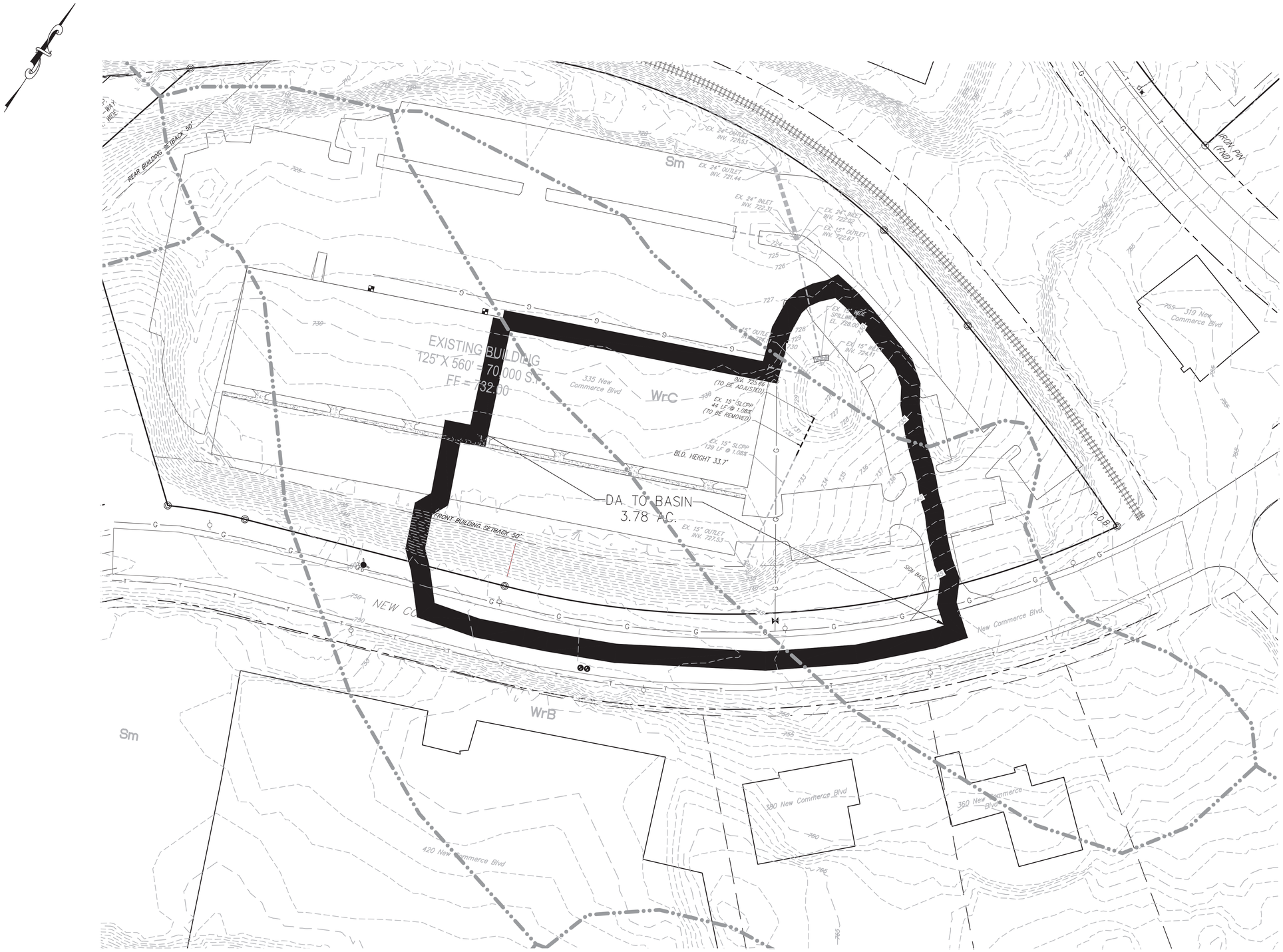
Origin Date: 07/28/2023

Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:
C-700

File: Q:\Shared\Properties\HIE\165 New Commerce (4.5) (J2297)\Base Bldg. (J2297)\J2297\mdc\dwg-spec\Civil\Submissions\WVSA\Plot\C-700 Landscape.dwg



LEGEND

DRAINAGE AREA BOUNDARY TO BASIN 1

0 50' 100' 150'

SCALE: 1"=50'

MERICLE

100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702

Phone: 570.823.1100
Fax: 570.823.3524

Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

335 NEW COMMERCE ROAD DRAINAGE AREAS

DEVELOPED IMPERVIOUS AREA = 2.38 ACRES
DEVELOPED PERVIOUS AREA = 1.40 ACRES
TOTAL DRAINAGE AREA = 3.78 ACRES

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
335 NEW COMMERCE BOULEVARD
HANOVER INDUSTRIAL ESTATES
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

DRAINAGE AREA PLAN

SEAL

SEAL

Origin Date: 09/20/23

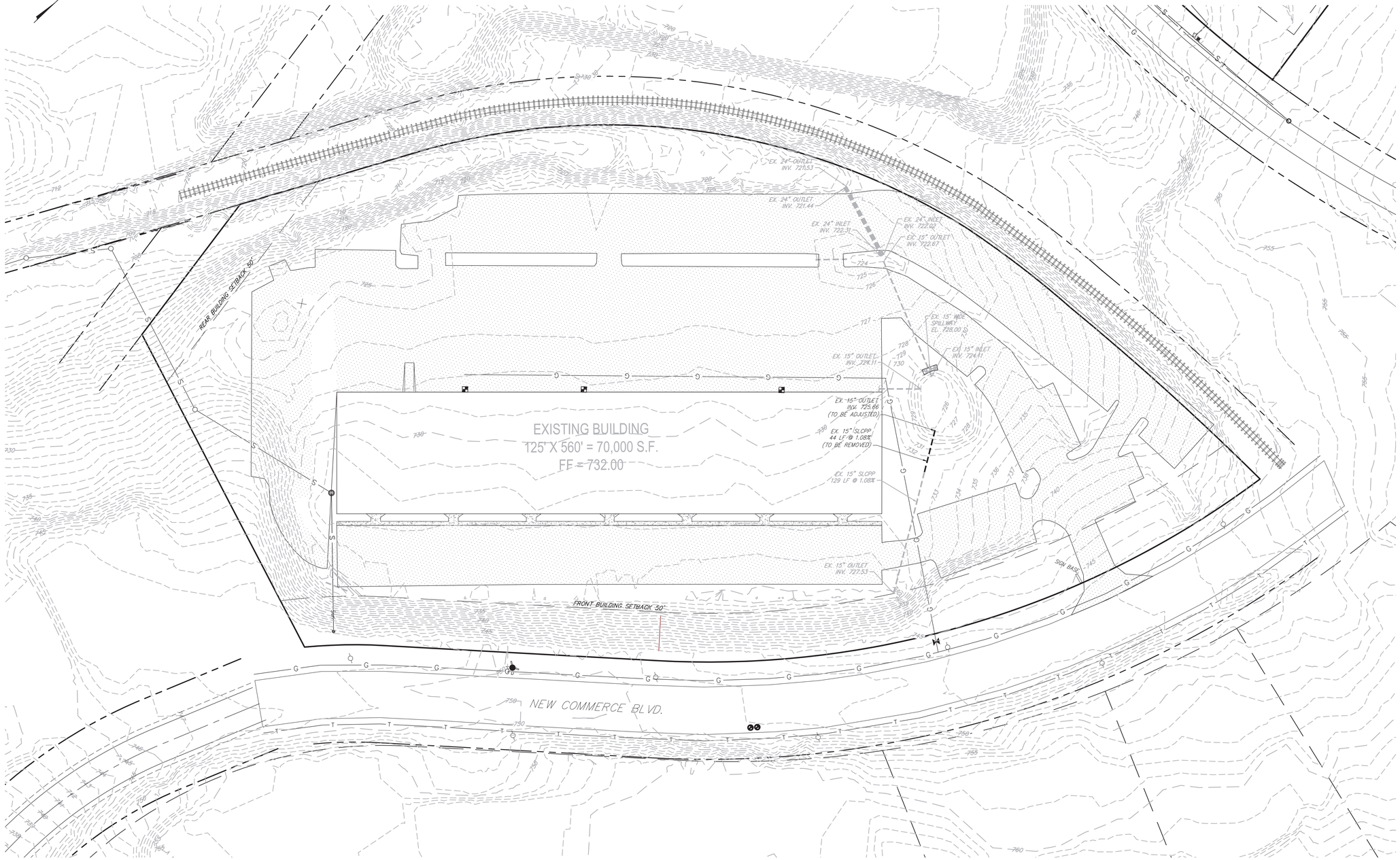
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:

DA-1

File: Q:\Shared\Properties\HIE\335 New Commerce (13B) (J2074)\Base Bldg. (J2074)\2074MDC\DWG-SPEC\Civil\Submissions\WVSA\Plot\DAB-rev021023.dwg



MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION PHASE AND 10 WORKING
DAYS IN DESIGN STAGE - STOP CALL
PA1 SERIAL NUMBER
1-800-242-1776 # 20200632264
WWW.PAONECALL.ORG

0' 50' 100' 150'
SCALE: 1"=50'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
335 NEW COMMERCE BOULEVARD
HANOVER INDUSTRIAL ESTATES
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

EXISTING FEATURES PLAN

SEAL

SEAL

Origin Date: 09/20/23

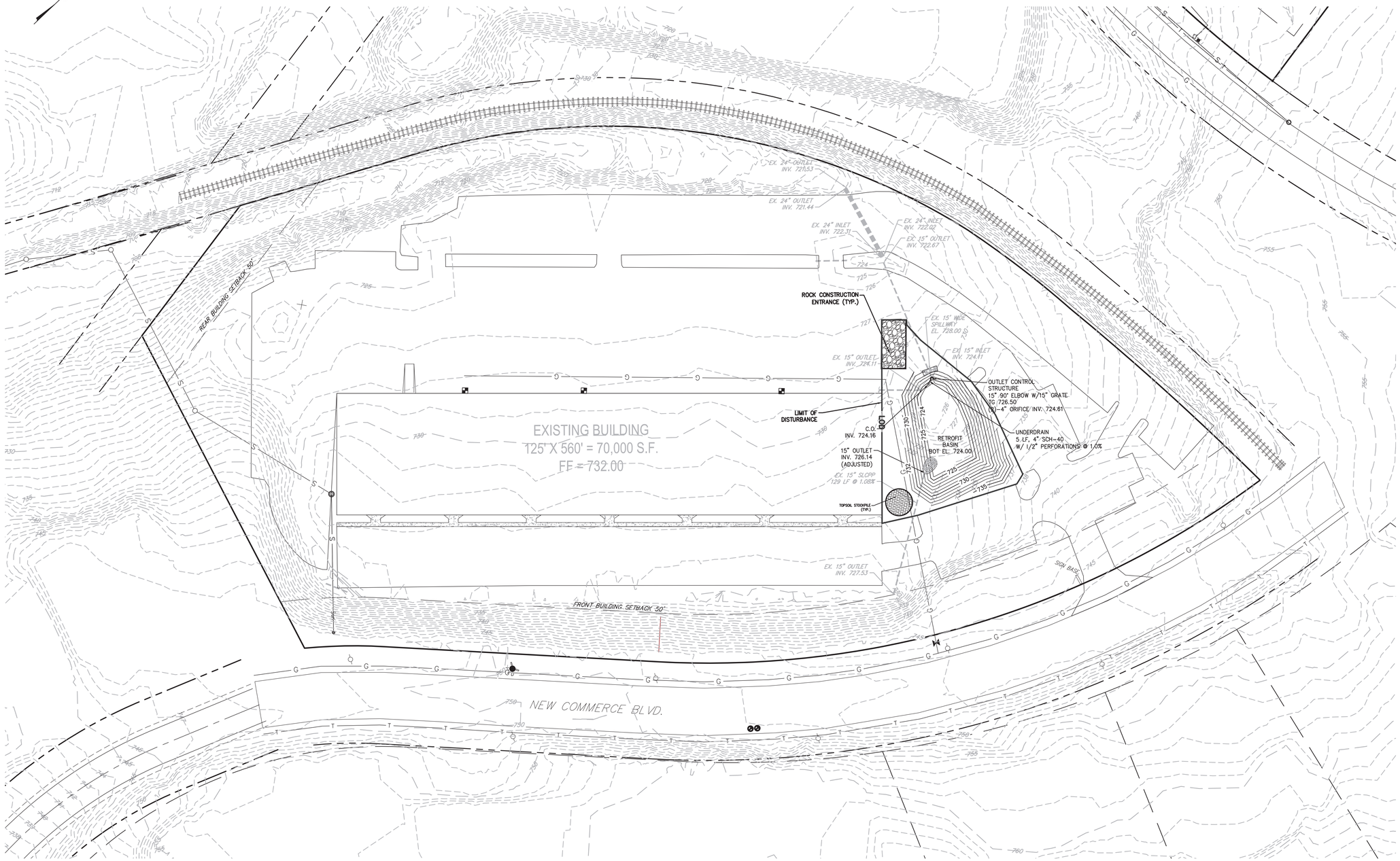
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:

C-001

File: Q:\Shared\Properties\HIE\335 New Commerce (13B) (J2074)\Base Bldg. (J2074)\2074MDC\DWG-SPEC\Civil\Submissions\WVSA\Plot\EFP.dwg



MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION PHASE AND 10 WORKING
DAYS IN DESIGN STAGE - STOP CALL
PA One Call System, Inc.
1-800-242-1776
POCS SERIAL NUMBER
2020063264
WWW.PAONECALL.ORG

0' 50' 100' 150'
SCALE: 1"=50'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
335 NEW COMMERCE BOULEVARD
HANOVER INDUSTRIAL ESTATES
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

GRADING, DRAINAGE AND EROSION AND SEDIMENTATION CONTROL PLANS

SEAL

SEAL

Origin Date: 09/20/23

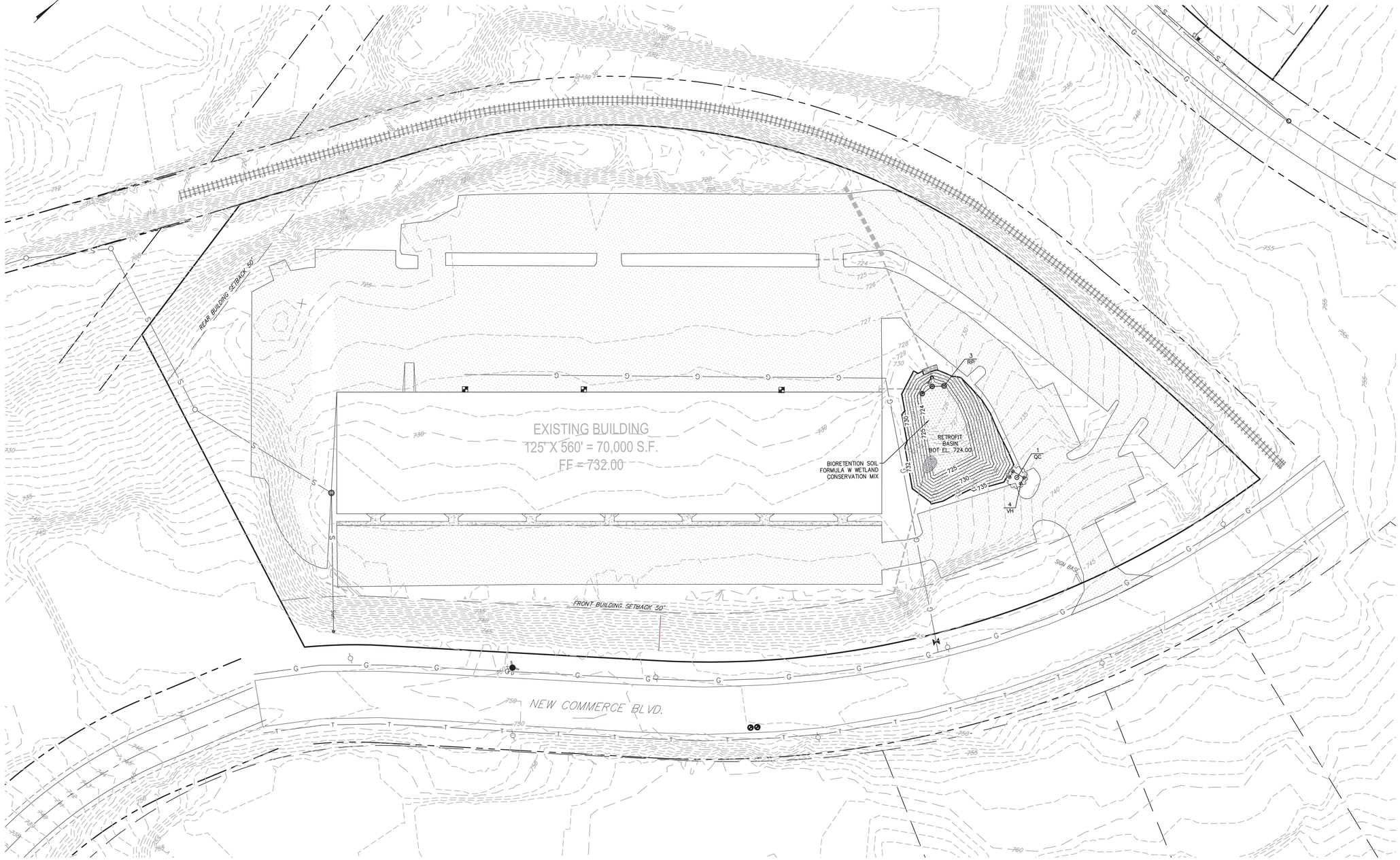
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:

C-200

File: Q:\Shared\Properties\HIE\335 New Commerce (13B) (J20741)\Base Bldg. (J20741)\MDC\DWG-SPEC\Civil\Submissions\WVSA\Plot\Grading WVSA.dwg



PROJECT PLANT LIST

SYMBOL	LABEL	COMMON NAME	LATIN NAME	SIZE	QUANTITY
	RP	SWAMP ROSE	Rosa palustris	15"–18" HT.	3
	VH	BLUE VERVAIN	Verbena hastata	15"–18" HT.	4
	QC	SCARLET OAK	Quercus coccinea	2–1/2"–3" cal.	1

MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL.
PA1 1-800-242-1776
POCS SERIAL NUMBER # 2020063264
WWW.PAONECALL.ORG

0' 50' 100' 150'
SCALE: 1"=50'

Project Information:

WVSA PARTNERSHIP PROGRAM
BASIN RETROFIT PLANS FOR
335 NEW COMMERCE BOULEVARD
HANOVER INDUSTRIAL ESTATES
HANOVER TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

LANDSCAPE PLAN

SEAL

SEAL

Origin Date: 09/20/23

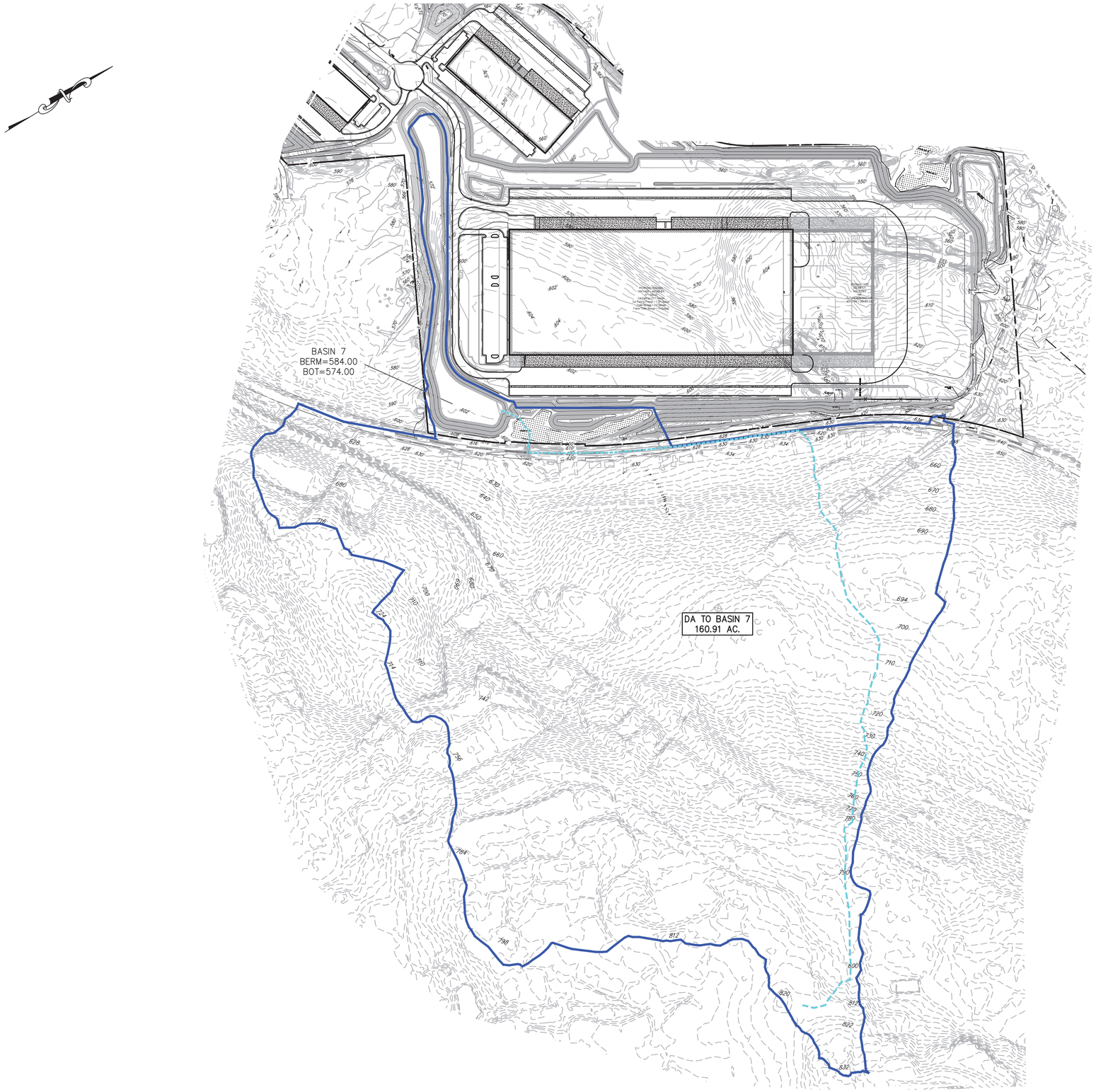
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction. See Project Manager for Revised Drawing.

Drawing Number:

C-700

File: Q:\Shared\Properties\HIE\335 New Commerce (13B) [J2074]\Base Bldg. (J2074)\2074MDCDWG-SPEC\Civil\Submissions\WVSA\Plot\Landscape.dwg



MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

LOT 7 FOR CENTERPOINT COMMERCE & TRADE PARK SOUTH DRAINAGE AREA

DEVELOPED IMPERVIOUS AREA =	56.04 ACRES
DEVELOPED PERVIOUS AREA =	104.87 ACRES
TOTAL DRAINAGE AREA =	160.91 ACRES

LEGEND

TIME OF CONCENTRATION FLOW PATH

DRAINAGE AREA BOUNDARY

0 250' 500' 750'

SCALE: 1"=250'

Project Information:

WVSA PARTNERSHIP PROGRAM
CONSTRUCTION PLANS - LOT 7 BASIN
CENTERPOINT COMMERCE &
TRADE PARK SOUTH
SAYLOR AVE AND RIVER ROAD
JENKINS TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

POST DEVELOPMENT DRAINAGE AREA PLAN - TO BASIN 7

SEAL

SEAL

Origin Date: 09/18/2023

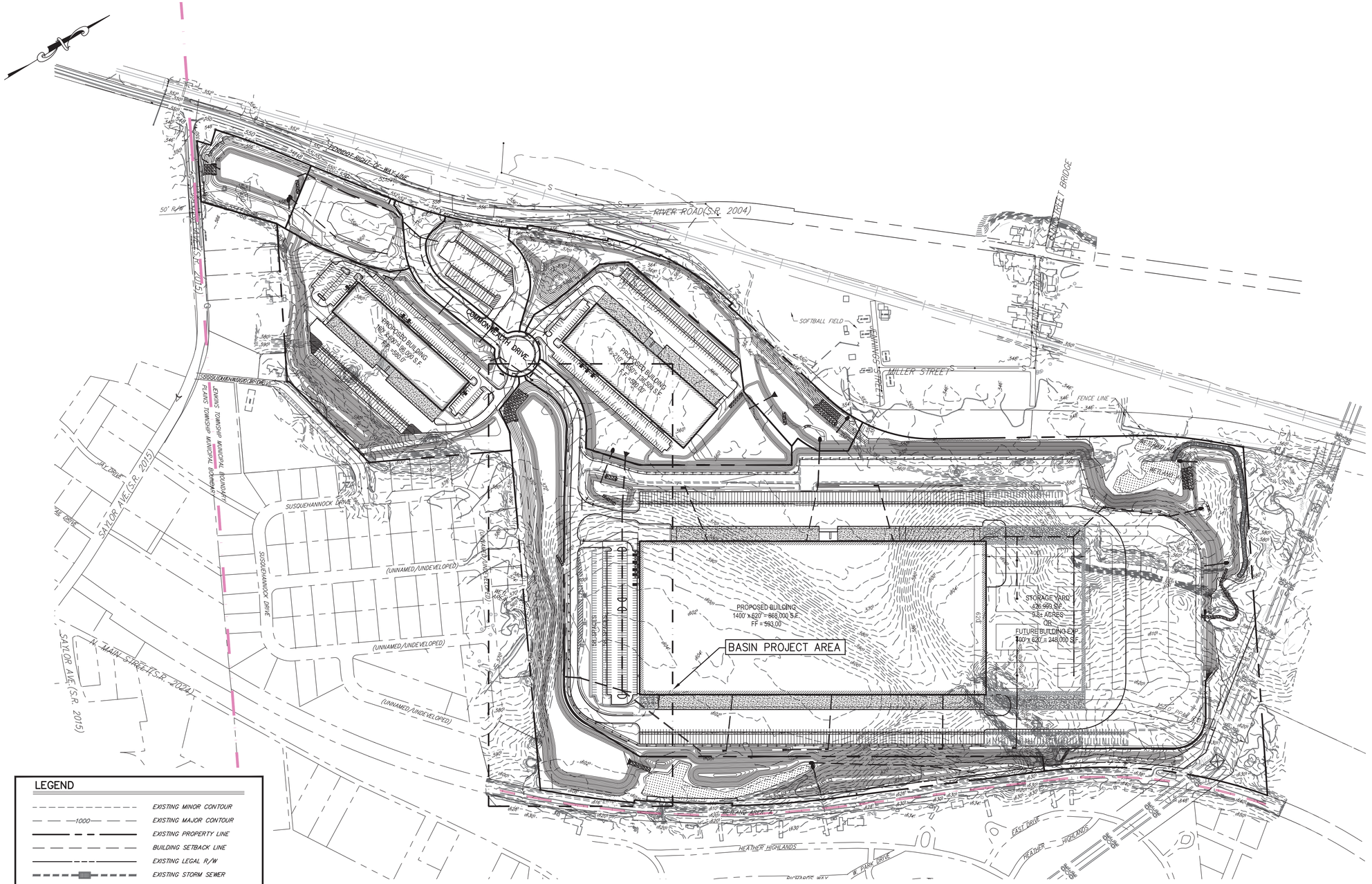
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:

C-7-DA

File: Q:\Shared\Properties\CPS\Park (J2366)\2366\mdc\dwg-specific\wl\Submissions\WVSA\Plots\DAB.dwg



OVERALL GRADING AND DRAINAGE PLAN

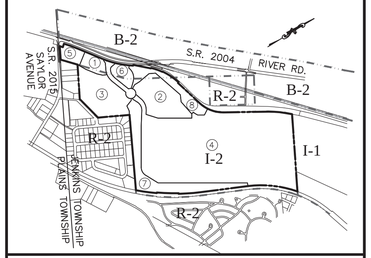
SCALE: 1"=200'

LEGEND

- EXISTING MINOR CONTOUR
- 1000 EXISTING MAJOR CONTOUR
- EXISTING PROPERTY LINE
- BUILDING SETBACK LINE
- EXISTING LEGAL R/W
- EXISTING STORM SEWER
- 1000 NEW CONTOUR
- 1000.0 NEW SPOT ELEVATION
- NEW FENCE
- NEW STORM SEWER W/ INLET
- NEW SIGN
- NEW LIGHT POLE
- NEW HEAVY DUTY PAVING
- STANDARD DUTY PAVING
- HEAVY DUTY PAVING TOWNSHIP RD.
- NEW CONCRETE SIDEWALK
- STANDARD DUTY CONCRETE
- EXISTING HEAVY DUTY CONCRETE
- CONCRETE CURB
- AGGREGATE SHOULDER

MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....



KEYMAP
NTS

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
POCS SERIAL NUMBER
PA1 1-800-242-1776 # 20212564225 WWW.PAONECALL.ORG

0 200' 400' 600'
SCALE: 1"=200'

Project Information:

WVSA PARTNERSHIP PROGRAM
CONSTRUCTION PLANS - LOT 7 BASIN
CENTERPOINT COMMERCE &
TRADE PARK SOUTH
SAYLOR AVE AND RIVER ROAD
JENKINS TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

OVERALL GRADING AND DRAINAGE PLAN

SEAL

SEAL

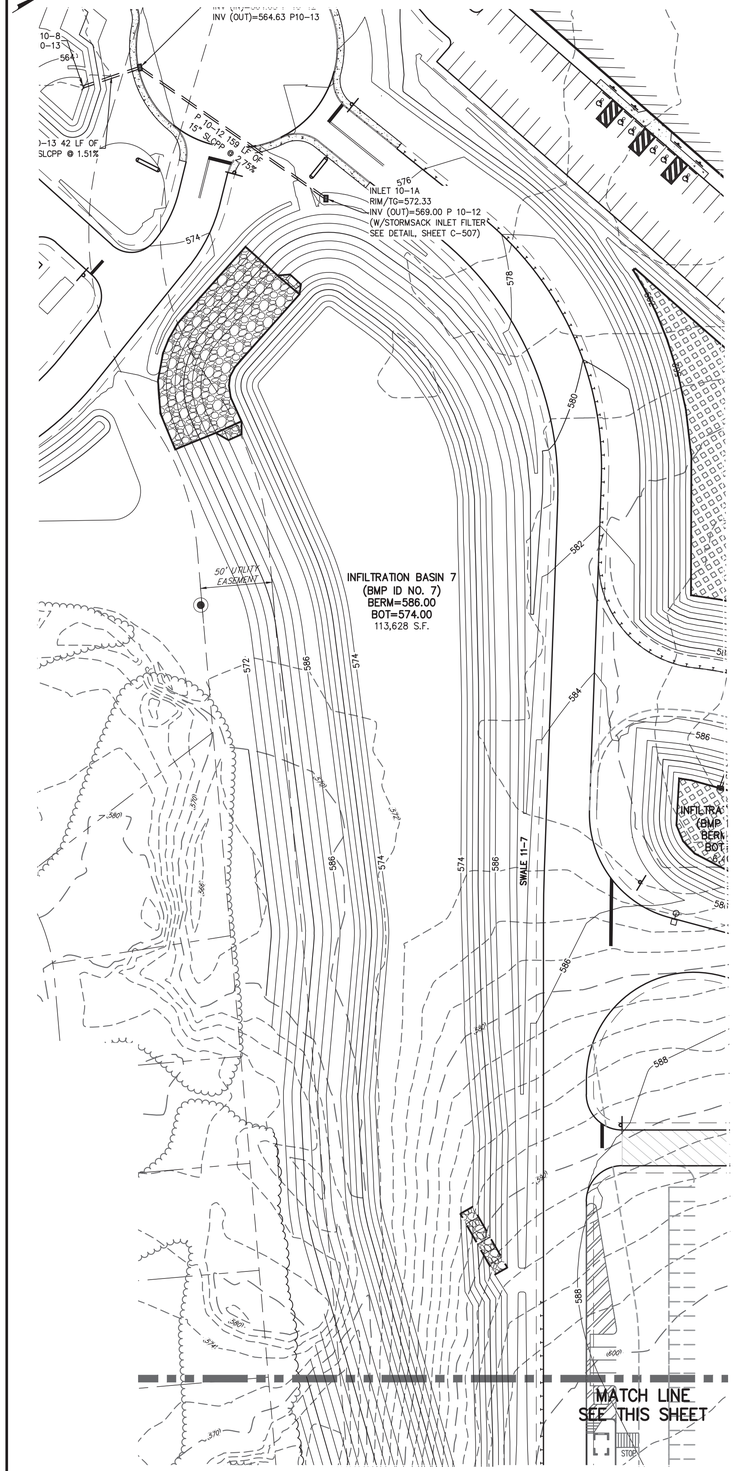
Origin Date:	09/18/2023
Drawn By / Project Manager	BKE/MC

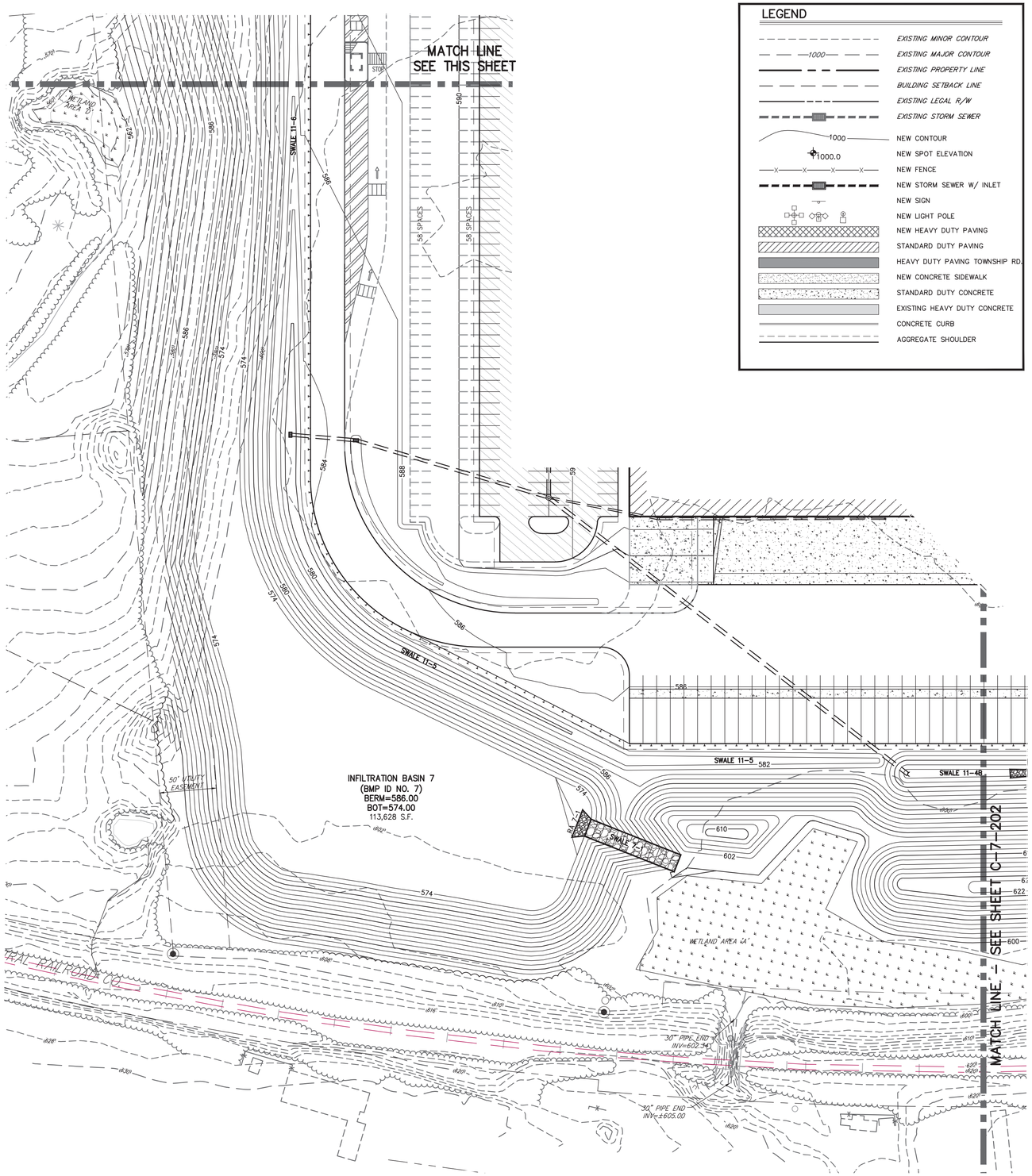
If stamped VOID this drawing is not for construction. See Project Manager for Revised Drawing.

Drawing Number:

C-7-200

File: Q:\Shared\Properties\CPS\Park (J2366)\2366\mdc\dwg-spec\civil\Submissions\WVSA\Plots\GRA.dwg



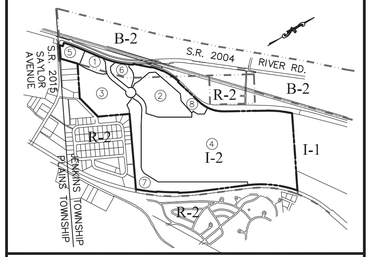


LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING PROPERTY LINE
- BUILDING SETBACK LINE
- EXISTING LEGAL R/W
- EXISTING STORM SEWER
- NEW CONTOUR
- NEW SPOT ELEVATION
- NEW FENCE
- NEW STORM SEWER W/ INLET
- NEW SIGN
- NEW LIGHT POLE
- NEW HEAVY DUTY PAVING
- STANDARD DUTY PAVING
- HEAVY DUTY PAVING TOWNSHIP RD.
- NEW CONCRETE SIDEWALK
- STANDARD DUTY CONCRETE
- EXISTING HEAVY DUTY CONCRETE
- CONCRETE CURB
- AGGREGATE SHOULDER

MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....



KEYMAP
NTS

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
PA1 CALL 1-800-242-1776
POCS SERIAL NUMBER # 20212564225
WWW.PAONECALL.ORG

0 50' 100' 150'
SCALE: 1"=50'

Project Information:

WVSA PARTNERSHIP PROGRAM
CONSTRUCTION PLANS - LOT 7 BASIN
CENTERPOINT COMMERCE &
TRADE PARK SOUTH
SAYLOR AVE AND RIVER ROAD
JENKINS TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

PARTIAL GRADING AND DRAINAGE PLAN - LOT 7

SEAL

SEAL

Origin Date:	09/18/2023
Drawn By / Project Manager	BKE/MC

If stamped VOID this drawing is not for construction. See Project Manager for Revised Drawing.

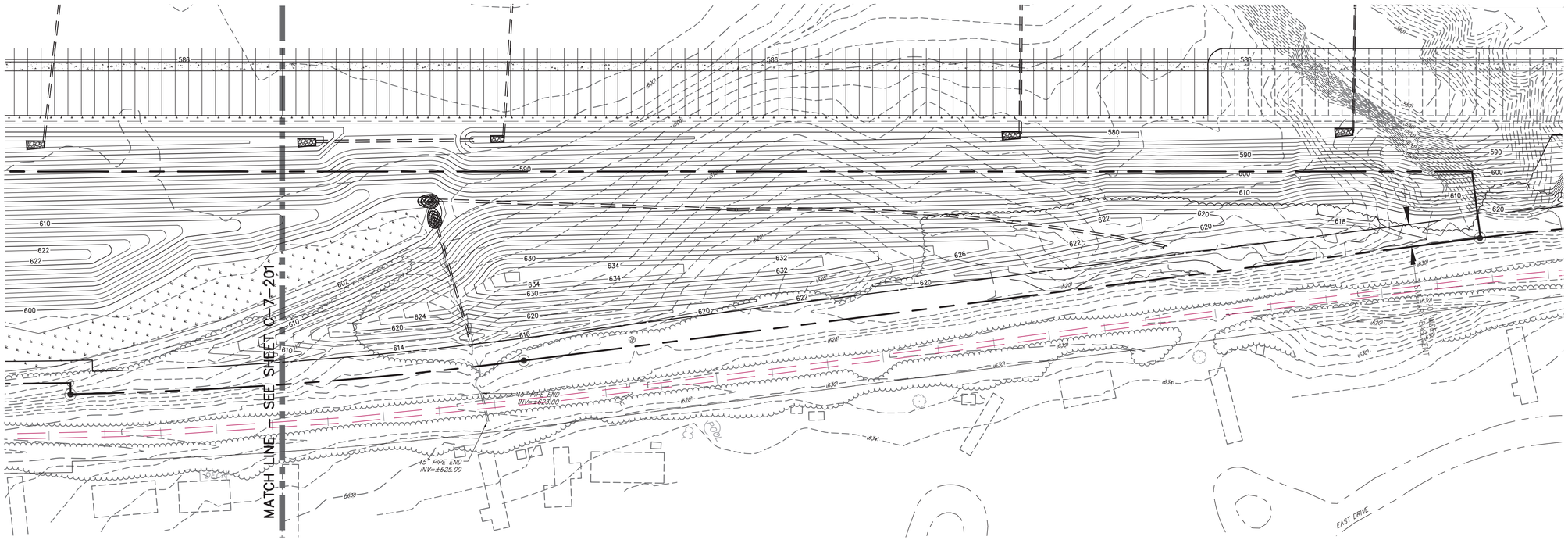
Drawing Number:

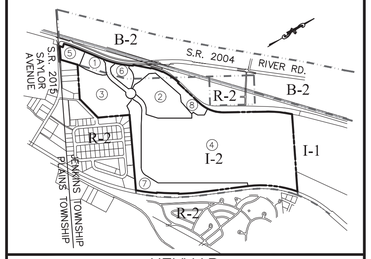
C-7-201

File: Q:\Shared\Properties\CPSTPark (J2366)\2366\mdc\dwg-specivil\Submissions\WVSA\Plots\GRA.dwg

LEGEND

- EXISTING MINOR CONTOUR
- 1000 EXISTING MAJOR CONTOUR
- EXISTING PROPERTY LINE
- BUILDING SETBACK LINE
- EXISTING LEGAL R/W
- EXISTING STORM SEWER
- 1000 NEW CONTOUR
- 1000.0 NEW SPOT ELEVATION
- NEW FENCE
- NEW STORM SEWER W/ INLET
- NEW SIGN
- NEW LIGHT POLE
- NEW HEAVY DUTY PAVING
- STANDARD DUTY PAVING
- HEAVY DUTY PAVING TOWNSHIP RD.
- NEW CONCRETE SIDEWALK
- STANDARD DUTY CONCRETE
- EXISTING HEAVY DUTY CONCRETE
- CONCRETE CURB
- AGGREGATE SHOULDER





KEYMAP
NTS

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
POCS SERIAL NUMBER
PA1 1-800-242-1776 # 20212564235
WWW.PAONECALL.ORG*

MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

Project Information:

WVSA PARTNERSHIP PROGRAM
CONSTRUCTION PLANS - LOT 7 BASIN
CENTERPOINT COMMERCE &
TRADE PARK SOUTH
SAYLOR AVE AND RIVER ROAD
JENKINS TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

PARTIAL GRADING AND DRAINAGE PLAN - LOT 7

SEAL

SEAL

Origin Date: 09/18/2023

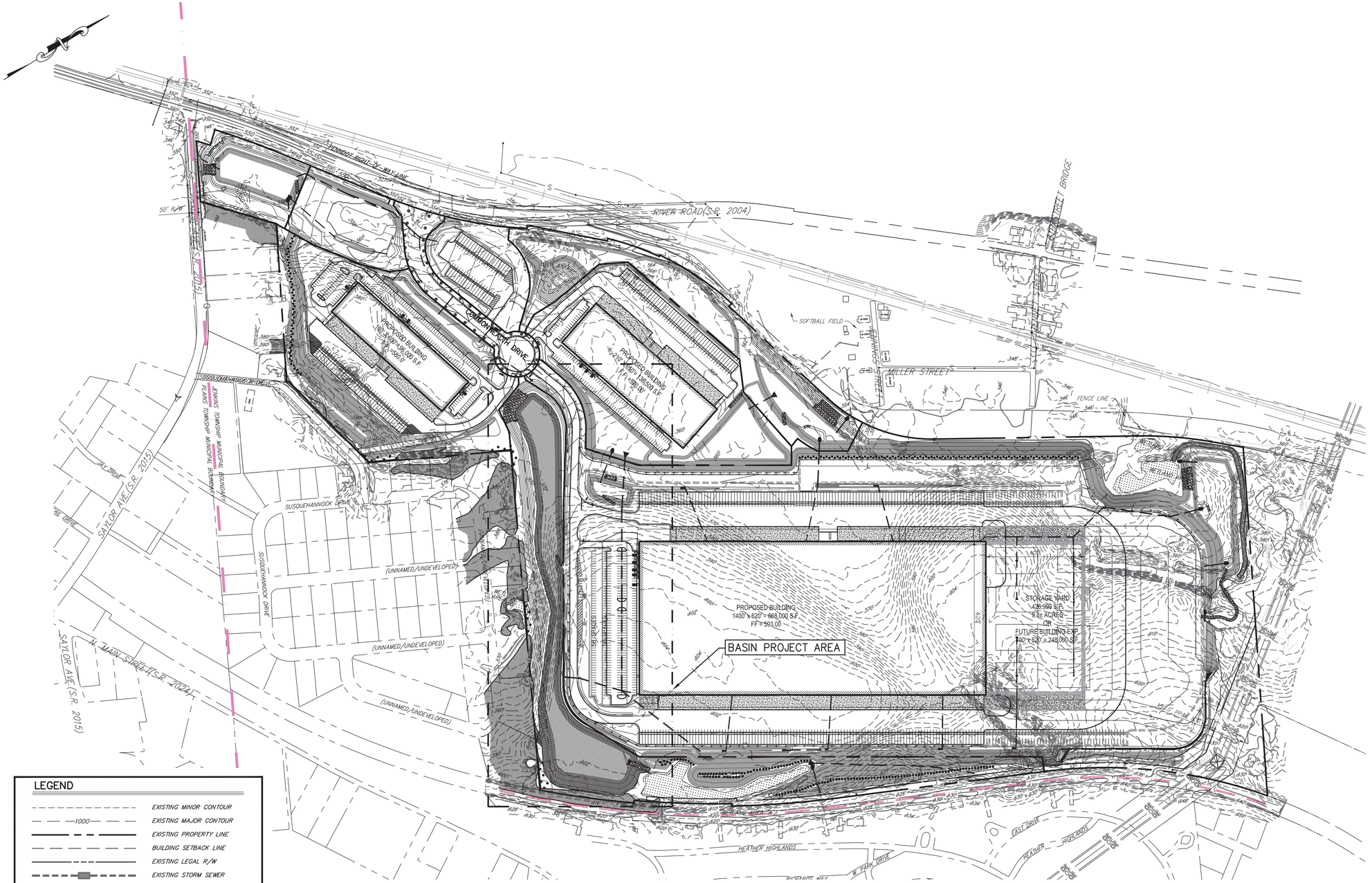
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction. See Project Manager for Revised Drawing.

Drawing Number:

C-7-202

File: Q:\Shared\Properties\CPS\Park (J2366)\2366\mdc\dwg-spec\civil\Submissions\WVSA\Plots\GRA.dwg



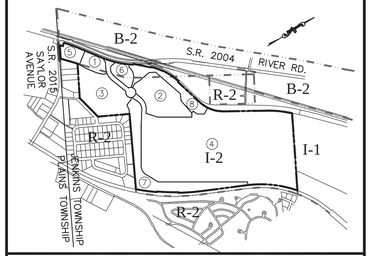
OVERALL LANDSCAPE PLAN
SCALE: 1"=200'

LEGEND

- EXISTING MINOR CONTOUR
- 1000 EXISTING MAJOR CONTOUR
- EXISTING PROPERTY LINE
- BUILDING SETBACK LINE
- EXISTING LEGAL R/W
- EXISTING STORM SEWER
- 1000 NEW CONTOUR
- 1000.0 NEW SPOT ELEVATION
- NEW FENCE
- NEW STORM SEWER W/ INLET
- NEW SIGN
- NEW LIGHT POLE
- NEW HEAVY DUTY PAVING
- STANDARD DUTY PAVING
- HEAVY DUTY PAVING TOWNSHIP RD.
- NEW CONCRETE SIDEWALK
- STANDARD DUTY CONCRETE
- EXISTING HEAVY DUTY CONCRETE
- CONCRETE CURB
- AGGREGATE SHOULDER

MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....



KEYMAP
NTS

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
POCS SERIAL NUMBER
PA1 # 20212564225
1-800-242-1776 WWW.PAONECALL.ORG

0 200' 400' 600'
SCALE: 1"=200'

Project Information:
WVSA PARTNERSHIP PROGRAM
CONSTRUCTION PLANS - LOT 7 BASIN
CENTERPOINT COMMERCE &
TRADE PARK SOUTH
SAYLOR AVE AND RIVER ROAD
JENKINS TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

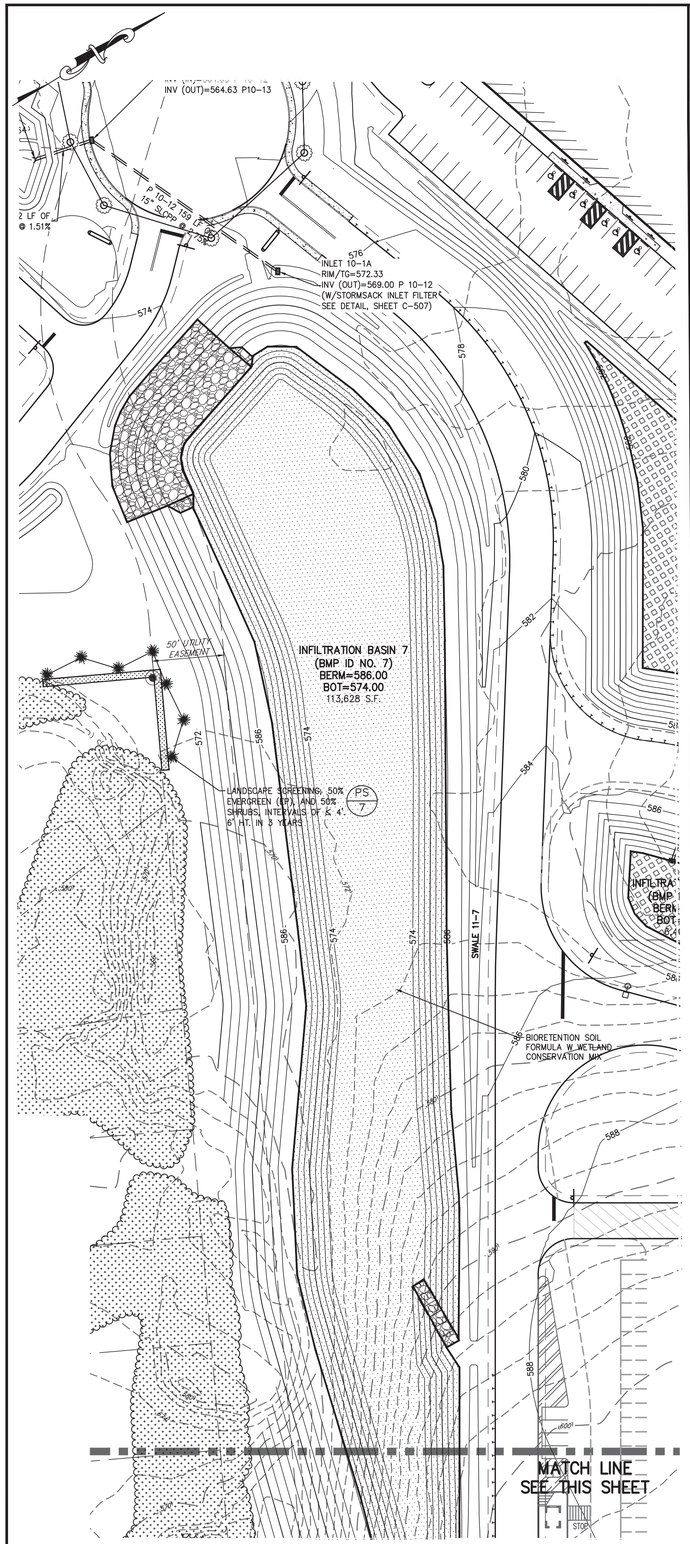
Drawing Description:
OVERALL LANDSCAPE PLAN

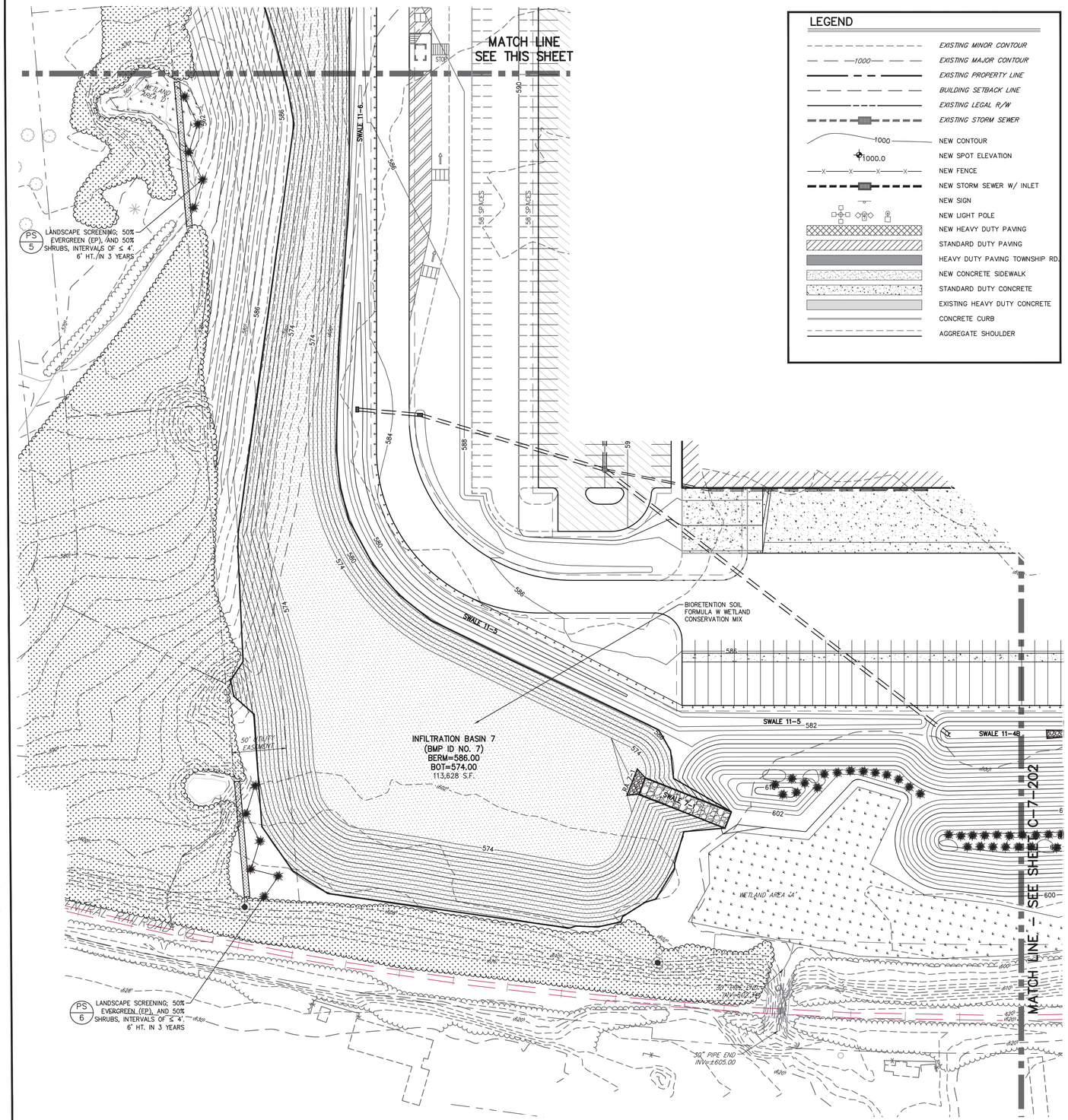
SEAL SEAL

Origin Date: 09/18/2023
Drawn By / Project Manager BKE/MC
If stamped VOID this drawing is not for construction. See Project Manager for Revised Drawing.

Drawing Number:
C-7-700

File: Q:\Shared\Properties\CPSTPark (J2366)\2366\mdc\dwg-specific\civil\Submissions\WVSA\Plots\LAND.dwg





LEGEND

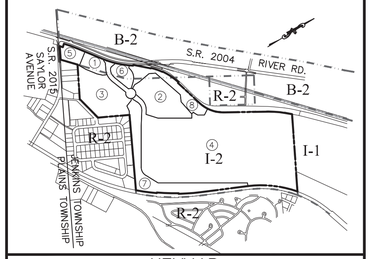
- EXISTING MINOR CONTOUR
- 1000 EXISTING MAJOR CONTOUR
- EXISTING PROPERTY LINE
- BUILDING SETBACK LINE
- EXISTING LEGAL R/W
- EXISTING STORM SEWER
- 1000 NEW CONTOUR
- 1000.0 NEW SPOT ELEVATION
- NEW FENCE
- NEW STORM SEWER W/ INLET
- NEW SIGN
- NEW LIGHT POLE
- NEW HEAVY DUTY PAVING
- STANDARD DUTY PAVING
- HEAVY DUTY PAVING TOWNSHIP RD.
- NEW CONCRETE SIDEWALK
- STANDARD DUTY CONCRETE
- EXISTING HEAVY DUTY CONCRETE
- CONCRETE CURB
- AGGREGATE SHOULDER

PROJECT PLANT LIST

SYMBOL	LABEL	COMMON NAME	LATIN NAME	SIZE	QUANTITY
✳	PS	EASTERN WHITE PINE	Pinus Strobus	7'-8' HT.	18

MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....



KEYMAP
NTS

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
POCS SERIAL NUMBER
PA1 1-800-242-1776 # 20212564225 WWW.PAONECALL.ORG

0 50' 100' 150'
SCALE: 1"=50'

Project Information:
WVSA PARTNERSHIP PROGRAM
CONSTRUCTION PLANS - LOT 7 BASIN
CENTERPOINT COMMERCE &
TRADE PARK SOUTH
SAYLOR AVE AND RIVER ROAD
JENKINS TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:
PARTIAL LANDCAPE PLAN
LOT 7

SEAL

SEAL

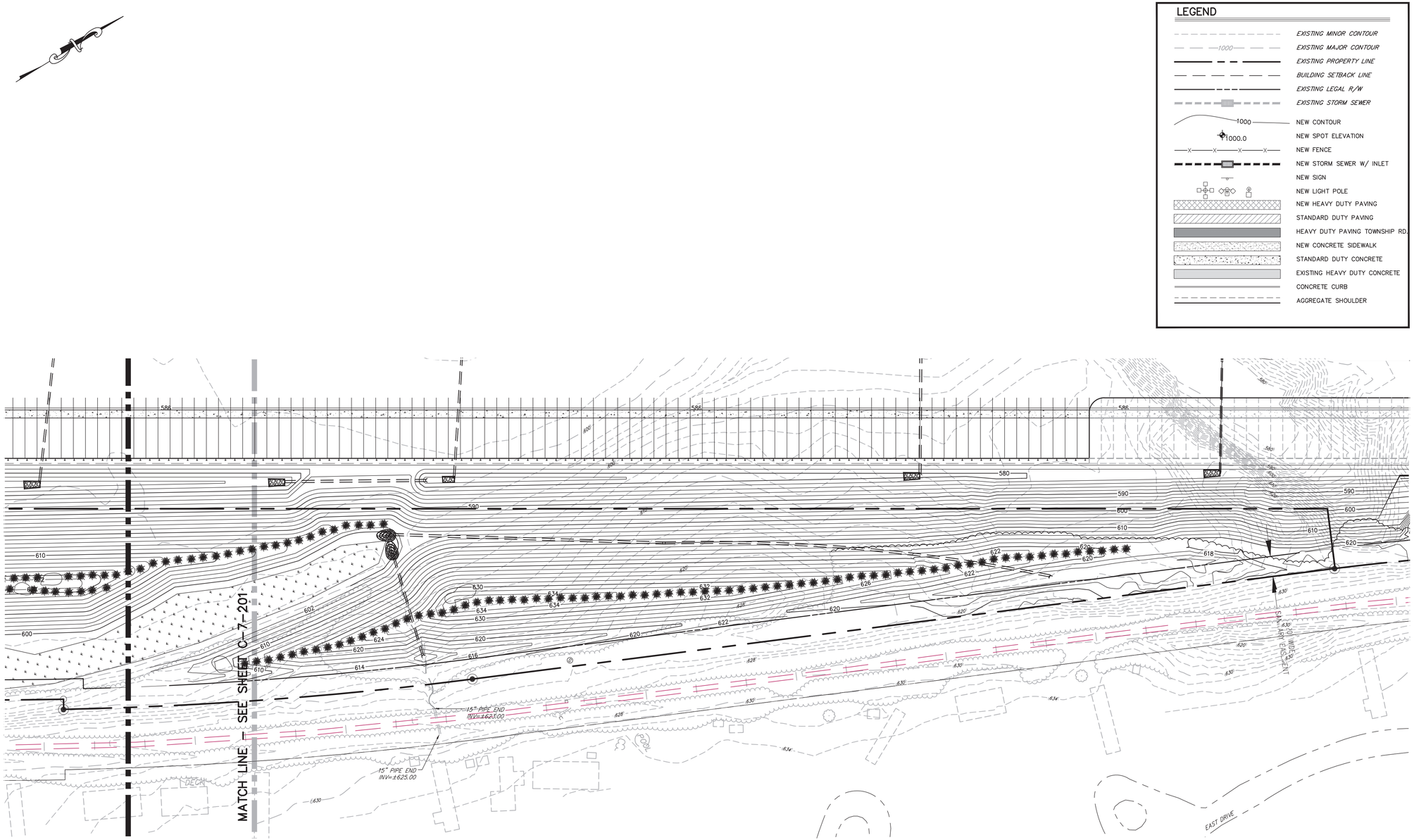
Origin Date: 09/18/2023

Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:
C-7-701

File: Q:\Shared\Properties\CPS\Park (J2366)\2366\mdc\dwg-specs\civil\Submissions\WVSA\Plots\LAND.dwg

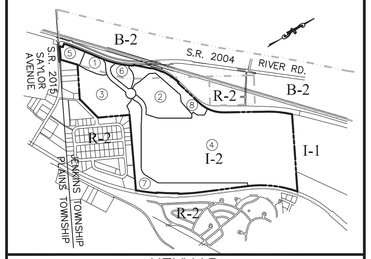


LEGEND

- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING PROPERTY LINE
- BUILDING SETBACK LINE
- EXISTING LEGAL R/W
- EXISTING STORM SEWER
- NEW CONTOUR
- NEW SPOT ELEVATION
- NEW FENCE
- NEW STORM SEWER W/ INLET
- NEW SIGN
- NEW LIGHT POLE
- NEW HEAVY DUTY PAVING
- STANDARD DUTY PAVING
- HEAVY DUTY PAVING TOWNSHIP RD.
- NEW CONCRETE SIDEWALK
- STANDARD DUTY CONCRETE
- EXISTING HEAVY DUTY CONCRETE
- CONCRETE CURB
- AGGREGATE SHOULDER

MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....



KEYMAP
NTS

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
POCS SERIAL NUMBER
PA1 CALL 1-800-242-1776 # 20212564235
WWW.PAONECALL.ORG*

Project Information:

WVSA PARTNERSHIP PROGRAM
CONSTRUCTION PLANS - LOT 7 BASIN
CENTERPOINT COMMERCE &
TRADE PARK SOUTH
SAYLOR AVE AND RIVER ROAD
JENKINS TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

PARTIAL LANDSCAPE PLAN
LOT 7

SEAL

SEAL

Origin Date: 09/18/2023

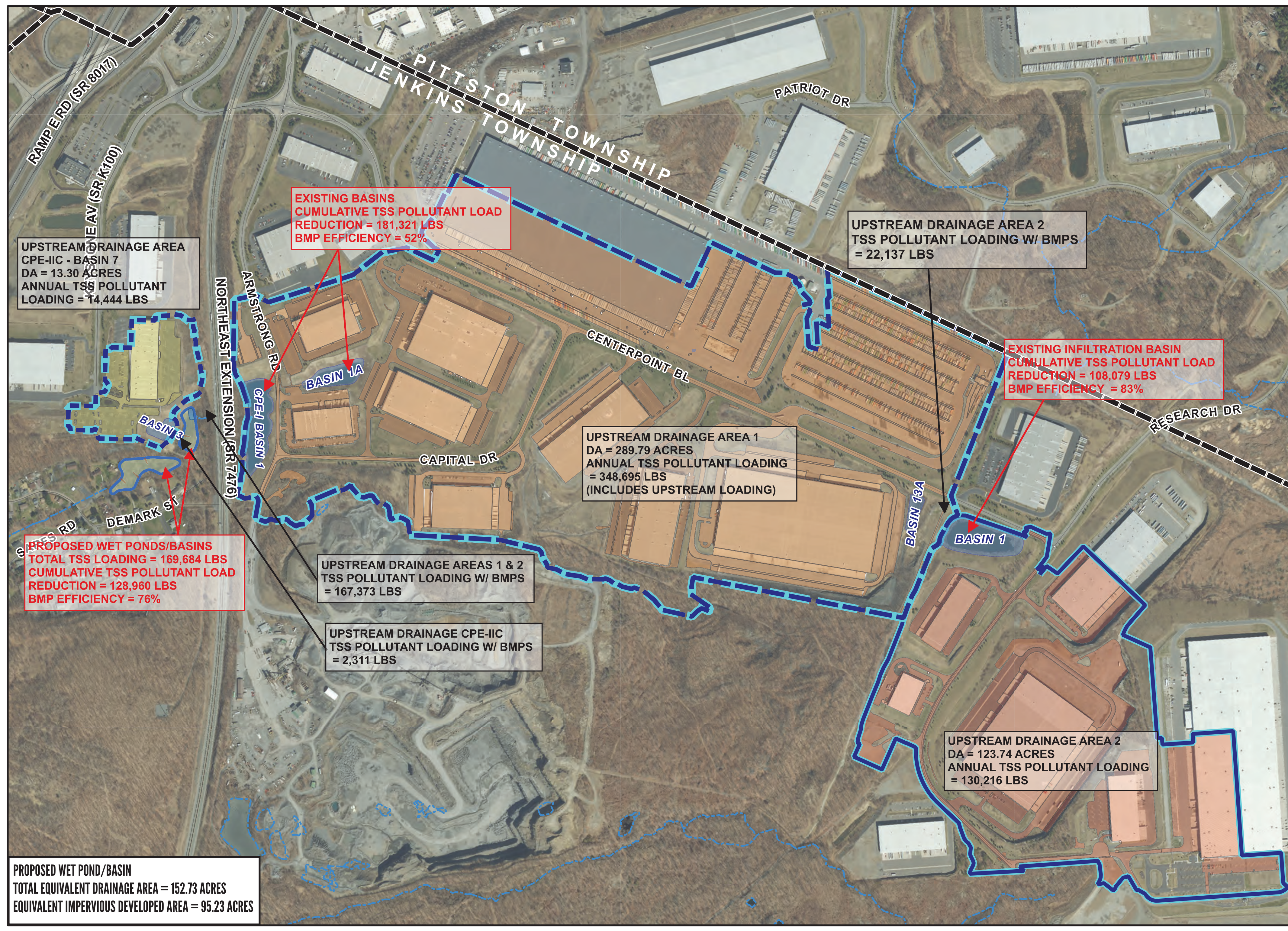
Drawn By / Project Manager BKE/MC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:

C-7-702

File: Q:\Shared\Properties\CPS\Park (J2366)\2366\mdc\dwg-specs\civil\Submissions\WVSA\Plots\LAND.dwg



MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

LEGEND

- Municipal Boundary
- Existing Infiltration Basin
- Post-Development DA-1
- Upstream DA-1 Impervious Area
- Post-Development DA-2
- Upstream DA-2 Impervious Area
- Post-Dev DA-CPEIIC (Lot 7)
- Upstream DA-CPEIIC Imp Area
- Proposed PR Basins/Wet Ponds

PEMA Ortho Photos (2021)

0 350 700 FT

Project Information:

WVSA PARTNERSHIP PROJECT
MS4 POLLUTANT LOADING EVALUATION
CENTERPOINT EAST PHASE I/IIA/IIC
JENKINS TOWNSHIP
LUZERNE COUNTY, PA

Drawing Description:

PROPOSED DEMARK STREET
POLLUTION REDUCTION BASINS

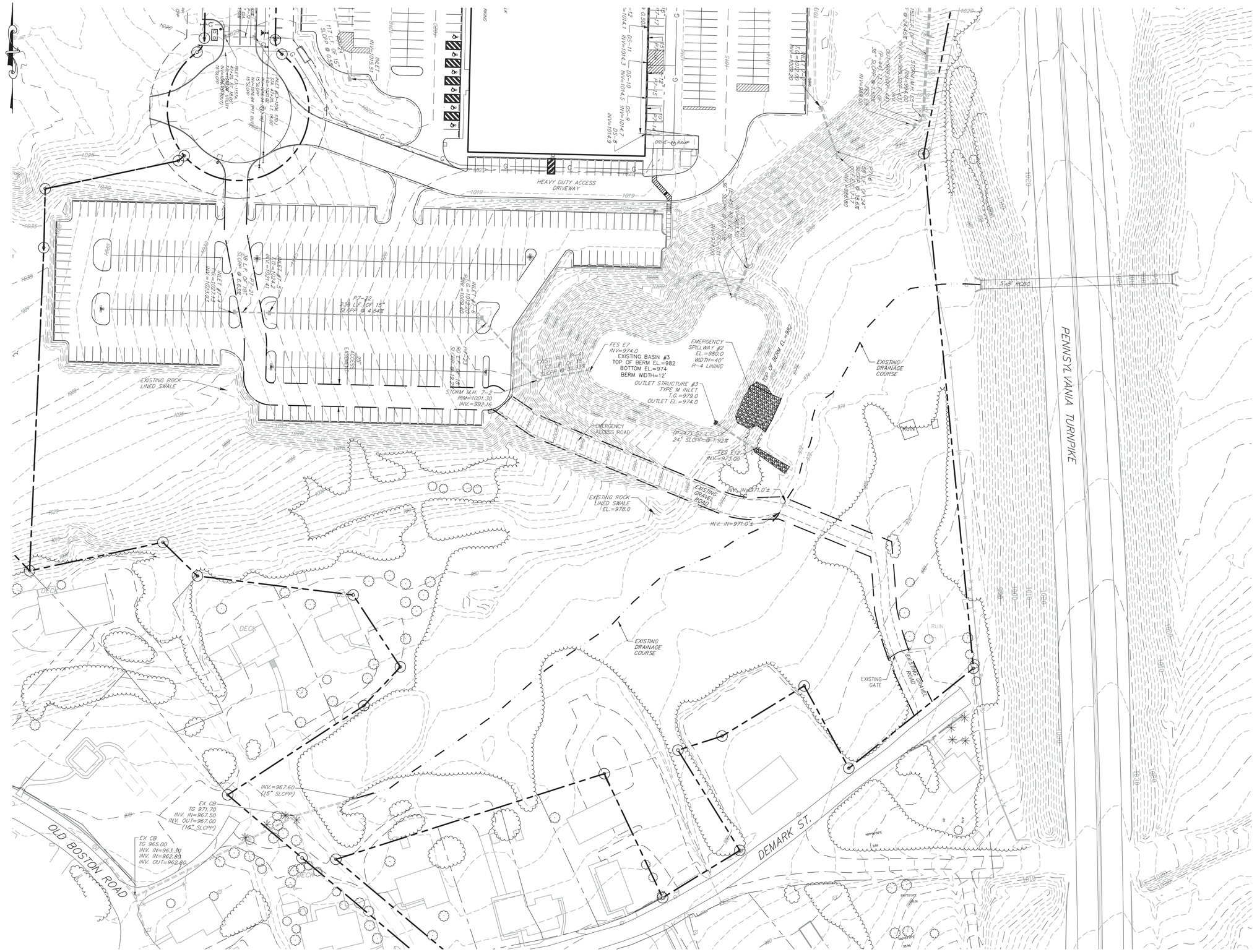
Origin Date: 09/28/2023

Drawn By/PM: MJC/SCM

If stamped VOID this drawing is not for construction. See Project Manager for Revised Drawing

Figure No: 1

File: C:\Users\Matthew\Documents\QGIS Projects\WVSA-Demark St-US Loading Areas.qgz



MERICLE

100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702

Phone: 570.823.1100
Fax: 570.823.3524

Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

CALL BEFORE YOU DIG!

PENNSYLVANIA LAW REQUIRES
3 WORKING DAYS NOTICE FOR
CONSTRUCTION PHASE AND 10 WORKING
DAYS IN DESIGN STAGE - STOP CALL

POCS SERIAL NUMBER

PA 1 SYSTEM, INC.
1-800-242-1776

2020063264
WWW.PAONECALL.ORG

0' 50' 100' 150'

SCALE: 1"=50'

Project Information:

WVSA PARTNERSHIP PROGRAM
CONSTRUCTION PLANS FOR
DEMARK STREET-NE EXT BASIN
JENKINS TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

EXISTING FEATURES PLAN

SEAL

SEAL

Origin Date: 09/25/2023

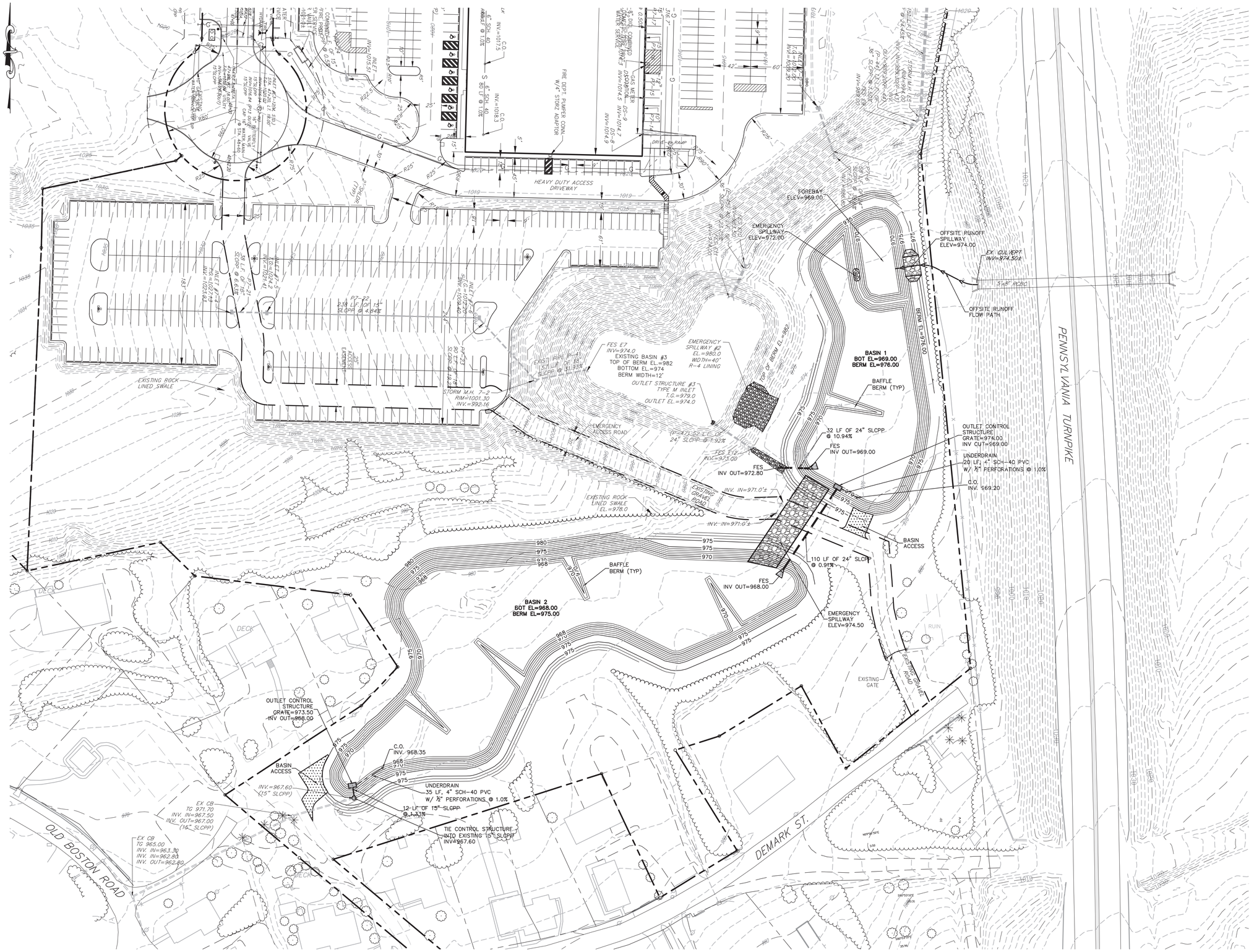
Drawn By / Project Manager BKE/MJC

If stamped VOID this drawing is not for construction.
See Project Manager for Revised Drawing.

Drawing Number:

C-001

File: Q:\Shared\Job 8000\8286\ndc\DWG-SPEC\Civil\Schematic\Demark Street Basin\Plots\C-001 EFP.dwg



MERICLE

100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702

Phone: 570.823.1100
Fax: 570.823.3524

Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
PA1 1-800-242-1776
POCS SERIAL NUMBER 20220063264
WWW.PAONECALL.ORG

0' 50' 100' 150'
SCALE: 1"=50'

Project Information:

WVSA PARTNERSHIP PROGRAM
CONSTRUCTION PLANS FOR
DEMARK STREET-NE EXT BASIN
JENKINS TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

GRADING, DRAINAGE AND EROSION AND SEDIMENTATION CONTROL PLAN

SEAL

SEAL

Origin Date: 09/25/2023

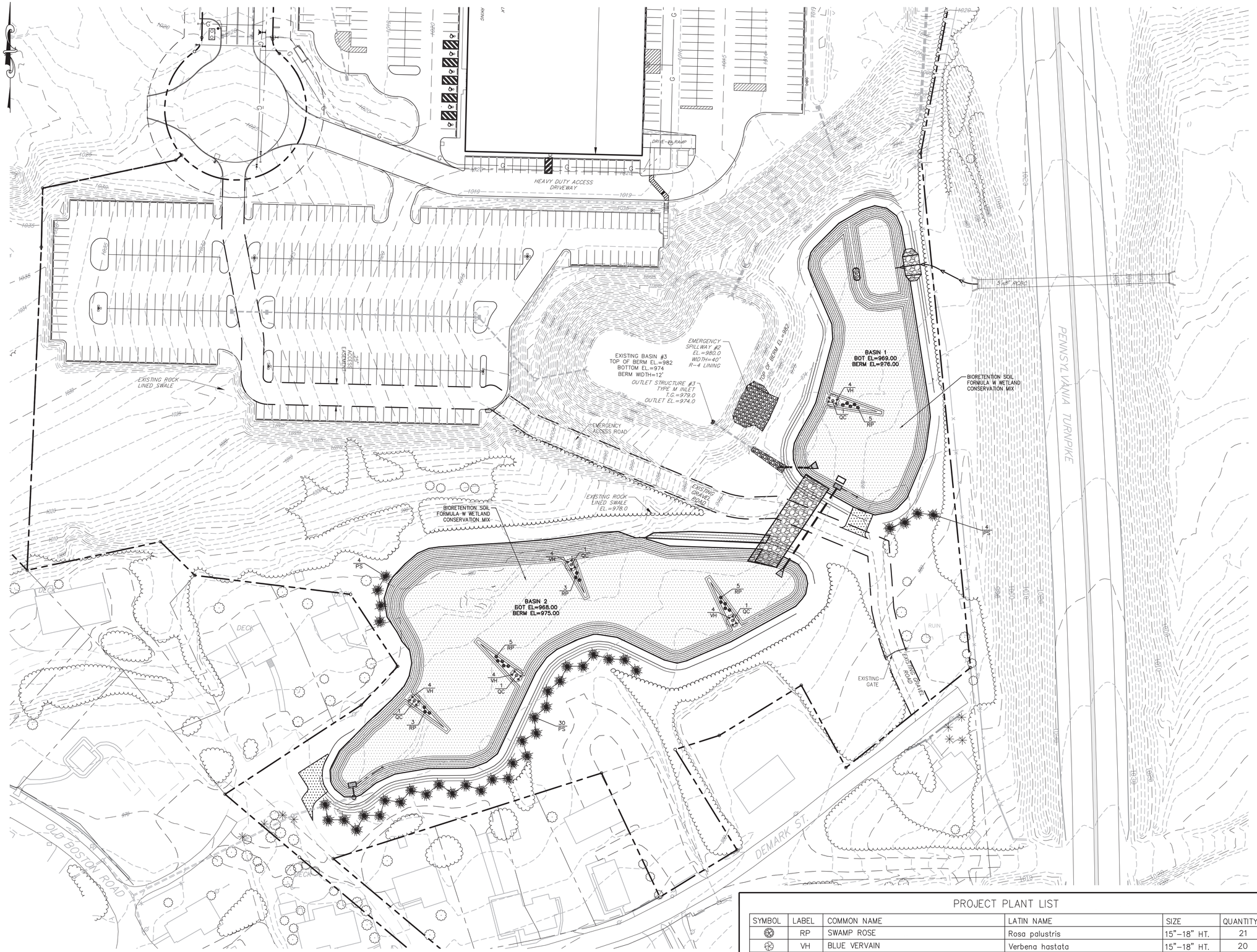
Drawn By / Project Manager BKE/MJC

If stamped VOID this drawing is not for construction. See Project Manager for Revised Drawing.

Drawing Number:

C-200

File: Q:\Shared\Job 80008286\mdc\DWG-SPEC\Civil\Schematic\Demark Street Basin\Plots\C-200 Grading.dwg



PROJECT PLANT LIST

SYMBOL	LABEL	COMMON NAME	LATIN NAME	SIZE	QUANTITY
	RP	SWAMP ROSE	Rosa palustris	15"–18" HT.	21
	VH	BLUE VERVAIN	Verbena hastata	15"–18" HT.	20
	QC	SCARLET OAK	Quercus coccinea	2–½"–3" cal.	5
	PS	EASTERN WHITE PINE	Pinus Strobus	7'–8' HT.	38

MERICLE
100 BALTIMORE DRIVE
WILKES-BARRE, PA 18702
Phone: 570.823.1100
Fax: 570.823.3524
Web Site: www.mericle.com

No.	Date	Revisions / Issued To.....

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE - STOP CALL
POCS SERIAL NUMBER
PA1 1-800-242-1776
2020063264
WWW.PAONECALL.ORG

0' 50' 100' 150'
SCALE: 1"=50'

Project Information:

WVSA PARTNERSHIP PROGRAM
CONSTRUCTION PLANS FOR
DEMARK STREET-NE EXT BASIN
JENKINS TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

Drawing Description:

LANDSCAPE PLAN

SEAL

SEAL

Origin Date: 09/25/2023

Drawn By / Project Manager BKE/MJC

If stamped VOID this drawing is not for construction. See Project Manager for Revised Drawing.

Drawing Number:

C-700

File: Q:\Shared\Job 80008286\mdc\DWG-SPEC\Civil\Schematic\Demark Street Basin\Plots\C-200 Grading.dwg

BORTON LAWSON

STORMWATER MANAGEMENT PROGRAM
WYOMING VALLEY SANITARY AUTHORITY
You 'otter know... we all live downstream.

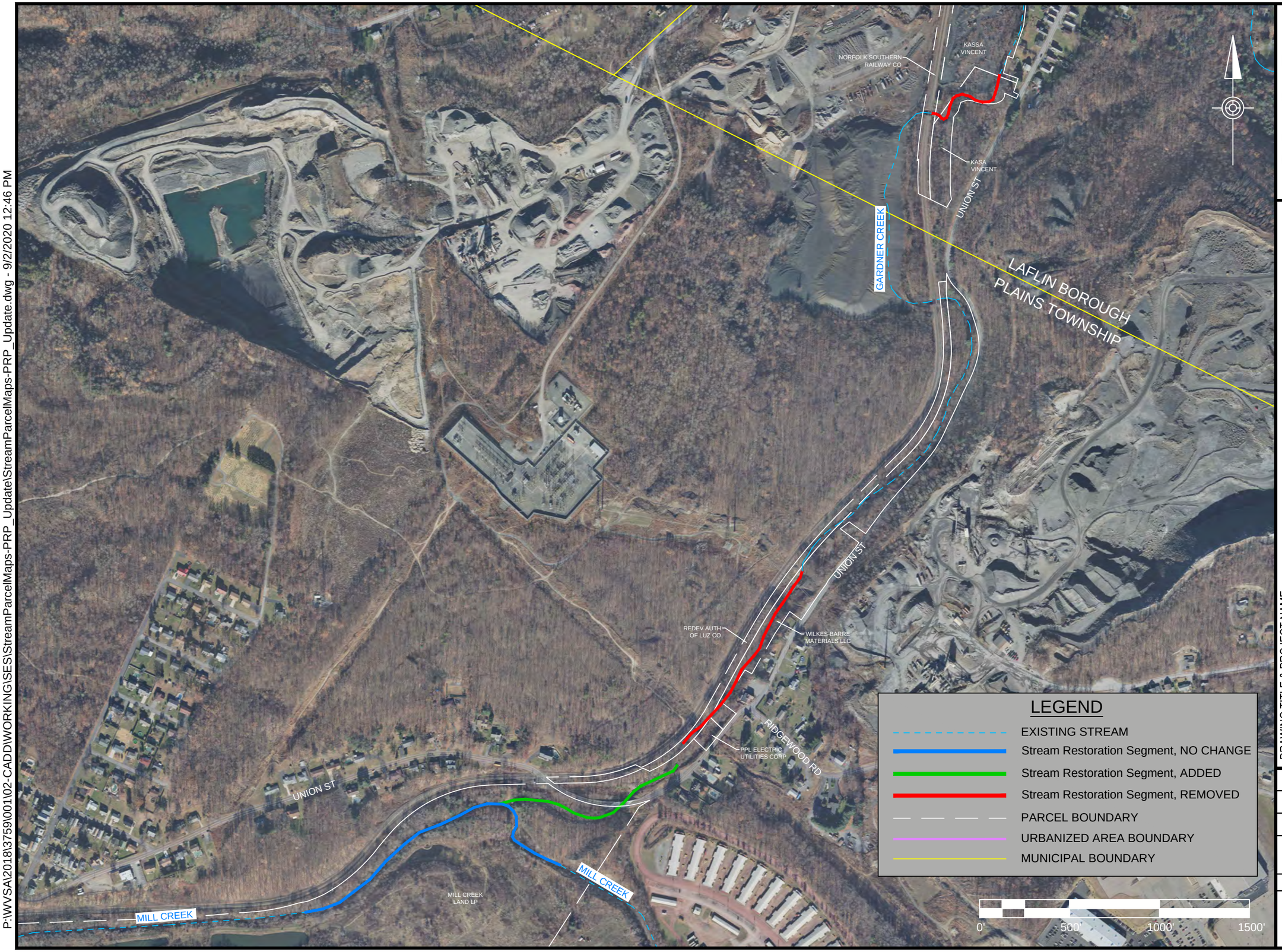
DRAWING TITLE & PROJECT NAME

STREAM RESTORATION MAP SERIES

PRP AMENDMENT NO. 2
ABRAHAMS CREEK
WYOMING VALLEY SANITARY AUTHORITY
FORTY FORT BOROUGH, LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY	MCF
CHECKED BY	LMC
DATE	FEBRUARY 27, 2024
PROJECT NUMBER	2022-5487-002
DRAWING NUMBER	STRM-1B

P:\WVSA\2018\3759001\02-CADD\WORKING\SES\StreamParcelMaps-PRP_Update\StreamParcelMaps-PRP_Update.dwg - 9/2/2020 12:46 PM



BORTON LAWSON

STORMWATER MANAGEMENT PROGRAM
WYOMING VALLEY SANITARY AUTHORITY
You 'otter know... we all live downstream.

DRAWING TITLE & PROJECT NAME

STREAM RESTORATION MAP SERIES

PRP AMENDMENT NO.2
GARDNER CREEK / MILL CREEK
WYOMING VALLEY SANITARY AUTHORITY
PLAINS TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY	SES
CHECKED BY	LMC
DATE	FEBRUARY 27, 2024
PROJECT NUMBER	2018-3759-001
DRAWING NUMBER	STRM-3

P:\WVSA\2018\3759\001\02-CADD\WORKING\SES\StreamParcelMaps-PRP_Update\StreamParcelMaps-PRP_Update.dwg - 9/2/2020 12:46 PM

BORTON LAWSON

STORMWATER MANAGEMENT PROGRAM
WYOMING VALLEY SANITARY AUTHORITY
You 'otter know... we all live downstream.

DRAWING TITLE & PROJECT NAME

STREAM RESTORATION MAP SERIES

PRP AMENDMENT NO.2
LAUREL RUN
WYOMING VALLEY SANITARY AUTHORITY
PLAINS TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY	SES
CHECKED BY	LMC
DATE	FEBRUARY 27, 2024
PROJECT NUMBER	2018-3759-001
DRAWING NUMBER	STRM-4

P:\WVSA\2018\3759\001\02-CADD\WORKING\SES\StreamParcelMaps-PRP_Update\StreamParcelMaps-PRP_Update.dwg - 9/2/2020 12:46 PM

P:\WVSA\2018\3759001\02-CADD\WORKING\SES\StreamParcelMaps-PRP_Update.dwg - 9/2/2020 12:46 PM

LEGEND

- EXISTING STREAM
- Stream Restoration Segment, NO CHANGE
- Stream Restoration Segment, ADDED
- Stream Restoration Segment, REMOVED
- PARCEL BOUNDARY
- URBANIZED AREA BOUNDARY
- MUNICIPAL BOUNDARY

BORTON LAWSON

STORMWATER MANAGEMENT PROGRAM
WYOMING VALLEY SANITARY AUTHORITY
You 'otter know... we all live downstream.

DRAWING TITLE & PROJECT NAME

STREAM RESTORATION MAP SERIES

PRP AMENDMENT NO.2
MILL CREEK
WYOMING VALLEY SANITARY AUTHORITY
PLAINS TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY	SES
CHECKED BY	LMC
DATE	FEBRUARY 27, 2024
PROJECT NUMBER	2018-3759-001
DRAWING NUMBER	STRM-5

P:\WVSA\2018\3759\001\02-CADD\WORKING\SES\StreamParcelMaps-PRP_Update\StreamParcelMaps-PRP_Update.dwg - 9/2/2020 12:46 PM

BORTON LAWSON

STORMWATER MANAGEMENT PROGRAM
WYOMING VALLEY SANITARY AUTHORITY
You 'otter know... we all live downstream.

DRAWING TITLE & PROJECT NAME

STREAM RESTORATION MAP SERIES

PRP AMENDMENT NO.2
MILL CREEK (LACKAWANNA RIVER)
WYOMING VALLEY SANITARY AUTHORITY
PITTSTON TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY	SES
CHECKED BY	SGA
DATE	FEBRUARY 27, 2024
PROJECT NUMBER	2018-3759-001
DRAWING NUMBER	STRM-6

P:\WVSA\2018\3759\001\02-CADD\WORKING\SES\StreamParcelMaps-PRP_Update\StreamParcelMaps-PRP_Update.dwg - 9/2/2020 12:46 PM

BORTON LAWSON

STORMWATER MANAGEMENT PROGRAM
WYOMING VALLEY SANITARY AUTHORITY
You 'otter know... we all live downstream.

DRAWING TITLE & PROJECT NAME

STREAM RESTORATION MAP SERIES

PRP AMENDMENT NO.2
NEWPORT CREEK
WYOMING VALLEY SANITARY AUTHORITY
CITY OF NANTICOKE, LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY	SES
CHECKED BY	LMC
DATE	FEBRUARY 27, 2024
PROJECT NUMBER	2018-3759-001
DRAWING NUMBER	STRM-7

LEGEND

- EXISTING STREAM
- Stream Restoration Segment, NO CHANGE
- Stream Restoration Segment, ADDED
- Stream Restoration Segment, REMOVED
- PARCEL BOUNDARY
- URBANIZED AREA BOUNDARY
- MUNICIPAL BOUNDARY

BORTON LAWSON

STORMWATER MANAGEMENT PROGRAM
WYOMING VALLEY SANITARY AUTHORITY
You 'otter know... we all live downstream.

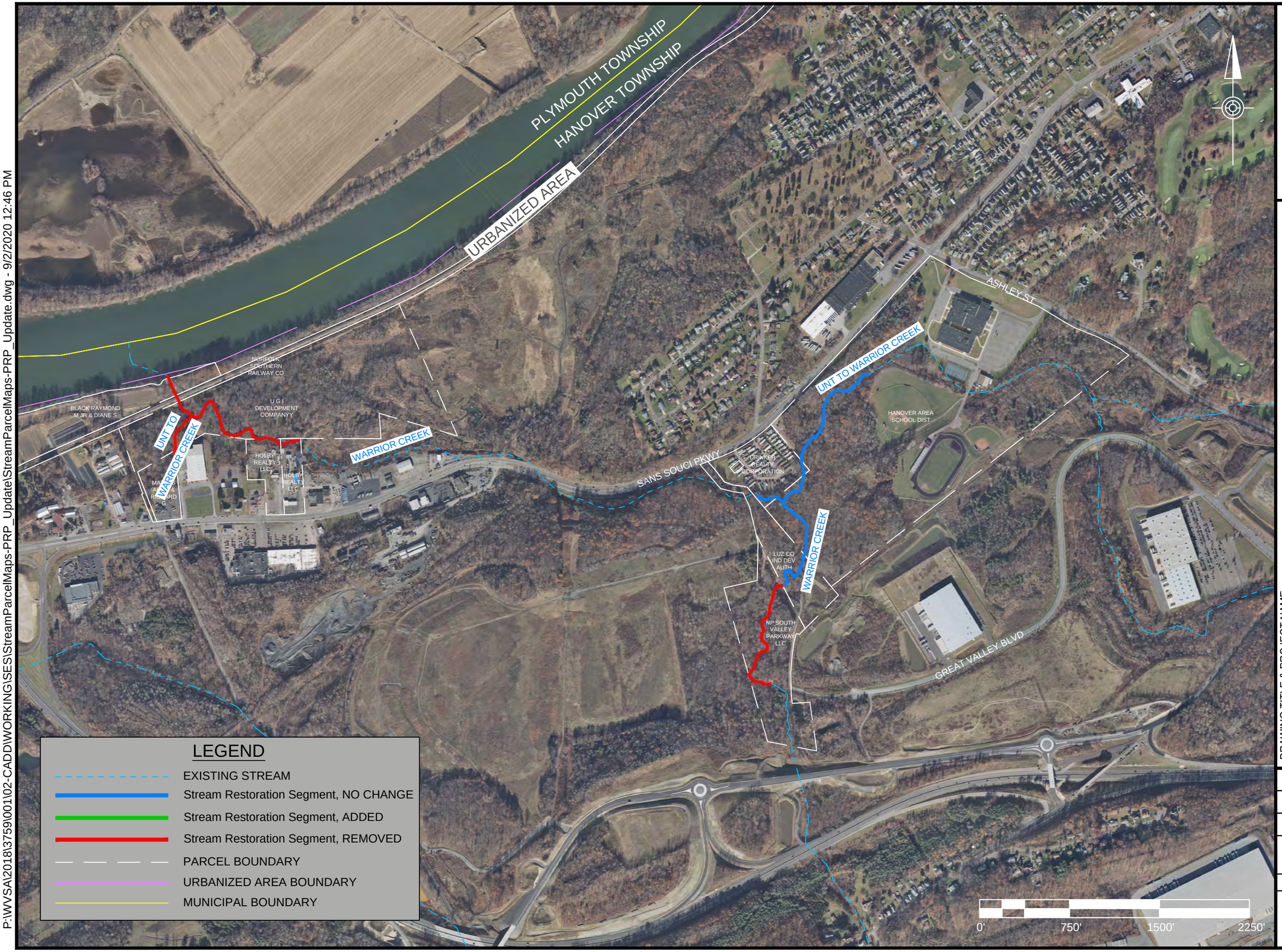
DRAWING TITLE & PROJECT NAME

STREAM RESTORATION MAP SERIES

PRP AMENDMENT NO.2
UNT TO SUSQUEHANNA RIVER
WYOMING VALLEY SANITARY AUTHORITY
PITTSTON TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY	SES
CHECKED BY	LMC
DATE	FEBRUARY 27, 2024
PROJECT NUMBER	2018-3759-001
DRAWING NUMBER	STRM-10

P:\WVSA\2018\3759\001\02-CADD\WORKING\SES\StreamParcelMaps-PRP_Update\StreamParcelMaps-PRP_Update.dwg - 9/2/2020 12:46 PM



P:\WVSA\2018\3759\001102-CADD\WORKING\SES\StreamParcelMaps-PRP_Update.dwg - 9/2/2020 12:46 PM

BORTON LAWSON

STORMWATER MANAGEMENT PROGRAM
WYOMING VALLEY SANITARY AUTHORITY
You 'otter know... we all live downstream.

DRAWING TITLE & PROJECT NAME

STREAM RESTORATION MAP SERIES

PRP AMENDMENT NO.2
WARRIOR CREEK
WYOMING VALLEY SANITARY AUTHORITY
HANOVER TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

DRAWN BY	SES
CHECKED BY	LMC
DATE	FEBRUARY 27, 2024
PROJECT NUMBER	2018-3759-001
DRAWING NUMBER	STRM-11

APPENDIX VI-A

PROPOSED BMPS

BASIN RETROFIT PROJECTS
POLLUTANT LOAD REDUCTION CALCULATIONS

Swoyersville – Townsend Avenue Basin Retrofit

Townsend Avenue, Swoyersville Borough (41.180930, -75.521180)

General Information

Ownership: Public
Watershed: Abrahams Creek
Outfall Stream: Abrahams Creek (CWF, MF)
Stream Impairment: Attaining Designated Use

BMP General Information

Drainage area to BMP: ~~363~~ 640.44 acres
Total footprint: 6.1 acres

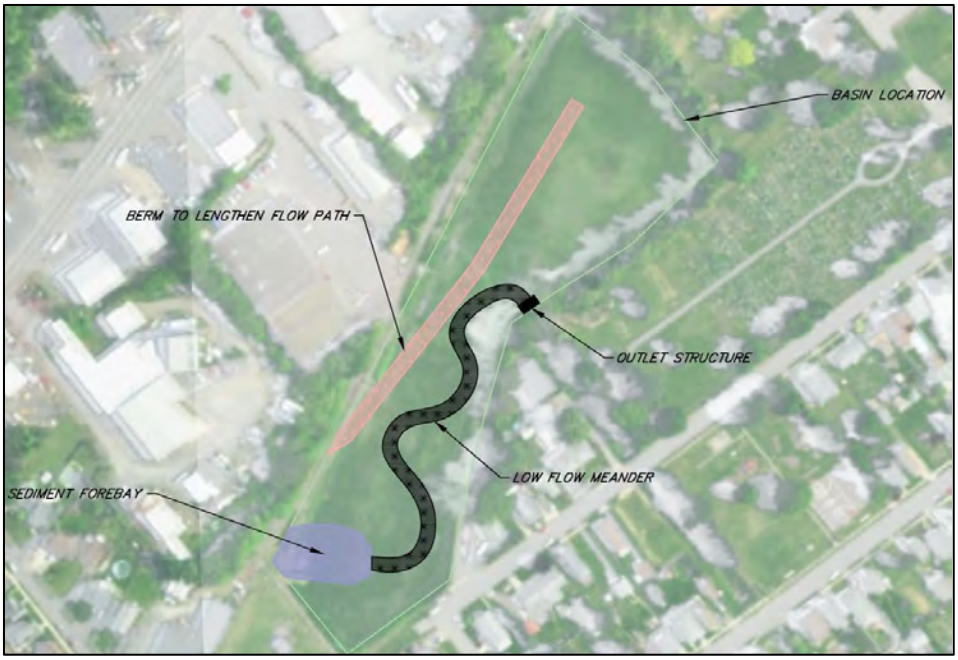
Estimated Pollutant Load Reduction

	TSS (lbs/yr)
Total Estimated Load to Basin	~~139,614~~ 157,275
BMP Efficiency (Expert Panel Report)	~~91%~~ 79%
Basin Retrofit Load Reduction	~~127,049~~ 124,247

Existing Conditions

- Mowed detention basin requiring maintenance to remove accumulated sediment
- Stormwater conveyed to basin via a stormsewer outfall and overland flow
- Area surrounding basin maintained as mowed lawn
- Low flow channel is overgrown and eroded
- Inlet and outfall structures are overgrown and clogged with vegetation and sediment

Proposed Site Upgrades



- Repair eroded low flow channel and introduce a meander
- Retrofit outfall structure
- Expand basin and regrade to include a sediment forebay, berms to increase the flow length of overland flow and a micropool at the outfall structure
- ~~Evaluate existing soils, add amended soils as needed to promote infiltration~~
- Evaluate existing vegetation, remove invasives, and supplement existing vegetation with additional water quality plantings
- Add meadow planting area around perimeter of basin
- Develop an operations and maintenance (O&M) program to ensure continued functionality of basin
- Place educational signage

Swoyersville – Creek Street Basin Retrofit

Creek Street, Swoyersville Borough (41.174240, -75.522797)

General Information

Ownership:	Public
Watershed:	Abrahams Creek
Outfall Stream:	Abrahams Creek (CWF, MF)
Stream Impairment:	Attaining Designated Use

BMP General Information

Drainage area to BMP:	~~349~~ 583.04 acres
Total footprint:	7.7 acres

Estimated Pollutant Load Reduction

	TSS (lbs/yr)
Total Estimated Load to Basin	~~157,919~~ 307,827
BMP Efficiency (Expert Panel Report)	~~91%~~ 79%
Basin Retrofit Load Reduction	~~143,706~~ 243,183

Existing Conditions

- Mowed detention basin requiring maintenance to remove accumulated sediment
- Stormwater conveyed to basin via concrete encased channel and overland flow
- Area of basin maintained as mowed lawn
- Low flow channel is overgrown and eroded
- Inlet and outfall structures are overgrown and clogged with vegetation and sediment

Proposed Site Upgrades

- Repair eroded low flow channel and introduce a meander
- Retrofit outfall structure
- Expand basin and regrade to include a sediment forebay and a micropool at the outfall structure
- ~~Evaluate existing soils, add amended soils as needed to promote infiltration~~
- Evaluate existing vegetation, remove invasives, and supplement existing vegetation with additional water quality plantings
- Add meadow planting area around perimeter of basin
- Develop an operations and maintenance (O&M) program to ensure continued functionality of basin
- Place educational signage

Exeter – Donna's Way Basin Retrofit

Donna's Way, Exeter Borough (41.2834, -75.8857)

General Information

Ownership:	Public
Outfall:	Hicks Creek
Stream Impairment:	Impaired
Designated Use:	CWF, MF

BMP General Information

Drainage area to BMP:	17.9 acres
Total footprint:	0.5 acres

Estimated Pollutant Load Reduction

	TSS (lbs/yr)
Total Estimated Load to Basin	~~12,328~~ 9,363
BMP Efficiency (Expert Panel Report)	~~84%~~ 79%
Basin Retrofit Load Reduction	~~10,356~~ 7,397

Existing Conditions

Post construction stormwater management basin.

No water quality design featured in this basin.

Outlet control structure discharges to Hick's Creek.

Parts of the basin have developed wetland flora.

For Public Review

Proposed Site Upgrades

- Introduce a low flow channel.
- Install baffles or an earthen berm to prevent short circuiting.
- Construct a sediment forebay.
- Construct a micropool near the outlet control structure.
- Retrofit outlet structure.
- ~~Evaluate existing soils, add amended soils as needed to promote infiltration.~~
- Evaluate existing vegetation, remove invasives, and supplement existing vegetation with additional water quality plantings.
- Develop an operations and maintenance (O&M) program to ensure continued functionality of basin.
- Place educational signage.

Swoyersville – Slocum St Basin Retrofit

Slocum St, Swoyersville Borough (41.2834, -75.8857)

General Information

Ownership:	Public
Outfall:	Toby Creek
Stream Impairment:	Attaining
Designated Use:	WWF, MF

BMP General Information

Drainage area to BMP:	223.8 acres
Total footprint:	~~8~~ 6.5 acres

Estimated Pollutant Load Reduction

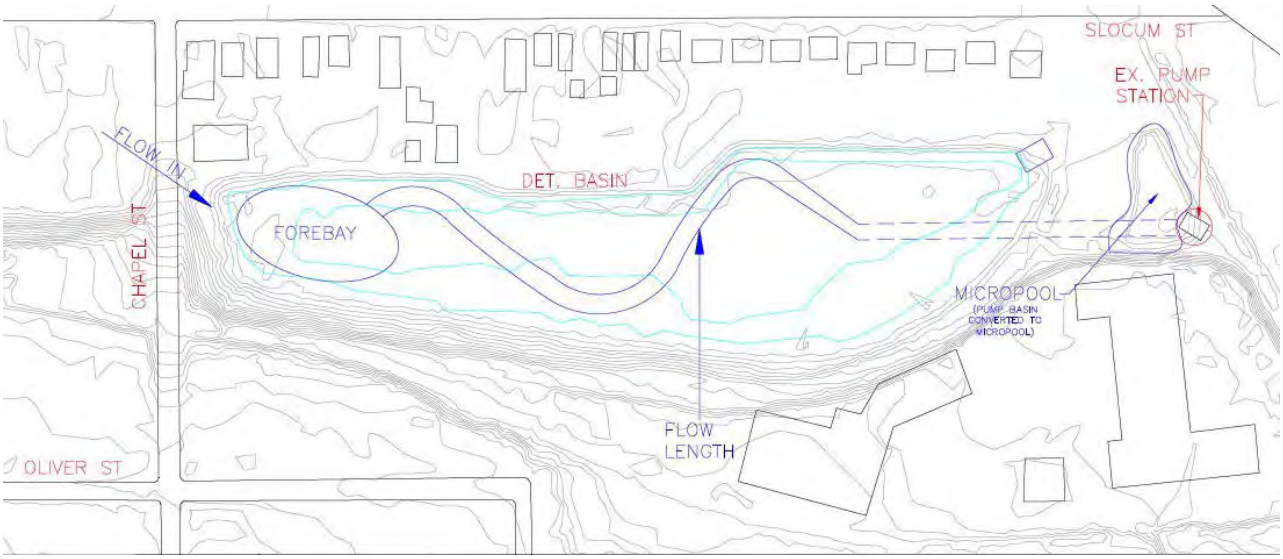
	TSS (lbs/yr)
Total Estimated Load to Basin	120,276
BMP Efficiency (Expert Panel Report)	~~84%~~ 79%
Basin Retrofit Load Reduction	~~101,032~~ 95,018

Existing Conditions

Flood control basin with sediment forebay.
Existing sediment forebay has not been maintained and is filled with sediment.
Low flow channel extends along the east side of the basin.
Groundwater collector swale extends along the west side of the basin.
Primary basin drains beneath an adjacent property and discharges to a ponding area near the existing pump station.
Stormwater conveyed to basin via a culvert at the north end of the basin. A 36" pipe serves to drain the basin into the pump station ponding area.
Parts of the basin and pump station ponding area have developed into wetlands.

Proposed Site Upgrades

- Introduce a meandering low flow channel.
- Retrofit outfall structure.
- Clean out and expand the existing sediment forebay.
- Convert pump basin to a micropool near the existing pump house.
- ~~Evaluate existing soils, add amended soils as needed to promote infiltration~~.
- Evaluate existing vegetation, remove invasives, and supplement existing vegetation with additional water quality plantings.
- Develop an operations and maintenance (O&M) program to ensure continued functionality of basin.
- Place educational signage.



*FLOW LENGTH ≈ 1000 FT

*MICROPOOL V ≈ 10% OF TOTAL BASIN V

*FOREBAY V ≈ 20% OF TOTAL BASIN V FOR 2 YEAR, 24 HOUR STORM FOR SINGLE INLET

*NOTE: VALUES ARE ESTIMATES BASED ON STANDARD ENGINEERING PRACTICES

City of Wilkes-Barre – MotorWorld Basin Retrofit

MotorWorld Complex, City of Wilkes-Barre (41.2561, -75.8399)

General Information

Ownership:	Private
Outfall:	Laurel Run
Stream Impairment:	Impaired
Designated Use:	CWF, MF

BMP General Information

Drainage area to BMP:	35.37 acres
Total footprint of Basin:	0.99 acres

Estimated Pollutant Load Reduction

	TSS (lbs/yr)
Total Estimated Load to Basin	31,084
Ex. NPDES Permit (10% Reduction)	27,976
BMP Efficiency (Expert Panel Report)	62%
Basin Retrofit Load Reduction	17,345

Existing Conditions

Well maintained basin.

No water quality design featured in this basin.

Outlet control structure discharges to Laurel Run.

Some ponding after rain events.

Proposed Site Upgrades

- Create sediment forebay at entrance with stone berm.
- Create low point in stone berm with meandering channel to outlet.
- Modify existing outlet structure with smaller orifice to extend the detention time of the 2-yr recurrence frequency storm, and smaller events.

Wilkes-Barre Township – Wyoming Valley Mall Basin Retrofit

Wyoming Valley Mall, Wilkes-Barre Township (41.2444, -75.8482)

General Information

Ownership:	Public
Outfall:	UNT to Laurel Run
Stream Impairment:	Unimpaired
Designated Use:	CWF, MF

BMP General Information

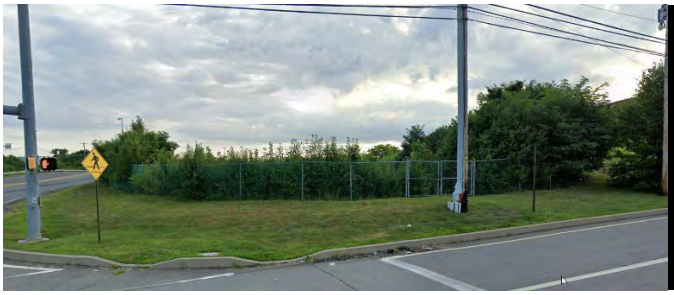
Drainage area to BMP:	68.57 acres
Total footprint:	1.64 acres

Estimated Pollutant Load Reduction

	TSS (lbs/yr)
Total Estimated Load to Basin	102,901
BMP Efficiency (Expert Panel Report)	78%
Basin Retrofit Load Reduction	80,263

Existing Conditions

Excessive vegetation on banks of basin.
Evidence of slight meandering channel.
Deposition of sediments in channel.



Proposed Site Upgrades

- Create sediment forebay at entrance with stone berm.
- Create low point in stone berm with meandering channel.
- Modify existing outlet structure with smaller orifice to extend the detention time of the 2-yr recurrence frequency storm, and smaller events.

Jenkins Township – Main Street Basin Modification

Main Street/Pittston By-Pass, Jenkins Township (41.304872, -75.802864)

General Information

Ownership:	Private
Outfall:	Susquehanna River
Stream Impairment:	Impaired
Designated Use:	WWF, MF

BMP General Information

Drainage area to BMP:	141 acres
Total footprint:	2 acres

Estimated Pollutant Load Reduction

	TSS (lbs/yr)
Total Estimated Load to Basin	84,654
BMP Efficiency (Expert Panel Report)	69%
Basin Retrofit Load Reduction	58,412

Existing Conditions

Well maintained basin

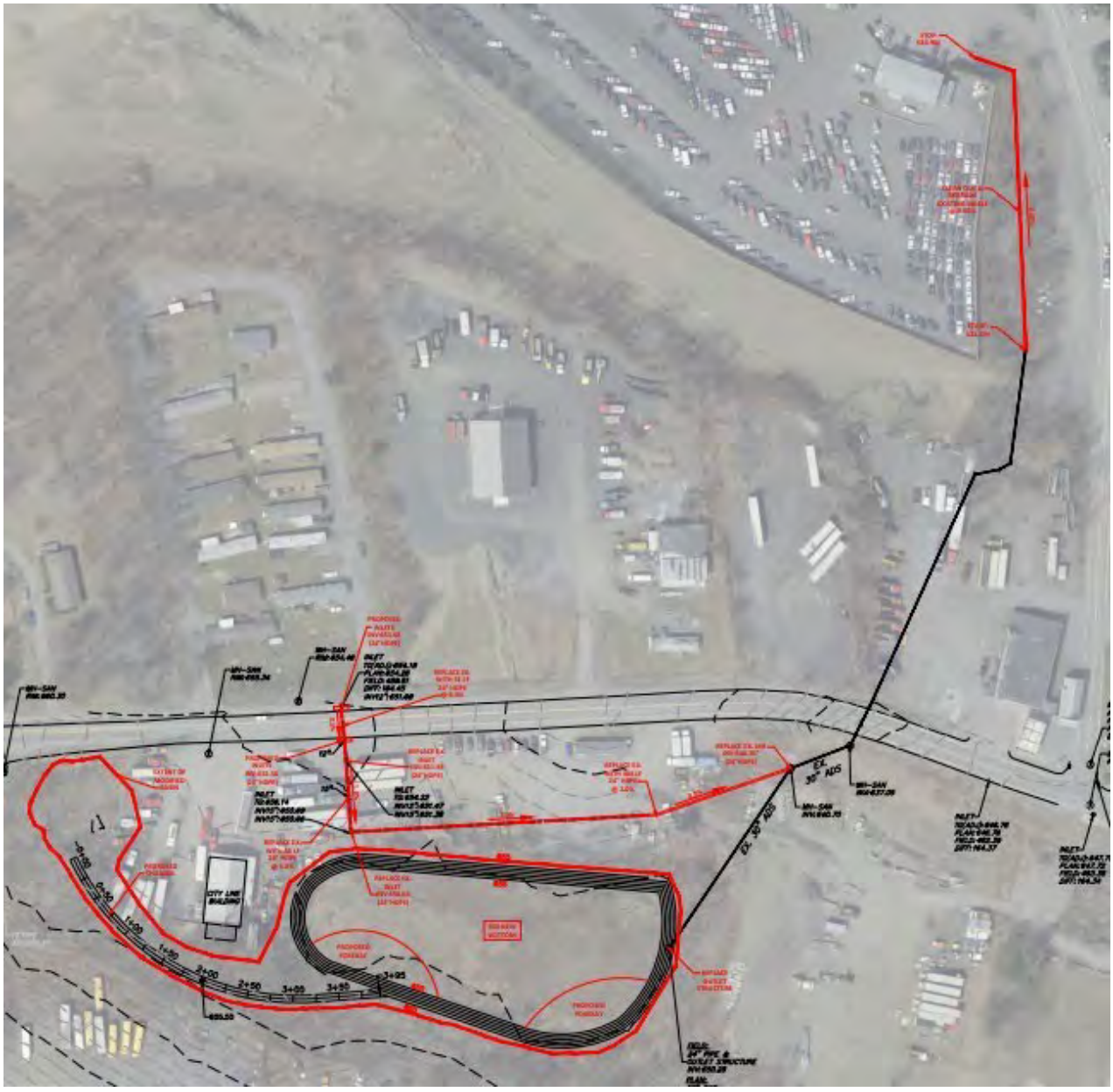
No water quality design featured in this basin.

Ponding on adjacent road.

Some ponding after rain events

Proposed Site Upgrades

- Lower bed of basin to increase holding capacity.
- Create sediment forebays at entrances with stone berm.
- Create vegetated channel downstream of basin to prevent ponding.



Hanover – 165 New Commerce Blvd Basin Retrofit

165 New Commerce Blvd., Hanover Township (41.2100°, -75.9268°)

General Information

Ownership:	Private
Outfall:	UNT to Warrior Creek
Stream Impairment:	Non Attaining-Impaired
Designated Use:	CWF, MF

BMP General Information

Drainage Area to BMP:	19.13 acres
Total Footprint:	0.339 acre

Estimated Pollutant Load Reduction

Total Estimated Load to Basin: 17,831 TSS (lbs/yr)
*Existing NPDES Permit: 16,048 TSS(lbs/yr)
BMP Efficiency*: 77%
Basin Retrofit Load Reduction: 12,357 TSS (lbs/yr)

* - 10% reduction applied to basins with NPDES permit

Existing Conditions

- Designed/constructed as a flood control basin for commercial development
- Stormwater conveyed to basin via inlets, storm pipes, and vegetated swales
- Outlet structure designed to manage peak rate runoff via 15” pipe
- Basin runoff is conveyed to headwaters of UNT to Warrior Creek
- Current basin vegetation is mix of native grasses, shrubs, and trees

Proposed Retrofit

- Conversion of a dry pond to an extended detention basin
- Construct sediment forebays at inlets of swales
- Construct micropools to increase storage capacity
- Modify outlet control structure to increase storage capacity
- Provide amended soils and compost as needed with supplemental water quality vegetation/plantings
- Install a 4" PVC underdrain with ½" perforations. Calculations reflect a draw down time of ponding water within 72 hrs.
- Riser structure modifications to include plugging existing, 12" low orifice and V-notch, installing 6" riser extension, installing 2, 6" orifices at varying elevations
- Peak flows were analyzed using Bentley PondPack V8i software to ensure that retrofit conditions do not increase outflows compared to existing conditions (see Table 1 below).
- Operations and maintenance (O&M) Plan developed to ensure the continued functionality

Table 1. – Summary of Modeling Results
Existing vs Retrofit Conditions

EXISTING CONDITIONS				***RETROFIT CONDITIONS***			
Type M Inlet-TG @ 712.25 V-notch (30°) @ 710.26 12" orifice @ 707.76				Type M Inlet w/ 6' Riser Ext-TG @ 712.75 2, 6" orifices @ 708.75 2, 6" orifices @ 710.00 2, 6" orifices @ 711.00			
Return Event (years)	**Inflow (cfs)**	**Outflow (cfs)**	**Max Water Surface Elevation (ft)**	**Return Event (years)**	**Inflow (cfs)**	**Outflow (cfs)**	**Max Water Surface Elevation (ft)**
1	29.88	21.18	712.52	1	29.88	3.84	710.85
2	40.40	33.85	712.96	2	40.40	6.24	711.77
5	57.06	50.90	713.38	5	57.06	10.19	713.11
10	72.37	65.54	713.70	10	72.37	31.04	713.86
25	96.69	87.44	714.13	25	96.69	67.79	714.30
50	119.59	108.36	714.51	50	119.59	99.09	714.59
100	146.66	134.27	714.94	100	146.66	128.48	714.82

Runoff Volume Retention

- Total runoff volume to the basin is 2.618 ac-ft for the 2-yr, 24-hr storm event
- Runoff from impervious areas to the basin is 2.040 ac-ft for the 2-yr, 24-hr storm event
- Total retention volume of the retrofit basin is 1.492 ac-ft for the 2-yr, 24-hr storm event
- The retrofit basin has been designed to reduce outflows for all storms as mentioned above with plantings and 2-ft of planting media to promote evapotranspiration.
- Regular inspections and maintenance will ensure that functionality of the retrofit basin
- Install a 4" PVC underdrain with ½" perforations. Calculations reflect a draw down time of ponding water to be 46 hrs
- Retrofit basin volume and bottom area will be increased substantially
- The basin retrofit is intended to improve overall water quality. Estimated pollutant reduction is based on the treatment efficiency curve from the "Recommendations of the Expert Panel to Define Removal Rates for Urban Stormwater Retrofit Projects", dated January 20, 2015

Table 2.

Runoff Volume Calculations for Drainage Area to Basin

Soil Type	HSG	Land Use/Condition	CN	Area (sf)	Area (ac)
Impervious	N/A	Impervious	98	415,126.80	9.53
	C	Woods	70	270,507.60	6.21
	C	Lawn/Good	77	147,668.40	3.39
			Total	**833,302.80**	**19.13**

2-year event (in) 2.8

Cover Type/ Condition	HSG	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q, Runoff (in)	Runoff Volume (ft3)	Runoff Volume (ac-ft)
Impervious	N/A	415,126.80	9.53	98	0.20	0.04	2.57	88,877.17	2.040
Woods	C	270,507.60	6.21	70	4.29	0.86	0.61	13,661.28	0.314
Lawn/Good	C	147,668.40	3.39	77	2.99	0.60	0.93	11,503.81	0.264
TOTALS:		833,302.80	19.13				4.11	114,042.27	2.618

Runoff Volume from Impervious Areas =	**2.040 ac-ft**
Total Runoff Volume =	**2.618 ac-ft**

Design Retrofit Basin Volume =	**1.492 ac-ft**

Table 3 - Proposed Basin Retrofit Runoff Treatment

BASIN	WATER-SURFACE ELEVATION	AREA (SF)	AVERAGE AREA (SF)	ELEVATION DIFFERENCE (FT)	STORAGE VOLUME (CF)		STORAGE VOLUME (AC-FT)		RUNOFF TREATED (IN) [RS*12/IA]	SEDIMENT REMOVAL (%)
					INCREMENTAL	TOTAL	INCREMENTAL	TOTAL		
Hanover-165 New Commerce Blvd Basin Retrofit	707	6,293	----	----	2,517	2,517	0.06	0.06	0.07	14
	708	8,371	7,332	1	7,332	9,849	0.17	0.23	0.28	43
	709	9,674	9,022	1	9,022	18,871	0.21	0.43	0.55	61
	710	11,100	10,387	1	10,387	29,258	0.24	0.67	0.85	70
	711	12,477	11,789	1	11,789	41,047	0.27	0.94	1.19	73
	712	13,750	13,114	1	13,114	54,160	0.30	1.24	1.57	74
	713	**15,082**	**14,416**	**1**	**14,416**	**68,576**	**0.33**	**1.57**	**1.88**	**77**
	714	16,474	15,778	1	15,778	84,354	0.36	1.94	2.44	78

- **bold text** notes effective treatment elevation

Hanover – 300 Lasley Ave Basin Retrofit

300 Lasley Ave., Hanover Township (41.2029°, -75.9297°)

General Information

Ownership:	Private
Outfall:	UNT to Warrior Creek
Stream Impairment:	Non Attaining-Impaired
Designated Use:	CWF, MF

BMP General Information

Drainage Area to BMP:	23.23 acres
Total Footprint:	0.999 acre

Estimated Pollutant Load Reduction

Total Estimated Load to Basin:	20,151 TSS (lbs/yr)
*Existing NPDES Permit:	18,136 TSS (lbs/yr)
BMP Efficiency:	79%
Basin Retrofit Load Reduction:	14,327 TSS (lbs/yr)

* - 10% reduction applied to basins with NPDES permit

Existing Conditions

- Designed/constructed as a flood control basin for commercial development
- Stormwater conveyed to basin via inlets and a 36” pipe
- Outlet structure designed to manage peak rate runoff via 24” pipe
- Basin runoff is conveyed to headwaters of UNT to Warrior Creek
- Current basin vegetation is mix of native grasses and shrubs

Proposed Retrofit

- Conversion of a dry pond to an extended detention basin
- Construct sediment forebay at inlets of existing storm pipe
- Construct micropool to increase storage capacity near outlet control structure
- Modify outlet control structure to increase storage capacity
- Provide amended soils and compost as needed with supplemental water quality vegetation/plantings
- Install a 4” underdrain to draw down ponding within 72 hours
- Riser structure modifications to include plugging existing, 12” low orifice and V-notch, installing 6” riser extension, installing 2, 8” orifices at varying elevations
- Peak flows were analyzed using Bentley PondPack V8i software to ensure that retrofit conditions do not increase outflows compared to existing conditions (see Table 1 below).
- Operations and maintenance (O&M) Plan developed to ensure the continued functionality

Table 1. – Summary of Modeling Results
Existing vs Retrofit Conditions

EXISTING CONDITIONS Type M Inlet-TG @ 661.18 18" orifice @ 656.60				***RETROFIT CONDITIONS*** Type M Inlet w/ 6" Riser Ext -TG @ 661.68 2, 8" orifices @ 658.00			
Return Event (years)	Inflow (cfs)	Outflow (cfs)	Max Water Surface Elevation (ft)	Return Event (years)	Inflow (cfs)	Outflow (cfs)	Max Water Surface Elevation (ft)
1	33.61	1.25	657.32	1	33.61	1.06	657.49
2	46.22	2.58	657.67	2	46.22	1.64	658.04
5	65.40	5.19	658.24	5	65.40	3.12	658.78
10	83.03	7.32	658.83	10	83.03	5.99	659.53
25	111.06	10.17	659.81	25	111.06	9.45	660.65
50	137.48	12.45	660.74	50	137.48	11.76	661.60
100	168.71	22.62	661.61	100	168.71	36.26	662.24

Runoff Volume Retention

- Total runoff volume to the basin is 3.01 ac-ft for the 2-yr, 24-hr storm event
- Runoff from impervious areas to the basin is 2.25 ac-ft for the 2-yr, 24-hr storm event
- Total retention volume of the retrofit basin is 3.96 ac-ft for the 2-yr, 24-hr storm event
- The retrofit basin has been designed to reduce outflows for all storms as mentioned above with plantings and 2-ft of planting media to promote evapotranspiration.
- Regular inspections and maintenance will ensure that functionality of the retrofit basin
- Install a 4" PVC underdrain with ½" perforations. Calculations reflect a draw down time of ponding water to be 57 hrs.
- Retrofit basin volume and bottom area will be increased substantially
- The basin retrofit is intended to improve overall water quality. Estimated pollutant reduction is based on the treatment efficiency curve from the "Recommendations of the Expert Panel to Define Removal Rates for Urban Stormwater Retrofit Projects", dated January 20, 2015.

Table 2.
Runoff Volume Calculations for Drainage Area to Basin

Soil Type	HSG	Land Use/Condition	CN	Area (sf)	Area (ac)
Impervious	N/A	Impervious	98	458,251.20	10.52
	C	Woods/Good	70	388,555.20	8.92
	D	Woods/Good	77	46,173.60	1.06
	C	Lawn/Good	74	50,965.20	1.17
	D	Lawn/Good	80	67,953.60	1.56
			Total	**1,011,898.80**	**23.23**

2-year event (in) 2.8

Cover Type/ Condition	HSG	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q, Runoff (in)	Runoff Volume (ft3)	Runoff Volume (ac-ft)
Impervious	N/A	458,251.20	10.52	98	0.20	0.04	2.57	98,109.95	2.252
Woods/Good	C	388,555.20	8.92	70	4.29	0.86	0.61	19,622.97	0.450
Woods/Good	D	46,173.60	1.06	77	2.99	0.60	0.93	3,597.06	0.083
Lawn/Good	C	50,965.20	1.17	74	3.51	0.70	0.78	3,329.56	0.076
Lawn/Good	D	67,953.60	1.56	80	2.50	0.50	1.10	6,240.88	0.143
TOTALS:		1,011,898.80	23.23				4.89	130,900.42	3.005

Runoff Volume from Impervious Areas =	**2.25 ac-ft**
Total Runoff Volume =	**3.01 ac-ft**

Design Retrofit Basin Volume =	**3.96 ac-ft**

Table 3. Proposed Basin Retrofit Runoff Treatment

BASIN	WATER-SURFACE ELEVATION	AREA (SQ. FT.)	AVERAGE AREA (SQ. FT.)	ELEVATION DIFFERENCE (FT)	STORAGE VOLUME (CUBIC FEET)		STORAGE VOLUME (ACRE-FEET)		RUNOFF TREATED (IN) [RS*12/IA]	SEDIMENT REMOVAL (%)
					INCREMENTAL	TOTAL	INCREMENTAL	TOTAL		
Hanover-300 Lasley Ave Basin Retrofit	656	26,085	----	----	10,434	10,434	0.24	0.24	0.27	38
	657	28,458	27,272	1	27,272	37,706	0.63	0.87	0.99	72
	658	31,165	29,811	1	29,811	67,517	0.68	1.55	1.77	78
	659	33,961	32,563	1	32,563	100,080	0.75	2.30	2.62	79
	660	36,120	35,040	1	35,040	135,120	0.80	3.10	3.54	79
	661	**38,306**	**37,213**	**1**	**37,213**	**172,333**	**0.85**	**3.96**	**4.52**	**79**
	662	46,214	42,260	1	42,260	214,592	0.97	4.93	5.62	79
	663	48,959	47,586	1	47,586	262,179	1.09	6.02	6.87	79

- **bold text** notes storage design elevation

Hanover – 325 Lasley Ave Basin Retrofit

325 Lasley Ave., Hanover Township (41.2082°, -75.9262°)

General Information

Ownership:	Private
Outfall:	UNT to Warrior Creek
Stream Impairment:	Non Attaining-Impaired
Designated Use:	CWF, MF

BMP General Information

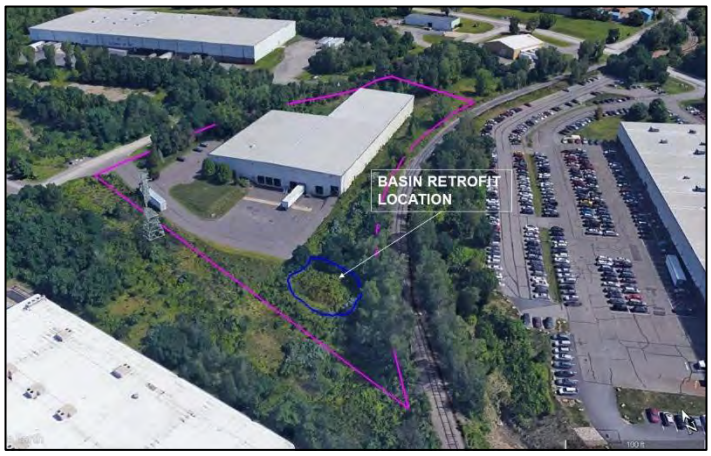
Drainage Area to BMP:	4.82 acres
Total Footprint:	0.245 acre

Estimated Pollutant Load Reduction

Total Estimated Load to Basin:	4,248 TSS (lbs/yr)
BMP Efficiency:	79%
Basin Retrofit Load Reduction:	3,356 TSS (lbs/yr)

Existing Conditions

- Designed/constructed as a flood control basin for commercial development
- Stormwater conveyed to basin via inlets, 15” pipe and vegetated channel
- Outlet structure designed to manage peak rate runoff via 15” pipe
- Basin runoff is conveyed to headwaters of UNT to Warrior Creek
- Current basin vegetation is mix of native grasses and shrubs



Proposed Retrofit

- Conversion of a dry pond to an extended detention basin
- Modify outlet control structure to increase storage capacity
- Provide amended soils and compost as needed with supplemental water quality vegetation/plantings
- Install a 4" underdrain to draw down ponding within 72 hours
- Riser structure modifications to include plugging existing, 6.5" low orifice, and installing 2, 6" and 2, 10" orifices at varying elevations
- Peak flows were analyzed using Bentley PondPack V8i software to ensure that retrofit conditions do not increase outflows compared to existing conditions (see Table 1 below).
- Operations and maintenance (O&M) Plan developed to ensure the continued functionality

Table 1. – Summary of Modeling Results
Existing vs Retrofit Conditions

EXISTING CONDITIONS Type M Inlet-TG @ 712.24 6.5" orifice @ 707.76				***RETROFIT CONDITIONS*** Type M Inlet-TG @ 712.24 2, 6" orifices @ 708.50 2, 10" orifices @ 710.00			
Return Event (years)	Inflow (cfs)	Outflow (cfs)	Max Water Surface Elevation (ft)	Return Event (years)	Inflow (cfs)	Outflow (cfs)	Max Water Surface Elevation (ft)
1	5.22	1.49	710.29	1	5.22	0.67	708.86
2	7.29	1.68	710.81	2	7.28	1.26	709.22
5	10.45	1.92	711.58	5	10.44	1.98	709.85
10	13.38	2.36	712.26	10	13.37	2.79	710.41
25	18.07	8.46	712.64	25	18.05	3.74	711.27
50	22.50	13.83	712.97	50	22.48	4.40	712.04
100	27.76	14.39	713.00	100	27.74	9.39	712.57

Runoff Volume Retention

- Total runoff volume to the basin is 0.615 ac-ft for the 2-yr, 24-hr storm event
- Runoff from impervious areas to the basin is 0.477 ac-ft for the 2-yr, 24-hr storm event
- Total retention volume of the retrofit basin is 0.746 ac-ft for the 2-yr, 24-hr storm event
- The retrofit basin has been designed to reduce outflows for all storms as mentioned above with plantings and 2-ft of planting media to promote evapotranspiration.
- Regular inspections and maintenance will ensure that functionality of the retrofit basin
- Install a 4" PVC underdrain with ½" perforations. Calculations reflect a draw down time of ponding water to be 42 hrs.
- Retrofit basin volume and bottom area will be increased substantially
- The basin retrofit is intended to improve overall water quality. Estimated pollutant reduction is based on the treatment efficiency curve from the "Recommendations of the Expert Panel to Define Removal Rates for Urban Stormwater Retrofit Projects", dated January 20, 2015

Table 2.
Runoff Volume Calculations for Drainage Area to Basin

Soil Type	HSG	Land Use/Condition	CN	Area (sf)	Area (ac)
Impervious	N/A	Impervious	98	97,138.80	2.23
	C	Woods/Good	70	92,782.80	2.13
	C	Lawn/Good	74	20,037.60	0.46
			Total	**209,959.20**	**4.82**

2-year event (in) 2.8

Cover Type/ Condition	HSG	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q, Runoff (in)	Runoff Volume (ft^3)	Runoff Volume (ac-ft)
Impervious	N/A	97,138.80	2.23	98	0.20	0.04	2.57	20,797.07	0.477
Woods/Good	C	92,782.80	2.13	70	4.29	0.86	0.61	4,685.75	0.108
Lawn/Good	C	20,037.60	0.46	74	3.51	0.70	0.78	1,309.06	0.030
TOTALS:		**209,959.20**	**4.82**				3.96	**26,791.88**	**0.615**

Runoff Volume from Impervious Areas =	**0.477**	**ac-ft**
Total Runoff Volume =	**0.615**	**ac-ft**

Design Retrofit Basin Volume =	**0.746**	**ac-ft**

Table 3. Proposed Basin Retrofit Runoff Treatment

BASIN	WATER-SURFACE ELEVATION	AREA (SQ. FT.)	AVERAGE AREA (SQ. FT.)	ELEVATION DIFFERENCE (FT)	STORAGE VOLUME (CUBIC FEET)		STORAGE VOLUME (ACRE-FEET)		RUNOFF TREATED (IN) [RS*12/IA]	SEDIMENT REMOVAL (%)
					INCREMENTAL	TOTAL	INCREMENTAL	TOTAL		
Hanover-325 Lasley Ave Basin Retrofit	708	5,869	----	----	2,348	2,348	0.05	0.05	0.29	36
	709	6,654	6,262	1	6,262	8,610	0.14	0.20	1.06	71
	710	7,454	7,054	1	7,054	15,664	0.16	0.36	1.93	78
	711	8,347	7,901	1	7,901	23,564	0.18	0.54	2.91	79
	712	**9,511**	**8,929**	**1**	**8,929**	**32,493**	**0.20**	**0.75**	**4.01**	**79**
	713	10,848	10,180	1	10,180	42,673	0.23	0.98	5.27	79

- **bold text** notes storage design elevation

Hanover – 335 New Commerce Blvd Basin Retrofits

335 New Commerce Blvd., Hanover Township (41.2081°, -75.9249°)

General Information

Ownership:	Private
Outfall:	UNT to Warrior Creek
Stream Impairment:	Non Attaining-Impaired
Designated Use:	CWF, MF

BMP General Information

Drainage Area to BMP:	3.78 acres
Total Footprint:	0.168 acre

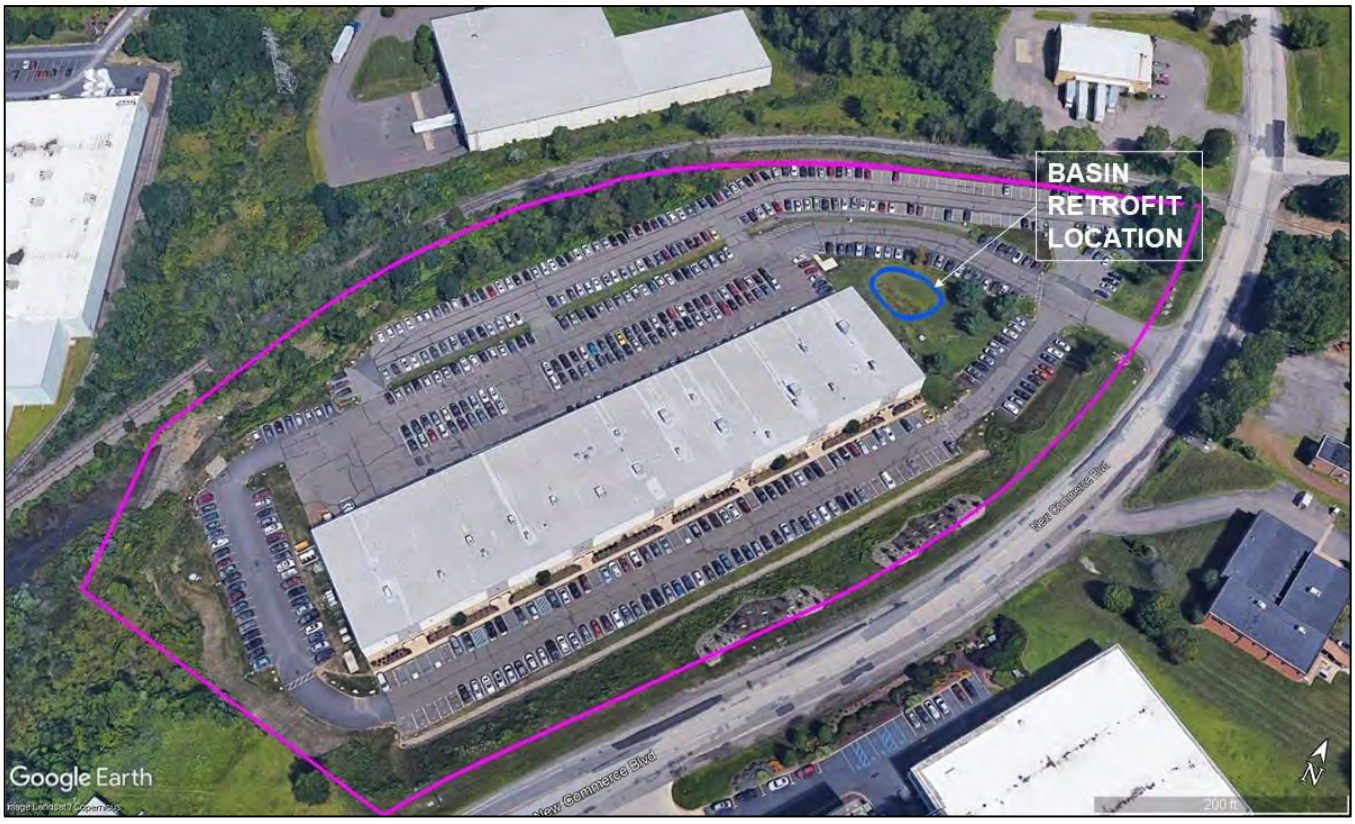
Estimated Pollutant Load Reduction

Total Estimated Load:	4,233 TSS (lbs/yr)
Existing NPDES Permit:	3,810 TSS (lbs/yr)
BMP Efficiency:	79%
Basin Retrofit Load Reduction:	3,010 TSS (lbs/yr)

* - 10% reduction applied to basins with NPDES permit

Existing Conditions

- Designed/constructed as a flood control basin for commercial development
- Stormwater conveyed to Basin via inlets and various pipes
- Outlet structures designed to manage peak rate runoff via 15” pipe
- Runoff from both basins is conveyed to headwaters of UNT to Warrior Creek
- Current vegetation for the basin is native grasses



Proposed Retrofit

- Conversion of a dry pond to an extended detention basin
- Modify outlet control structure to increase storage capacity
- Provide amended soils and compost as needed with supplemental water quality vegetation/plantings
- Install a 4" underdrain to draw down ponding within 72 hours
- Install an outlet control structure with 2, 4" orifices
- Peak flows were analyzed using Bentley PondPack V8i software to ensure that retrofit conditions do not increase outflows compared to existing conditions (see Table 1 below).
- Operations and maintenance (O&M) Plan developed to ensure the continued functionality

Table 1. – Summary of Modeling Results
Existing vs Retrofit Conditions

EXISTING CONDITIONS No Outlet Control Structure					**RETROFIT CONDITIONS** 15" OCS Inlet-TG @ 726.50 2, 4" orifices @ 708.50			
Return Event (years)	Inflow (cfs)	Outflow (cfs)	Max Water Surface Elevation (ft)		Return Event (years)	Inflow (cfs)	Outflow (cfs)	Max Water Surface Elevation (ft)
1	4.49	4.29	725.39		1	4.49	0.48	725.13
2	5.90	5.68	725.69		2	5.90	0.73	725.53
5	8.00	7.74	726.22		5	8.00	0.99	726.16
10	9.89	8.73	726.53		10	9.89	1.91	726.60
25	12.86	10.22	727.09		25	12.86	5.20	727.07
50	15.63	11.33	727.57		50	15.63	6.72	727.45
100	18.88	14.55	728.16		100	18.88	8.02	727.91

Runoff Volume Retention

- Total runoff volume to the basin is 3.01 ac-ft for the 2-yr, 24-hr storm event
- Runoff from impervious areas to the basin is 2.25 ac-ft for the 2-yr, 24-hr storm event
- Total retention volume of the retrofit basin is 3.96 ac-ft for the 2-yr, 24-hr storm event
- The retrofit basin has been designed to reduce outflows for all storms as mentioned above with plantings and 2-ft of planting media to promote evapotranspiration.
- Regular inspections and maintenance will ensure that functionality of the retrofit basin
- Install a 4" PVC underdrain with ½" perforations. Calculations reflect a draw down time of ponding water to be 26 hrs.
- Retrofit basin volume and bottom area will be increased substantially
- The basin retrofit is intended to improve overall water quality. Estimated pollutant reduction is based on the treatment efficiency curve from the "Recommendations of the Expert Panel to Define Removal Rates for Urban Stormwater Retrofit Projects", dated January 20, 2015

Table 2.
Runoff Volume Calculations for Drainage Area to Basin

Soil Type	HSG	Land Use/Condition	CN	Area (sf)	Area (ac)
Impervious	N/A	Impervious	98	103,672.80	2.38
	C	Lawn/Good	74	60,984.00	1.40
			Total	**164,656.80**	**3.78**

2-year event (in) 2.8

Cover Type/ Condition	HSG	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q, Runoff (in)	Runoff Volume (ft^3)	Runoff Volume (ac-ft)
Impervious	N/A	103,672.80	2.38	98	0.20	0.04	2.57	22,195.98	0.510
Lawn/Good	C	60,984.00	1.40	74	3.51	0.70	0.78	3,984.09	0.091
TOTALS:		**164,656.80**	**3.78**				3.35	**26,180.07**	**0.601**

Runoff Volume from Impervious Areas =	**0.510**	**ac-ft**
Total Runoff Volume =	**0.601**	**ac-ft**

Design Retrofit Basin Volume =	**0.482**	**ac-ft**

Table 3. Proposed Basin Retrofit Runoff Treatment

BASIN	WATER-SURFACE ELEVATION	AREA (SQ. FT.)	AVERAGE AREA (SQ. FT.)	ELEVATION DIFFERENCE (FT)	STORAGE VOLUME (CUBIC FEET)		STORAGE VOLUME (ACRE-FEET)		RUNOFF TREATED (IN) [RS*12/IA]	SEDIMENT REMOVAL (%)
					INCREMENTAL	TOTAL	INCREMENTAL	TOTAL		
Hanover-335 New Commerce Blvd Basin Retrofit	724	3,289	----	----	1,316	1,316	0.03	0.03	0.15	20
	725	4,033	3,661	1	3,661	4,977	0.08	0.11	0.58	37
	726	4,846	4,439	1	4,439	9,416	0.10	0.22	1.09	72
	727	5,714	5,280	1	5,280	14,696	0.12	0.34	1.70	77
	728	**6,642**	**6,178**	**1**	**6,178**	**20,874**	**0.14**	**0.48**	**2.43**	**79**
	729	7,653	7,147	1	7,147	28,021	0.16	0.64	3.24	79
	730	8,704	8,178	1	8,178	36,200	0.19	0.83	4.19	79

- **bold text** notes storage design elevation

Hanover – 600 Lasley Ave Basin Retrofit

600 Lasley Ave., Hanover Township (41.2029°, -75.9297°)

General Information

Ownership:	Private
Outfall:	UNT to Warrior Creek
Stream Impairment:	Non Attaining-Impaired
Designated Use:	CWF, MF

BMP General Information

Drainage Area to BMP:	13.75 acres
Total Footprint:	0.454 acre

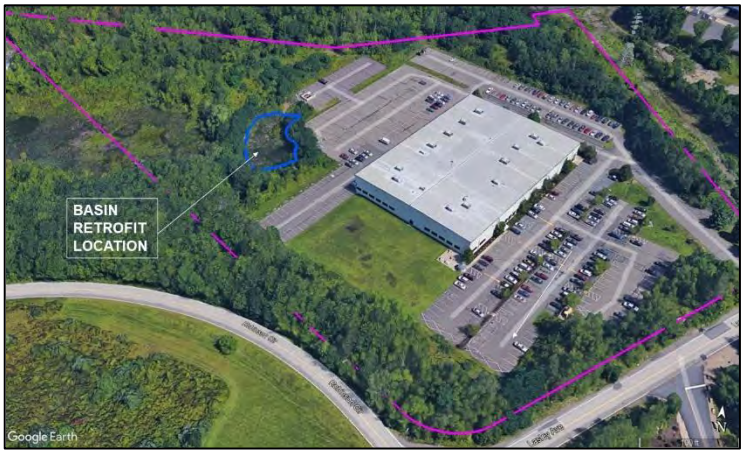
Estimated Pollutant Load Reduction

Total Estimated Load to Basin:	11,475 TSS (lbs/yr)
*Existing NPDES Permit:	10,328 TSS (lbs/yr)
BMP Efficiency:	79%
Basin Retrofit Load Reduction:	8,159 TSS (lbs/yr)

* - 10% reduction applied to basins with NPDES permit

Existing Conditions

- Designed/constructed as a flood control basin for commercial development
- Stormwater conveyed to basin via inlets storm pipes and vegetated swales
- Outlet structure designed to manage peak rate runoff via 15” pipe
- Basin runoff is conveyed to headwaters of UNT to Warrior Creek
- Current basin vegetation is mix of native grasses and shrubs



Proposed Retrofit

- Conversion of a dry pond to an extended detention basin
- Construct sediment forebay at inlets of existing storm pipes
- Construct micropool to increase storage capacity near outlet control structure
- Modify outlet control structure to increase storage capacity
- Provide amended soils and compost as needed with supplemental water quality vegetation/plantings
- Install a 4" underdrain to draw down ponding within 72 hours
- Riser structure modifications to include plugging existing, 15" low orifice and V-notch, and installing 2, 8" and 2, 6" orifices at varying elevations
- Peak flows were analyzed using Bentley PondPack V8i software to ensure that retrofit conditions do not increase outflows compared to existing conditions (see Table 1 below).
- Operations and maintenance (O&M) Plan developed to ensure the continued functionality

Table 1. – Summary of Modeling Results
Existing vs Retrofit Conditions

EXISTING CONDITIONS Type M Inlet-TG @ 670.28, 15" orifice @ 666.40, V-notch (30°) @ 667.00				***RETROFIT CONDITIONS*** Type M Inlet-TG @ 670.28, 2, 6" orifices @ 665.50, 2, 8" orifices @ 667.00			
Return Event (years)	Inflow (cfs)	Outflow (cfs)	Max Water Surface Elevation (ft)	Return Event (years)	Inflow (cfs)	Outflow (cfs)	Max Water Surface Elevation (ft)
1	13.07	8.00	668.68	1	13.07	1.54	666.74
2	18.26	9.71	669.30	2	18.26	2.88	667.41
5	26.24	11.90	670.18	5	26.24	5.53	668.30
10	33.64	13.76	670.93	10	33.64	7.00	669.16
25	45.48	14.61	671.48	25	45.48	9.75	670.45
50	59.69	15.34	672.01	50	56.69	14.35	671.35
100	70.00	16.10	672.58	100	70.00	16.04	672.54

Runoff Volume Retention

- Total runoff volume to the basin is 1.720 ac-ft for the 2-yr, 24-hr storm event
- Runoff from impervious areas to the basin is 1.265 ac-ft for the 2-yr, 24-hr storm event
- Total retention volume of the retrofit basin is 1.936 ac-ft for the 2-yr, 24-hr storm event
- The retrofit basin has been designed to reduce outflows for all storms as mentioned above with plantings and 2-ft of planting media to promote evapotranspiration.
- Regular inspections and maintenance will ensure that functionality of the retrofit basin
- Install a 4" PVC underdrain with ½" perforations. Calculations reflect a draw down time of ponding water to be 43 hrs
- Retrofit basin volume and bottom area will be increased substantially
- The basin retrofit is intended to improve overall water quality. Estimated pollutant reduction is based on the treatment efficiency curve from the "Recommendations of the Expert Panel to Define Removal Rates for Urban Stormwater Retrofit Projects", dated January 20, 2015

Table 2.
Runoff Volume Calculations for Drainage Area to Basin

Soil Type	HSG	Land Use/Condition	CN	Area (sf)	Area (ac)
Impervious	N/A	Impervious	98	257,439.60	5.91
	C	Gravel	89	22,651.20	0.52
	C	Woods/Good	70	287,060.40	6.59
	C	Lawn/Good	74	31,798.80	0.73
			Total	**598,950.00**	**13.75**

2-year event (in) 2.8

Cover Type/ Condition	HSG	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q, Runoff (in)	Runoff Volume (ft^3)	Runoff Volume (ac-ft)
Impervious	N/A	257,439.60	5.91	98	0.20	0.04	2.57	55,116.90	1.265
Gravel	C	22,651.20	0.52	89	1.24	0.25	1.72	3,246.75	0.075
Lawn/Good	C	287,060.40	6.59	70	4.29	0.86	0.61	14,497.24	0.333
Lawn/Good	D	31,798.80	0.73	74	3.51	0.70	0.78	2,077.42	0.048
TOTALS:		**598,950.00**	**13.75**				5.68	**74,938**	**1.720**

Runoff Volume from Impervious Areas =	**1.265**	**ac-ft**
Total Runoff Volume =	**1.720**	**ac-ft**

Design Retrofit Basin Volume =	**1.936**	**ac-ft**

Table 3. Proposed Basin Retrofit Runoff Treatment

BASIN	WATER-SURFACE ELEVATION	AREA (SQ. FT.)	AVERAGE AREA (SQ. FT.)	ELEVATION DIFFERENCE (FT)	STORAGE VOLUME (CUBIC FEET)		STORAGE VOLUME (ACRE-FEET)		RUNOFF TREATED (IN) [RS*12/IA]	SEDIMENT REMOVAL (%)
					INCREMENTAL	TOTAL	INCREMENTAL	TOTAL		
Hanover-600 Lasley Ave Basin Retrofit	665	9,684	----	----	3,874	3,874	0.09	0.09	0.18	38
	666	10,497	10,091	1	10,091	13,965	0.23	0.32	0.65	72
	667	11,547	11,022	1	11,022	24,987	0.25	0.57	1.16	73
	668	13,404	12,476	1	12,476	37,462	0.29	0.86	1.75	77
	669	14,857	14,130	1	14,130	51,593	0.32	1.18	2.40	78
	670	16,401	15,629	1	15,629	67,222	0.36	1.54	3.13	79
	671	**17,852**	**17,126**	**1**	**17,126**	**84,348**	**0.39**	**1.94**	**3.93**	**79**
	672	19,096	18,474	1	18,474	102,821	0.42	2.36	4.79	79
	673	20,328	19,712	1	19,712	122,533	0.45	2.81	5.71	79

- **bold text** notes storage design elevation

Hanover – 1065 Hanover St Basin Retrofits

1065 Hanover St., Hanover Township (41.2026°, -75.9344°)

General Information

Ownership:	Private
Outfall:	UNT to Warrior Creek
Stream Impairment:	Non Attaining-Impaired
Designated Use:	CWF, MF

BMP General Information – Basin 1

Drainage Area to BMP:	3.43 acres
Total Footprint:	0.148 acre

BMP General Information – Basin 2

Drainage Area to BMP:	5.29 acres
Total Footprint:	0.229 acre

Estimated Pollutant Load Reduction – Basin 1

Total Estimated Load to Basin 1:	3,527 TSS (lbs/yr)
*Existing NPDES Permit:	3,174 TSS (lbs/yr)
BMP Efficiency:	79%
Basin Retrofit Load Reduction:	2,507 TSS (lbs/yr)

Estimated Pollutant Load Reduction – Basin 2

Total Estimated Load to Basin 1:	7,891 TSS (lbs/yr)
*Existing NPDES Permit:	7,102 TSS (lbs/yr)
BMP Efficiency:	79%
Basin Retrofit Load Reduction:	5,610 TSS (lbs/yr)

* -10% reduction applied to basins with NPDES permit

Existing Conditions

- Designed/constructed as a flood control basin for commercial development
- Stormwater conveyed to Basins 1 and 2 via inlets and 18” pipes
- Outlet structures designed to manage peak rate runoff via 15” and 18” pipes
- Runoff from both basins is conveyed to headwaters of UNT to Warrior Creek
- Current vegetation for both basins is mix of native grasses and shrubs

Proposed Retrofits

- Conversion of 2 dry ponds to extended detention basins
- Construct a sediment forebay at inlet for Basin 1
- Modify outlet control structures to increase storage capacity for Basins 1 and 2
- Provide amended soils and compost as needed
- Install supplemental water quality vegetation/plantings
- Develop an operations and maintenance (O&M) program to ensure the continued functionality of Basins 1 and 2
- Install a 4" underdrains to draw down ponding within 72 hours
- Peak flows were analyzed using Bentley PondPack V8i software to ensure that retrofit conditions do not increase outflows compared to existing conditions (see Table 1 below).
- Operations and maintenance (O&M) Plan developed to ensure the continued functionality

Table 1a. – Summary of Modeling Results
Existing vs Retrofit Conditions – Basin 1

EXISTING CONDITIONS Type M Inlet-TG @ 692.77, 6" orifice @ 686.49				***RETROFIT CONDITIONS*** Type M Inlet w/ 12" Riser Ext -TG @ 693.77, 2, 4" orifices @ 688.50, 2, 3" orifices @ 692.00			
Return Event (years)	Inflow (cfs)	Outflow (cfs)	Max Water Surface Elevation (ft)	Return Event (years)	Inflow (cfs)	Outflow (cfs)	Max Water Surface Elevation (ft)
1	6.35	1.45	689.88	1	6.35	1.13	690.47
2	8.33	1.61	690.45	2	8.33	1.31	691.10
5	11.37	1.81	691.26	5	11.37	1.52	691.94
10	14.11	1.96	691.26	10	14.11	1.97	692.57
25	18.46	3.66	692.87	25	18.46	2.40	693.51
50	22.51	10.09	693.27	50	22.51	7.12	694.05
100	27.29	14.32	693.71	100	27.29	14.25	694.46

Table 1b. – Summary of Modeling Results
Existing vs Retrofit Conditions – Basin 1

EXISTING CONDITIONS Type M Inlet-TG @ 690.19, 6" orifice @ 682.73, 6" orifice @ 683.78				***RETROFIT CONDITIONS*** Type M Inlet w/ 6" Ext-TG @ 690.69, 2, 3" orifices @ 685.00, 2, 3.5" orifices @ 686.00, 2, 3" orifices @ 689.00			
Return Event (years)	Inflow (cfs)	Outflow (cfs)	Max Water Surface Elevation (ft)	Return Event (years)	Inflow (cfs)	Outflow (cfs)	Max Water Surface Elevation (ft)
1	13.96	2.94	686.66	1	13.96	1.55	687.68
2	17.10	3.25	687.25	2	17.10	1.79	688.32
5	21.79	3.64	688.10	5	21.79	2.18	689.18
10	25.95	3.93	688.82	10	25.95	2.66	689.83
25	32.46	4.33	689.89	25	32.46	4.17	690.75
50	38.52	4.66	690.28	50	38.52	4.59	690.91
100	45.65	14.77	690.73	100	45.65	9.18	691.00

Runoff Volume Retention

- Total runoff volume for the 2-yr, 24-hr storm event is 0.513 ac-ft for Basin 1 and 1.046 ac-ft for Basin 2.
- Runoff from impervious areas for the 2-yr, 24-hr storm event is 0.415 ac-ft for Basin 1 and 1.008 ac-ft for Basin 2.
- Total retention volume of the retrofit for Basin 1 is 0.522 ac-ft and the total retention volume for the retrofit for Basin 2 is 1.047 ac-ft.
- The retrofit basins have been designed to reduce outflows for all storms as mentioned above with plantings and 2-ft of planting media to promote evapotranspiration.
- Regular inspections and maintenance will ensure that functionality of both retrofit basins
- Install a 4" PVC underdrain with ½" perforations for each basin. Calculations reflect a draw down time of ponding water to be 24 hrs for Basin 1 and 38 hrs for Basin 2
- Retrofit basin volume and bottom area will be increased substantially for both basins
- The basin retrofits are intended to improve overall water quality. Estimated pollutant reduction is based on the treatment efficiency curve from the "Recommendations of the Expert Panel to Define Removal Rates for Urban Stormwater Retrofit Projects", dated January 20, 2015

Sugar Notch – 1072 Hanover St Basin Retrofit

1072 Hanover St., Sugar Notch Borough (41.2001°, -75.9297°)

General Information

Ownership:	Private
Outfall:	UNT to Warrior Creek
Stream Impairment:	Attaining/TMDL
Designated Use:	CWF, MF

BMP General Information

Drainage Area to BMP:	11.20 acres
Total Footprint:	0.403 acre

Estimated Pollutant Load Reduction

Total Estimated Load to Basin:	13,066 TSS (lbs/yr)
*Existing NPDES Permit:	11,759 TSS (lbs/yr)
BMP Efficiency*:	79%
Basin Retrofit Load Reduction:	9,290 TSS (lbs/yr)

* - 10% reduction applied to basins with NPDES permit

Existing Conditions

- Designed/constructed as a flood control basin for commercial development
- Stormwater conveyed to basin via inlets and storm pipes
- Outlet structure designed to manage peak rate runoff via 24” pipe
- Basin runoff is conveyed to low area and to headwaters of UNT to Warrior Creek
- Current basin vegetation is native shrubs, trees and grasses

Proposed Retrofit

- Conversion of a dry pond to an extended detention basin
- Expand basin area, construct vegetated berm, and re-direct main stormwater inlet pipe to prevent short-circuiting
- Re-direct main inlet pipe
- Modify outlet control structure to increase storage capacity
- Provide amended soils and compost as needed with supplemental water quality vegetation/plantings
- Install a 4" underdrain to draw down ponding within 72 hours
- Riser structure modifications to include plugging existing, 24" low orifice and installing 2, 8" orifices
- Peak flows were analyzed using Bentley PondPack V8i software to ensure that retrofit conditions do not increase outflows compared to existing conditions (see Table 1 below)
- Operations and maintenance (O&M) Plan developed to ensure the continued functionality

Table 1. – Summary of Modeling Results
Existing vs Retrofit Conditions

EXISTING CONDITIONS Type M Inlet-TG @ 672.61 24" orifice @ 668.92					**RETROFIT CONDITIONS** Type M Inlet -TG @ 672.61 2, 8" orifices @ 671.00			
Return Event (years)	Inflow (cfs)	Outflow (cfs)	Max Water Surface Elevation (ft)		Return Event (years)	Inflow (cfs)	Outflow (cfs)	Max Water Surface Elevation (ft)
1	23.22	18.11	672.25		1	23.22	7.01	672.76
2	29.99	25.75	672.92		2	29.99	16.11	673.10
5	40.17	37.48	673.30		5	40.17	28.01	673.40
10	49.17	46.77	673.61		10	49.17	36.63	673.66
25	63.46	58.49	674.12		25	63.46	47.67	674.07
50	76.62	66.67	674.76		50	76.62	53.52	674.48
100	92.12	76.11	675.60		100	92.12	60.51	675.04

Runoff Volume Retention

- Total runoff volume to the basin is 1.835 ac-ft for the 2-yr, 24-hr storm event
- Runoff from impervious areas to the basin is 1.512 ac-ft for the 2-yr, 24-hr storm event
- Total retention volume of the retrofit basin is 1.842 ac-ft for the 2-yr, 24-hr storm event
- The retrofit basin has been designed to reduce outflows for all storms as mentioned above with plantings and 2-ft of planting media to promote evapotranspiration.
- Regular inspections and maintenance will ensure that functionality of the retrofit basin
- Install a 4" PVC underdrain with ½" perforations. Calculations reflect a draw down time of ponding water to be 43 hrs
- Retrofit basin volume and bottom area will be increased substantially
- The basin retrofit is intended to improve overall water quality. Estimated pollutant reduction is based on the treatment efficiency curve from the "Recommendations of the Expert Panel to Define Removal Rates for Urban Stormwater Retrofit Projects", dated January 20, 2015

Table 2.
Runoff Volume Calculations for Drainage Area to Basin

Soil Type	HSG	Land Use/Condition	CN	Area (sf)	Area (ac)
Impervious	N/A	Impervious	98	307,533.60	7.06
	C	Gravel	89	11,268.97	0.26
	D	Gravel	91	4,425.70	0.10
	C	Lawn/Good	74	125,278.56	2.88
	D	Lawn/Good	80	39,247.56	0.90
			Total	**487,754.39**	**11.20**

2-year event (in) 2.8

Cover Type/ Condition	HSG	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q, Runoff (in)	Runoff Volume (ft^3)	Runoff Volume (ac-ft)
Impervious	N/A	307,533.60	7.06	98	0.20	0.04	2.57	65,841.85	1.512
Gravel	C	11,268.97	0.26	89	1.24	0.25	1.72	1,615.26	0.037
Gravel	D	4,425.70	0.10	91	0.99	0.20	1.89	695.41	0.016
Lawn/Good	C	125,278.56	2.88	74	3.51	0.70	0.78	8,184.46	0.188
Lawn/Good	D	39,247.56	0.90	80	2.50	0.50	1.10	3,604.51	0.083
TOTALS:		**487,754.39**	**11.20**				8.06	**79,941.48**	**1.835**

Runoff Volume from Impervious Areas =	**1.512**	**ac-ft**
Total Runoff Volume =	**1.835**	**ac-ft**

Design Retrofit Basin Volume =	**1.842**	**ac-ft**

Table 3. Proposed Basin Retrofit Runoff Treatment

BASIN	WATER-SURFACE ELEVATION	AREA (SQ. FT.)	AVERAGE AREA (SQ. FT.)	ELEVATION DIFFERENCE (FT)	STORAGE VOLUME (CUBIC FEET)		STORAGE VOLUME (ACRE-FEET)		RUNOFF TREATED (IN) [RS*12/IA]	SEDIMENT REMOVAL (%)
					INCREMENTAL	TOTAL	INCREMENTAL	TOTAL		
Sugar Notch-1072 Hanover St Basin Retrofit	670	9,993	----	----	3,997	3,997	0.09	0.09	0.15	22
	671	10,858	10,425	1	10,425	14,422	0.24	0.33	0.54	55
	672	11,748	11,303	1	11,303	25,725	0.26	0.59	0.96	69
	673	12,666	12,207	1	12,207	37,933	0.28	0.87	1.41	75
	674	13,608	13,137	1	13,137	51,070	0.30	1.17	1.90	78
	675	14,578	14,093	1	14,093	65,163	0.32	1.50	2.42	79
	676	15,573	15,075	1	15,075	80,238	0.35	1.84	2.98	79
	677	16,593	16,083	1	16,083	96,321	0.37	2.21	3.58	79
	678	17,640	17,117	1	17,117	113,437	0.39	2.60	4.21	79

- bold text notes storage design elevation

Sugar Notch – 1110 Hanover St Basin Retrofit

1110 Hanover St., Sugar Notch Borough (41.1997°, -75.9262°)

General Information

Ownership:	Private
Outfall:	UNT to Warrior Creek
Stream Impairment:	Attaining/TMDL
Designated Use:	CWF, MF

BMP General Information

Drainage Area to BMP:	8.02 acres
Total Footprint:	0.476 acre

Estimated Pollutant Load Reduction

Total Estimated Load to Basin:	10,065 TSS (lbs/yr)
*Existing NPDES Permit:	9,058 TSS (lbs/yr)
BMP Efficiency:	79%
Basin Retrofit Load Reduction:	7,156 TSS (lbs/yr)

* - 10% reduction applied to basins with NPDES permit

Existing Conditions

- Designed/constructed as a flood control basin for commercial development
- Stormwater conveyed to basin via inlets and 2, 15” pipes and 1, 24” pipe
- Outlet structure designed to manage peak rate runoff via 24” pipe
- Basin runoff is conveyed to low area and wetland, conveyed to headwaters of UNT to Warrior Creek via 36” culvert
- Current basin vegetation is mowed lawn

Proposed Retrofit

- Conversion of a dry pond to an extended detention basin
- Construct vegetated berms to increase flow path and detention time
- Modify outlet control structure to increase storage capacity
- Provide amended soils and compost as needed with supplemental water quality vegetation/plantings
- Install a 4" underdrain to draw down ponding within 72 hours
- Riser structure modifications to include plugging existing, 12" low orifice and installing 2, 6" orifices
- Peak flows were analyzed using Bentley PondPack V8i software to ensure that retrofit conditions do not increase outflows compared to existing conditions (see Table 1 below).
- Operations and maintenance (O&M) Plan developed to ensure the continued functionality

Table 1. – Summary of Modeling Results
Existing vs Retrofit Conditions

EXISTING CONDITIONS Type M Inlet-TG @ 674.00 12" orifice @ 669.20 & V-notch Weir @ 672.00					***RETROFIT CONDITIONS*** Type M Inlet-TG @ 674.00 2, 6" orifices @ 670.75 & V-notch Weir @ 672.00			
Return Event (years)	Inflow (cfs)	Outflow (cfs)	Max Water Surface Elevation (ft)		Return Event (years)	Inflow (cfs)	Outflow (cfs)	Max Water Surface Elevation (ft)
1	17.55	4.31	671.72		1	17.55	0.65	671.30
2	22.54	4.89	672.13		2	22.54	1.37	671.72
5	29.85	5.88	672.70		5	29.85	2.14	672.42
10	36.39	7.21	673.16		10	36.39	3.01	672.99
25	46.60	10.16	673.80		25	46.60	5.23	673.77
50	56.09	18.93	674.27		50	56.09	12.78	674.31
100	67.25	30.34	674.66		100	67.25	27.58	674.74

Runoff Volume Retention

- Total runoff volume to the basin is 1.377 ac-ft for the 2-yr, 24-hr storm event
- Runoff from impervious areas to the basin is 1.244 ac-ft for the 2-yr, 24-hr storm event
- Total retention volume of the retrofit basin is 1.695 ac-ft for the 2-yr, 24-hr storm event
- The retrofit basin has been designed to reduce outflows for all storms as mentioned above with plantings and 2-ft of planting media to promote evapotranspiration.
- Regular inspections and maintenance will ensure that functionality of the retrofit basin
- Install a 4" PVC underdrain with ½" perforations. Calculations reflect a draw down time of ponding water to be 43 hrs.
- Retrofit basin volume and bottom area will be increased substantially
- The basin retrofit is intended to improve overall water quality. Estimated pollutant reduction is based on the treatment efficiency curve from the "Recommendations of the Expert Panel to Define Removal Rates for Urban Stormwater Retrofit Projects", dated January 20, 2015

Table 2.
Runoff Volume Calculations for Drainage Area to Basin

Soil Type	HSG	Land Use/Condition	CN	Area (sf)	Area (ac)
Impervious	N/A	Impervious	98	253,083.60	5.81
	C	Woods/Good	70	34,412.40	0.79
	C	Lawn/Good	74	61,855.20	1.42
			Total	**349,351.20**	**8.02**

2-year event (in) 2.8

Cover Type/ Condition	HSG	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q, Runoff (in)	Runoff Volume (ft^3)	Runoff Volume (ac-ft)
Impervious	N/A	253,083.60	5.81	98	0.20	0.04	2.57	54,184.30	1.244
Woods/Good	C	34,412.40	0.79	70	4.29	0.86	0.61	1,737.91	0.040
Lawn/Good	C	61,855.20	1.42	74	3.51	0.70	0.78	4,041.00	0.093
TOTALS:		**349,351.20**	**8.02**				3.96	**59,963.21**	**1.377**

Runoff Volume from Impervious Areas =	**1.244**	**ac-ft**
Total Runoff Volume =	**1.377**	**ac-ft**

Design Retrofit Basin Volume =	**1.695**	**ac-ft**

Table 3. Proposed Basin Retrofit Runoff Treatment

BASIN	WATER-SURFACE ELEVATION	AREA (SQ. FT.)	AVERAGE AREA (SQ. FT.)	ELEVATION DIFFERENCE (FT)	STORAGE VOLUME (CUBIC FEET)		STORAGE VOLUME (ACRE-FEET)		RUNOFF TREATED (IN) [RS*12/IA]	SEDIMENT REMOVAL (%)
					INCREMENTAL	TOTAL	INCREMENTAL	TOTAL		
Sugar Notch-1110 Hanover St Basin Retrofit	669	8,652	----	----	3,461	3,461	0.08	0.08	0.17	21
	670	10,956	9,804	1	9,804	13,265	0.23	0.31	0.63	58
	671	13,172	12,064	1	12,064	25,329	0.28	0.58	1.20	71
	672	15,274	14,223	1	14,223	39,552	0.33	0.91	1.87	78
	673	17,132	16,203	1	16,203	55,755	0.37	1.28	2.64	79
	674	**19,025**	**18,079**	**1**	**18,079**	**73,834**	**0.42**	**1.69**	**3.50**	**79**
	675	20,951	19,988	1	19,988	93,822	0.46	2.15	4.45	79

- **bold text** notes storage design elevation

Jenkins – Main St Basin

Main Street, Jenkins Township (41.2966°, -75.8279°)

General Information

Ownership:	Private
Outfall:	Susquehanna River
Stream Impairment:	Attaining/TMDL
Designated Use:	WWF, MF

BMP General Information

Drainage Area to BMP:	160.91 acres
Total Footprint:	4.25 acres

Estimated Pollutant Load Reduction

Total Estimated Load to Basin:	115,562 TSS (lbs/yr)
BMP Efficiency:	84%
Basin Retrofit Load Reduction:	97,072 TSS (lbs/yr)

Existing Conditions

- Forested/meadow area location down gradient of suburban/residential areas
- Relatively flat area
- Located close to the Susquehanna River for possible outfall opportunities

* - BMP removal efficiency was determined based on CBP-approved efficiency rates listed in the "Recommendations of the Expert Panel to Define Removal Rates for New State Stormwater Performance Standards"

Proposed Site Upgrades

- Construction of a new stormwater management basin as authorized under DEP Permit No. PAD400140A-1, dated November 11, 2022
    - Management of peak rates (1- through 100-yr storm events)
    - Manage runoff volume through capture and infiltration
    - Addition of amended soils and plantings to promote vegetative growth for water quality
- Operations and maintenance (O&M) Plan developed to ensure the continued functionality

Table 1. – Summary of Peak Flow Routings for Basin 7

BASIN 7 FLOW ROUTING			
Return Event (years)	Inflow (cfs)	Outflow (cfs)	Max Water Surface Elevation (ft)
1	91.76	0.51	576.32
2	131.84	3.07	577.05
5	194.18	8.52	578.08
10	252.08	14.84	579.01
25	348.08	26.99	580.49
50	438.16	35.82	581.90
100	546.49	42.23	583.66

Runoff Volume Retention

- Total runoff volume to the basin is 18.215 ac-ft for the 2-yr, 24-hr storm event
- Runoff from impervious areas to the basin is 10.836 ac-ft for the 2-yr, 24-hr storm event
- Total retention volume of the basin is 32.190 ac-ft for the 2-yr, 24-hr storm event; total infiltration volume of the basin is 6.566 ac-ft over 35 hrs
- The basin has been designed to reduce outflows for all storms as mentioned above with plantings and 2-ft of planting media to promote evapotranspiration.
- Regular inspections and maintenance will ensure functionality of the basin

Table 2.
Runoff Volume Calculations for Drainage Area to Basin

Soil Type	HSG	Land Use/Condition	CN	Area (sf)	Area (ac)
Impervious	N/A	Impervious	98	2,441,010.92	56.04
	C	Woods/Good	70	287,060.40	6.59
	D	Woods/Good	77	8,712.00	0.20
	C	Lawn/Good	74	812,829.60	18.66
	D	Lawn/Good	80	3,459,535.20	79.42
			Total	**7,009,148.12**	**160.91**

2-year event (in) 2.55

Cover Type/ Condition	HSG	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q, Runoff (in)	Runoff Volume (ft^3)	Runoff Volume (ac-ft)
Impervious	N/A	2,441,010.92	56.04	98	0.20	0.04	2.32	472,020.78	10.836
Woods/Good	C	287,060.40	6.59	70	4.29	0.86	0.48	11,466.62	0.263
Woods/Good	D	8,712.00	0.20	77	2.99	0.60	0.77	560.36	0.013
Lawn/Good	C	812,829.60	18.66	74	3.51	0.70	0.64	43,118.27	0.990
Lawn/Good	D	3,459,535.20	79.42	80	2.50	0.50	0.92	266,276.50	6.113
TOTALS:		**7,009,148.12**	**160.91**				5.13	**793,443**	**18.215**

Runoff Volume from Impervious Areas =	**10.836**	**ac-ft**
Total Runoff Volume =	**18.215**	**ac-ft**

Design Retrofit Basin Volume =	**32.190**	**ac-ft**

Table 3. Proposed Basin Runoff Treatment

BASIN	WATER-SURFACE ELEVATION	AREA (SQ. FT.)	AVERAGE AREA (SQ. FT.)	ELEVATION DIFFERENCE (FT)	STORAGE VOLUME (CUBIC FEET)		STORAGE VOLUME (ACRE-FEET)		RUNOFF TREATED (IN) [RS*12/IA]	SEDIMENT REMOVAL* (%)
					INCREMENTAL	TOTAL	INCREMENTAL	TOTAL		
Jenkins-Main Street Basin	574.00	113,190	----	----	45,276	45,276	1.04	1.04	0.22	32
	575.00	120,360	116,775	1.00	116,775	162,051	2.68	3.72	0.80	69
	576.00	127,560	123,960	1.00	123,960	286,011	2.85	6.57	1.41	81
	577.00	134,780	131,170	1.00	131,170	417,181	3.01	9.58	2.05	83
	578.00	142,040	138,410	1.00	138,410	555,591	3.18	12.75	2.73	84
	579.00	149,320	145,680	1.00	145,680	701,271	3.34	16.10	3.45	84
	580.00	156,640	152,980	1.00	152,980	854,251	3.51	19.61	4.20	84
	581.00	163,980	160,310	1.00	160,310	1,014,561	3.68	23.29	4.99	84
	582.00	171,350	167,665	1.00	167,665	1,182,226	3.85	27.14	5.81	84
	583.00	178,750	175,050	1.00	175,050	1,357,276	4.02	31.16	6.67	84
	583.25	**180,608**	**179,679**	**0.25**	**44,920**	**1,402,196**	**1.03**	**32.19**	**6.89**	**84**
	584.00	186,180	183,394	0.75	137,546	1,539,741	3.16	35.35	7.57	84
	585.00	193,600	189,890	1.00	189,890	1,729,631	4.36	39.71	8.50	84
	586.00	201,020	197,310	1.00	197,310	1,926,941	4.53	44.24	9.47	84

- **bold text** notes storage design elevation

* - TSS Pollutant Removal Efficiencies are taken from "Recommendations of the Expert Panel to Define Removal Rates for New State Stormwater Performance Standards" (Revised January 20, 2015)

Jenkins – NE Extension (Demark St) Basins

Demark Street, Jenkins Township (41.2953°, -75.7700°)

General Information

Ownership:	Private
Outfall:	Susquehanna River
Stream Impairment:	Attaining/TMDL
Designated Use:	WWF, MF

BMP General Information

Drainage Area to BMP:	152.73 acres*
Total Footprint:	2.314 acres

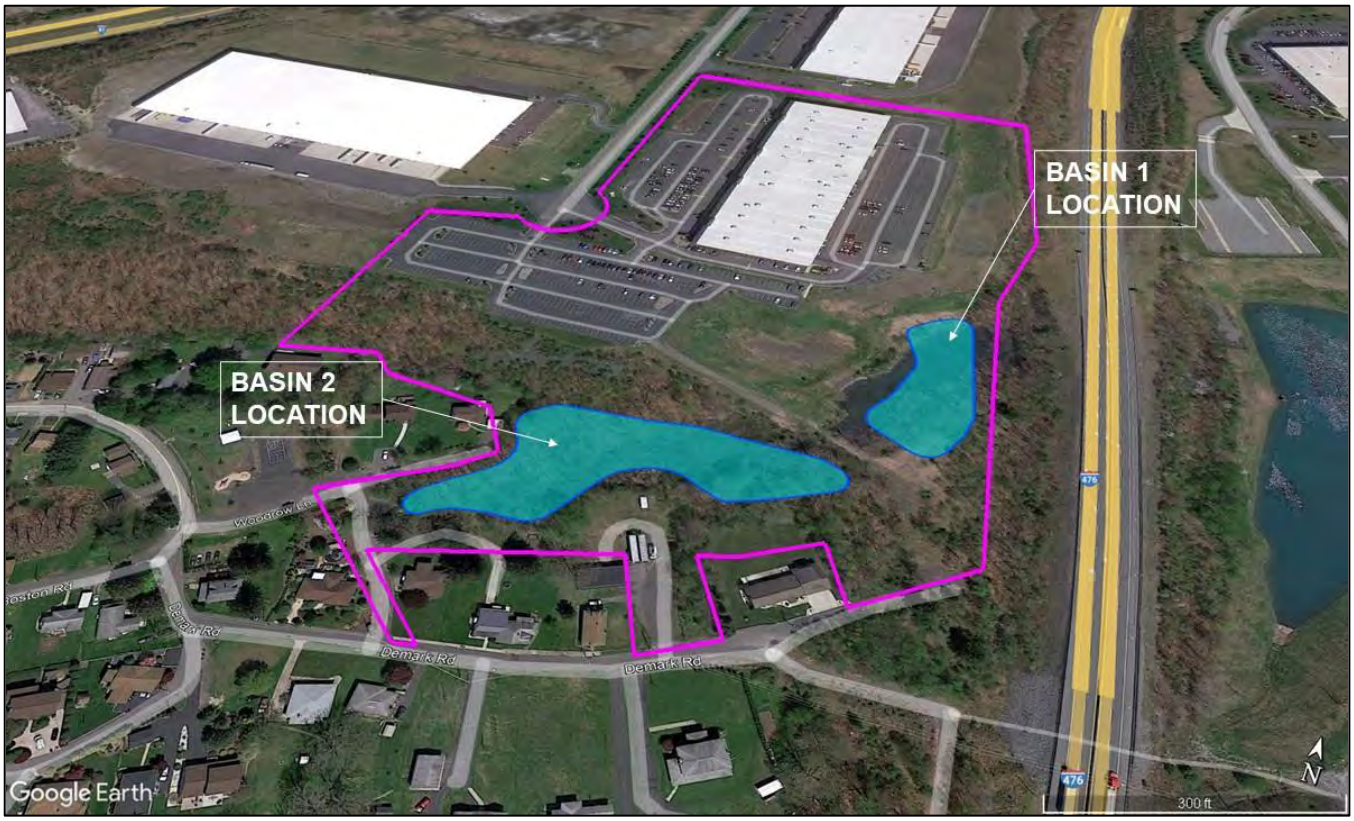
* - equivalent drainage area due to loading

Estimated Pollutant Load Reduction

Total Estimated Load to Basin:	169,684 TSS (lbs/yr)
BMP Efficiency:	76%
Load Reduction for Basins:	128,960 TSS (lbs/yr)

Existing Conditions

- Forested/meadow area location down gradient of commercial areas
- Upstream drainage areas are controlled by 2 infiltration basins and 2 wet ponds.
- Location is downgradient of a business park to maximize pollution removal



Proposed Site Upgrades

- Construction of a new stormwater management basins
  - Manage peak rates (1- through 100-yr storm events)
  - Addition of a forebay and baffles for a low flow channel
  - Addition of organic soils to promote vegetation growth
  - Manage runoff volume through volume retention
- Operations and maintenance (O&M) Plan developed to ensure the continued functionality

Table 1. – Summary of Peak Flow Routings for Basins 1 and 2

BASINS ROUTING			
Return Event (years)	Inflow to Basin 1 (cfs)	Outflow from Basin 2 (cfs)	Max Water Surface Elevation (ft)
2	37.22	28.26	974.20
5	49.88	43.40	974.43
10	80.57	43.42	974.43
25	158.81	43.42	974.43
50	348.19	43.42	974.43
100	348.19	43.42	974.43

Runoff Volume Retention

- Total runoff volume to the basin is 21.465 ac-ft for the 2-yr, 24-hr storm event
- Runoff from impervious areas to the basins is 18.415 ac-ft for the 2-yr, 24-hr storm event
- Total retention volume of the basin is 12.105 ac-ft for the 2-yr, 24-hr storm event
- The basin has been designed to reduce outflows for all storms as mentioned above with plantings and 2-ft of planting media to promote evapotranspiration.
- Regular inspections and maintenance will ensure functionality of both basins

Table 2.
Runoff Volume Calculations for Drainage Area to Basin

Soil Type	HSG	Land Use/Condition	CN	Area (sf)	Area (ac)
Impervious	N/A	Impervious	98	4,148,218.80	95.23
	C	Lawn/Good	74	2,504,700.00	57.50
			Total	**6,652,918.80**	**152.73**

2-year event (in) 2.55

Cover Type/ Condition	HSG	Area (sf)	Area (ac)	CN	S	Ia (0.2*S)	Q, Runoff (in)	Runoff Volume (ft^3)	Runoff Volume (ac-ft)
Impervious	N/A	4,148,218.80	95.23	98	0.20	0.04	2.32	802,145.32	18.415
Lawn/Good	74	2,504,700.00	57.50	74	3.51	0.70	0.64	132,867.14	3.050
TOTALS:		**4,148,218.80**	**95.23**				2.32	**802,145**	**21.465**

Runoff Volume from Impervious Areas =	**18.415**	**ac-ft**
Total Runoff Volume =	**21.465**	**ac-ft**

Design Retrofit Basin Volume =	**12.110**	**ac-ft**

Table 3. Proposed Basin Runoff Treatment

BASIN	WATER-SURFACE ELEVATION	AREA (SQ. FT.)	AVERAGE AREA (SQ. FT.)	ELEVATION DIFFERENCE (FT)	STORAGE VOLUME (CUBIC FEET)		STORAGE VOLUME (ACRE-FEET)		RUNOFF TREATED (IN) [RS*12/IA]	SEDIMENT REMOVAL (%)
					INCREMENTAL	TOTAL	INCREMENTAL	TOTAL		
Jenkins Twp-NE Extension (Demark Street) Basins 1 and 2 Combined	968	48,777	----	----	19,511	19,511	0.45	0.45	0.06	8
	969	75,333	62,055	1	59,754	79,265	1.37	1.82	0.23	36
	970	81,069	78,201	1	78,201	157,466	1.80	3.61	0.46	54
	971	87,249	84,159	1	84,159	241,625	1.93	5.55	0.71	64
	972	92,428	89,839	1	89,839	331,464	2.06	7.61	0.97	70
	973	97,386	94,907	1	94,907	426,371	2.18	9.79	1.25	75
	974	**102,201**	**99,794**	**1**	**99,794**	**526,164**	**2.29**	**12.08**	**1.55**	**76**
	975	106,697	104,449	1	104,449	630,613	2.40	14.48	1.85	83

Notes: 1. Incremental Storage Volume at elevation 968 is the volume retained in the 2-ft of media for Basin 2

2. Incremental Storage Volume at elevation 969 is the volume retained in the 2-ft of media for Basin 1 plus storage volume between elevations 968 and 969
3. **Bold text** notes design storage design elevation

Appendix VI – Table A: Proposed Basin Retrofit Load Reduction Calculations

BMP Type*	Area				Land Use**					Pollutant Loading Rate (lbs. TSS/ac/yr)**		Total Pollutant Load (TSS) (lbs/yr)	Basins with Existing NPDES Permit 10% REDUCTION of Total Pollutant Load (TSS) (lbs/yr)	BMP Efficiency (Expert Panel RR & ST Curves)***		Pollutant Load Reduction TSS (lb/yr)
	Drainage Area (acres)	Project Area (acres)	Basin Infiltration Area (acres)	Loading Ratio (Impervious Area/ Infiltration area)	Planning Area (acres)	% Imperv.	Imperv. (acres)	% Pervious	Pervious (acres)	Impervious	Pervious			ST	RR	
~~Pringle – Toby Creek Basin Retrofit~~	~~9,964.39~~	~~8.1~~		~~0.08%~~	~~2,014.58~~	~~17.71%~~	~~356.87~~	~~82%~~	~~1,657.71~~	~~1,648.22~~	~~221.19~~	~~954,869~~		~~14%***~~		~~133,682~~
Exeter – Donna's Way Basin Retrofit	~~17.91~~ 14.2	0.5	Not Applicable	Not Applicable	~~17.91~~ 14.2	~~32.74%~~ 30.70%	~~5.86~~ 4.36	~~67%~~ 69.30%	~~12~~ 9.84	1,648.22	221.19	~~12,312~~ 9,363		~~84%~~ 79%		~~10,356~~ 7,397
Swoyersville – Townsend Avenue Basin Retrofit	640.44	6.1	Not Applicable	Not Applicable	462.12	8.35%	38.58	92%	423.53	1,648.22	221.19	157,275		~~91%~~ 79%		~~143,120~~ 124,247
Swoyersville – Creek Street Basin Retrofit	~~622.34~~ 583.04	7.7	Not Applicable	Not Applicable	~~349.77~~ 583.04	~~14.94%~~ 21.49%	~~52.25~~ 125.34	~~85%~~ 78.51%	~~297.52~~ 457.7	1,648.22	221.19	~~151,929~~ 307,827		~~91%~~ 79%		~~138,255~~ 243,183
~~Swoyersville – Dana Street Basin Retrofit~~	~~119.84~~	~~2.4~~		~~2.00%~~	~~119.84~~	~~36.94%~~	~~44.27~~	~~63%~~	~~75.57~~	~~1,648.22~~	~~221.19~~	~~89,680~~		~~77%~~		~~69,053~~
~~Swoyersville – Simpson St Basins Retrofit~~	~~56.64~~	~~1.2~~		~~2.10%~~	~~56.64~~	~~44.06%~~	~~24.95~~	~~56%~~	~~31.69~~	~~1,648.22~~	~~221.19~~	~~48,135~~		~~60%~~		~~28,785~~
Swoyersville – Slocum St Basin Retrofit	223.8	6.5	Not Applicable	Not Applicable	206.4	25.35%	52.3	75%	154.1	1,648.22	221.19	120,276		~~84%~~ 79%		~~101,032~~ 95,018
Jenkins Township – Main St & Saylor Ave – New Water Quality Infiltration Basin	~~258.19~~ 160.91	~~4.4~~ 4.25	2.6	~~1.70%~~ 20:1	~~258.19~~ 160.91	~~22.30%~~ 34.83%	~~57.57~~ 56.04	~~78%~~ 65.17%	~~200.62~~ 104.87	1,648.22	221.19	~~139,257~~ 115,562			~~60%~~ 84%	~~83,554~~ 97,072
Jenkins Township – Northeast Extension – New Water Quality Basin	~~553.51~~ 152.73	~~5.5~~ 2.314	Not Applicable	Not Applicable	~~553.51~~ 152.73	~~45.74%~~ 62.35%	~~253.15~~ 95.23	~~54%~~ 37.65%	~~300.36~~ 57.5	1,648.22	221.19	~~129,024~~ 169,684		~~60%~~ 76%		~~77,414~~ 128,960
Plains – Wyndtree Oaks Basin Retrofit	41.58	1.1	Not Applicable	Not Applicable	41.58	29.08%	12.09	71%	29.49	1,648.22	221.19	26,447		~~86%~~ 78%		~~22,744~~ 20,628
City of Wilkes-Barre – MotorWorld Basin Retrofit	35.37	0.99	Not Applicable	Not Applicable	35.37	46.08%	16.3	53.92%	19.1	1648.22	221.19	31,084	27,976	62%		17,345
Wilkes-Barre Township – Wyoming Valley Mall Basin Retrofit	68.57	1.64	Not Applicable	Not Applicable	68.57	89.66%	61.48	10.34%	7.1	1,648.22	221.19	102,901		78%		80,263
Jenkins Township – Main Street/Pittston Bypass Basin Retrofit & Vegetated Channel	141.11	2	Not Applicable	Not Applicable	141.11	26.54%	37.45	73.46%	103.7	1,648.22	221.19	84,654		69%		58,412
Hanover Township – 300 Lasley Ave Basin Retrofit	23.23	0.999	Not Applicable	Not Applicable	23.23	45.28%	10.52	54.72%	12.71	1,648.22	221.19	20,151	18,136	79%		14,327
Hanover Township – 325 Lasley Ave Basin Retrofit	4.82	0.245	Not Applicable	Not Applicable	4.82	46.27%	2.23	53.73%	2.59	1,648.22	221.19	4,248		79%		3,356
Hanover Township – 600 Lasley Ave Basin Retrofit	13.75	0.454	Not Applicable	Not Applicable	13.75	42.98%	5.91	57.02%	7.84	1,648.22	221.19	11,475	10,328	79%		8,159
Sugar Notch Borough – 1065 Hanover St Basin 1 Retrofit	3.43	0.148	Not Applicable	Not Applicable	3.43	43.44%	1.49	56.56%	1.94	1,648.22	221.19	3,527	3,174	79%		2,507
Sugar Notch Borough – 1065 Hanover St Basin 2 Retrofit	5.29	0.229	Not Applicable	Not Applicable	5.29	89.04%	4.71	10.96%	0.6	1,648.22	221.19	7,891	7,102	79%		5,610
Sugar Notch Borough – 1072 Hanover St Basin Retrofit	11.2	0.403	Not Applicable	Not Applicable	11.2	66.25%	7.42	33.75%	3.78	1,648.22	221.19	13,066	11,759	79%		9,290
Sugar Notch Borough – 1110 Hanover St Basin Retrofit	8.02	0.476	Not Applicable	Not Applicable	8.02	72.44%	5.81	27.56%	2.21	1,648.22	221.19	10,065	9,058	79%		7,156
Hanover Township – 165 New Commerce Blvd Basin Restrofit	19.13	0.339	Not Applicable	Not Applicable	19.13	49.82%	9.53	50.18%	9.6	1,648.22	221.19	17,831	16,048	77%		12,357
Hanover Township – 335 New Commerce Blvd, Basin 1 Basin Retrofit	3.78	0.168	Not Applicable	Not Applicable	3.78	62.96%	2.38	37.04%	1.4	1,648.22	221.19	4,233	3,810	79%		3,010
Total																~~807,996~~ 938,297

*BMP Concept Designs have been prepared to provide information on a planning level for each BMP. Final BMP Designs may include revisions to the concept designs.

**Pollutant Loading Rates, and BMP Efficiency figures are from PADEP guidance documents.

***BMP Efficiencies for sediment removal were calculated utilizing Figure 5. Retrofit Removal Adjustor Curve for Sediment, in the Expert Panel Report titled "Recommendations of the Expert Panel to Define Removal Rates for Urban Stormwater Retrofit Projects", dated January 2015.

Appendix VI - Table B: Proposed Basin Retrofit Runoff Treatment

BASIN	WATER SURFACE ELEVATION (FT)	AREA (SQ. FT.)	AVERAGE AREA (SQ. FT.)	ELEVATION DIFFERENCE (FT)	STORAGE VOLUME (CUBIC FEET)		STORAGE VOLUME (ACRE FEET)		RUNOFF TREATED (IN) (RS*12)/IA	SEDIMENT REMOVAL (%)
					INCREMENTAL	TOTAL	INCREMENTAL	TOTAL		
City of Wilkes-Barre – MotorWorld Basin Retrofit	617	1,652				0		0.00	0.00	0%
			4,539	1	4,539		0.10			
	618	7,425				4,539		0.10	0.08	11%
			9,659	1	9,659		0.22			
	619	11,893				14,198		0.33	0.24	31%
			12,713	1	12,713		0.29			
	620	13,533				26,911		0.62	0.45	49%
			14,245	1	14,245		0.33			
	621	14,956				41,155		0.94	0.70	62%
Wilkes-Barre Township – Wyoming Valley Mall Basin Retrofit	710	12,063				0		0.00	0.00	0%
			15,646	1	15,646		0.36			
	711	19,228				15,646		0.36	0.07	10%
			20,966	1	20,966		0.48			
	712	22,704				36,612		0.84	0.16	22%
			24,135	1	24,135		0.55			
	713	25,565				60,746		1.39	0.27	35%
			26,920	1	26,920		0.62			
	714	28,275				87,666		2.01	0.39	44%
			29,499	1	29,499		0.68			
	715	30,722				117,165		2.69	0.52	54%
			32,022	1	32,022		0.74			
	716	33,321				149,186		3.42	0.67	61%
			34,626	1	34,626		0.79			
	717	35,930				183,812		4.22	0.82	66%
			37,140	1	37,140		0.85			
	718	38,349				220,951		5.07	0.99	69%
			39,464	1	39,464		0.91			
	719	40,578				260,415		5.98	1.17	73%
			41,670	1	41,670		0.96			
	720	42,762				302,085		6.93	1.35	75%
			43,844	1	43,844		1.01			
	721	44,926				345,929		7.94	1.55	76%
			46,002	1	46,002		1.06			
	722	47,078				391,931		9.00	1.76	77%
			48,167	1	48,167		1.11			
	723	49,256				440,098		10.10	1.97	78%

Appendix VI - Table B: Proposed Basin Retrofit Runoff Treatment

BASIN	WATER SURFACE ELEVATION (FT)	AREA (SQ. FT.)	AVERAGE AREA (SQ. FT.)	ELEVATION DIFFERENCE (FT)	STORAGE VOLUME (CUBIC FEET)		STORAGE VOLUME (ACRE FEET)		RUNOFF TREATED (IN) (RS*12)/IA	SEDIMENT REMOVAL (%)
					INCREMENTAL	TOTAL	INCREMENTAL	TOTAL		
Jenkins Township – Main Street/Pittston By-Pass Basin Retrofit & Vegetated Channel	650	42,299				0		0.00	0.00	0%
			42,759	1	42,759		0.98			
	651	43,218				42,759		0.98	0.31	40%
			43,681	1	43,681		1.00			
	652	44,144				86,439		1.98	0.63	60%
			45,545	1	44,610		1.02			
	653	45,076				131,049		3.01	0.96	69%
Hanover Township – 300 Lasley Ave Basin Retrofit	656	26,085				0		0.00	0.00	0%
			27,272	1	27,272		0.63			
	657	28,458				27,272		0.63	0.71	62%
			29,812	1	29,812		0.68			
	658	31,165				57,083		1.31	1.49	76%
			32,563	1	32,563		0.75			
	659	33,961				89,646		2.06	2.35	79%
			35,041	1	35,041		0.80			
	660	36,120				124,687		2.86	3.27	79%
			37,213	1	37,213		0.85			
	661	38,306				161,900		3.72	4.24	79%
			42,260	1	42,260		0.97			
	662	46,214				204,160		4.69	5.35	79%
			47,587	1	47,587		1.09			
	663	48,959				251,746		5.78	6.59	79%
Hanover Township – 325 Lasley Ave Basin Retrofit	708	5,869				0		0.00	0.00	0%
			6,262	1	6,262		0.14			
	709	6,654				6,262		0.14	0.77	65%
			7,054	1	7,054		0.16			
	710	7,454				13,316		0.31	1.64	77%
			7,901	1	7,901		0.18			
	711	8,347				21,216		0.49	2.62	79%
			8,929	1	8,929		0.20			
	712	9,511				30,145		0.69	3.72	79%
			10,180	1	10,180		0.23			
	713	10,848				40,325		0.93	4.98	79%

Appendix VI - Table B: Proposed Basin Retrofit Runoff Treatment

BASIN	WATER SURFACE ELEVATION (FT)	AREA (SQ. FT.)	AVERAGE AREA (SQ. FT.)	ELEVATION DIFFERENCE (FT)	STORAGE VOLUME (CUBIC FEET)		STORAGE VOLUME (ACRE FEET)		RUNOFF TREATED (IN) (RS*12)/IA	SEDIMENT REMOVAL (%)
					INCREMENTAL	TOTAL	INCREMENTAL	TOTAL		
Hanover Township – 600 Lasley Ave Basin Retrofit	665	9,684				0		0.00	0.00	0%
			10,091	1	10,091		0.23			
	666	10,497				10,091		0.23	0.47	50%
			11,022	1	11,022		0.25			
	667	11,547				21,113		0.48	0.98	69%
			12,476	1	12,476		0.29			
	668	13,404				33,588		0.77	1.57	75%
			14,131	1	14,131		0.32			
	669	14,857				47,719		1.10	2.22	78%
			15,629	1	15,629		0.36			
	670	16,401				63,348		1.45	2.95	79%
			17,127	1	17,127		0.39			
	671	17,852				80,474		1.85	3.75	79%
Hanover Township - 1065 Hanover St, Basin 1 Retrofit	688	1,920				0		0.00	0.00	0%
			2,307	1	2,307		0.05			
	689	2,694				2,307		0.05	0.33	41%
			3,104	1	3,104		0.07			
	690	3,513				5,411		0.12	0.77	64%
			3,822	1	3,822		0.09			
	691	4,130				9,232		0.21	1.31	74%
			4,421	1	4,421		0.10			
	692	4,712				13,653		0.31	1.94	78%
			5,003	1	5,003		0.11			
	693	5,294				18,656		0.43	2.65	79%
			5,591	1	5,591		0.13			
	694	5,887				24,247		0.56	3.44	79%
Hanover Township - 1065 Hanover St, Basin 2 Retrofit	685	4,451				0		0.00	0.00	0%
			4,488	1	4,488		0.10			
	686	4,524				4,488		0.10	0.26	33%
			5,095	1	5,095		0.12			
	687	5,666				9,583		0.22	0.56	55%
			6,130	1	6,130		0.14			
	688	6,594				15,713		0.36	0.92	68%
			7,035	1	7,035		0.16			
	689	7,475				22,747		0.52	1.33	75%
			7,909	1	7,909		0.18			
	690	8,343				30,656		0.70	1.79	79%

Appendix VI - Table B: Proposed Basin Retrofit Runoff Treatment

BASIN	WATER SURFACE ELEVATION (FT)	AREA (SQ. FT.)	AVERAGE AREA (SQ. FT.)	ELEVATION DIFFERENCE (FT)	STORAGE VOLUME (CUBIC FEET)		STORAGE VOLUME (ACRE FEET)		RUNOFF TREATED (IN) (RS*12)/IA	SEDIMENT REMOVAL (%)
					INCREMENTAL	TOTAL	INCREMENTAL	TOTAL		
Sugar Notch Borough - 1072 Hanover St Basin Retrofit	670	9,993				0		0.00	0.00	0%
			10,426	1	10,426		0.24			
	671	10,858				10,426		0.24	0.39	46%
			11,303	1	11,303		0.26			
	672	11,748				21,729		0.50	0.81	66%
			12,207	1	12,207		0.28			
	673	12,666				33,936		0.78	1.26	75%
			13,137	1	13,137		0.30			
	674	13,608				47,073		1.08	1.75	78%
			14,093	1	14,093		0.32			
	675	14,578				61,166		1.40	2.27	79%
			15,076	1	15,076		0.35			
	676	15,573				76,241		1.75	2.83	79%
Sugar Notch Borough - 1110 Hanover St Basin Retrofit	669	8,652				0		0.00	0.00	0%
			9,804	1	9,804		0.23			
	670	10,956				9,804		0.23	0.46	50%
			12,064	1	12,064		0.28			
	671	13,172				21,868		0.50	1.04	71%
			14,223	1	14,223		0.33			
	672	15,274				36,091		0.83	1.71	77%
			16,203	1	16,203		0.37			
	673	17,132				52,294		1.20	2.48	79%
Hanover Township – 165 New Commerce Blvd Basin Retrofit	707	6,293				0		0.00	0.00	0%
			7,332	1	7,332		0.17			
	708	8,371				7,332		0.17	0.21	43%
			9,023	1	9,023		0.21			
	709	9,674				16,355		0.38	0.47	61%
			10,387	1	10,387		0.24			
	710	11,100				26,742		0.61	0.77	70%
			11,789	1	11,789		0.27			
	711	12,477				38,530		0.88	1.11	73%
			13,114	1	13,114		0.30			
	712	13,750				51,644		1.19	1.49	74%
			14,416	1	14,416		0.33			
	713	15,082				66,060		1.52	1.91	77%
			15,778	1	15,778		0.36			
	714	16,474				81,838		1.88	2.37	78%

Appendix VI - Table B: Proposed Basin Retrofit Runoff Treatment

BASIN	WATER SURFACE ELEVATION (FT)	AREA (SQ. FT.)	AVERAGE AREA (SQ. FT.)	ELEVATION DIFFERENCE (FT)	STORAGE VOLUME (CUBIC FEET)		STORAGE VOLUME (ACRE FEET)		RUNOFF TREATED (IN) (RS*12)/IA	SEDIMENT REMOVAL (%)
					INCREMENTAL	TOTAL	INCREMENTAL	TOTAL		
Hanover Township - 335 New Commerce Blvd Basin Retrofit	724	3,289				0		0.00	0.00	0%
			3,661	1	3,661		0.08			
	725	4,033				3,661		0.08	0.42	46%
			4,440	1	4,440		0.10			
	726	4,846				8,101		0.19	0.94	66%
			5,280	1	5,280		0.12			
	727	5,714				13,381		0.31	1.55	75%
			6,178	1	6,178		0.14			
	728	6,642				19,559		0.45	2.26	78%
			7,148	1	7,148		0.16			
	729	7,653				26,706		0.61	3.09	79%
			8,179	1	8,179		0.19			
	730	8,704				34,885		0.80	4.04	79%

APPENDIX VI-C

PROPOSED BMPS

STREAM RESTORATION PROJECTS
POLLUTANT LOAD REDUCTION CALCULATIONS

WVSA MS4 - STREAM RESTORATION PROJECTS

Appendix VI – Table C: Stream Restoration Projects

5,246 235,440

Stream Name (eMapPA)	Municipality	PRP Photo #	Amendment No. 1 Photo #	Amendment No. 2 Photo #	Latitude	Longitude	Description	Start Point (downstream end) Latitude & Longitude		End Point (upstream end) Latitude & Longitude		Total Length of Restoration (ft)	Total Sediment Load Reduction (lbs/year)	Crediting Method
Abrahams Creek / Old Abrahams Creek (Abrahams Creek Planning Area)														
Abrahams Creek	Forty Fort Boro		AC-1		41.29721	-75.86134	Major Erosion Area (left bank)	41.29639	-75.86131	41.29807	-75.86207	730	32,762	Default
	Forty Fort Boro		AC-2		41.29414	-75.86373	No Riparian (left bank)	41.29295	-75.86508	41.29548	-75.86241	1,170	52,510	
	Forty Fort Boro		AC-3		41.28943	-75.86769	No Riparian (left bank)	41.28597	-75.86989	41.29084	-75.86688	2,050	92,004	
	Forty Fort Boro			AC-4	41°17'44.82"N	75°51'44.02"W	Exposed left and right bank, covered by Japanese stilt grass (invasives), no root structure to hold soils in place	41°17'44.08"N	75°51'44.91"W	41°17'47.24"N	75°51'41.08"W	435	19,523	
	Forty Fort Boro			AC-5	41°17'29.55"N	75°51'59.43"W	Both side of streambanks showing exposed unvegetated banks	41°17'27.32"N	75°52'0.70"W	41°17'34.53"N	75°51'55.21"W	861	38,642	
Trib 64676 to Susquehanna River	Wyoming Boro	SRWB - 1			41.30270	-75.84747	Start of Section	41.30053	-75.84209	41.30324	-75.84783	~~1,800~~ 1,950	~~80,640~~ 87,516	Default
	Wyoming Boro	SRWB - 2			41.30298	-75.84732	Major Erosion Area (right bank)							
	Wyoming Boro	SRWB - 3			41.30291	-75.84725	Major Erosion Area (right bank)							
	Wyoming Boro	SRWB - 4			41.30275	-75.84727	Major Erosion Area							
	Wyoming Boro	SRWB - 5			41.30125	-75.84273	Major Erosion Area (right bank)							
	Wyoming Boro	SRWB - 6			41.30102	-75.84330	End of Section							
	Wyoming Boro		SRWB-10		41.30374	-75.84858	Steep banks, Major Erosion	41.30374	-75.84858	41.30557	75.85028	~~1,575~~ 1,625	~~70,560~~ 72,930	Default
	Wyoming Boro		SRWB-11											
Gardner Creek (City of Wilkes-Barre/Mill Creek Planning Area)														
~~Gardner Creek~~	~~Plains Twp~~	~~GC-1~~			~~41.27878~~	~~-75.81270~~	~~Major Erosion Area (left bank)~~	~~41.27707~~	~~-75.81428~~	~~41.279786~~	~~-75.811803~~	~~1,000~~	~~44,800~~	
	~~Plains Twp~~	~~GC-2~~			~~41.27951~~	~~-75.81200~~	~~Major Erosion Area (pipe outlet to stream)~~							
	~~Laflin Boro~~		~~GC-3~~		~~41.28654~~	~~-75.80876~~	~~Major Erosion Area (left bank)~~	~~41.28662~~	~~-75.80893~~	~~41.28677~~	~~-75.80798~~	~~600~~	~~26,880~~	
	~~Laflin Boro~~		~~GC-4~~				~~Erosion Area~~							
	~~Laflin Boro~~		~~GC-5~~				~~Steep right bank (Casey Casa side); riparian plantings needed~~							
Laurel Run (City of Wilkes-Barre/Mill Creek Planning Area)														
~~Laurel Run~~	~~Plains Twp.~~	~~LR-1~~			~~41.25429~~	~~-75.82680~~	~~Major Erosion Area (right bank)~~	~~41.25496~~	~~-75.82932~~	~~41.25403~~	~~-75.82619~~	~~600~~	~~26,880~~	
Laurel Run (City of Wilkes-Barre/Mill Creek Planning Area)														
Mill Creek (Susquehanna River Watershed)	Plains Twp / Wilkes-Barre City (The Bog)	~~LR-3~~			~~41.26971~~	~~-75.83294~~	~~Major Erosion Area~~	~~41.26971~~ 41.270907	~~-75.83294~~ -75.83462	~~41.27076~~ 41.270618	~~-75.83436~~ -75.833727	~~400~~ 439	~~17920~~ 10,098	Default, crediting with limits
		~~LR-4~~			~~41.26972~~	~~-75.83298~~	~~Undercut Erosion Area~~							
		LR-5			41.27076	-75.83408	Major Erosion Area							
		LR-6			41.27075	-75.83415	Major Erosion Area							
		LR-7			41.27075	-75.83423	Major Erosion Area (right bank)							
		LR-8			41.27077	-75.83430	Major Erosion Area (right bank)							
		LR-9			41.27078	-75.83430	Major Erosion Area (right bank)							
		LR-10			41.27076	-75.83436	Downstream End							

WVSA MS4 - STREAM RESTORATION PROJECTS

Appendix VI – Table C: Stream Restoration Projects 5,246 235,440

Stream Name (eMapPA)	Municipality	PRP Photo #	Amendment No. 1 Photo #	Amendment No. 2 Photo #	Latitude	Longitude	Description	Start Point (downstream end) Latitude & Longitude		End Point (upstream end) Latitude & Longitude		Total Length of Restoration (ft)	Total Sediment Load Reduction (lbs/year)	Crediting Method
Gardner & Mill Creek (Susquehanna River Watershed)	Plains Twp		MC-1		41.27580	-75.81783	Major Erosion Area	41.27459	-75.82208	41.2752 ~~41.2758~~	-75.816672 ~~-75.817831~~	1,798 ~~1600~~	248,458 ~~71680~~	Default, Protocol 1 & Protocol 3
			MC-2		41.276231	-75.81847	Major Erosion Area (right bank)							
			MC-3		41.275794	-75.81972	Major Erosion Area (left bank)							
	Plains Twp			GC-6	41°16'34.61"N	75°49'1.41"W	Major Bank Erosion (right bank)	41°16'34.74"N	75°49'4.12"W	41°16'34.01"N	75°49'0.53"W	300		
	Plains Twp			GC-7	41°16'34.84"N	75°49'2.15"W	Major Bank Erosion (right bank)							
~~Lackawanna River (Lackawanna River/Susquehanna River Planning Area)~~														
~~Mill Creek (Lackawanna River Watershed)~~	~~Pittston Twp~~	~~LWR-2~~			~~41.30882~~	~~-75.74375~~	~~Major Erosion Area (left bank)~~	~~41.30876~~	~~-75.74405~~	~~41.30904~~	~~-75.74343~~	~~200~~	~~8,960~~	
		~~LWR-3~~			~~41.30860~~	~~-75.74409~~	~~Major Erosion Area (left bank)~~							
		~~LWR-4~~			~~41.30860~~	~~-75.74409~~	~~Major Erosion Area (left bank)~~							
		~~LWR-5~~			~~41.30864~~	~~-75.74434~~	~~End of Section~~							
		~~LWR-6~~			~~41.30860~~	~~-75.74476~~	~~Start of Section~~	~~41.30844~~	~~-75.74577~~	~~41.30864~~	~~-75.74436~~	~~400~~	~~17,920~~	
		~~LWR-7~~			~~41.30855~~	~~-75.74505~~	~~Major Erosion Area (left bank)~~							
		~~LWR-8~~			~~41.30839~~	~~-75.74617~~	~~Major Erosion Area (right bank)~~							
Newport Creek (Newport Creek Planning Area)														
South Branch Newport Creek	Nanticoke City	NC-1			41.18772	-76.0134	Major Erosion area	41.19978	-76.01377	41.19442	-76.01051	~~1,700~~	~~76,160~~	
		NC-2			41.19123	-76.0121	Major Erosion area							
		NC-3			41.20165	-76.0138	Major Erosion area							
			SBNC-1		41.19572	-76.01123	Minor Erosion	41.196567	-76.01192	41.19572	-76.01123			
			SBNC-2		41.19927	-76.01366	Major Erosion (left bank)	41.199279	-76.01366	41.199279	-76.01366			
Spring Run (Sugar Notch Run / Solomon Creek Planning Area)														
Spring Run	Hanover Twp.	SR - 2			41.22341	-75.90300	Major Erosion (stream cutbank)	41.222961	-75.904154	41.223759	-75.902604	650	41,272 ~~29120~~	Default, Protocol 1 & Protocol 3
	Hanover Twp.	SR - 3			41.25429	-75.82680	Major Erosion (left bank)							
Spring Run & Solomon Creek	Hanover Twp.	SR - 4			41.22300	-75.90470	Downstream end of culvert blocked	41.223120	-75.905804	41.223005	-75.904629	896 ~~600~~	~~26,880~~ 220,245	Default & Protocol 1
	Hanover Twp.	SR - 5			41.22276	-75.90530	Major Erosion Area							
Solomon Creek	Hanover Twp.	SR - 6			41.22966	-75.90960	Major Erosion Area (downstream end by church)					300 ~~400~~	~~17,920~~	
	Hanover Twp.		SC-1		41.22389	-75.90616	Minor/Major Erosion	41.225087	-75.905573	41.223570	-75.905841	600	~~26,880~~	
~~Susquehanna River (City of Wilkes-Barre Planning Area)~~														
~~UNT to Susquehanna River~~	~~Pittston Twp.~~	~~SRWB 7~~			~~41.30909~~	~~-75.76646~~	~~Major Erosion Area (left bank)~~	~~41.30928~~	~~-75.76698~~	~~41.30972~~	~~-75.76778~~	~~270~~	~~12,096~~	
	~~Pittston Twp.~~	~~SRWB 8~~			~~41.30915~~	~~-75.76691~~	~~Major Erosion Area (right bank)~~							
	~~Pittston Twp.~~	~~SRWB 9~~			~~41.30958~~	~~-75.76778~~	~~Major Erosion Area (left bank)~~							

WVSA MS4 - STREAM RESTORATION PROJECTS

Appendix VI – Table C: Stream Restoration Projects

5,246 235,440

Stream Name (eMapPA)	Municipality	PRP Photo #	Amendment No. 1 Photo #	Amendment No. 2 Photo #	Latitude	Longitude	Description	Start Point (downstream end) Latitude & Longitude		End Point (upstream end) Latitude & Longitude		Total Length of Restoration (ft)	Total Sediment Load Reduction (lbs/year)	Crediting Method
Warrior Creek (Warrior Creek/Susquehanna River Planning Area)														
Warrior Creek and UNT to Warrior Creek	Hanover Twp.	WC - 1			41.20555	-75.95020	Major Erosion area	41.21003	-75.95631	41.20784 ~~41.2039~~	-75.95544 ~~-75.95523~~			Protocol 1 & Protocol 3
	Hanover Twp.	WC - 2			41.20564	-75.95630	Major Erosion area							
	Hanover Twp.	WC - 3			41.20628	-75.95660	Major Erosion area							
	Hanover Twp.	WC - 4			41.20633	-75.95610	Major Erosion area							
	Hanover Twp.	WC - 5			41.20653	-75.95610	Major Erosion area							
	Hanover Twp.	WC - 6			41.20673	-75.95620	Major Erosion area					~~4,250~~	~~190,400~~	
	Hanover Twp.	WC - 7			41.20723	-75.95600	Major Erosion area							
	Hanover Twp.	WC - 8			41.20743	-75.95590	Major Erosion area							
	Hanover Twp.	WC - 9			41.20814	-75.95540	Major Erosion Area (left bank)							
	Hanover Twp.	WC - 10			41.20884	-75.95520	Major Erosion Area (right bank)							
	Hanover Twp.	WC - 11			41.21006	-75.95500	Major Erosion Area (right bank)							
	Hanover Twp.	WC - 12			41.20998	-75.95490	Major Erosion Area (right bank)					2,913	178,409	
	Hanover Twp.	WC - 13			41.20985	-75.95540	Major Erosion Area (left bank)							
	Hanover Twp.	WC - 14			41.21030	-75.96280	Major Erosion area (left side of culvert)							
	~~Hanover Twp.~~	~~WC - 15~~			~~41.21153~~	~~-75.97430~~	~~Trib to Warrior Creek Erosion (both sides)~~	~~41.21248~~	~~-75.9741~~	~~41.2112~~	~~-75.97438~~			
	~~Hanover Twp.~~	~~WC - 16~~			~~41.21233~~	~~-75.97400~~	~~Major Erosion area~~	~~41.21301~~	~~-75.97483~~	~~41.21131~~	~~-75.97084~~			
	Hanover Twp.		WC-23		41.21033	-75.85483	Major Erosion Area							
	Hanover Twp.		WC-24		41.21372	-75.95342	Major Erosion Area	41.20993 ~~41.210331~~	-75.95552 ~~-75.85483~~	41.2128	-75.95264	~~1,200~~	~~53,760~~	
	Hanover Twp.		WC-25		41.21238	-75.95326	Major Erosion Area							
												TOTAL LF	**TOTAL LBS**	
												~~**21,795**~~	~~**842,700**~~	
												16,717	**1,134,760**	

GREEN text = ADDED stream section to PRP
RED text = DELETED or REVISED stream section from PRP

STREAM RESTORATION PROJECT PHOTOS – EXISTING CONDITIONS

ABRAHAMS CREEK - FORTY FORT BOROUGH

AC-4

AC-5

STREAM RESTORATION PROJECT PHOTOS – EXISTING CONDITIONS

GARDNER CREEK (MOHEGAN SUN) – PLAINS TWP

GC-6

GC-7

APPENDIX VI-D

PROPOSED PARSED AREAS
POLLUTANT LOAD REDUCTION CALCULATIONS

WYOMING VALLEY SANITARY AUTHORITY Together, we put water in its place.		**Pollutant Removal Rate Calculations**
Combined Sewer Area - Parsed Area **Duryea Borough & Hughestown Borough**		Project Number: WVSA PRP Amendment #2 Calculated By: CB Checked By: SA Date: 2-26-2024

Pollutant Reduction Calculations:

			Existing Sediment Load		Stauffer Point
Parsing Limit (Acres)	**Land Use**	**Acres**	**Luz. Co. Loading Rates (lbs/ac/yr)**	**Existing Pollutant Load (lbs/yr)**	**10% Sediment Reduction from PRP Plan (lbs/yr)**
90.83	**Impervious**	**24.67**	**1,648.22**	**40,661.59**	**4,066.16**
	Pervious	**66.15**	**221.19**	**14,631.72**	**1,463.17**
Total Sediment Reduction from PRP Plan (lbs/yr)					**5,529.33**

WYOMING VALLEY SANITARY AUTHORITY Together, we put water in its place.		**Pollutant Removal Rate Calculations**
SCI Dallas - Parsed Area **Jackson Township**		Project Number: WVSA PRP Amendment #2 Calculated By: CB Checked By: SA Date: 2-26-2024

Pollutant Reduction Calculations:

			Existing Sediment Load		Stauffer Point
Parsing Limit (Acres)	**Land Use**	**Acres**	**Luz. Co. Loading Rates (lbs/ac/yr)**	**Existing Pollutant Load (lbs/yr)**	**10% Sediment Reduction from PRP Plan (lbs/yr)**
754.28	**Impervious**	**36.61**	**1,648.22**	**60,341.33**	**6,034.13**
	Pervious	**717.67**	**221.19**	**158,741.43**	**15,874.14**
Total Sediment Reduction from PRP Plan (lbs/yr)					**21,908.28**

WYOMING VALLEY SANITARY AUTHORITY Together, we put water in its place.		**Pollutant Removal Rate Calculations**
Stauffer Point - Parsed Area **Hughestown Borough & Pittston Township**		Project Number: WVSA PRP Amendment #2 Calculated By: CB Checked By: SA Date: 2-26-2024

Pollutant Reduction Calculations:

			Existing Sediment Load		Stauffer Point
Parsing Limit (Acres)	**Land Use**	**Acres**	**Luz. Co. Loading Rates (lbs/ac/yr)**	**Existing Pollutant Load (lbs/yr)**	**10% Sediment Reduction from PRP Plan (lbs/yr)**
44.19	**Impervious**	**7.99**	**1,648.22**	**13,169.28**	**1,316.93**
	Pervious	**36.2**	**221.19**	**8,007.08**	**800.71**
Total Sediment Reduction from PRP Plan (lbs/yr)					**2,117.64**