

**MINUTES**  
**WORCESTER TOWNSHIP PLANNING COMMISSION**  
**WORCESTER TOWNSHIP COMMUNITY HALL**  
**1031 VALLEY FORGE ROAD, WORCESTER, PA 19490**  
**THURSDAY, DECEMBER 14, 2023 - 7:00 PM**

**1. CALL TO ORDER**

The meeting was called to order at 7:31PM

**2. ATTENDANCE**

Jennifer Taylor was absent from the meeting. All other members were present.

**3. APPROVAL OF MEETING MINUTES**

- Motion to approve the November 9, 2023, Planning Commission Meeting Minutes

(No eligible quorum was present to pass the minutes)

**4. CONDITIONAL USE APPLICATION: 2023-01**

- The Variety Club seeks Conditional Use approval to erect playing field lights at 2950 Potshop Road.

Marc Jonas, Esq. presented on behalf of the applicant. He and Ms. Mary Beth Schmidt provided a brief history of the Variety Club, property, and summarized the proposal. The Variety Club's lighting expert, Bob Zoeller, provided a Powerpoint presentation to the Planning Commission regarding the 70-foot lights that would be erected at the Variety Club. Michael Bowker, P.E., also presented a topographical map to the Commission, and discussed the multiple phases of the project. It was confirmed the Conditional Use Application for athletic field lights was part of the first phase.

Chair Sheer asked if the applicant had any additions to the materials submitted since the December 15<sup>th</sup> review. Mr. Jonas replied they did not.

The Planning Commission discussed the presentation with the applicant. Chair Sheer asked about the time of day/s of the athletic field lights would be illuminated. Ms. Mary Beth Schmidt replied they would be extinguished by 9pm Monday through Friday, 10pm on Saturday, and would not be illuminated on Sundays.

The Commission members asked several questions regarding the lights' impact on neighboring properties. The Commission asked about rented use of the fields. Ms. Schmidt replied that the uses benefited many other youth organizations and non-for-profit endeavors that align with the Variety Club's mission to serve youth with disabilities. The applicant confirmed there would be no sound system as part of this project.

Vice-Chair Greenawalt thanked the applicant and their team for the presentation. She also thanked the applicant for their work with disabled youth.

**Lee Knoch motioned to recommend approval of the conditional use application. Michelle Greenawalt seconded the motion. The motion passed 3-1, with Mr. Andorn voting against the recommendation.**

## **5. WORCESTER TOWNSHIP OPEN SPACE UTILIZATION AND ACQUISITION ANALYSIS**

Scout Troop 133 was unable to attend the meeting. The Planning Commission members were updated by the Township manager regarding the progress of the Griffith property acquisition.

Mr. Jim Thompson and Dianne Cram presented on behalf of the Worcester Historical Society. His presentation focused on the Old Dutchie Church recently sold to the Township by the Historical Society. Ideas proposed included:

- Possible connection to Heebner Park via Trail parallel to Heebner Road. The Commission discussed the need to engage with property owners in that area and discuss their interest or concerns.
- The “son of the Methacton Oak” tree growing at the Old Dutchie Church.
- Potential improvements to the Old Dutchie Church Building in partnership with the Township.

Chair Sheer asked Mr. Thompson about potential uses for the building. The use as a nature center was discussed, with access being the main point of concern given the limited parking and driveway access off Rt. 363.

The Commission thanked Mr. Thompson for his presentation.

The Commission discussed potential uses for several properties, including Griffith, 3335 Fisher Road, and the Old Dutchie Church. The Commission discussed the importance of historic preservation as an element of open space acquisition prioritization.

## **6. PLANNING COMMISSION AGENDA**

The Township manager mentioned he would reschedule the Boy Scouts. The Commission requested the neighbors bordering 3335 Fisher Road, and Griffith be contacted concerning an opportunity to speak at the upcoming meeting.

## **7. PUBLIC COMMENT**

**There was no public comment.**

## **8. ADJOURNMENT**

The meeting was adjourned at 8:26 PM.



active applications (review period expiration)

- LD 2017-02 Palmer Village, LLC (*review period waived*)
- LD 2022-01 City View (*review period waived*)

DRAFT



4259 W. Swamp Road  
Suite 410  
Doylestown, PA 18902

www.cksengineers.com  
215.340.0600

January 24, 2024  
Ref: # 7550

Township of Worcester  
PO Box 767  
Worcester PA 19490-0767

Attention: Sean Halbom, Township Manager

Reference: BT Worcester, LLC – City View Land Development  
Preliminary Plan Review – Third Review

Dear Mr. Halbom:

I am in receipt of a land development submission consisting of preliminary plans and supporting documentation for the City View Project prepared for BT Worcester, LLC. These plans consist of 34 sheets, have been prepared by T & M Engineers, dated January 27, 2022, revised November 17, 2023. These plans propose the development of 13.92 gross acres at the property on 2974 Germantown Pike in Worcester Township. This property is commonly known as the “Dubner Property”. CKS previously reviewed the revised Preliminary Plan submission and set forth review comments in a letter dated November 22, 2023. In addition to the plan set, we have also reviewed a “Post Construction Stormwater Management and Erosion and Sediment Control Report” dated January 27, 2022, last revised November 17, 2023, prepared by T & M Associates for BT Investments, Inc.

The plans propose two (2) four-story apartment buildings. One building will contain 80 units while the other building will contain 64 units for a total of 144 apartment units. Also proposed are parking areas that include 375 parking spaces. Stormwater management consists of an above-ground and under-ground basins. The site will be served by public water and sewer.

CKS Engineers, Inc. has reviewed the revised preliminary plans and supporting documents in conjunction with this land development submission to determine compliance with Township Zoning and Township Subdivision and Land Development Code. Based on our review, we offer the following comments:

## **ZONING**

1. Sheet 2 includes a table entitled “Zoning Data”. The table indicates the maximum density allowed by ordinance is twelve dwelling units per acre. The proposed plans show a density of 11.76 dwelling units per acre. We note that since the time of the last plan submission, 46 units have been removed from the plans. This reduction of units reduces the overall density so that the previously required Transferable Development Rights (TDRs) are no longer required.

2. In the zoning table on Sheet 2, the minimum parking setback along Germantown Pike is required to be 75'. The proposed setback is 25'. Zoning relief was obtained by ZHB 2022-08 order dated June 16, 2022.
3. Approval from the Zoning Hearing Board has been obtained to allow the installation of storm sewer, riprap and grading within the Flood Plain Conservation District. (150-138.A(4)). This was by ZHB 2022-08, dated June 16, 2022.

### **SUBDIVISION AND LAND DEVELOPMENT**

4. The list of utilities now include Lower Providence Township and the Lower Providence Township Authority. These are not included in this project. The list should be revised.
5. The plans should show the proposed height of the buildings. The Zoning Table on Sheet 2 shows that the height will meet the 45' height restriction, but a note on the plan indicating the specific height is requested.
6. Architectural Drawings of the building must be submitted to the Township.
7. The plans show a 25' setback to the parking area at the front along Germantown Pike. As stated previously, this does not meet the required 75' setback. Relief was obtained by ZHB 2022-08 order dated June 16, 2022.
8. The applicant will be required to prepare a Planning Module for this project for sanitary sewer service. This module will need to be submitted to the Pennsylvania Department of Environmental Protection (PADEP) for review and approval in order to revise the Township's current Act 537 Plan. The Township will need to review the planning module prior to submission and execution for PADEP.
9. The water supply design and all associated details should be review and approved by the Pennsylvania Water Company for this project.
10. The applicant should confirm with the Pennsylvania American Water Company the type of meter pits (if any) that will be required for this project. If meter pits are required, they should be shown on the plan in order to make sure they don't impact or conflict with other utilities.
11. Fire Marshall approval is required. Additionally, The Worcester Fire Marshall should review the plans to verify that he is satisfied with the number and location of fire hydrants shown on the plans.
12. The Applicant will be required to purchase sanitary sewer tapping fees from the Township. The Township will determine the adequate number of EDUs required for this project and convey that information to the applicant.
13. Approval from the Township's Traffic Consultant is required.

14. The Existing Feature plan, Sheet 3, indicates that a wooden fence separates the subject property from Parcel 43-00-02206-14-5 but the note on sheets 7 and 8 states chain link. This discrepancy must be addressed.
15. A trash enclosure detail is provided on Sheet 21 but the location of the enclosure could not be found on the plans.
16. A 12-foot high Emergency Gate detail is shown on the Sheet 21 but the plans do not indicate 12-foot high fence or gate. Please note that fencing can be no higher than 6-feet per Z.O. 150-182.
17. The sidewalk widths must be added to the plans.
18. There are numerous notes on the plan regarding the walls that will be required as part of the project. The note says "wall(by others)". The design of the walls should be submitted with the Final Plans submission for review.
19. The following approvals will be required in conjunction with this project:
  - a. Pennsylvania American Water Company
  - b. Pennsylvania Department of Environmental Protection (Planning Module & NPDES Permit)
  - c. Montgomery County Conservation District – (Erosion and Sedimentation Control and Stormwater NPDES Permit)
  - d. PennDOT – Park Avenue
  - e. Montgomery County – Germantown Pike

### **STORMWATER MANAGEMENT AND GRADING**

The following comments pertain to the grading, stormwater management/storm drainage and erosion and sedimentation control aspects of the current Preliminary Plan submission and are based upon the requirements of the Worcester Township's Stormwater Management Ordinance (SMO) and/or Subdivision and Land Development Ordinance:

20. The applicant is advised that a NPDES permit, along with an Erosion and Sedimentation Control Plan pertaining to the proposed site development, which is approved by the Montgomery County Conservation District, will be required prior to plan recording. (SMO 129-12)
21. A Stormwater Management Agreement will be required. The Agreement shall be reviewed and approved by the Township Solicitor prior to plan approval. (SMO 129-138)
22. Stormwater Infiltration testing has not been performed, which is required. The applicants response states infiltration testing was performed and is included in the Stormwater Narrative.

No infiltration testing is included in the report and must be included in future submission.

Additionally, information about the site contamination must be submitted to the Township including type of contamination, location, etc. Depending on the information provided, Phase I/Phase II Environmental Study maybe required. The Applicant's response indicates that information pertaining to the soil contamination will be provided under separate cover. This office has not received any additional information.

23. The matting for Swale S1 must be shown on Sheet 13.
24. Additional information must be provided regarding Sediment Basin A. We note that the Emergency Spillway Elevation on Sheets 13, and 27 do not match. No elevation or sizing information is provided in the skimmer details and no detail for the temporary riser is shown.
25. Calculations for the rip-rap sizing must be provided. We recommend that a minimum rip-rap size of R-4 be proposed.
26. No cut or fill shall be made steeper than 4 horizontal to 1 vertical (4:1). It appears the project proposes 3:1 slopes throughout the site. A waiver has been requested. (SMO 129-18.G(4)(5))
27. Grading must be 5 feet from property lines to allow for normal rounding of the contours. There are multiple areas that the limit of disturbance is closer than five feet to the property boundary. (129-18.G(6)).

A waiver has been requested. We note temporary grading easements may be required.

28. Chapter 105 permitting from PADEP will be required at a minimum for the pipe outfall near North Park Avenue and for the basin outfall pipe.
29. Roof drain locations must be indicated on the plan. (SMO 129-18(C)(20))

The applicant's response indicates that roof drains will be added during final plans.

30. A profile of storm sewer B 003 to MH-B1 must be added to the plans.
31. All portions of the basin bottom shall have a minimum slope of 2%. The proposed Basin B appears bottom is flat. The applicant's response states that a waiver will be requested. SMO 129-18.H(10)).
32. A stabilized access drive with an access easement has been shown for Basin B. The engineer's response that indicates Grass Pave Turf Reinforcement has been called out on the plans. This office cannot find this plan reference for the Basin Access Drive. (SMO 129-18-H(22)).

33. A drainage and grading easement will be required for the improvements on TMP 67-064-058.
34. A maximum of 4:1 slopes are required for excavations. 3:1 slopes or steeper appear adjacent to the tot lot. The applicant's response states a waiver will be requested.
35. Copies of all environmental reports for the property should be provided to the Township. The applicant's response indicates these reports will be under separate cover.

The above represents all comments on this third review of the preliminary land development plans for the City View Project. The Applicant's Engineer should revise the plans to conform to these comments and resubmit for further review. It should be noted that the Township's Traffic Consultant, Bowman will have a review letter with comments on the traffic impacts of this development. All comments set forth in the Bowman letter should also be addressed. It is also recognized that PennDOT has also submitted a review letter on the traffic study for this project.

All comments set forth in all review letters should be addressed to the satisfaction of the Township and to other regulatory organizations. Please contact me if you have any questions or need any additional assistance on this preliminary plan submission.

Very truly yours,  
CKS ENGINEERS  
Township Engineers



John W. Evarts, P.E.

JWE/paf

cc: Wendy McKenna, Esq., Township Solicitor  
Mary Ann Murphy, Worcester Township  
Dustin Schreiber, Worcester Township  
Casey Moore, P.E., Bowman  
EJ Mentry, Township Manager, Lower Providence Township  
Christopher W. Jensen, P.E., T & M Associates, Inc.  
BT Worcester, LLC (200 Dryden Rd, Ste 2000, Dresher PA 19025)  
File



December 19, 2023

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

Attention: Mr. Robert D'Hulster, Public Works Director

RE: **Traffic Review #5 – Highway Occupancy Permit Plans (PennDOT & County)**  
City View (formerly Fairview) Apartments (2974 W. Germantown Pike) – 180 proposed apartment units  
Worcester Township, Montgomery County, PA  
Project No. 310767-01-001 (formerly 821A37.11)

Dear Sean:

On behalf of the Township, McMahon, a Bowman company (herein will refer as Bowman) has completed our fifth (5<sup>th</sup>) traffic engineering review for the proposed residential development to be located at 2974 W. Germantown Pike (southeast quadrant of W. Germantown Pike and N. Park Avenue) in Worcester Township, Montgomery County, PA. According to the materials submitted to our office, the development is proposed to consist of 180 apartment units with one, full-movement driveway proposed along N. Park Avenue (S.R. 0363) and one, full-movement driveway proposed along W. Germantown Pike (County roadway).

The following documents were reviewed in preparation of our comments:

- PennDOT Highway Occupancy Permit Plans – BT Worcester, LLC, prepared by T & M Associates, last revised November 17, 2023.
- Response to PennDOT Comments Letter (dated June 9, 2023) – 2974 Germantown Pike, prepared by T & M Associates, dated November 21, 2023.
- PennDOT CS4401 – Ramp A&B – Park & West Germantown Pike Ramp Design and Inspection forms, dated November 2023.
- Response to Township Comments Letter (dated September 8, 2023) – 2974 Germantown Pike, prepared by T & M Associates, dated November 21, 2023.
- Montgomery County Highway Occupancy Permit Plans – BT Worcester, LLC, prepared by T & M Associates, last revised November 17, 2023.
- Response to Montgomery County Comments Letter (dated August 23, 2023) – 2974 Germantown Pike, prepared by T & M Associates, dated November 21, 2023.
- Septa Bus Stop Coordination – Rt 91 Fairview Village – email chain between August 24, 2023 to August 29, 2023 between T&M Associates and Septa personnel

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

**General**

1. A response letter **must continue to be provided** with any resubmission detailing how each comment below has been addressed, and where each can be found in the resubmission materials (i.e., page number(s)) to assist in the re-review process. Additional comments may follow upon review of any resubmitted and more detailed plans as the land development process proceeds.
2. This review is specific to the PennDOT and Montgomery County Highway Occupancy Permit (HOP) Plans referenced above. The applicant **must still address our office's comments pertaining to the land development plans contained in our March 1, 2022 review letter.**
3. Since access to the site is proposed via W. Germantown Pike which is a County roadway and N. Park Avenue (S.R. 0363) which is a State roadway, the highway occupancy permit (HOP) plans are concurrently being reviewed by Montgomery County and PennDOT to obtain their comments and/or concurrence on the access and proposed roadway/intersection improvements proposed in the study. Plans and materials submitted to both agencies should be copied to the Township also for detailed review. All comments received from Montgomery County and PennDOT must also be addressed to their satisfaction for permitting, and the applicant and their project team must then coordinate and communicate responses closely with the Township, the Township Engineer (CKS), and our office.
4. According to the Township's Roadway Sufficiency Analysis, the proposed development is located in Transportation Service Area South, which has a corresponding impact fee of \$3,125 per "new" weekday afternoon peak hour trip and the applicant will be required to pay a Transportation Impact Fee in accordance with the Township's Transportation Impact Fee Ordinance. Based on information provided in the TIA, the proposed development is expected to generate 71 "new" trips during the weekday afternoon peak hour resulting in a **transportation impact fee of \$221,875**. The applicant should provide information on the existing use(s) of the site, and if those use(s) were active during the conduct of the Township Act 209 study, if the applicant seeks a possible transportation impact fee credit. We will then review for the appropriateness for applying to the existing use(s). Furthermore, as noted in the engineer's response letters, the applicant may be seeking credit to complete additional work along N. Park Avenue near the culvert area at the western end of the site.

**Highway Occupancy Permit Plans (PennDOT and Montgomery County)**

5. While it is understood that the applicant is coordinating with PennDOT regarding the existing culvert along **N. Park Avenue (S.R. 0363)**, the **sidewalk as shown on the plans cannot be constructed at this time**. In addition, as discussed at the October 17<sup>th</sup>, 2023 meeting, additional information for the culvert widening, such as costs and status of discussions with the neighboring property owners regarding the extension of the proposed sidewalk should be provided.
6. A fence of some type acceptable to the Township is recommended to be added between the proposed sidewalk and the retaining wall along West Germantown Pike.
7. The applicant will need to have a stormwater management maintenance agreement with the Township that will run with the owner of the property in perpetuity for any parts of the system that PennDOT or the County require that the Township must be the applicant to obtain, and then



maintain as part of permitting process. The applicant should coordinate with the Township Solicitor's office on the maintenance agreement.

*The applicant responded to this prior comment as "will comply", but the maintenance agreement must still be completed and executed with the Township Solicitor's office.*

8. The cross-sections West Germantown Pike must be modified to include the tie-in slopes.
9. The design of the eastern radius and tangent curb transition to the existing edge of road at the Germantown Pike access must be modified from its current design and be acceptable to Montgomery County.
10. It appears from the truck turns provided, there may be some conflict at the proposed island at the N. Park Avenue (SR 0363) access. It appears as though two different islands are shown on the plans. Please resolve these issues.
11. The applicant should provide correspondence from the Fire Marshall indicating their review of the submitted emergency vehicle turning movements.
12. The ramps located along West Germantown Pike, both at the intersection of West Germantown Pike and N. Park Avenue (SR 0363) and at the intersection of West Germantown Pike and Driveway A have not been reviewed by Bowman because they are located fully within the County Required Right-of-Way and are therefore the responsibility of the County to provide the review.
13. The northbound N. Park Avenue (S.R. 0363) left-turn lane approaching Germantown Pike could be extended to provide more stacking and reduce the size of the gore area between the back-to-back left turn lanes with the site access. PennDOT should make final determination.
14. A modified **traffic signal permit plan was not included** in the PennDOT or County submissions for Germantown Pike and N. Park Avenue (S.R. 0363). The applicant's engineer has indicated that would be provided in a future submission. The road improvements and pedestrian improvements on the plans will require signal permit plan modifications, as well as the optimization of signal timings recommended in the TIA. A TE-160 form must be submitted to the Township as well for approval.
15. The signal must be integrated into PennDOT's unified Command and Control software, with the PennDOT fiber optic cable that is present along Germantown Pike. If the fiber optic cable is impacted by the proposed work, PennDOT provides details for the designer and applicant to complete.

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

Sincerely,



Casey A. Moore, P.E.  
Executive Vice President

CAM/BMJ

cc: John Evarts, P.E., CKS Engineers (Township Engineer)  
Devin Ralph, Esq. (Township Solicitor)  
E.J. Mentry, Lower Providence Township Manager  
Fran Hanney, PennDOT  
Paul Lutz, PennDOT  
Thomas Marucci, Septa Senior Director – Bus Operations  
Andy Parker, McCormick Taylor (PennDOT and Montgomery County Review Consultant)  
Susan M. Guisinger-Colon, P.E., LEED AP (Montgomery County consultant)  
Peter Clelland, BET Investments (Applicant)  
David Stewart, T&M Associates (Applicant's Site Civil Engineer)  
Chris Jensen, P.E., T & M Associates (Applicant's Site Civil Engineer)  
Matt Hammond, P.E., Traffic Planning and Design, Inc. (Applicant's Traffic Engineer)

Q:\PA-FTWA-MC\MCM\eng\WORCETO1\821A37 - Fairview Village Apartments\Correspondence\Out\2023-12-19 Review Letter #5\_2974 Germantown Pike BET apartments (draft).docx



# pennsylvania

DEPARTMENT OF TRANSPORTATION

**Date:** 12/22/2023  
**Subject:** Highway Occupancy Permit Application No. 303898, Cycle No.2 - Returned For Revisions  
**To:** BT Worcester, LLC  
200 Dryden Road  
2000  
Dresher, PA 19025  
**From:** PennDOT Engineering District 6-0  
7000 Geerdes Boulevard  
King of Prussia, PA 19406

Dear Applicant,

PennDOT has reviewed your application for completeness, consistency and compliance with applicable Department Regulations. This review has identified issues that must be addressed in order for our review to continue.

The Department's review comments are attached.

Once the comments have been addressed, please resubmit the application and associated material for further review.

Upon resubmission, the applicant's engineer should put together a letter that describes how each comment has been addressed and where each can be found. This will help expedite the review. For guidance on HOP applications refer to 67 PA Code, Chapter 441, Chapter 459 and PennDOT Publication 282, "Highway Occupancy Permit Guidelines". Additional comments may follow upon review of the resubmitted application.

If you have any questions regarding this matter, you may contact the Department's representative, Drew E. Sirianni, PE of Pennoni at 215-254-7893 or DSirianni@Pennoni.com.

## Response Comments

**Date:** 12/22/2023

**Application Number:** 303898, Cycle No.2

## Form Letter Notes

(1) \* Upon resubmission, the applicant's engineer must prepare a letter that describes how each comment has been addressed and where each can be found in the plan set. Further, if the applicant's engineer has made any design changes independent of PennDOT reviewer comments, they must include a section in the response-to-comments letter that describes the additional design changes.

\* Additional comments may follow upon review of the resubmitted application. If you have any questions pertaining to the technical aspects of this review, please contact the Department's representative, Drew E. Sirianni, PE of Pennoni at 215-254-7893 or DSirianni@Pennoni.com. Please reference the HOP Application number in all correspondence.

\* For guidance on Highway Occupancy Permit applications refer to PA Code Title 67, Chapter 441, Chapter 459 and PennDOT Publication 282. This will help expedite the review.

## General

(1) As previously indicated, consistent with current Department Policy, applicants for Highway Occupancy Permits must apply for an EPS Business Partner ID (BPID). The EPS BPID is to be used in the establishment of a billing account for the invoicing of inspection costs. After an EPS BPID is obtained and activated by the applicant's system administrator, a user ID will then need to be created in order to ensure that the EPS BPID is integrated into EPS and searchable through the "looking glass" feature. Once this has been established, please provide the following information in the applicant contact information tab under "Applicant Team":

- BPID

- Contact information (name/title/phone/email) for a general contact person (person that typically deals with the Highway Occupancy Permit application process)

- Contact information (name/title/phone/email) for a billing contact person (person that typically deals with the Highway Occupancy Permit invoicing process)

For information on obtaining an EPS BPID, you may visit:

<https://www.epermitting.penndot.gov/EPS/home/manageBPRegistration.jsp> (follow the instructions that are in the pink shaded row) or contact the ECMS Help Desk. Please be aware that having an ECMS BPID does not guarantee the establishment of an EPS BPID as they are not reciprocal to one

another.

### **Transportation Impact Study/Transportation Impact Assessment**

- (1) The access scheme has been revised between submissions and is now inconsistent with what is recommended in the approved TIA. The site access to Park Avenue (SR 0363) is identified as full movement in the TIA, but the left turn egress movement is now shown restricted on the HOP Plans. Submit a revised TIA that reflects analysis of the presently proposed access scheme.

### **Plan Presentation**

- (1) At a minimum, a 2' pavement notch must be provided at the limit of the proposed widening for the full depth asphalt pavement. Revise the layout of the full depth pavement to meet this requirement and label the 2' (min.) pavement notch on the Construction Plan.
- (2) General Notes
  - a. Revise General Note 33 for consistency with the curb reveal that is proposed by the project (4").
  - b. Provide a general note stating "Offer or Dedication to the Ultimate Right-of-Way line shall run on perpetuity in favor of the applicable government authority."
- (3) Title Sheet Information
  - a. The length of the project indicated on the title sheet is 750 feet or 0.0002 miles, but these distances don't equate to each other. Additionally, the distance between the From STA and the To STA doesn't equate to either value. Verify and update the project length and From/To Stations accordingly.
  - b. The Limits of Work (From STA to STA) on the title sheet don't match to the Limits of Work shown on the subsequent plan sheets. Verify and update for consistency.
- (4) Construction Details
  - a. As previously indicated, the applicant is required to remove all standard RC details from the plan set. As a point of further clarification, the standard details of curb and sidewalk that are still shown on sheet 23 and 25 need to be removed from the plan set.
  - b. Within the table of RC standards, revise the date of RC-28M to the latest revision, Sept. 1, 2023.
  - c. Add RC-22M to the table of RC standards.
- (5) The applicant must refer to the marked-up plans to assist in the clarification of comments. The marked-up plans can be found on the "attachments" screen in EPS.

### **Restoration and Location**

- (1) The proposed mill and overlay will require the replacement of existing rumble strips and raised

pavement markers along SR 0363. Revise the plans as necessary to reflect this.

- (2) As previously indicated, full width milling and overlay is required within the construction limits because of the addition of a left-hand turn lane and the proposed shift of the alignment. As a further point of clarification, the mill and overlay work must also be shown on the SR 0363 typical section.

### **Access Configuration/Profile- Driveways/Local Roads**

- (1) The WB-40 truck turning templates included with this submission show the trucks encroaching upon the improper lanes on SR 0363. Revise the turning templates and/or access geometry to eliminate encroachment into improper lanes.

### **Typical Sections**

- (1) Revise the base course as follows:
  - Change from PG 64-22 to PG 64S-22
  - Change ESAL range from 0-0.3 million to 10 to <30 million.

### **Curb**

- (1) Revise the proposed median and channelization island at the proposed access to be designed with type A or type B mountable curb median island.

### **Cross Sections**

- (1) Grades on most of the cross sections are set incorrectly. No grade breaks shall be provided within the through lane. Widening shall be completed to match the cross slope of the existing through lane. Revise the design accordingly.
- (2) As previously indicated, from STA 1+00 to STA 3+75, revise the initial 5' behind the curb to be graded up at 2%, then proceed beyond that point to make your tie in grade. Do not exceed 4:1 for any fill slope within the clear zone.
- (3) Show the proposed sidewalk work at STA 0+75 and STA 1+00 for consistency with the Construction Plan.
- (4) Label the proposed cross slopes of the widening on all cross sections. The information is missing at STA 1+00, 1+75, 2+00, 3+00, 3+25, 6+50, 7+00, and 9+25.

### **Maintenance And Protection Of Traffic**

- (1) See attached mark-up plan in EPS attachments. Submit response to comments

### **Right-Of-Way (Design Manual Part III, Chapter 3)**

- (1) It appears that there is a private encroachment into the Legal Right-of-Way near STA 0+75 RT that will be affected by the proposed sidewalk work (private sign and landscape bed with masonry blocks). Prior to issuance of the Permit, the applicant must provide notice to the property owner of the encroachment and the intent to remove it for construction of this project. The notice must be sent via certified mail with return receipt. Items/materials must be carefully recovered from this area and returned to the property owner at an agreed to location. This will become a condition of the permit.
- (2) As previously indicated, this project appears to involve the formal conveyance of Right-of-Way (R/W) to the Pennsylvania Department of Transportation along SR 0363 due to the roadway widening that extends beyond the Legal Right-of-Way Line. The plans must reflect a "REQUIRED RIGHT-OF-WAY LINE TO BE DEEDED TO THE COMMONWEALTH" located at a distance of 5' off the proposed edge of pavement/shoulder at a consistent width parallel to the roadway centerline. The applicant may visit the HOP-Related Forms section of the ePermitting application to obtain the necessary PennDOT conveyance of Right-of-Way form, M-950D1 (Deed Fee Simple). The form must be completed by the applicant, accompanied by an 8.5" x 11" drawing of the area being conveyed, and returned to the District Permits Unit. The Permits Manager will sign the original form. The applicant is then responsible for recording the M-950D1 form and accompanying documents at the county courthouse and returning the form to the Permits Unit, prior to issuance of the Permit. As a point of clarification, the plans show a Required Right-of-Way line, but it still is not 5' off the proposed edge of pavement/shoulder. Revise the location of the Required Right-of-Way Line.
- (3) As previously indicated, a general note must be added to the plans that indicates the width and each source(s), including plan title and date, used in determining the Legal Right-of-Way for SR 0363. The source(s) must be obtained from the Pennsylvania Department of Transportation District 6-0 Plans Unit in King of Prussia, PA, and any other recorded plans from the County Courthouse. As a point of clarification, this note was added to the plans with this resubmission, but the width is missing from the note.
- (4) The PennDOT Required Right-of-Way must tie to the PennDOT Legal Right-of-Way near the intersection with Germantown Pike. Make the tie and label the tie point.

**Signal Section (Publication 46, 148 And 149)**

- (1) As previously indicated, the traffic signal design submission package was missing from this cycle submission. Please include it with the resubmission.
- (2) As previously indicated, integrate the traffic signal at Germantown Pike and Park Ave into the Department's Unified Command and Control Software.

## **ADA Compliance**

- (1) A railing is necessary along the back of the sidewalk near STA 0+75 to protect pedestrians from the drop off to the stream. The railing details must be added to the HOP plans and must be designed with break-away posts.

## **Drainage**

- (1) As previously indicated, a drainage report must be provided with the resubmission. The report must analyze the hydraulic capacity and utilization of the existing and proposed stormwater conveyance system along Park Avenue (SR 0363). Also, the gutter spread calculations must be incorporated into this report. Also, include capacity calculations for the proposed swale from STA 5+00 to STA 7+50 to demonstrate that it will not overtop during the design storm. The report must be signed and sealed by a Professional Engineer registered in the Commonwealth. For additional guidance regarding the required roadway drainage report and calculations, refer to Publication 282 Appendix B1, Publication 13M Chapter 10, and Publication 584 Chapter 13. As a point of clarification, this resubmission included the site stormwater management report, but did not include the required roadway drainage report in accordance with the aforementioned Department publications.
- (2) The proposed stormwater structure locations are inconsistent between the plan view (sheet 8 and top of sheet 9) and the profile view (bottom of sheet 9). For example, Inlet C5 in the plan view is shown near STA 8+00, but in the profile view it is shown near STA 7+50. As another example, manhole C7 is shown in the plan view near STA 9+65, but in the profile view it is shown near STA 9+00. Revise the plan and/or profile so that the location of the stormwater structures is consistent.
- (3) The Station and Offset must be provided on the HOP Plans for each stormwater structure.
- (4) The type of proposed stormwater pipe is inconsistent between the plan view (sheet 8) and the profile view (sheet 9). Revise the plan and/or profile so the type of proposed pipe is consistent. HDPE is not accepted under pavement on a State Route.
- (5) In addition to the proposed end wall, a culvert extension will be required to build the proposed sidewalk near STA 0+75. Provide all required information on the plans (e.g. pipe size, type, invert, endwall type, elevations, etc). Be advised, this culvert must be extended outside the clear zone.
- (6) As previously indicated, the applicant is proposing to widen SR 0363 and install parallel subsurface stormwater facilities. If the drainage design cannot be revised to eliminate the proposed drainage impact, in accordance with scenario #3 or 4 of Publication 282 Section 2.2, the municipality must be the applicant on a separate permit application to address maintenance responsibilities. PennDOT is legally bound by Section 421 of the State Highway Law (36 P.S. § 670-421) to enforce this maintenance responsibility for stormwater facilities relating to HOP projects. The Department policy



is that a second HOP application, with the Municipality listed as the applicant, must be submitted stating unequivocally that this second application is only for the maintenance of the proposed stormwater facilities installed within the Right-of-Way. Condition Code 389 stating that "Drainage installed by this permit is the primary responsibility of the Local Government to continually maintain or replace" will be added to the permit.

### **Communication Design**

- (1) Revise as per Traffic Operations comments and resubmit.
- (2) Change contact email from pmccourt@pa.gov to tyuhler@pa.gov
  - Provide street names
  - Provide distance between old and new poles
  - Verify that the fiber line is shown attached to the new poles
  - Separate dimensions of roadway distances and new pole distances



January 30, 2024

Mr. Peter Clelland  
BT Worcester, LLC  
200 Dryden Road, Suite 200  
Dresher, PA 19025

Re: **BT Worcester, LLC**  
Application for Highway Occupancy Permit (No. 22086) – 3rd Review  
Worcester Township, Montgomery County, PA

Dear Mr. Clelland:

On behalf of Montgomery County, McCormick Taylor has completed a review of the HOP materials submitted as part of anticipated Permit No. 22086. The plans and documents received by McCormick Taylor consisted of the following:

- Montgomery County Roads and Bridges Opening of Highway Agreement;
- Highway Occupancy Improvement Plans, BT Worcester, LLC prepared by T&M Associates, last revised November 17, 2023;
- Post Construction Stormwater Management Report prepared by T&M Associates, last revised November 17, 2023;
- Land Development plans for City View, prepared by T&M Associates;
- Copy of property deed;
- CS-4401 forms for proposed ADA ramps;

### **Project Overview**

The project is located at 2974 Germantown Pike, on the southeast quadrant of the Park Avenue & Germantown Pike intersection. The project is the redevelopment of the existing site into a 180-unit apartment building.

### **Review Comments**

The intent of this review is to provide an assessment of compliance with current Montgomery County Roads & Bridges Department's engineering-related requirements and practices associated with Highway Occupancy Permit Reviews.

Mr. Clelland  
January 30, 2024  
Page 2

### **General**

1. An executed Opening of Highway agreement must be completed and provided with re-submission. Applicant signature is missing on the submitted form.
  2. The County does not approve of the submitted radius design with tangent curb transition for the eastern side of the proposed Site Driveway A on Germantown Pike. Revise the design to have the curb radius align with the shoulder instead of having the tangent curb piece.
  3. As previously noted, it is the responsibility of the applicant to notify the property owners of the proposed construction and the modifications along their property frontage and at their driveway within County Legal Right-of-Way along Germantown Pike. Copies of the written notification(s), including certified mail receipts, must be provided with the HOP application prior to issuance of a permit.
  4. As previously noted, coordinate with PennDOT and Worcester Township to satisfactorily address all their review comments, in particular their last known review letters dated December 22, 2023 (PennDOT EPS 303898 Cycle 2) and December 19, 2023 (Worcester Township Traffic Review #5). If there is a more recent review letter from Worcester Township, please provide it to the County. Continue to copy the County on all correspondence with PennDOT and Worcester Township, including but not limited to responses to those review letters.
  5. As previously noted, provide formal Signal Plans for review.
  6. As discussed at the October 17, 2023 coordination meeting held at Worcester Township, the applicant must submit a revised Transportation Impact Assessment (TIA) for review. The revised TIA must reflect the restriction of lefts out from Site Driveway B onto Park Avenue (SR 0363) and the subsequent redistribution of traffic for that movement to instead exit the site via Site Driveway A onto Germantown Pike. Ensure all affected parts of the TIA are revised as needed, including but not limited to the narrative, tables, figures, analyses and appendices.
-

Mr. Clelland  
January 30, 2024  
Page 3

### **Plan Presentation**

7. On Construction plan, the existing curb line, travel lanes and other existing features are not shown to the north of Germantown Pike baseline. Add all the necessary information to the plan.
  8. Clearly note the Site Drive A radii for the ingress and egress curb returns.
  9. As previously noted, call out the curb end taper on the plan and provide curb end detail on the plan.
  10. Full depth pavement section for the County Road must clearly be noted on Drawing CD-2 and remove WMA from the pavement legend for County Roadway.
  11. There appears to be text cut off on multiple plan sheets. Verify and revise the plans as needed.
  12. Add adjacent property owner information to the plans. Driveway A is not fully situated within the property limits; the egress radius extends onto the adjacent property. As such, re-design the driveway or obtain the property owner's approval along with the associated documentation.
  13. The roadway widening must be shown to extend at the existing cross slope, or a 2 percent minimum, whichever is greater. PennDOT Publication 13M, Chapter 1.5. Also, as previously noted the cross sections still appear to have low points at travel lane and shoulder grade break points. Revise the cross slopes to attain positive drainage and update the cross sections accordingly.
  14. On cross sections, provide elevations at all grade break points for both existing and proposed grades. Also, all the tie-in grades and elevations must be noted on the cross sections.
  15. For clarity and in order to ensure that the driveway intersection can safely accommodate the largest anticipated design vehicle, revise the scale of the truck turning templates drawing to a smaller scale. Also, include the missing right-in and left out turning templates.
-

Mr. Clelland  
January 30, 2024  
Page 4

### **Right-of-Way**

16. As previously noted, this project involves the formal conveyance of ROW to the County along Germantown Pike due to the roadway widening that extends beyond the County ROW Line. The County Dedication form, legal description and an 8.5” x 11” exhibit depicting the area being offered for dedication must be **provided prior to the issuance of the permit**. This information will be forwarded to the County Solicitor for review and approval.

### **ADA**

17. Below comments pertain to the ADA ramp designs at Site Driveway A:

#### Ramp A:

- a. The grades noted do not match the spot elevations.
- b. Spot elevations must be provided at all four corners of the detectable warning surface to ensure that the material will not be warped.
- c. Grades noted in front of the ramps do not match the elevations provided.
- d. Ramp length should not exceed 15 ft. per Pub 72M – RC67M. Plans indicate 30 ft. Redesign the ramp as needed.
- e. There is a low point in front of the ramp. Revise the design to eliminate the low point and ponding issues that may arise.
- f. Provide updated CS-4401 form with resubmission for review.

#### Ramp B:

- g. Longitudinal slopes on both sides of DWS must be the same. Grades in the triangular area in front of the ramp do not match the elevations provided. Verify and redesign the ramp as needed.
- h. Provide updated CS-4401 form with resubmission for review.

18. The detectable warning surface embedding detail on Drawing ADA appears to be incomplete. Update the drawing.
-

Mr. Clelland  
January 30, 2024  
Page 5

19. Provide ADA ramp design plans and CS-4401 forms for the ramps located at the site corner of West Germantown Pike and N. Park Avenue (SR 0363) intersection for review.
20. The County is requiring all applicants to complete a curb ramp inspection form, Form CS-4401, for each proposed curb ramp location prior to the issuance of a permit. The form shall be completed to outline the designed condition(s) and will be required to be updated by the applicant to reflect the asbuilt condition prior to close-out of the permit. Submit the required form(s) as part of the next submission.

#### **Drainage**

21. Drainage information for inlet A18 appears to be cut off on Grading and Drainage plan. Update the plans as needed.
22. Drainage shown on HOP plans at Driveway A along Germantown Pike does not match with the Land Development plans and the site drainage report. For instance, drainage structure A18.1 is on the HOP plans and not in the drainage report. Verify and show consistent information on the plans and drainage report.
23. As previously noted, the designer must calculate the peak flow for the 10-year Frequency storm crossing the centerline of the driveway along the County Roadway. Gutter spread calculations provided in the report don't include the spread calculation for the driveway along Germantown Pike, therefore provide spread calculations for the driveway and also evaluate the spread at the roadway widening tie-in at approximate STA 5+76 RT along Germantown Pike. Spreads should equal half the travel lane or 8 ft. total flow width maximum.

#### **Maintenance and Protection of Traffic**

24. As previously noted, the following note should be added to the maintenance and protection of traffic information: "No traffic restrictions or lane closures are permitted between the hours of 6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM, Monday through Friday and legal holidays." This will become a special condition on the permit.
-



Mr. Clelland  
January 30, 2024  
Page 6

Upon resubmission, the applicant's engineer must put together a response letter which addresses how each of the preceding comments has been addressed.

Additional comments may follow upon review of the resubmitted application. If you have any questions pertaining to the technical aspects of this review, or if you are uncertain about how to address any portion of the indicated comments, please feel free to contact me or Manasa Kondreddi at (610) 640-3500.

Sincerely,

A handwritten signature in cursive script that reads "Susan M. Guisinger-Colón".

Susan M. Guisinger-Colón, P.E., LEED AP  
Senior Project Manager

SGC/mlk

cc: Tom O'Brien, Montgomery County Roads & Bridges Department  
Lisa Herbst, Montgomery County Roads & Bridges Department  
Paul Leonard, Interim Township Manager  
Matthew Hammond, PE, Traffic Planning and Design, Inc.  
File

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Casey A. Moore, P.E.  
Executive Vice President  
McMahon, a BOWMAN company  
1515 Market Street, Suite 1360  
Philadelphia, PA 19102

**Re: Highway Occupancy Permit Worcester Township Review  
Project no. 310767-01-001  
2974 Germantown Pike  
Worcester Township, Montgomery County, PA  
T&M File No. BETI00056**

We are in receipt of the McMahon review letter dated September 8, 2023 regarding the above referenced project. We have reviewed the comments contained in the above referenced letter and offer the following in support of the current application. For your convenience and to expedite the review and approval process, the original comments are included, and T&M responses are provided in **bold font**.

### **General**

1. A response letter **must continue to be provided** with any resubmission detailing how each comment below has been addressed, and where each can be found in the resubmission materials (i.e., page number(s)) to assist in the re-review process. Additional comments may follow upon review of any resubmitted and more detailed plans as the land development process proceeds.

**T&M Response: A Response letter has been included with this submission**

2. This review is specific to the revised transportation impact assessment (TIA) and PennDOT and Montgomery County Highway Occupancy Permit (HOP) Plans referenced above. The applicant must still address our office's comments pertaining to the land development plans contained in our March 1, 2022 review letter. Our office has not seen or reviewed the land development plans since that letter.

**T&M Response: The land development with Response Letter has been resubmitted.**

3. Since access to the site is proposed via W. Germantown Pike which is a County roadway and N. Park Avenue (S.R. 0363) which is a State roadway, the TIA (and any associated permit plans) are concurrently being reviewed by Montgomery County and PennDOT to obtain their comments and/or concurrence on the access and proposed roadway/intersection improvements proposed in the study. Plans and materials submitted to both agencies should be copied to the Township also for detailed review. All comments received from Montgomery County (10/17/2022 and anything more recent) and PennDOT (6/9/23 and anything more recent, including PennDOT redline mark-ups) must also be addressed to their satisfaction for permitting, and the applicant and their project team must then coordinate and communicate responses closely with the Township, the Township Engineer (CKS), and our office. *Note: A PennDOT submission was made earlier this year without concurrent submission to the Township and our office for review and coordinated efforts, as noted in our September 26, 2022 review letter. We remind the applicant and alert the County and PennDOT that the Township and our office request to be included in the access permitting and roadway/intersection improvements process, including all correspondence and meetings.*

**T&M Response: the township has been provided with the latest set of county and PennDOT**





**HOP plans along with their respective review and response letters.**

4. According to the Township's Roadway Sufficiency Analysis, the proposed development is located in Transportation Service Area South, which has a corresponding impact fee of \$3,125 per "new" weekday afternoon peak hour trip and the applicant will be required to pay a Transportation Impact Fee in accordance with the Township's Transportation Impact Fee Ordinance. Based on information provided in the TIA, the proposed development is expected to generate 71 "new" trips during the weekday afternoon peak hour resulting in a **transportation impact fee of \$221,875**. The applicant should provide information on the existing use(s) of the site, and if those use(s) were active during the conduct of the Township Act 209 study, if the applicant seeks a possible transportation impact fee credit. We will then review for the appropriateness for applying to the existing use(s).

**T&M Response: Details for the requested credit are still under review and may be affected by the potential PennDOT improvements of the existing culvert at the western side of the site crossing N. Park Avenue. Our client will continue to communicate with the necessary entities to come to an agreement.**

**Transportation Impact Assessment (TIA)**

5. The TIA indicates that the study area is currently serviced by mass transit via SEPTA Bus Route 91 (Graterford), which has a stop at the N. Park Avenue (S.R. 0363) and Germantown Pike intersection. We continue to recommend that the sidewalk and Germantown frontage design for this project both plan for (grade and note a location) and install a bus shelter (when appropriate) along the site frontage near the intersection, should SEPTA anticipate routine service in this area and the addition of this development. The applicant's traffic engineer should contact SEPTA to discuss this opportunity, and plan for the shelter accordingly.

*The applicant's traffic engineer indicates in its response that it will comply with this comment to the extent feasible during the HOP process.*

*To the extent feasible to contact SEPTA and plan for a bus shelter is not something we feel is an attempt to address this prior comment. SEPTA should be contacted and if a bus route exists in this area now, and in the future, it should be installed by the applicant.*

**T&M Response: Correspondence with SEPTA has been included with this submission. Bus route 91 has been suspended and PennDOT has indicated that we should "to proceed with construction currently with no coordination."**

6. The applicant should be aware that in order to alleviate the congestion currently experienced by vehicles along W. Germantown Pike in the vicinity of the site, long-term roadway improvements along the site frontage of W. Germantown Pike are necessary with any development of this property. Based on improvements identified in the West Germantown Pike Corridor Study completed for Montgomery County in the early 2000's, **the curb line along the W. Germantown Pike site frontage must further be setback with development of this site to accommodate two eastbound through lanes and a 5-lane cross-section (plus bike lanes/pedestrian ways). The outside through lane closest to the site can be used as a right-turn deceleration lane into the W. Germantown Pike site access and converted into an additional eastbound through lane in the future.** The April 3, 2023 response letter to the Township from TPD indicates "So noted" in the reply, indicative that the applicant will comply; however the plans are not designed as such and should be modified.



**T&M Response:** After our joint meeting with PennDOT, the county and the township, we have , as directed, added an additional gore striped lane and right turn lane that could be converted to a future through lane.

7. Based on the study findings and analyses, we continue to have concerns of the impact of the N. Park Avenue (S.R. 0363) queue on site access traffic operations during the weekday morning and weekday afternoon peak hours. The queue extends southerly from W. Germantown Pike to approximately 90 to 140 feet from the site access during both peak hours, limiting sight distance looking to the right for vehicles making a left-turn out of this access affecting the driver's ability to make a left-turn out of the site during these time periods with sufficient sight distance. **A sight line profile must be provided to show that with the proposed access and roadway grades that sight distance will not be prohibited by a queue extending towards the access for the driver.** Otherwise, we recommend that left-turn egress from the N. Park Avenue (S.R. 0363) site access be restricted during the weekday morning (7 AM – 9 AM) and weekday afternoon (4 PM – 6 PM) peak hours via signage. This recommendation should be coordinated with PennDOT to ensure they are agreeable to this restriction. Traffic destined south on N. Park Avenue (S.R. 0363) would need to exit onto Germantown Pike during those hours.

*The applicant's traffic engineer (TPD) indicates in its response that it will comply with this comment to the extent feasible during future HOP process; however no sight line profile has been provided on the submitted Highway Occupancy Permit Plans prepared by T&M Associates.*

**T&M Response:** The driveway has been shifted approximately 10 feet to avoid the interlocking alignment, and the this driveway exit is now a right only maneuver.

#### **Highway Occupancy Permit Plans (PennDOT and Montgomery County)**

8. Additional information regarding the type of curb on the proposed channelized medians on the N. Park Avenue (S.R. 0363) access must be provided on the plans. In addition, the channelizing egress median for the N. Park Avenue (S.R. 0363) access must be increased to a minimum of 100 square feet.

**T&M Response:** The island configuration has changes and is now a single island. It is also noted to be a 4" concrete mountable curb.

9. As indicated in Comment #7 above, a sight distance profile should be provided for vehicles exiting the proposed N. Park Avenue (S.R. 0363) access looking right through the queue and towards the vertical curve to make the left-turn exit, as well as to the left due to the embankment along the edge of road.

**T&M Response:** Sight distance profiles for left sight distance have been provided on sheet 4A . the right sight distance was not included because the driveway exit is now a right only maneuver.

10. Additional widening to provide a 5-lane cross-section plus shoulders for bike lane use should be provided along the Germantown Pike frontage. Dimensions must be provided on the submitted County HOP plans to ensure sufficient widening has been provided along West Germantown Pike, as referenced in Comment #6 above.

**T&M Response:** After our joint meeting with PennDOT, the county and the township, we have , as directed, added an additional gore striped lane and right turn lane that could be converted to a future



through lane. A ten foot concrete multi-use path is now shown adjacent to Germantown Pike.

11. The proposed sidewalk along N. Park Avenue (S.R. 0363) appears to end abruptly at the proposed headwall, and prior to the property line. The sidewalk should be extended past the headwall and end at the property line, or an explanation as to why this is not feasible should be provided.

**T&M Response:** We have conceptually shown the sidewalk connecting across the culvert to the adjacent property. We will continue to coordinate with PennDOT to determine how and when the culvert will be rebuilt to provide this access.

12. Drainage reports, including pipe capacity, inlet spread, and swale calculations, must be submitted for review for both the PennDOT and County drainage systems prior to the Township signing the M950AA for stormwater maintenance with the Department and/or County. Additionally, refer to PennDOT comments on modifications to the stormwater design, as our office also concurs with same to be addressed.

**T&M Response:** The PCSM/ESC Stormwater Report, last revised 11-17-2023, has been included with this submission.

13. The applicant will need to have a stormwater management maintenance agreement with the Township that will run with the owner of the property in perpetuity for any parts of the system that PennDOT or the County require that the Township must be the applicant to obtain, and then maintain as part of permitting process. The applicant should coordinate with the Township Solicitor's office on the maintenance agreement.

**T&M Response:** Will Comply.

14. Additional spot grades should be provided along the channelized islands for the proposed N. Park Avenue (S.R. 0363) access to ensure no ponding will occur.

**T&M Response:** Additional Spot elevations have been added to the grading plan.

15. The profile for the proposed access along West Germantown Pike does not appear to match the contours provided on the plans. In addition, the gutter line along West Germantown Pike should be maintained at the proposed curb line; the profile appears to create a gutter line within West Germantown Pike and does not match the proposed cross-sections.

**T&M Response:** The access has been updated in the submission s well as the driveway profile. The gutter line has been revised as well.

16. The cross-sections for N. Park Avenue (S.R. 0363) and West Germantown Pike should be updated to include the tie-in slopes.

**T&M Response:** The tie-in slopes have been included with the cross sections.

17. The proposed radii for the accesses and channelized medians must be provided on the plans.

**T&M Response:** The radii have ben added to the plans.

18. Truck turns, using the largest anticipated design vehicle, must be added to the plans.



**T&M Response:** A truck turning template has been provided for a WB-40 truck. A note was added to the plan to indicate that this is the largest vehicles that is intended to be allowed access to the site.

19. Widening along N. Park Avenue (S.R. 0363) for the northbound right-turn lane will require acquisition and conveyance of right-of-way to PennDOT. PennDOT comments with many details on this matter in their June 6, 2023 comment letter which must be addressed.

**T&M Response: Will Comply.**

20. A modified traffic signal permit plan was not included in the PennDOT or County submissions for Germantown Pike and N. Park Avenue (S.R. 0363), as the road improvements and pedestrian improvements on the plans will require signal permit plan modifications, as well as the optimization of signal timings recommended in the TIA, A TE-160 form must be submitted to the Township as well for approval.

**T&M Response:** The traffic signal submission package is still being developed and will be included with our next submission.

21. The signal must be integrated into PennDOT's unified Command and Control software, with the PennDOT fiber optic cable that is present along Germantown Pike. If the fiber optic cable is impacted by the proposed work, PennDOT provides details for the designer and applicant to complete.

**T&M Response: Will Comply.**

If you have any questions, clarification, or need additional information, please contact me.

Very truly yours,  
T&M Associates Consulting Engineers

Christopher W. Jensen, PE  
Operations Manager  
Vice President

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# PRELIMINARY LAND DEVELOPMENT PLANS FOR CITY VIEW

## WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

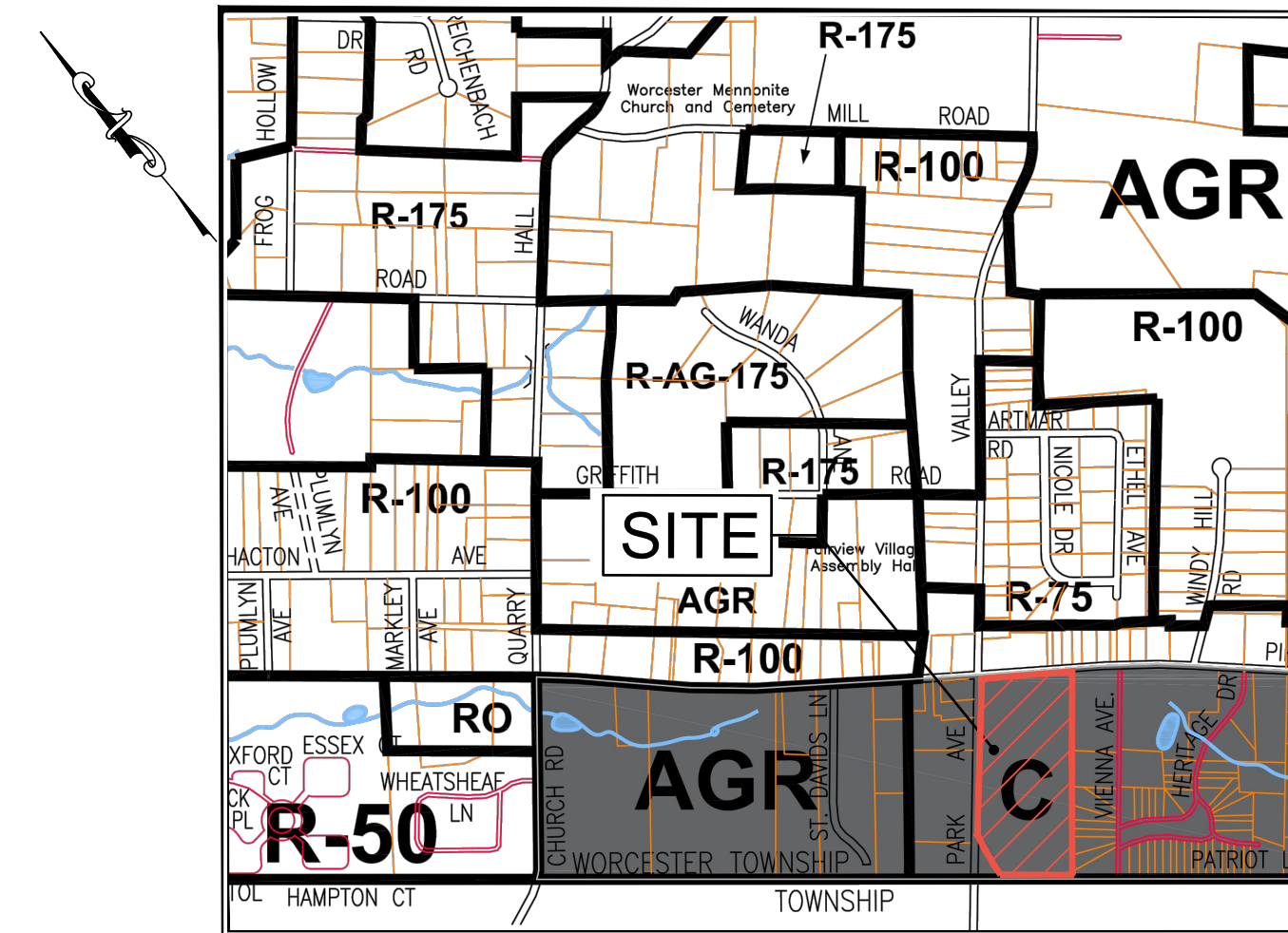
SHEET INDEX		
SHEET NUMBER	DESCRIPTION	
1	COVER SHEET	*
2	LEGEND & NOTES	
3	EXISTING FEATURES	
4	EXISTING RESOURCES PLAN	
5	NATURAL RESOURCES PROTECTION PLAN	
6	TREE SURVEY PLAN	
7	DEMOLITION PLAN	
8	SITE PLAN	*
9	GRADING PLAN	*
9A	DRAINAGE PLAN	
10	UTILITY PLAN	
11	LANDSCAPING PLAN	
12	LIGHTING PLAN	
13	EROSION AND SEDIMENT CONTROL PLAN	
14	POST CONSTRUCTION STORMWATER MANAGEMENT PLAN	*
15	STORM SEWER PROFILES	
16	STORM SEWER PROFILES	
17	STORM SEWER PROFILES	
18	SANITARY SEWER PROFILES	
19	DRIVEWAY PROFILES	
20	CONSTRUCTION DETAILS	
21	CONSTRUCTION DETAILS	
22	WATER DETAILS	
23	SANITARY SEWER DETAILS	
24	STORM SEWER DETAILS	
25	STORM SEWER DETAILS	
26	EROSION & SEDIMENT CONTROL DETAILS	
27	EROSION & SEDIMENT CONTROL DETAILS	
28	POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS	*
29	POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS	
30	POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS	
31	POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS	
32	POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS	
33	POST CONSTRUCTION STORMWATER MANAGEMENT NOTES	*
34	LANDSCAPE AND LIGHTING DETAILS	

\*\*\* SHEETS INDICATED TO BE INCLUDED IN RECORD PLAN SET

THE POST CONSTRUCTION STORMWATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL REPORT, SUBMITTED UNDER SEPARATE COVER, SHALL BE CONSIDERED PART OF THE LAND DEVELOPMENT SUBMISSION FOR THIS PROJECT.



**CONTEXT MAP**  
SCALE: 1"=4,00'



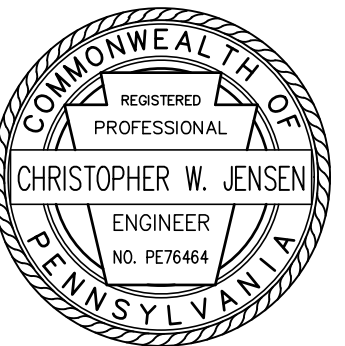
**ZONING MAP**  
SCALE: 1"=1,000'

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

ATTENTION: ALL CONTRACTORS LOCATING OR ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR AERIAL PHOTOGRAPHS OF THE SITE. COMPLETENESS OR ACCURACY OF THE SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND UTILITIES OR STRUCTURES CANNOT BE GUARANTEED. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. SEE PLAN SHEET NO. 10 FOR FURTHER INFORMATION. 20213502293

NO.	DATE	REVISIONS	BY	CHKD
1	10/04/2022	REVISED PER REVIEW LETTER DATED 11/11/2022	DS	DS
2	4/3/2023	REVISED PER REVIEW LETTER DATED 11/22/2022	PRG	DS
3	11/17/2023	PER GIS REVIEW LETTER DATED 11/22/2022	PRG	DS

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



4/3/2023  
LICENSED PROFESSIONAL ENGINEER  
STATE OF PA LICENSE NO. PE076464

**OWNER/APPLICANT:**

BT WORCESTER, LLC  
200 DRYDEN ROAD, SUITE 2000  
DRESHER, PA 19025  
(215) 938-7300  
INFO@BTINVESTMENTS.COM

**UTILITY USER LIST  
ACT NUMBER 287 OF 1974 AS AMENDED**

<b>COMCAST</b> 440 WAYNE AVENUE PHILADELPHIA, PA 19140 CONTACT: ROBERT HARVEY EMAIL: BOB_HARVEY@CABLE.COMCAST.COM	<b>PECO ENERGY</b> C/O USIC LLC 450 S HENDERSON RD SUITE B KING OF PRUSSIA, PA 19406 CONTACT: NIKKIA SIMPKINS EMAIL: NIKKIASIMPKINS@USICLLC.COM PHONE: 610-292-8057
<b>COMCAST</b> 1 APOLLO RD PLYMOUTH MEETING, PA 19462 CONTACT: TOM DEMSEY PHONE: 215-285-8738	<b>VERIZON BUSINESS FORMERLY MCI</b> 700 WESTON PKWY CARY, NC 27513 CONTACT: VICTOR WOOD EMAIL: VICTOR.S.WOOD@VERIZON.COM
<b>PENNSYLVANIA AMERICAN WATER</b> 171 W JOHNSON HIGHWAY NORRISTOWN, PA 19401 CONTACT: NOEL GIESSLER EMAIL: NOEL.GIESSLER@PAAMWATER.COM PHONE: 610-292-3575	<b>WORCESTER TOWNSHIP</b> 1721 SOUTH VALLEY FORGE ROAD P.O. BOX 767 WORCESTER, PA 19490 CONTACT: ROBERT DHULSTER EMAIL: BDHULSTER@WORCESTERWP.COM
<b>LOWER PROVIDENCE TOWNSHIP SEWER AUTHORITY</b> 100 PARKLANE DRIVE EAGLEVILLE, PA 19403 P: 610-539-8020 EXT. 3537 CONTACT: JOSEPH CHILLANO EMAIL: JCHILLANO@LOWERPROVIDENCE.ORG	<b>LOWER PROVIDENCE TOWNSHIP SEWER AUTHORITY</b> 3329 RIDGE PIKE EAGLEVILLE, PA 19403 CONTACT: ALAN M. RUBENDALL EMAIL: ARUBENDALL@LPTSA.ORG
	<b>VERIZON PENNSYLVANIA LLC</b> 1950 VIRGINIA DR FORT WASHINGTON, PA 19034 CONTACT: DARLINE LEPPERD JOHNSON PHONE: 215-591-8354

**APPROVED**

APPROVED THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_, BY THE BOARD OF SUPERVISORS OF WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

ATTEST: \_\_\_\_\_  
SIGNATURE, CHAIRMAN  
  
DATE SIGNED \_\_\_\_\_  
  
SIGNATURE, SECRETARY  
  
DATE SIGNED \_\_\_\_\_

(TOWNSHIP NOTARY SEAL)

**REVIEWED**

REVIEWED THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_, BY THE PLANNING COMMISSION OF WORCESTER TOWNSHIP, MONTGOMERY COUNTY PA,

ATTEST: \_\_\_\_\_  
SIGNATURE  
  
DATE SIGNED \_\_\_\_\_

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

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

**MONTGOMERY COUNTY PLANNING COMMISSION APPROVAL**

RECORDED IN THE MONTGOMERY COUNTY COURTHOUSE THIS \_\_\_\_\_ DAY OF \_\_\_\_\_ OF 20\_\_\_\_ IN PLAN BOOK \_\_\_\_\_, PAGE \_\_\_\_\_.

MCPC No. \_\_\_\_\_  
PROCESSED AND REVIEWED. A REPORT HAS BEEN PREPARED BY THE MONTGOMERY COUNTY PLANNING COMMISSION IN ACCORDANCE WITH THE MUNICIPALITIES PLANNING CODE. CERTIFIED THIS DATE:  
  
\_\_\_\_\_  
  
FOR THE DIRECTOR  
MONTGOMERY COUNTY PLANNING COMMISSION

**ENGINEER'S STORMWATER CERTIFICATION:**

I, ZACHARY H. RANSTEAD, ON THIS DATE \_\_\_\_\_ HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE THAT THE STORMWATER MANAGEMENT SITE PLAN MEETS ALL DESIGN STANDARDS AND CRITERIA OF THE WORCESTER TOWNSHIP STORMWATER ORDINANCE, CHAPTER 206

ZACHARY H. RANSTEAD  
LICENSE # PE063078

**APPLICANT'S STORMWATER CERTIFICATION:**

THE APPLICANT HEREBY ACKNOWLEDGES THAT ANY REVISION TO THE APPROVED STORMWATER MANAGEMENT SITE PLAN SHALL BE SUBMITTED TO AND APPROVED BY THE MUNICIPALITY, AND THAT A REVISED EROSION AND SEDIMENT CONTROL PLAN SHALL BE SUBMITTED TO, AND APPROVED BY, THE CONSERVATION DISTRICT OR MUNICIPALITY (AS APPLICABLE) FOR A DETERMINATION OF ADEQUACY PRIOR TO CONSTRUCTION OF THE REVISED FEATURES.

BY: \_\_\_\_\_  
BT WORCESTER, LLC

**COMMONWEALTH OF PENNSYLVANIA, COUNTY OF MONTGOMERY:**

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

BY: \_\_\_\_\_  
OWNER  
BT WORCESTER, LLC

NOTARY PUBLIC

MY COMMISSION EXPIRES ON THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_.

**CERTIFICATE OF CONFORMANCE -- P.E.**

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

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

BT WORCESTER, LLC  
CITY VIEW - APN #67-00-01606-001  
2974 GERMANTOWN PIKE, WORCESTER TOWNSHIP,  
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA  
COVER SHEET



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

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

DESIGNED BY CGG/JPK/ROP	DRAWING CVR
CHECKED BY DS	SHEET 1
DRAWN BY PG/SR/ROP	DATE 1/27/22
SCALE 1" = 50'	PROJ. NO. BET000056
	OF 34

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PROJECT INFORMATION:  
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 FILE NAME: BET00056\_SHT003\_L10.dwg  
 DATE AND TIME: 10 Aug 2023, 1:05PM  
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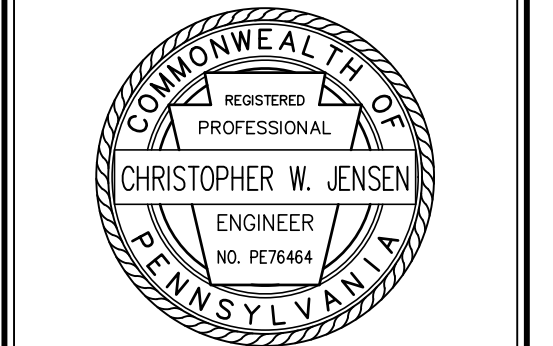
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ATTENTION: ALL CONTRACTORS, LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANIES RECORDS AND/OR FIELD SURVEYS. THE ACCURACY OF THE SIZE, DEPTH OR HORIZONTAL LOCATION OF INDIVIDUAL UTILITIES OR UTILITIES OWNERS BE OBTAINED THROUGH THE RECORDS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 121 OF 2008. CONTRACTORS MUST VERIFY EXISTING UTILITIES AND DEPTH OF UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK.

NO.	DATE	REVISIONS	BY	CHKD
3	11/17/2023	PER GIS REVIEW LETTER DATED 11/22/2022	PRG DS	
2	4/3/2023	PER GIS REVIEW LETTER DATED 11/22/2022	PRG DS	
1	10/04/2022	PER GIS REVIEW LETTER DATED 03/11/2022	PRG DS	

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



4/3/2023  
 LICENSED PROFESSIONAL ENGINEER  
 STATE OF PA LICENSE NO. PED76464

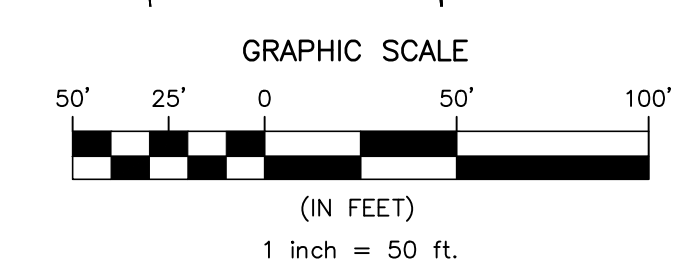
BT WORCESTER, LLC  
**CITY VIEW - APN #67-00-01606-001**  
 2974 GERMAN TOWN PIKE, WORCESTER TOWNSHIP,  
 MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA



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

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

DESIGNED BY	CGG/JPK/ROP	DRAWING	EXC
CHECKED BY	DS	SHEET	3
DRAWN BY	PG/SR/ROP	DATE	1/27/22
DATE	1/27/22	SCALE	1" = 50'
PROJ. NO.	BET00056		OF 34







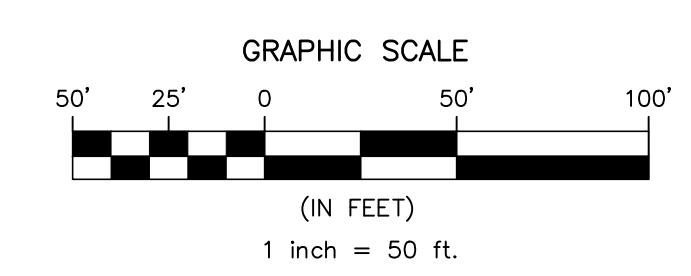
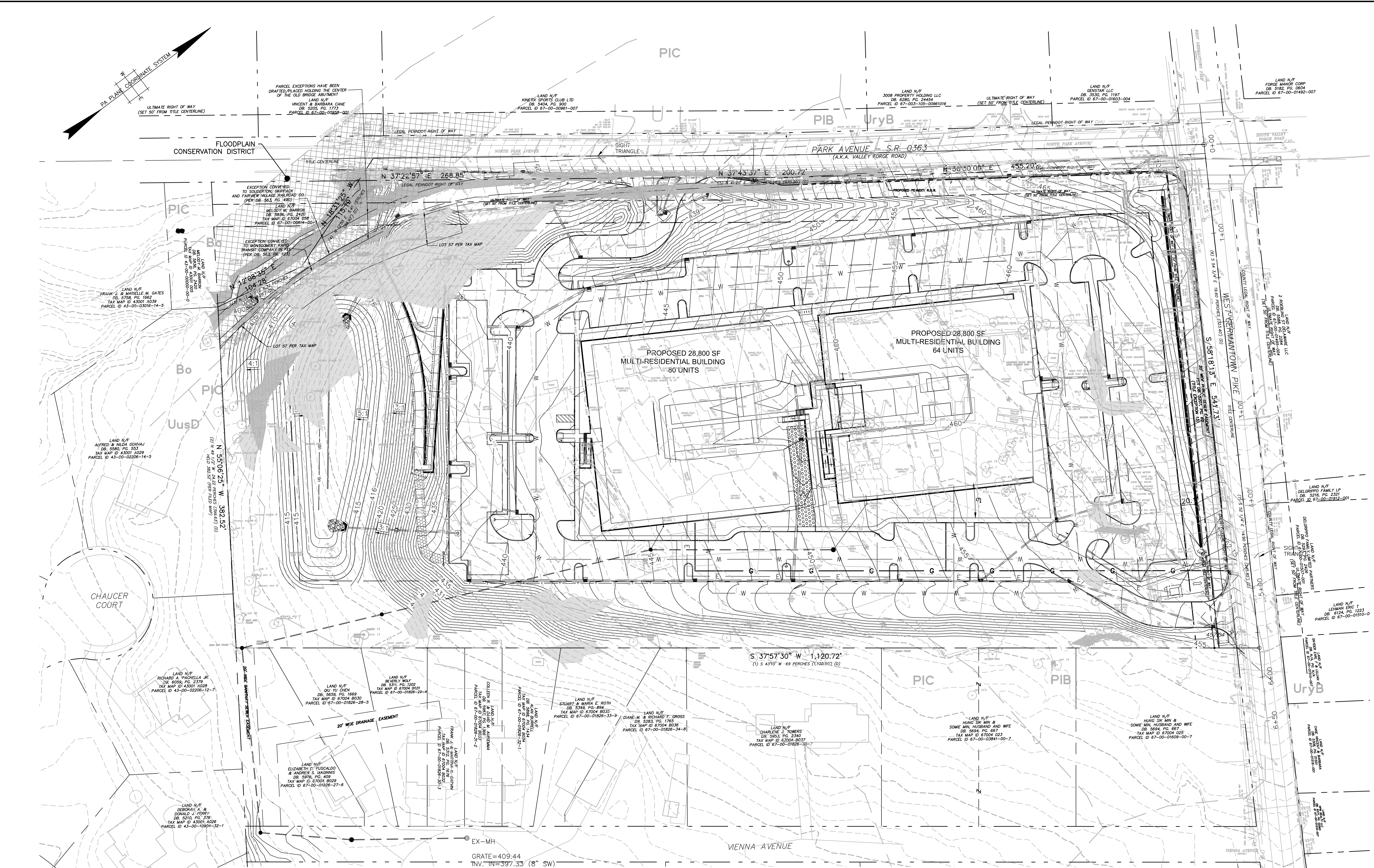


PROJECT INFORMATION:  
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 FILE NAME: BETL00056\_SHT005\_NR.dwg  
 DATE: 21 Nov 2023, 3:35PM  
 LAST SAVE BY: CScorzeilo

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 PURPOSES, IS STRICTLY INTENDED, WITHOUT THE WRITTEN PERMISSION OF T&M  
 ASSOCIATES IS PROHIBITED.

**LEGEND**  
 (ORIENTATION & SIZE MAY VARY)

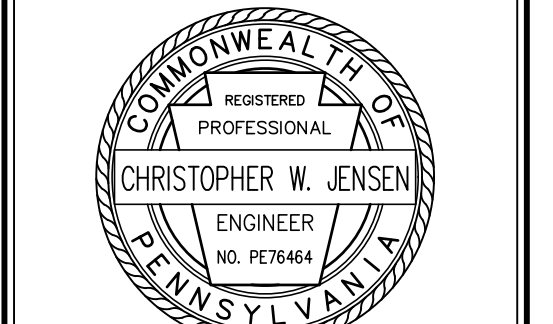
	FLOODPLAIN CONSERVATION DISTRICT
	STEEP SLOPES (15%-25%)
	VERY STEEP SLOPES (>25%)
	EX. TREE GREATER THAN 12" IN CALIPER
	EX. SHRUB, BUSH, OR TREE LESS THAN 12" IN CALIPER



ATTENTION: ALL CONTRACTORS, LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANIES RECORDS AND/OR FIELD SURVEY. THE LOCATION, DEPTH OR HORIZONTAL LOCATION OF INDIVIDUAL UTILITIES OF CONTRACTORS OWNED OR CONTROLLED IS THE RESPONSIBILITY OF THE CONTRACTOR. THE LEGISLATIVE ACT NUMBER 281 OF 1974 AS AMENDED BY ACT 121 OF 2008 (CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. SEE 281 Pa.C.S. § 1202.1)

NO.	DATE	REVISIONS	BY	CHKD
3	11/17/2023	PER GIS REVIEW LETTER DATED 11/22/2022	PRG DS	
2	4/3/2023	REVISED ENTRANCE ON GERMANTOWN PIKE	PRG DS	
1	10/04/2022	PER GIS REVIEW LETTER DATED 03/11/2022	PRG DS	

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



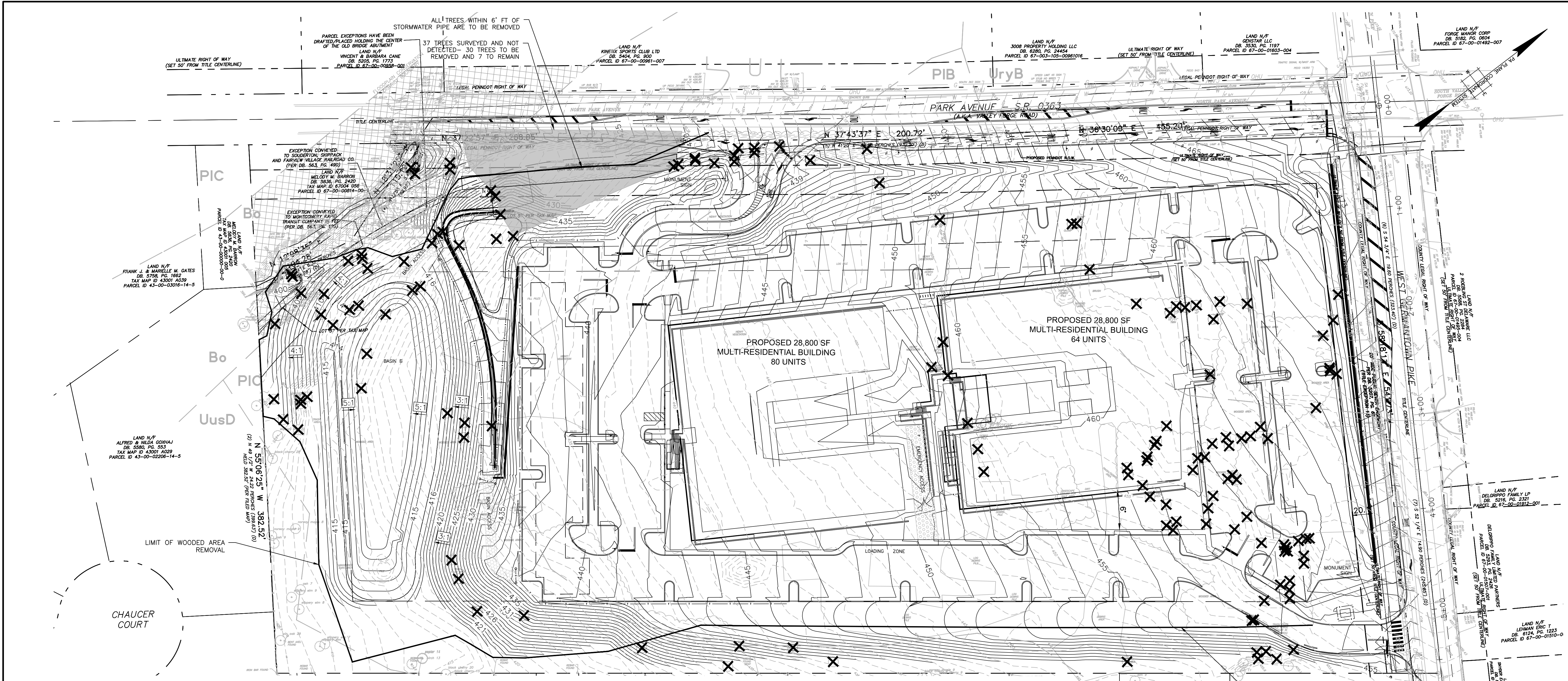
4/3/2023  
 LICENSED PROFESSIONAL ENGINEER  
 STATE OF PA LICENSE NO. PE076464

BT WORCESTER, LLC  
**CITY VIEW - APN #67-00-01606-001**  
 2974 GERMANTOWN PIKE, WORCESTER TOWNSHIP,  
 MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA  
**NATURAL RESOURCES PROTECTION PLAN**

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

DESIGNED BY CGG/JPK/ROP	DRAWING <b>NR</b>
CHECKED BY DS	SHEET
DRAWN BY PG/SR/ROP	<b>5</b>
DATE 1/27/22	OF <b>34</b>
SCALE 1" = 50'	
PROJ. NO. BET00056	





Species	Caliper Size	To Be Removed
1 red cedar	6"	To be Removed
2 unidentified	6"	To be Removed
3 ash	7"	To be Removed
4 ash	7"	To be Removed
5 ash	7"	To be Removed
6 ash	7"	To be Removed
7 ash	7"	To be Removed
8 ash	7"	To be Removed
9 ash	7"	To be Removed
10 ash	7"	To be Removed
11 ash	7"	To be Removed
12 elm	7"	To be Removed
13 elm	7"	To be Removed
14 norway maple	7"	To be Removed
15 norway maple	7"	To be Removed
16 norway maple	7"	To be Removed
17 norway maple	7"	To be Removed
18 norway maple	7"	To be Removed
19 aspen	7.2"	To be Removed
20 norway maple	7.3"	To be Removed
21 elm	7.5"	To be Removed
22 norway maple	7.5"	To be Removed
23 ash	8"	To be Removed
24 ash	8"	To be Removed
25 ash	8"	To be Removed
26 ash	8"	To be Removed
27 ash	8"	To be Removed
28 ash	8"	To be Removed
29 ash	8"	To be Removed
30 elm	8"	To be Removed
31 elm	8"	To be Removed
32 elm	8"	To be Removed
33 elm	8"	To be Removed
34 slippery elm	8"	To be Removed
35 ash	8"	To be Removed
36 ash	8.5"	To be Removed
37 norway maple	8.5"	To be Removed
38 norway maple	8.5"	To be Removed
40 elm	9"	To be Removed

41 elm	9"	To be Removed
42 locust	9"	To be Removed
43 mulberry	9"	To be Removed
44 Norway maple	9"	To be Removed
45 elm	9"	To be Removed
46 ash	9"	To be Removed
47 ash	9"	To be Removed
48 Norway maple	9"	To be Removed
49 ash	9.5"	To be Removed
50 elm	9.5"	To be Removed
51 ash	10"	To be Removed
52 ash	10"	To be Removed
53 ash	10"	To be Removed
54 ash	10"	To be Removed
55 norway maple	10"	To be Removed
56 elm	10"	To be Removed
57 ash	10"	To be Removed
58 norway maple	10"	To be Removed
59 elm	10"	To be Removed
60 ash	11"	To be Removed
61 ash	11"	To be Removed
62 ash	11"	To be Removed
63 ash	11"	To be Removed
64 norway maple	11"	To be Removed
65 ash	11"	To be Removed
66 ash	11"	To be Removed
67 norway maple	11"	To be Removed
68 mulberry	11.5"	To be Removed
69 norway maple	11.5"	To be Removed
70 ash	12"	To be Removed
71 ash	12"	To be Removed
72 ash	12"	To be Removed
73 elm	12"	To be Removed
74 elm	12"	To be Removed
75 norway maple	12"	To be Removed
76 norway maple	12"	To be Removed
77 norway maple	12"	To be Removed
78 norway maple	12"	To be Removed
79 ash	12"	To be Removed
80 ash	12"	To be Removed

81 ash	13"	To be Removed
82 ash	13"	To be Removed
83 elm	13"	To be Removed
84 elm	13"	To be Removed
85 green ash	13"	To be Removed
86 red maple	13"	To be Removed
87 ash	14"	To be Removed
88 black cherry	14"	To be Removed
89 black cherry	14"	To be Removed
90 elm	14"	To be Removed
91 norway maple	14.5"	To be Removed
92 ash	15"	To be Removed
93 ash	15"	To be Removed
94 elm	15"	To be Removed
95 tree of heaven	15"	To be Removed
96 norway maple	15"	To be Removed
97 ash	16"	To be Removed
98 cherry	16"	To be Removed
99 norway maple	16"	To be Removed
100 slippery elm	16"	To be Removed
101 norway maple	16.5"	To be Removed
102 ash	17"	To be Removed
103 norway maple	17"	To be Removed
104 slippery elm	17"	To be Removed
105 slippery elm	17"	To be Removed
106 norway maple	18"	To be Removed
107 norway maple	18"	To be Removed
108 elm	19"	To be Removed
109 ash	20"	To be Removed
110 ash	20"	To be Removed
111 ash	20"	To be Removed
112 magnolia	20"	To be Removed
113 magnolia	20"	To be Removed
114 ash	21"	To be Removed
115 ash	22"	To be Removed
116 black cherry	22"	To be Removed
117 magnolia	22"	To be Removed
118 maple	23"	To be Removed
119 ash	24"	To be Removed
120 norway maple	24"	To be Removed

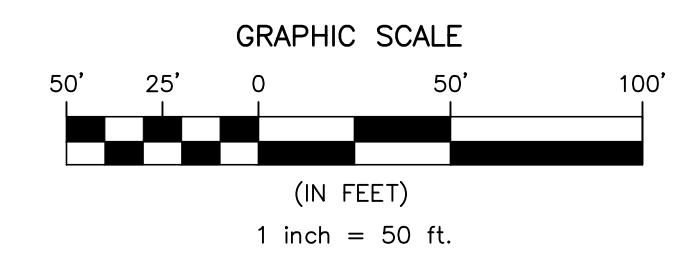
121 elm	25"	To be Removed
122 elm	25"	To be Removed
123 elm	25"	To be Removed
124 ash	26"	To be Removed
125 black cherry	26"	To be Removed
126 ash	27"	To be Removed
127 elm	27"	To be Removed
128 black cherry	28"	To be Removed
129 elm	28"	To be Removed
130 elm	29"	To be Removed
131 magnolia	29"	To be Removed
132 elm	30"	To be Removed
133 bur oak	35"	To be Removed
134 unidentified	10"	To be Removed
135 unidentified	10" / 11"	To be Removed
136 Ash	20" / 10"	To be Removed
137 unidentified	21"	To be Removed
138 black cherry	26"	To be Removed
139 unidentified	33"	To be Removed
140 unidentified	7"	To be Removed
141 unidentified	8"	To be Removed
142 unidentified	clump	To be Removed
143 unidentified	clump	To be Removed
144 unidentified	clump	To be Removed
145 norway maple	6"	To be Removed
146 norway maple	6.5"	To be Removed
147 ash	7"	To be Removed
148 ash	7"	To be Removed
149 norway maple	7"	To be Removed
150 Slippery Elm	7"	To be Removed
151 Slippery Elm	7"	To be Removed
152 Slippery Elm	7"	To be Removed
153 ash	8"	To be Removed
154 ash	8"	To be Removed
155 Norway maple	8"	To be Removed
156 Norway maple	8"	To be Removed
157 norway maple	8"	To be Removed
158 norway maple	8"	To be Removed
159 Slippery Elm	8"	To be Removed
160 ash	8.8"	To be Removed

161 ash	9"	To be Removed
162 ash	9"	To be Removed
163 ash	9"	To be Removed
164 ash	9"	To be Removed
165 ash	9"	To be Removed
166 Black cherry	9"	To be Removed
167 Black cherry	9"	To be Removed
168 elm	9"	To be Removed
169 elm	9"	To be Removed
170 Norway maple	9"	To be Removed
171 norway maple	9"	To be Removed
172 norway maple	9"	To be Removed
173 Slippery Elm	9"	To be Removed
174 ash	10"	To be Removed
175 Norway maple	10"	To be Removed
176 ash	10"	To be Removed
177 ash	10"	To be Removed
178 black cherry	10"	To be Removed
179 elm	10"	To be Removed
180 mulberry	10"	To be Removed
181 Norway maple	10"	To be Removed
182 sweet birch	10"	To be Removed
183 ash	10.5"	To be Removed
184 ash	11"	To be Removed
185 ash	11"	To be Removed
186 ash	11"	To be Removed
187 ash	11"	To be Removed
188 ash	11"	To be Removed
189 black cherry	11"	To be Removed
190 black cherry	11"	To be Removed
191 norway maple	11"	To be Removed
192 norway maple	11"	To be Removed
193 norway maple	11"	To be Removed
194 norway maple	11"	To be Removed
195 poplar	11"	To be Removed
196 ash	12"	To be Removed
197 elm	12"	To be Removed
198 Norway maple	12"	To be Removed
199 ash	12"	To be Removed
200 elm	12"	To be Removed

201 Norway maple	12"	To be Removed
202 birch	13"	To be Removed
203 ash	13"	To be Removed
204 slippery elm	13"	To be Removed
205 sweet birch	13"	To be Removed
206 poplar	14"	To be Removed
207 ash	14"	To be Removed
208 elm	14"	To be Removed
209 poplar	14"	To be Removed
210 Norway maple	15"	To be Removed
211 black cherry	15"	To be Removed
212 elm	16"	To be Removed
213 ash	16"	To be Removed
214 slippery elm	17"	To be Removed
215 black cherry	20"	To be Removed
216 unidentified	21"	To be Removed
217 ash	21"	To be Removed
218 maple	23"	To be Removed
219 mulberry	24"	To be Removed
220 ash	26"	To be Removed
221 mulberry	26"	To be Removed
222 black cherry	28"	To be Removed
223 pin oak	29"	To be Removed
224 elm	31"	To be Removed
225 bur oak	35"	To be Removed
226 sweet gum		To be Removed

**NOTES:**

- TOTAL 226 TREES SURVEYED ON SITE
- 144 ARE TO BE REMOVED AND PORTRAYED ON TREE SURVEY CHART
- 37 TREES ARE SURVEYED BUT NOT SHOWN ON PLANS NOR ON TS CHART, 30 ARE TO BE REMOVED AND 7 TO REMAIN
- TOTAL NUMBER TO BE REMOVED IS 174
- TOTAL NUMBER TO REMAIN IS 52
- TOTAL NUMBER PROPOSED TO BE REPLACED ON PLANS IS 90
- TOTAL NUMBER OF TREES TO BE PLANTED OFF SITE OR ON TOWNSHIP LANDS OUTSIDE OF DEVELOPMENT AREA IS 27.



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

4/3/2023  
LICENSED PROFESSIONAL ENGINEER  
STATE OF PA LICENSE NO. PED76464

NO.	DATE	REVISIONS	BY	CHKD
1	10/04/2022	PER GIS REVIEW LETTER DATED 03/11/2022	DS	DS
2	4/3/2023	REVISED ENTRANCE ON GERMANTOWN PIKE	PG	DS
3	11/17/2023	PER GIS REVIEW LETTER DATED 11/22/2023	PG	DS

BT WORCESTER, LLC

**CITY VIEW - APN #67-00-01606-001**  
2974 GERMANTOWN PIKE, WORCESTER TOWNSHIP,  
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

**TREE SURVEY PLAN**

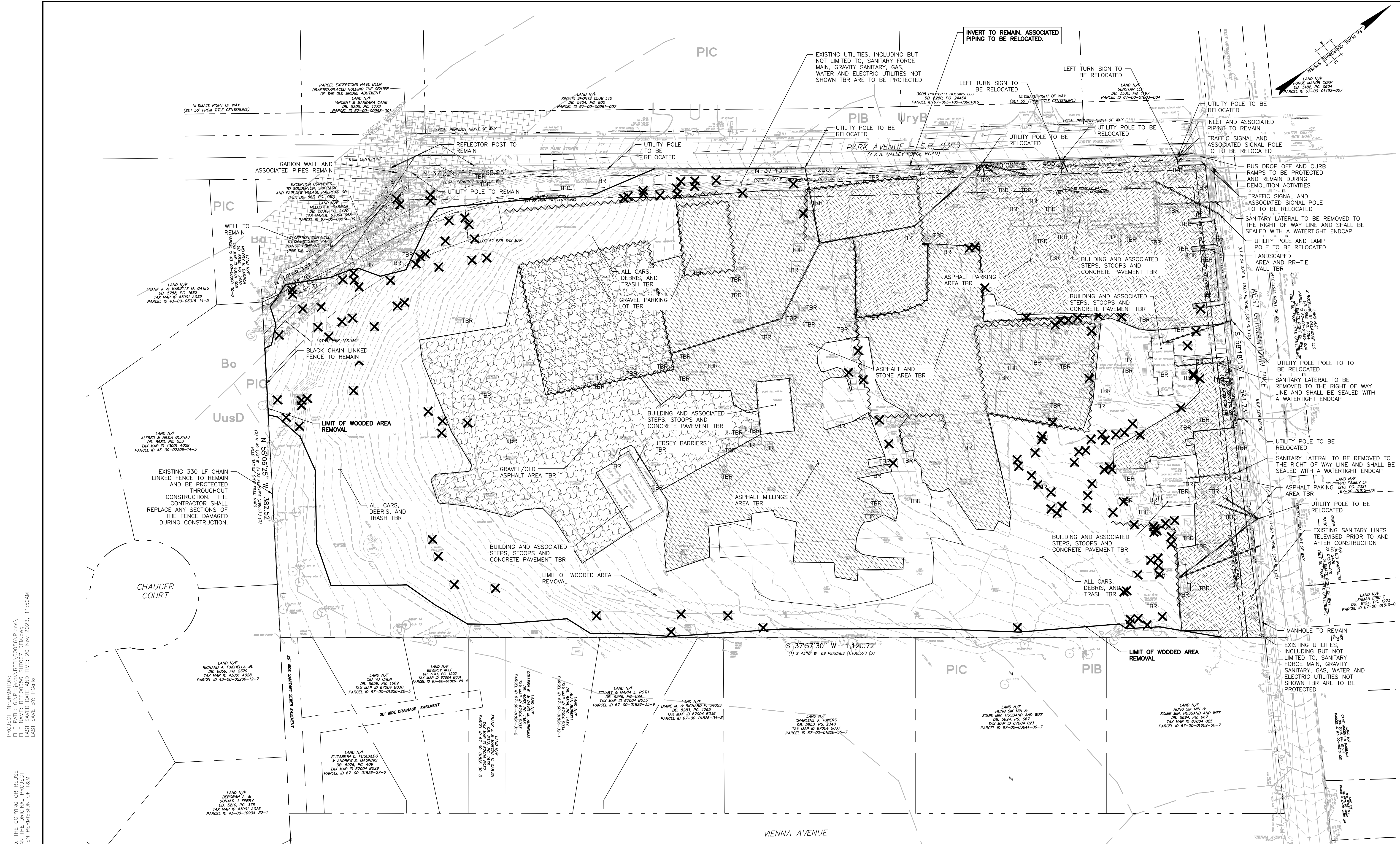
**AND**  
YOUR GOALS. OUR MISSION.

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

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

DESIGNED BY CGG/JPK/ROP	DRAWING
CHECKED BY DS	<b>TS</b>
DRAWN BY PG/SR/ROP	SHEET
DATE 1/27/22	<b>6</b>
SCALE 1" = 50'	OF <b>34</b>
PROJ. NO. BET00056	





PROJECT INFORMATION:  
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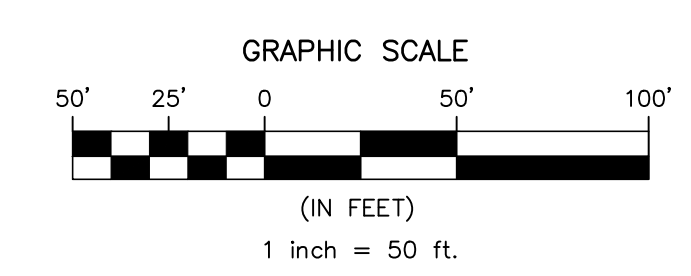
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**LEGEND**  
 (ORIENTATION & SIZE MAY VARY)

- GRAVEL/OLD ASPHALT
- ASPHALT/STONE AREA
- ASPHALT PARKING AREA
- GRAVEL PARKING AREA
- TREE TO BE REMOVED
- UTILITY LINE TO BE REMOVED
- FENCE LINE TO BE REMOVED
- EXISTING FEATURE TO BE REMOVED

**DEMOLITION NOTES**

- EXISTING SANITARY LATERALS SHALL BE REMOVED TO THE RIGHT-OF-WAY LINE WHERE THEY SHALL BE SEALED WITH WATERTIGHT END-CAPS.
- EXISTING SANITARY SEWER PIPING AT THE PROPOSED CONSTRUCTION ENTRANCE ON WEST GERMANTOWN PIKE (GRAVITY AND FORCE MAIN) SHALL BE PROTECTED DURING THE DURATION OF CONSTRUCTION ACTIVITIES. THE GRAVITY SEWER SHALL BE TELEVIEWED PRIOR TO THE INITIATION OF CONSTRUCTION AND THEN TELEVIEWED AFTER TO MAKE CERTAIN THAT THE PIPE HAS NOT BEEN DAMAGED DURING CONSTRUCTION. ANY DAMAGE TO THE FORCE MAIN AND/OR THE GRAVITY SEWER DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.



ATTENTION: ALL CONTRACTORS LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR NON-CREASE REVISIONS OF THE CITY COMPLETION OF ACCURACY OF THE SIZE, DEPTH OR HORIZONTAL LOCATION OF INDIVIDUAL UTILITIES OF SERVICES OWNED OR GUARANTEED BY THE CITY OF PHILADELPHIA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL UTILITIES AND FACILITIES PRIOR TO START OF WORK. SEE SHEET 34.

2021350293

NO.	DATE	REVISIONS	BY	CHKD
1	10/04/2022	PER GIS REVIEW LETTER DATED 03/11/2022	PG	DS
2	4/3/2023	REVISED PER GIS REVIEW LETTER DATED 11/22/2022	PG	DS
3	11/17/2023	PER GIS REVIEW LETTER DATED 11/22/2022	PG	DS

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

4/3/2023  
 LICENSED PROFESSIONAL ENGINEER  
 STATE OF PA LICENSE NO. PED76464

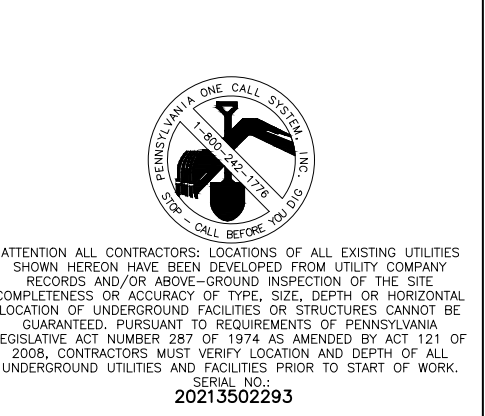
BT WORCESTER, LLC  
 CITY VIEW - APN #67-00-01606-001  
 2974 GERMANTOWN PIKE, WORCESTER TOWNSHIP,  
 MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

1700 MARKET STREET, SUITE 3110  
 PHILADELPHIA, PA 19103  
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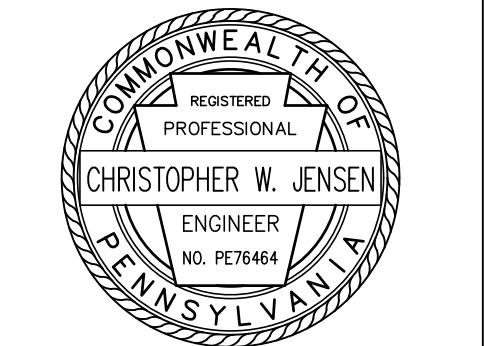
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DRAWN BY PG/SR/ROP	OF <b>34</b>
DATE 1/27/22	
SCALE 1" = 50'	
PROJ. NO. BET00056	





NO.	DATE	REVISIONS	BY	CHKD
1	10/04/2022	PER GIS REVIEW LETTER DATED 03/11/2022	DS	DS
2	4/3/2023	REVISED ENTRANCE ON GERMAN TOWN PIKE	PG	DS
3	11/17/2023	PER GIS REVIEW LETTER DATED 11/22/2023	PG	DS

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4/3/2023  
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CITY VIEW - APN #67-00-01606-001  
2974 GERMAN TOWN PIKE, WORCESTER TOWNSHIP,  
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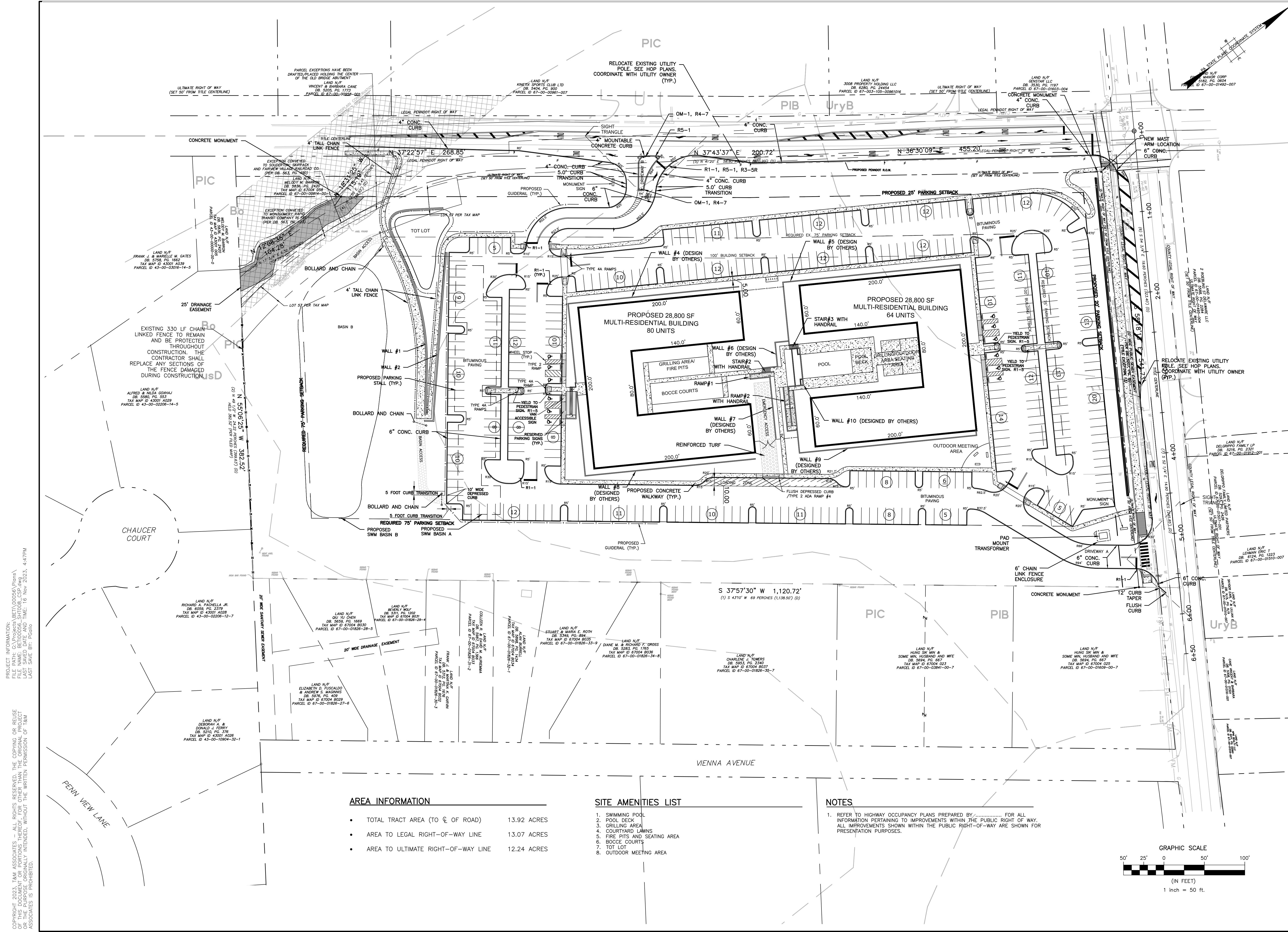
**SITE PLAN**



1700 MARKET STREET, SUITE 3110  
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FAX 215-627-3459

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SCALE 1" = 50'	OF <b>34</b>
PROJ. NO. BET00056	



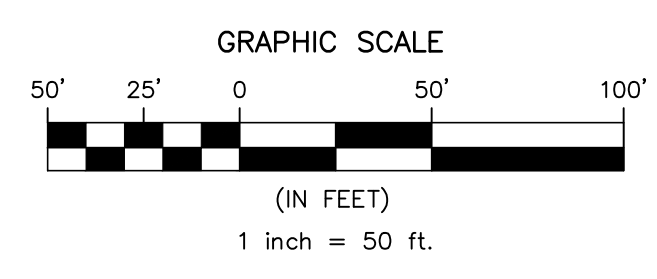
**AREA INFORMATION**

TOTAL TRACT AREA (TO & OF ROAD)	13.92 ACRES
AREA TO LEGAL RIGHT-OF-WAY LINE	13.07 ACRES
AREA TO ULTIMATE RIGHT-OF-WAY LINE	12.24 ACRES

- SITE AMENITIES LIST**
1. SWIMMING POOL
  2. POOL DECK
  3. GRILLING AREA
  4. COURTYARD LAWNS
  5. FIRE PITS AND SEATING AREA
  6. BOCCIE COURTS
  7. TOT LOT
  8. OUTDOOR MEETING AREA

**NOTES**

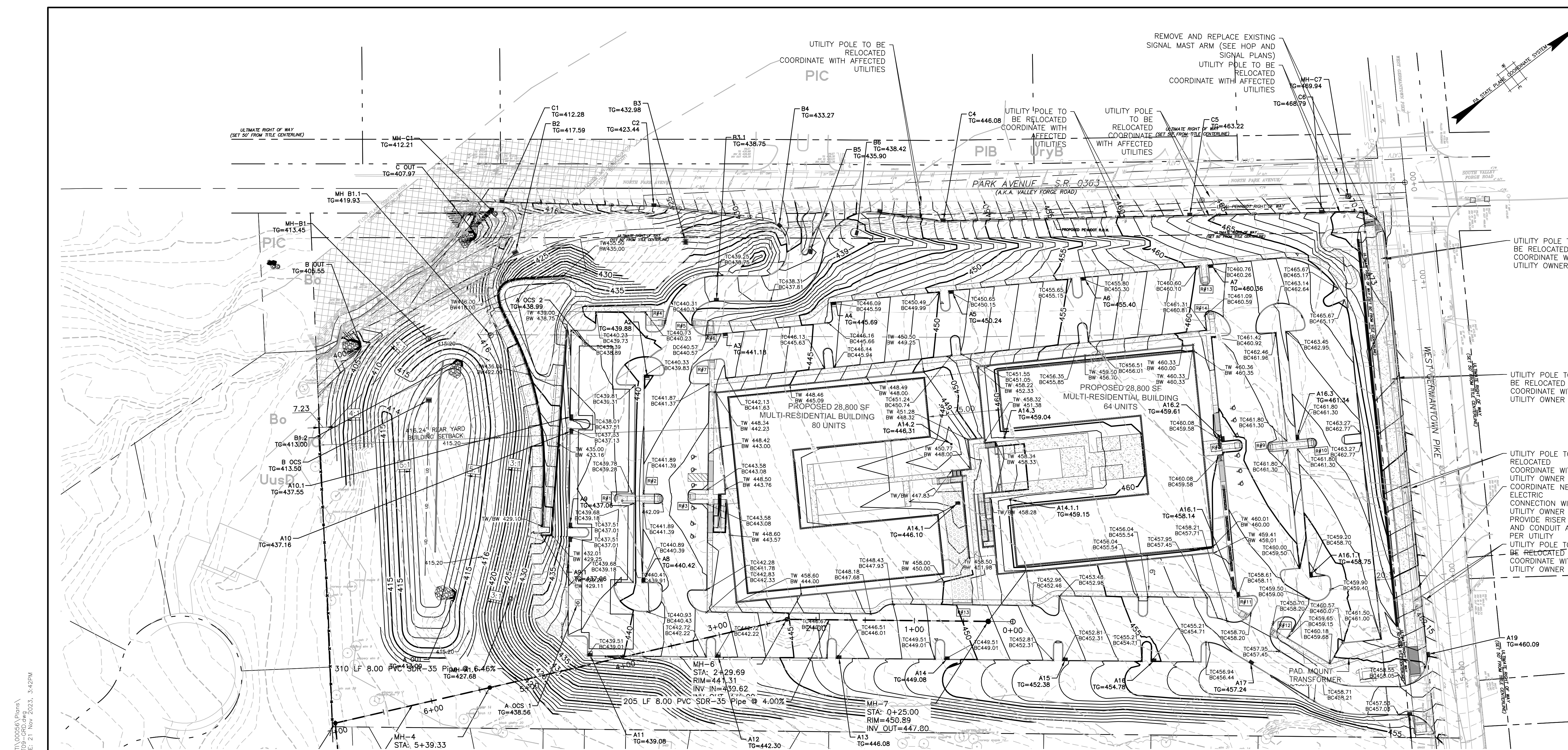
1. REFER TO HIGHWAY OCCUPANCY PLANS PREPARED BY..... FOR ALL INFORMATION PERTAINING TO IMPROVEMENTS WITHIN THE PUBLIC RIGHT OF WAY. ALL IMPROVEMENTS SHOWN WITHIN THE PUBLIC RIGHT-OF-WAY ARE SHOWN FOR PRESENTATION PURPOSES.



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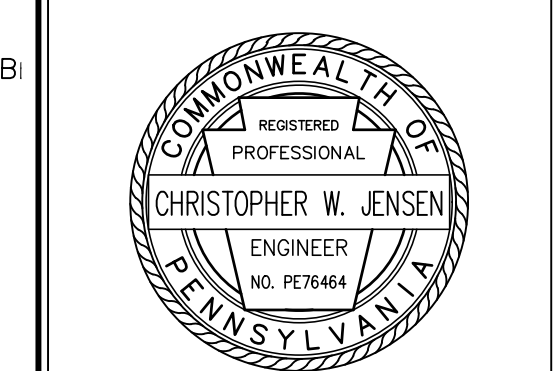
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CHRISTOPHER W. JENSEN, P.E.  
LICENSED PROFESSIONAL ENGINEER



4/3/2023  
LICENSED PROFESSIONAL ENGINEER  
STATE OF PA LICENSE NO. PE076464

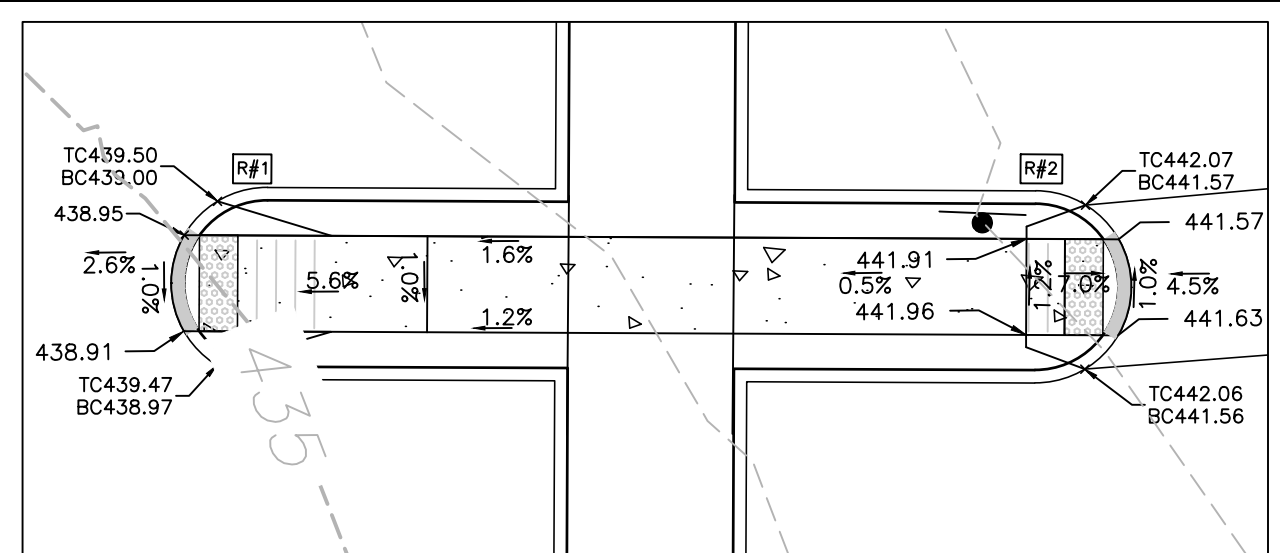
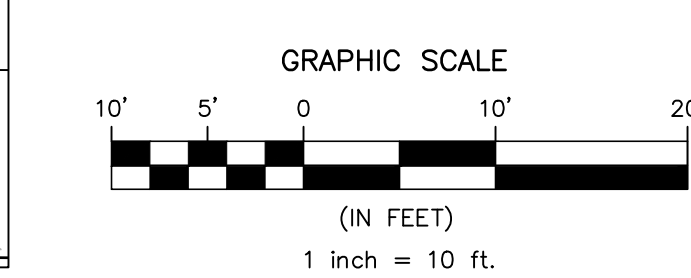
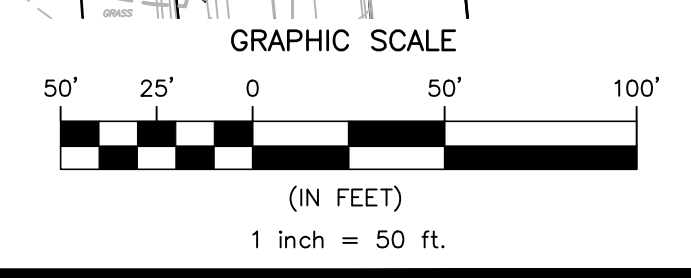
BT WORCESTER, LLC  
CITY VIEW - APN #67-00-01606-001  
2974 GERMANTOWN PIKE, WORCESTER TOWNSHIP,  
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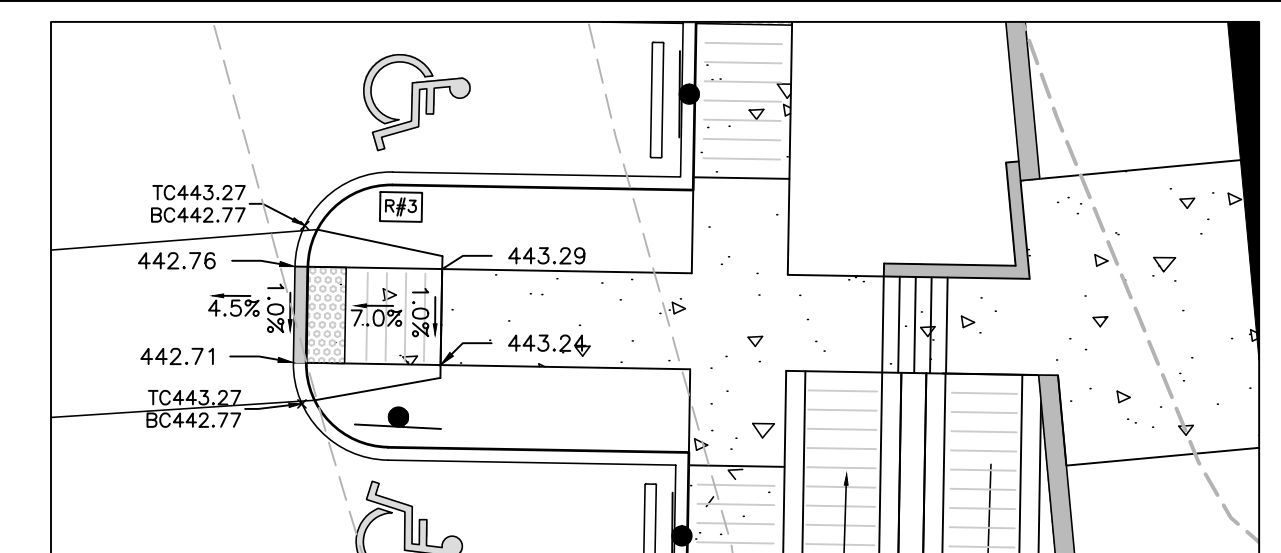
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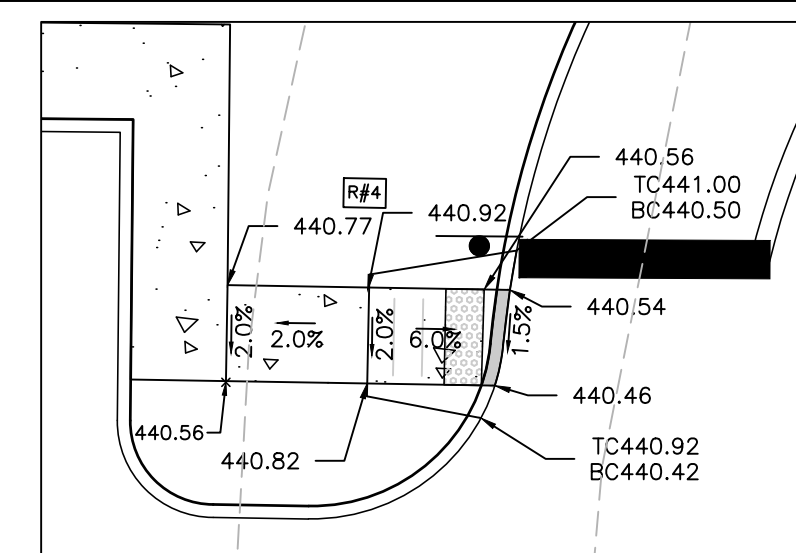
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DATE 1/27/22	9
SCALE SEE PLAN SCALE NOTE	OF 34
PROJ. NO. BETI00056	



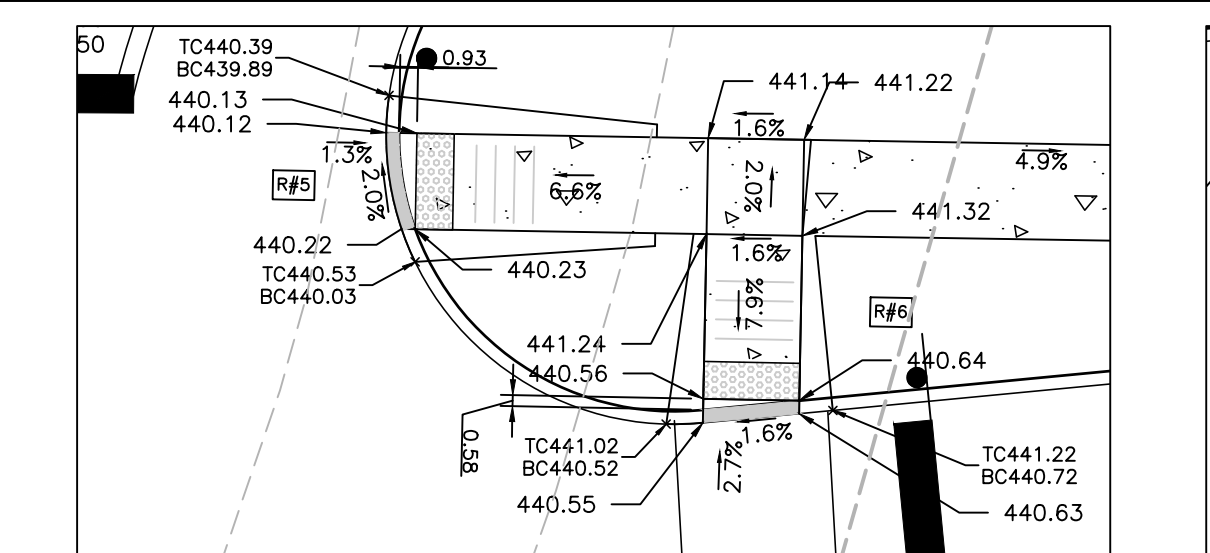
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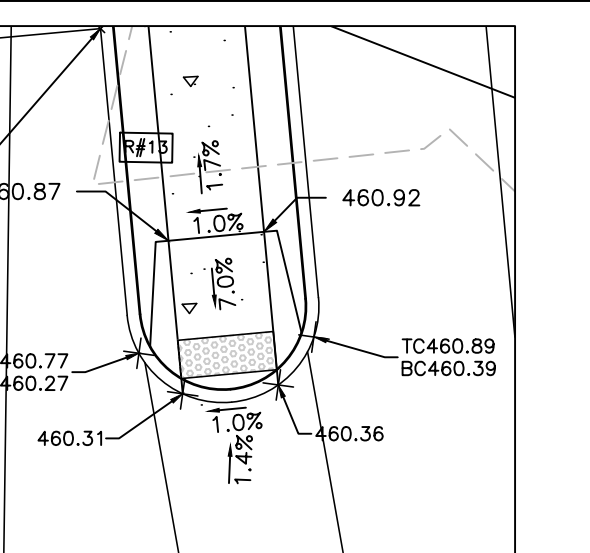
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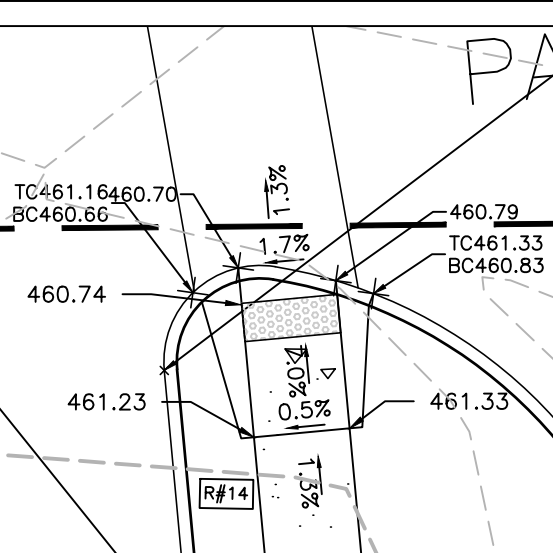
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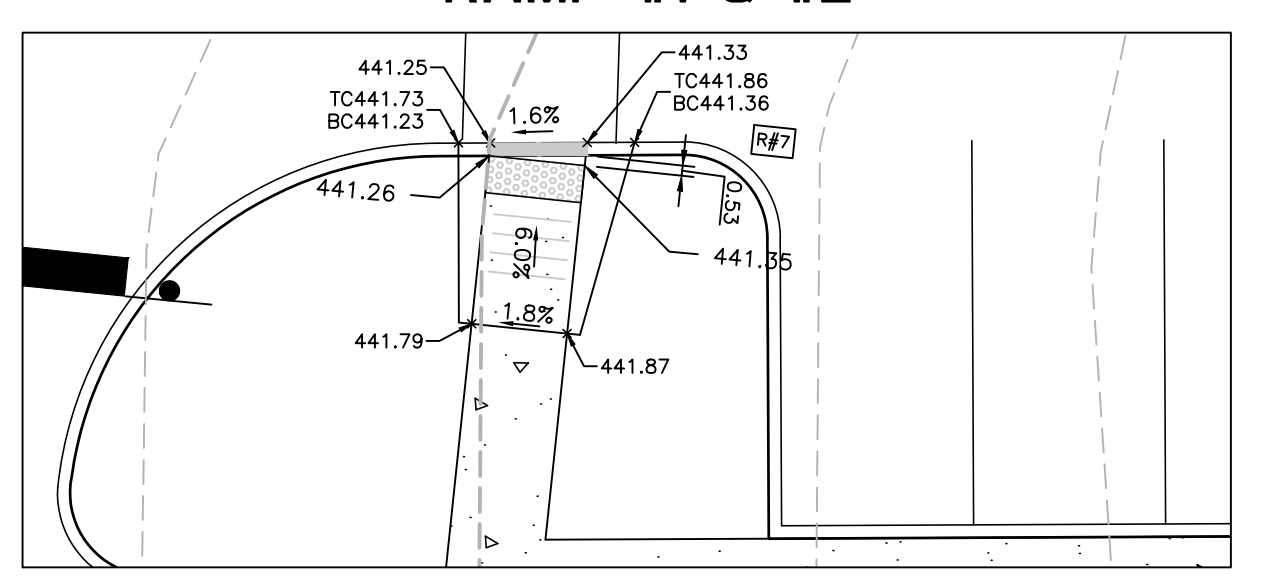
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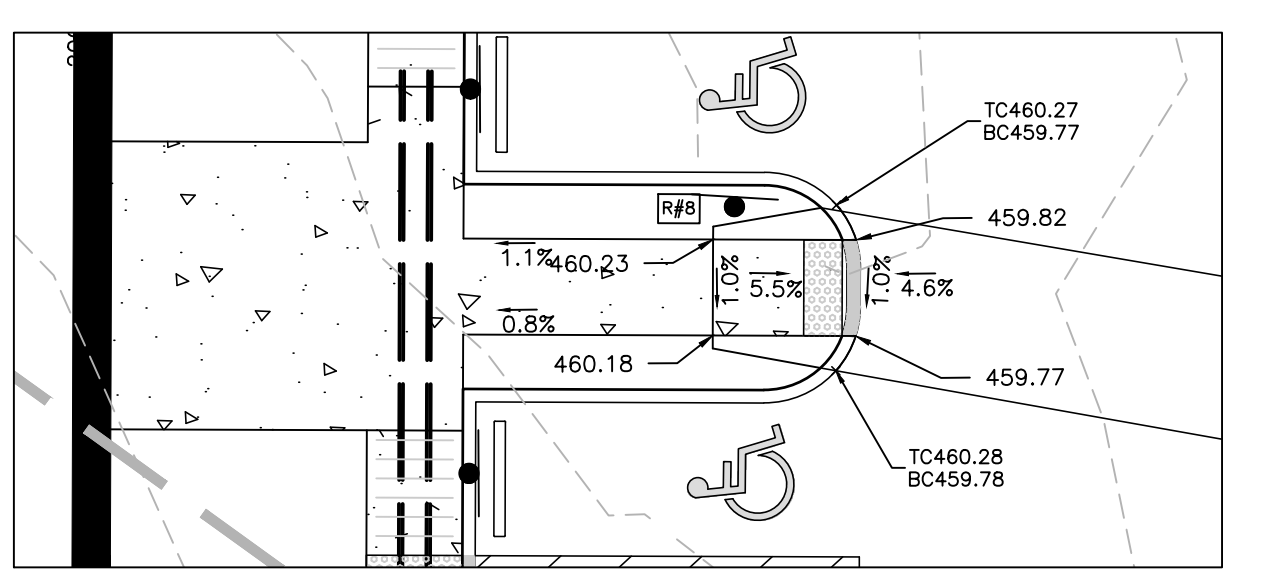
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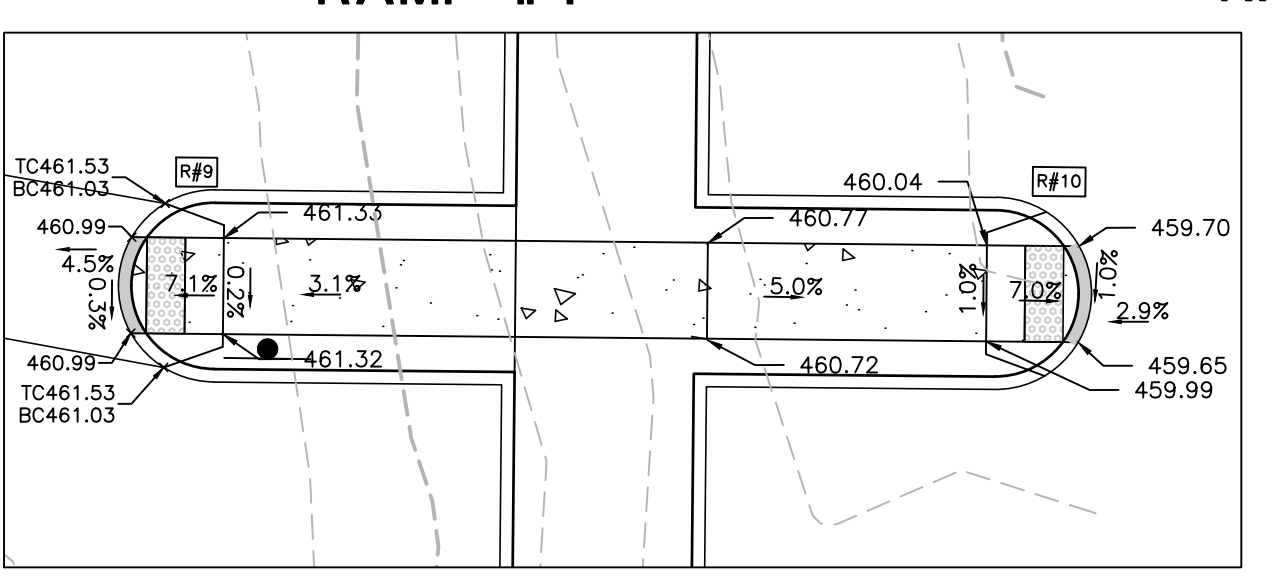
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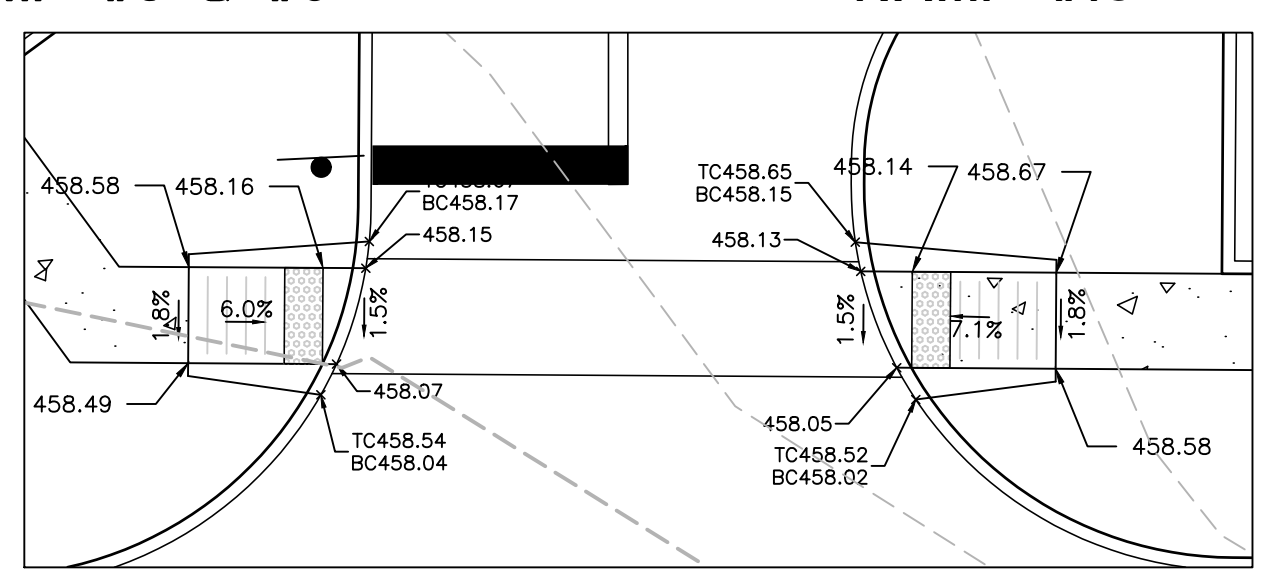
RAMP #7



RAMP #8



RAMP #9 & #10



RAMP #11 & #12









ATTENTION: ALL CONTRACTORS LOCATING OR ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR FIELD SURVEY. THE LOCATION, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND UTILITIES OR STRUCTURES CANNOT BE GUARANTEED. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. SEE 100-100-0000-001.

NO.	DATE	REVISIONS	BY	CHKD
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**CHRISTOPHER W. JENSEN, P.E.**  
LICENSED PROFESSIONAL ENGINEER

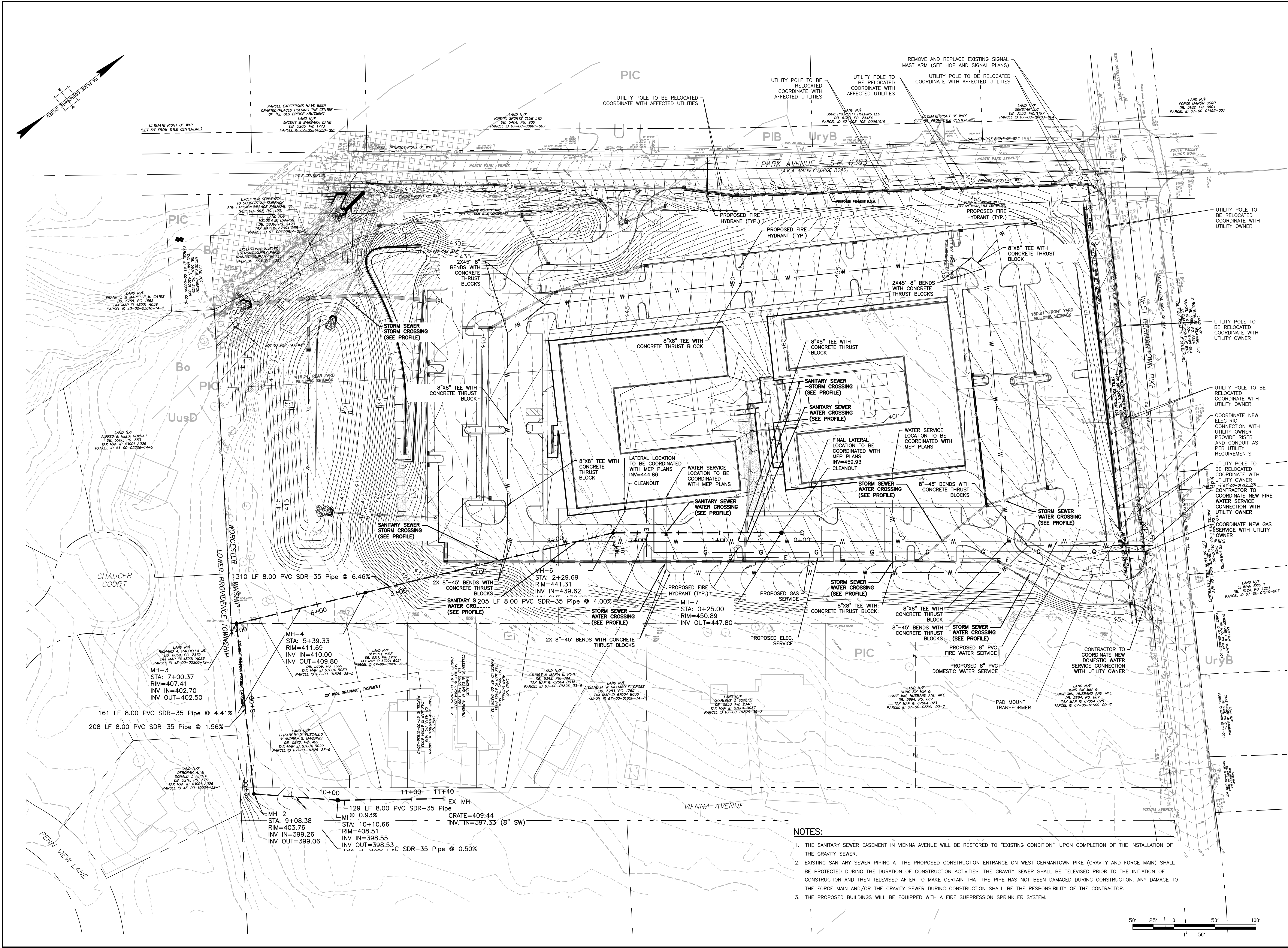
4/3/2023  
LICENSED PROFESSIONAL ENGINEER  
STATE OF PA LICENSE NO. PED76464

**BT WORCESTER, LLC**  
CITY VIEW - APN #67-00-01606-001  
2974 GERMANTOWN PIKE, WORCESTER TOWNSHIP,  
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

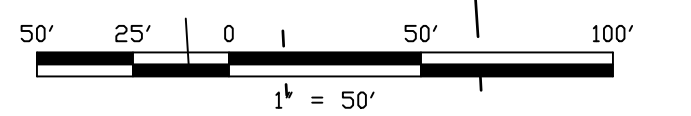
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DRAWN BY PG/SR/RDP	<b>10</b>
DATE 1/27/22	OF <b>34</b>
SCALE 1" = 50'	
PROJ. NO. BET00056	



- NOTES:**
- THE SANITARY SEWER EASEMENT IN VIENNA AVENUE WILL BE RESTORED TO "EXISTING CONDITION" UPON COMPLETION OF THE INSTALLATION OF THE GRAVITY SEWER.
  - EXISTING SANITARY SEWER PIPING AT THE PROPOSED CONSTRUCTION ENTRANCE ON WEST GERMAN TOWN PIKE (GRAVITY AND FORCE MAIN) SHALL BE PROTECTED DURING THE DURATION OF CONSTRUCTION ACTIVITIES. THE GRAVITY SEWER SHALL BE TELEVIEWED PRIOR TO THE INITIATION OF CONSTRUCTION AND THEN TELEVIEWED AFTER TO MAKE CERTAIN THAT THE PIPE HAS NOT BEEN DAMAGED DURING CONSTRUCTION. ANY DAMAGE TO THE FORCE MAIN AND/OR THE GRAVITY SEWER DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
  - THE PROPOSED BUILDINGS WILL BE EQUIPPED WITH A FIRE SUPPRESSION SPRINKLER SYSTEM.



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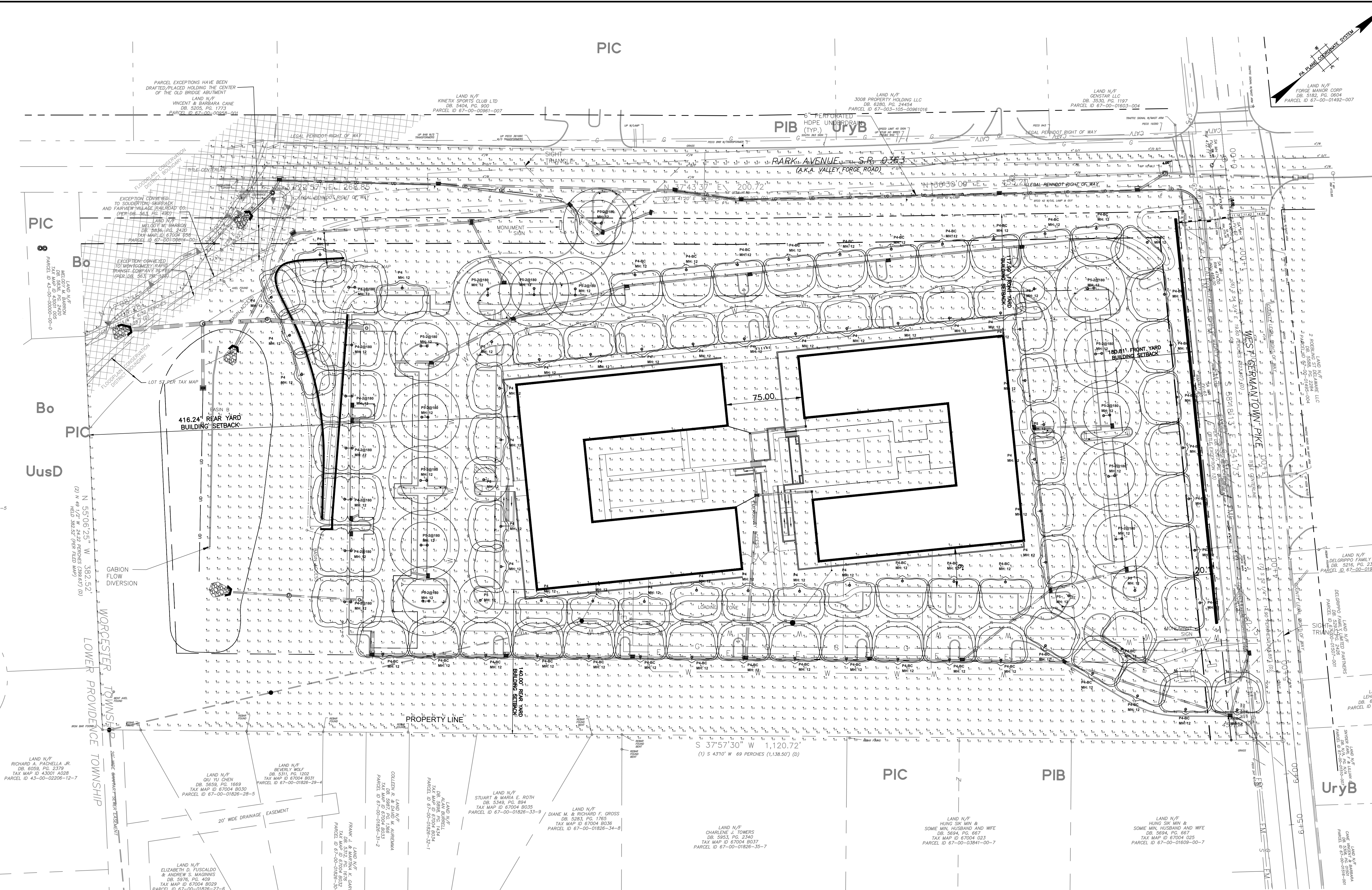
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- LIGHTING NOTES:**
- REFER TO SEPARATE ELECTRICAL ENGINEERING PLANS FOR CIRCUITRY DESIGN AND SPECIFICATIONS.
  - SEE LANDSCAPE AND LIGHTING DETAIL SHEET FOR LUMINAIRE SPECIFICATIONS AND POLE INSTALLATION DETAILS.
  - A STRUCTURAL ANALYSIS FOR THE LIGHT FOUNDATIONS, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER, SHALL BE SUBMITTED FOR REVIEW PRIOR TO CONSTRUCTION.
  - THE ANTICIPATED HOURS OF LIGHTING OPERATION ARE DUSK UNTIL DAWN. PER THE MONTGOMERY TOWNSHIP STREET LIGHTING SPECIFICATIONS, LIGHTING FOR COMMERCIAL, INDUSTRIAL, PUBLIC RECREATION, AND INSTITUTIONAL APPLICATIONS SHALL BE CONTROLLED BY AUTOMATIC SWITCHING DEVICES SUCH AS TIME CLOCKS OR COMBINATION MOTION DETECTORS AND PHOTOCELLS, TO PERMIT EXTENDING OUTDOOR LIGHTING HOURS BETWEEN 10 P.M. AND DAWN. FOR LIGHTING PROPOSED AFTER 10 P.M., OR AFTER NORMAL HOURS OF OPERATION, WHICH IS EARLIER, THE LIGHTING SHALL BE REDUCED BY AT LEAST 50% FROM THEN UNTIL DAWN, UNLESS SUPPORTING A SPECIFIC PURPOSE AND APPROVED BY THE APPROPRIATE OFFICERS OR AGENTS OF THE MUNICIPALITY.
  - ALL ILLUMINATION FOR ADVERTISING SIGNS, BUILDING, AND/OR SURROUNDING LANDSCAPES FOR DECORATIVE, ADVERTISING, OR ESTHETIC PURPOSES IS PROHIBITED BETWEEN 10 P.M. AND SUNRISE, EXCEPT THAT SUCH LIGHTING SITUATED ON THE PREMISES OF A COMMERCIAL ESTABLISHMENT MAY REMAIN ILLUMINATED WHILE THE ESTABLISHMENT IS ACTUALLY OPEN FOR BUSINESS, AND UNTIL ONE HOUR AFTER CLOSING.
  - ALL OUTSIDE LIGHTING, INCLUDING SIGN LIGHTING, SHALL BE ARRANGED, DESIGNED AND SHIELDED OR DIRECTED SO AS TO PROTECT THE ABUTTING STREETS AND HIGHWAYS AND ADJOINING PROPERTY FROM THE GLARE OF LIGHTS. IN NO CASE SHALL ILLUMINATION CAST BY A SOURCE OR SOURCES ONTO AN ADJACENT RESIDENTIAL PROPERTY EXCEED 0.1 VERTICAL FOOT-CANDLE MEASURED LINE-OF-SIGHT, FROM ANY POINT ON THE ADJACENT RESIDENTIAL PROPERTY.
  - ALL LANDSCAPING SHALL BE TRIMMED AS NECESSARY TO MAINTAIN REQUIRED LIGHT LEVELS.
  - THE DEVELOPER AND CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH ALL APPLICABLE MONTGOMERY TOWNSHIP PERSONNEL AND CONSULTANTS/INSPECTORS PRIOR TO COMMENCING CONSTRUCTION.
  - THE TOWNSHIP RESERVES THE RIGHT TO CONDUCT POST-INSTALLATION DURING AND NIGHTTIME INSPECTIONS TO VERIFY COMPLIANCE WITH THE TOWNSHIP LIGHTING STANDARDS. IF THE INSPECTION REVEALS A NON-COMPLIANCE TO TOWNSHIP STANDARDS, THE TOWNSHIP SHALL TAKE DIRECT CORRECTIVE ACTION, WHICH SHALL BE EXECUTED BY THE PROPERTY OWNER AT NO EXPENSE TO THE TOWNSHIP. RECTIFICATION MUST BE COMPLETED WITHIN THIRTY (30) DAYS OF NOTIFICATION FROM THE TOWNSHIP.
  - CONTRACTOR TO SUBMIT SHOP DRAWINGS AND/OR CUT SHEETS FOR ALL PROPOSED LIGHTS, POLES, AND FOUNDATIONS IN ACCORDANCE WITH THE APPROVED LAND DEVELOPMENT PLANS FOR APPROVAL BY MONTGOMERY TOWNSHIP DEPARTMENT OF PUBLIC WORKS AND THE MUNICIPAL STREET LIGHTING ENGINEER PRIOR TO INSTALLATION.
  - PRIOR TO CONSTRUCTION, THE CONTRACTOR AND DEVELOPER SHALL SUBMIT FOR REVIEW AND APPROVAL TO MONTGOMERY TOWNSHIP ANY AND ALL DEVIATIONS FROM THE APPROVED LIGHTING PLANS.
  - ALL UTILITIES AND BELOW GRADE STRUCTURES SHOWN FOR REFERENCE. SEE ENGINEER'S PLANS FOR LOCATION OF ALL UTILITIES. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES AND BELOW GRADE STRUCTURES PRIOR TO COMMENCEMENT OF WORK.
  - LIGHTING TO BE INSTALLED TO MEET ALL APPROPRIATE NATIONAL, LOCAL, AND TOWNSHIP CODES.
  - ALL LIGHTING TO BE INSTALLED ACCORDING TO MANUFACTURERS' RECOMMENDATIONS.
  - PROVIDE SEPARATE ELECTRICAL CERTIFICATIONS FOR SITE PARKING LOT LIGHTING FROM SITE BUILDING INSPECTIONS, IF APPLICABLE. THESE CERTIFICATIONS SHALL INCLUDE THE FOLLOWING:
    - ALL UNDERGROUND CONDUIT AND WIRE HAS BEEN OBSERVED AND INSPECTED TO BE IN CONFORMANCE WITH THE CURRENT NATIONAL ELECTRIC CODE (NEC) AND TOWNSHIP REQUIREMENTS.
    - ALL CONNECTIONS AND TERMINATIONS HAVE BEEN OBSERVED AND INSPECTED TO BE IN CONFORMANCE WITH THE CURRENT NEC AND TOWNSHIP REQUIREMENTS.
    - ALL EQUIPMENT HAS BEEN OBSERVED AND FOUND TO BE U.L. LISTED AND ACCEPTED.
    - THE SPECIFIC NUMBER OF LUMINAIRES AND THE LOCATIONS WHICH WERE OBSERVED AND INSPECTED.
  - ALL POST-CONSTRUCTION LIGHT POLE AND FIXTURE FINISHES SHALL MATCH.
  - LIGHTING FIXTURES AND EQUIPMENT SHALL BE MAINTAINED SO AS TO CONTINUOUSLY MEET TOWNSHIP REQUIREMENTS. THIS INCLUDES CLEANING OF THE LIGHTING COMPONENTS TO MAINTAIN THE LUMEN VALUE. LUMINAIRES MUST BE REPLACED AS SOON AS THEY HAVE REACHED THE END OF THEIR SERVICE LIFE OR WHEN THEY ARE UNABLE TO OPERATE PROPERLY.



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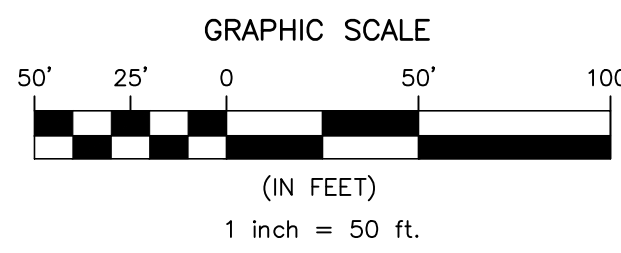
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**LUMINAIRE SCHEDULE "REFER TO LIGHTING FIXTURE CUTSHEETS FOR COMPLETE CATALOG NUMBERS"**

Symbol	Qty	Arrangement	Fixture Type	Description	Manufacturer	Luminaire Catalog Number	Pole Catalog Number	CCT	LLF	Total Watts	Delivered Lumens	Mounting Height	Filename
⊙	31	Single	P4	20 INCH DIAMETER ARM MOUNTED AREA LIGHT, TYPE 4 DISTRIBUTION, MOUNTED 12FT ABOVE FINISHED GRADE	KIM LIGHTING	UR20-24L-25-3K7-4-UNV-A34-(FINISH)	RSA-(HEIGHT)-40-A-1-K2-(FINISH)-VM2	3000K	0.900	25	3118	12	UR20-24L-25-3K7-4-IES
⊙	7	Back-Back	P4-2@180	20 INCH DIAMETER ARM MOUNTED AREA LIGHT, TYPE 4 DISTRIBUTION, (2) BACK-TO-BACK FIXTURES MOUNTED 12FT ABOVE FINISHED GRADE	KIM LIGHTING	(2) UR20-24L-25-3K7-4-UNV-A34-(FINISH)	RSA-(HEIGHT)-40-A-1-K2-(FINISH)-VM2	3000K	0.900	50	6236	12	UR20-24L-25-3K7-4-IES
⊙	40	Single	P4-BC	20 INCH DIAMETER ARM MOUNTED AREA LIGHT, TYPE 4 DISTRIBUTION WITH INTERNAL BACKLIGHT CONTROL, MOUNTED 12FT ABOVE FINISHED GRADE	KIM LIGHTING	UR20-24L-65-3K7-4-UNV-A34-(FINISH)-BC	RSA-(HEIGHT)-40-A-1-K2-(FINISH)-VM2	3000K	0.900	65	5133	12	UR20-24L-65-3K7-4-BC-IES
⊙	7	Single	P5	20 INCH DIAMETER ARM MOUNTED AREA LIGHT, TYPE 5 WIDE DISTRIBUTION, MOUNTED 12FT ABOVE FINISHED GRADE	KIM LIGHTING	UR20-24L-25-3K7-5W-UNV-A34-(FINISH)	RSA-(HEIGHT)-40-A-1-K2-(FINISH)-VM2	3000K	0.900	25	3059	12	UR20-24L-25-3K7-5W-IES
⊙	14	Back-Back	P5-2@180	20 INCH DIAMETER ARM MOUNTED AREA LIGHT, TYPE 5 WIDE DISTRIBUTION, (2) BACK-TO-BACK FIXTURES MOUNTED 12FT ABOVE FINISHED GRADE	KIM LIGHTING	(2) UR20-24L-25-3K7-5W-UNV-A34-(FINISH)	RSA-(HEIGHT)-40-A-2-K2-(FINISH)-VM2	3000K	0.900	50	6118	12	UR20-24L-25-3K7-5W-IES

**CALCULATION SUMMARY**

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	PISpLr	PISpTb
PARKING LOT & DRIVES_Ground	Illuminance	Fc	1.7	5.4	0.5	3.4	10.8	10	10
PROPERTY LINE_Ground	Illuminance	Fc	0.0	0.0	0.0	N.A.	N.A.	10	N.A.
TOT LOT PATHWAY_Ground	Illuminance	Fc	1.7	3.4	0.5	3.5	6.8	10	N.A.
TOT Lot_Ground	Illuminance	Fc	1.6	3.0	0.7	2.3	4.3	10	10

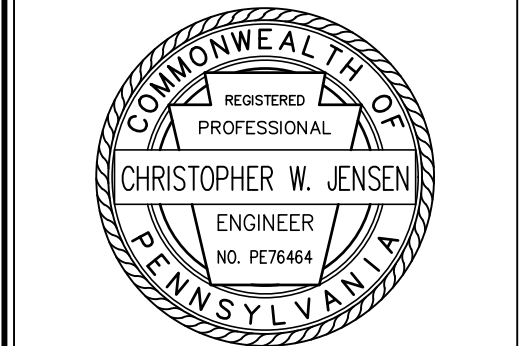


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20231502293

NO.	DATE	REVISIONS	BY	CHKD
1	10/04/2022	PER GIS REVIEW LETTER DATED 03/11/2022	PRG DS	
2	4/3/2023	REVISED ENTRANCE ON GERMAN TOWNSHIP PIKE	PRG DS	
3	11/17/2023	PER GIS REVIEW LETTER DATED 11/22/2022	PRG DS	

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



4/3/2023  
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 STATE OF PA LICENSE NO. PE076464

BT WORCESTER, LLC  
 CITY VIEW - APN #67-00-01606-001  
 2974 GERMAN TOWNSHIP PIKE, WORCESTER TOWNSHIP,  
 MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

**LIGHTING PLAN**

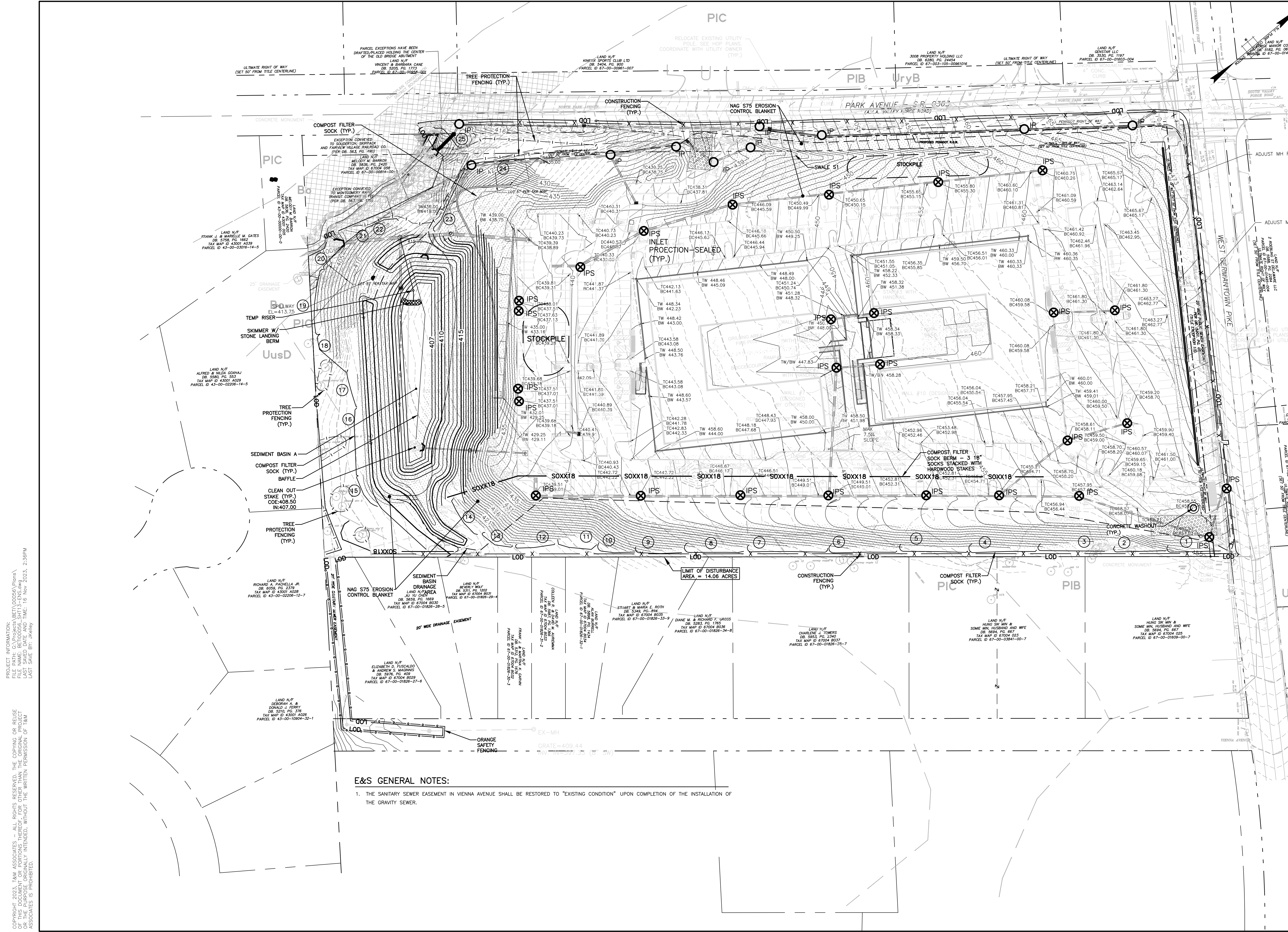
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DESIGNED BY CGG/JPK/ROP	DRAWING LTP
CHECKED BY DS	SHEET
DRAWN BY PG/SP/ROP	12
DATE 1/27/22	OF 34
SCALE 1" = 50'	
PROJ. NO. BET00056	





**E&S GENERAL NOTES:**

1. THE SANITARY SEWER EASEMENT IN VIENNA AVENUE SHALL BE RESTORED TO "EXISTING CONDITION" UPON COMPLETION OF THE INSTALLATION OF THE GRAVITY SEWER.

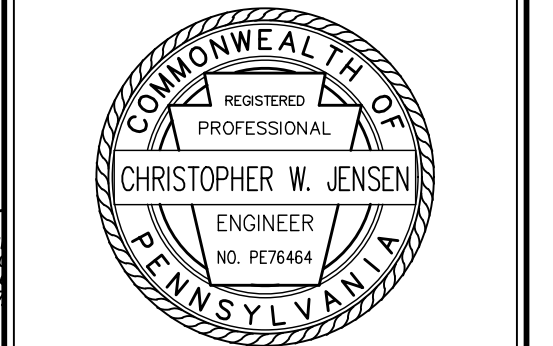
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2	4/3/2023	REVISED ENTRANCE ON GERMANTOWN PIKE	DS	CHD
3	11/17/2023	PER CDS REVIEW LETTER DATED 11/22/2023	DS	CHD

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3	11/17/2023	PER CDS REVIEW LETTER DATED 11/22/2023	DS	CHD

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



4/3/2023  
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 STATE OF PA LICENSE NO. PE076464

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 CITY VIEW - APN #67-00-01606-001  
 2974 GERMANTOWN PIKE, WORCESTER TOWNSHIP,  
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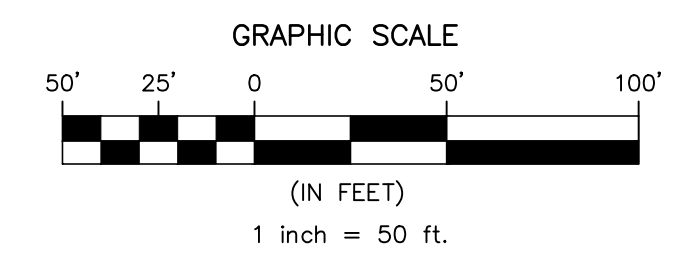
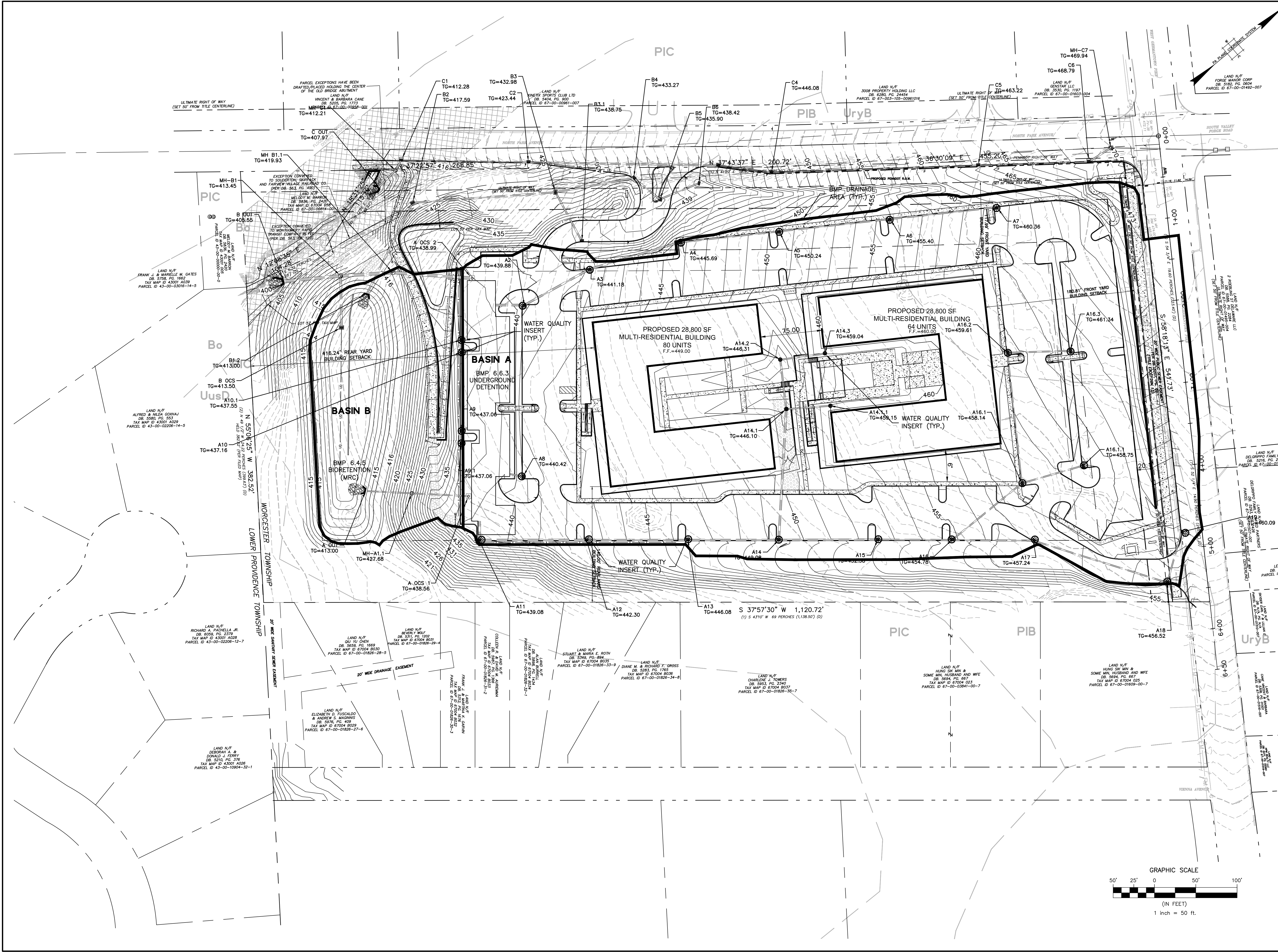
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DESIGNED BY CGG/JPK/ROP	DRAWING ENS
CHECKED BY DS	SHEET
DRAWN BY PG/SR/ROP	13
DATE 1/27/22	OF 34
SCALE 1" = 50'	
PROJ. NO. BET00056	



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2021502293

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

4/3/2023  
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 STATE OF PA LICENSE NO. PED76464

BT WORCESTER, LLC

CITY VIEW - APN #67-00-01606-001  
 2974 GERMAN TOWN PIKE, WORCESTER TOWNSHIP,  
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**POST CONSTRUCTION  
 STORMWATER MANAGEMENT PLAN**

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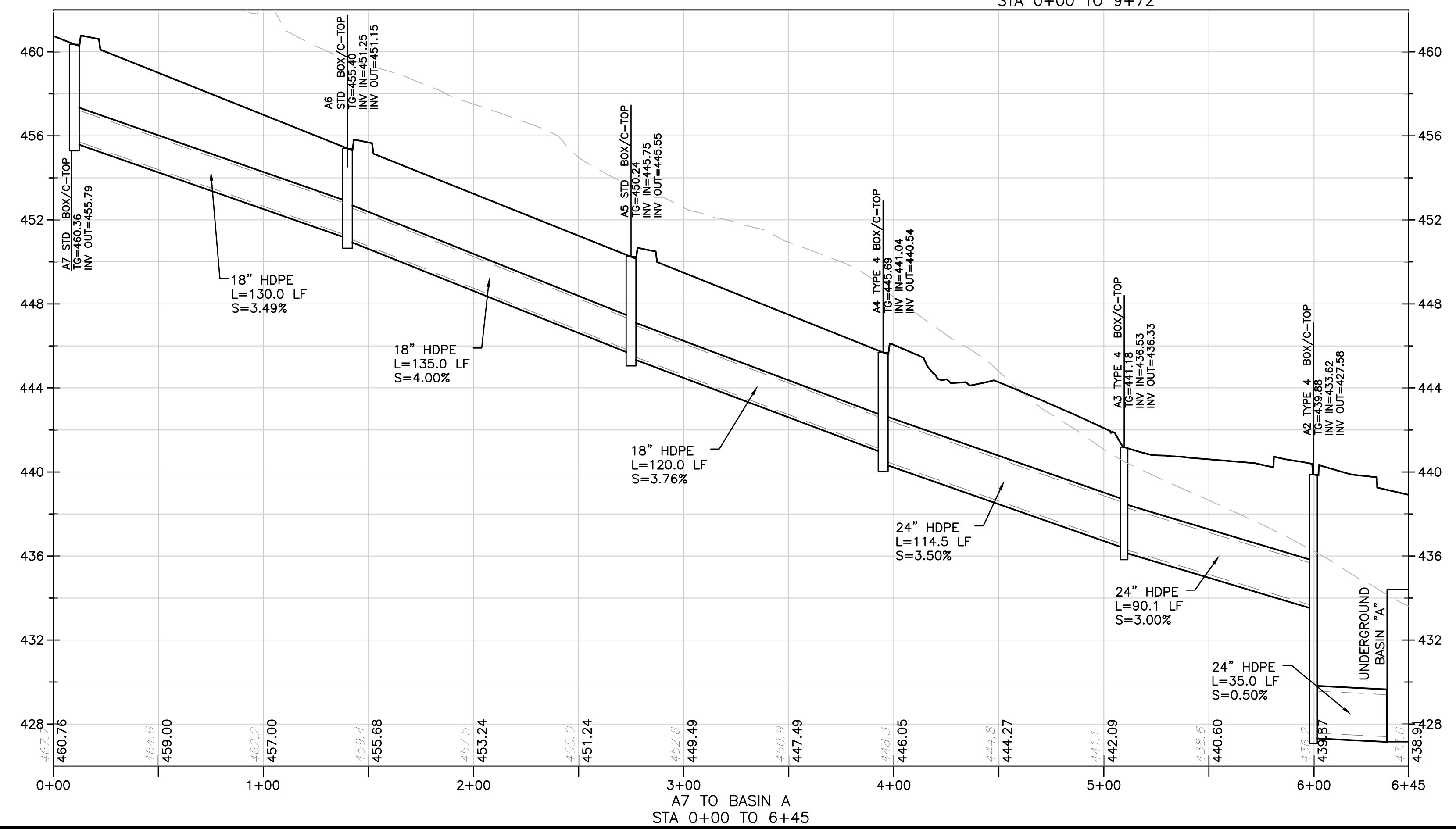
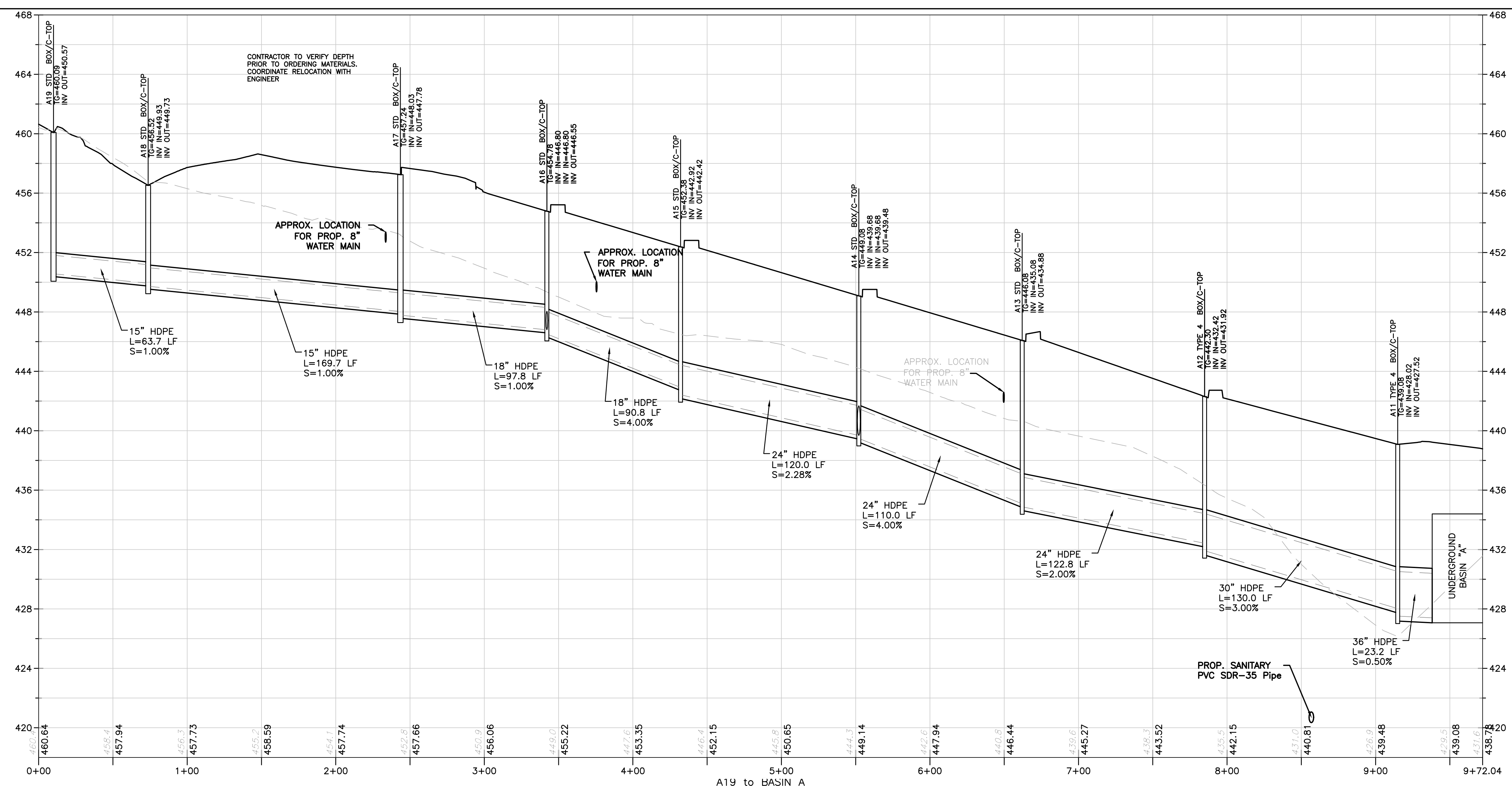
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 PROJ. NO.: BET00056

DRAWING: **PSM**  
 SHEET: **14**  
 OF **34**



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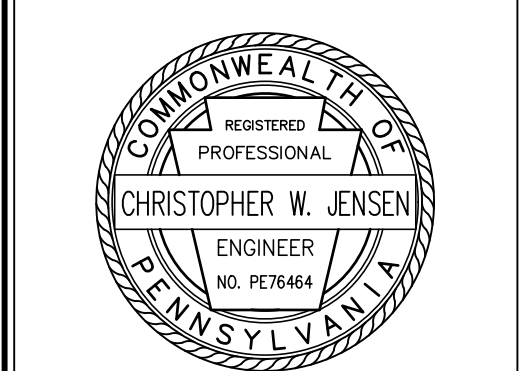
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 PHILADELPHIA. THE CONTRACTOR SHALL VERIFY THE LOCATION, DEPTH AND  
 COMPLETENESS OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR  
 SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE  
 APPROPRIATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR  
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 LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 121 OF  
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 DATE: 11/22/2022

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**CHRISTOPHER W. JENSEN, P.E.**  
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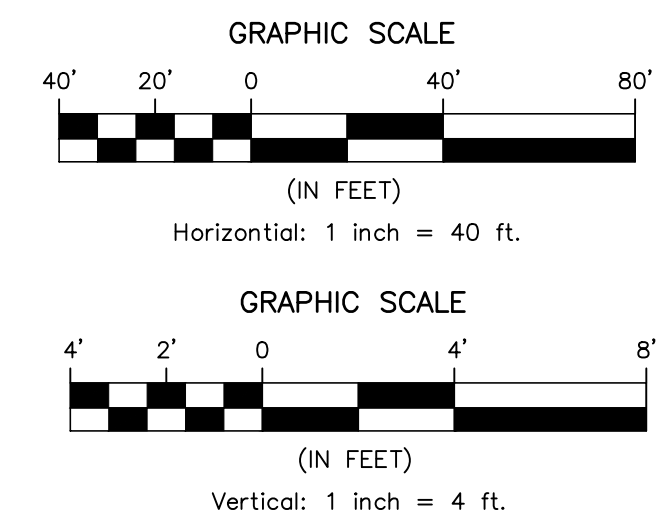
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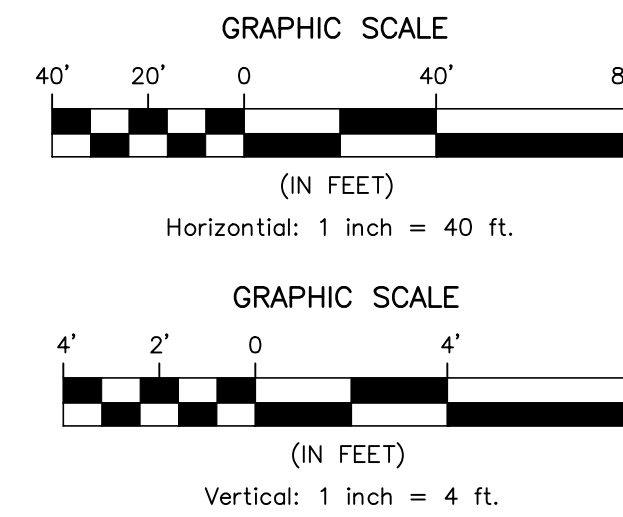
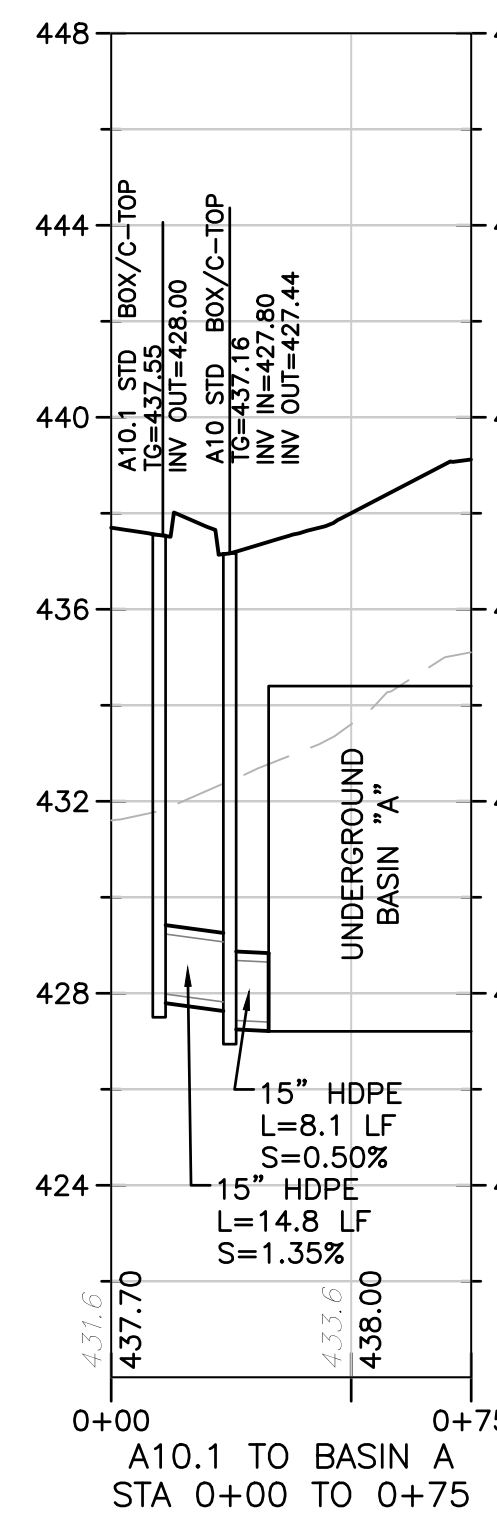
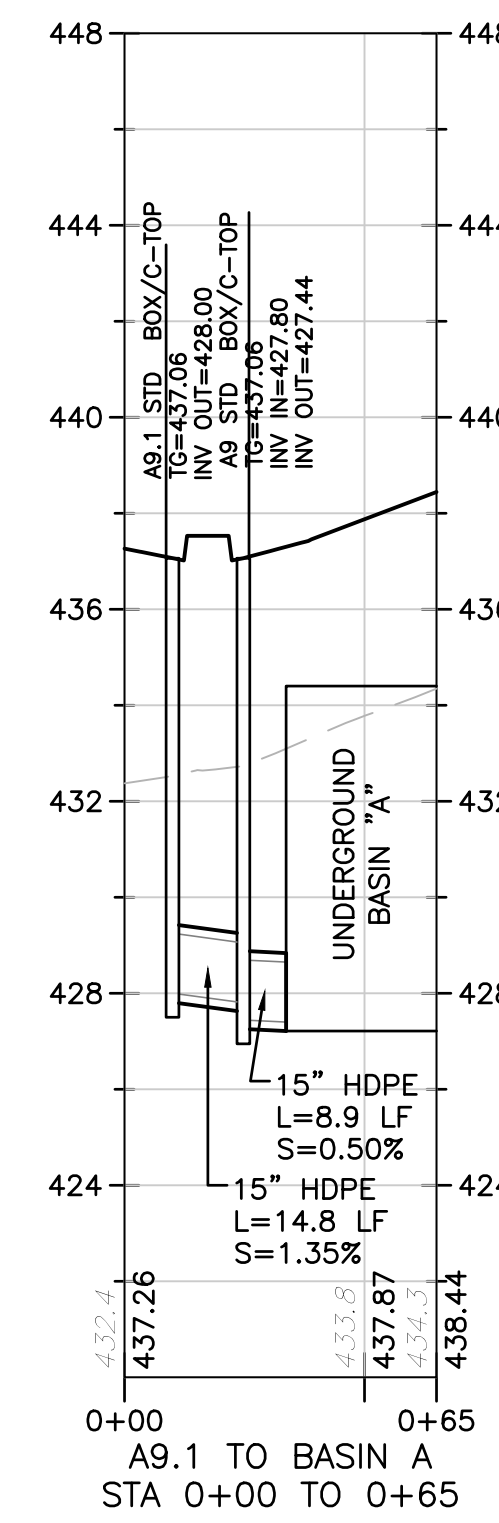
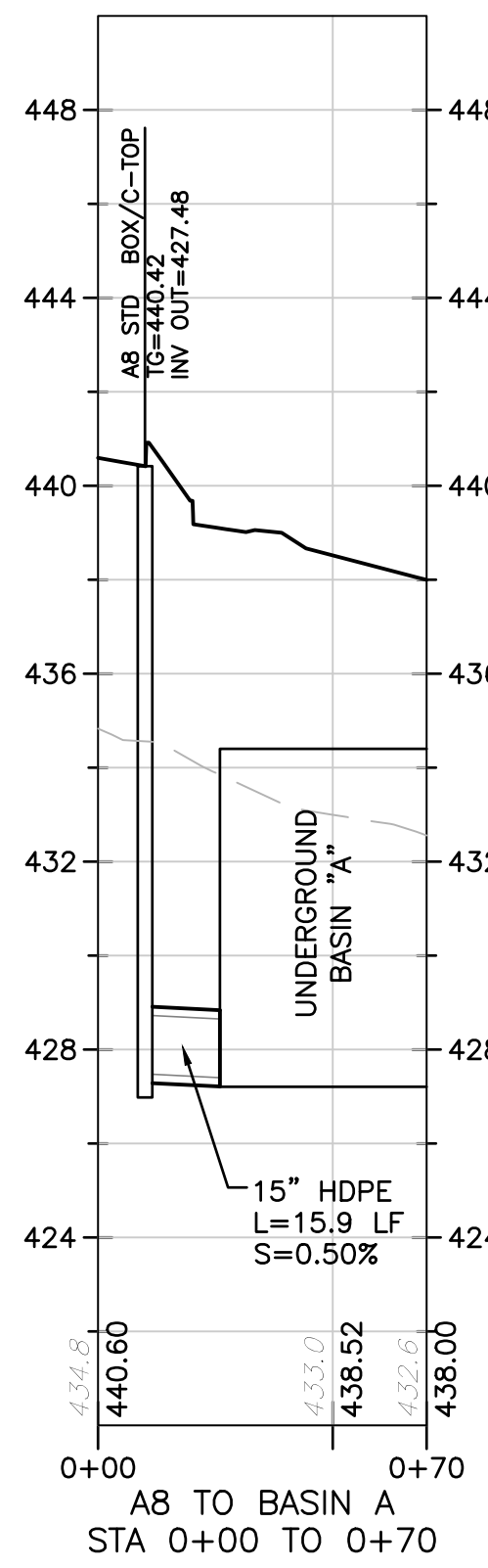
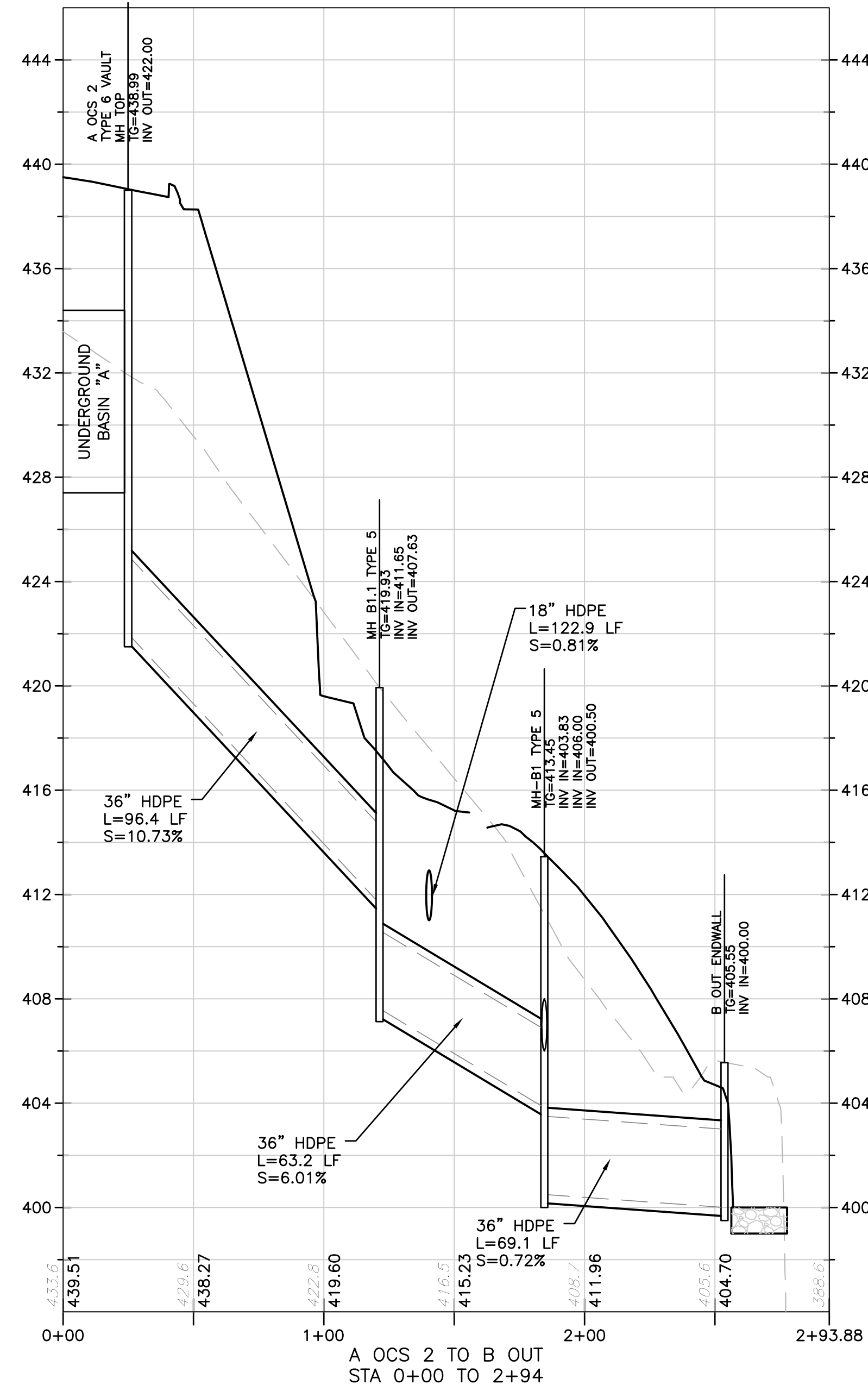
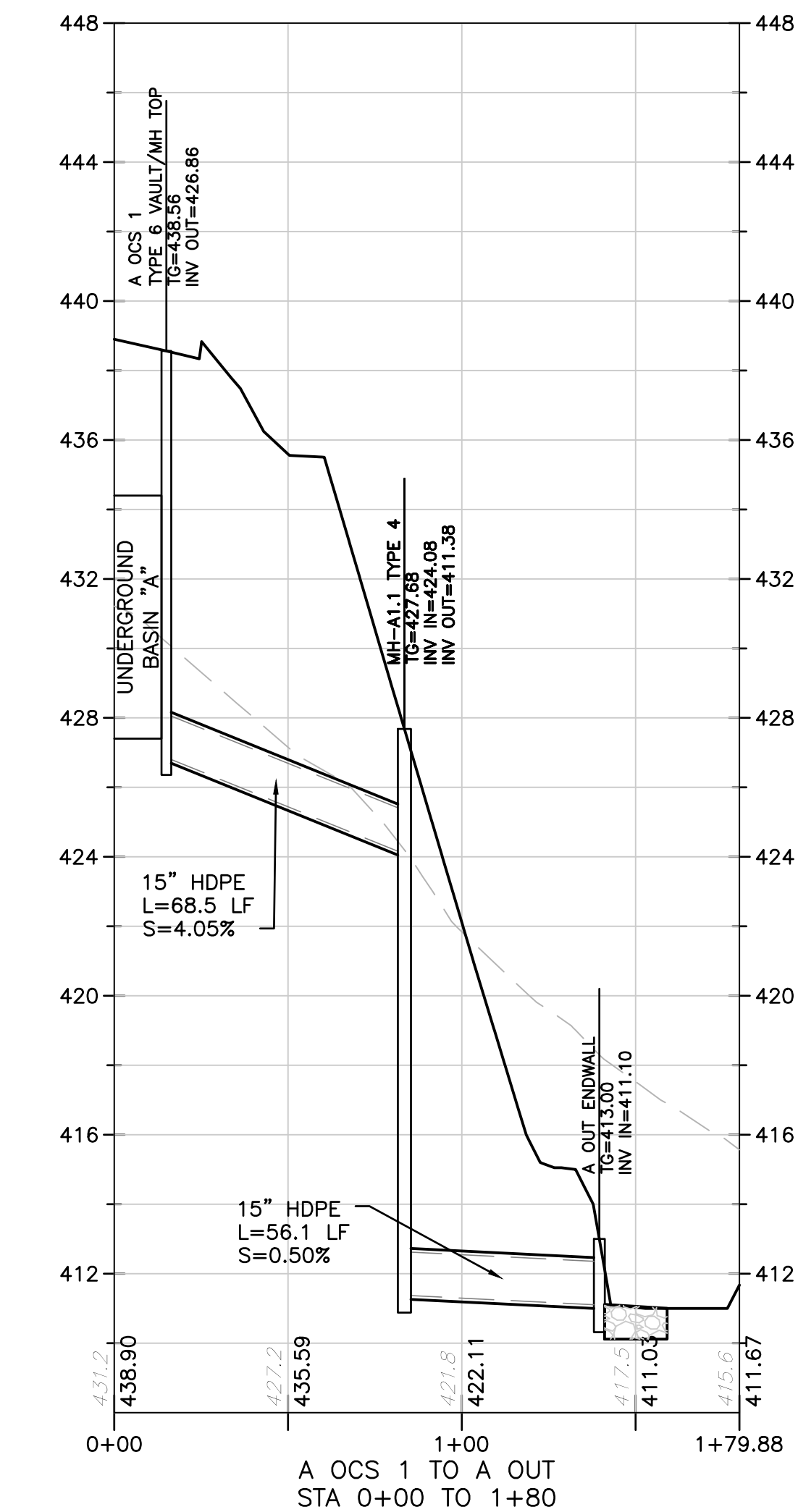
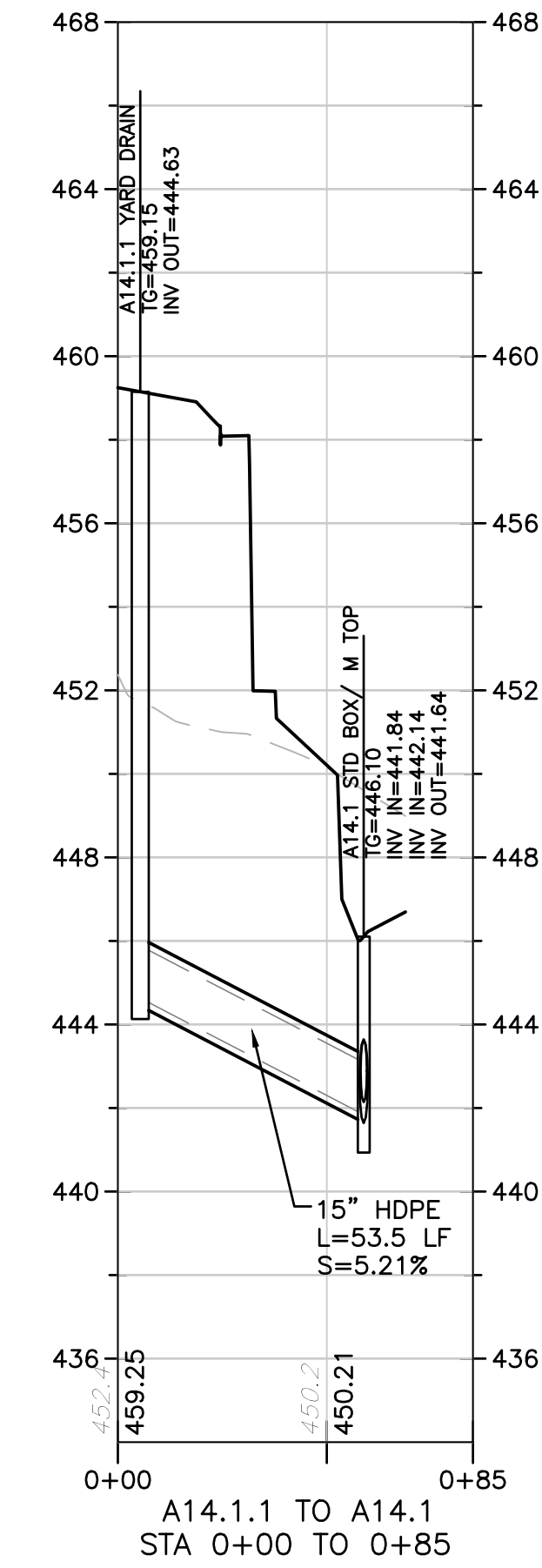
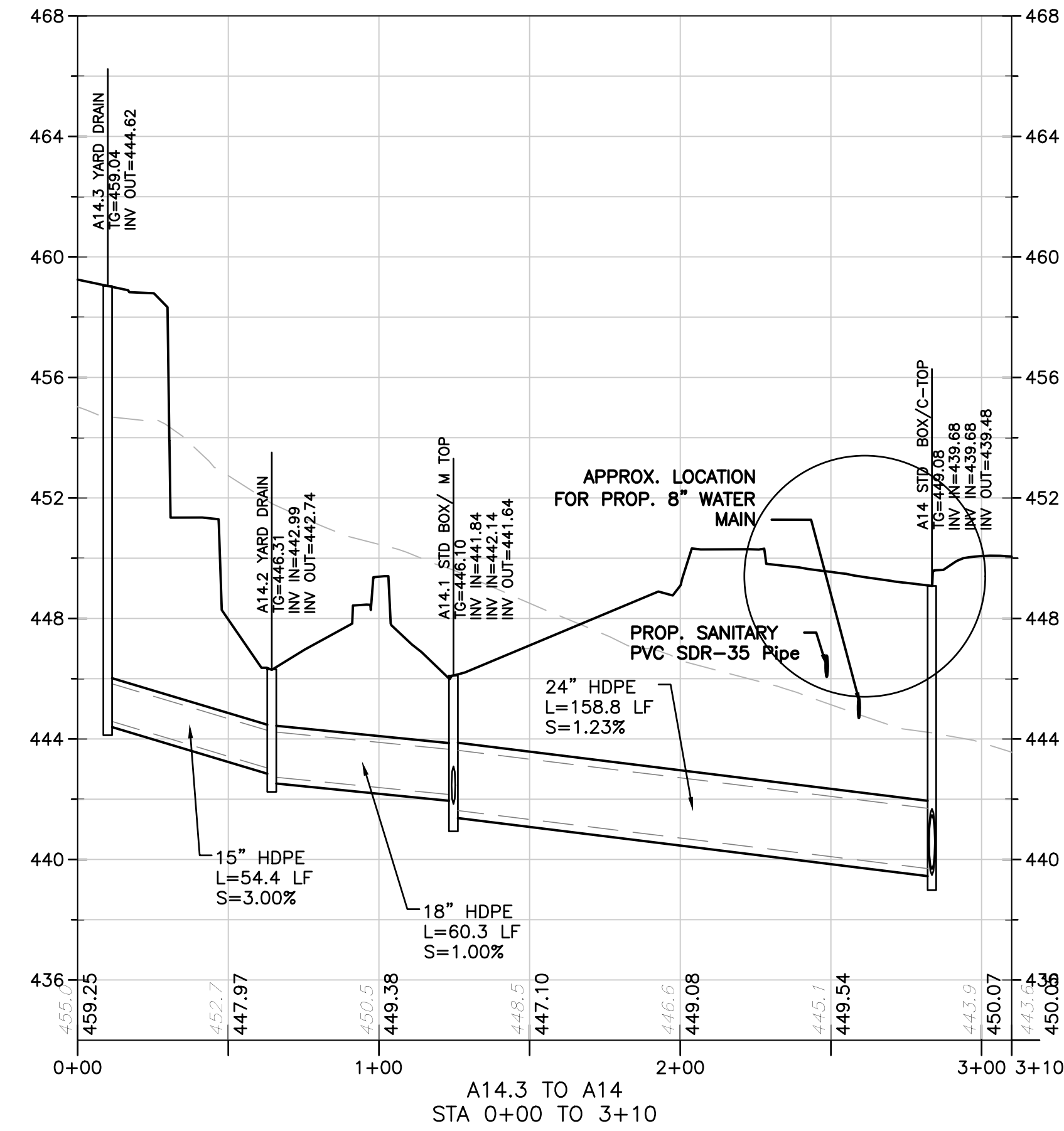
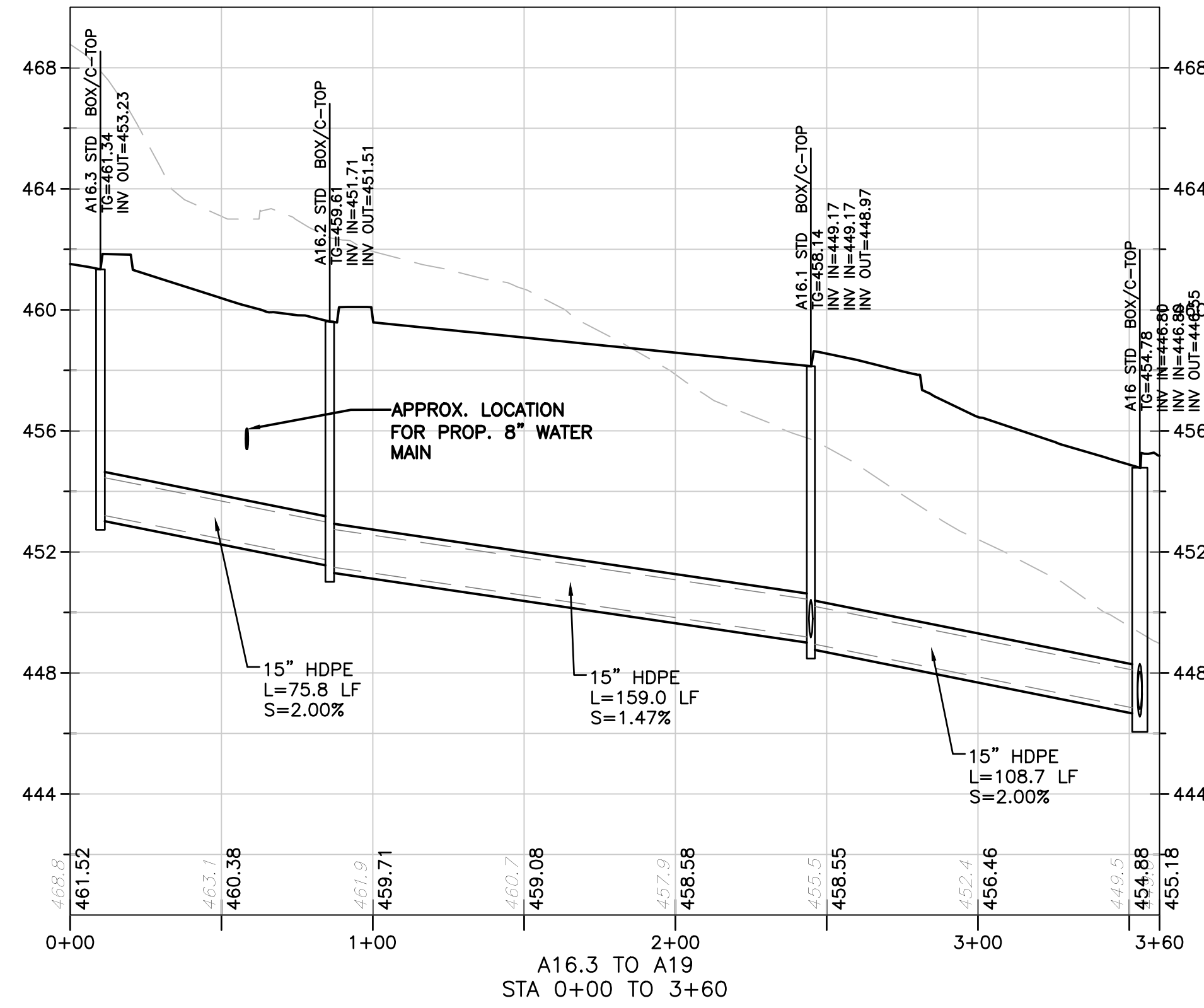
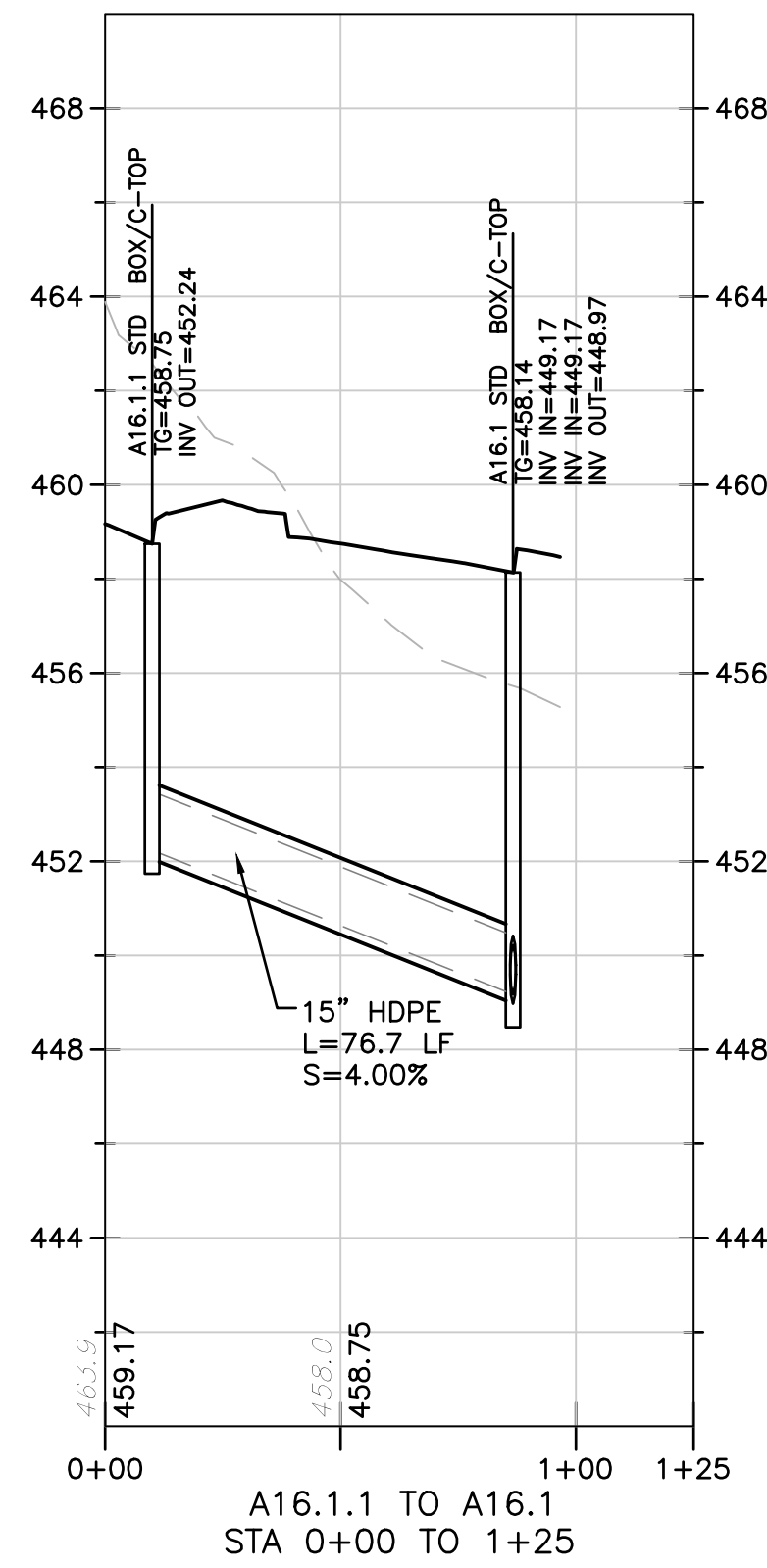
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 PROJ. NO.: BETI00056

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 SHEET: **15**  
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3	11/17/2022	PER GIS REVIEW LETTER DATED 11/22/2022	PRG DS	
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**CHRISTOPHER W. JENSEN, P.E.**  
 LICENSED PROFESSIONAL ENGINEER



4/3/2023  
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BT WORCESTER, LLC  
 CITY VIEW - APN #67-00-01606-001  
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 MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA  
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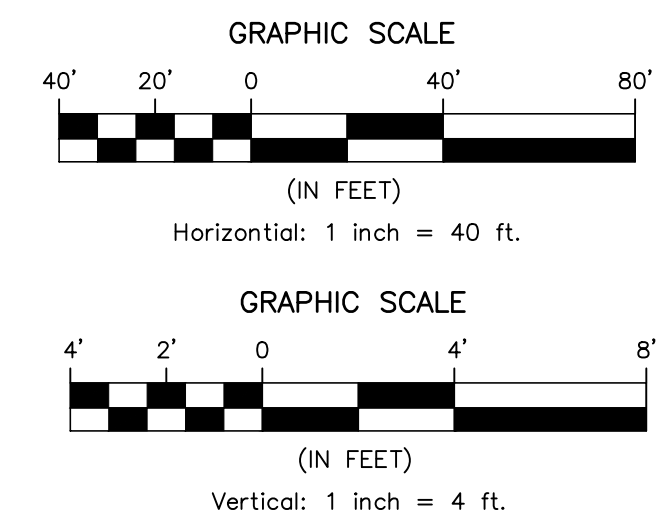
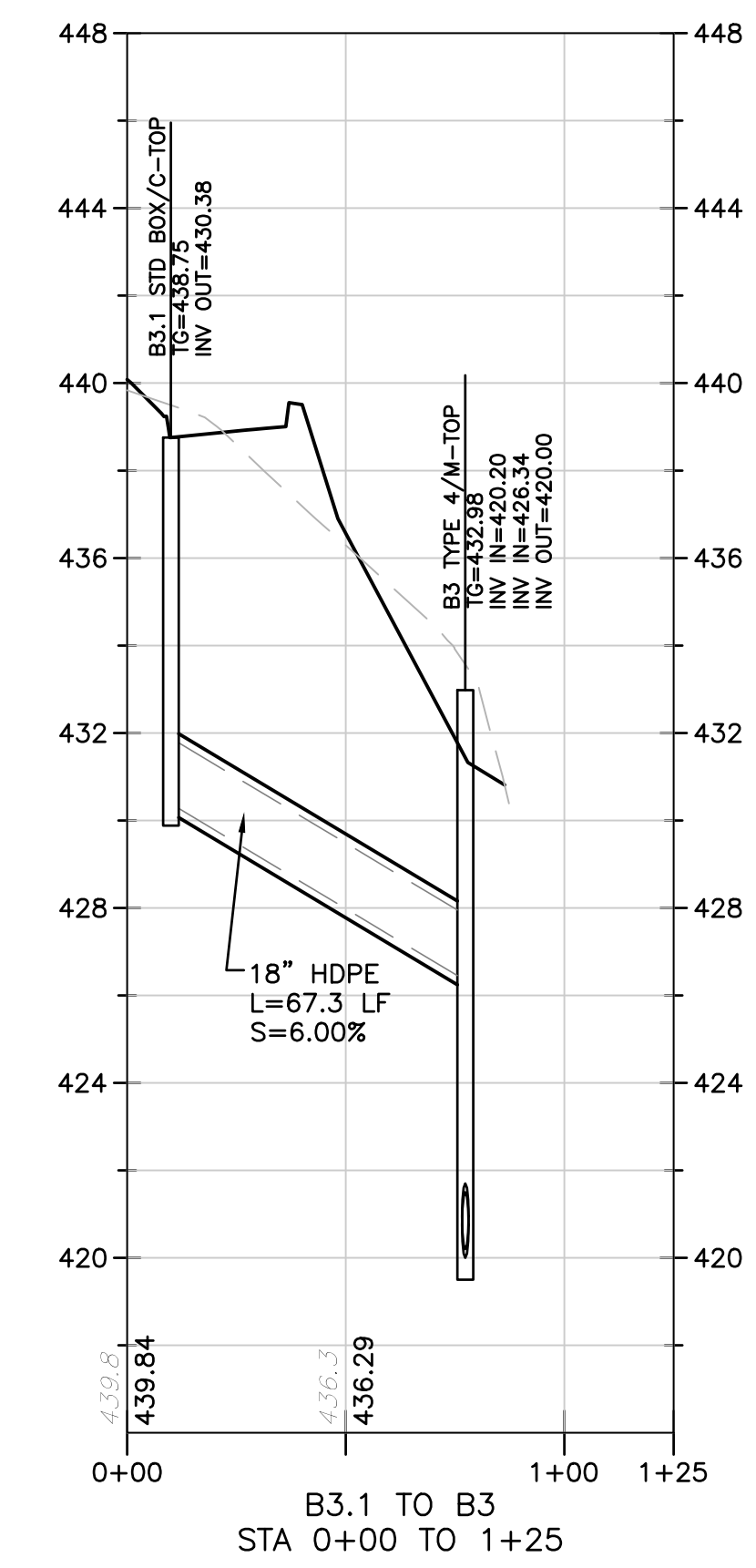
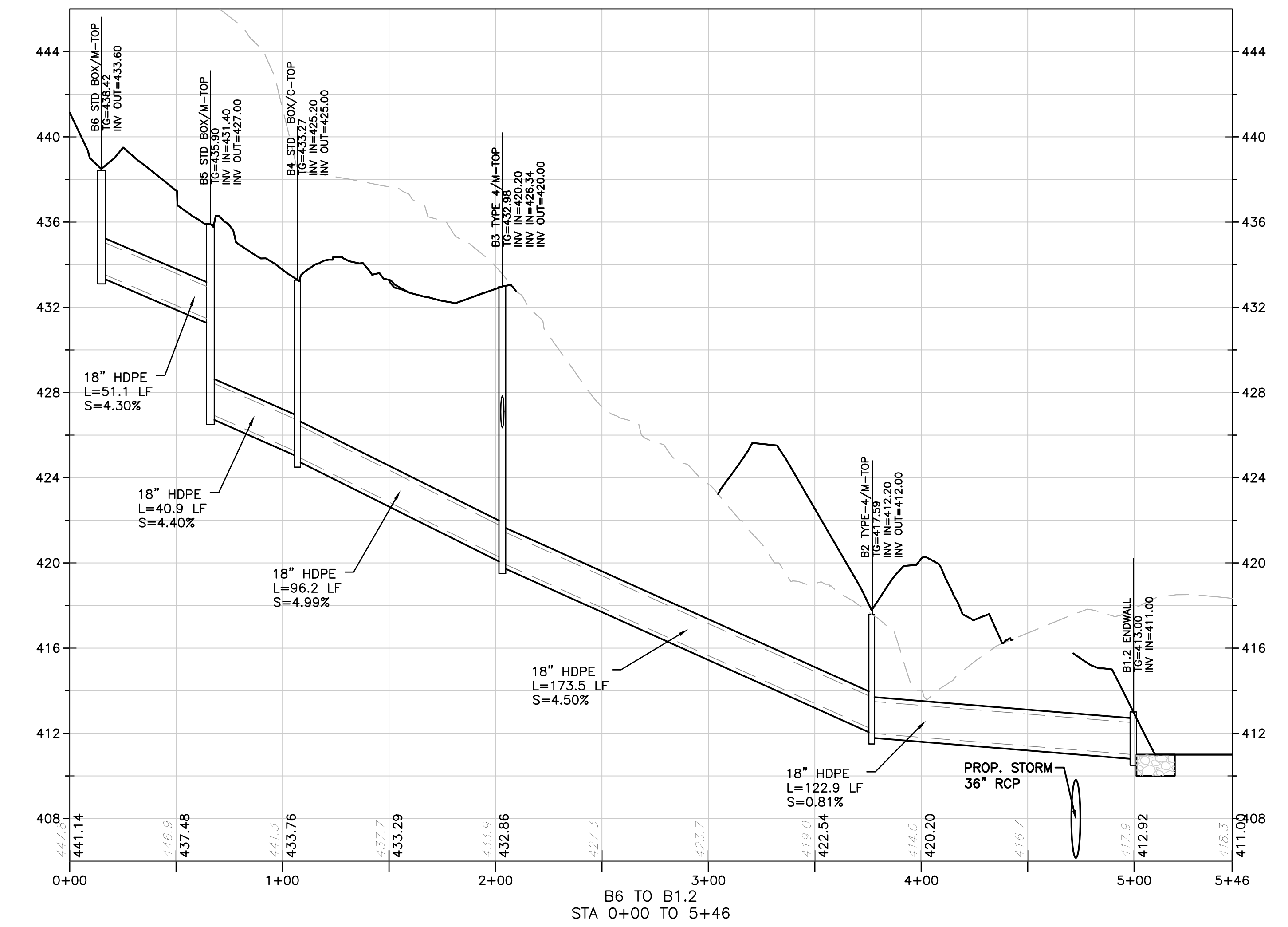
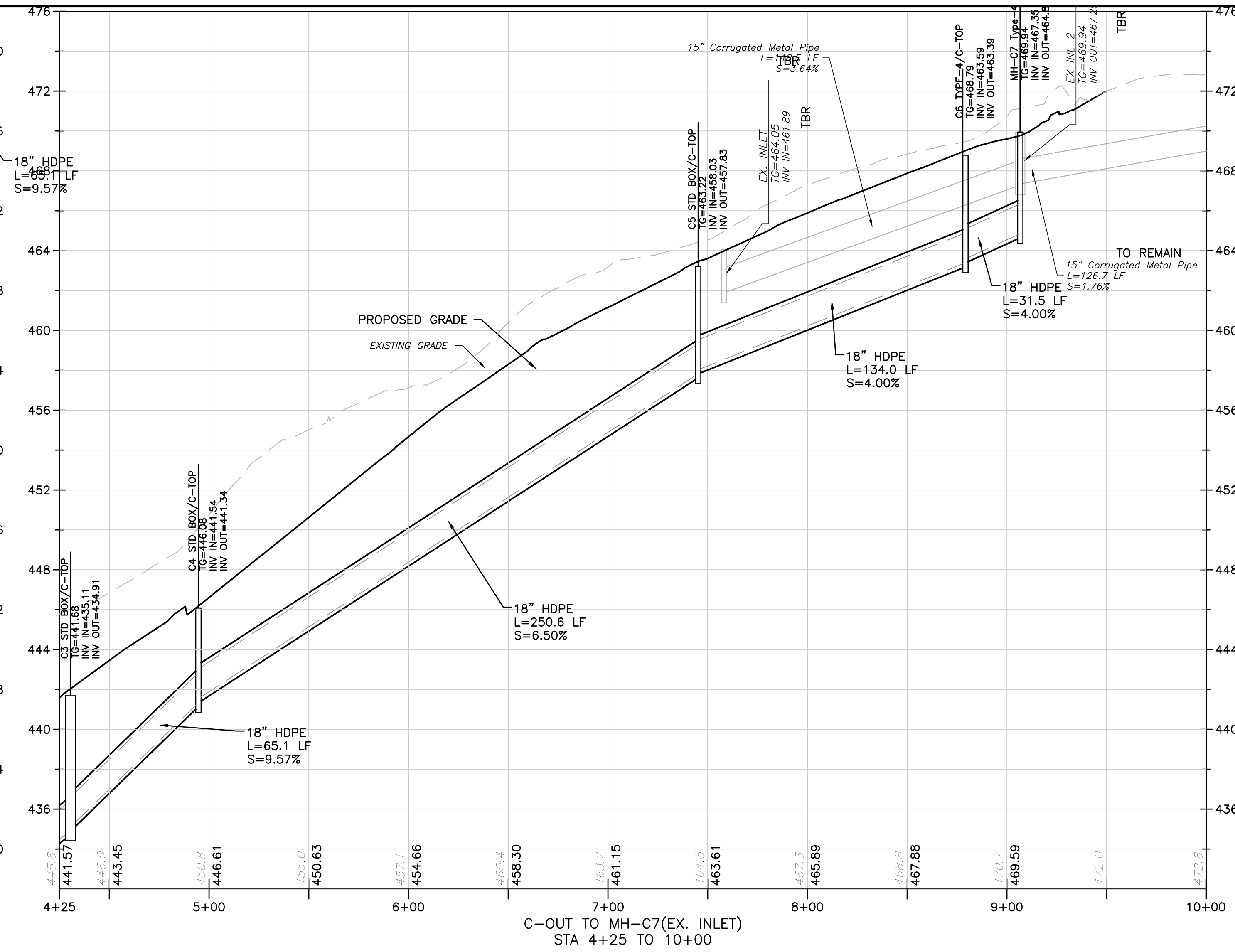
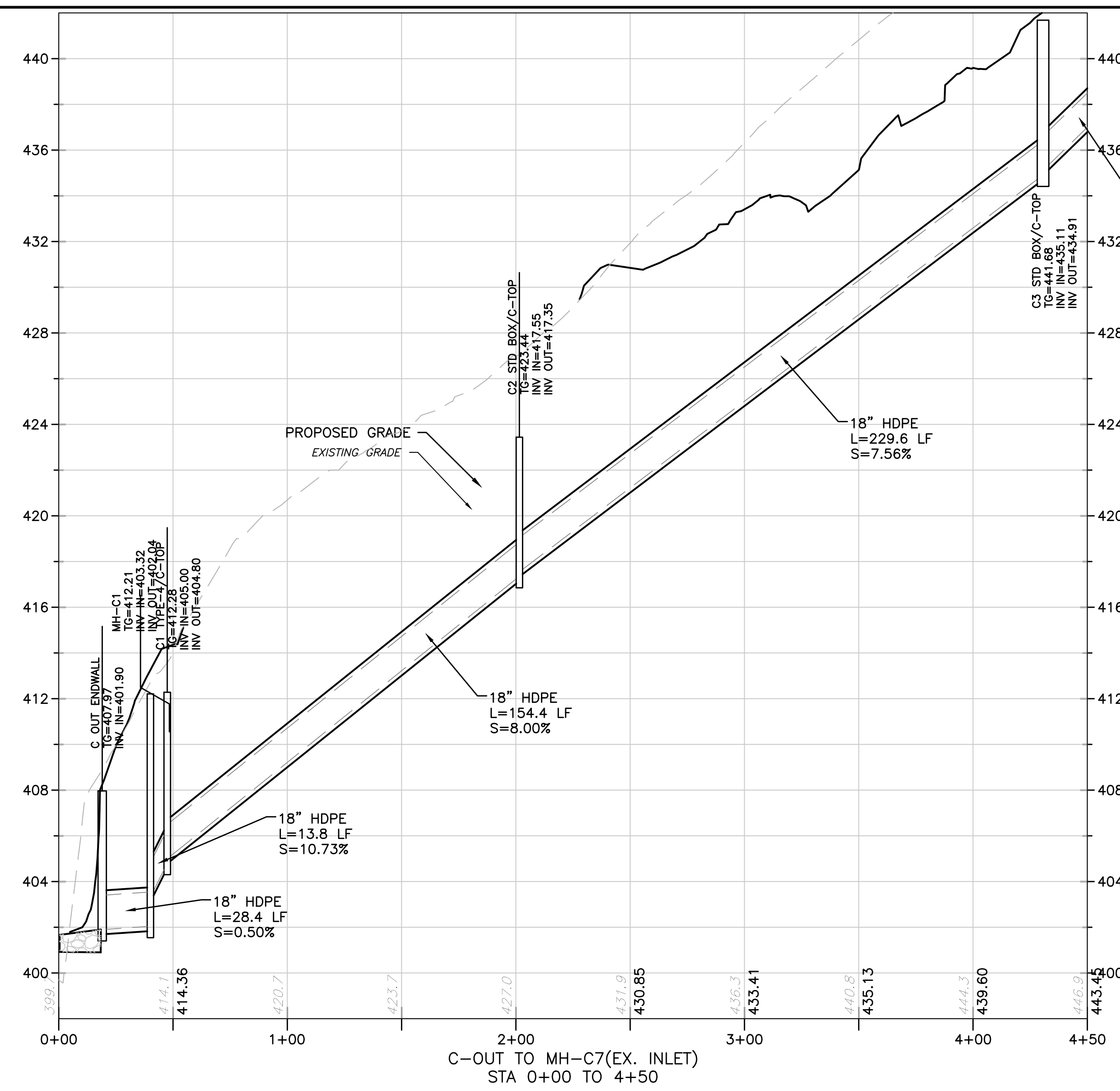
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 PROJ. NO.: BETI00056

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 OF **34**

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



4/3/2023  
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 STATE OF PA LICENSE NO. PE#76464

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 CITY VIEW - APN #67-00-01606-001  
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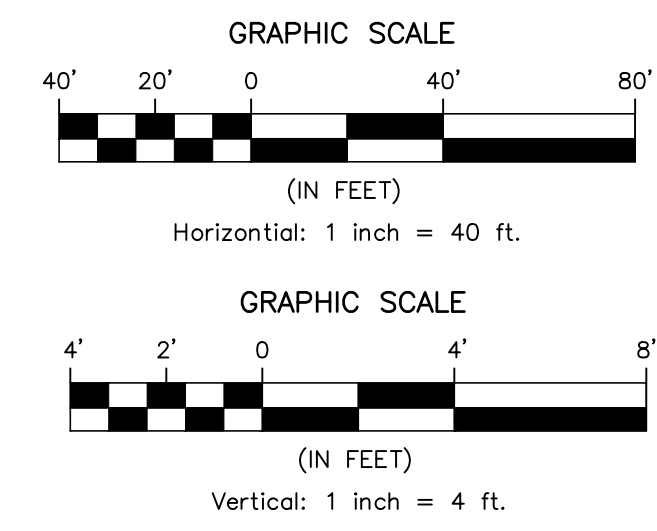
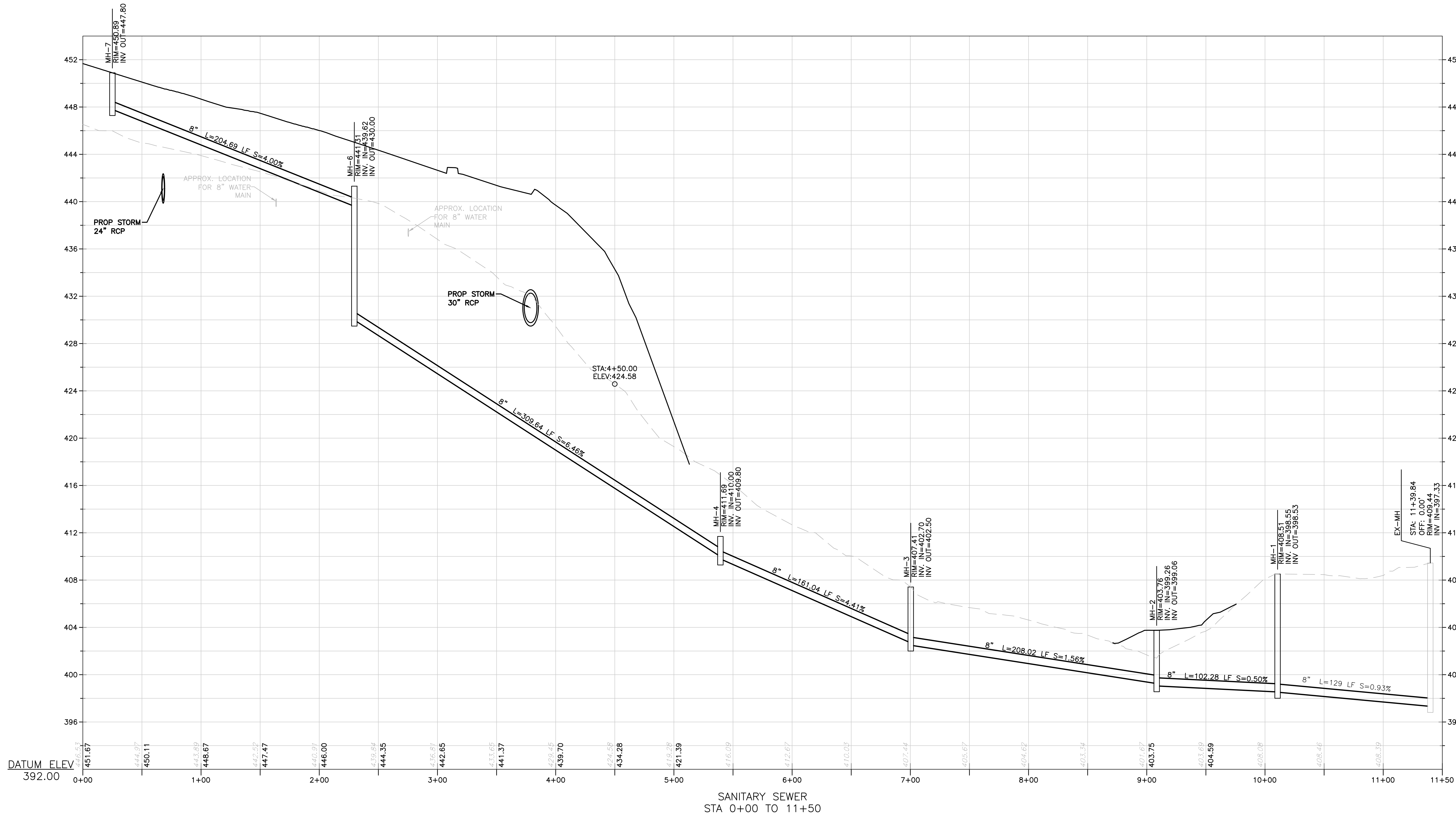
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 DRAWN BY: PG/SR/RDP  
 DATE: 1/27/22  
 SCALE: SEE PLAN  
 PROJ. NO.: BETL00056

DRAWING: PRF3  
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 OF 34

PROJECT INFORMATION:  
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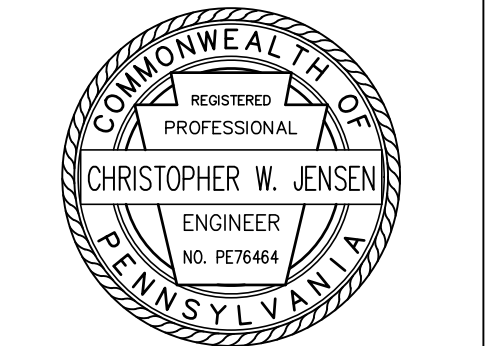
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 ASSOCIATES IS PROHIBITED.



ATTENTION: ALL CONTRACTORS LOCATING OF ALL EXISTING UTILITIES  
 SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY  
 RECORDS AND OR NON-DESTRUCTIVE METHODS OF DETECTING  
 COMPLETENESS OR ACCURACY OF THE SIZE, DEPTH OR HORIZONTAL  
 LOCATION OF ALL UNDERGROUND UTILITIES OR SERVICES OWNED BY  
 OTHERS IS NOT GUARANTEED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR  
 LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 121 OF  
 2002 CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL  
 UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK.  
 DATE: 11/17/2022

NO.	DATE	REVISIONS	BY	CHKD
3	11/17/2022	PER GIS REVIEW LETTER DATED 11/22/2022	PRG DS	
2	4/3/2023	REVISED ENTRANCE ON GERMAN TOWN PIKE	PRG DS	
1	10/04/2022	PER GIS REVIEW LETTER DATED 03/11/2022	PRG DS	

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



4/3/2023  
 LICENSED PROFESSIONAL ENGINEER  
 STATE OF PA LICENSE No. PE076464

BT WORCESTER, LLC  
 CITY VIEW - APN #67-00-01606-001  
 2974 GERMAN TOWN PIKE, WORCESTER TOWNSHIP,  
 MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA  
 SANITARY SEWER PROFILE

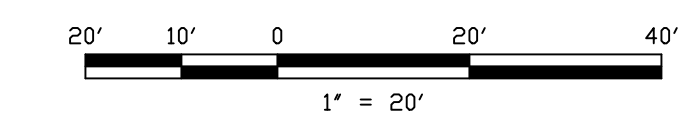
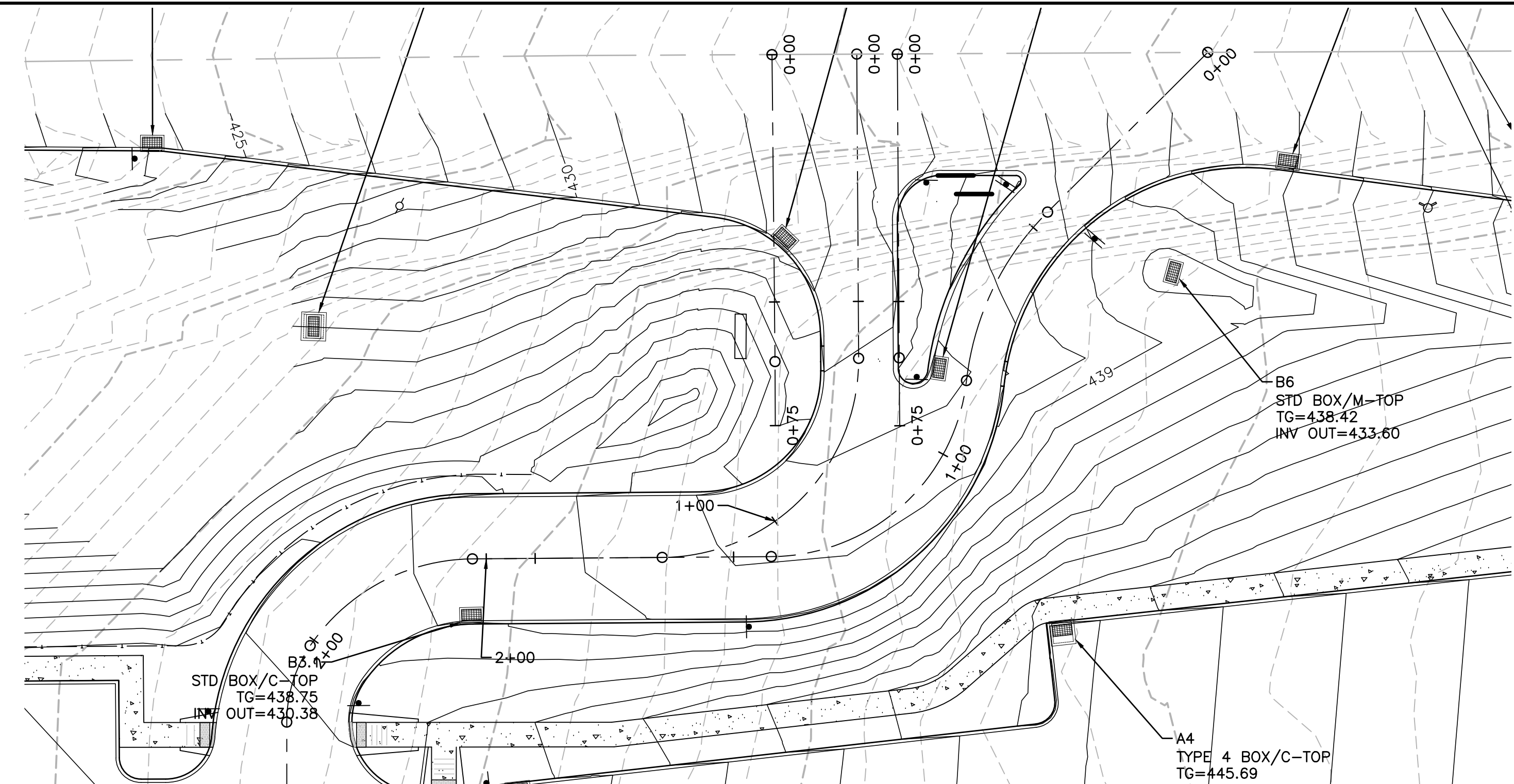
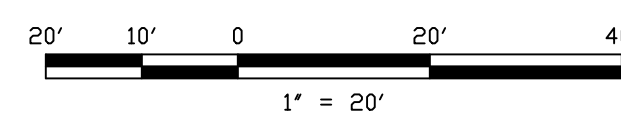
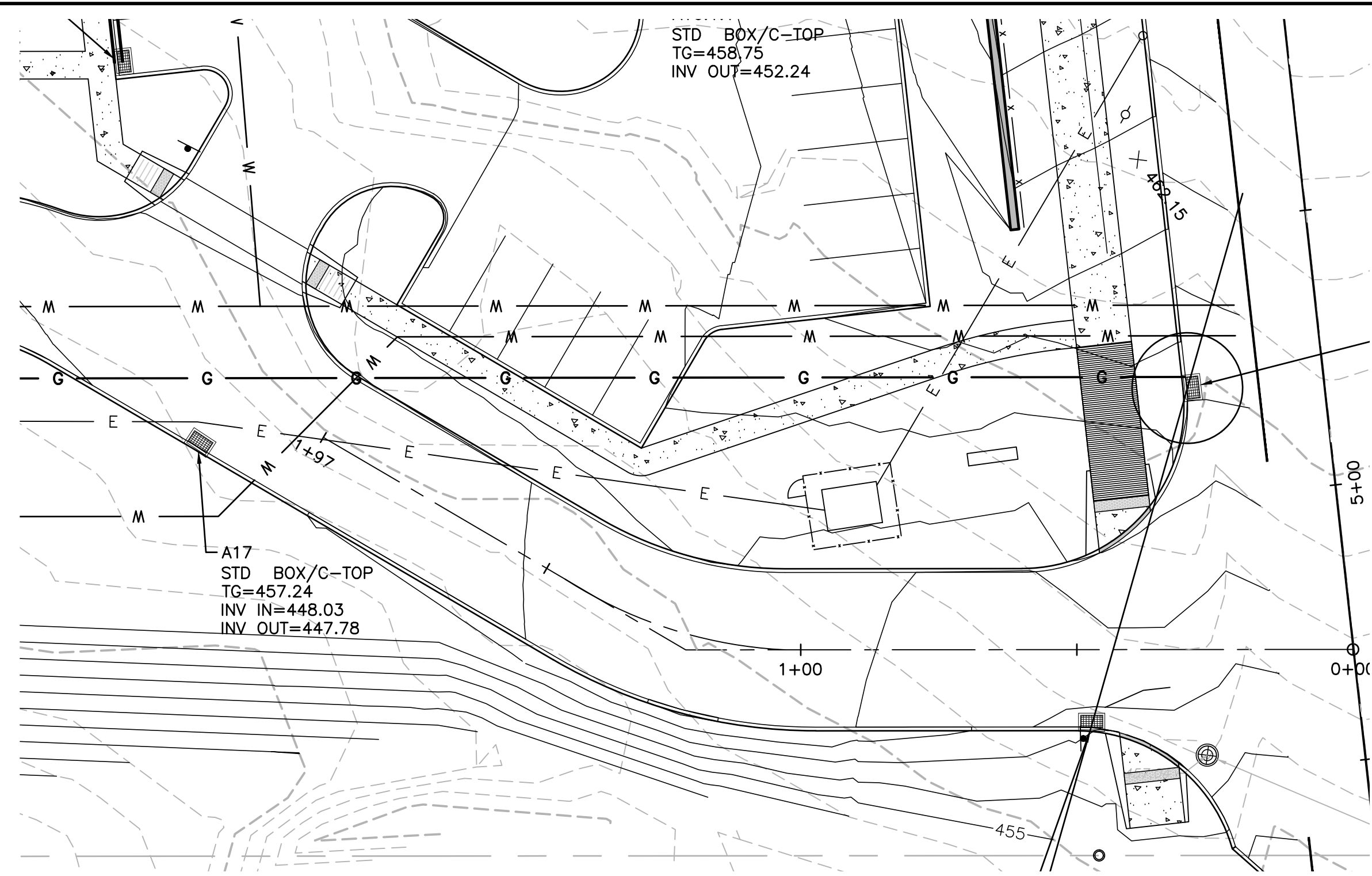
**AND**  
 YOUR GOALS. OUR MISSION.  
 1700 MARKET STREET, SUITE 3110  
 PHILADELPHIA, PA 19103  
 TEL 215-282-7850  
 FAX 215-627-3499

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

DESIGNED BY: CCG/JP/ROP  
 CHECKED BY: DS  
 DRAWN BY: PG/SR/ROP  
 DATE: 1/27/22  
 SCALE: SEE PLAN  
 PROJ. NO.: BETL00056

DRAWING: PRF4  
 SHEET: 18  
 OF 34

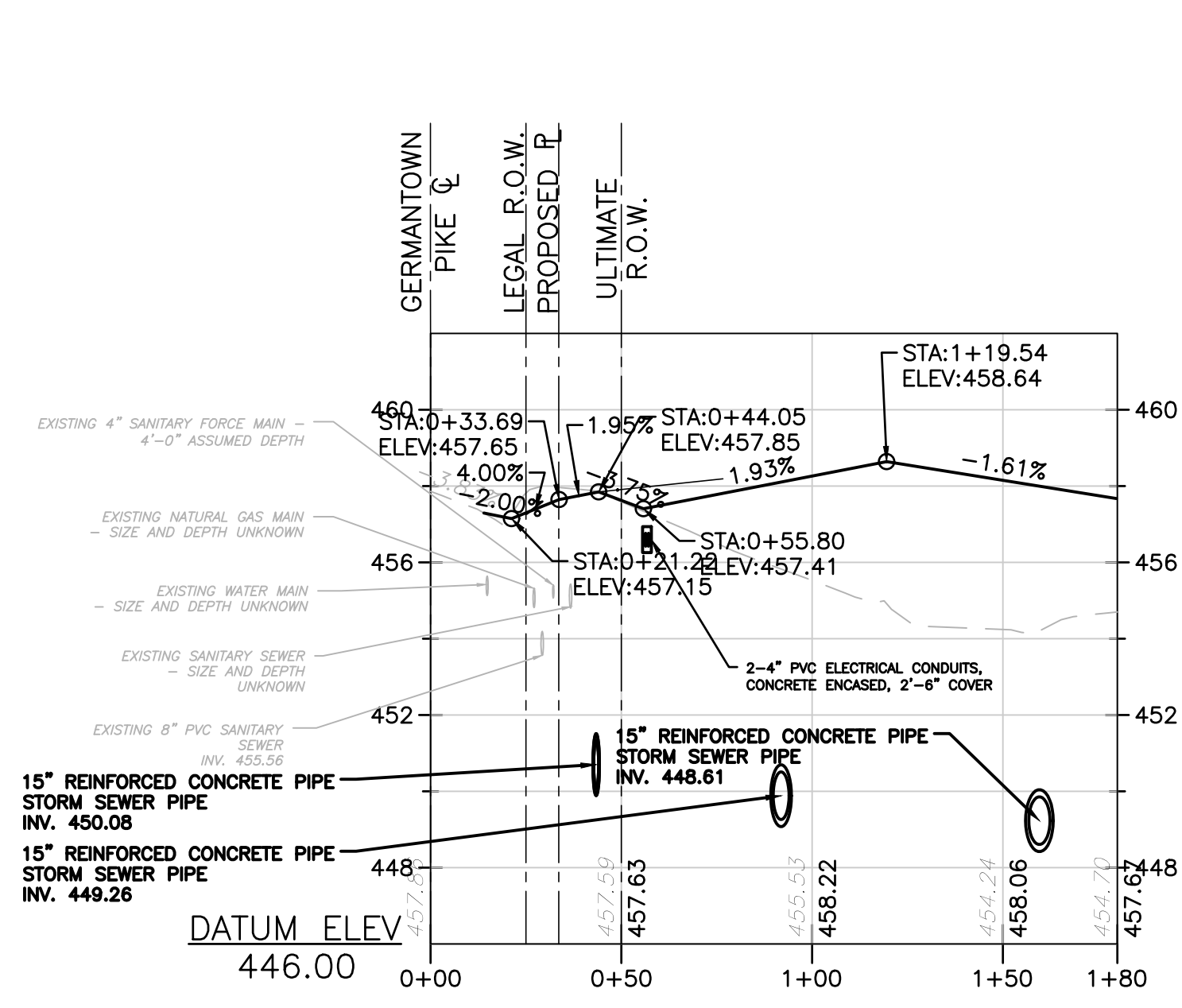




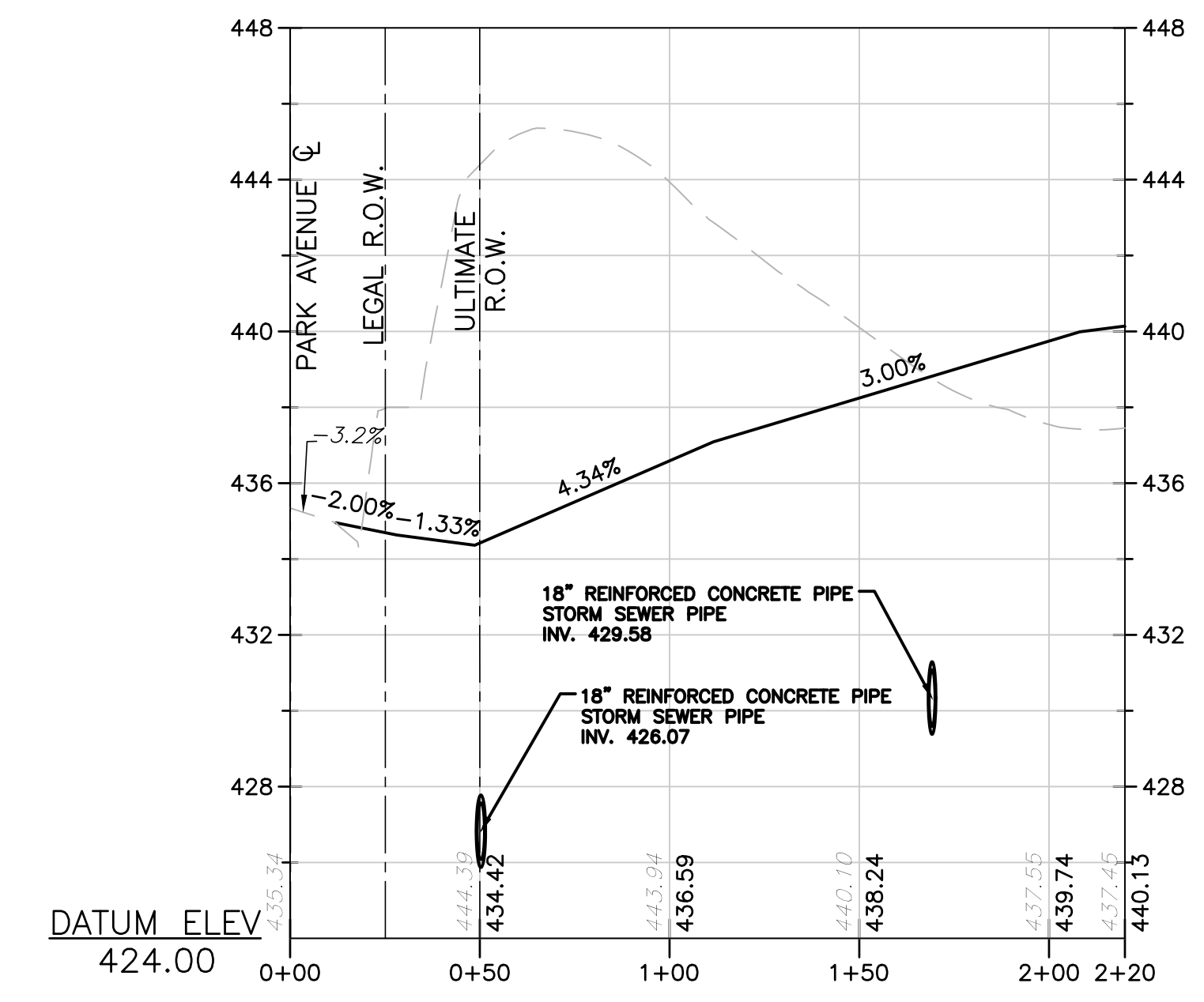
DRIVEWAY A

DRIVEWAY B

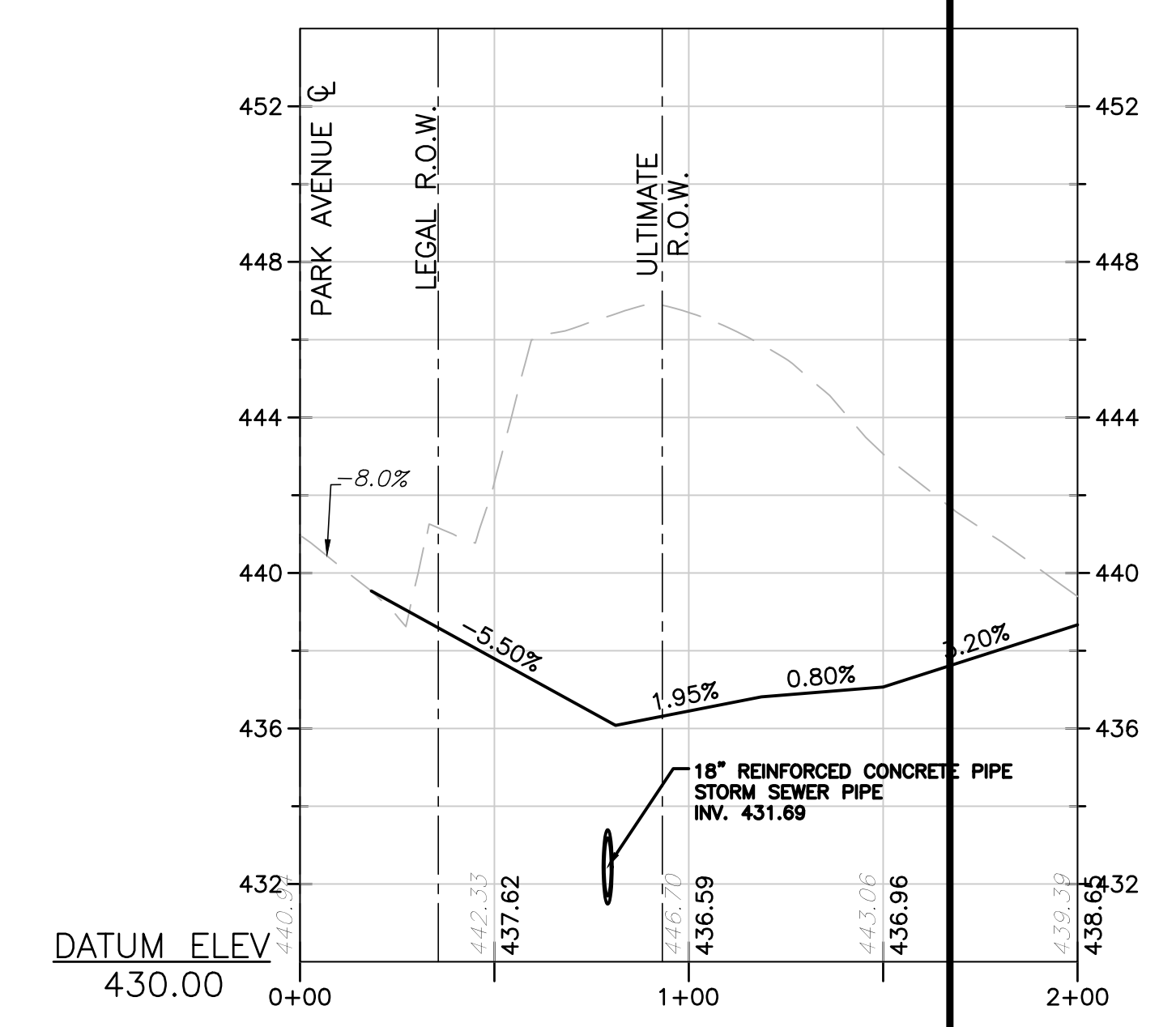
PROJECT INFORMATION: C:\Projects\BET\00056\Plans\...  
 FILE NAME: BET00056\_SHT015-019\_PRF5.dwg  
 DATE: 11/17/2022 10:51:21 AM  
 LAST SAVE BY: C5602010



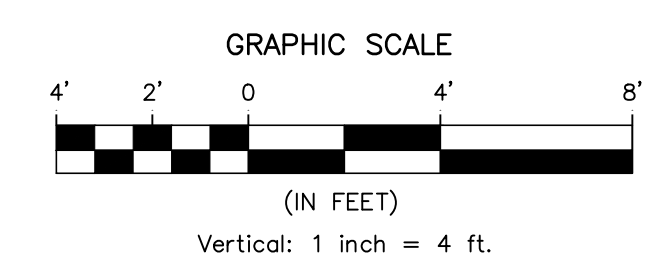
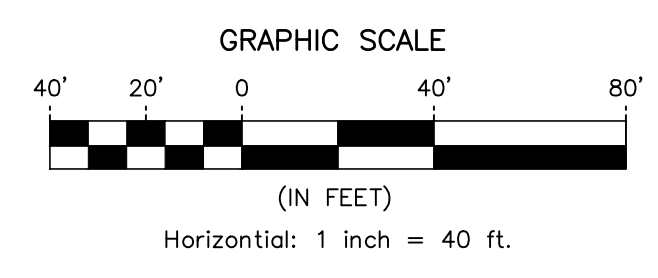
DRIVEWAY A  
STA 0+00 TO 1+80




DRIVEWAY B1  
STA 0+00 TO 2+20



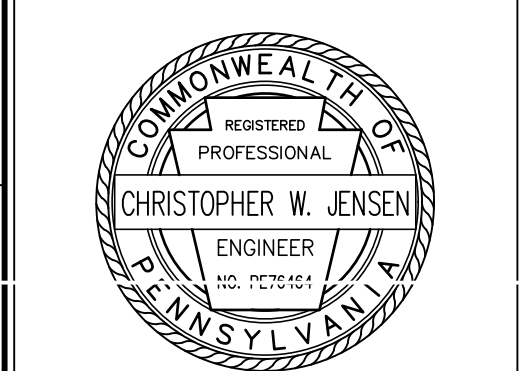
DRIVEWAY B2  
STA 0+00 TO 2+00



  
 ATTENTION: ALL CONTRACTORS LOCATING OR EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR MEASUREMENTS. THE USER OF THIS DRAWING ACCEPTS FULL RESPONSIBILITY FOR THE ACCURACY OF THE SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND UTILITIES OR STRUCTURES. OWNER IS ADVISED THAT THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. SEE SHEET 34.  
 2021502293

NO.	DATE	REVISIONS	BY	CHKD
3	11/17/2022	PER GIS REVIEW LETTER DATED 11/22/2022	PRG DS	DS
2	4/3/2023	REVISED ENTRANCE ON GERMANTOWN PIKE	PRG DS	DS
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4/3/2023  
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 STATE OF PA LICENSE No. PED76464

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 2974 GERMANTOWN PIKE, WORCESTER TOWNSHIP,  
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OFFICES LOCATED IN:  
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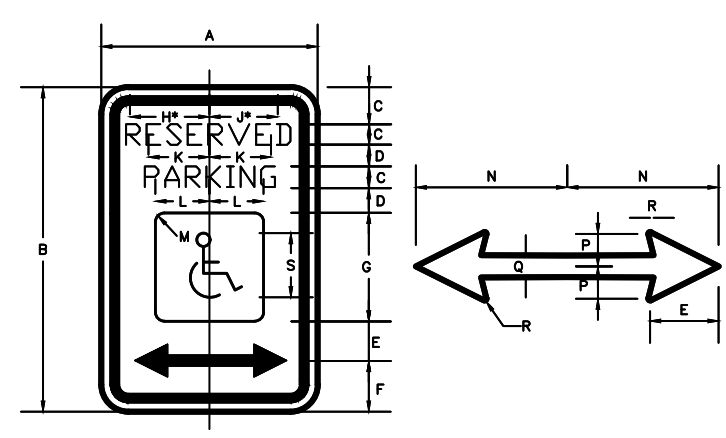
DESIGNED BY CGG/JPK/ROP	DRAWING PRF5
CHECKED BY DS	SHEET
DRAWN BY PG/SR/ROP	DATE 1/27/22
DATE 1/27/22	SCALE SEE PLAN
PROJ. NO. BET00056	OF 34



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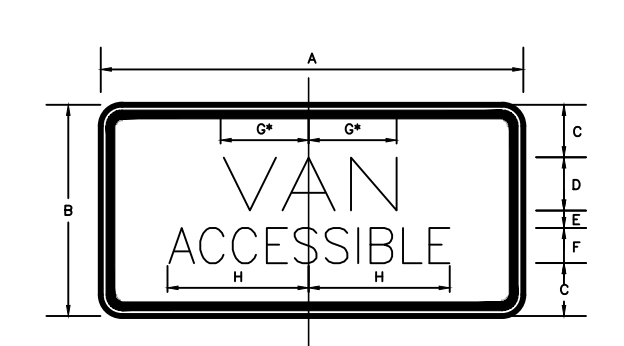
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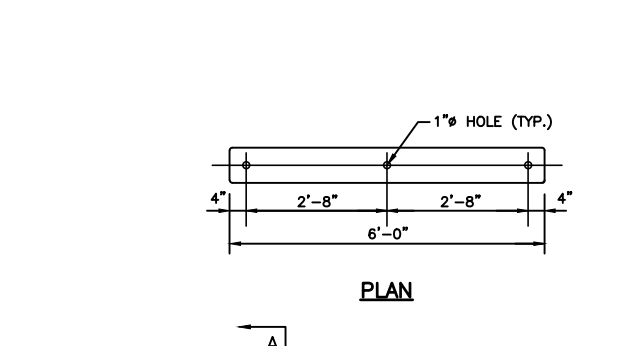
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
12x18	12	18	12	18	12	18	12	18	12	18	12	18	12	18	12	18	12	18	12	18	12	18	12	18	12	18

**RESERVED PARKING SIGN (R7-8)**  
NOT TO SCALE

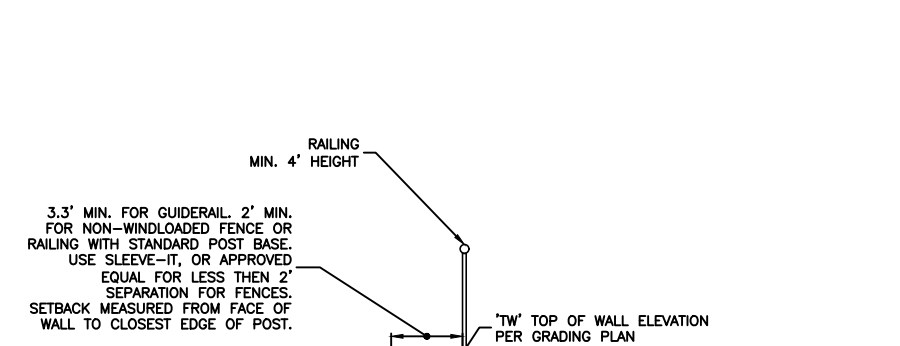


SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
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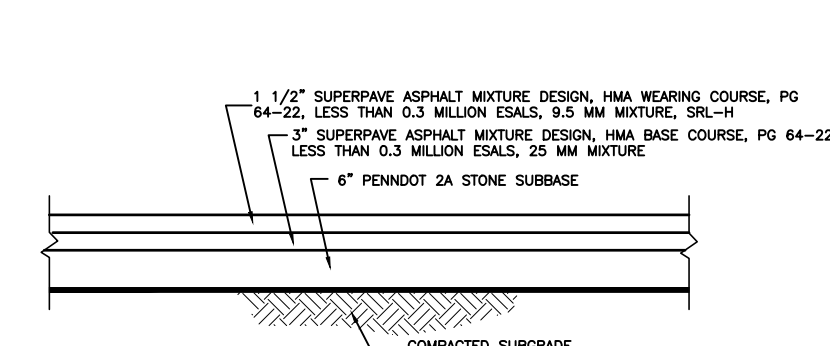
**VAN ACCESSIBLE SIGN (PADOT R7-8A)**  
NOT TO SCALE



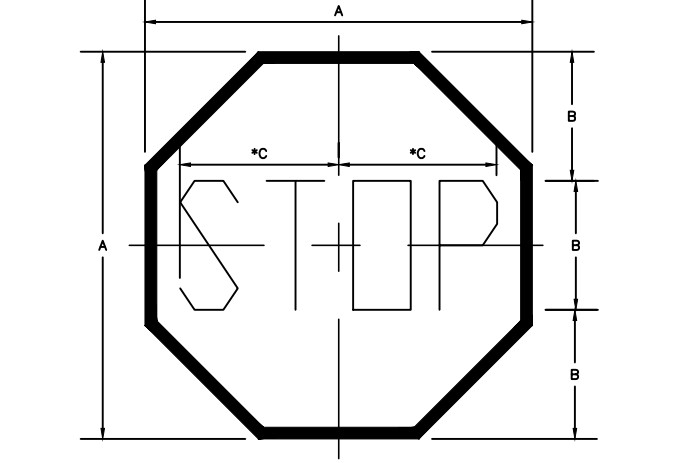
**PRECAST CONCRETE BUMPER BLOCK**  
NOT TO SCALE



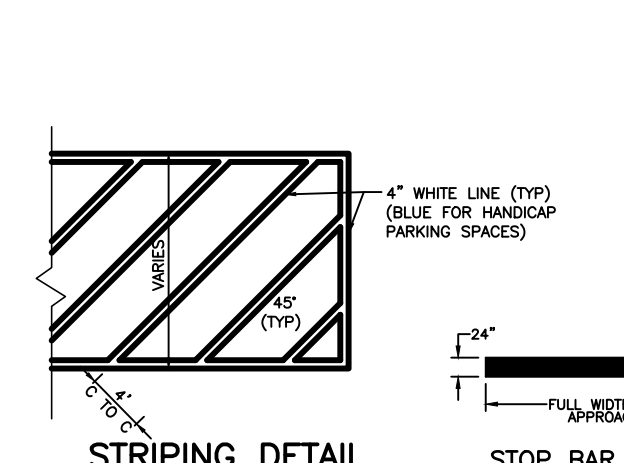
**CONCEPTUAL WALL DETAIL NOT FOR CONSTRUCTION**  
NOT TO SCALE



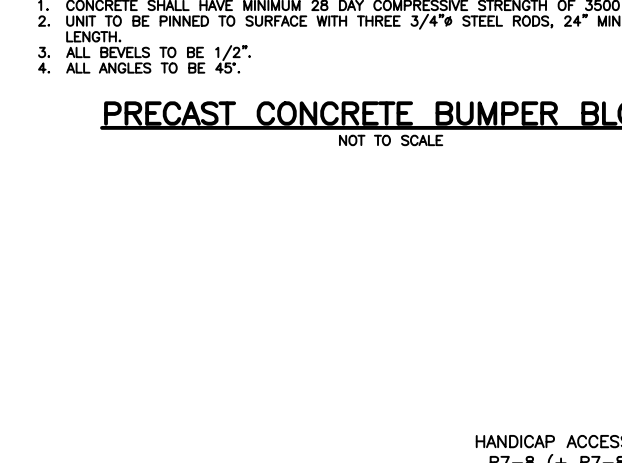
**PARKING LOT PAVEMENT SECTION DETAIL (LIGHT DUTY)**  
NOT TO SCALE



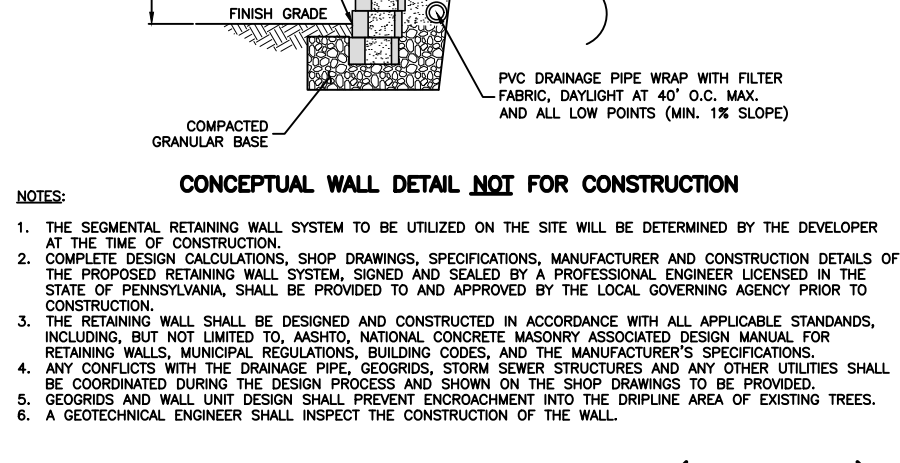
**STOP SIGN (R1-1) DETAIL**  
NOT TO SCALE



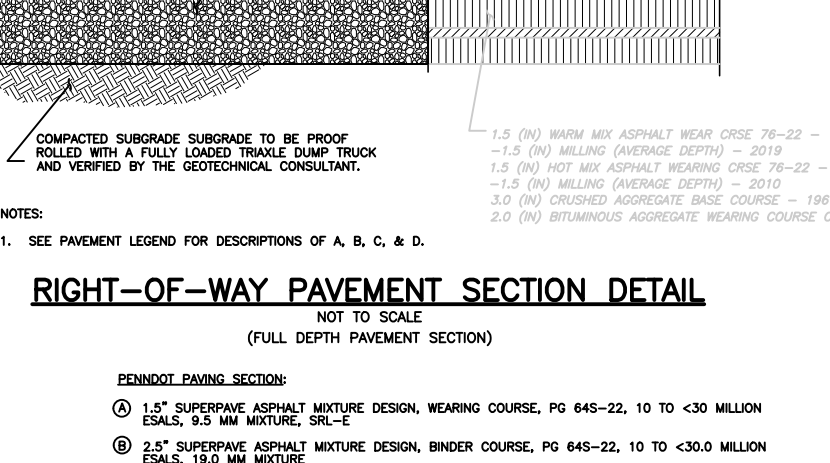
**STRIPING DETAIL**  
NOT TO SCALE



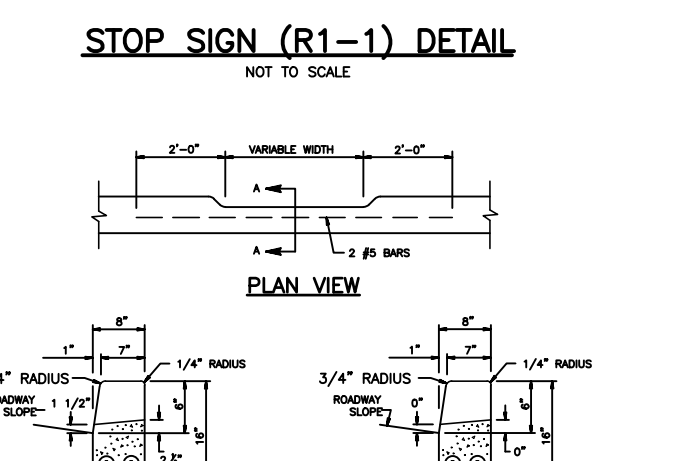
**STOP BAR (WHITE)**  
NOT TO SCALE



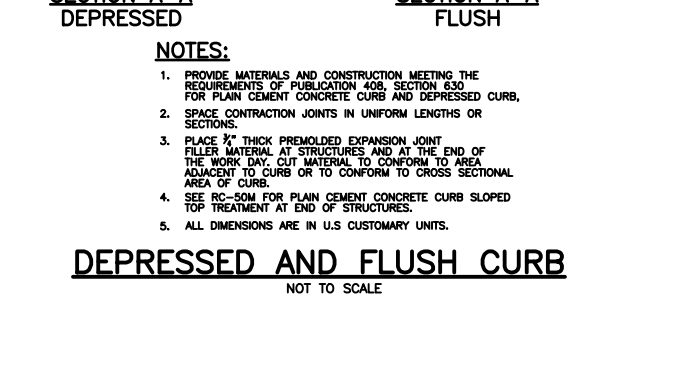
**RETAINING WALL - SEGMENTAL BLOCK (SCHEMATIC)**  
NOT TO SCALE



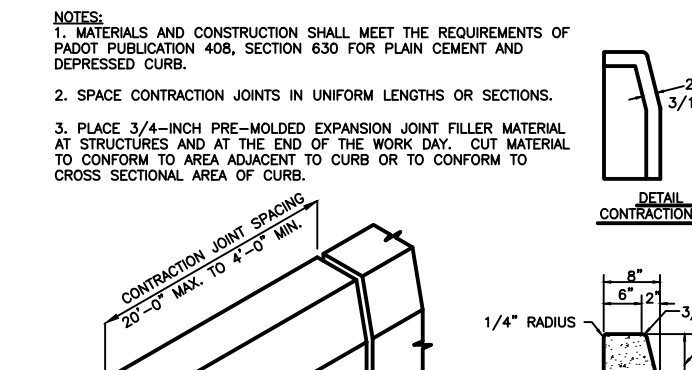
**RIGHT-OF-WAY PAVEMENT SECTION DETAIL**  
NOT TO SCALE



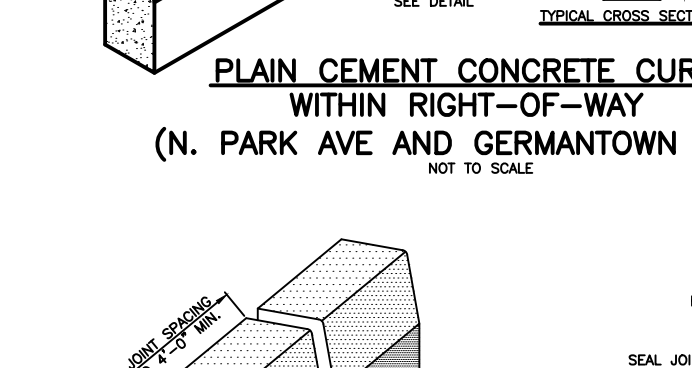
**ELEVATION (W/O GRASS)**



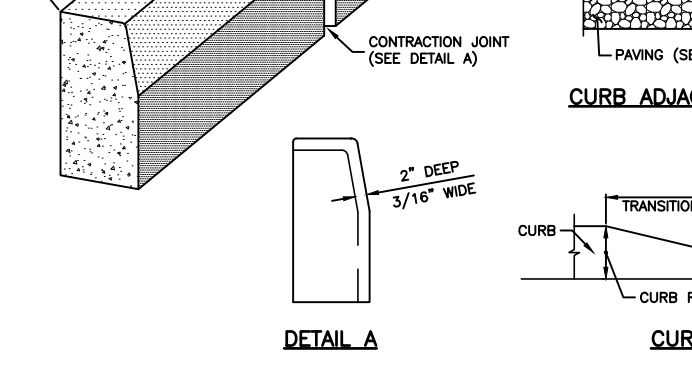
**ELEVATION (WITH GRASS)**



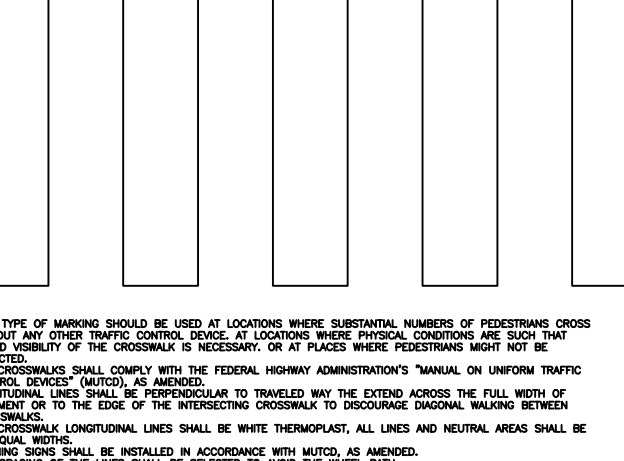
**SECTION (UP TO 8' WIDE)**



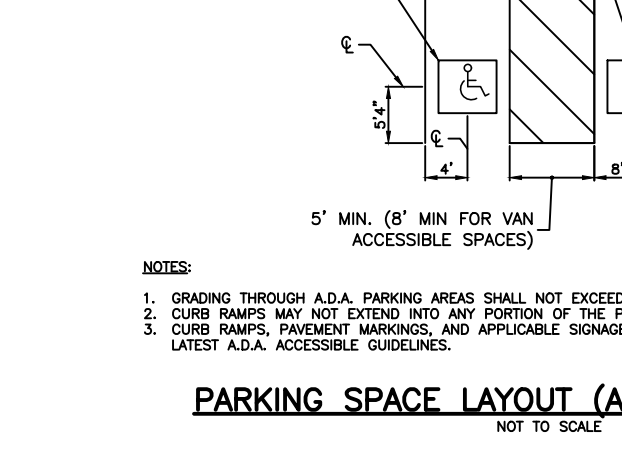
**SECTION (8' WIDE & OVER)**



**DEPRESSED AND FLUSH CURB**  
NOT TO SCALE



**CROSSWALK STRIPING DETAIL**  
NOT TO SCALE



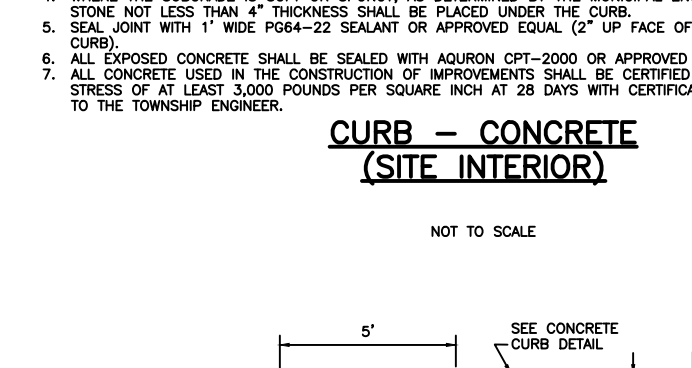
**HANDICAP ACCESS SIGN (R7-8)**  
NOT TO SCALE



**PARKING SPACE LAYOUT (A.D.A. ACCESSIBLE)**  
NOT TO SCALE



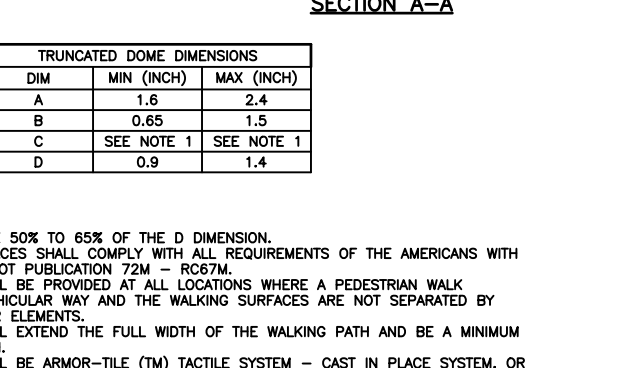
**PAVEMENT LEGEND - PENNDOT**  
NOT TO SCALE



**TYPICAL CONCRETE SECTION AT ISOLATION JOINT**  
NOT TO SCALE



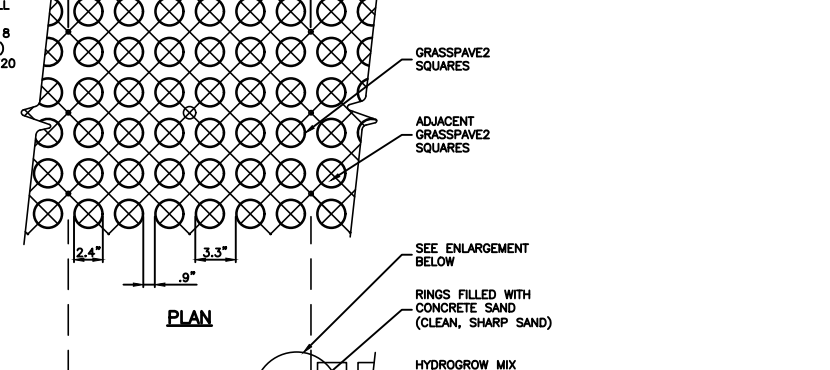
**CURB - CONCRETE (SITE INTERIOR)**  
NOT TO SCALE



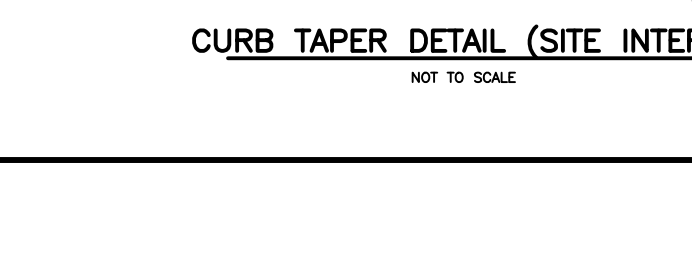
**CURB TAPER DETAIL (SITE INTERIOR)**  
NOT TO SCALE



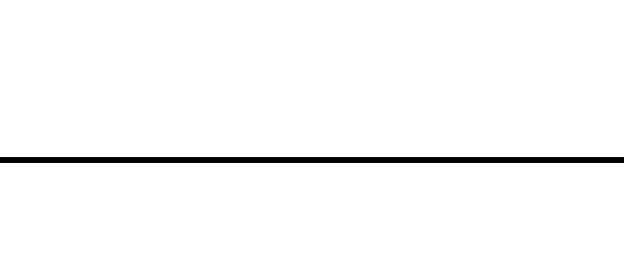
**YIELD SIGN (R1-5) DETAIL**  
NOT TO SCALE



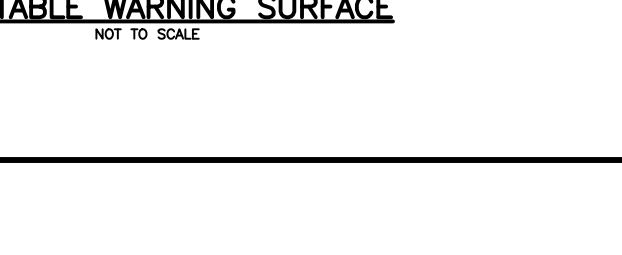
**DIAGONAL ORIENTATION**



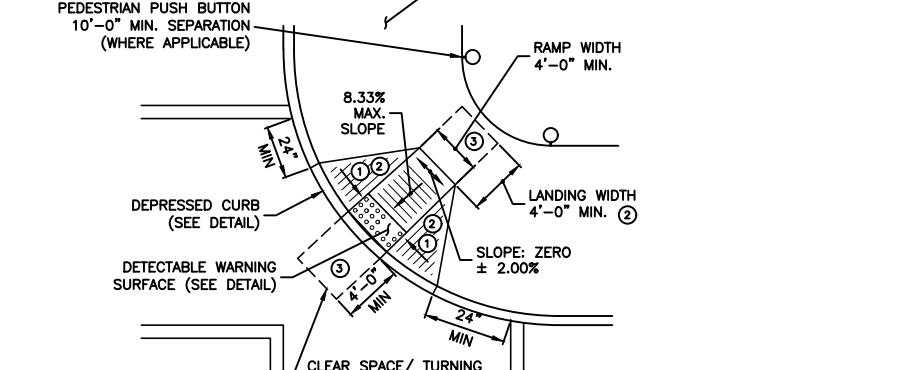
**NEAT CUT DETAIL**  
NOT TO SCALE



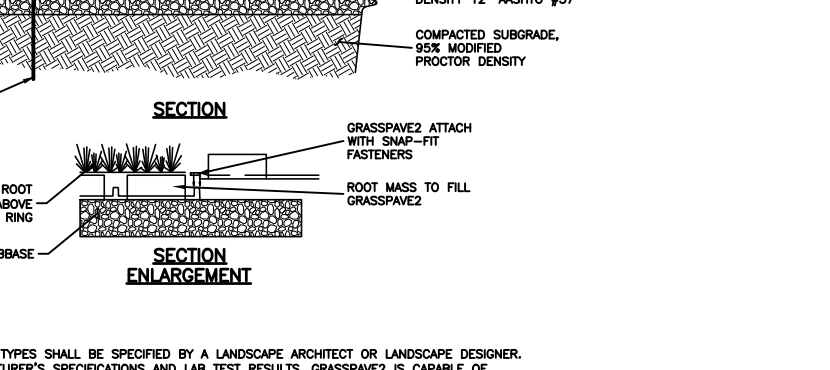
**CURB TAPER DETAIL (SITE INTERIOR)**  
NOT TO SCALE



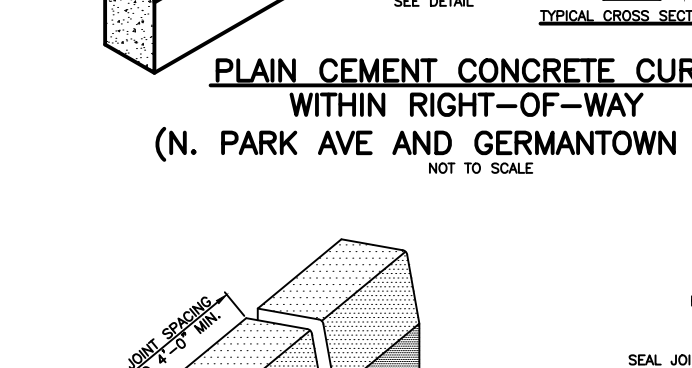
**DETECTABLE WARNING SURFACE**  
NOT TO SCALE



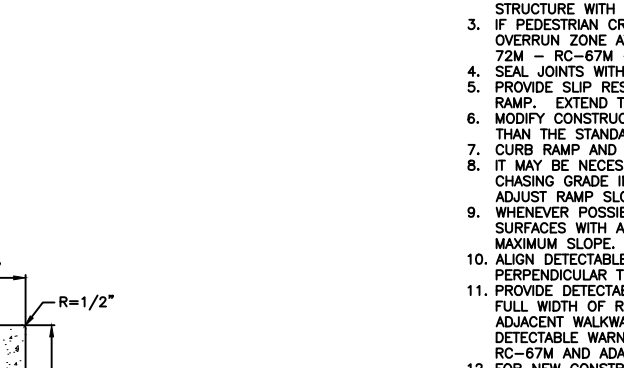
**DEPRESSED CURB AT SIDEWALK CURB RAMPS**



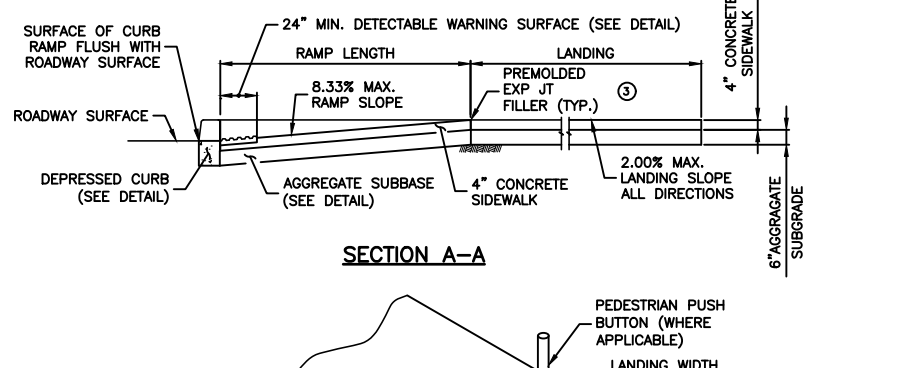
**TURF REINFORCEMENT DETAIL (GRASSPAVE2 (OR APPROVED EQUAL))**  
NOT TO SCALE



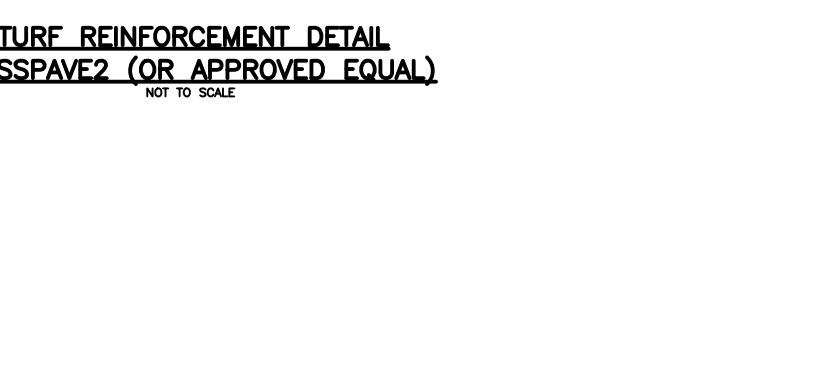
**PLAN CEMENT CONCRETE CURB WITHIN RIGHT-OF-WAY (N. PARK AVE AND GERMANTOWN PIKE)**  
NOT TO SCALE



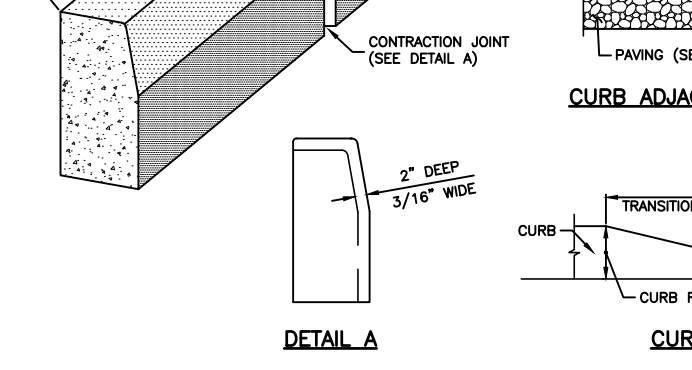
**CURB RAMP - GENERAL INFORMATION**  
NOT TO SCALE



**CURB RAMP - TYPE 1**  
NOT TO SCALE



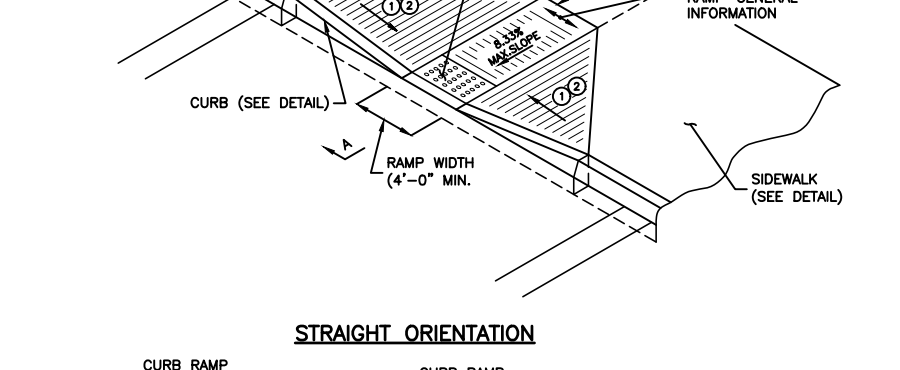
**TYPE 4A CURB RAMP**



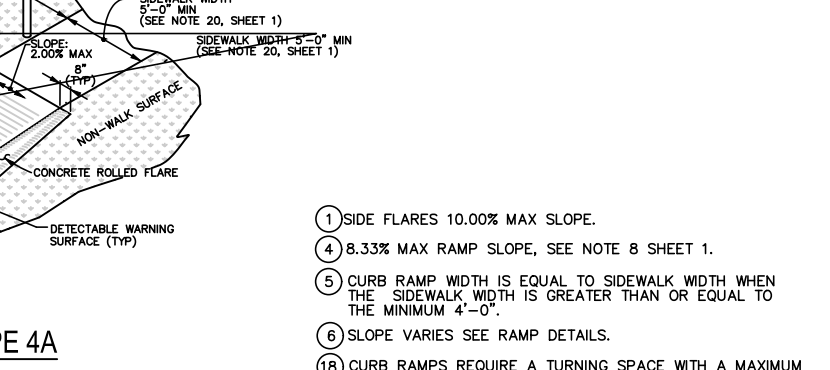
**CONSTRUCTION JOINT (CRJ)**  
NOT TO SCALE



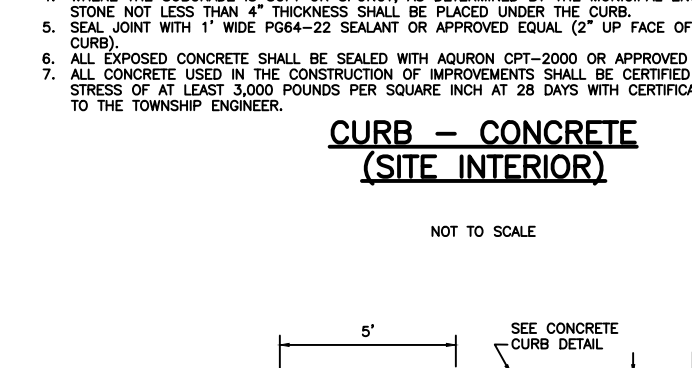
**CURB ADJACENT TO PAVING**



**STRAIGHT ORIENTATION**



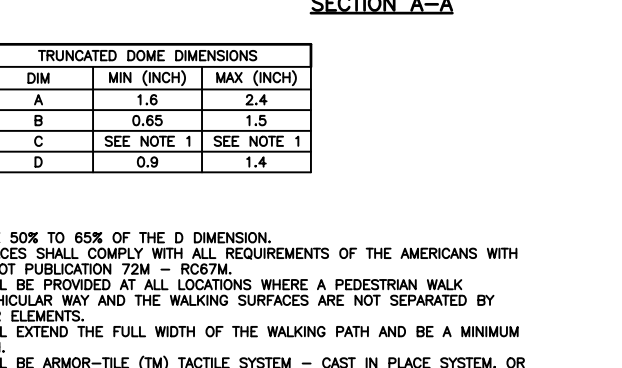
**TYPE 4A NON-TRAVERSABLE ROLLED FLARES**



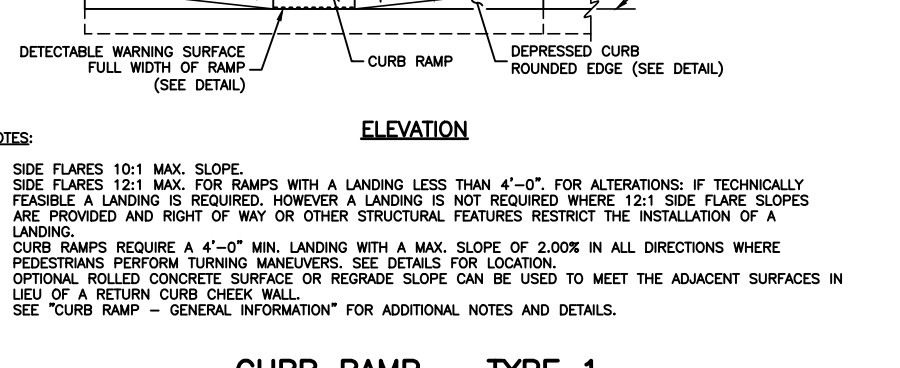
**TYPICAL CONCRETE SECTION AT ISOLATION JOINT**  
NOT TO SCALE



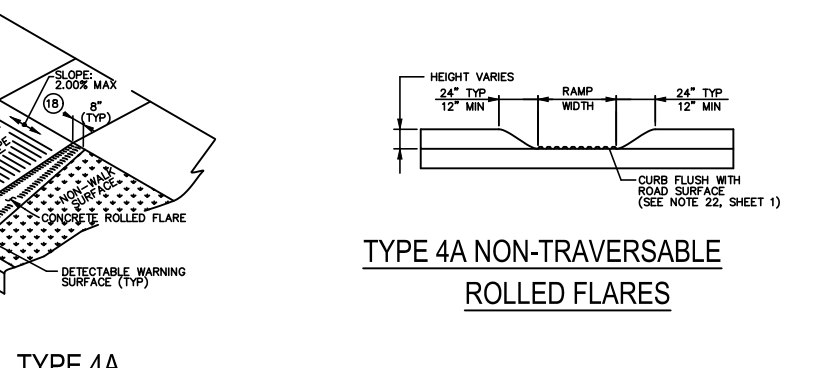
**CURB - CONCRETE (SITE INTERIOR)**  
NOT TO SCALE



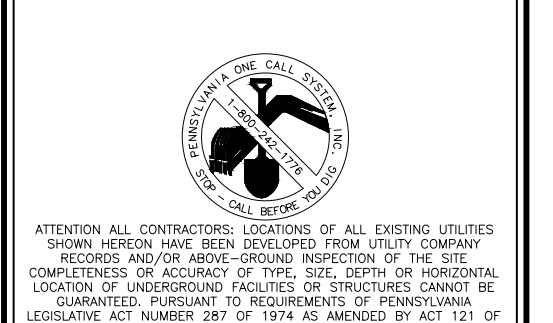
**CURB TAPER DETAIL (SITE INTERIOR)**  
NOT TO SCALE



**CURB RAMP - TYPE 1**  
NOT TO SCALE

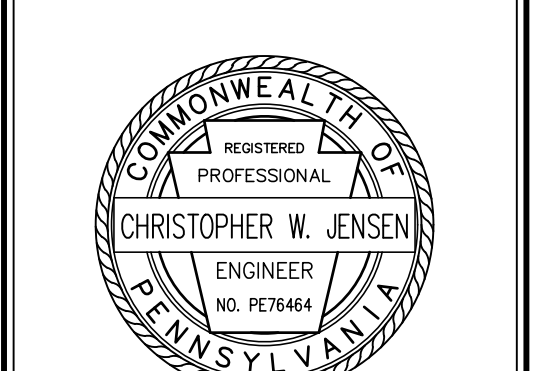


**TYPE 4A CURB RAMP (PERPENDICULAR)**



NO.	DATE	REVISIONS	BY	CHKD
1	10/04/2022	PER GIS REVIEW LETTER DATED 03/11/2022	PRG	DS
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LICENSED PROFESSIONAL ENGINEER



4/3/2023  
LICENSED PROFESSIONAL ENGINEER  
STATE OF PA LICENSE NO. PED76464

**BT WORCESTER, LLC**  
CITY VIEW - APN #67-00-01606-001  
2974 GERMANTOWN PIKE, WORCESTER TOWNSHIP,  
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA



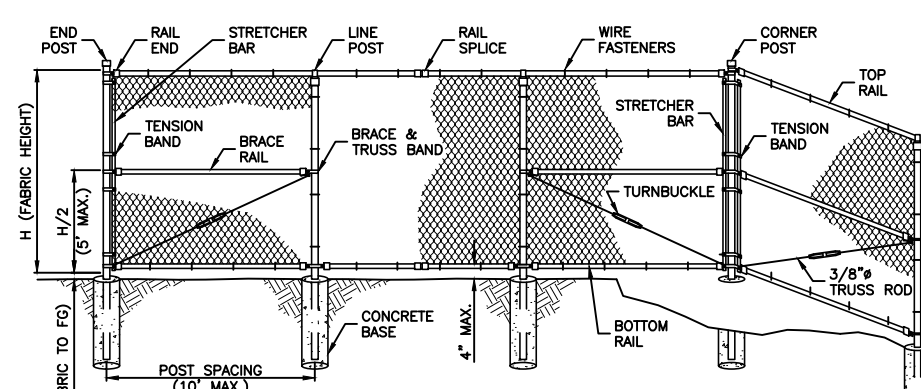
1700 MARKET STREET, SUITE 3110  
PHILADELPHIA, PA 19103  
TEL 215-282-7850  
FAX 215-627-3459  
www.landassociates.com

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

DESIGNED BY: CCG/JPK/ROP  
CHECKED BY: DS  
DRAWN BY: PG/SR/ROP  
DATE: 1/27/22  
SCALE: AS NOTED  
PROJ. NO.: BET00056

DRAWING: DET-1  
SHEET: 20  
OF: 34





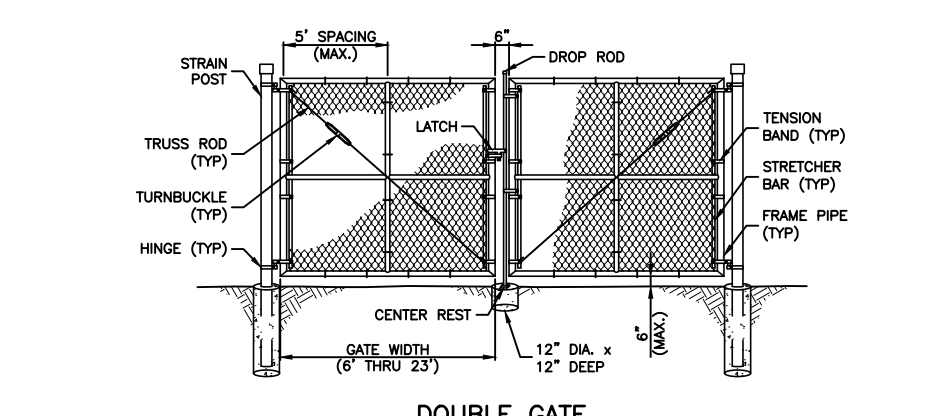
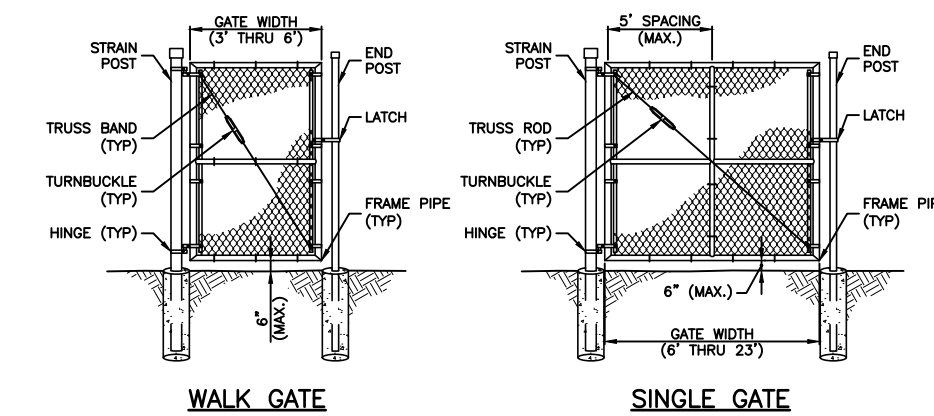
CONCRETE BASE	
FABRIC HEIGHT H	DEPTH D
FEET	INCHES
3 THRU 6	48
7 THRU 12	72
12 THRU 18	96
18 THRU 24	120
24 THRU 30	144
30 THRU 36	168
36 THRU 42	192
42 THRU 48	216
48 THRU 54	240
54 THRU 60	264
60 THRU 66	288
66 THRU 72	312
72 THRU 78	336
78 THRU 84	360
84 THRU 90	384
90 THRU 96	408
96 THRU 102	432
102 THRU 108	456
108 THRU 114	480
114 THRU 120	504

ROUND PIPE		
NOMINAL I.D.	WALL THICK.	WEIGHT
INCHES	INCHES	LB./FT.
1.25	0.140	2.27
1.50	0.145	2.75
2.00	0.154	3.65
2.50	0.203	5.79
3.00	0.216	7.58
3.50	0.258	9.71
4.00	0.237	10.79
5.00	0.268	14.62
6.00	0.280	18.97
8.00	0.322	28.55

FENCE MATERIAL		LINE POSTS		TOP & BRACE RAILS	
FABRIC HEIGHT	END, CORNER & LINE POSTS	ROUND PIPE I.D.	ROUND PIPE I.D.	ROUND PIPE I.D.	ROUND PIPE I.D.
H		FEET	INCHES	FEET	INCHES
3 THRU 6	2.5	2.0	2.5	1.25	1.25
7 THRU 12	3.0	2.5	2.5	1.25	1.25
12 THRU 18	3.0	2.5	2.5	1.25	1.25

- NOTES:
- H (HEIGHT OF FABRIC) SHALL BE AS SHOWN ON THE PLANS.
  - CHAIN LINK FENCE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F 1181.
  - STANDARD CHAIN LINK FABRIC SHALL BE 7" HIGH AND 4" GAUGE WIRE SECURELY FASTENED TO LINE POSTS, RAILS, BRACES, AND STRETCHER BARS SPACED AS SHOWN HEREON.
  - ATTACH FABRIC TO ALL FENCE AND GATE STRUCTURES AT 12" INTERVALS VERTICALLY AND AT 20" HORIZONTALLY.
  - STEEL POSTS AND RAILS AND GATE FRAMES SHALL CONFORM TO ASTM F 1181, GRADE 40 GALV. PIPE OR BRACE 2.
  - CONCRETE FOOTINGS SHALL HAVE TOPS FINISHED AT GROUND LEVEL AND SHALL BE PENNDOT CLASS B.
  - CHAIN LINK FABRIC SHALL BE MANUFACTURED AT THE 108 AND BOTTOM SQUARES.
  - BRACE RAIL WILL NOT BE REQUIRED FOR 36", 42" OR 48" FABRIC HEIGHTS.
  - FINISH (FABRIC, POSTS, AND RAILS) BLACK PVC COATED.

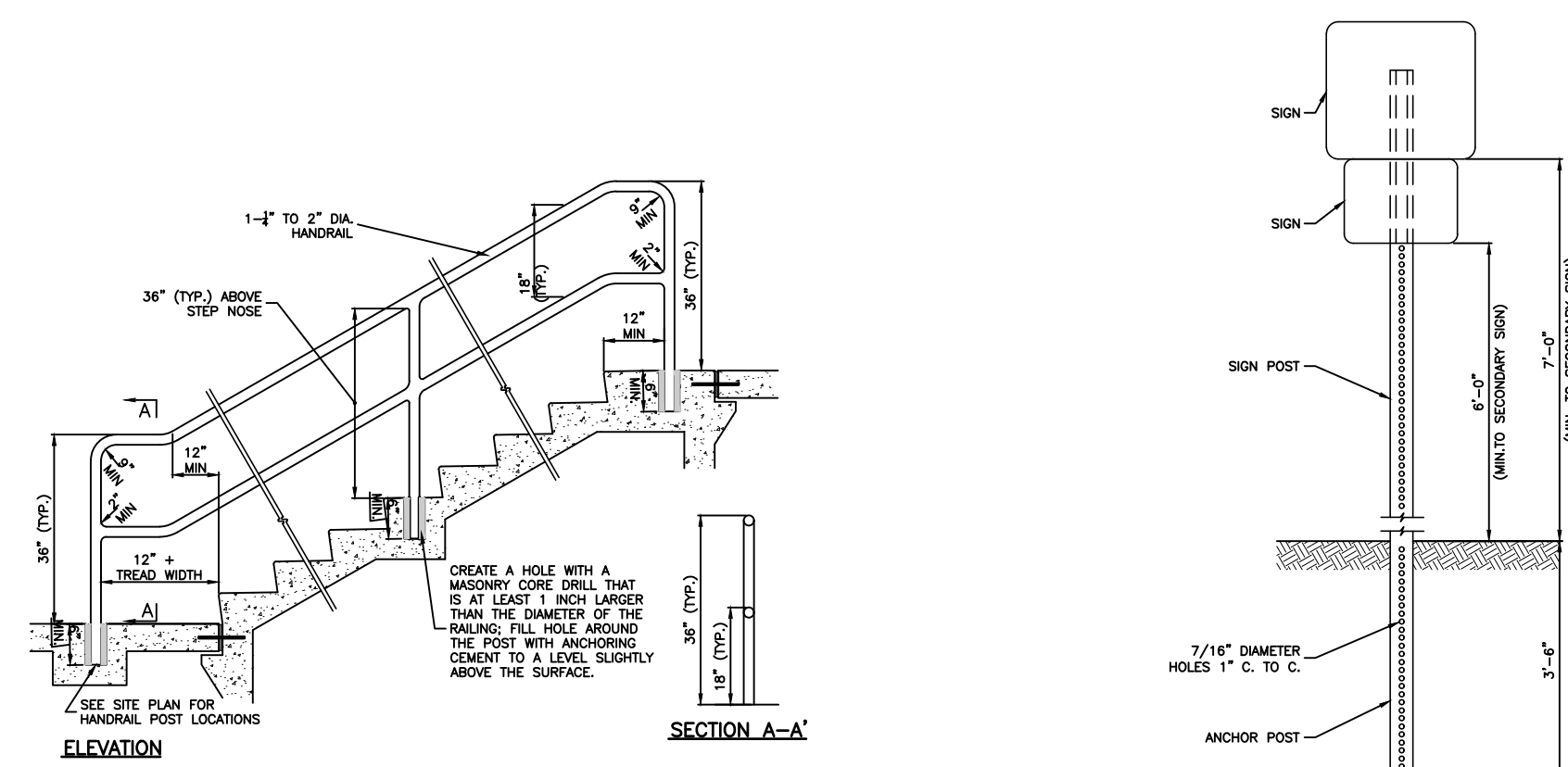
**FENCE - CHAIN LINK**  
NOT TO SCALE



GATE MATERIAL		GATE FRAME WIDTH		FRAME PIPE		BRACE PIPE	
GATE FRAME WIDTH	FABRIC HEIGHT	WIDTH	HEIGHT	I.D.	I.D.	I.D.	I.D.
FEET	INCHES	INCHES	INCHES	INCHES	INCHES	INCHES	INCHES
3 THRU 6	3	48	72	2.5	2.5	1.25	1.25
7 THRU 12	3.5	48	72	2.5	2.5	1.25	1.25
12 THRU 18	4.0	48	72	2.5	2.5	1.25	1.25
18 THRU 24	4.0	48	72	2.5	2.5	1.25	1.25
24 THRU 30	4.0	48	72	2.5	2.5	1.25	1.25

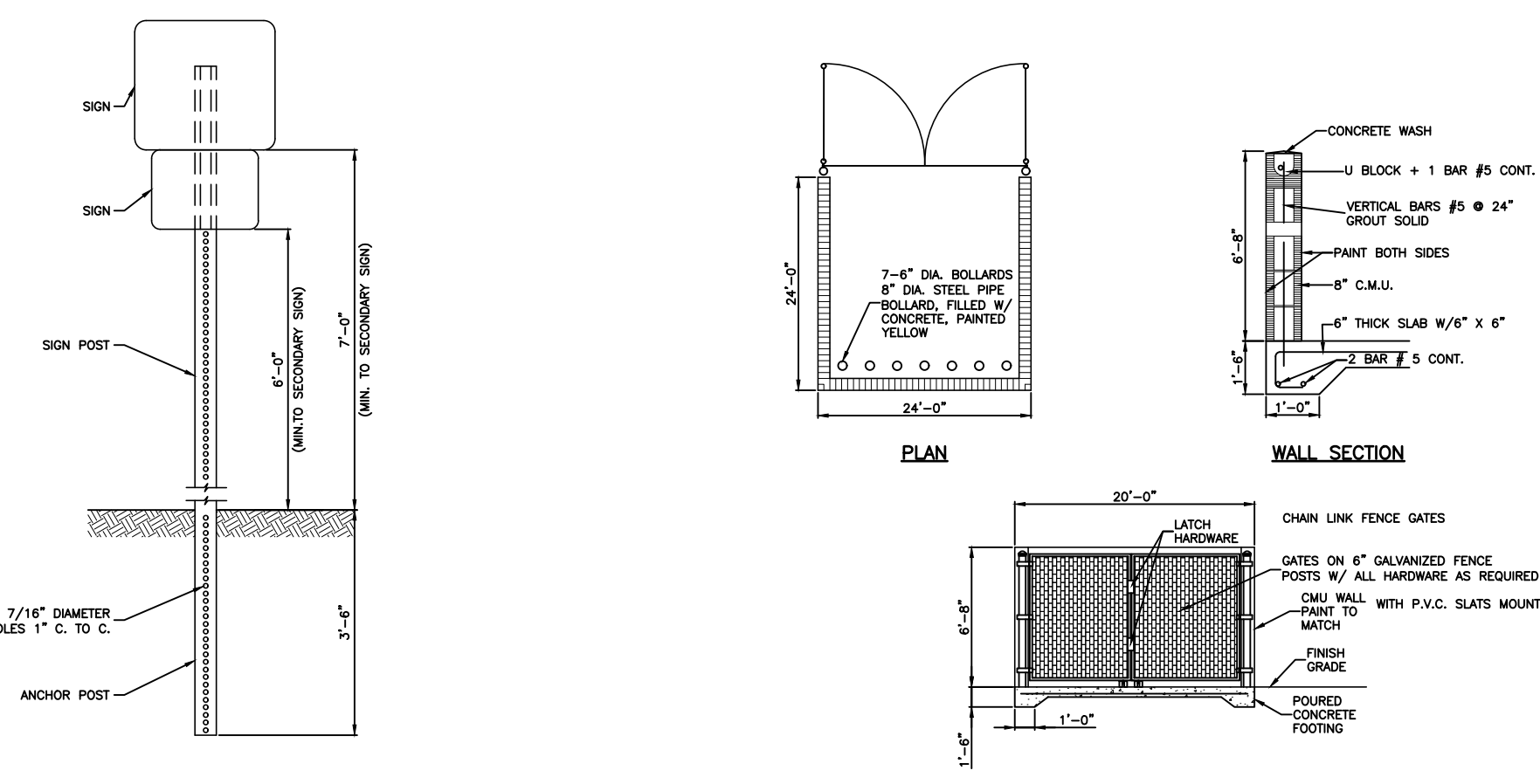
- NOTES:
- SEE BLACK VINYL COATED CHAIN LINK FENCE DETAIL FOR ADDITIONAL NOTES AND SPECIFICATIONS.
  - DROP ROD IS OPTIONAL IF GATE FRAMES EXTEND DOWN TO CENTER FEET. USE LATCH SHOWN FOR WALK OR SINGLE GATE.
  - SEE BLACK VINYL COATED CHAIN LINK FENCE DETAIL FOR CONCRETE BASE DIAMETER REQUIREMENTS.
  - FINISH (FABRIC, POSTS, AND RAILS) GALVANIZED WITH BLACK VINYL COATING.

**BLACK VINYL COATED CHAIN LINK FENCE 12" WIDE EMERGENCY GATE DETAIL**  
NOT TO SCALE



- NOTES:
- SEE CONCRETE STEP DETAIL FOR REINFORCEMENT AND ADDITIONAL INFORMATION.
  - SEE SPECIFICATIONS FOR FINISH.
  - STAIR AND HANDRAIL SHALL MEET ALL APPLICABLE CODES INCLUDING ADA AND LOCAL CODE REQUIREMENTS.
  - INTERMEDIATE HANDRAIL POST SPACING SHALL BE 6" MAX. C. TO C.
  - HANDRAILS SHALL BE PROVIDED FOR EXTERIOR STAIRS WITH THREE OR MORE STEPS. RAILS SHALL BE PROVIDED ON BOTH SIDES OF EACH SET OF STAIRS. THE STEEL PIPE STAIR HANDRAIL DETAIL SHALL PREVAIL OVER THE CONCRETE STAIR DETAILS REGARDING ASPECTS OF THE HAND RAIL (POST LOCATIONS, ETC.).

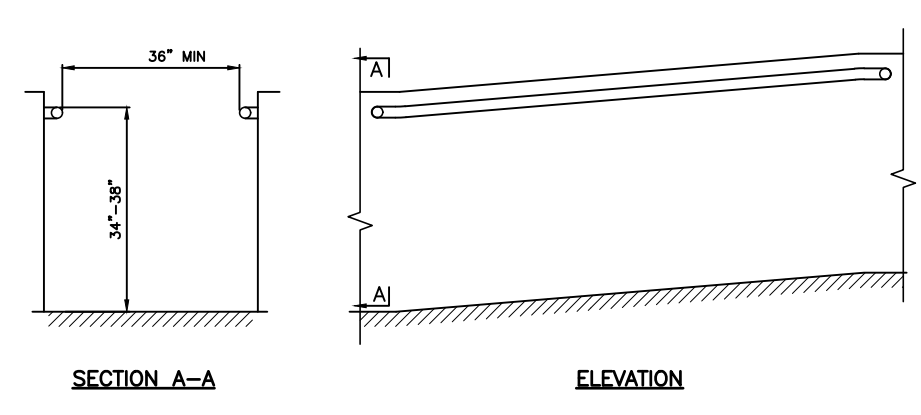
**STEEL PIPE STAIR HANDRAIL**  
NOT TO SCALE



- NOTES:
- POSTS TO BE TYPE "D" BREAKAWAY CHANNEL BAR POSTS. (SEE PENNDOT TRAFFIC CONTROL SIGNING STANDARDS TO 7000 SERIES FOR INSTALLATION PROCEDURES.)
  - SIGN POST LOCATIONS TO BE SELECTED IN THE FIELD UNDER THE DIRECT SUPERVISION OF THE ENGINEER.
  - TO BE INSTALLED IN ACCORDANCE WITH PENNDOT PUB. 400, SECTION 932.

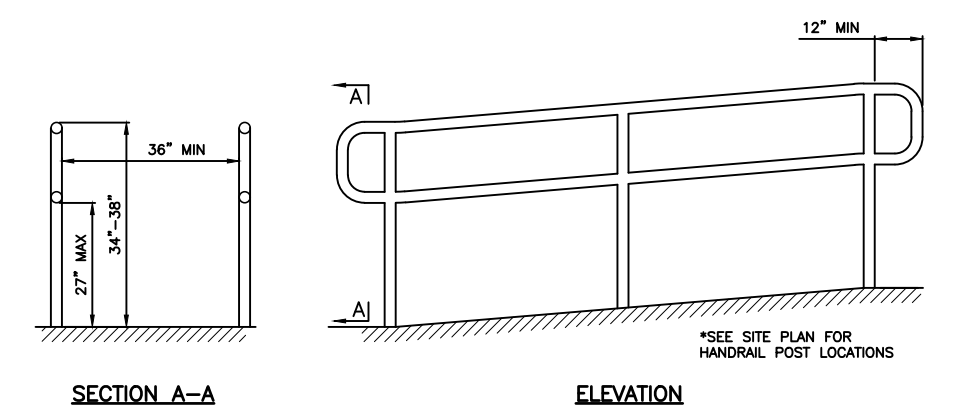
**SIGN POST - PENNDOT**  
NOT TO SCALE

**DUMPSTER ENCLOSURE - CONCRETE**  
NOT TO SCALE



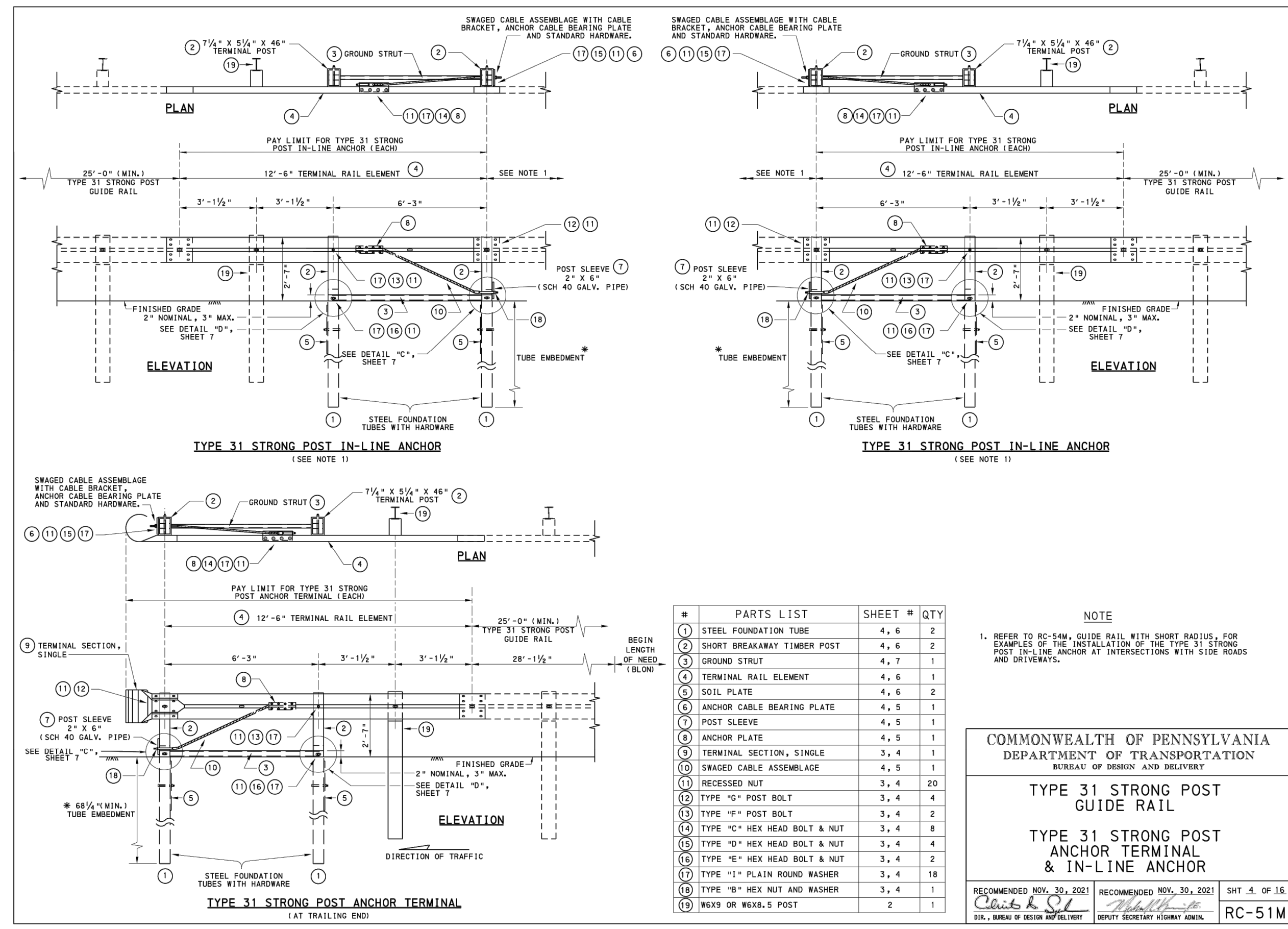
- NOTES:
- IF THE SLOPE OF A RAMP IS BETWEEN 1:12 AND 1:16, THE MAXIMUM RISE SHALL BE 30 INCHES AND THE MAXIMUM HORIZONTAL RUN SHALL BE 30 FEET. IF THE SLOPE OF THE RAMP IS BETWEEN 1:16 AND 1:20, THE MAXIMUM RISE SHALL BE 30 INCHES AND THE MAXIMUM HORIZONTAL RUN SHALL BE 40 FEET.

**HANDRAIL - RAMP - WALL MOUNTED**  
NOT TO SCALE



- NOTES:
- IF THE SLOPE OF A RAMP IS BETWEEN 1:12 AND 1:16, THE MAXIMUM RISE SHALL BE 30 INCHES AND THE MAXIMUM HORIZONTAL RUN SHALL BE 30 FEET. IF THE SLOPE OF THE RAMP IS BETWEEN 1:16 AND 1:20, THE MAXIMUM RISE SHALL BE 30 INCHES AND THE MAXIMUM HORIZONTAL RUN SHALL BE 40 FEET.

**HANDRAIL - RAMP - STEEL**  
NOT TO SCALE



NO.	PARTS LIST	SHEET #	QTY
1	STEEL FOUNDATION TUBE	4, 6	2
2	SHORT BREAKAWAY TIMBER POST	4, 6	2
3	GROUND STRUT	4, 7	1
4	TERMINAL RAIL ELEMENT	4, 6	1
5	SOIL PLATE	4, 6	2
6	ANCHOR CABLE BEARING PLATE	4, 5	1
7	POST SLEEVE	4, 5	1
8	ANCHOR PLATE	4, 5	1
9	TERMINAL SECTION, SINGLE	3, 4	1
10	SWAGED CABLE ASSEMBLY	4, 5	1
11	RECESSED NUT	3, 4	20
12	TYPE "D" POST BOLT	3, 4	4
13	TYPE "E" POST BOLT	3, 4	2
14	TYPE "C" HEX HEAD BOLT & NUT	3, 4	8
15	TYPE "D" HEX HEAD BOLT & NUT	3, 4	4
16	TYPE "E" HEX HEAD BOLT & NUT	3, 4	2
17	TYPE "1" PLAIN ROUND WASHER	3, 4	18
18	TYPE "8" HEX NUT AND WASHER	3, 4	1
19	WEX9 OR WEX9.5 POST	2	1

NOTE:  
1. REFER TO RC-51M, GUIDE RAIL WITH SHORT RADIUS, FOR SIGN POST INSTALLATION OF THE TYPE 31 STRONG POST IN-LINE ANCHOR AT INTERSECTIONS WITH SIDE ROADS AND DRIVEWAYS.

COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF DESIGN AND DELIVERY

**TYPE 31 STRONG POST GUIDE RAIL**

**TYPE 31 STRONG POST ANCHOR TERMINAL & IN-LINE ANCHOR**

RECOMMENDED NOV. 30, 2021  
RECOMMENDED NOV. 30, 2021  
SHT. 4. OF 16  
RC-51M

OR APPROVED EQUAL

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ATTENTION: ALL CONTRACTORS LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN OBTAINED FROM UTILITY COMPANIES RECORDS AND OF ADEQUATE DEPTH AND ACCURACY OF THE LOCATION, DEPTH AND CHARACTERISTICS OF UTILITIES SHOWN HEREON. CONTRACTORS SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. SEE SHEET RC-51M.

20211002293

NO.	DATE	REVISIONS	BY	CHKD
1.	10/04/2022	PER GIS REVIEW LETTER DATED 03/11/2022	PG	DS
2.	4/3/2023	REVISED ENTRANCE ON GERMAN TOWN PIKE	PG	DS
3.	11/17/2023	PER GIS REVIEW LETTER DATED 11/22/2023	PG	DS

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

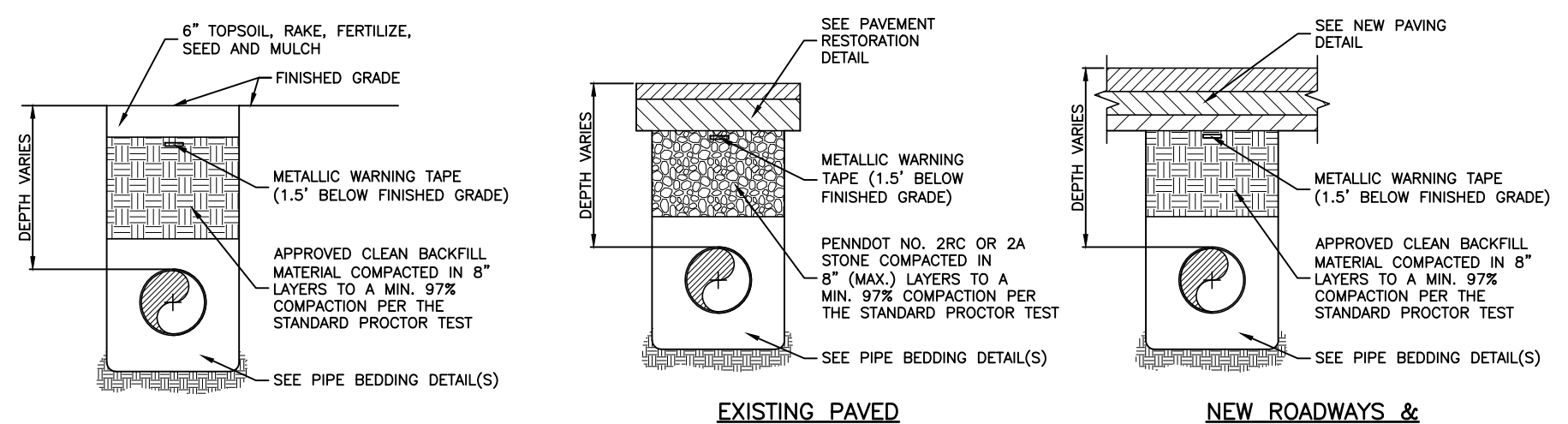


4/3/2023  
LICENSED PROFESSIONAL ENGINEER  
STATE OF PA LICENSE NO. PE76464

BT WORCESTER, LLC  
CITY VIEW - APN #67-00-01606-001  
2974 GERMAN TOWN PIKE, WORCESTER TOWNSHIP,  
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

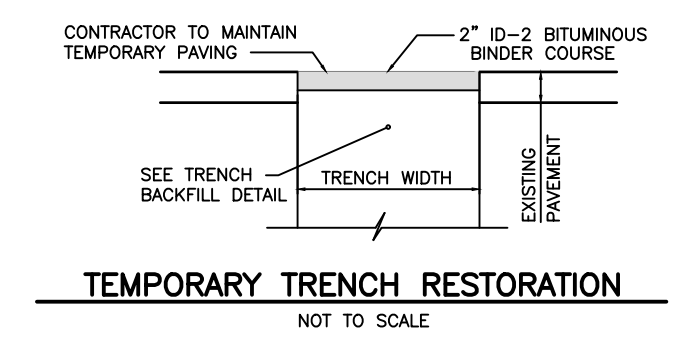


DESIGNED BY CGG/JPK/ROP	DRAWING DET-2
CHECKED BY DS	SHEET
DRAWN BY PG/SG/ROP	21
DATE 1/27/22	OF 34
SCALE AS NOTED	
PROJ. NO. BETH00056	

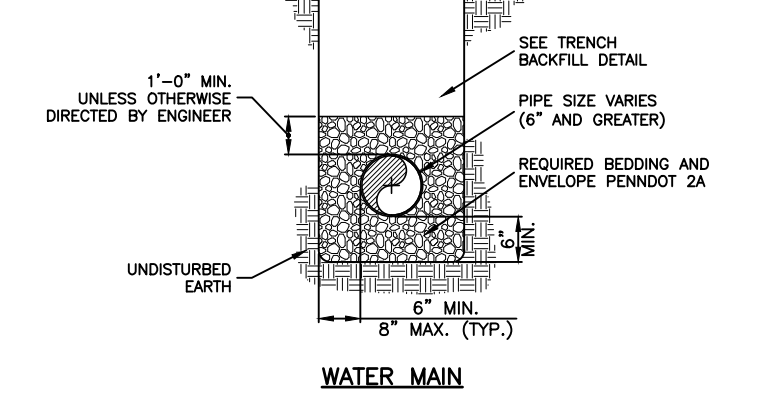


- NOTES:**
- TRENCH COMPACTION TO BE TESTED, AT THE DEVELOPER'S EXPENSE, IN ACCORDANCE WITH PENNDOT PUB 408, LATEST REVISION, AS REQUIRED BY THE MUNICIPALITY/AUTHORITY HAVING JURISDICTION.
  - CLEAN FILL MUST BE APPROVED BY THE MUNICIPALITY/AUTHORITY HAVING JURISDICTION PRIOR TO PLACEMENT IN THE TRENCH.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

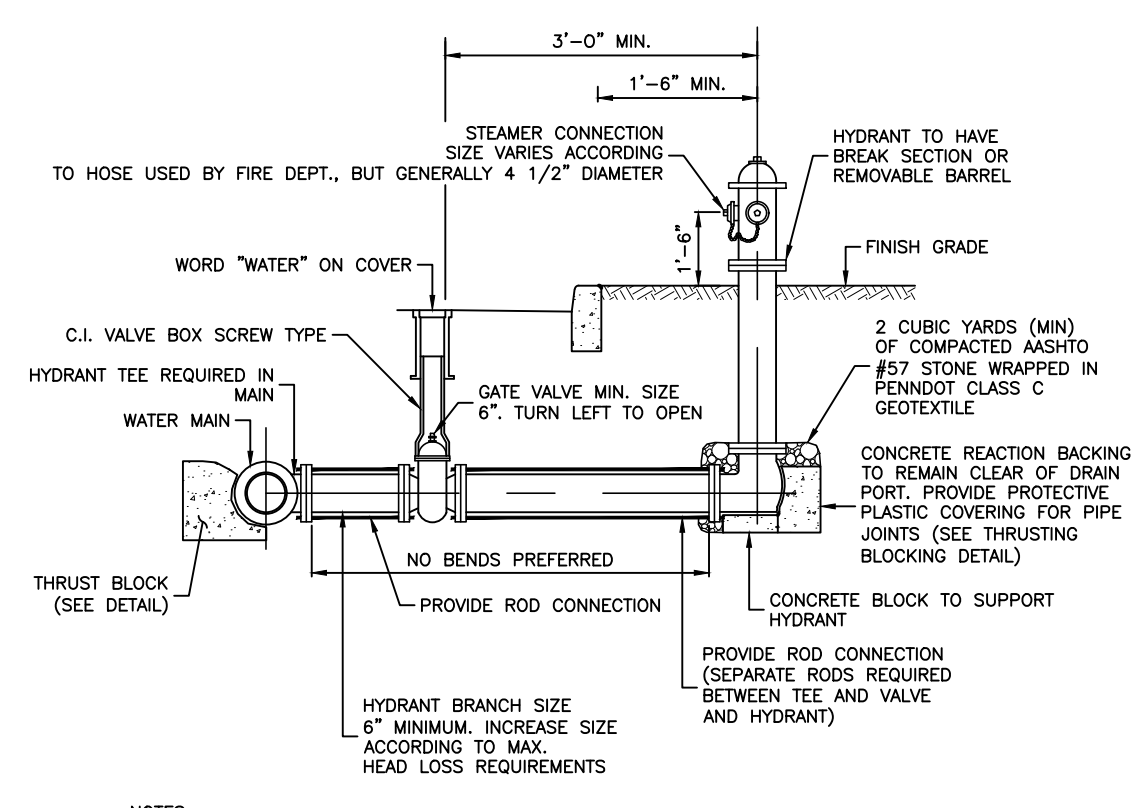
**BACKFILL (TRENCH)**  
NOT TO SCALE



**TEMPORARY TRENCH RESTORATION**  
NOT TO SCALE

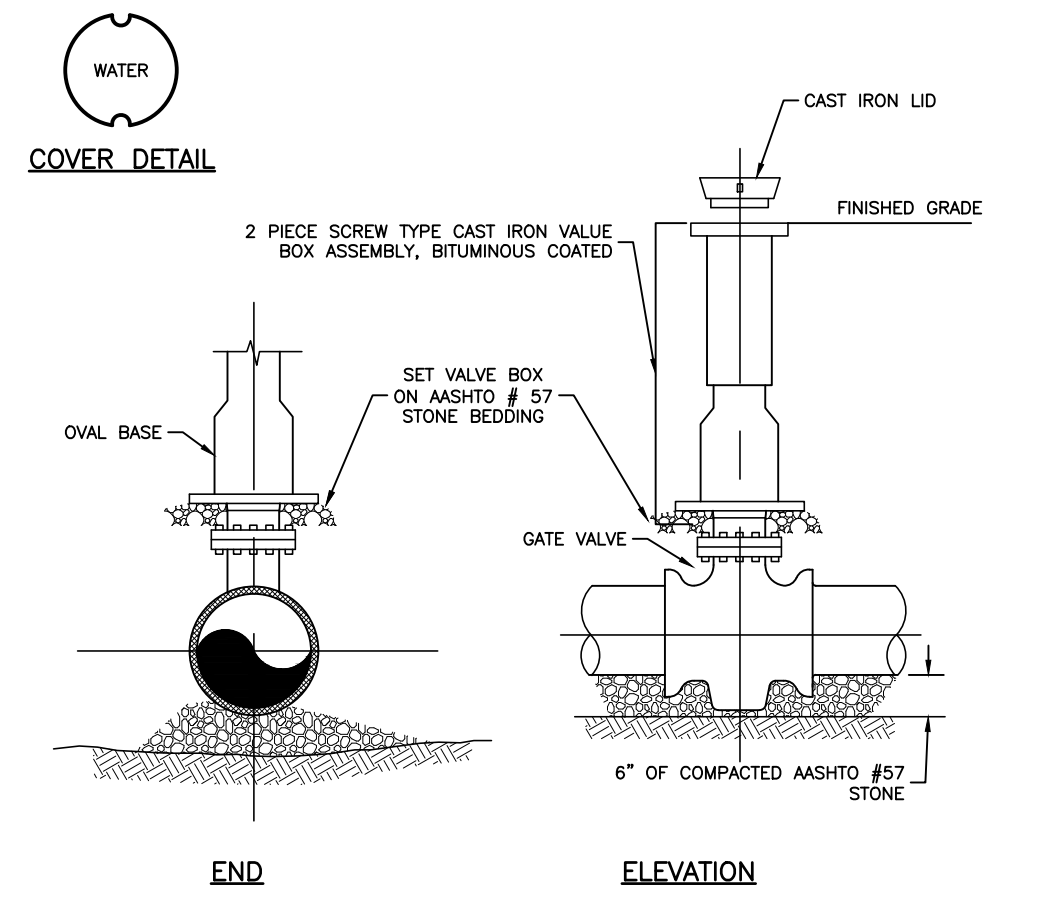


**PIPE BEDDING (WATER MAIN AND SERVICE)**  
NOT TO SCALE

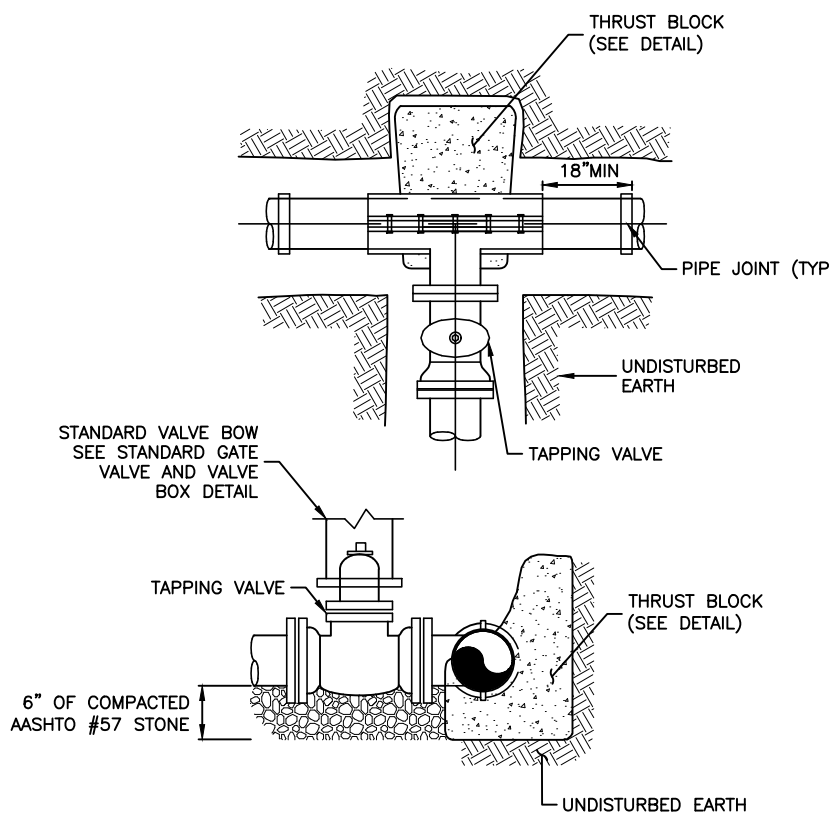


- NOTES:**
- MAXIMUM HEAD LOSS 5 PSI BETWEEN MAIN AND HYDRANT OUTLET FOR 750 GPM FLOW.
  - HYDRANT TO BE PLACED WITH STREAMER CONNECTION FACING STREET @ 1'-4" BEHIND FACE OF CURB OR E.O.P. (TYP.)
  - NECA-LID REQUIRED AT VALVE (ON HYDRANT SIDE ONLY IF HYDRANT TEE IS UTILIZED) AND AT HYDRANT.
  - ALL PROPOSED PLUMBING TO BE INSTALLED IN STRICT ACCORDANCE WITH SPECIFICATIONS OF AUTHORITY HAVING JURISDICTION.
  - MINIMUM OF 4'-0" OF COVER OVER ALL PIPES.
  - HYDRANT TO HAVE 5 1/2" SEAT OPENING.

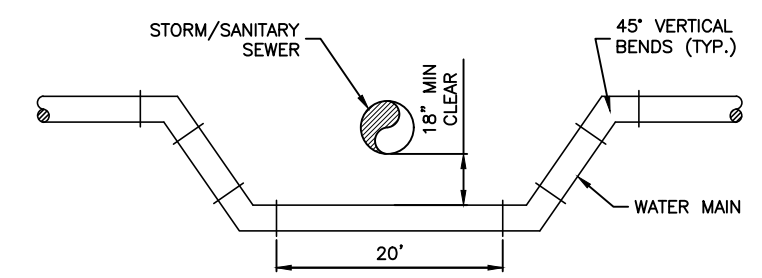
**FIRE HYDRANT**  
NOT TO SCALE



**STANDARD GATE VALVE AND VALVE BOX**  
NOT TO SCALE

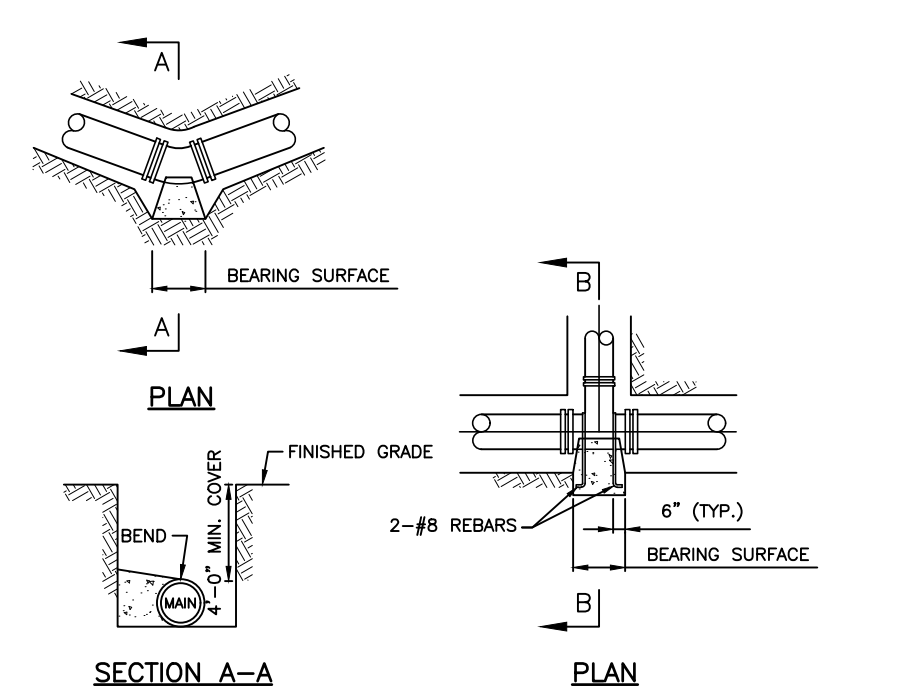


**TAPPING SLEEVE AND VALVE**  
NOT TO SCALE



**STORM SEWER - SANITARY SEWER WATER CROSSING**  
NOT TO SCALE

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

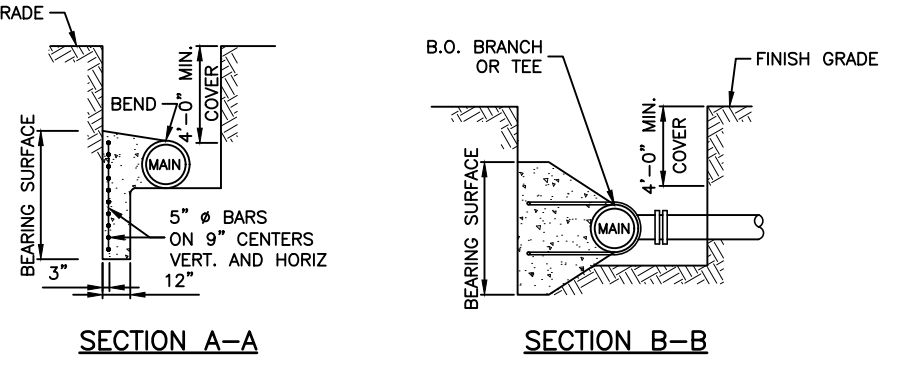


**TYPICAL SECTION - VERTICAL THRUST UPWARD**

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

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

**THRUST BLOCKING TABLE - VERTICAL - UPWARD**  
NOT TO SCALE



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

**WATER - HORIZONTAL THRUST BLOCKING**  
NOT TO SCALE

PIPE SIZE	BEARING SURFACE REQUIRED - SOFT, HORIZONTAL THRUST BLOCKING & VERTICAL THRUST DOWNWARD 125 P.S.I. WORKING PRESSURE															
	6" & 8"				10" & 12"				16" 18" 20"				24"			
TYPE OF BEARING MATERIAL AND ALLOWABLE LOADS	22.5'	45'	90'	D.E.	22.5'	45'	90'	D.E.	22.5'	45'	90'	D.E.	22.5'	45'	90'	D.E.
SAND 0.75 TON/SQ.FT.	3.4	6.0	11.0	6.4	6.7	12.8	23.4	14.2	14.8	28.8	52.9	34.4	26.1	48.3	89.7	64.0
SOFT CLAY 1 TON/SQ.FT.	2.6	4.6	8.2	4.8	5.0	9.6	17.5	10.7	11.2	21.7	39.7	28.2	19.6	36.3	67.3	48.0
SAND AND GRAVEL 2 TON/SQ.FT.	1.3	2.3	4.1	2.4	2.5	4.8	8.8	5.3	5.6	10.8	20.0	14.1	9.8	13.1	33.6	24.0
CLAY 4 TON/SQ.FT.	1.0	1.2	2.1	1.3	1.3	2.4	4.4	2.7	2.8	5.4	10.0	7.2	4.9	9.1	16.8	12.0
SOFT ROCK 5 TON/SQ.FT.	1.0	1.0	1.6	1.0	1.0	1.9	3.5	2.2	1.6	4.4	8.0	5.7	3.9	7.3	13.5	9.6
ROCK 15 TON/SQ.FT.	-	-	1.0	0.4	-	1.0	1.2	0.8	1.0	1.4	2.6	1.9	1.3	2.4	4.5	3.2
PIPE SIZE	36"				42"				48"							
TYPE OF BEARING MATERIAL AND ALLOWABLE LOADS	22.5'	45'	90'	D.E.	22.5'	45'	90'	D.E.	22.5'	45'	90'	D.E.	22.5'	45'	90'	D.E.
SAND 0.75 TON/SQ.FT.	40.3	76.5	139.0	99.1	55.5	107.5	197.5	140.0	74.3	144.7	266.5	188.7	83.2	182.3	336.2	238.0
SOFT CLAY 1 TON/SQ.FT.	30.2	57.4	104.3	74.3	41.6	80.6	148.0	105.0	55.7	108.5	200.0	141.6	70.0	136.7	252.1	178.0
SAND AND GRAVEL 2 TON/SQ.FT.	15.1	28.7	52.1	37.2	20.8	40.3	74.0	52.5	27.9	54.3	100.0	70.8	35.0	68.3	126.1	89.2
CLAY 4 TON/SQ.FT.	7.6	14.6	26	18.6	10.4	20.2	37.0	26.3	14.0	27.0	50.0	35.3	17.5	34.2	63.0	44.6
SOFT ROCK 5 TON/SQ.FT.	6.0	11.5	20.9	14.9	8.3	16.1	29.6	21.0	11.2	21.7	40.0	28.3	14.0	27.3	50.4	35.7
ROCK 15 TON/SQ.FT.	2.0	3.8	7.0	5.0	1.4	2.8	5.4	7.0	3.7	7.2	13.3	9.4	4.7	9.1	16.8	12.0

**WATER - THRUST BLOCKING TABLE**  
NOT TO SCALE

- NOTES:**
- D.E. DENOTES DEAD END.

PROJECT INFORMATION: BT WORCESTER, LLC  
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NO.	DATE	REVISIONS	BY	CHKD
1	10/04/2022	PER OIS REVIEW LETTER DATED 03/11/2022	PG DS	PG DS
2	4/3/2023	REVISED ENTRANCE ON GERMANTOWN PIKE	PG DS	PG DS
3	11/17/2023	PER OIS REVIEW LETTER DATED 11/22/2022	PG DS	PG DS

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

4/3/2023  
LICENSED PROFESSIONAL ENGINEER  
STATE OF PA LICENSE NO. PE076464

BT WORCESTER, LLC  
CITY VIEW - APN #67-00-01606-001  
2974 GERMANTOWN PIKE, WORCESTER TOWNSHIP,  
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

1700 MARKET STREET, SUITE 3110  
PHILADELPHIA, PA 19103  
TEL 215-282-7850  
FAX 215-251-5459  
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DESIGNED BY CGG/JPK/ROP	DRAWING DET-3
CHECKED BY DS	SHEET
DRAWN BY PG/SR/ROP	22
DATE 1/27/22	OF 34
SCALE AS NOTED	
PROJ. NO. BET00056	



NO.	DATE	REVISIONS	BY	CHKD
1.	10/04/2022	PER GIS REVIEW LETTER DATED 03/11/2022	DS	DS
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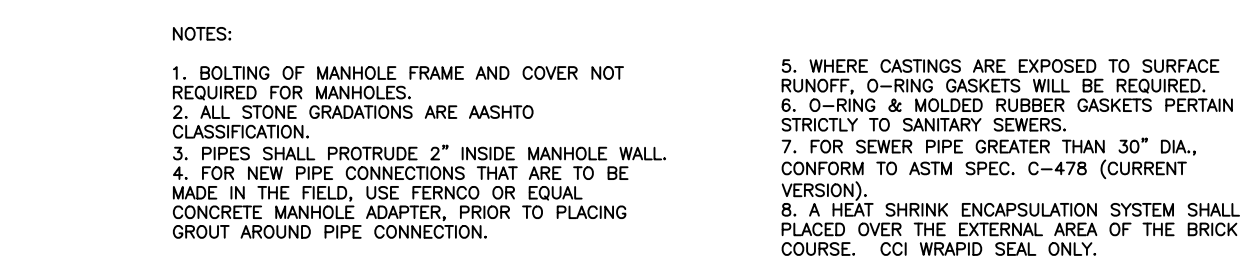
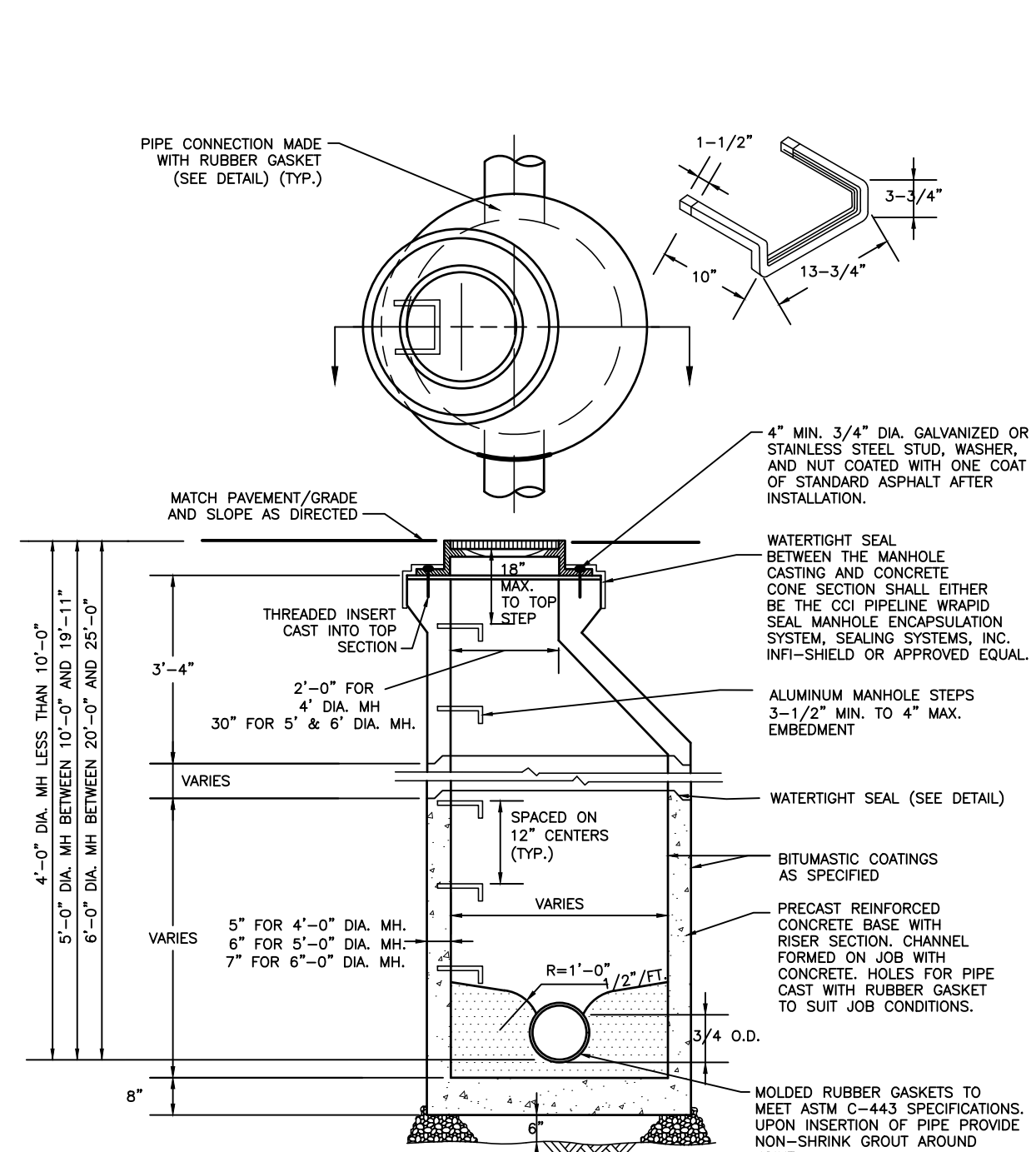
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4/3/2023  
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STATE OF PA LICENSE NO. PE076464

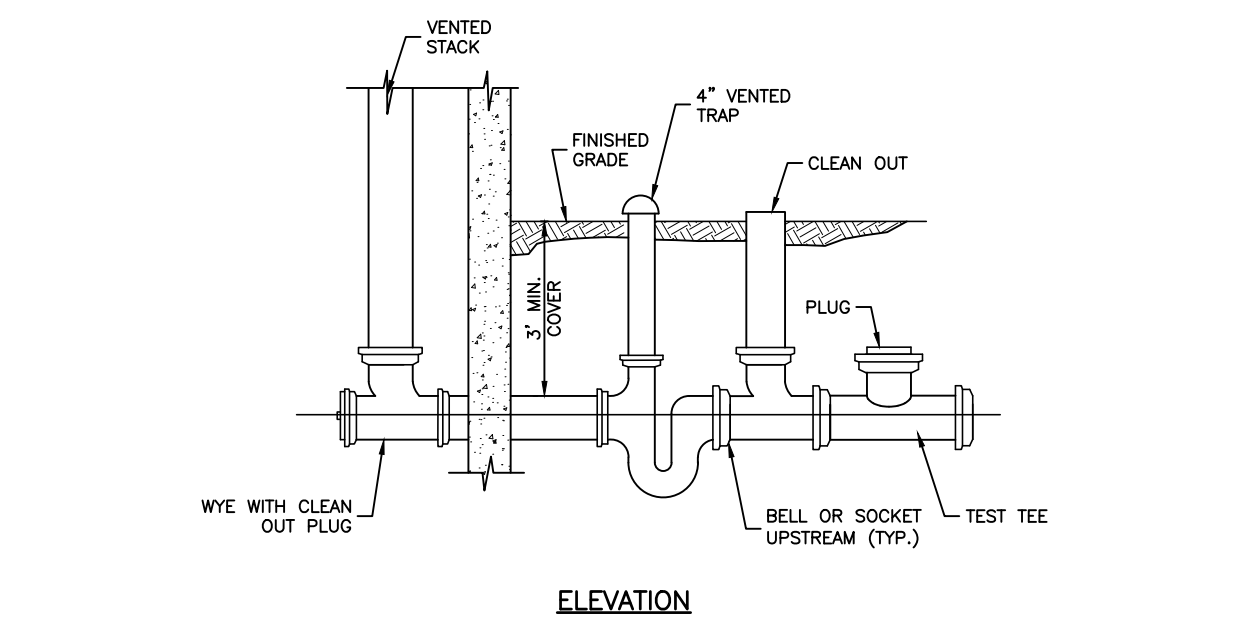
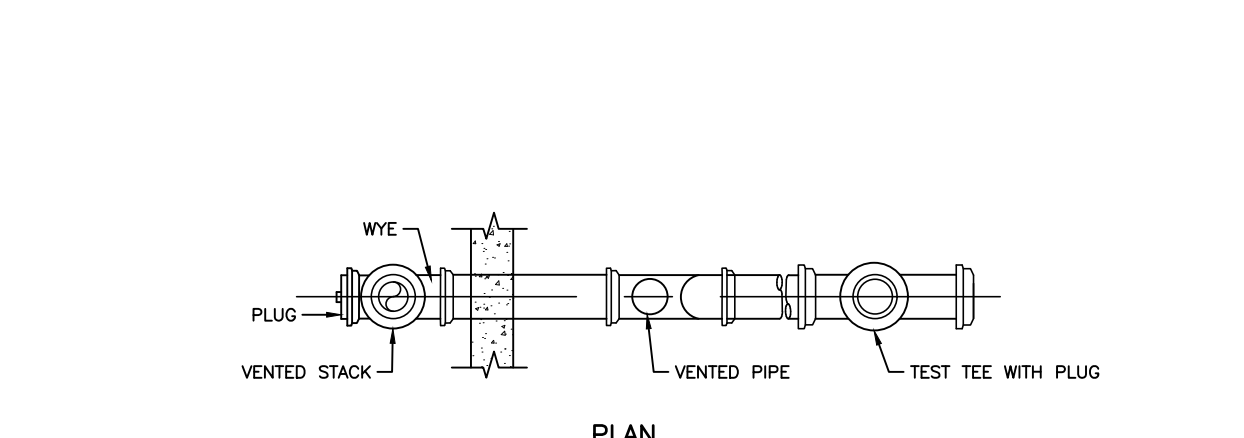
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2974 GERMAN TOWN PIKE, WORCESTER TOWNSHIP,  
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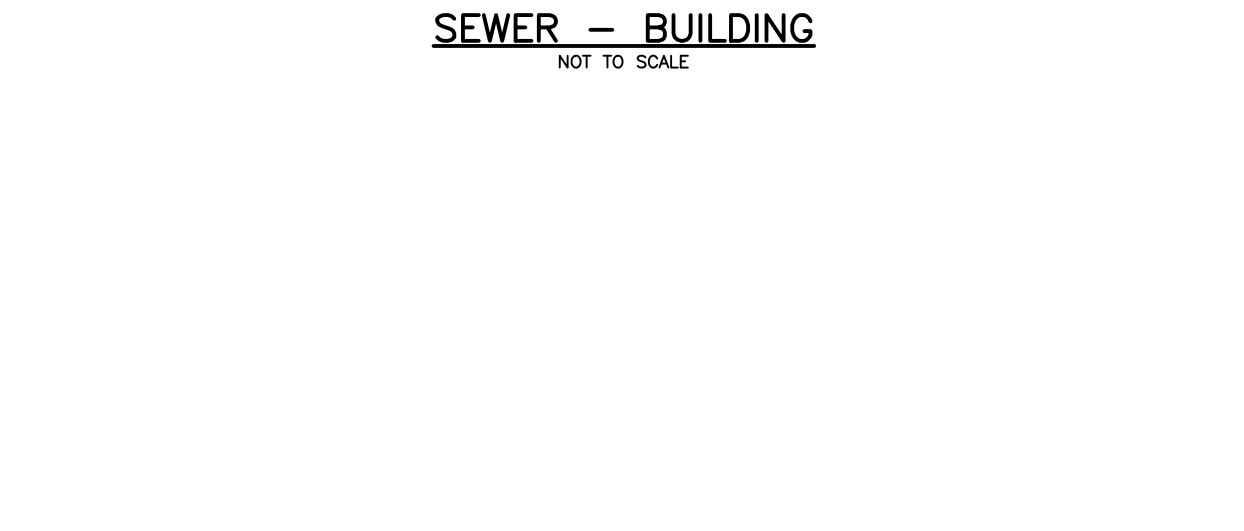
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CHECKED BY DS	SHEET
DRAWN BY PG/SG/ROP	23
DATE 1/27/22	34
SCALE AS NOTED	OF
PROJ. NO. BET00056	



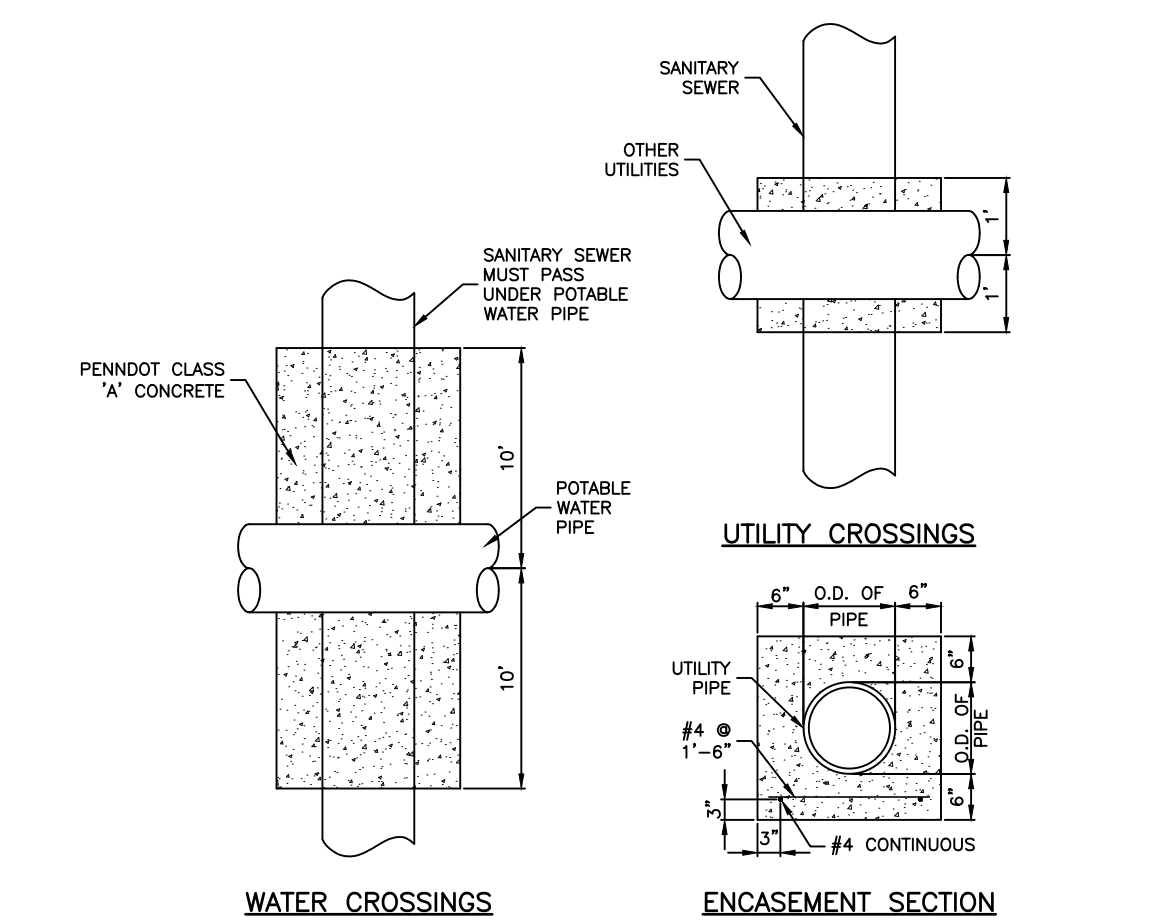
**PRECAST CONCRETE SANITARY MANHOLE WITH PRECAST CONCRETE BASE**  
NOT TO SCALE



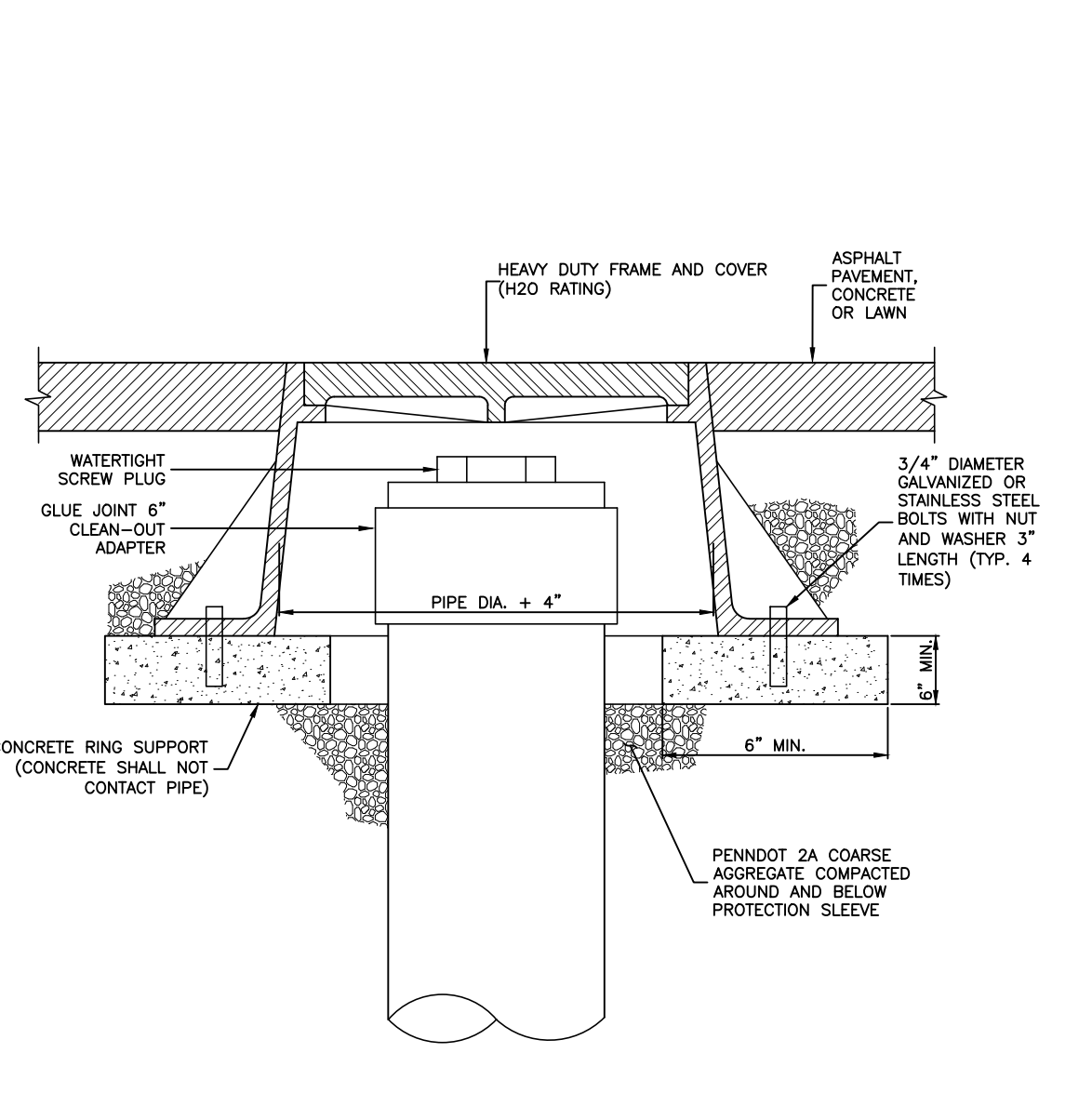
**SEWER - BUILDING**  
NOT TO SCALE



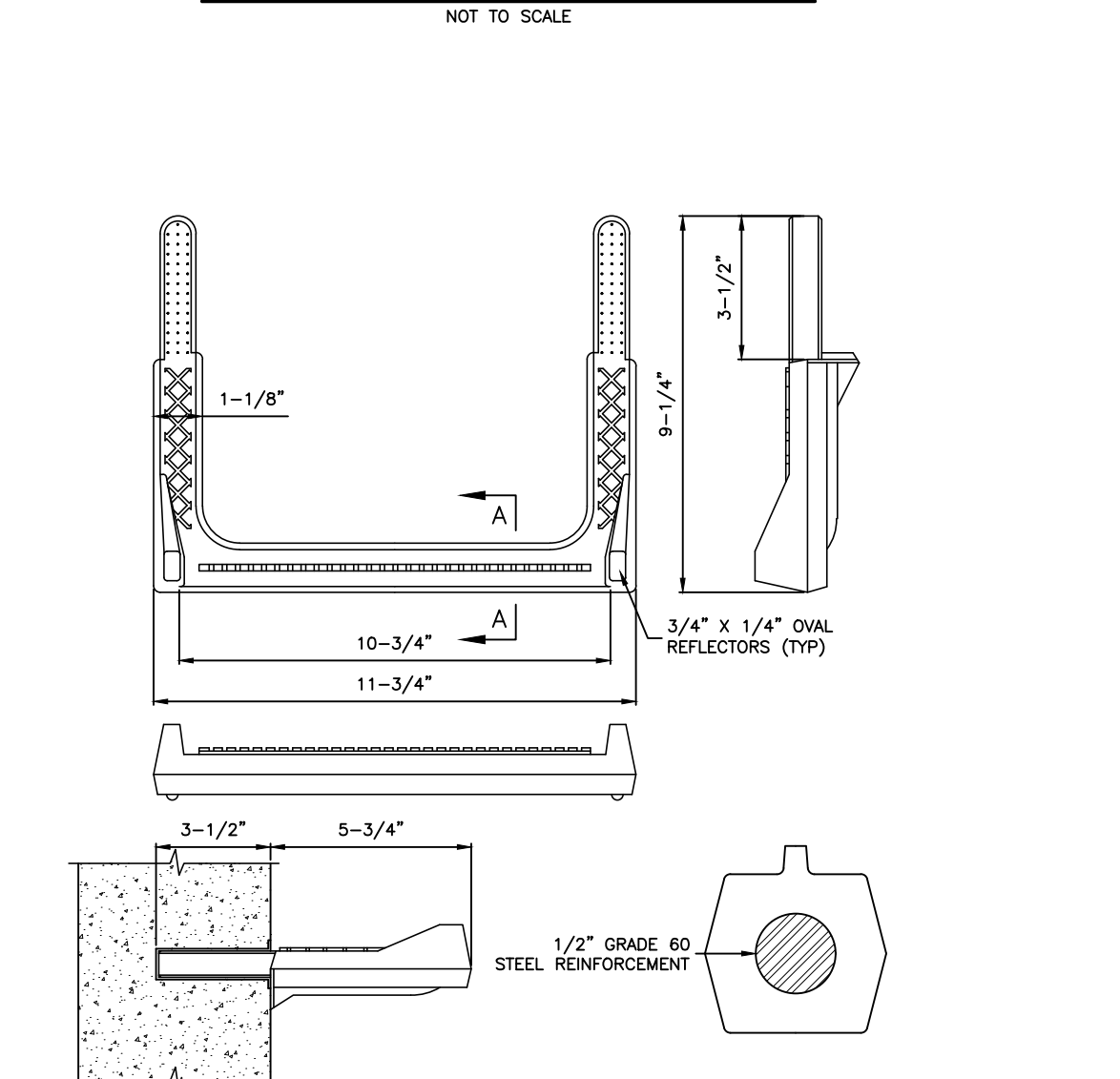
**POLYPROPYLENE MANHOLE STEP**  
NOT TO SCALE



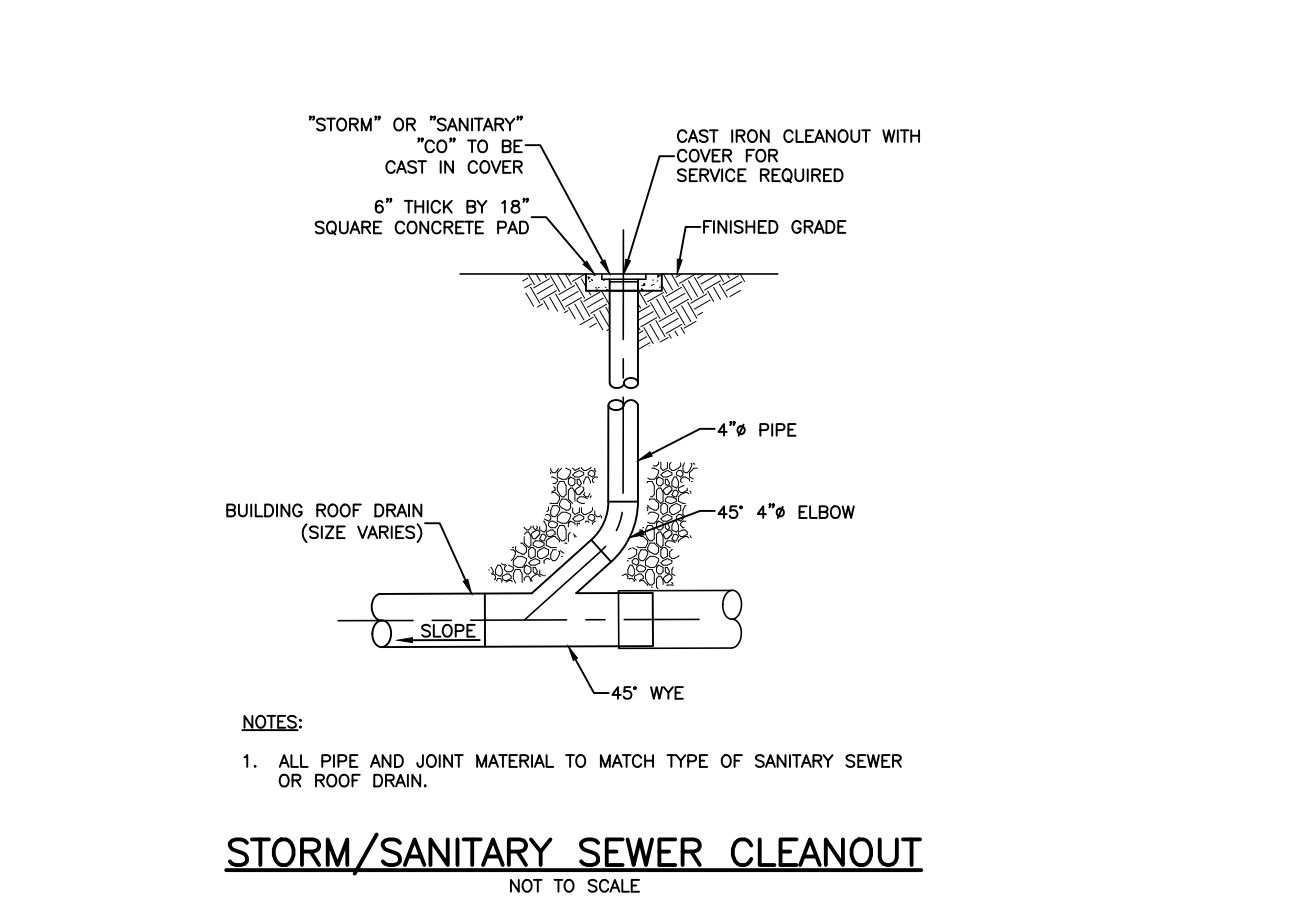
**UTILITY CROSSING (CONCRETE ENCASEMENT)**  
NOT TO SCALE



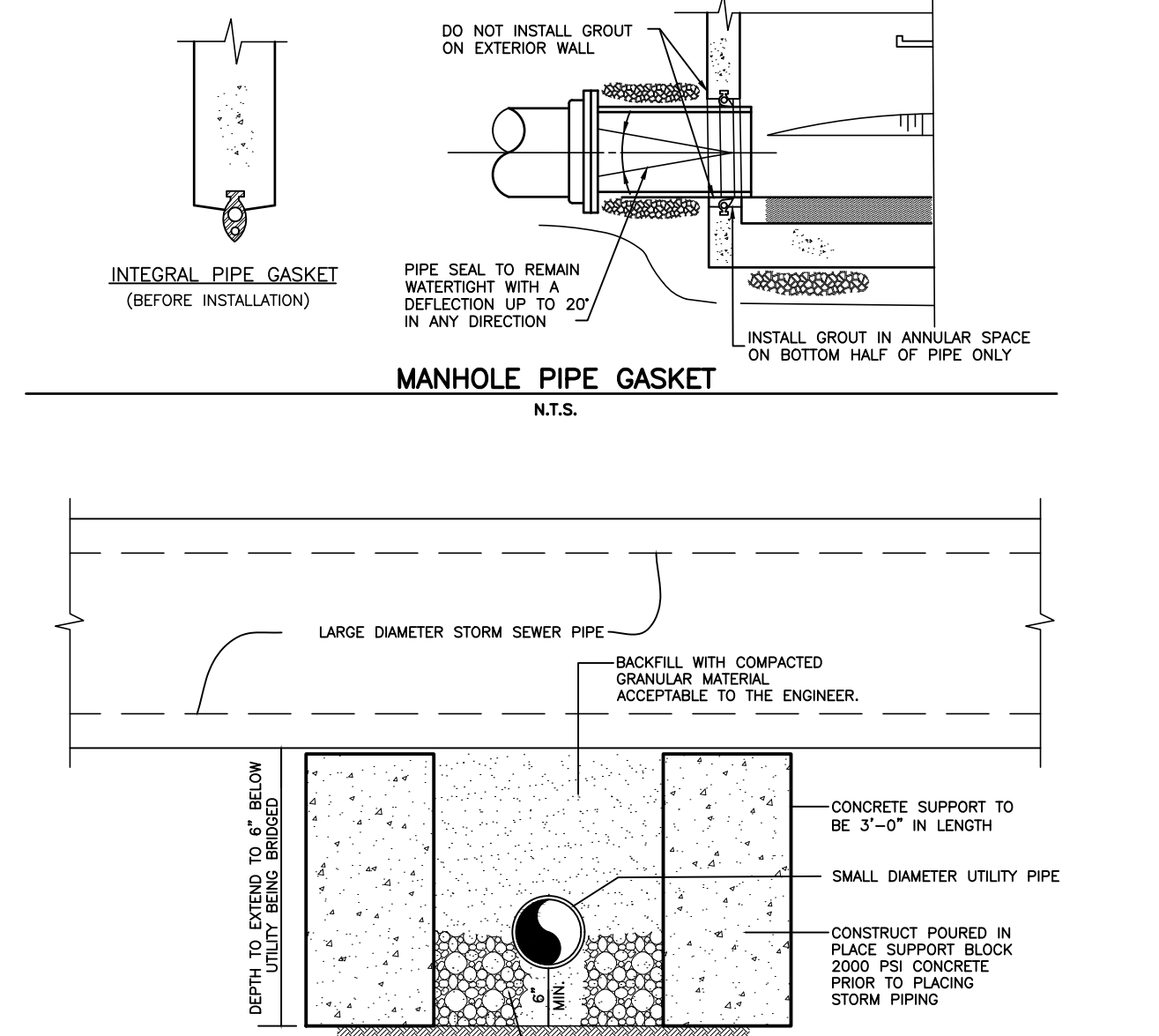
**MANHOLE PIPE GASKET**  
NOT TO SCALE



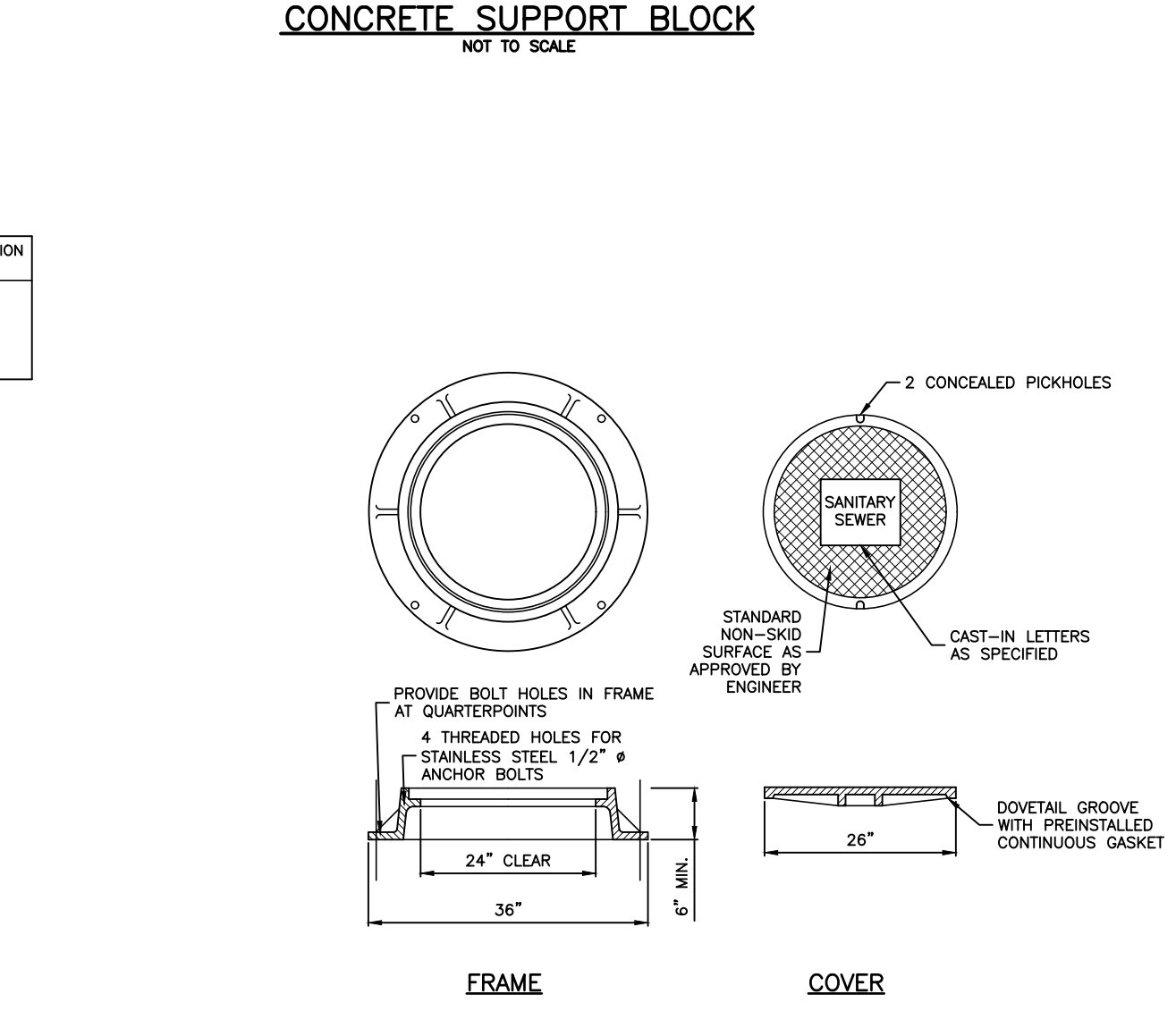
**CONCRETE SUPPORT BLOCK**  
NOT TO SCALE



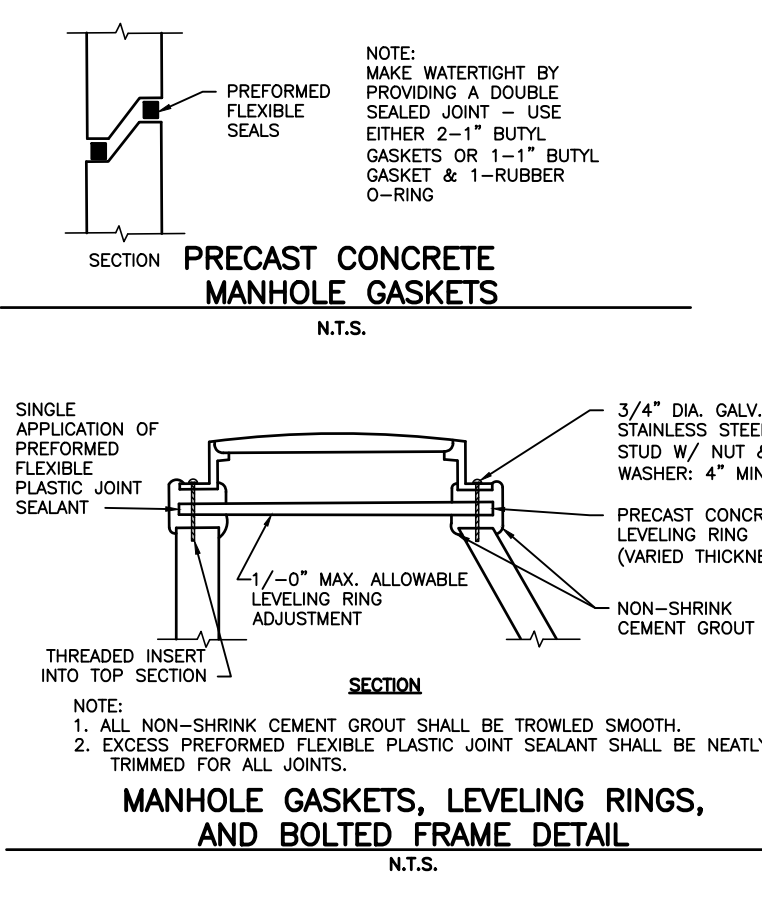
**STORM/SANITARY SEWER CLEANOUT**  
NOT TO SCALE



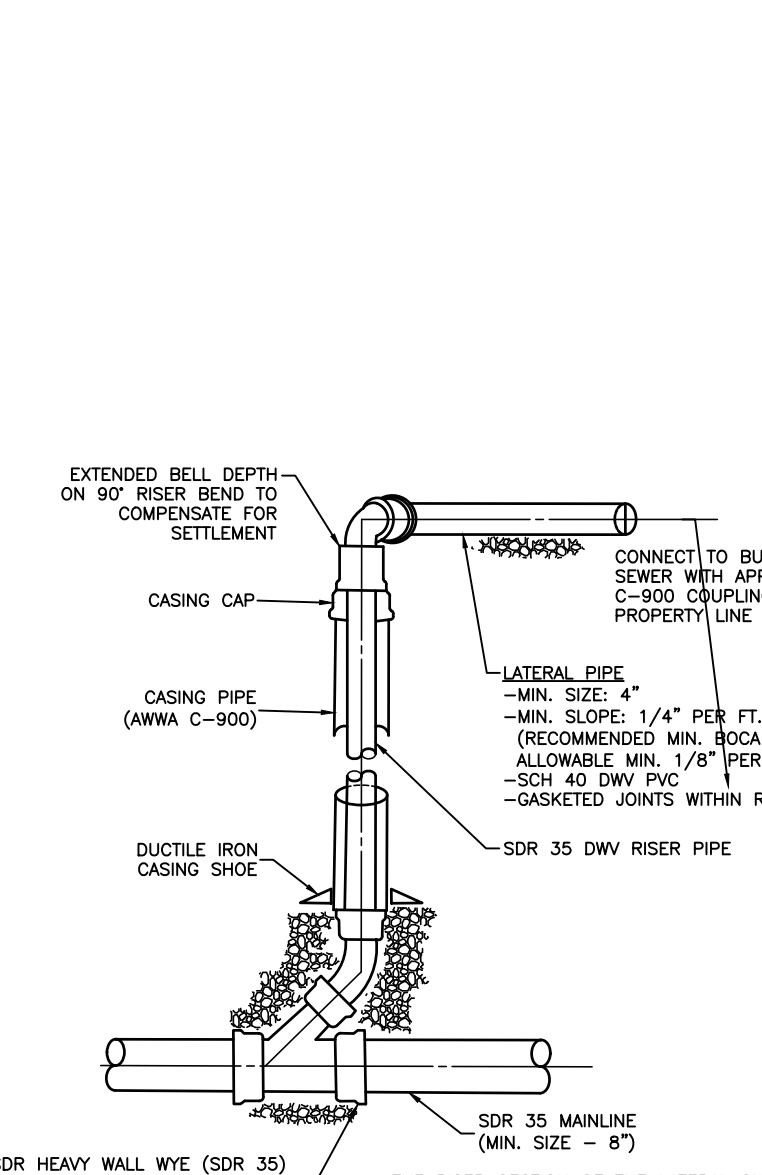
**DEEP CUT LATERAL**  
NOT TO SCALE



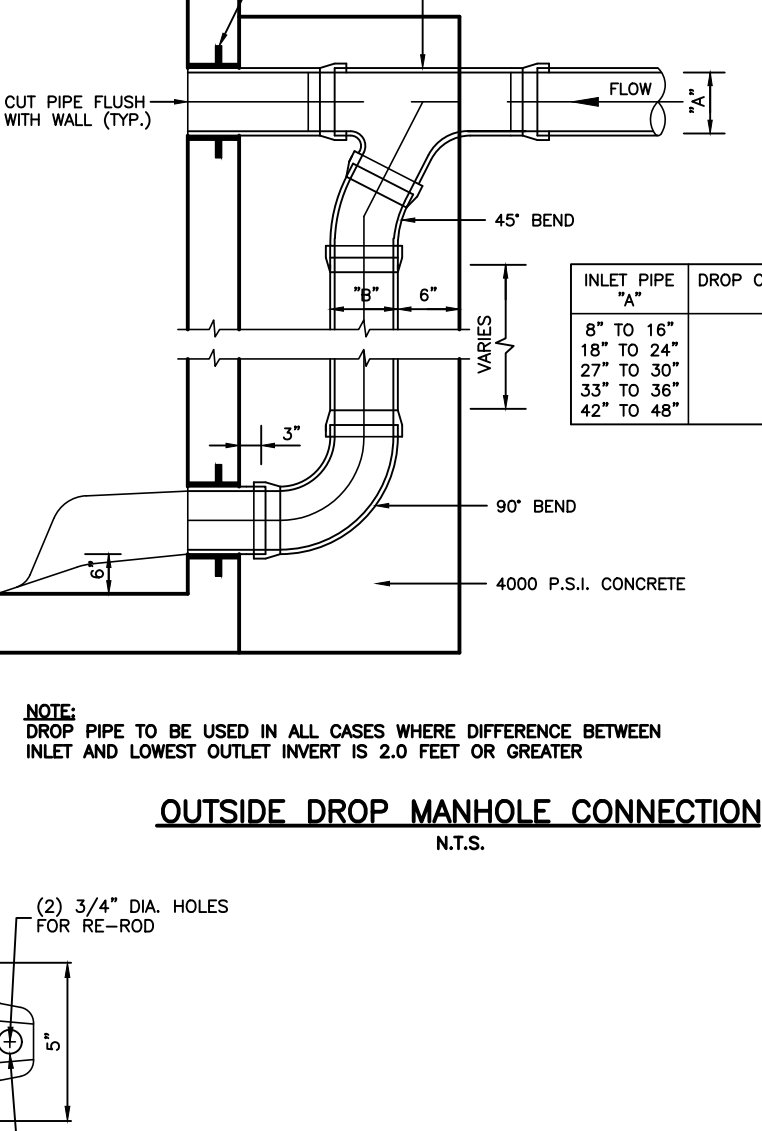
**SANITARY MANHOLE FRAME AND COVER**  
NOT TO SCALE



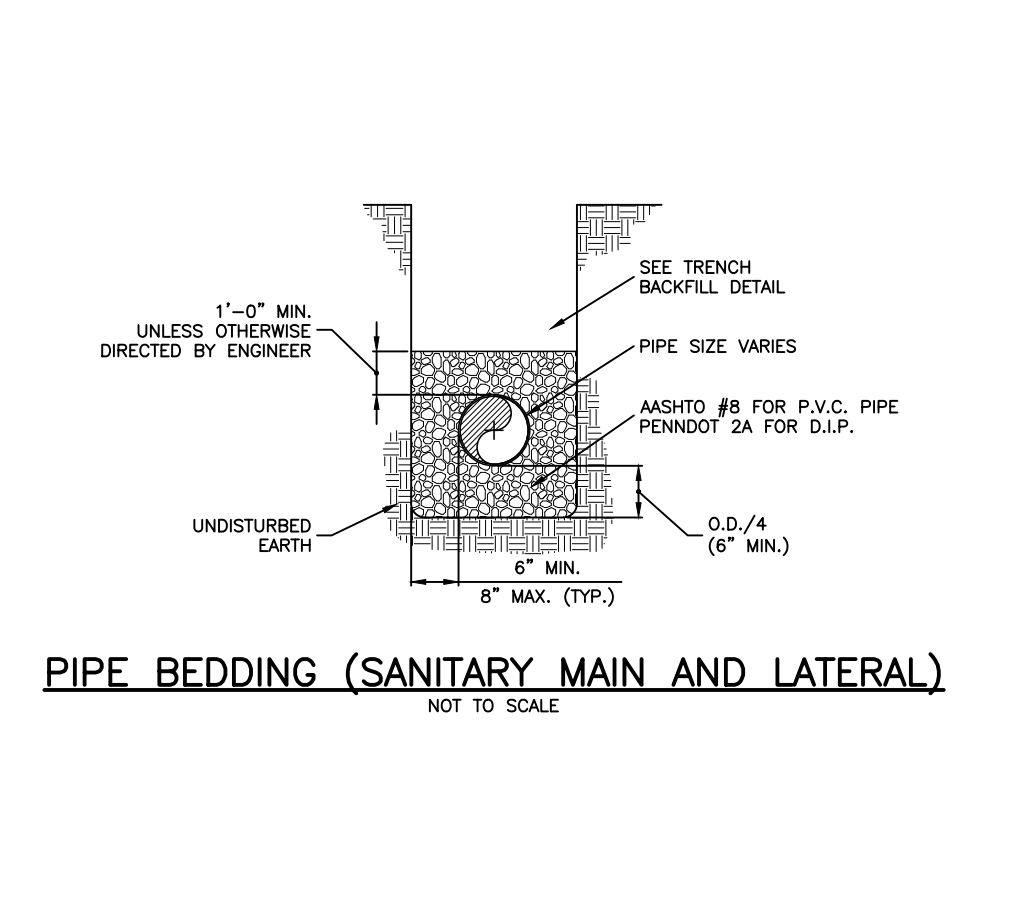
**MANHOLE GASKETS, LEVELING RINGS, AND BOLTED FRAME DETAIL**  
NOT TO SCALE



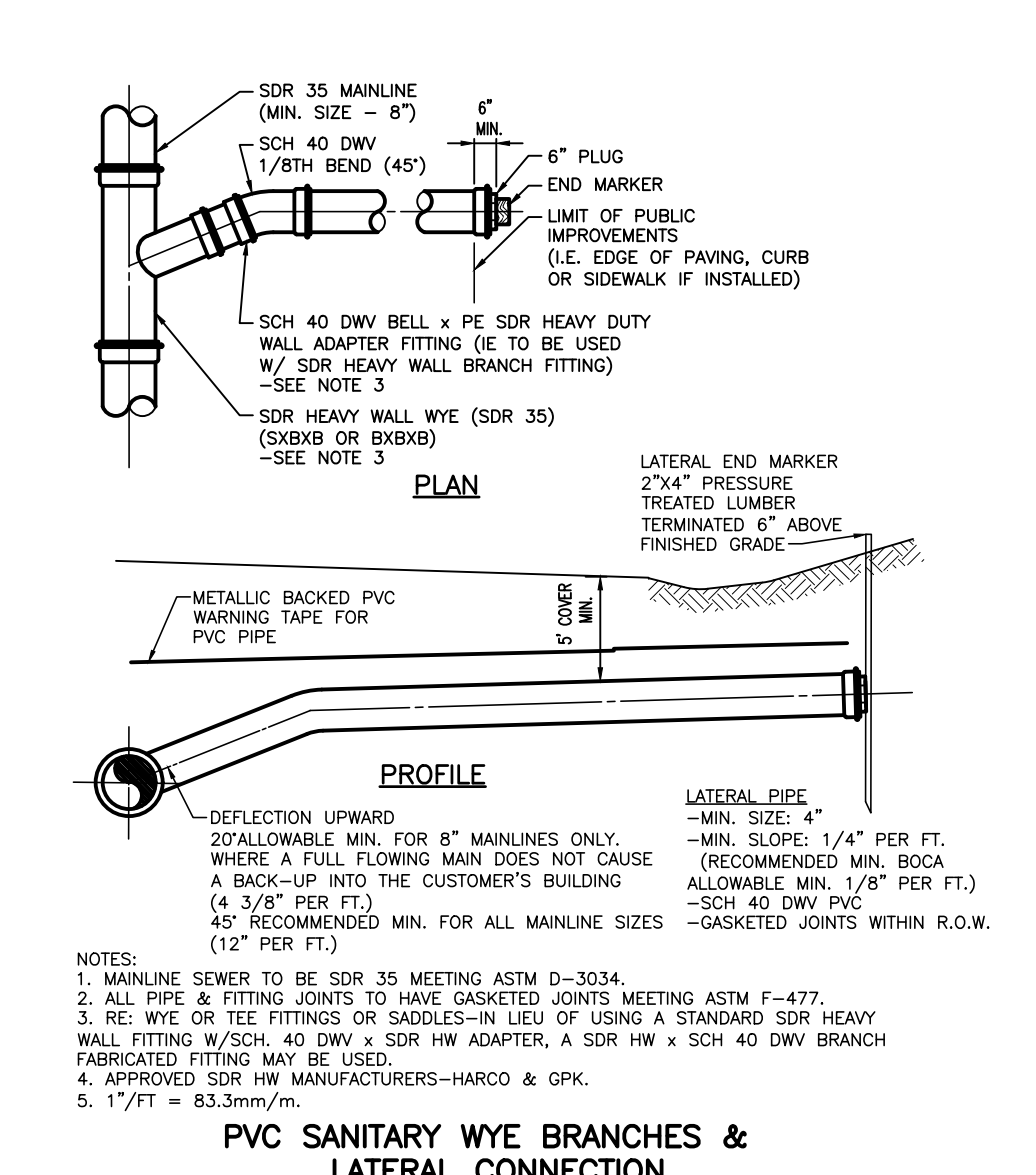
**PIPE GASKET (MANHOLE)**  
NOT TO SCALE



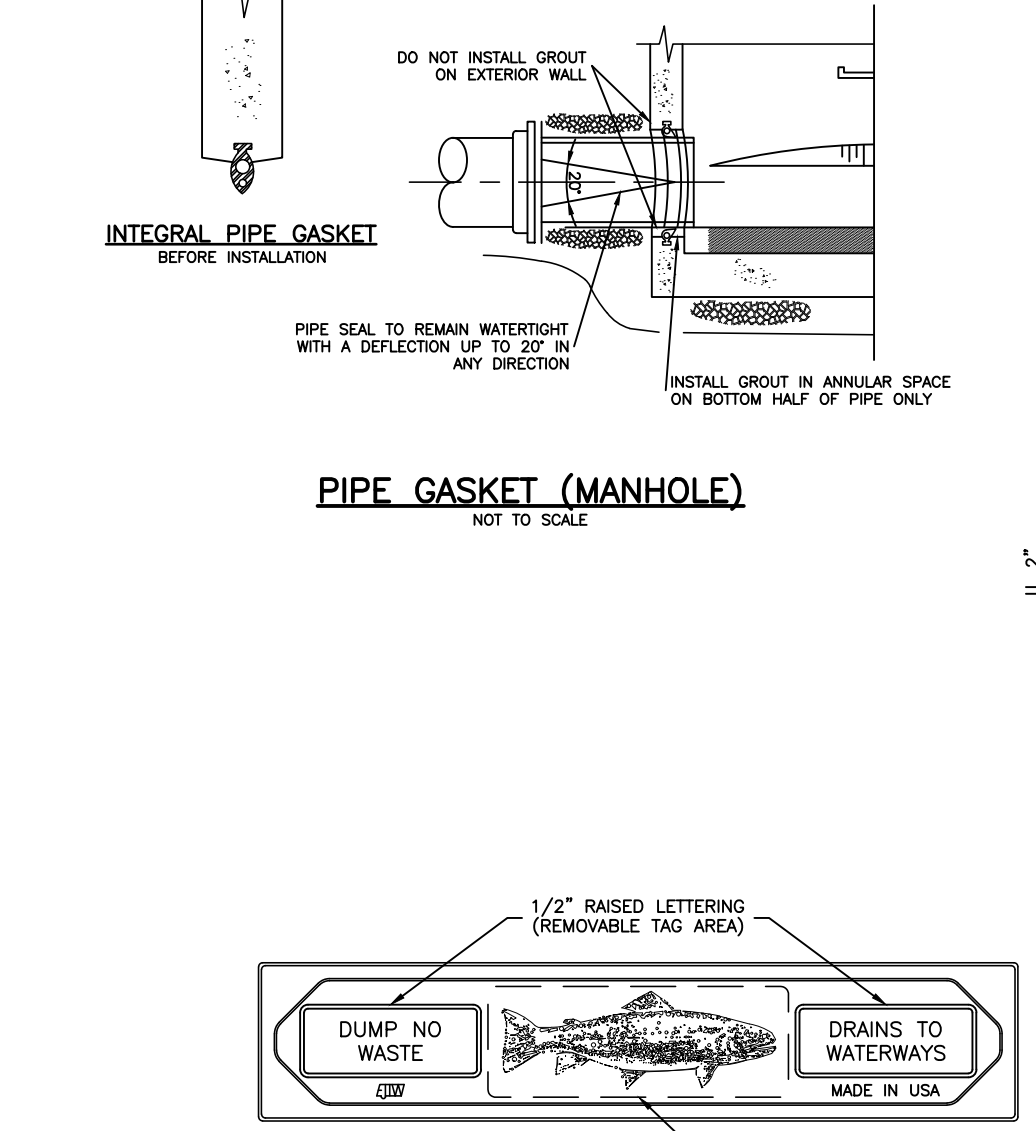
**OUTSIDE DROP MANHOLE CONNECTION**  
NOT TO SCALE



**PIPE BEDDING (SANITARY MAIN AND LATERAL)**  
NOT TO SCALE



**PVC SANITARY WYE BRANCHES & LATERAL CONNECTION**  
NOT TO SCALE



**PLATE - NO DUMP**  
NOT TO SCALE

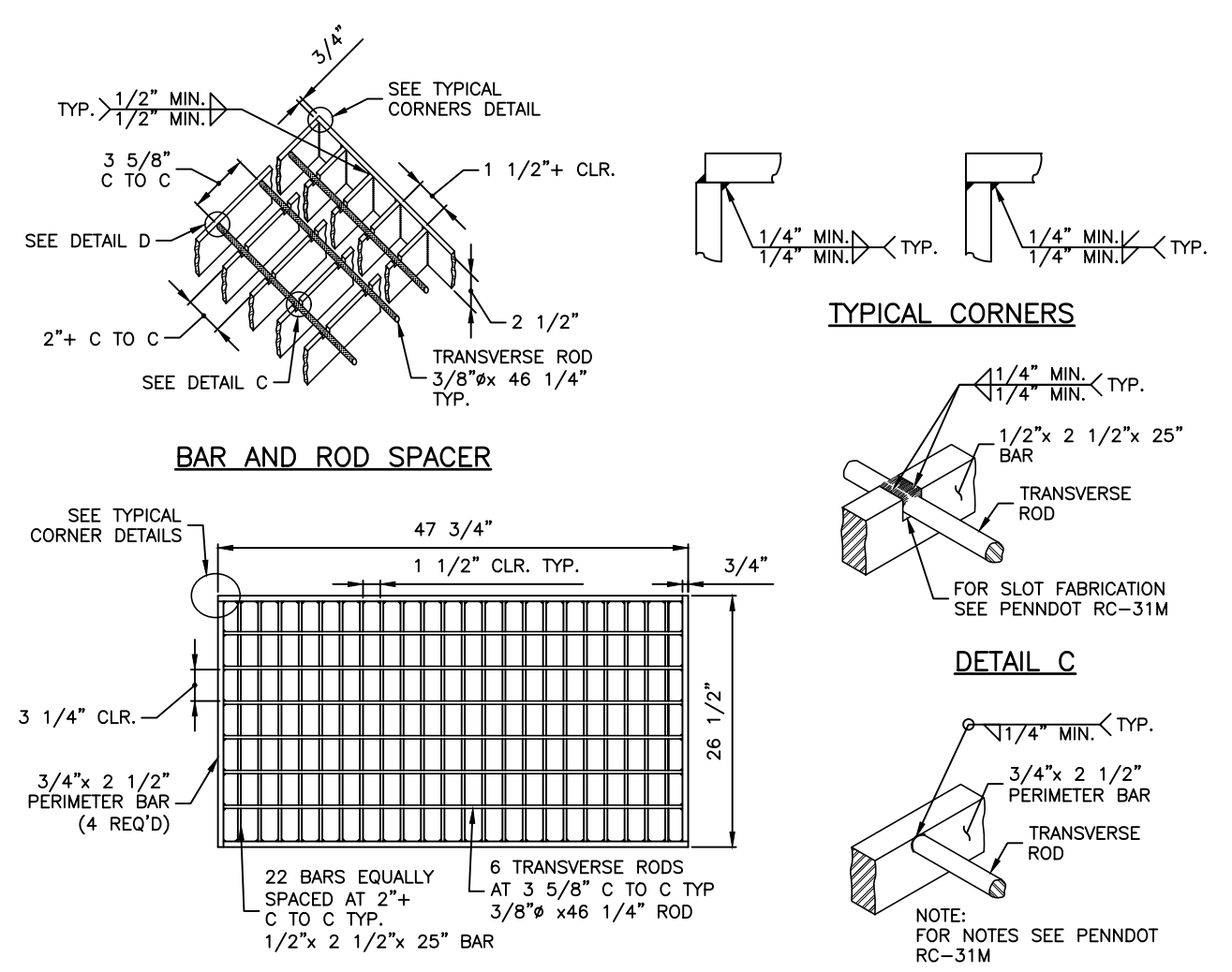
PROJECT INFORMATION: T&M ASSOCIATES - ALL RIGHTS RESERVED. THE COPYING OR REUSE OF THIS DOCUMENT OR PORTIONS THEREOF, FOR OTHER THAN THE ORIGINAL PROJECT FILE NAME: BET00056\_SHT20-30-DETAILS.dwg FILE PATH: C:\Projects\BET\00056\Plans\ FILE NAME: BET00056\_SHT20-30-DETAILS.dwg DATE: 21 Nov 2023, 3:58PM LAST SAVE BY: Cscorzelio

DESIGNED BY: CCG/JPK/ROP  
CHECKED BY: DS  
DRAWN BY: PG/SG/ROP  
DATE: 1/27/22  
SCALE: AS NOTED  
PROJ. NO.: BET00056





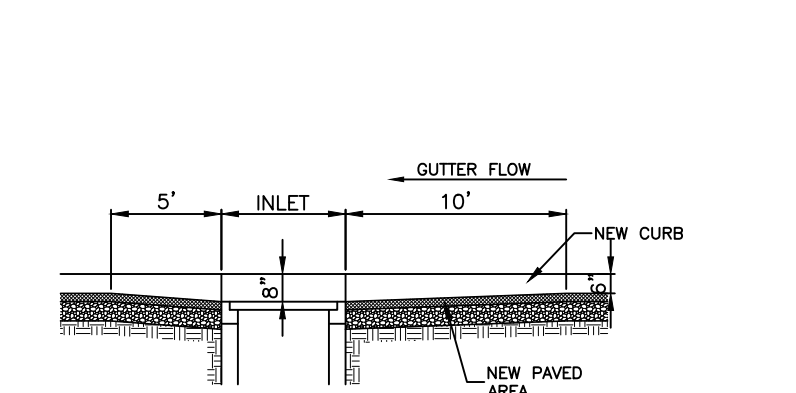




STRUCTURAL STEEL GRATE-BICYCLE SAFE

- NOTES:
1. ALL MATERIALS AND CONSTRUCTION METHODS TO MEET THE REQUIREMENTS OF PENNDOT PUBLICATION 408 AND 72-M (RC-34M), LATEST REVISION.

STRUCTURAL STEEL GRATE (BICYCLE SAFE)

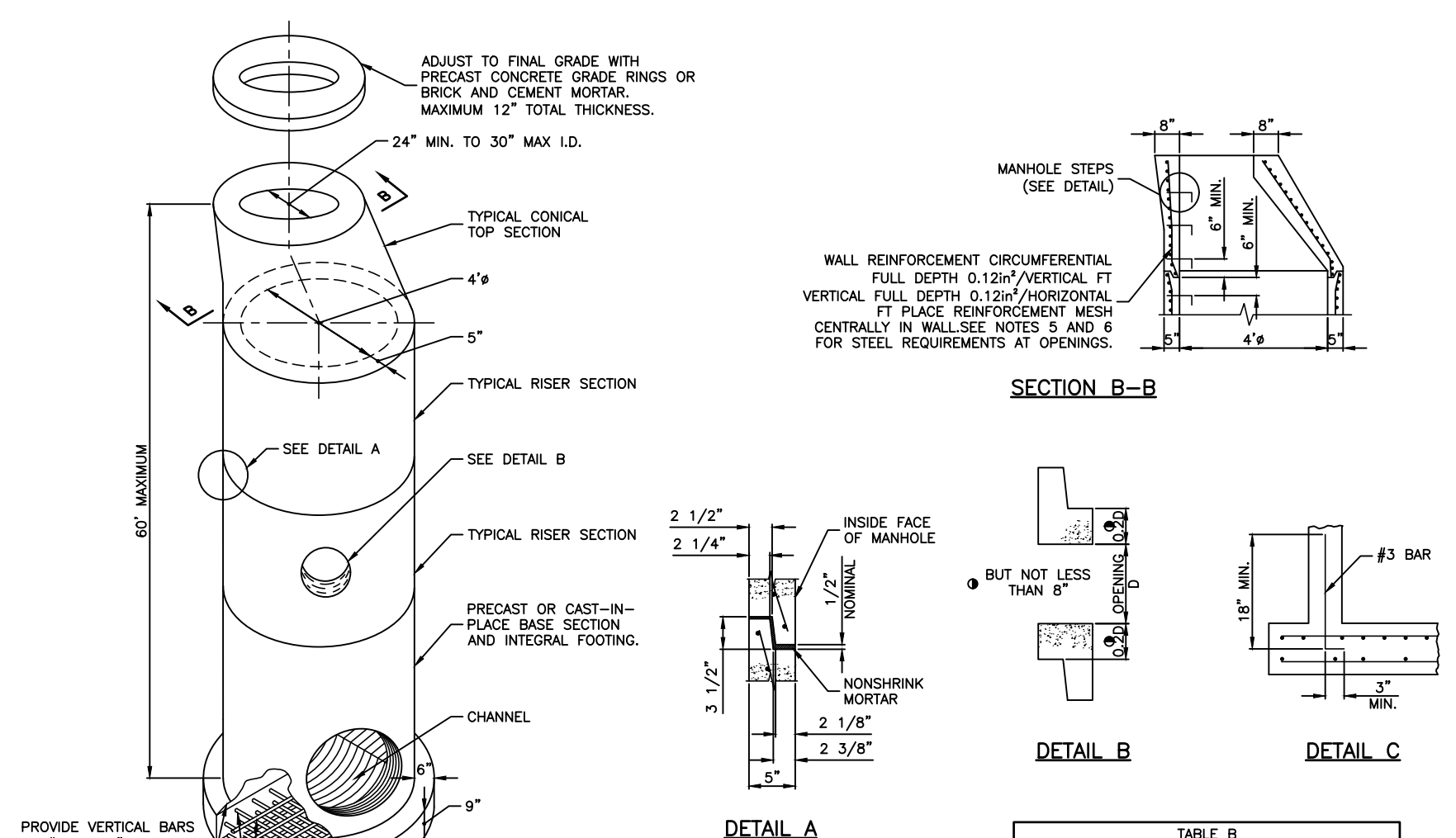


ISOMETRIC VIEW

INLET PAVING TAPER

- NOTES:
1. THE NUMBER OF ROWS AND LENGTH OF REBAR REQUIRED DEPENDS ON OPENINGS.
  2. REBAR TO COVER THE ENTIRE SIZE OF THE OPENING.
  3. TYPICAL FOR ALL OUTLET OPENING SHAPES (CIRCULAR SHOWN GRAPHICALLY).
  4. ALL MATERIAL TO BE EPOXY COATED.
  5. CHILD SAFETY GRATES SHALL BE PROVIDED ON ALL ENDWALLS. (SEE DETAIL).

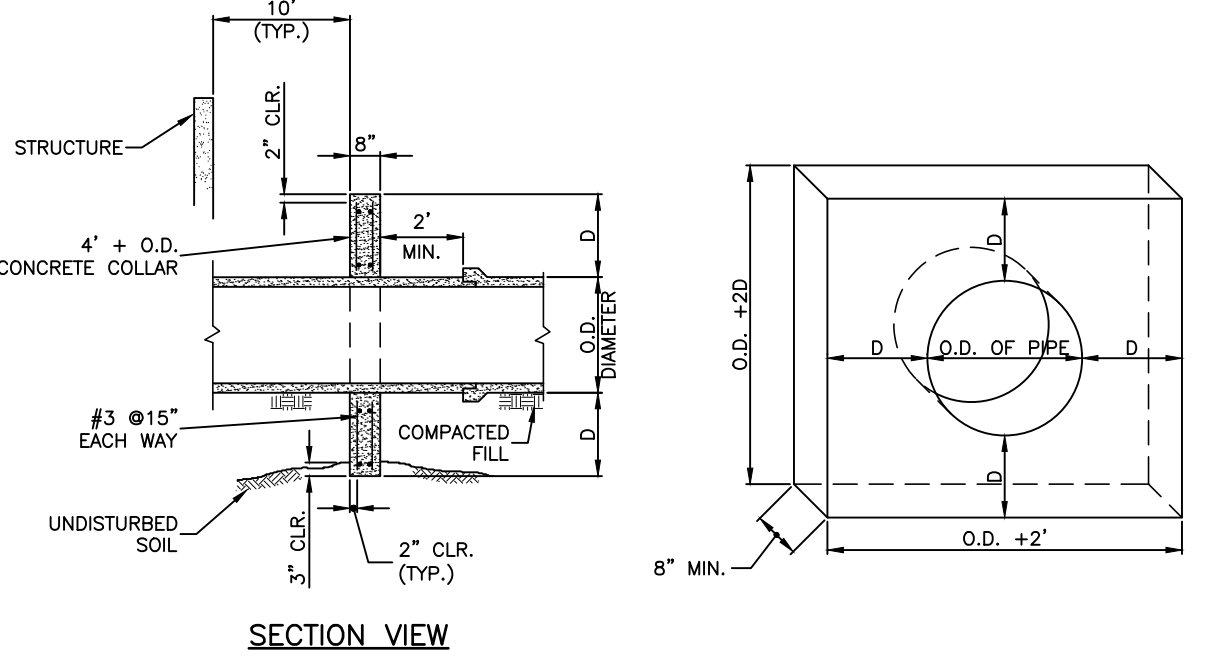
CHILD SAFETY GRATE



MANHOLE (PRECAST)

- NOTES:
1. PRECAST MANHOLES MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 714, MAY BE SUBSTITUTED FOR THE STANDARD CAST-IN-PLACE MANHOLE. FOR DEVIATION OR MODIFICATION OF THE STANDARDS, SUBMIT SHOP DRAWINGS FOR APPROVAL.
  2. FOR RISERS OR BASE SECTIONS WITH OPENINGS, PROVIDE A MINIMUM HEIGHT OF SECTION 50 AS TO PROVIDE AN UNCLUT WALL EQUAL TO 20% OF THE OPENING, BUT NO LESS THAN 4\"/>

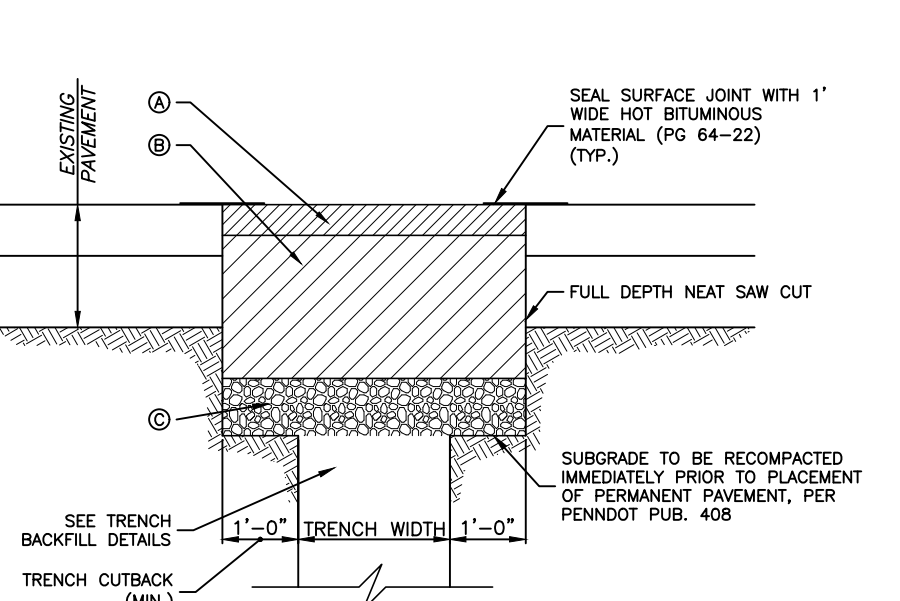
MANHOLE (PRECAST)



SECTION VIEW

- NOTES:
1. USE PENNDOT CLASS A CONCRETE.
  2. MAINTAIN A MINIMUM 6\"/>

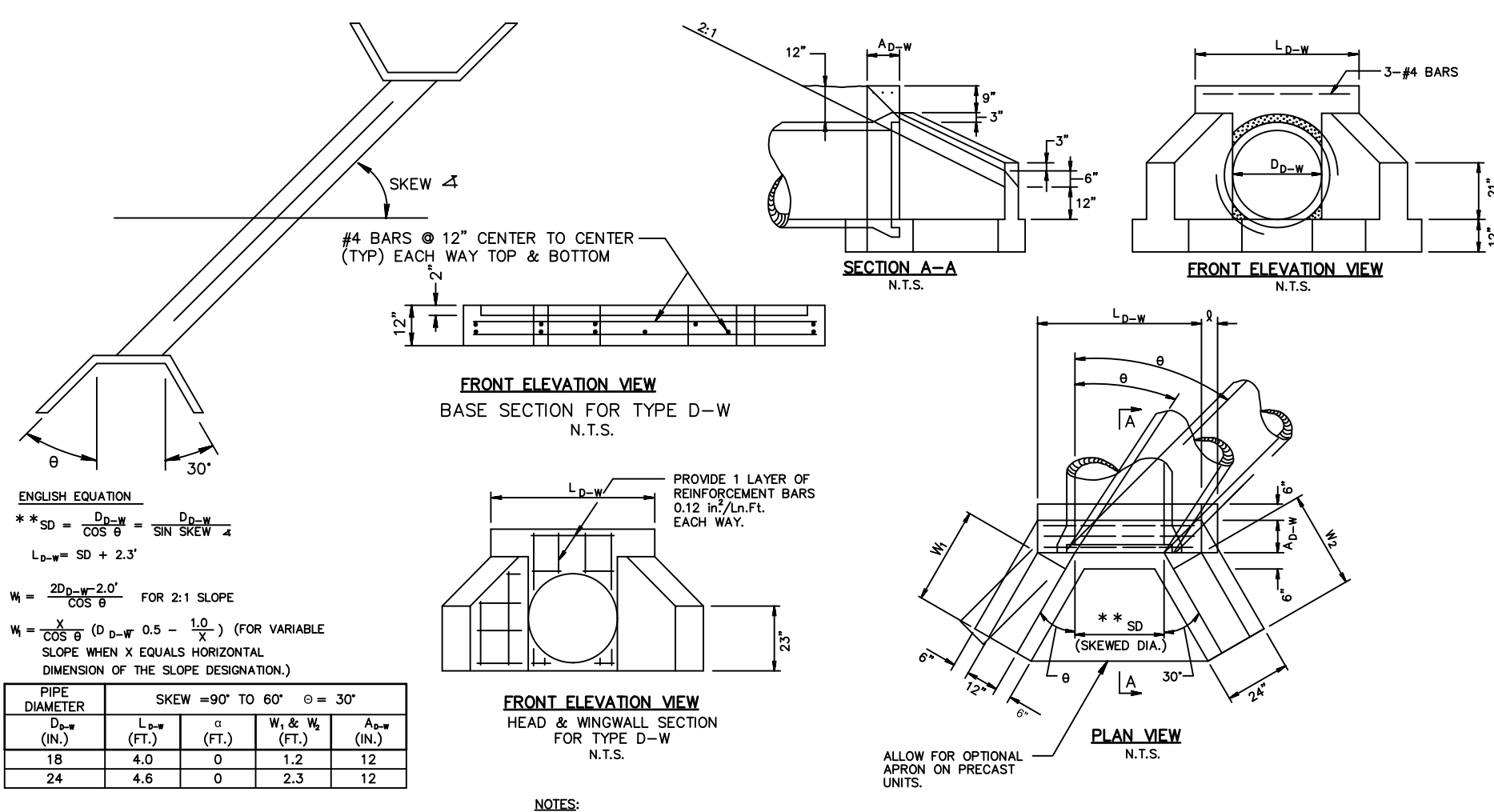
ANTI-SEEP COLLAR



- NOTES:
1. EXPOSED VERTICAL AND HORIZONTAL SURFACES SHALL BE PREPARED AS STATED IN PENNDOT PUB. 408, SECT. 401.3(1).
  2. TACK COAT MATERIAL SHALL BE APPLIED TO THE ENTIRE SURFACE PRIOR TO APPLICATION OF THE WEARING SURFACE UNLESS WAIVED BY PENNDOT.
  3. ALL MATERIAL AND CONSTRUCTION METHODS SHALL COMPLY WITH PENNDOT SPECIFICATIONS, PUBLICATION 408, LATEST REVISION.
  4. IF WORK OCCURRED WITHIN PENNDOT RIGHT OF WAY, SPECIAL CONDITIONS OF THE HIGHWAY OCCUPANCY PERMIT SHALL SUPERSEDE THIS DETAIL.
  5. REFER TO TYPICAL STREET CROSS SECTION FOR DESCRIPTIONS OF A,B,C AND D.

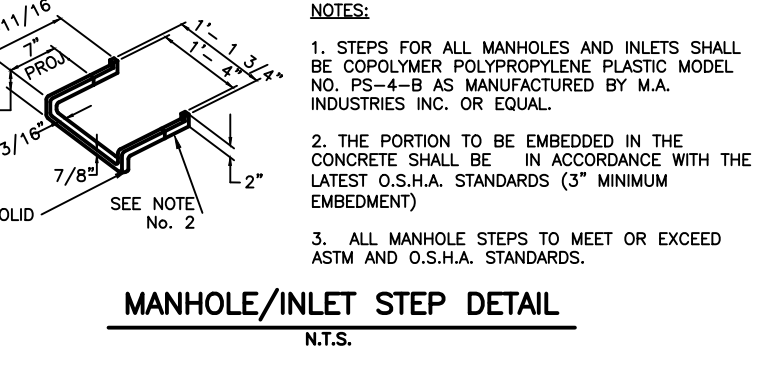
PAVEMENT RESTORATION (BITUMINOUS)

- Ⓐ SUPERPAVE ASPHALT MIXTURE DESIGN, HMA WEARING COURSE, PG 64-22, 0 TO <0.3 MILLION DESIGN ESALS, 9.5 MM MIXTURE, 1 1/2\"/>



TYPE D-W ENDWALL

- NOTES:
1. ALL MATERIALS AND CONSTRUCTION METHODS TO MEET THE REQUIREMENTS OF PENNDOT PUBLICATION 408 AND 72-M (RC-31M), LATEST REVISION.
  2. CHILD SAFETY GRATES SHALL BE PROVIDED ON ALL ENDWALLS.



MANHOLE/INLET STEP DETAIL

- NOTES:
1. STEPS FOR ALL MANHOLES AND INLETS SHALL BE COPOLYMER POLYPROPYLENE PLASTIC MODEL, NO. PS-4-B AS MANUFACTURED BY M.A. INDUSTRIES, INC. OR EQUAL.
  2. THE PORTION TO BE EMBEDDED IN THE CONCRETE SHALL BE IN ACCORDANCE WITH THE LATEST O.S.H.A. STANDARDS (3\"/>

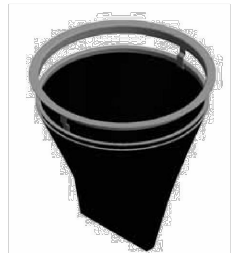
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 PLOTTING METHOD: PLOT  
 USER: C:\Users\jcsoranzo  
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88 FLEXSTORM

**FLEXSTORM®**  
**INLET FILTERS**  
 FLEXSTORM PURE (PERMANENT) FILTERS  
 (OR APPROVED EQUAL)

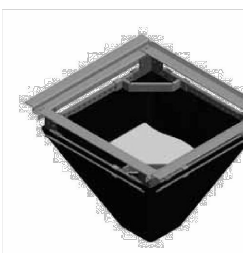
**FILTERS FOR ROUND FRAMES/GRATES\***

Sizing Guidelines (Opening diameter up to)	Storage Capacity (ft <sup>3</sup> (m <sup>3</sup> ))	FX-Large Sediment + Trash	FX+ Trash + Oils	PC-Oils, Fine Sediments & TSS	PC+ Excessive Oils, Fine Sediments & TSS
18" (450 mm)	1.6 (0.05)	62SHDRFX	62SHDRFXP	62SHDRPC	62SHDRPCP
24" (600 mm)	2.1 (0.06)	62MHDRFX	62MHDRFXP	62MHDRPC	62MHDRPCP
36" (900 mm)	3.8 (0.11)	62LHDRFX	62LHDRFXP	62LHDRPC	62LHDRPCP
42" (1050 mm)	4.2 (0.12)	62XLHDRFX	62XLHDRFXP	62XLHDRPC	62XLHDRPCP



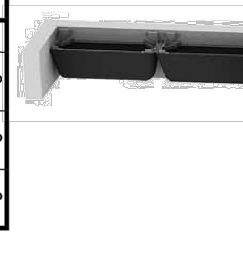
**FILTERS FOR RECTANGULAR/SQUARE FRAMES/GRATES\***

Sizing Guidelines (Up to)	Storage Capacity (ft <sup>3</sup> (m <sup>3</sup> ))	FX-Large Sediment + Trash	FX+ Trash + Oils	PC-Oils, Fine Sediments & TSS	PC+ Excessive Oils, Fine Sediments & TSS
18" x 18" (400 x 400 mm)	1.6 (0.05)	62SHDFX	62SHDFXP	62SHDFPC	62SHDFPCP
24" x 24" (600 x 600 mm)	2.1 (0.06)	62MHDFX	62MHDFXP	62MHDFPC	62MHDFPCP
36" x 24" (900 x 600 mm)	3.8 (0.11)	62LHDFX	62LHDFXP	62LHDFPC	62LHDFPCP
48" x 48" (1200 x 1200 mm)	6.6 (0.18)	62XLHDFX	62XLHDFXP	62XLHDFPC	62XLHDFPCP

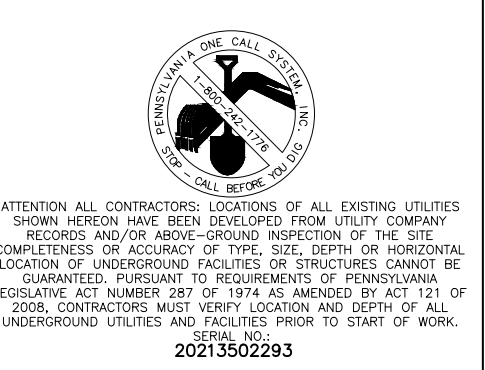


**FILTERS FOR OPEN TROUGH CURB INLETS**

Sizing Guidelines	Storage Capacity (ft <sup>3</sup> (m <sup>3</sup> ))	FX-Large Sediment + Trash	FX+ Trash + Oils	PC-Oils, Fine Sediments & TSS	PC+ Excessive Oils, Fine Sediments & TSS
Up to 4' (1.2 m)	3.3 (0.09)	6HDWM1FX	6HDWM1FXP	6HDWM1PC	6HDWM1PCP
Between 4' & 8' (1.2 & 2.4 m)	6.6 (0.18)	6HDWM2FX	6HDWM2FXP	6HDWM2PC	6HDWM2PCP
Between 8' & 12' (2.4 & 3.7 m)	9.9 (0.28)	6HDWM3FX	6HDWM3FXP	6HDWM3PC	6HDWM3PCP
Between 12' & 16' (3.6 m & 4.9 m)	13.2 (0.37)	6HDWM4FX	6HDWM4FXP	6HDWM4PC	6HDWM4PCP

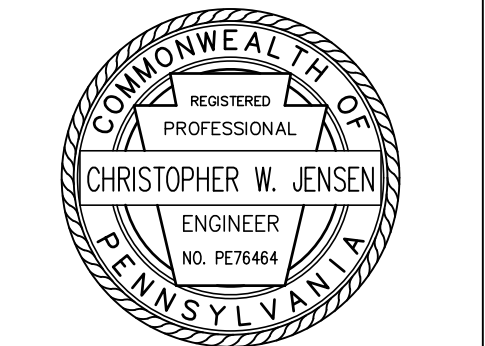


\*Custom sizes and bag depths available. Typical depth is 22" (550 mm).



NO.	DATE	REVISIONS	BY	CHKD
3	11/17/2023	PER O/S REVIEW LETTER DATED 11/22/2022	PRG DS	
2	4/3/2023	REVISED ENTRANCE ON GERMANTOWN PIKE	PRG DS	
1	10/04/2022	PER O/S REVIEW LETTER DATED 03/11/2022	PRG DS	

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



4/3/2023  
 LICENSED PROFESSIONAL ENGINEER  
 STATE OF PA LICENSE NO. PD076464

BT WORCESTER, LLC  
 CITY VIEW - APN #67-00-01606-001  
 2974 GERMANTOWN PIKE, WORCESTER TOWNSHIP,  
 MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA



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

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 OHIO AND PENNSYLVANIA

DESIGNED BY CGG/JPK/RDP	DRAWING DET-6
CHECKED BY DS	SHEET
DRAWN BY PG/SR/RDP	25
DATE 1/27/22	OF 34
SCALE AS NOTED	
PROJ. NO. BETH00056	

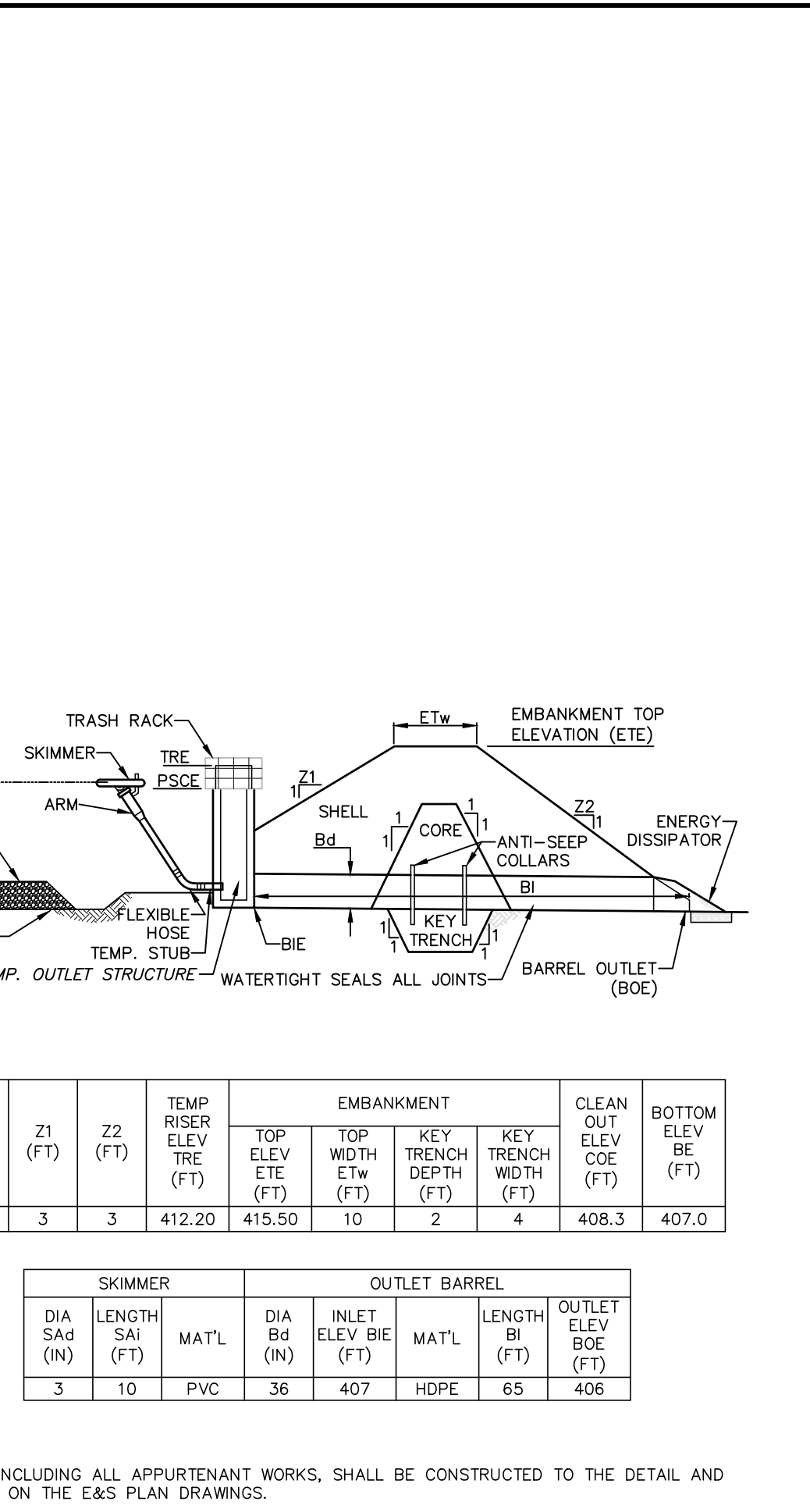
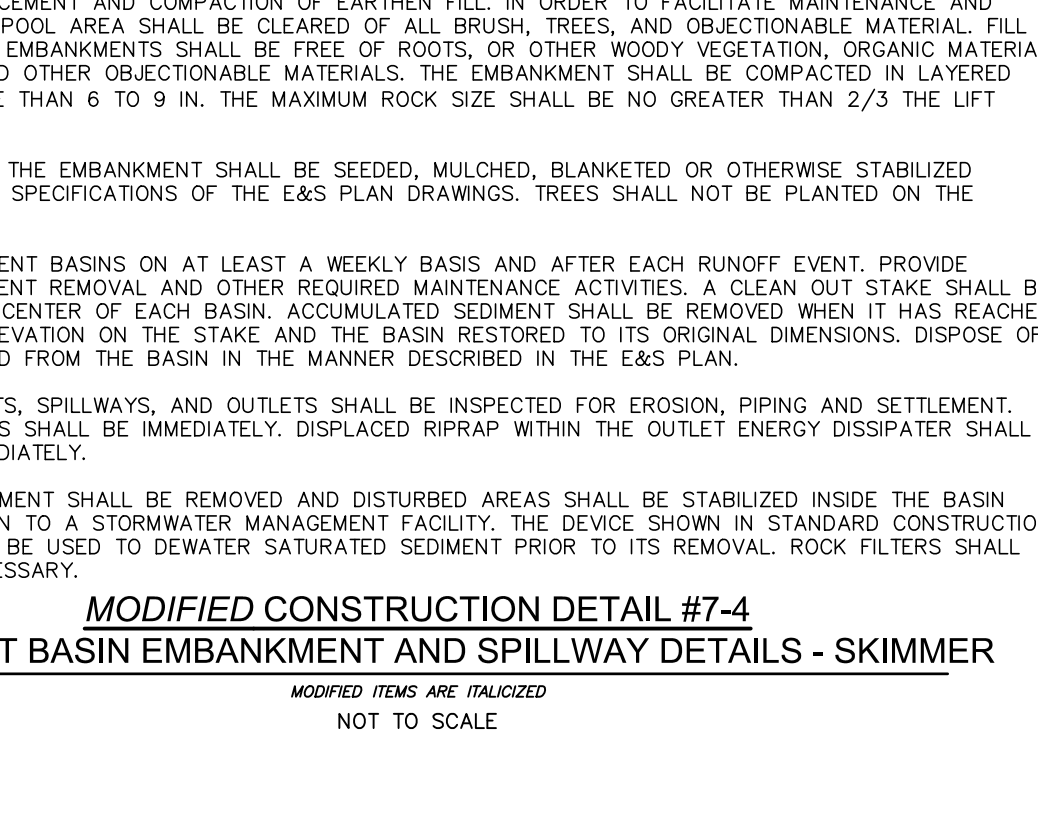
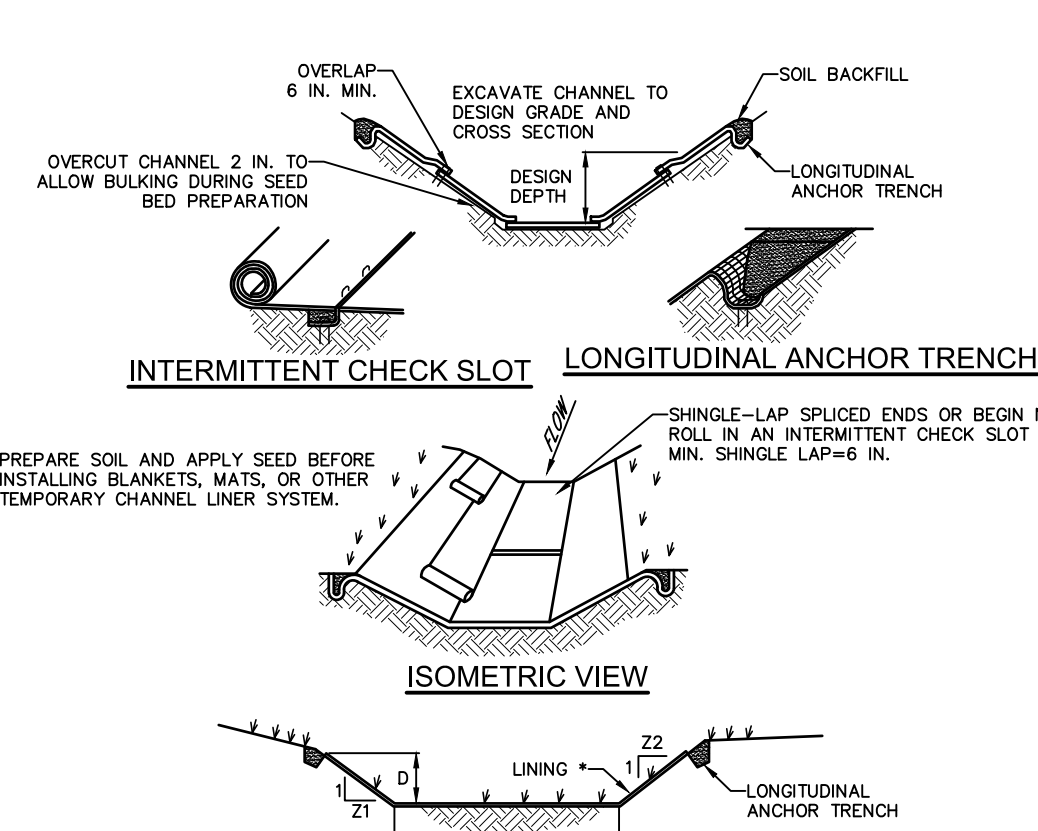
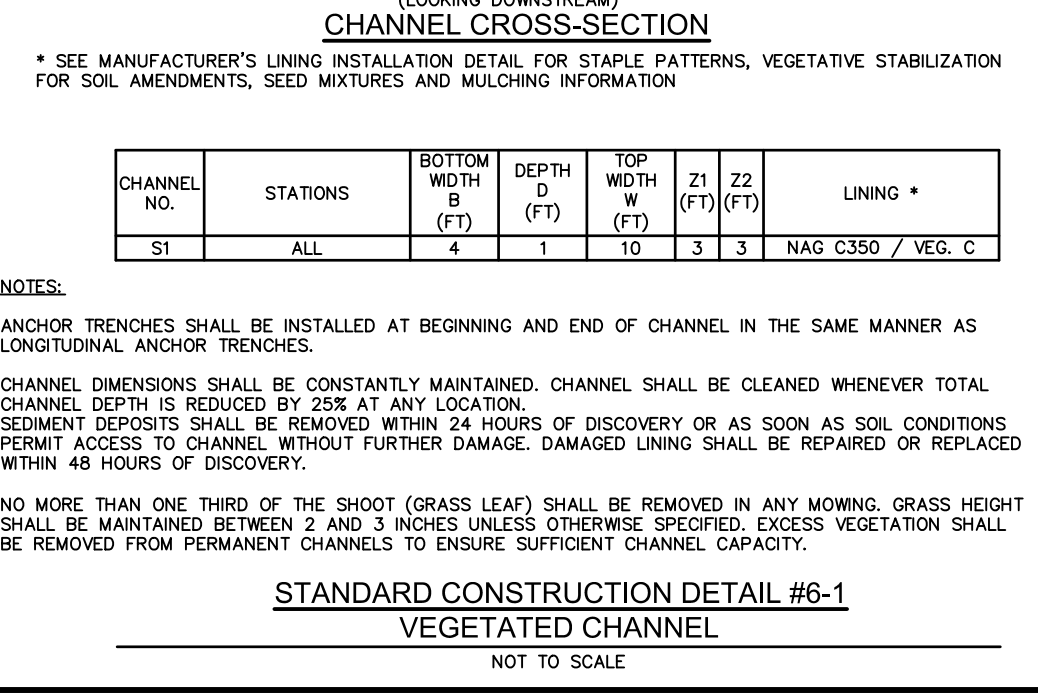
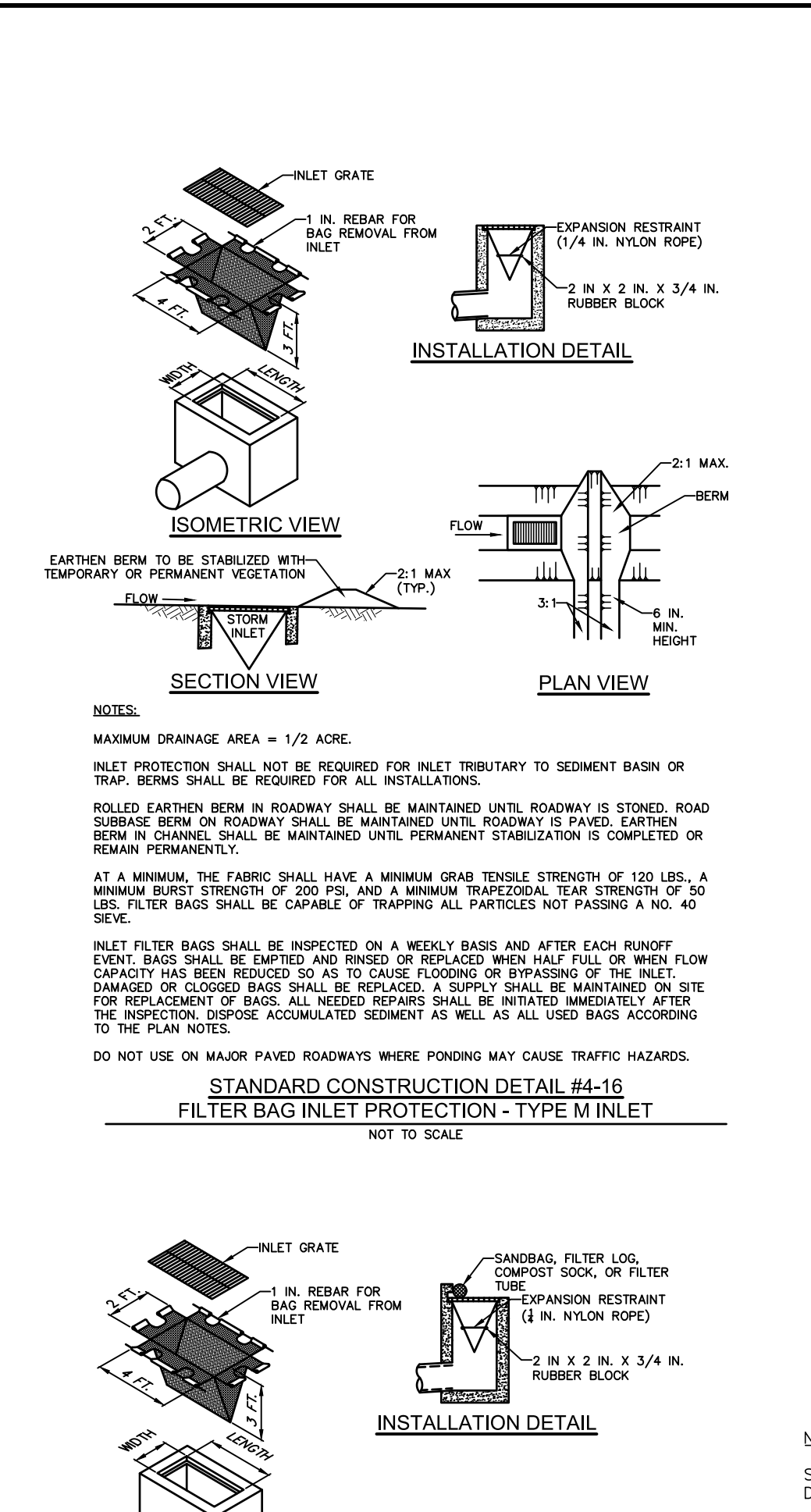
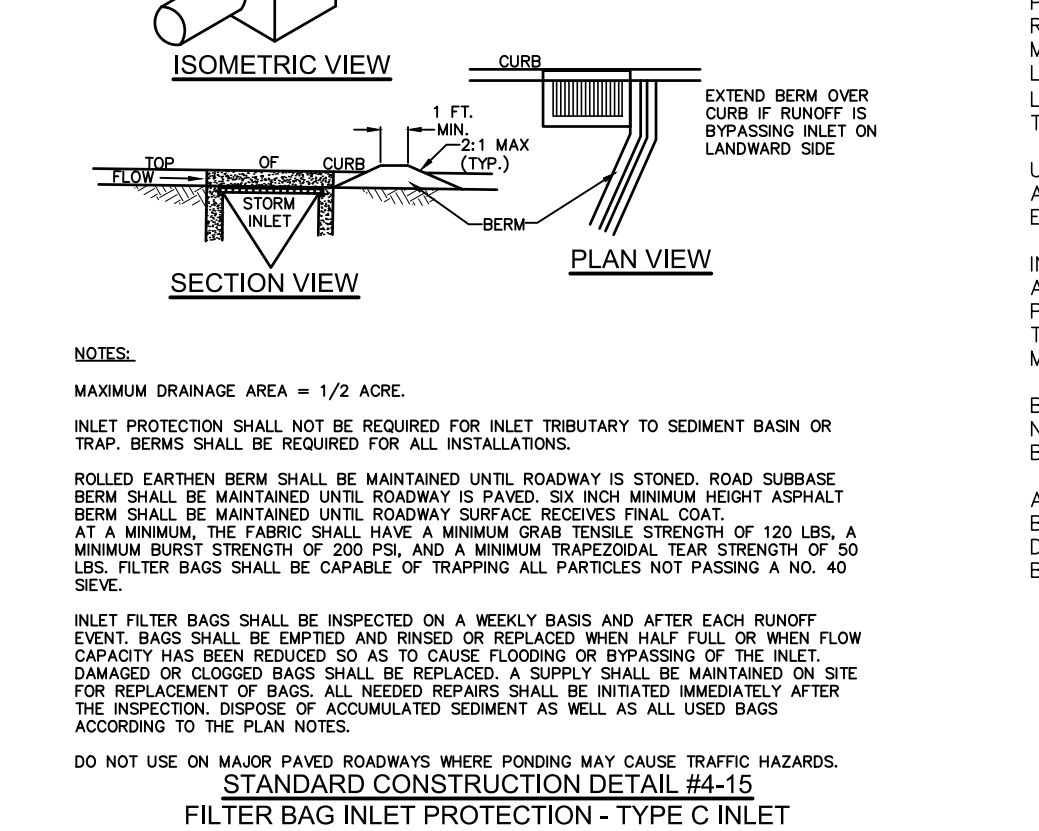
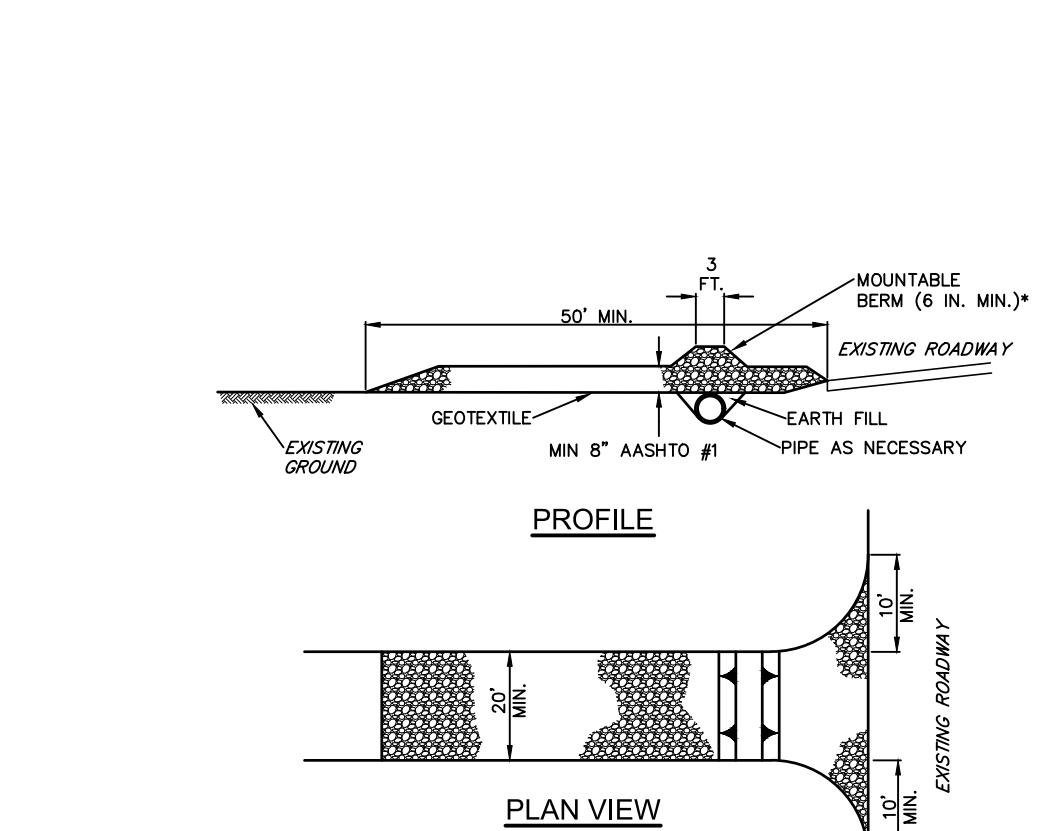
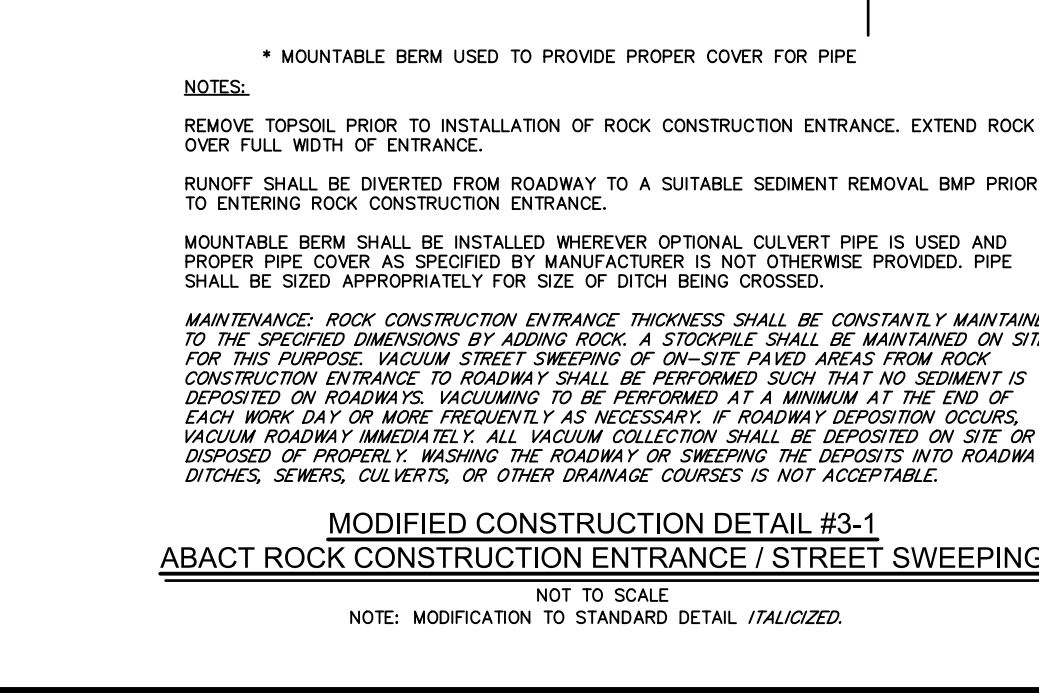
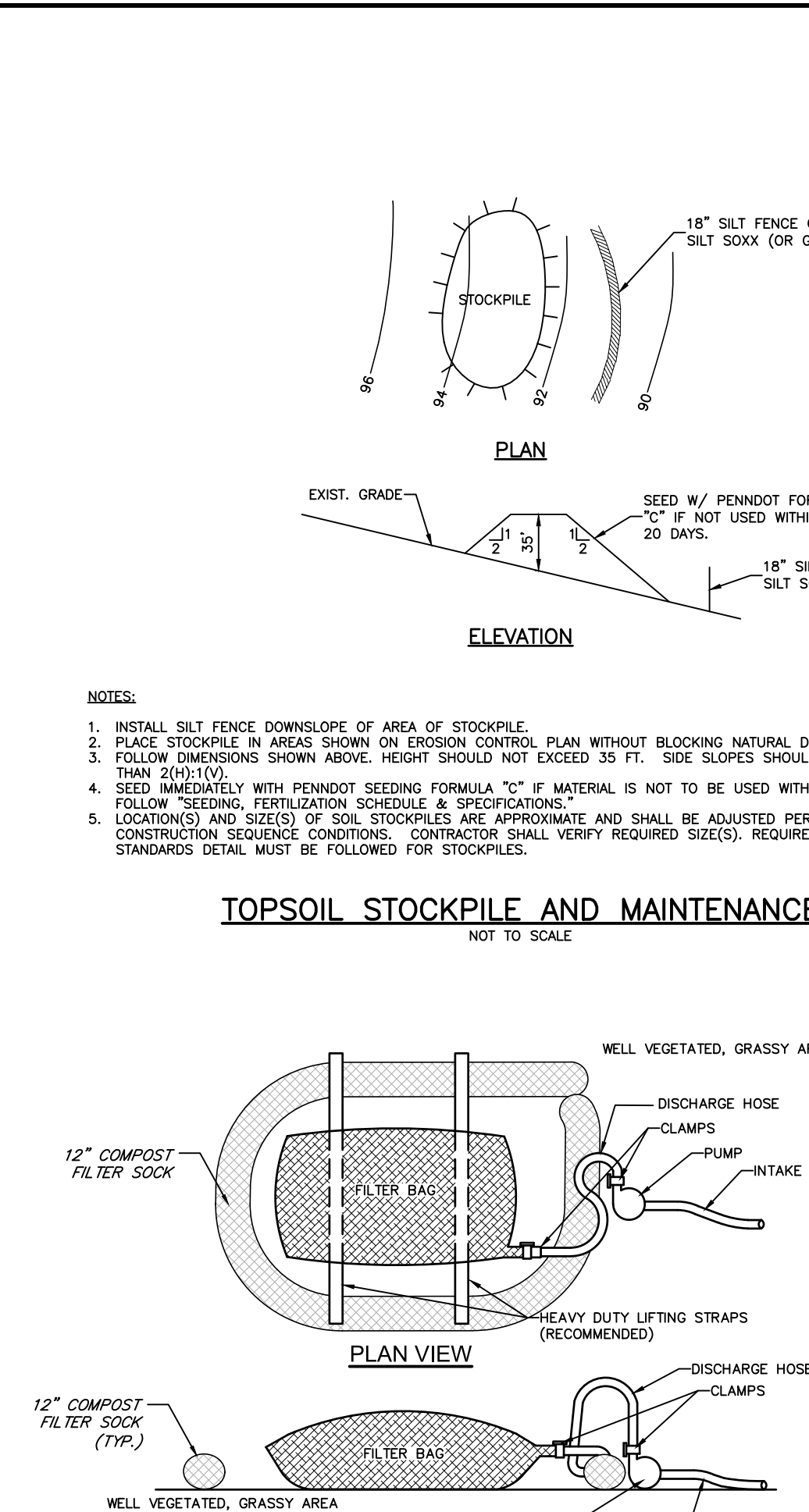
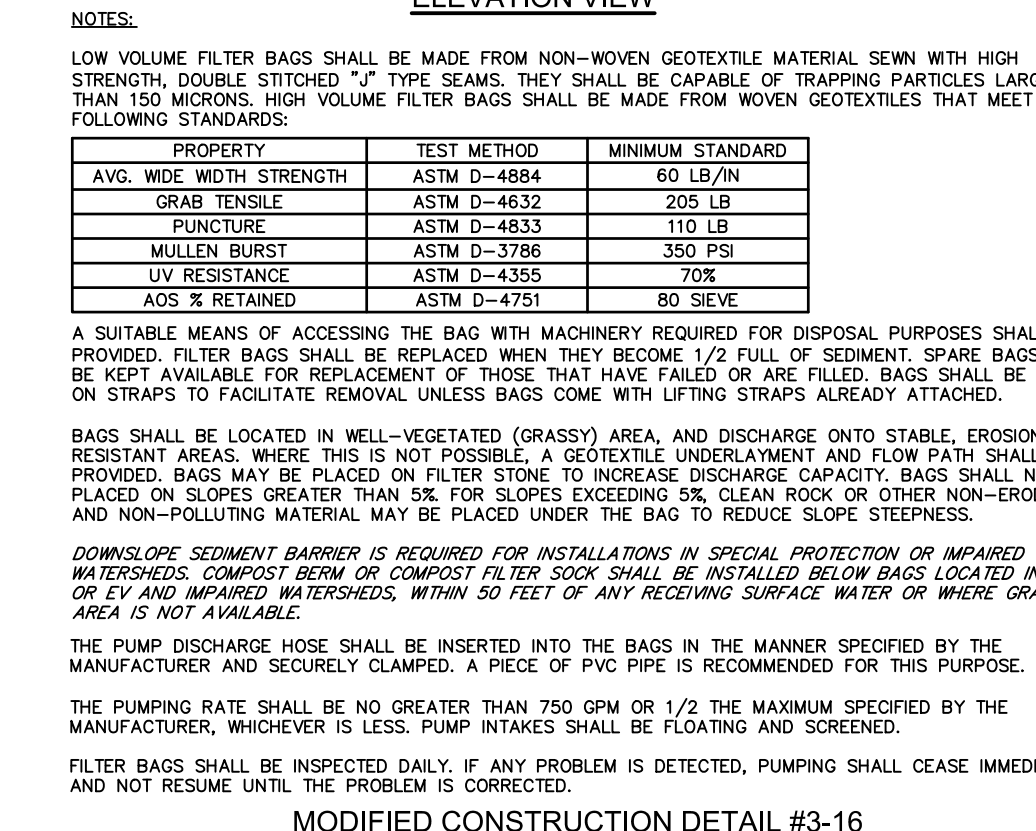
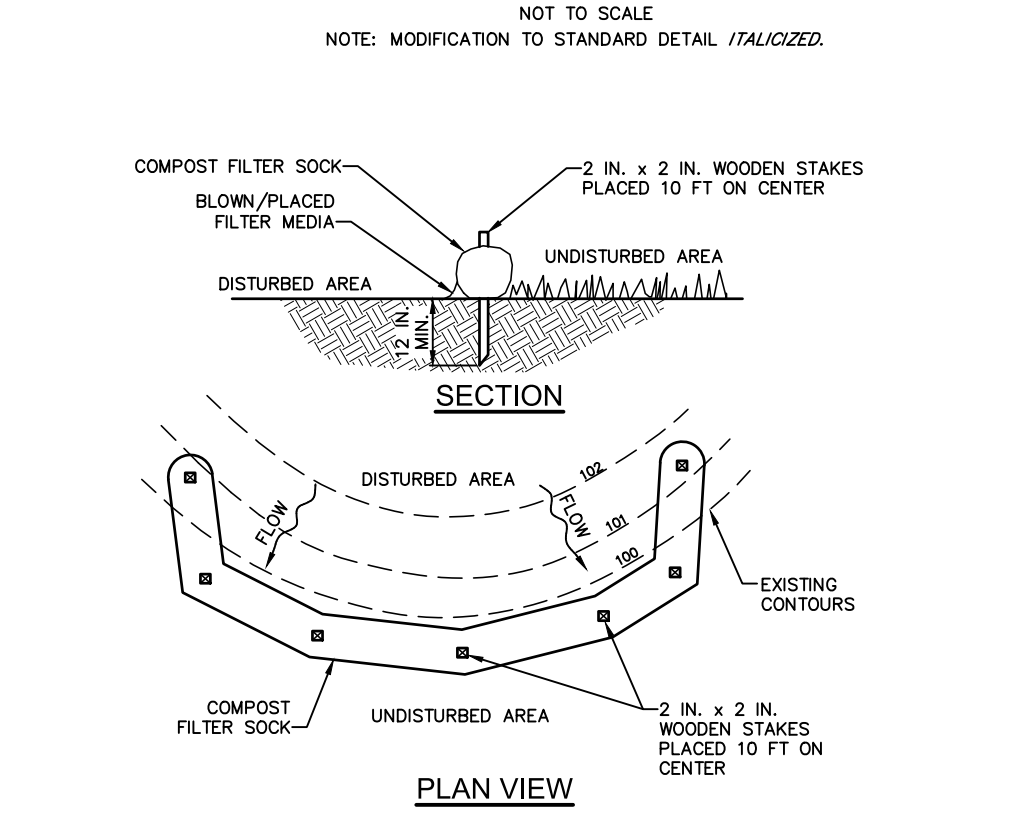
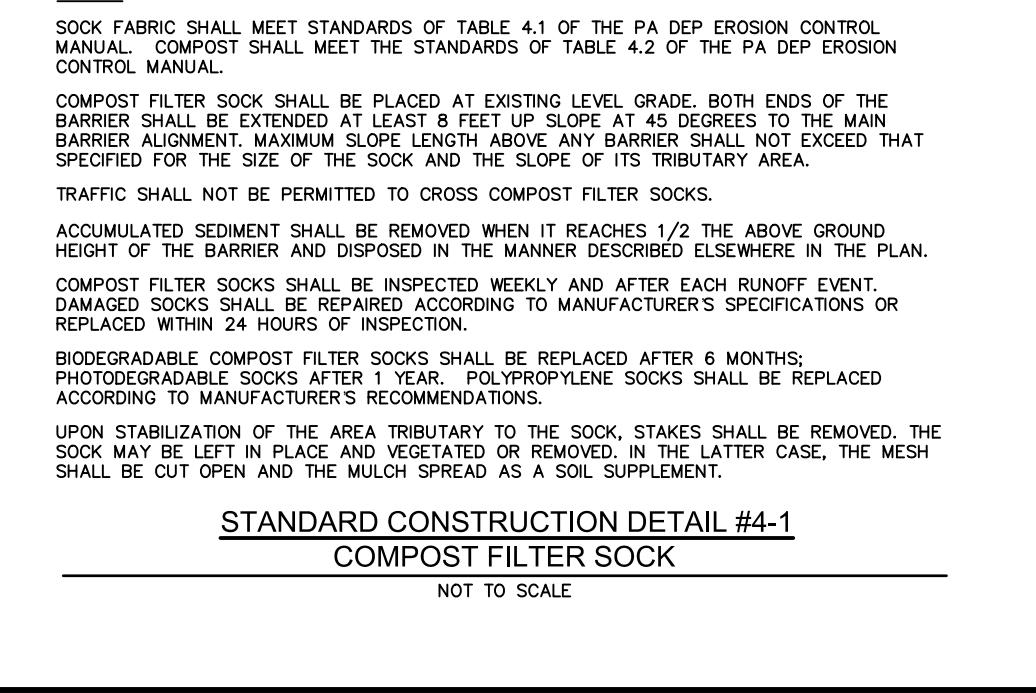
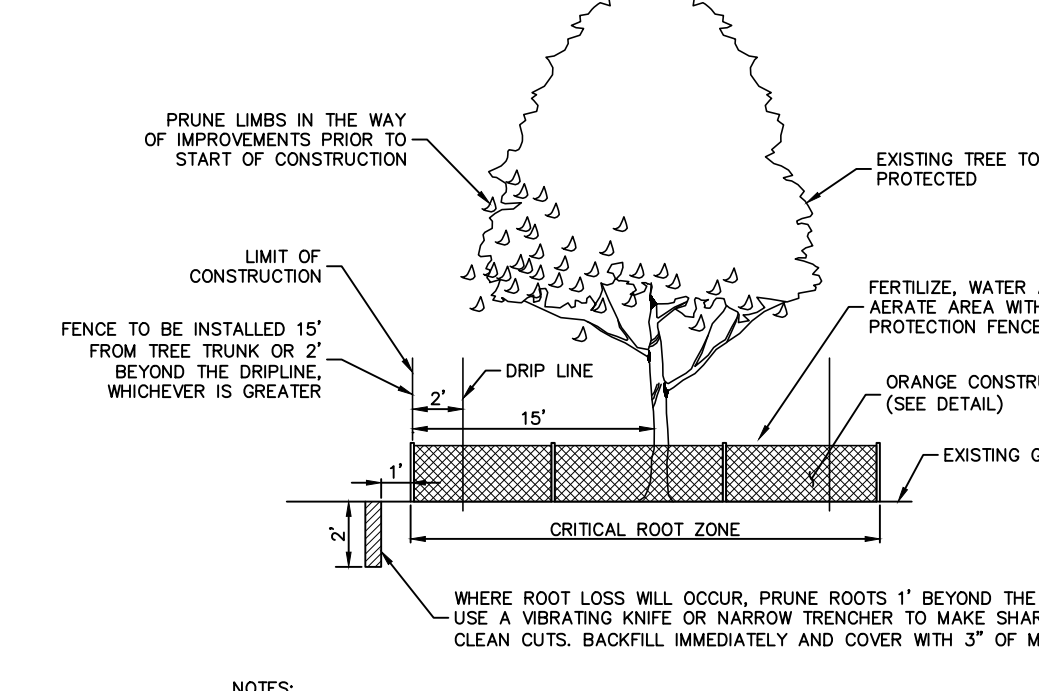
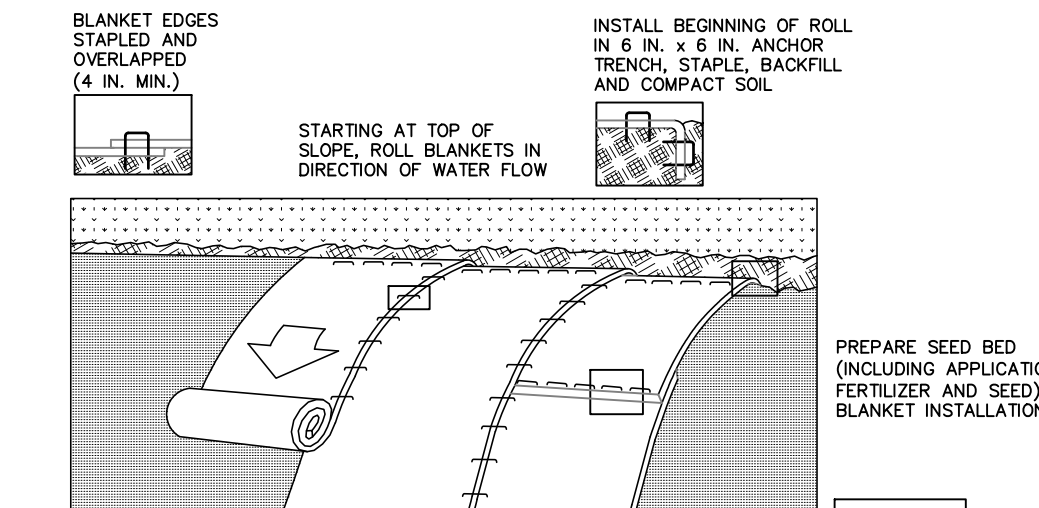
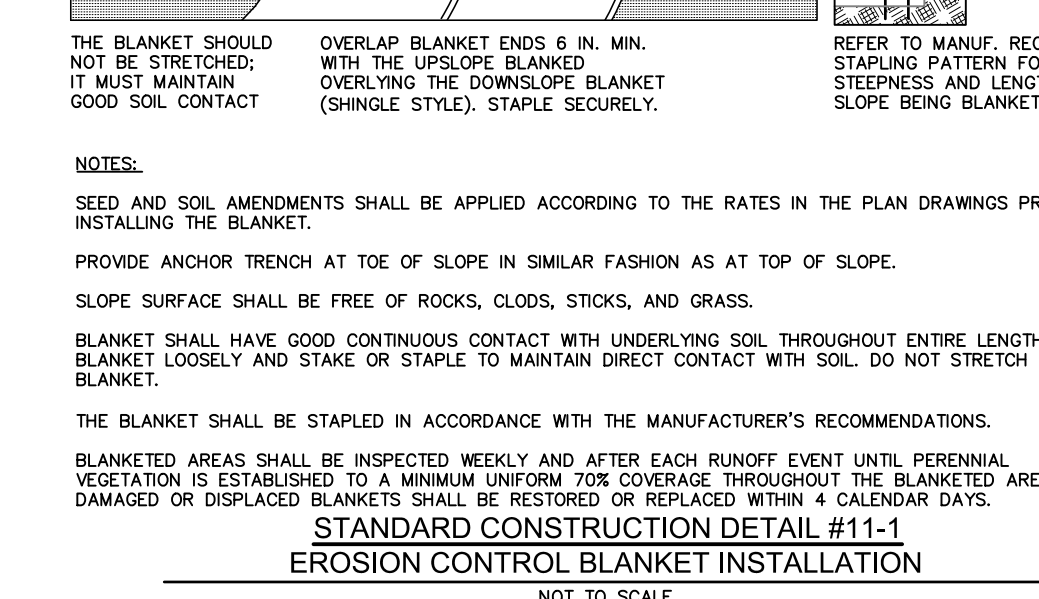
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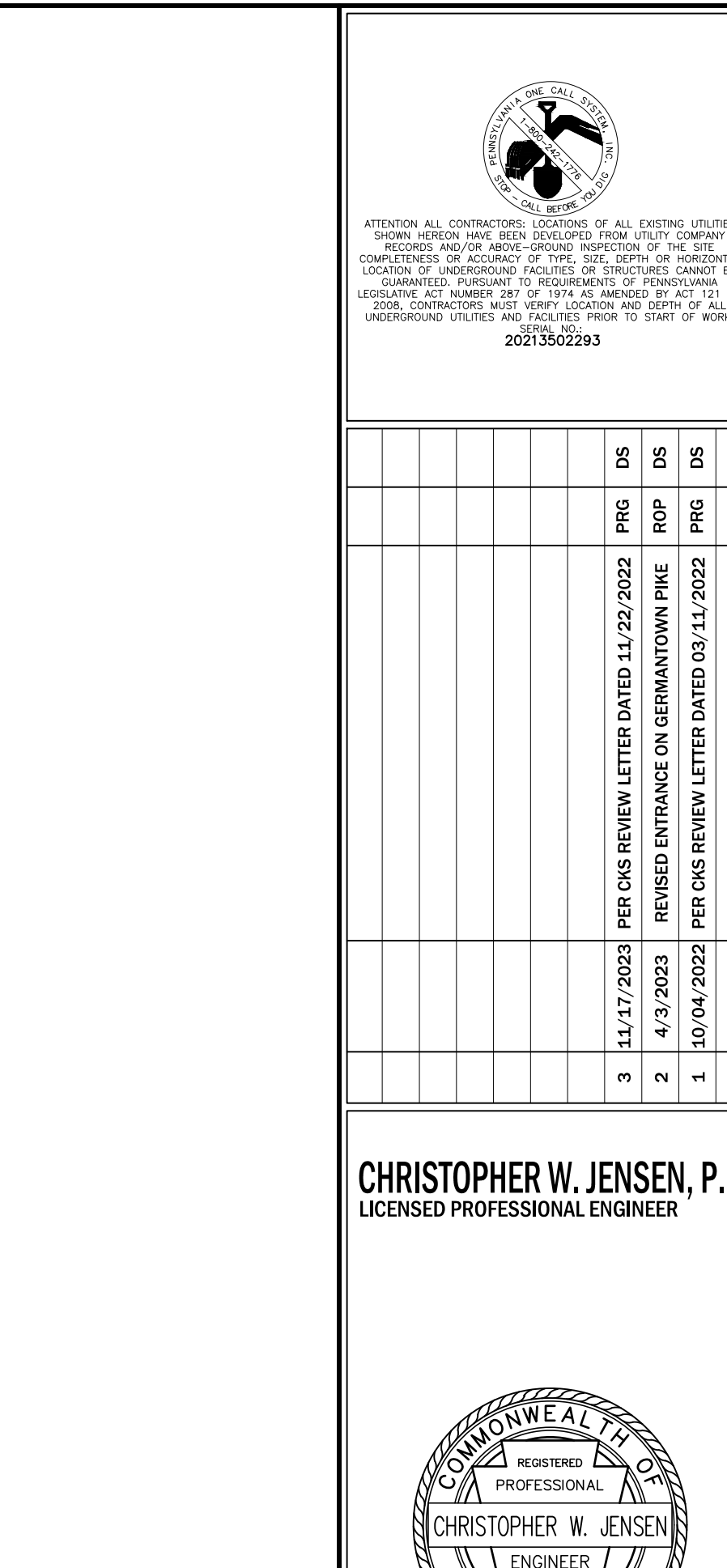
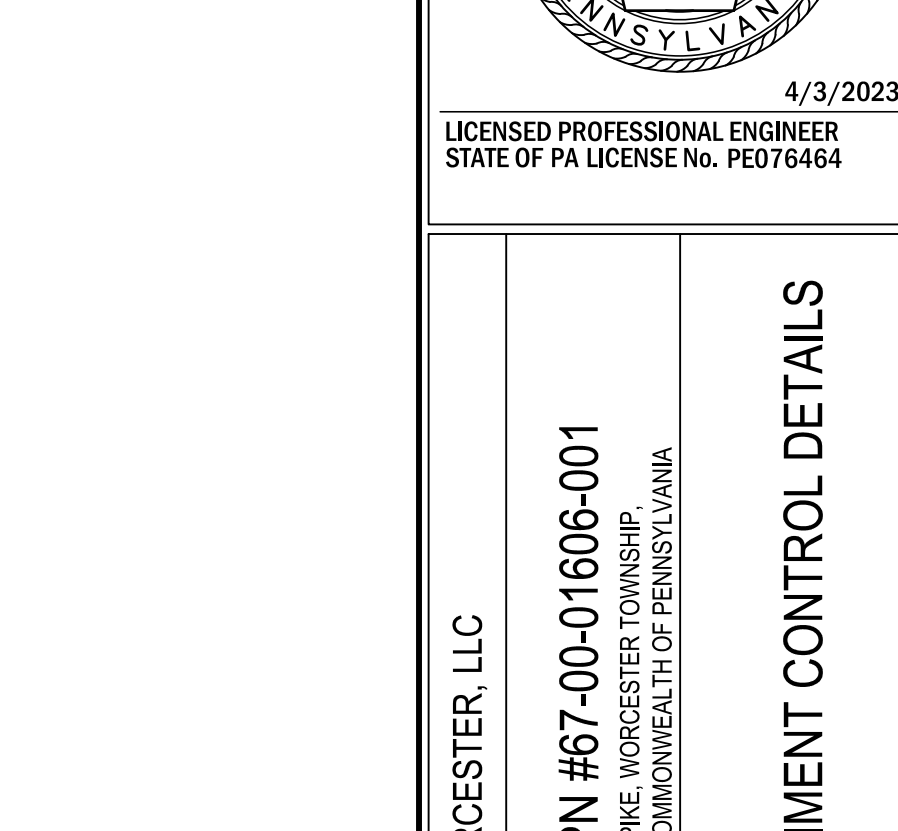
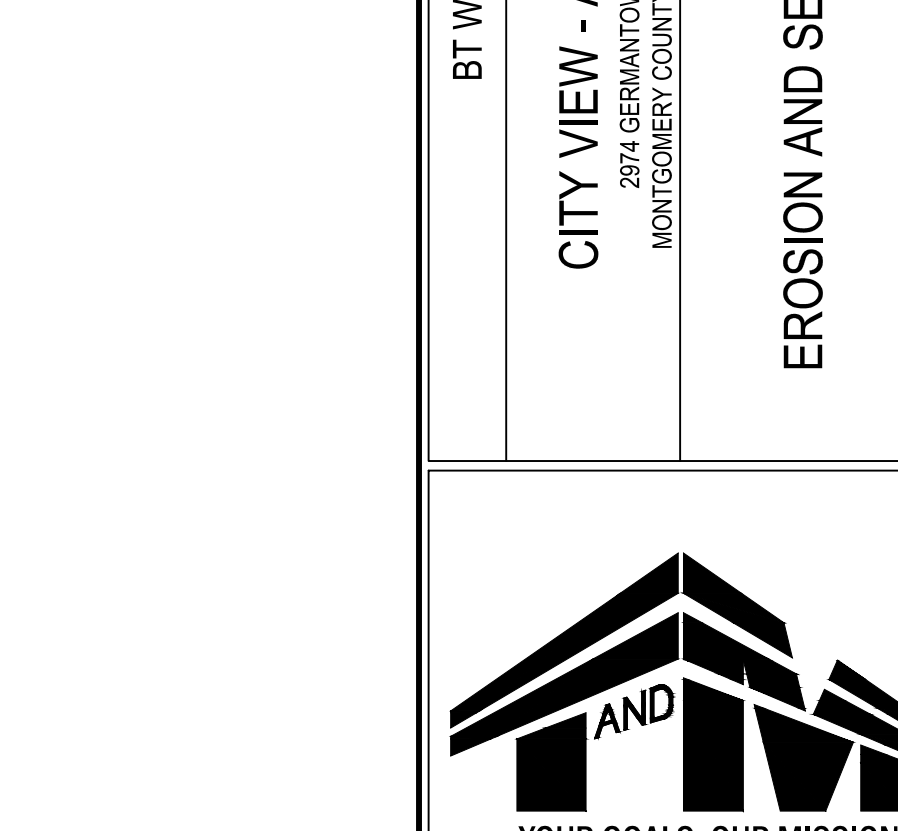
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SOCK NO.	DIAMETER (in.)	LOCATION	SLOPE (%)	SLOPE LENGTH ABOVE BARRIER (ft.)
1	12	SEE ESC PLANS	33.0	15
2	12	SEE ESC PLANS	33.0	19
3	12	SEE ESC PLANS	33.0	30
4	12	SEE ESC PLANS	33.0	26
5	12	SEE ESC PLANS	33.0	21
6	12	SEE ESC PLANS	33.0	26
7	12	SEE ESC PLANS	33.0	34
8	12	SEE ESC PLANS	33.0	38
9	12	SEE ESC PLANS	33.0	33
10	18	SEE ESC PLANS	33.0	50
11	18	SEE ESC PLANS	33.0	60
12	18	SEE ESC PLANS	33.0	54
13	18	SEE ESC PLANS	33.0	63
14	18	SEE ESC PLANS	33.0	55
15	12	SEE ESC PLANS	33.0	15
16	12	SEE ESC PLANS	33.0	15
17	12	SEE ESC PLANS	33.0	17
18	18	SEE ESC PLANS	33.0	50
19	18	SEE ESC PLANS	33.0	50
20	18	SEE ESC PLANS	33.0	41
21	18	SEE ESC PLANS	33.0	41
22	12	SEE ESC PLANS	33.0	35
23	24	SEE ESC PLANS	33.0	83
24	12	SEE ESC PLANS	33.0	30
25	12	SEE ESC PLANS	33.0	35



CHANNEL NO.	STATIONS	BOTTOM WIDTH (FT)	DEPTH (FT)	TOP WIDTH (FT)	Z1 (FT)	Z2 (FT)	LINING
S1	ALL	4	1	10	3	3	HAG C350 / VEG. C



DESIGNED BY: CCG/JPK/RDP  
 CHECKED BY: DS  
 DRAWN BY: PG/SR/RDP  
 DATE: 1/27/22  
 SCALE: AS NOTED  
 PROJ. NO.: BET00056

DRAWING: DET-7  
 SHEET: 26  
 OF 34

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 2074 GERMAN TOWN PIKE, WORCESTER TOWNSHIP,  
 MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

EROSION AND SEDIMENT CONTROL DETAILS

CHRISTOPHER W. JENSEN, P.E.  
 LICENSED PROFESSIONAL ENGINEER  
 STATE OF PA LICENSE NO. PED76464

REGISTERED PROFESSIONAL ENGINEER  
 ENGINEER NO. PC76464  
 PENNSYLVANIA

4/3/2023

NO.	DATE	REVISIONS	BY	CHKD
1	10/04/2022	PER GIS REVIEW LETTER DATED 03/11/2022	PRG	DS
2	4/3/2023	REVISED ENTRANCE ON GERMAN TOWN PIKE	PRG	DS
3	11/17/2023	PER GIS REVIEW LETTER DATED 11/22/2022	PRG	DS

ATTENTION: ALL CONSTRUCTION LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN OBTAINED FROM UTILITY COMPANIES RECORDS AND/OR ABOVE-GROUND SURVEYS OF THE PROJECT. THE LOCATION, DEPTH AND DIMENSIONS OF UTILITIES SHOWN ON THIS DRAWING ARE APPROXIMATE AND SHOULD BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES AND AUTHORITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES AND AUTHORITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES AND AUTHORITIES.

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**GENERAL EROSION & SEDIMENT CONTROL PROCEDURES**

1. ALL EARTH DISTURBANCES INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED ERS PLAN PREPARED BY T&M ASSOCIATES. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.

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

3. AT LEAST THREE (3) DAYS PRIOR TO THE START OF ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING GRUBBING AND GRUBBING, UNMARKED, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (PA DEP) OF THE LOCATION OF EXISTING UNDERGROUND UTILITIES. THE LOCATION OF EXISTING UNDERGROUND UTILITIES SHALL BE DETERMINED BY THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (PA DEP) PRIOR TO THE START OF ANY EARTH DISTURBANCE ACTIVITIES.

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

5. AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, ROOTS, AND OTHER OBSTRUCTION MATERIAL.

6. CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE ERS BMPs SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS ERS PLAN.

7. AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS UNLESS REQUIRED TO MINIMIZE DISTURBANCE.

8. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN IN THE AMOUNTS NECESSARY TO COMPLETE THE VEGETATION SEQUENCE. STOCKPILES THAT ARE TO BE STABILIZED BY VEGETATION, TOPSOIL SHALL CONTAIN ABOUT 4.0% TO 6.0% MORE SPREAD AND BROADCAST SEEDS AND MULCH THAN REQUIRED (ON THIS SHEET) OVER THE APPROPRIATE QUANTITIES OF TOPSOIL FOR VEGETATION. STOCKPILES SHALL BE COVERED WITH A MINIMUM OF 2" OF MULCH ON THE PLAN DRAWINGS. STOCKPILE HEIGHTS SHALL NOT EXCEED 35 FEET. STOCKPILE SLOPES SHALL BE 2:1 OR FLATTER.

9. IMMEDIATELY UPON COMPLETION OF ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING GRUBBING AND GRUBBING, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND TO MAINTAIN THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND TO MAINTAIN THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION.

10. ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND RECYCLED OR DISPOSED IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT PROGRAM. CONSTRUCTION DEBRIS SHALL BE STORED IN A SECURE AREA AND SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND RECYCLED OR DISPOSED IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT PROGRAM.

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

12. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON SITE IS CERTIFIED CLEAN FILL FROM EITHER A QUARRY OR A SOURCE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN FILL DUE TO ANALYTICAL TESTING.

13. ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE IN A MANNER DESCRIBED ON THE PLAN DRAWINGS. THE CONTRACTOR SHALL MAINTAIN VEGETATION AND VEGETATED AREAS. ALL PUMPING OF SEWAGE LAIDEN WATER SHALL BE THROUGH A SEDIMENT CONTROL STRUCTURE SUCH AS A PUMPED WATER FILTER BAG DISCHARGING OVER NON-DISTURBED AREAS.

14. VEHICLES AND EQUIPMENT MAY NEVER ENTER DIRECTLY NOR EXIT DIRECTLY FROM THE CONSTRUCTION SITE ONTO ANY PUBLIC ROAD. VEHICLES AND EQUIPMENT MAY ENTER AND EXIT THE CONSTRUCTION SITE ONLY VIA A STABILIZED ROAD CONSTRUCTION ENTRANCE.

15. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPs SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPs AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. THE CONTRACTOR WILL MAINTAIN AND MAKE AVAILABLE TO MONTGOMERY COUNTY CONSERVATION DISTRICT COMPLETE, WRITTEN INSPECTION LOGS OF ALL THOSE INSPECTIONS AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING, MUST BE PERFORMED IMMEDIATELY. IF THE ERS BMPs FAIL TO PERFORM AS EXPECTED, REGRADING, RESEEDING, REMULCHING OR MODIFICATIONS TO THOSE INSTALLED SHALL BE REQUIRED.

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

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

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

19. UPON FINAL GRADING, AREAS WHICH ARE TO BE TOPSOILED SHALL BE SEAMED TO A MINIMUM DEPTH OF 2 TO 3 INCHES. 4 TO 12 INCHES ON COMPACTED SOILS - PRIOR TO PLACEMENT OF TOPSOIL, AREAS TO BE VEGETATED SHALL HAVE A MINIMUM FOUR (4) INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTLETS SHALL HAVE A MINIMUM OF A INCHES OF TOPSOIL.

20. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REACH A MINIMUM OF 95% RELATIVE COMPACTION. ALL FILLS SHALL BE COMPACTED TO THE DEPTHS AND SPECIFICATIONS SET FORTH IN THE ERS PLAN. ALL FILLS SHALL BE COMPACTED TO THE DEPTHS AND SPECIFICATIONS SET FORTH IN THE ERS PLAN.

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

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

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

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

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

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

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

28. EROSION AND SEDIMENT CONTROLS (BMPs) MUST BE CONSTRUCTED, STABILIZED AND FUNCTIONAL BEFORE GENERAL SITE DISTURBANCE BEGINS WITHIN THE TRI-BUTARY AREAS OF THOSE CONTROLS. EROSION AND SEDIMENT BMPs SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY OTHER EROSION AND SEDIMENT CONTROL MEASURES APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.

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

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

31. FAILURE TO CORRECTLY INSTALL SEDIMENT CONTROL FACILITIES OR FAILURE TO MAINTAIN THEM AS REQUIRED SHALL BE CONSIDERED A VIOLATION OF THIS PLAN. FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURES OF EROSION AND SEDIMENT CONTROL FACILITIES MAY RESULT IN ADMINISTRATIVE OR CRIMINAL PENALTIES BEING IMPOSED BY THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION AS PROVIDED IN SECTION 102 OF THE CLEAN STREAMS LAW OF PENNSYLVANIA. THE CLEAN STREAMS LAW PROVIDES FOR UP TO \$10,000 PER DAY IN CIVIL PENALTIES OR UP TO \$10,000 SUMMARY CRIMINAL PENALTIES, AND UP TO \$25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.

32. IN THE EVENT OF SIGNIFICANT OCCURRENCE OR OCCURRENCE OF A PROFESSIONAL, GEOLOGIST OR ENGINEER SHALL BE CONTACTED CONCERNING MITIGATION. ADDITIONALLY, THE MONTGOMERY COUNTY CONSERVATION DISTRICT SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED ERS PLAN. THE CONTRACTOR SHALL ASSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED.

34. THE CONTRACTOR IS ADVISED TO BECOME THOROUGHLY FAMILIAR WITH THE PROVISIONS OF THE APPROVED ERS PLAN AND THE EROSION AND SEDIMENTATION POLLUTION CONTROL (SPICATOS) REGULATIONS, TITLE 24, PART 1, DEPARTMENT OF ENVIRONMENTAL PROTECTION, PROTECTION OF NATURAL RESOURCES, ARTICLE III, WATER RESOURCES, CHAPTER 102, EROSION CONTROL.

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

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

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

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

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

40. BEFORE INITIATING ANY REVISIONS TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN OR REVISIONS TO OTHER PLANS WHICH MAY AFFECT THE EFFECTIVENESS OF THE APPROVED ERS CONTROL PLAN, THE CONTRACTOR SHALL NOTIFY THE LOCAL CONSERVATION DISTRICT.

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

42. THE OPERATOR SHALL ASSURE THAT AN EROSION AND SEDIMENT CONTROL ENGINEER OR AGENTS SHALL BE CONTACTED BY THE MONTGOMERY COUNTY CONSERVATION DISTRICT, AND IS BEING IMPLEMENTED AND MAINTAINED FOR ALL SOIL AND/OR ROCK SLOPE AND BORROW AREAS, REGARDLESS OF THEIR LOCATIONS.

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

44. ANY STRAW MULCH MUST BE APPLIED AT A RATE OF 2.0 TONS PER ACRE (SEE TABLE 11.6 ON THIS SHEET).

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

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

47. EROSION CONTROL BLANKETING SHALL BE INSTALLED ON ALL SLOPES 3:1 OR STEEPER, WITHIN 50 FEET OF A SURFACE WATER, AND ON ALL OTHER DISTURBED AREAS SPECIFIED ON THE PLAN MAPS AND/OR DETAIL SHEETS.

48. ALL VEGETATED AREAS IN UNDISTURBED SETTINGS SHALL REMAIN FOR PROTECTION. CONTRACTORS AND EQUIPMENT WILL BE RESTRICTED FROM ENTERING INTO ALL AREAS NOT BEING GRADDED. DISTURBED AREAS SHALL REMAIN EXPOSED FOR THE SHORTEST TIME POSSIBLE.

49. DUST WILL BE KEPT WITHIN TOLERABLE LIMITS BY EITHER THE USE OF SPRAYED WATER.

50. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS HAS BEEN ACHIEVED AND THE OPERATOR HAS BEEN ADVISED BY THE LOCAL CONSERVATION DISTRICT.

51. UPON COMPLETION OR TEMPORARY CESSATION OF THE EARTH DISTURBANCE ACTIVITY THAT WILL EXCEED 30 DAYS, OR ANY STATE THEREOF, THE OPERATOR SHALL CONDUCT A POST-CONSTRUCTION VERIFICATION TEST. THE RESULTS, THE PROJECT SITE SHALL BE IMMEDIATELY STABILIZED WITH THE APPROPRIATE TEMPORARY OR PERMANENT STABILIZATION. (PLEASE NOTE THAT PROPOSED IS NOT CONSIDERED STABILIZATION UNITS (I, G, M, S, O), MAY OR STRAW MULCH MUST BE APPLIED AT 3.0 TONS PER ACRE.

**MONITORING, INSPECTION, AND REPORTING REQUIREMENTS**

**VISUAL INSPECTIONS**

1. THE PERMITTEE SHALL ENSURE THAT VISUAL SITE INSPECTIONS ARE CONDUCTED WEEKLY, AND WITHIN 24 HOURS AFTER EACH MAJOR RUNOFF EVENT. VISUAL INSPECTIONS SHALL BE CONDUCTED BY THE PERMITTEE OR AN EMPLOYEE OF THE PERMITTEE WHO HAS BEEN TRAINED AND EXPERIENCED IN EROSION AND SEDIMENT CONTROL. VISUAL INSPECTIONS SHALL BE CONDUCTED AT THE FOLLOWING LOCATIONS:

**NONCOMPLIANCE REPORTING**

1. ANY CONDITION ON THE PROJECT SITE WHICH MAY ENDANGER PUBLIC HEALTH, SAFETY, OR THE ENVIRONMENT, OR INVOLVE INCIDENTS WHICH CAUSE OR THREATEN POLLUTION;

**REDUCTION, LOSS, OR FAILURE OF THE BMPs**

1. ANY REDUCTION, LOSS, OR FAILURE OF THE BMPs, THE PERMITTEE AND CO-OPERATOR SHALL TAKE IMMEDIATE ACTION TO RESTORE THE BMPs OR PROVIDE AN ALTERNATE METHOD OF TREATMENT, SUCH RESTORED BMPs OR ALTERNATE TREATMENT SHALL BE AT LEAST AS EFFECTIVE AS THE ORIGINAL BMPs.

**RECYCLING OR DISPOSAL METHODS**

1. THE OPERATOR SHALL REMOVE FROM THE SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTE IN ACCORDANCE WITH ANY AND ALL APPLICABLE MUNICIPAL OR OTHER GOVERNMENT AGENCY CURRENT REGULATIONS INCLUDING BUT NOT LIMITED TO THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA CODE 260.1 ET SEQ., 271.1 ET SEQ., AND 281.1 ET SEQ. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP, OR OTHERWISE ANY BUILDING MATERIAL, OR WASTES AT THE PROJECT SITE.

2. EXCEPT FOR ITEMS OR MATERIALS INDICATED TO BE REUSED, SALVAGED, REINSTALLED, OR OTHERWISE INDICATED TO REMAIN ON THE PROPERTY, DEMOLISHED OR EXCAVATED MATERIALS SHALL BE REMOVED FROM THE SITE MATERIALS SLATED FOR REMOVAL FROM THE SITE SHALL BE REMOVED IN ACCORDANCE WITH ANY AND ALL APPLICABLE MUNICIPAL OR OTHER GOVERNMENTAL AGENCY CURRENT REGULATIONS.

3. DEBRIS SHALL NOT BE PERMITTED TO ACCUMULATE ON THE JOB-SITE. DUST AND DEBRIS SHALL BE HELD TO A MINIMUM DURING DEMOLITION, BY WETTING DOWN, AS REQUIRED, ON SITE BURNING OF MATERIALS WILL NOT BE PERMITTED AT THE COMPLETION OF WORK. THE ENTIRE AREA INVOLVED SHALL BE CLEAN AND LEFT IN A NEAT CONDITION, FREE OF RUBBER AND DEBRIS.

4. RECYCLING OR DISPOSAL OF MATERIALS ASSOCIATED WITH OR FROM THIS PROJECT SHALL BE UNDERTAKEN IN ACCORDANCE WITH ANY AND ALL APPLICABLE MUNICIPAL OR OTHER GOVERNMENTAL AGENCY CURRENT REGULATIONS.

5. SEDIMENT REMOVED FROM CONTROL FACILITIES AS A PART OF REGULAR MAINTENANCE SHALL BE DISPOSED OF UPSTREAM OF CONTROL FACILITIES IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.

6. REFER TO THE SITE / RECORD PLAN FOR ADDITIONAL NOTES.

**TABLE 11.6**  
Soil Amendment Application Rate Equivalents

Soil Amendment	Per 1,000 sq. ft.	Per 1,000 sq. ft.	Notes
Application Rate	0.5 tons	240.0 lbs.	On top soil
Application Rate	0.5 tons	240.0 lbs.	On top soil
Application Rate	0.5 tons	240.0 lbs.	On top soil
Application Rate	0.5 tons	240.0 lbs.	On top soil

**TABLE 11.7**  
Curb Voids and Topsoil Required for Application at Various Depths

Depth (in)	Topsoil (cu yd)	Topsoil (cu ft)	Topsoil (cu ft)
3	0.3	833	833
4	0.4	1,111	1,111
5	0.5	1,389	1,389
6	0.6	1,667	1,667
7	0.7	1,944	1,944
8	0.8	2,222	2,222
9	0.9	2,500	2,500
10	1.0	2,778	2,778
11	1.1	3,056	3,056
12	1.2	3,333	3,333
13	1.3	3,611	3,611
14	1.4	3,889	3,889
15	1.5	4,167	4,167
16	1.6	4,444	4,444
17	1.7	4,722	4,722
18	1.8	5,000	5,000
19	1.9	5,278	5,278
20	2.0	5,556	5,556
21	2.1	5,833	5,833
22	2.2	6,111	6,111
23	2.3	6,389	6,389
24	2.4	6,667	6,667
25	2.5	6,944	6,944
26	2.6	7,222	7,222
27	2.7	7,500	7,500
28	2.8	7,778	7,778
29	2.9	8,056	8,056
30	3.0	8,333	8,333

Adapted from PA DEP

**MAINTENANCE OF EROSION CONTROL FACILITIES**

1. THE OPERATOR SHALL BE RESPONSIBLE FOR THE PROPER CONSTRUCTION, STABILIZATION AND MAINTENANCE OF ALL EROSION AND SEDIMENTATION CONTROLS AND RELATED ITEMS INCLUDED WITHIN THE PLAN DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER OPERATION TO MAINTAIN EROSION AND SEDIMENTATION CONTROLS AND TO PREVENT SLIDING AND MOUNDING OF STREAMS, RIVERS AND DRAINAGE SYSTEMS.

2. THE OPERATOR SHALL BE RESPONSIBLE FOR THE PROPER OPERATION TO MAINTAIN EROSION AND SEDIMENTATION CONTROLS AND TO PREVENT SLIDING AND MOUNDING OF STREAMS, RIVERS AND DRAINAGE SYSTEMS.

3. ALL EROSION AND SEDIMENTATION POLLUTION CONTROL MEASURES MUST REMAIN IN PLACE UNTIL THE SITE IS STABILIZED, REGARDLESS IF CONSTRUCTION IS TAKING PLACE OR NOT.

4. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT POLLUTION CONTROLS (BMPs) MUST BE PROPERLY MAINTAINED. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENTATION CONTROLS (BMPs) AND RELATED ITEMS INCLUDED WITHIN THIS PLAN AND NARRATIVE.

5. SEDIMENT REMOVED FROM BMPs SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.

6. SEEDING AREAS THAT WASH OUT MUST BE FILLED AND GRADED AS NECESSARY, AND THEN RESEEDING AN ANCHORING METHOD SHOULD THEN BE USED TO HOLD SEED AND MULCH IN PLACE. THIS IS ESPECIALLY IMPORTANT ON SOIL AND/OR ROCK SLOPES, IN SWALES AND AREAS OF CONCENTRATED FLOWS, AND ON SLOPES.

7. IN THE EVENT OWNERS OF THE PROPERTY OR THE OPERATOR FAILS TO PROPERLY MAINTAIN THE CONTROL FACILITIES, THE TOWNSHIP ENGINEER SHALL HAVE THE RIGHT TO ENTER SAID AREA AND PERFORM THE REQUIRED MAINTENANCE AFTER PROPER NOTICE TO THE OWNER.

8. IN THE EVENT THAT THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, THE MONTGOMERY COUNTY CONSERVATION DISTRICT, THE MUNICIPALITY OR THE CONSERVATION DISTRICT, OR ANY OTHER AGENCY CONTACTS THE OPERATOR REGARDING THE DESIGN STAGE, THE CONTRACTOR SHALL BE RESPONSIBLE TO CORRECT ANY DEFICIENCIES, MEASURES OR MODIFICATIONS TO THOSE INSTALLED WILL BE REQUIRED.

9. NO SEDIMENT, STONES OR DEBRIS SHALL BE TRACKED ON TO SURROUNDING ROADS. ANY SEDIMENT THAT IS TRACKED ON TO SURROUNDING ROADS MUST BE CLEANED OFF BEFORE THE END OF THE DAY UTILIZING MECHANICAL METHODS AND ESTABLISH FINAL OUTLET STRUCTURE. THE SATISFACTION OF THE MONTGOMERY COUNTY CONSERVATION DISTRICT AND TOWNSHIP ENGINEER WILL BE THE FINAL AUTHORITY.

10. ANY FILTER FABRIC FENCE, WHICH HAS BEEN UNDERMINED OR TOPPED, MUST BE REPLACED IMMEDIATELY WITH ROCK FILTER OUTLETS.

11. ANY SOIL BORROW OR SPILL SITES, ON OR OFFSITE SHALL HAVE AN APPROVED ERS PLAN. ANY SEDIMENT THAT IS TRACKED ON TO SURROUNDING ROADS MUST BE CLEANED OFF BEFORE THE END OF THE DAY UTILIZING MECHANICAL METHODS AND ESTABLISH FINAL OUTLET STRUCTURE. THE SATISFACTION OF THE MONTGOMERY COUNTY CONSERVATION DISTRICT AND TOWNSHIP ENGINEER WILL BE THE FINAL AUTHORITY.

12. THE CONTRACTOR SHALL PERIODICALLY AND ESPECIALLY AFTER HEAVY RAINFALL, INSPECT CONTROL FACILITIES AND EQUIPMENT WILL BE RESTRICTED FROM ENTERING INTO ALL AREAS NOT BEING GRADDED. DISTURBED AREAS SHALL REMAIN EXPOSED FOR THE SHORTEST TIME POSSIBLE.

13. THE MONTGOMERY COUNTY CONSERVATION DISTRICT MUST BE CONTACTED PRIOR TO REMOVAL OF ANY EROSION AND SEDIMENTATION CONTROL DEVICE SUCH AS FILTER FABRIC FENCES, ROCK FILTER INLET PROTECTION, PROTECTION CHANNELS, ETC. TEMPORARY CONTROLS WILL BE REMOVED ONLY AFTER A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER, WITH A DENSITY CAPABLE OF RESISTING ACCELERATED EROSION AND SEDIMENTATION HAS BEEN ACHIEVED ACROSS THE UPLSLOPE AREAS.

14. THE CONTRACTOR SHALL PERIODICALLY AND ESPECIALLY AFTER HEAVY RAINFALL, INSPECT CONTROL FACILITIES AND EQUIPMENT WILL BE RESTRICTED FROM ENTERING INTO ALL AREAS NOT BEING GRADDED. DISTURBED AREAS SHALL REMAIN EXPOSED FOR THE SHORTEST TIME POSSIBLE.

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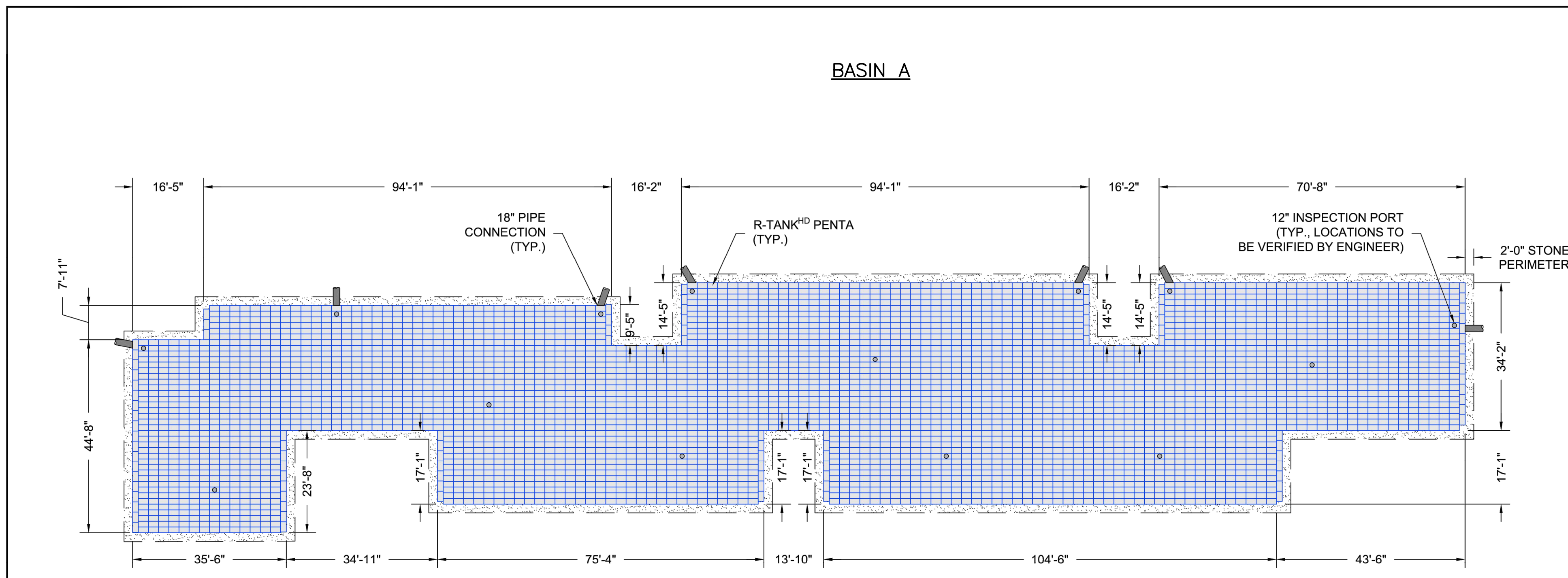
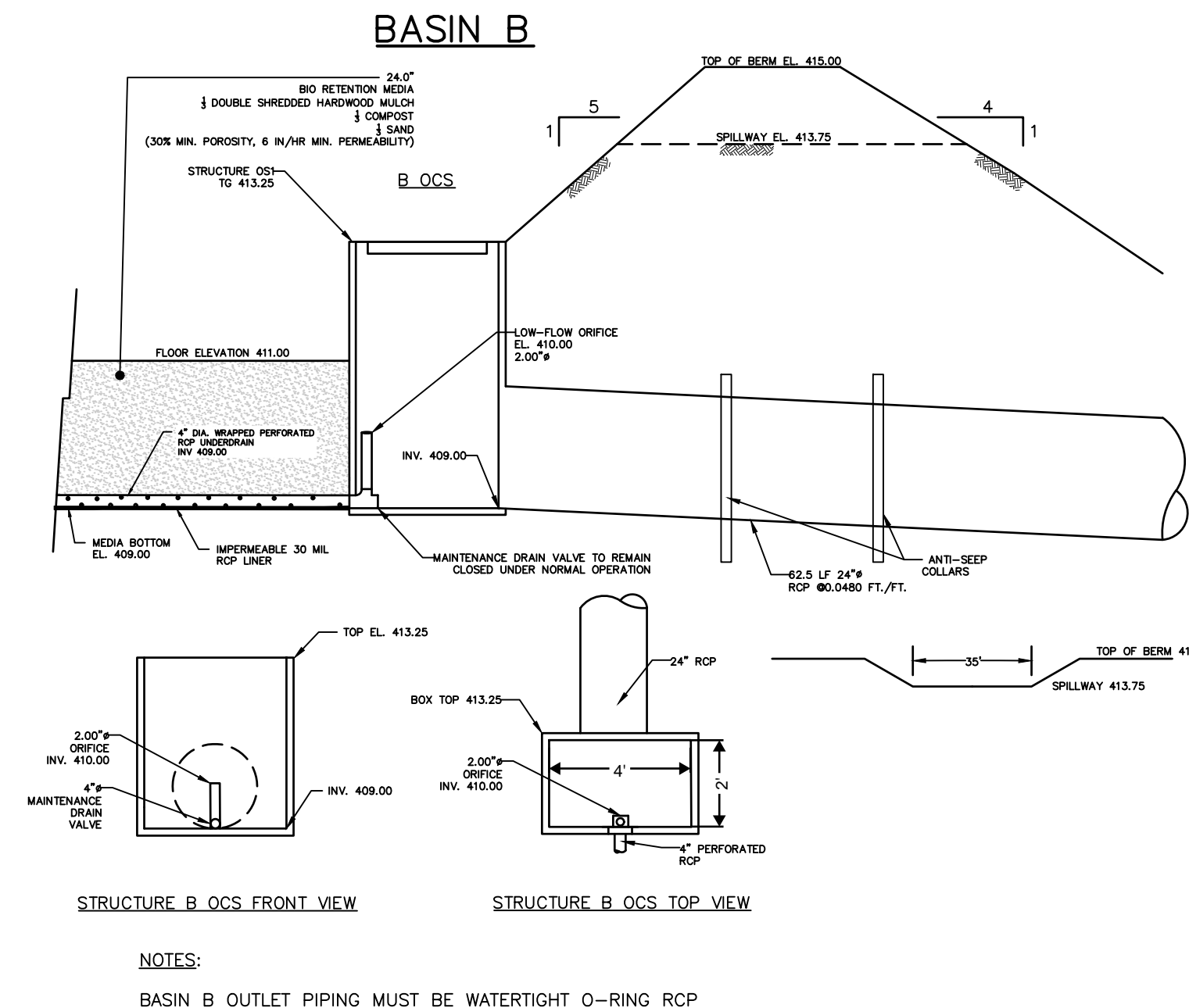
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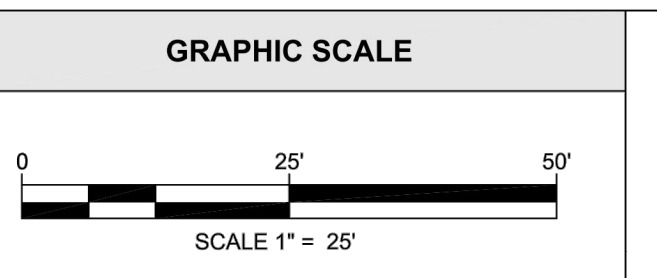


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 DATE PLOTTED: 11/17/2023 11:22:22 AM  
 LAST SAVE BY: CScorozello

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R-TANK QUANTITIES	
R-TANK <sup>HD</sup> MODULE TYPE	PENTA
TRAFFIC LOAD	HS-20
# OF PENTA R-TANKS	4301
TOTAL SYSTEM STORAGE	99,749 CF
R-TANK STORAGE VOLUME	87,496 CF
STONE STORAGE VOLUME (40% VOID RATIO)	12,253 CF
STONE BED FOOTPRINT	14,958 SF
STONE QUANTITY	1,135 CY
N080 NON-WOVEN GEOTEXTILE TANK WRAP	4,136 SY
N080 NON-WOVEN GEOTEXTILE EXCAVATION WRAP	4,727 SY
ACF BX-12 GEOGRID	2,246 SY
12" INSPECTION PORTS	14
GEOTEXTILE PIPE BOOTS (18")	7
STORMRING CPS (18")	5
NOTE: STONE QUANTITY INCLUDES 12" OF COVER AND 3" OF BASE	
NOTE: GEOTEXTILE / LINER QUANTITIES INCLUDE A 15% WASTE FACTOR.	
SEE SHEETS 3 - 6 FOR DETAILS AND ADDITIONAL INFORMATION	

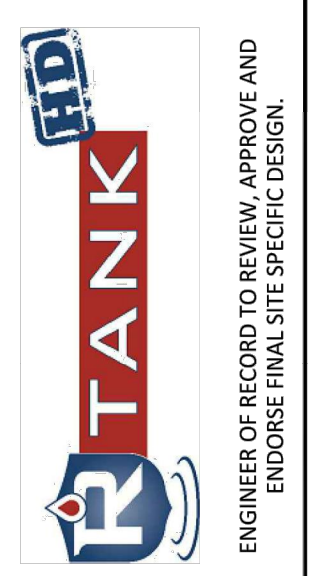
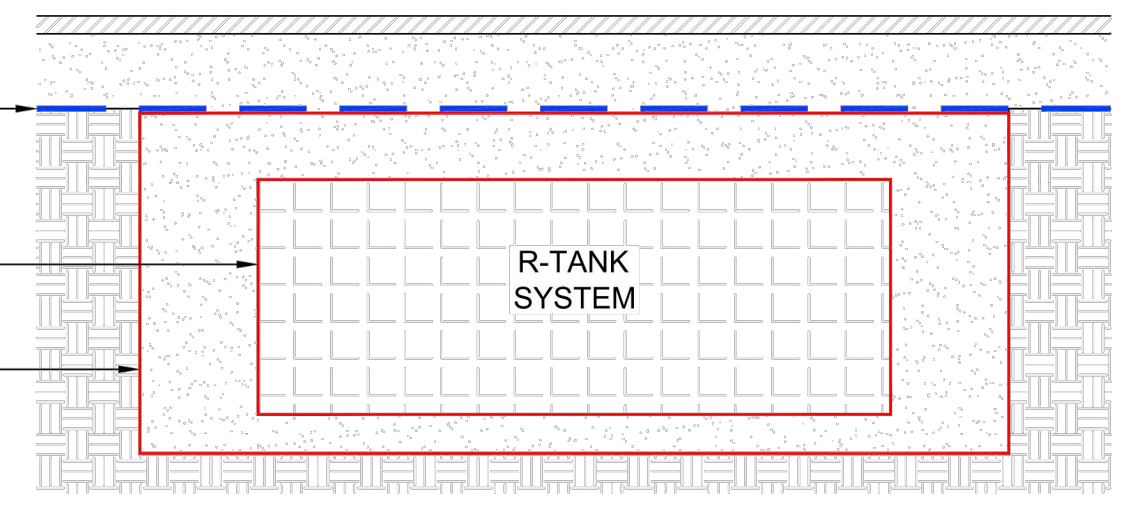


R-TANK ELEVATIONS	
DESCRIPTION	ELEVATION
BASE INV.	427.15
TANK INV.	427.40
TOP OF TANK	434.36
GEOGRID	435.36
MIN. ALLOW. FINAL GRADE	436.03
MAX. ALLOW. FINAL GRADE	441.35

GEOGRID (ACF BX-12) PLACED 12" ABOVE THE R-TANK<sup>HD</sup> SYSTEM. OVERLAP ADJACENT PANELS BY 18" MIN. GEOGRID SHOULD EXTEND 3' BEYOND THE EXCAVATION FOOTPRINT.

R-TANK<sup>HD</sup> UNITS WRAPPED WITH N080 NON-WOVEN GEOTEXTILE (OR EQUAL)

EXCAVATION WRAPPED WITH N080 NON-WOVEN GEOTEXTILE (OR EQUAL)



**FERGUSON WATERWORKS**

FOR ADDITIONAL INFORMATION PLEASE CONTACT:  
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R-TANK<sup>HD</sup> SYSTEM LAYOUT  
 CITY VIEW APN 67  
 WORCESTER, PA

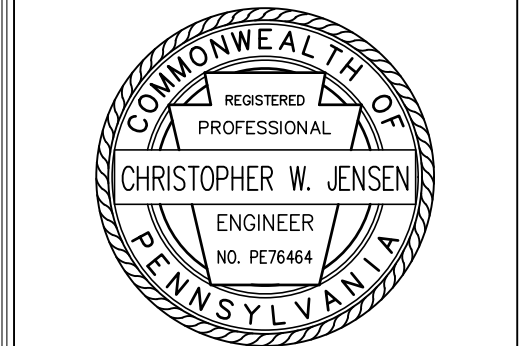
SCALE 1" = 25'  
 DRAWN BY JKB  
 DATE 08/30/2023  
 SHEET NO. 2 of 6

ATTENTION: ALL CONTRACTORS LOCATING OR ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR NON-CREASE REVISIONS OF THE CITY COMPLETION OF ACCURACY OF THE SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND UTILITIES OF STRUCTURES OR THE GUARANTEED ACCURACY OF THE INFORMATION OF RECORDS. THE LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 121 OF 2008 CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. SEE SHEET 20.

20213502293

NO.	DATE	REVISIONS	BY	CHKD
3	11/17/2023	PER GIS REVIEW LETTER DATED 11/22/2022	PRG DS	DS
2	4/3/2023	REVISED ENTRANCE ON GERMAN TOWN PIKE	PRG DS	DS
1	10/04/2022	PER GIS REVIEW LETTER DATED 03/11/2022	PRG DS	DS

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



4/3/2023  
 LICENSED PROFESSIONAL ENGINEER  
 STATE OF PA LICENSE NO. PE076464

BT WORCESTER, LLC

CITY VIEW - APN #67-00-01606-001  
 2974 GERMAN TOWN PIKE, WORCESTER TOWNSHIP,  
 MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

POST CONSTRUCTION STORMWATER  
 MANAGEMENT DETAILS

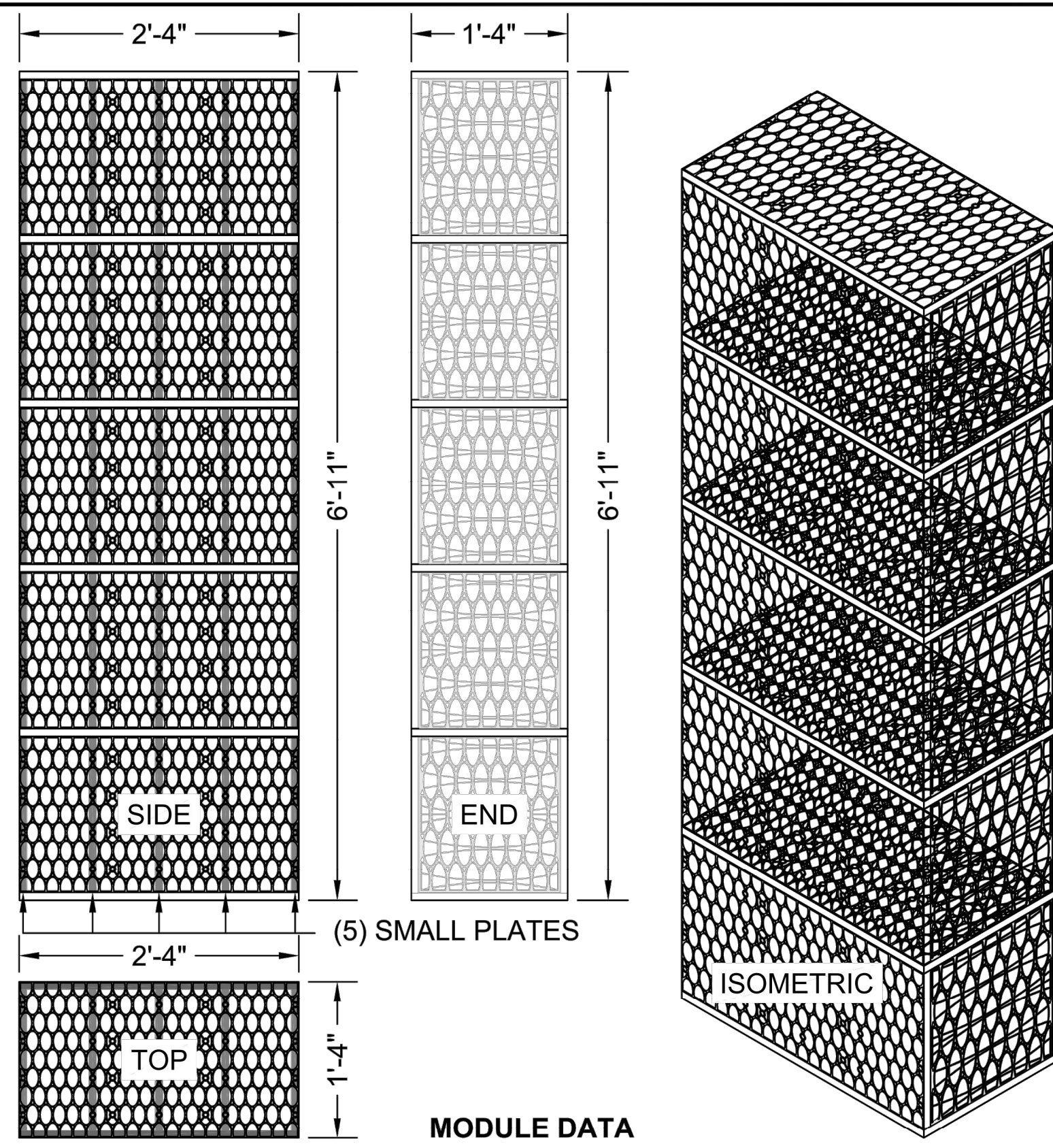


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DESIGNED BY CCG/JPK/ROP	DRAWING DET-9
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PROJ. NO. BET00056	





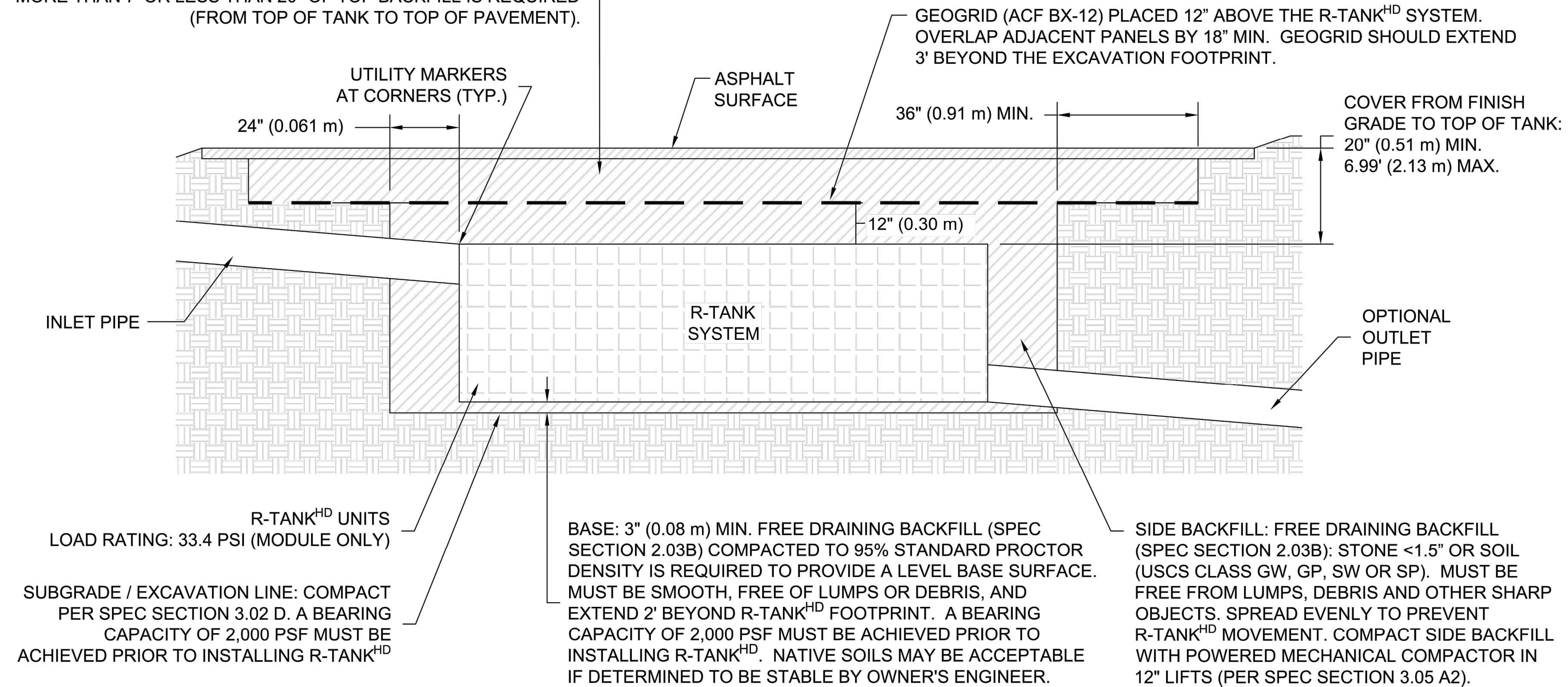
<b>GEOMETRY:</b>	<b>LOAD RATING:</b>
LENGTH = 28.15 IN. (715 MM)	33.4 PSI, (MODULE ONLY)
WIDTH = 15.75 IN. (400 MM)	HS20/HS25 - SEE SPEC FOR COVER REQUIREMENTS
HEIGHT = 83.46 IN. (2120 MM)	<b>MATERIAL:</b>
TANK VOLUME = 21.41 CF	100% RECYCLED POLYPROPYLENE
STORAGE VOLUME = 20.34 CF	<b>SMALL PLATES REQUIRED:</b>
VOID INTERNAL VOLUME: 95%	5/SEGMENT, 25/MODULE
VOID SURFACE AREA: 90%	

**PENT R-TANK<sup>HD</sup> - MODULE DETAIL**

TOTAL COVER: 20" MINIMUM AND 84" MAXIMUM. FIRST 12" MUST BE FREE DRAINING BACKFILL (SPEC SECTION 2.03B): STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). ADDITIONAL FILL MAY BE STRUCTURAL FILL (SPEC SECTION 2.03C): STONE OR SOIL (USCS CLASS SM, SP, SW, GM, GP OR GW) WITH MAX CLAY CONTENT <10%, MAX 25% PASSING NO. 200 SIEVE, AND MAX PLASTICITY INDEX OF 4. A MIN. 12" COVER MUST BE MAINTAINED BETWEEN BACKFILL EQUIPMENT AND THE TOP OF THE R-TANK<sup>TM</sup> SYSTEM AT ALL TIMES. TOTAL HEIGHT OF TOP BACKFILL SHOULD NOT EXCEED 7'. CONTACT FERGUSON WATERWORKS IF MORE THAN 7' OR LESS THAN 20" OF TOP BACKFILL IS REQUIRED (FROM TOP OF TANK TO TOP OF PAVEMENT).

**NOTES:**

- FOR COMPLETE MODULE DATA, SEE APPROPRIATE R-TANK<sup>HD</sup> MODULE SHEET.
- INSTALLATIONS PER THIS DETAIL MEET GUIDELINES OF HL-93 LOADING PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, CUSTOMARY U.S. UNITS, 7TH EDITION, 2014 WITH 2015 AND 2016 INTERIM REVISIONS.
- PRE-TREATMENT STRUCTURES NOT SHOWN.
- FOR INFILTRATION APPLICATIONS, GEOTEXTILE ENVELOPING R-TANK SHALL BE ACF M200 (PER SPEC SECTION 2.02A) AND BASE SHALL BE 4" MIN. UNCOMPACTED FREE DRAINING BACKFILL (SPEC SECTION 2.03A) TO PROVIDE A LEVEL BASE. SURFACE MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK<sup>HD</sup> FOOTPRINT.



R-TANK<sup>HD</sup> UNITS  
LOAD RATING: 33.4 PSI (MODULE ONLY)

SUBGRADE / EXCAVATION LINE: COMPACT PER SPEC SECTION 3.02 D. A BEARING CAPACITY OF 2,000 PSF MUST BE ACHIEVED PRIOR TO INSTALLING R-TANK<sup>HD</sup>

BASE: 3" (0.08 m) MIN. FREE DRAINING BACKFILL (SPEC SECTION 2.03B) COMPACTED TO 95% STANDARD PROCTOR DENSITY IS REQUIRED TO PROVIDE A LEVEL BASE SURFACE. MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK<sup>HD</sup> FOOTPRINT. A BEARING CAPACITY OF 2,000 PSF MUST BE ACHIEVED PRIOR TO INSTALLING R-TANK<sup>HD</sup>. NATIVE SOILS MAY BE ACCEPTABLE IF DETERMINED TO BE STABLE BY OWNER'S ENGINEER.

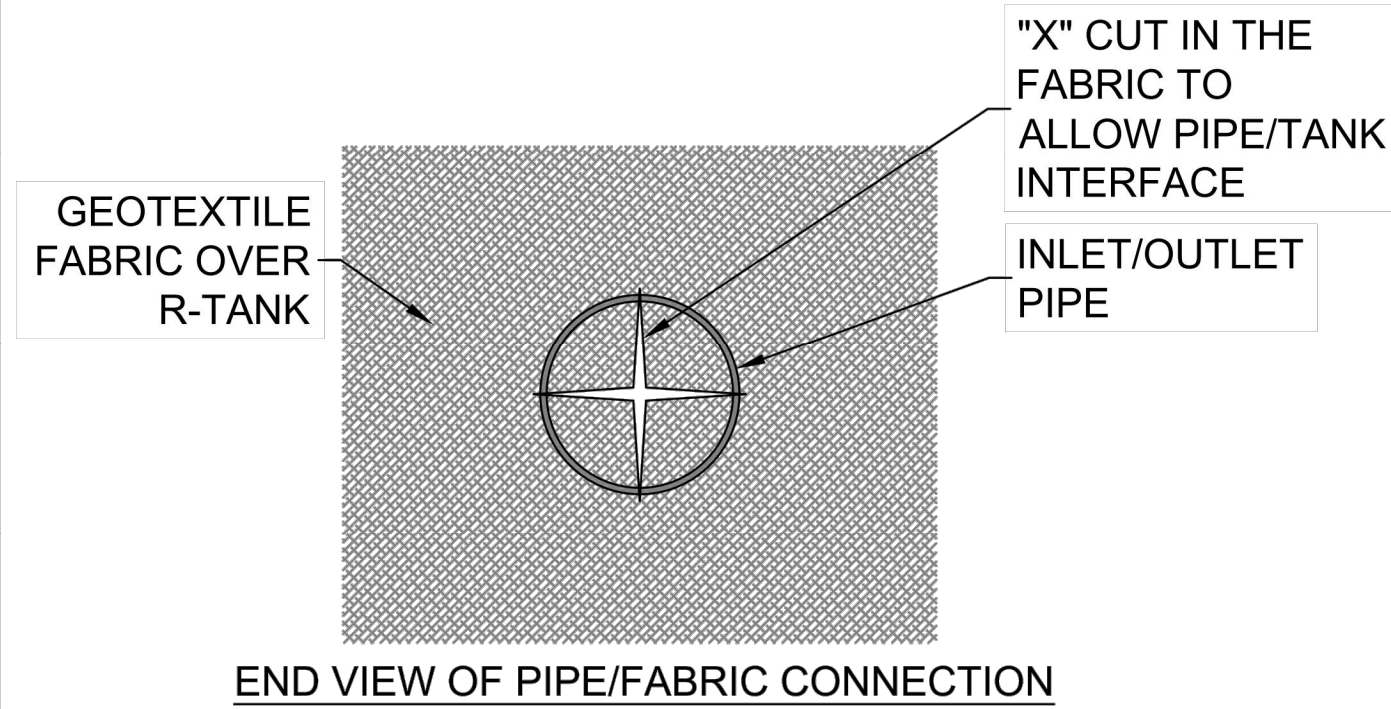
SIDE BACKFILL: FREE DRAINING BACKFILL (SPEC SECTION 2.03B): STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). MUST BE FREE FROM LUMPS, DEBRIS AND OTHER SHARP OBJECTS. SPREAD EVENLY TO PREVENT R-TANK<sup>HD</sup> MOVEMENT. COMPACT SIDE BACKFILL WITH POWERED MECHANICAL COMPACTOR IN 12" LIFTS (PER SPEC SECTION 3.05 A2).

**R-TANK<sup>HD</sup> & HS-20 LOADS - SECTION VIEW**

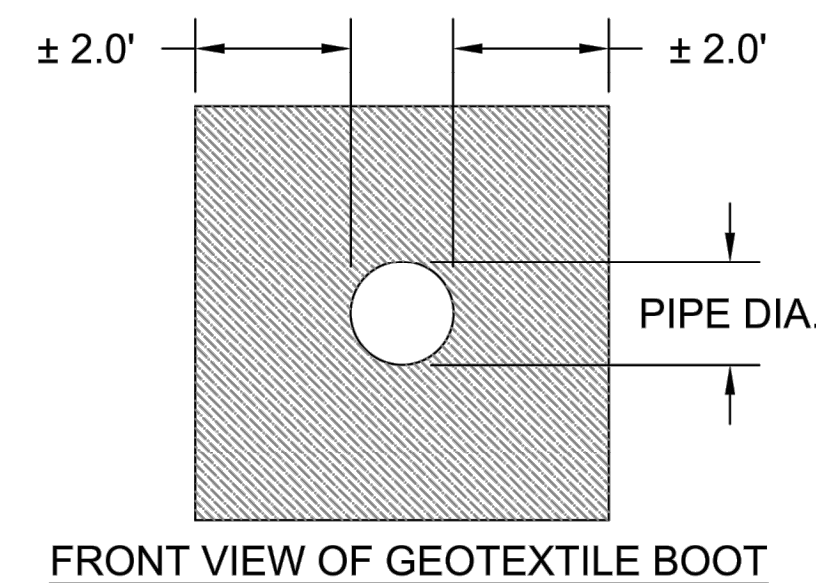
**NOTE:**

- PIPE BOOTS ARE AVAILABLE IN THE FOLLOWING STANDARD SIZES: 8" | 12" | 15" | 18" | 24".
- LARGER SPECIAL ORDER, CUSTOM SIZES ARE AVAILABLE.

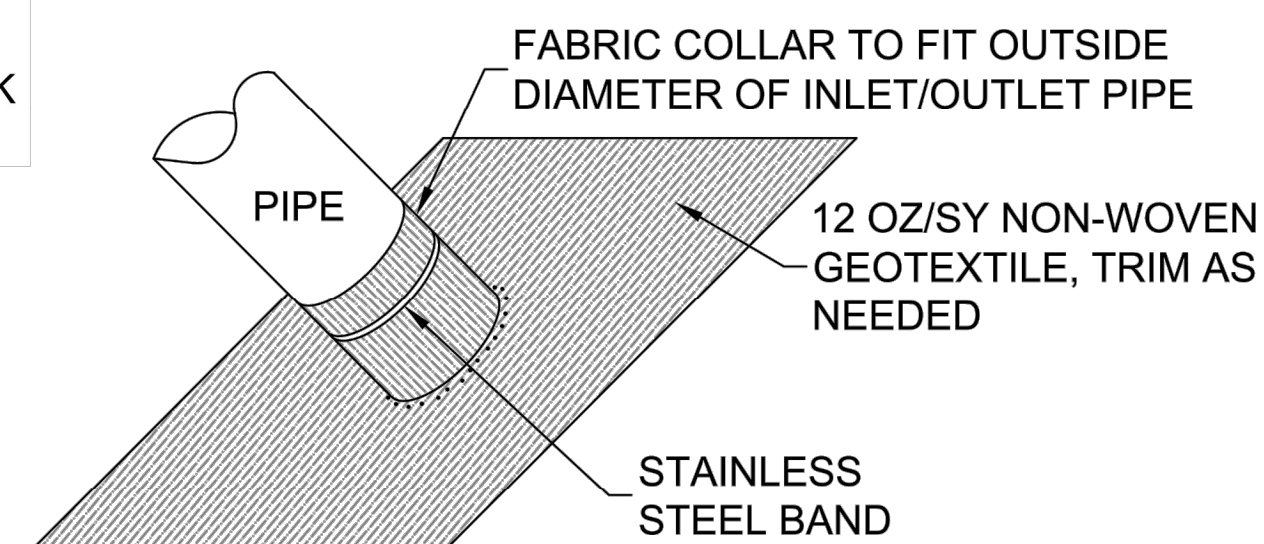
CUT AN "X" IN THE FABRIC ENVELOPE THAT IS SLIGHTLY LARGER THAN THE PIPE. PULL THE FABRIC FLAPS AROUND THE PIPE, AND SEAL WITH A STAINLESS STEEL BAND.



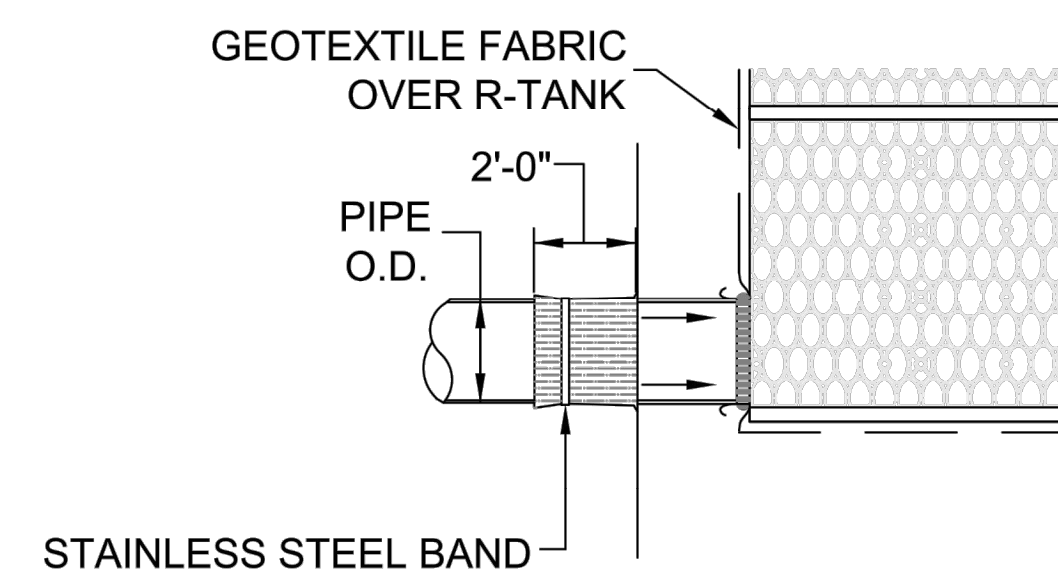
**END VIEW OF PIPE/FABRIC CONNECTION**



**FRONT VIEW OF GEOTEXTILE BOOT**

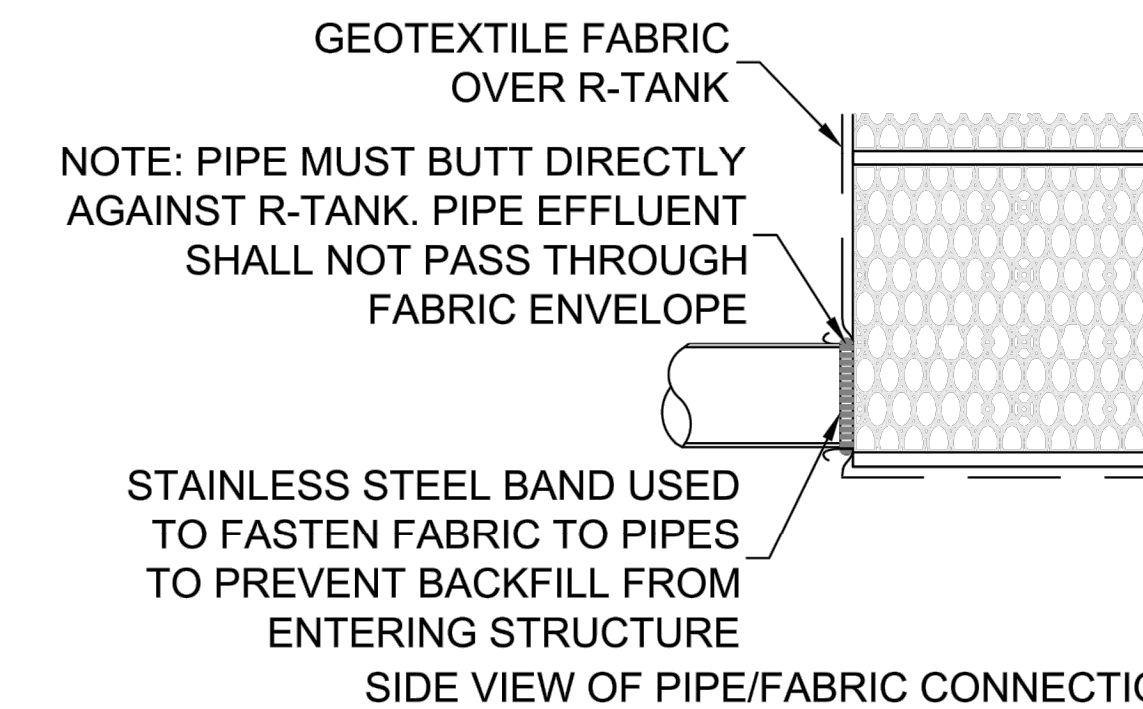


**GEOTEXTILE BOOT**



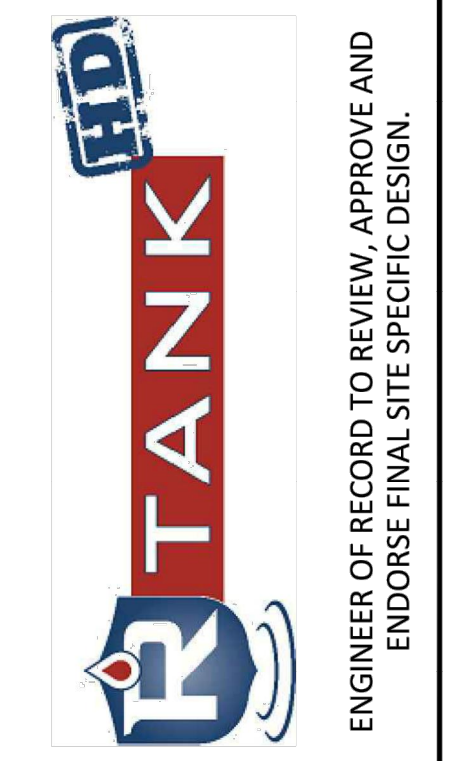
**SIDE VIEW OF GEOTEXTILE BOOT**

AFTER TANK WRAP IS SECURED TO PIPE, SLIDE BOOT AGAINST R-TANK AND SECURE WITH SECOND STAINLESS STEEL BAND, THEN ATTACH BOOT FLAP TO TANK ENVELOPE FABRIC WITH DUCT TAPE OR OTHER ADHESIVE.



**SIDE VIEW OF PIPE/FABRIC CONNECTION**

**R-TANK TYPICAL TANK INLET/OUTLET W/ GEOTEXTILE PIPE BOOT DETAIL**



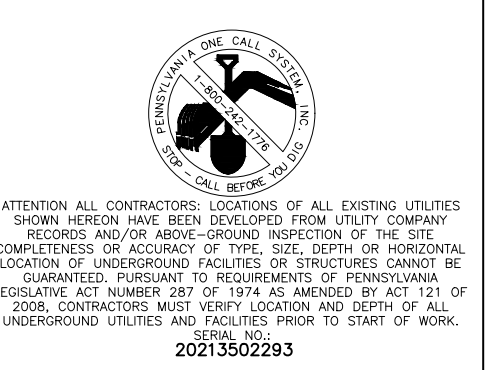
**FERGUSON WATERWORKS**

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**R-TANK<sup>HD</sup> SYSTEM DETAILS**  
CITY VIEW APN 67  
WORCESTER, PA

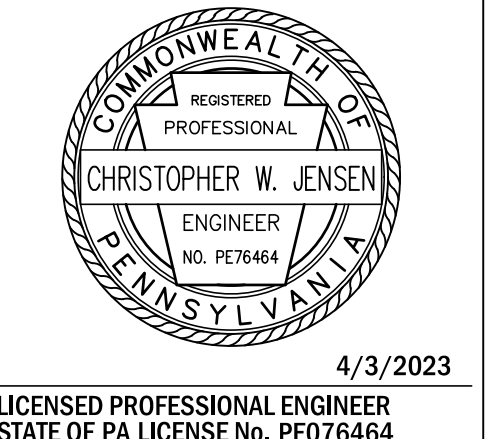
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JKB  
DATE  
06/30/2023  
SHEET NO.

3 of 6



NO.	DATE	REVISIONS	BY	CHKD
1	10/04/2022	PER CHS REVIEW LETTER DATED 03/11/2022	PG	DS
2	4/3/2023	REVISED ENTRANCE ON GERMANTOWN PIKE	ROP	DS
3	11/17/2023	PER CHS REVIEW LETTER DATED 11/22/2023	PG	DS

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



BT WORCESTER, LLC

CITY VIEW - APN #67-00-01606-001  
2974 GERMANTOWN PIKE, WORCESTER TOWNSHIP,  
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

POST CONSTRUCTION STORMWATER  
MANAGEMENT DETAILS

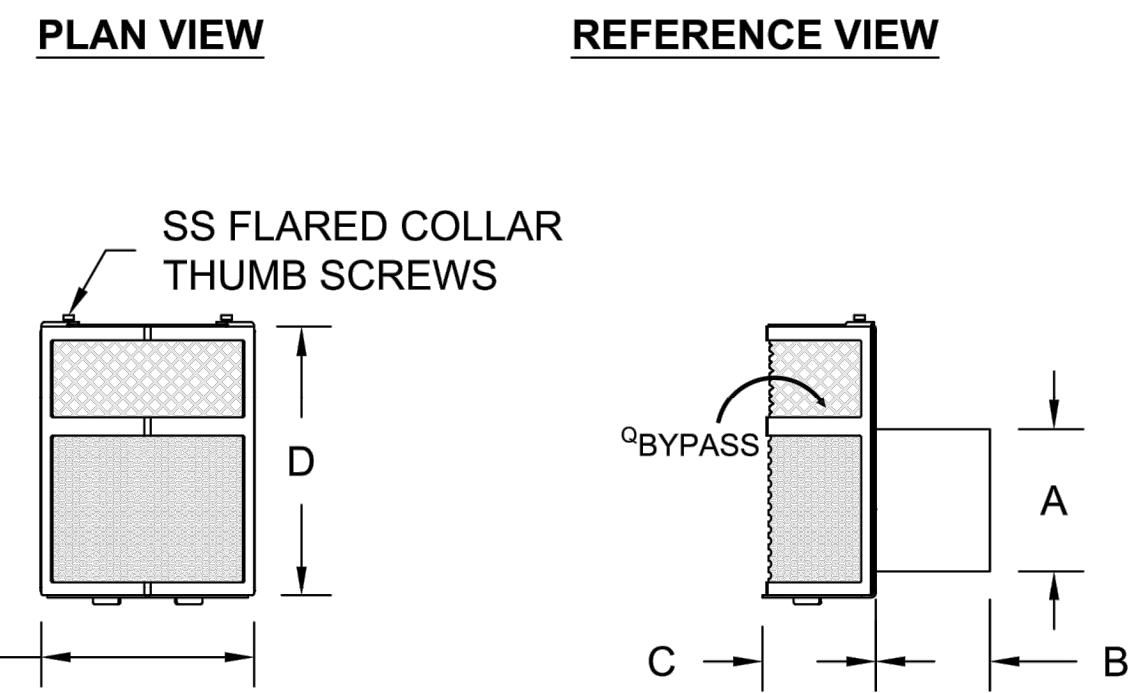
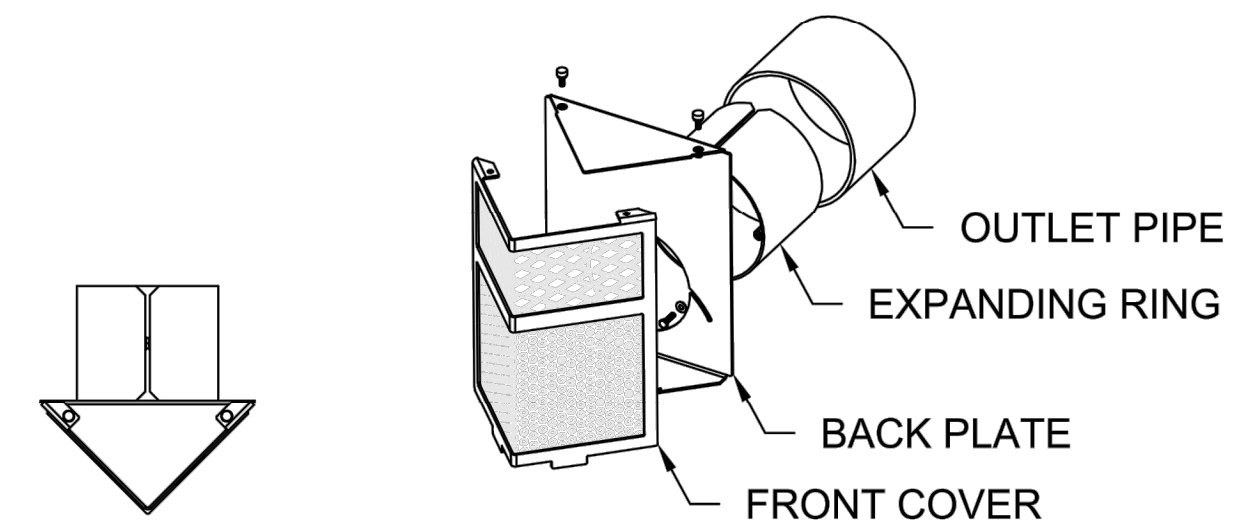


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CHECKED BY DS	SHEET
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**BASIN A**  
\*FERGUSON R-TANK (OR APPROVED EQUAL)

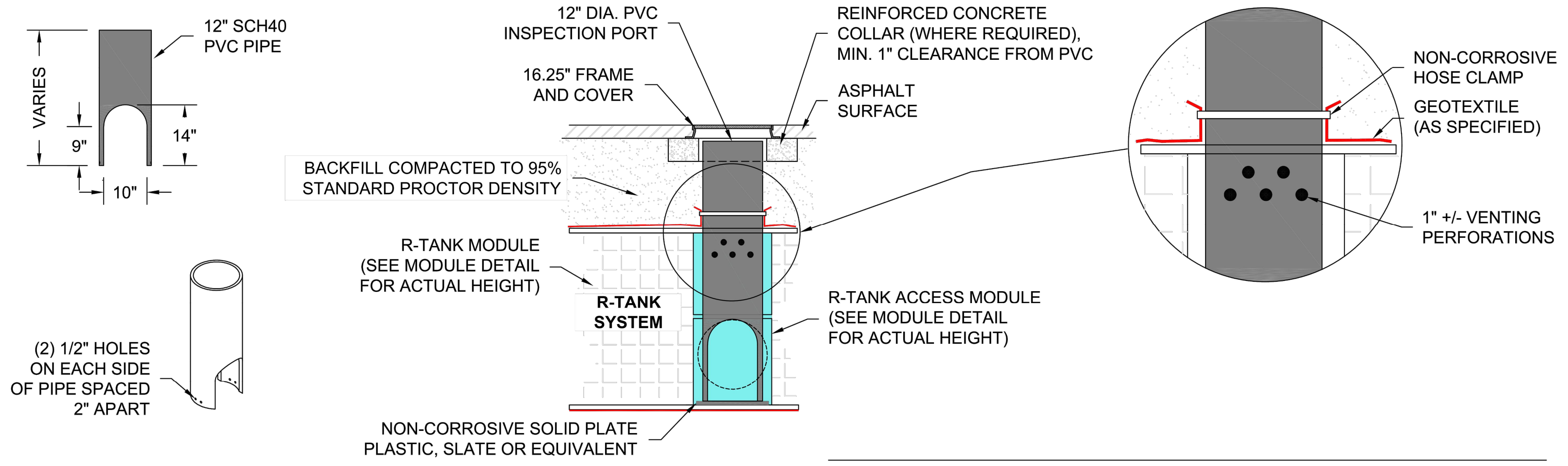




PIPE DIA. (A)	STUB LENGTH (B)	CPS DEPTH (C)	CPS HEIGHT (D)	CPS WIDTH (E)
6"	4.00"	8.50"	10.00"	10.00"
8"	6.00"	11.00"	12.25"	11.50"
10"	8.00"	16.00"	13.50"	13.50"
12"	8.00"	16.00"	15.50"	15.50"
15"	8.00"	16.00"	21.50"	18.50"
18"	8.00"	16.00"	28.00"	21.50"
24"	10.00"	18.00"	40.00"	28.00"

**STORMRING CPS PRETREATMENT DETAIL**

- NOTES**
1. THE INSPECTION PORT IS USED IN THE ACCESS MODULE TO INSPECT THE LEVEL OF SEDIMENT ACCUMULATION.
  2. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH AS NEEDED.
  3. R-TANK<sup>HD</sup>, R-TANK<sup>SD</sup>, R-TANK<sup>UD</sup> AND R-TANK<sup>XD</sup> MAY BE USED IN TRAFFIC APPLICATIONS.
  4. SEE TRAFFIC LOADING DETAIL FOR MINIMUM & MAXIMUM COVER REQUIREMENTS.
  5. IF INSPECTION PORT IS LOCATED IN A NON-TRAFFIC AREA, A PLASTIC CAP CAN BE USED IN LIEU OF A FRAME AND COVER WITH CONCRETE COLLAR.



**R-TANK TYPICAL VEHICULAR LOAD RATED INSPECTION PORT**



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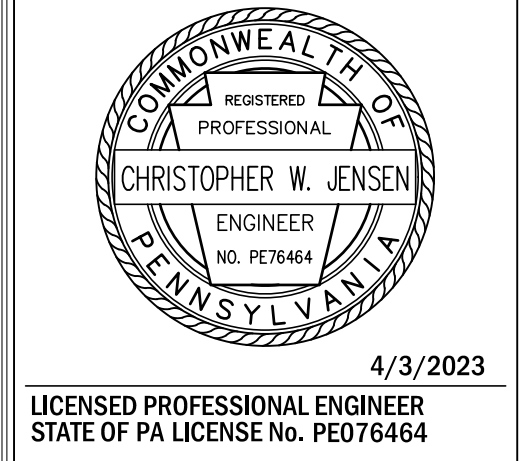
**R-TANK<sup>HD</sup> SYSTEM DETAILS**  
**CITY VIEW APN 67**  
**WORCESTER, PA**

SCALE  
 NTS  
 DRAWN BY  
 JKB  
 DATE  
 06/30/2023  
 SHEET NO.  
**4 of 6**

ATTENTION: ALL CONTRACTORS LOCATING OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANIES RECORDS AND/OR NON-DESTRUCTIVE METHODS OF THE CITY. COMPLETENESS OR ACCURACY OF THE SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND UTILITIES OR STRUCTURES CANNOT BE GUARANTEED. CONTRACTOR TO VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. DATE: 06/30/2023

NO.	DATE	REVISIONS	BY	CHKD
3	11/17/2023	PER GIS REVIEW LETTER DATED 11/22/2022	PRG	DS
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1	10/04/2022	PER GIS REVIEW LETTER DATED 03/11/2022	PRG	DS

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



BT WORCESTER, LLC  
 CITY VIEW - APN #67-00-01606-001  
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**30**  
 OF **34**

PROJECT INFORMATION: C:\Projects\BET\00056\Plans\ FILE PATH: G:\Projects\BET\00056\Plans\ FILE NAME: BET00056\_SHT20-30-DETAILS.dwg DATE PLOTTED: 11/17/2023 10:51:11 AM PLOTTER: HP DesignJet T1100e PLOT SCALE: 1.0000 LAST SAVE BY: CScorrallo

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**BASIN A**  
 \*FERGUSON R-TANK (OR APPROVED EQUAL)





ATTENTION: ALL CONTRACTORS, SUBCONTRACTORS, AND ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANIES RECORDS AND/OR FIELD SURVEY. THE LOCATION, DEPTH, AND CHARACTERISTICS OF ALL UTILITIES SHOWN ON THIS DRAWING ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL VERIFY THE LOCATION, DEPTH, AND CHARACTERISTICS OF ALL UTILITIES SHOWN ON THIS DRAWING PRIOR TO START OF WORK. PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 2014 AS AMENDED BY ACT 121 OF 2020. CONTRACTORS MUST VERIFY THE LOCATION, DEPTH, AND CHARACTERISTICS OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. DATE: 06/30/2023

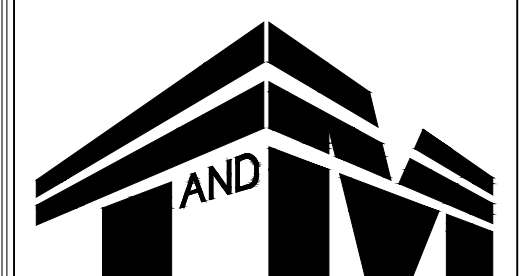
NO.	DATE	REVISIONS	BY	CHKD
1	10/04/2022	PER CHS REVIEW LETTER DATED 03/11/2022	PRG	DS
2	4/3/2023	REVISED ENTRANCE ON GERMAN TOWN PIKE	ROP	DS
3	11/17/2023	PER CHS REVIEW LETTER DATED 11/22/2023	PRG	DS

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



4/3/2023  
LICENSED PROFESSIONAL ENGINEER  
STATE OF PA LICENSE No. PED76464

BT WORCESTER, LLC  
CITY VIEW - APN #67-00-01606-001  
2974 GERMAN TOWN PIKE, WORCESTER TOWNSHIP,  
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA  
POST CONSTRUCTION STORMWATER  
MANAGEMENT DETAILS

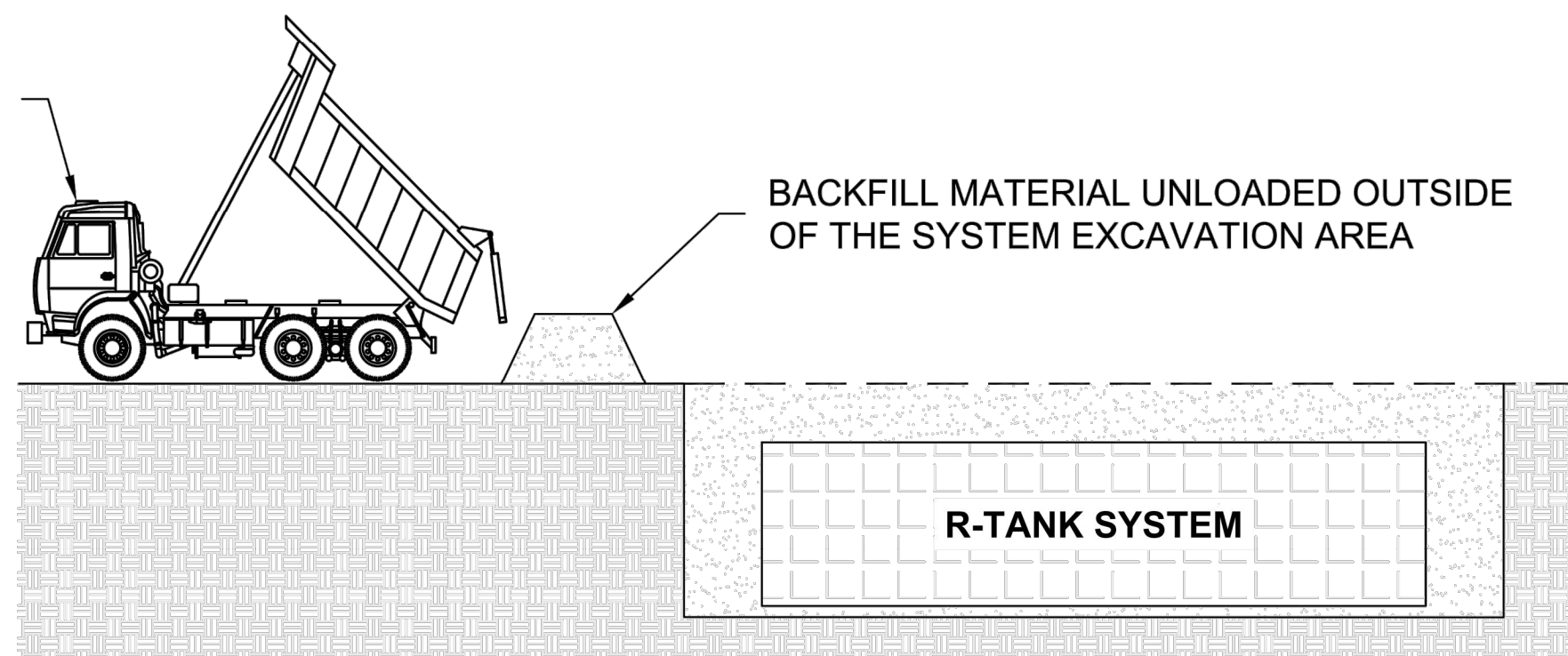


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TEL 215-282-7850  
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DATE 1/27/22	
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DUMP TRUCKS AND PANS SHALL NOT OPERATE OVER THE SYSTEM EXCAVATION AREA



DUMP TRUCK DETAIL (SEE NOTE 3)

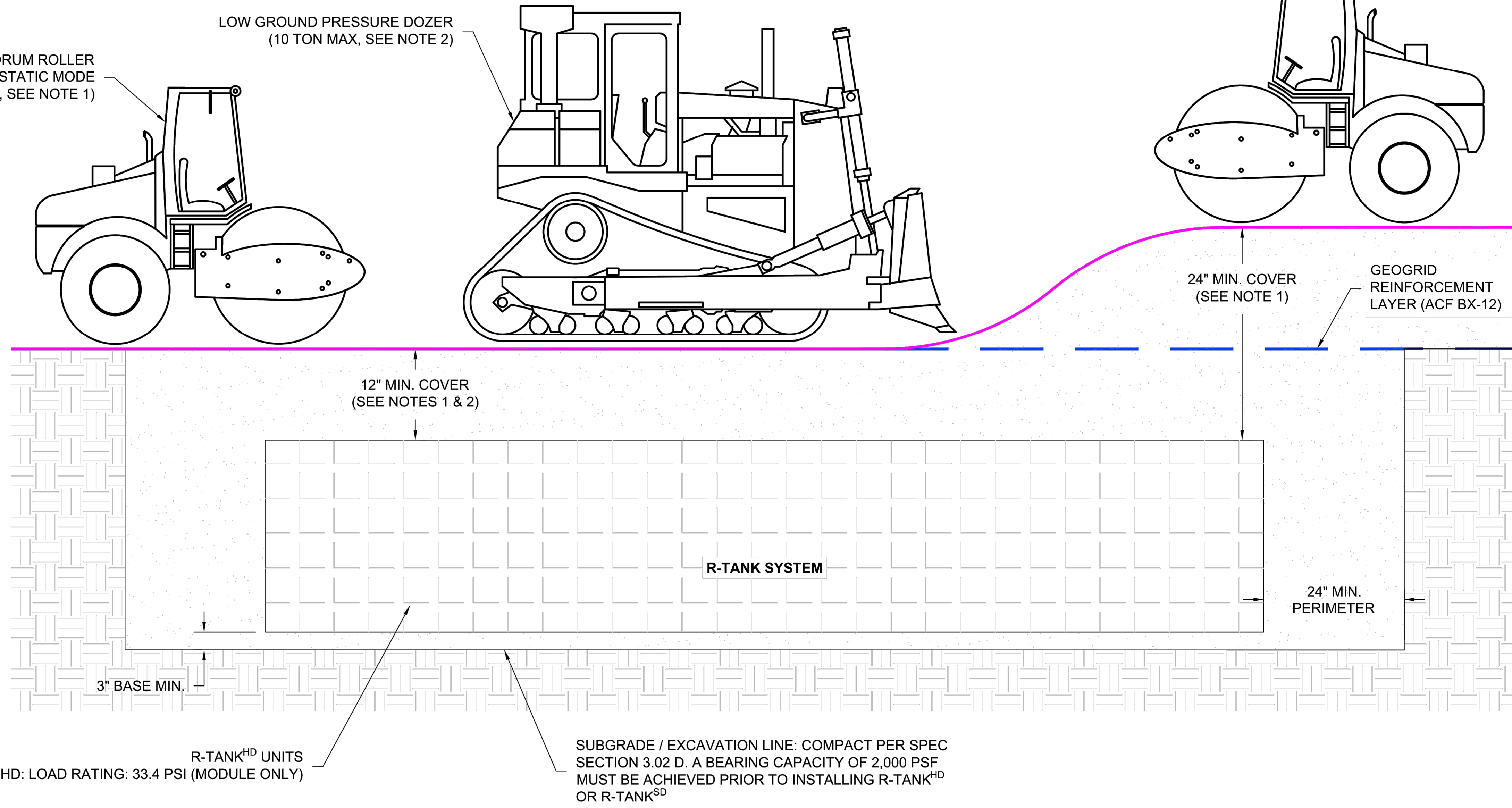
NOTES:

- FOLLOWING PLACEMENT OF SIDE BACKFILL, A UNIFORM 12" LIFT OF THE FREELY DRAINING MATERIAL (SPEC SECTION 2.03 B2) SHALL BE PLACED OVER THE R-TANK AND LIGHTLY COMPACTED USING A WALK-BEHIND TRENCH ROLLER. ALTERNATELY, A ROLLER (MAXIMUM GROSS VEHICLE WEIGHT OF 6 TONS) MAY BE USED. ROLLER MUST REMAIN IN STATIC MODE UNTIL A MINIMUM OF 24" OF COVER HAS BEEN PLACED OVER THE MODULES. SHEEP FOOT ROLLERS SHOULD NOT BE USED. **SPEC SECTION 3.05 A5**
- ONLY LOW PRESSURE TIRE OR TRACK VEHICLES (LESS THAN 7 PSI AND OPERATING WEIGHT OF LESS THAN 20,000 LBS) SHALL BE OPERATED OVER THE R-TANK SYSTEM DURING CONSTRUCTION. **SPEC SECTION 3.05 A5**
- DUMP TRUCKS AND PANS SHALL NOT BE OPERATED WITHIN THE R-TANK SYSTEM AT ANY TIME. WHERE NECESSARY, THE HEAVY EQUIPMENT SHOULD UNLOAD IN AN AREA ADJACENT TO THE R-TANK SYSTEM AND THE MATERIAL SHOULD BE MOVED OVER THE SYSTEM WITH TRACKED EQUIPMENT. **SPEC SECTION 3.05 A5**
- ENSURE THAT ALL UNRELATED CONSTRUCTION TRAFFIC IS KEPT AWAY FROM THE LIMITS OF EXCAVATION UNTIL THE PROJECT IS COMPLETE AND FINAL SURFACE MATERIALS ARE IN PLACE. NO NON-INSTALLATION RELATED LOADING SHOULD BE ALLOWED OVER THE R-TANK SYSTEM UNTIL THE FINAL DESIGN SECTION HAS BEEN CONSTRUCTED (INCLUDING PAVEMENT). **SPEC SECTION 3.05 B**
- SEE R-TANK INSTALLATION GUIDE OR CONTACT YOUR LOCAL FERGUSON REPRESENTATIVE FOR ADDITIONAL INFORMATION.

SMOOTH DRUM ROLLER STATIC MODE (6 TON MAX, SEE NOTE 1)

LOW GROUND PRESSURE DOZER (10 TON MAX, SEE NOTE 2)

SMOOTH DRUM ROLLER VIBRATORY MODE (6 TON MAX, SEE NOTE 1)



R-TANK<sup>HD</sup> UNITS  
HD: LOAD RATING: 33.4 PSI (MODULE ONLY)

SUBGRADE / EXCAVATION LINE: COMPACT PER SPEC SECTION 3.02 D. A BEARING CAPACITY OF 2,000 PSF MUST BE ACHIEVED PRIOR TO INSTALLING R-TANK<sup>HD</sup> OR R-TANK<sup>SD</sup>

CONSTRUCTION EQUIPMENT COVER DETAIL - VEHICULAR TRAFFIC

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NTS  
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06/30/2023  
SHEET NO.

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BASIN A

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# R-TANK SPECIFICATION

## PART 1 - GENERAL

### 1.01 RELATED DOCUMENTS

A. Drawings, technical specification and general provisions of the Contract as modified herein apply to this section.

### 1.02 DESCRIPTION OF WORK INCLUDED

- A. Provide excavation and base preparation per geotechnical engineer's recommendations and/or as shown on the design drawings, to provide adequate support for project design loads and safety from excavation sidewall collapse. Excavations shall be in accordance with the owner's and OSHA requirements.
- B. Provide and install R-TankLD/, R-TankHD/, R-TankSD/, or R-TankUD/ system (hereafter called R-Tank) and all related products including fill materials, geotextiles, geogrids, inlet and outlet pipe with connections per the manufacturer's installation guidelines provided in this section.
- C. Provide and construct the cover of the R-Tank system including; stone backfill, structural fill cover, and pavement section as specified.
- D. Protect R-Tank system from construction traffic after installation until completion of all construction activity in the installation area.

### 1.03 QUALITY CONTROL

- A. All materials shall be manufactured in ISO certified facilities.
- B. Installation Contractor shall demonstrate the following experience:
1. A minimum of three R-Tank or equivalent projects completed within 2 years; and,
  2. A minimum of 25,000 cubic feet of storage volume completed within 2 years.
  3. Contractor experience requirement may be waived if the manufacturer's representative provides on-site training and review during construction.
- C. Installation Personnel: Performed only by skilled workers with satisfactory record of performance on bulk earthworks, pipe, chamber, or pond/landfill construction projects of comparable size and quality.
- D. Contractor must have manufacturer's representative available for site review if requested by Owner.

### 1.04 SUBMITTALS

- A. Submit proposed R-Tank layout drawings. Drawings shall include typical section details as well as the required base elevation of stone and tanks, minimum cover requirements and tank configuration.
- B. Submit manufacturer's product data, including compressive strength and unit weight.
- C. Submit manufacturer's installation instructions.
- D. Submit R-Tank sample for review. Reviewed and accepted samples will be returned to the Contractor.
- E. Submit material certificates for geotextile, geogrid, base course and backfill materials.
- F. Submit required experience and personnel requirements as specified in Section 1.03.
- G. Any proposed equal alternative product substitution to this specification must be submitted for review and approved prior to bid opening. Review package should include third party reviewed performance data that meets or exceeds criteria in Table 2.01 B.

### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect R-Tank and other materials from damage during delivery, and store UV sensitive materials under tarp to protect from sunlight when time from delivery to installation exceeds two weeks. Storage of materials should be on smooth surfaces, free from dirt, mud and debris.
- B. Handling is to be performed with equipment appropriate to the materials and site conditions, and may include hand, handcart, forklifts, extension lifts, etc.
- C. Cold weather:
1. Care must be taken when handling plastics when air temperature is 40 degrees or below as plastic becomes brittle.
  2. Do not use frozen materials or materials mixed or coated with ice or frost.
  3. Do not build on frozen ground or wet, saturated or muddy subgrade.

### 1.06 PREINSTALLATION CONFERENCE

- A. Prior to the start of the installation, a preinstallation conference shall occur with the representatives from the design team, the general contractor, the excavation contractor, the R-Tank installation contractor, and the manufacturer's representative.

### 1.07 PROJECT CONDITIONS

- A. Coordinate installation for the R-Tank system with other on-site activities to eliminate all non-installation related construction traffic over the completed R-Tank system. No loads heavier than the design loads shall be allowed over the system, and in no case shall loads higher than a standard AASHTO HS20 (or HS25, depending on design criteria) load be allowed on the system at any time.
- B. Protect adjacent work from damage during R-Tank system installation.
- C. All pre-treatment systems to remove debris and heavy sediments must be in place and functional prior to operation of the R-Tank system. Additional pretreatment measures may be needed if unit is operational during construction due to increased sediment loads.
- D. Contractor is responsible for any damage to the system during construction.

## PART 2 - PRODUCTS

### 2.01 R-TANK UNITS

- A. R-Tank - Injection molded plastic tank plates assembled to form a 95% void modular structure of predesigned height (custom for each project).
- B. R-Tank units shall meet the following Physical & Chemical Characteristics:

PROPERTY	DESCRIPTION	R-Tank <sup>LD</sup> VALUE	R-Tank <sup>HD</sup> VALUE	R-Tank <sup>SD</sup> VALUE	R-Tank <sup>UD</sup> VALUE
Void Area	Volume available for water storage	95%	95%	95%	95%
Surface Void Area	Percentage of exterior available for infiltration	90%	90%	90%	90%
Vertical Compressive Strength	ASTM D 2412 / ASTM F 2418	30.0 psi	33.4 psi	42.9 psi	134.2 psi
Lateral Compressive Strength	ASTM D 2412 / ASTM F 2418	20.0 psi	22.4 psi	28.9 psi	N/A
HS-20 Minimum Cover	Cover required to support HS-20 loads	N/A	20"	18"	12" (STONE BACKFILL)
HS-25 Minimum Cover	Cover required to support HS-25 loads	N/A	24"	19"	10" (STONE BACKFILL)
Maximum Cover	Maximum allowable cover depth	3 feet	< 7 feet	< 10 feet	5 feet
Unit Weight	Weight of plastic per cubic foot of tank	3.29 lbs / cf	3.62 lbs/cf	3.96 lbs / cf	4.33 lbs / cf
Rib Thickness	Thickness of load-bearing members	0.18 inches	0.18 inches	0.18 inches	N/A
Service Temperature	Safe temperature range for use	-14 - 167° F	-14 - 167° F	-14 - 167° F	-14 - 167° F

- C. Supplier: Ferguson Waterworks 2831 Cardwell Road Richmond, VA 23234 (T): 800-448-3636; (F): 804-743-7779 www.ferguson.com

### 2.02 GEOSYNTHETICS

- A. Geotextile. A geotextile envelope is required to prevent backfill material from entering the R-Tank modules.
1. Standard Application: The standard geotextile shall be an 8 oz per square yard nonwoven geotextile (ACF N080 or equivalent).
  2. Infiltration Applications: When water must infiltrate/exfiltrate through the geotextile as a function of the system design, a woven monofilament (ACF M200 or equivalent) shall be used.
- B. Geogrid. For installations subject to traffic loads and/or when required by project plans, install geogrid (ACF BX12 or equivalent) to reinforce backfill above the R-Tank system. Geogrid is not always required for R-TankUD/ installations, and is often not required for non-traffic load applications.

### 2.03 BACKFILL & COVER MATERIALS

- A. Bedding Materials: Stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System) shall be used below the R-Tank system (3" minimum). Material must be free from lumps, debris, and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation. For infiltration applications bedding material shall be free draining.
- B. Side and Top Backfill: Material must be free from lumps, debris and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.
1. Traffic Applications - Free draining material shall be used adjacent to (24" minimum) and above (for the first 12") the R-Tank system.
  - a. For HD, and SD modules, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System).
  - b. For UD modules with less than 14" of top cover, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter). The use of soil backfill on the sides and top of the UD module is not permitted unless the modules are installed outside of traffic areas or with cover depths of 14" or more. Top backfill material (from top of module to bottom of pavement base or 12" maximum) must be consistent with side backfill.
  2. Non-Traffic / Green Space Applications - For all R-Tank modules installed in green spaces and not subjected to vehicular loads, backfill materials may either follow the guidelines for Traffic Applications above, or the top backfill layer (12" minimum) may consist of AASHTO #57 stone blended with 30-40% (by volume) topsoil to aid in establishing vegetation.
- C. Additional Cover Materials: Structural Fill shall consist of granular materials meeting the gradational requirements of SM, SP, SW, GM, GP or GW as classified by the Unified Soil Classification System. Structural fill shall have a maximum of 25 percent passing the No. 200 sieve, shall have a maximum clay content of 10 percent and a maximum Plasticity Index of 4. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.

### 2.04 OTHER MATERIALS

- A. Utility Marker: Install metallic tape at corners of R-Tank system to mark the area for future utility detection.

## PART 3 - EXECUTION

### 3.01 ASSEMBLY OF R-TANK UNITS

- A. Assembly of modules shall be performed in accordance with the R-Tank Installation Manual, Section 2.

### 3.02 LAYOUT AND EXCAVATION

- A. Installer shall stake out, excavate, and prepare the subgrade area to the required plan grades and dimensions, ensuring that the excavation is at least 2 feet greater than R-Tank dimensions in each direction allowing for installation of geotextile filter fabric, R-Tank modules, and free draining backfill materials.
- B. All excavations must be prepared with OSHA approved excavated sides and sufficient working space.
- C. Protect partially completed installation against damage from other construction traffic by establishing a perimeter with high visibility construction tape, fencing, barricades, or other means until construction is complete.
- D. Base of the excavation shall be uniform, level, and free of lumps or debris and soft or yielding subgrade areas. A minimum 2,000 pounds per square foot bearing capacity is required.
1. Standard Applications: Compact subgrade to a minimum of 95% of Standard Proctor (ASTM D698) density or as required by the Owner's engineer.
  2. Infiltration Applications: Subgrade shall be prepared in accordance with the contract documents. Compaction of subgrade should not be performed in infiltration applications.
- E. Unsuitable Soils or Conditions: All questions about the base of the excavation shall be directed to the owner's engineer, who will approve the subgrade conditions prior to placement of stone. The owner's engineer shall determine the required bearing capacity of the R-Tank subgrade; however in no case shall a bearing capacity of less than 2,000 pounds per square foot be provided.
1. If unsuitable soils are encountered at the subgrade, or if the subgrade is pumping or appears excessively soft, repair the area in accordance with contract documents and/or as directed by the owner's engineer.
  2. If indications of the water table are observed during excavation, the engineer shall be contacted to provide recommendations.
  3. Do not start installation of the R-Tank system until unsatisfactory subgrade conditions are corrected and the subgrade conditions are accepted by the owner's engineer.

### 3.03 PREPARATION OF BASE

- A. Place a thin layer (3" unless otherwise specified) of bedding material (Section 2.03 A), over the subgrade to establish a level working platform for the R-Tank modules. Level to within 1/2" (+/- 1/2") or as shown on the plans. Native subgrade soils or other materials may be used if determined to meet the requirements of 2.03 A and are accepted by the owner's engineer.
1. Standard Applications: Static roll or otherwise compact bedding materials until they are firm and unyielding.
  2. Infiltration Applications: Bedding materials shall be prepared in accordance with the contract documents.
- B. Outline the footprint of the R-Tank system on the excavation floor using spray paint or chalk line to ensure a 2' perimeter is available around the R-Tank system for proper installation and compaction of backfill.

### 3.04 INSTALLATION OF THE R-TANKS

- A. Where a geotextile wrap is specified on the stone base, cut strips to length and install in excavation, removing wrinkles so material lays flat. Overlap geotextile a minimum 12" or as recommended by manufacturer. Use tape, special adhesives, sandbags or other ballast to secure overlaps. As geotextiles can be damaged by extreme heat, smoking is not permissible on/near the geotextile, and tools using a flame to tack the overlaps, such as propane torches, are prohibited.
- B. Where an impervious liner (for containment) is specified, install the liner per manufacturer's recommendations and the contract documents. The R-Tank units shall be separated from impervious liner by a non-woven geotextile fabric installed accordance with Section 3.04A.
- C. Install R-Tank modules by placing side by side, in accordance with the design drawings. No lateral connections are required. It is advisable to use a string line to form square corners and straight edges along the perimeter of the R-Tank system. The modules are to be oriented as per the design drawing with required depth as shown on plans.
1. For LD, HD, and SD installations, the large side plate of the tank should be placed on the perimeter of the system. This will typically require that the two ends of the tank area will have a row of tanks placed perpendicular to all other tanks. If this is not shown in the construction drawings, it is a simple field adjustment that will have minimal effect on the overall system footprint. Refer to R-Tank Installation Guide for more details.
  2. For UD installations, there is no perpendicular end row required.
- D. Wrap the R-Tank top and sides in specified geotextile. Cut strips of geotextile so that it will cover the sides and top, encapsulating the entire system to prevent backfill entry into the system. Overlap geotextile 12" or as recommended by manufacturer. Take great care to avoid damage to geotextile (and, if specified, impervious liner) during placement.
- E. Identify locations of inlet, outlet and any other penetrations of the geotextile (and optional liner). These connections should be installed flush (butted up to the R-Tank) and the geotextile fabric shall be cut to enable hydraulic continuity between the connections and the R-Tank units. These connections shall be secured using pipe boots with stainless steel pipe clamps. Support pipe in trenches during backfill operations to prevent pipe from settling and damaging the geotextile, impervious liner (if specified) or pipe. Connecting pipes at 90 degree angles facilitates construction, unless otherwise specified. Ensure end of pipe is installed snug against R-Tank system.
- F. Install Inspection and Maintenance Ports in locations noted on plans. At a minimum one maintenance port shall be installed within 10' of each inlet & outlet connection, and with a maximum spacing of one maintenance port for every 2,500 square feet. Install all ports as noted in the R-Tank Installation Guide.
- G. If required, install ventilation pipes and vents as specified on drawings to provide ventilation for proper hydraulic performance. The number of pipes and vents will depend on the size of the system. Vents are often installed using a 90 degree elbow with PVC pipe into a landscaped area with "U" bend or venting bollard to inhibit the ingress of debris. A ground level concrete or steel cover can be used.

### 3.05 BACKFILLING OF THE R-TANK UNITS

- A. Backfill and fill with recommended materials as follows:
1. Place freely draining backfill materials (Section 2.03 B) around the perimeter in lifts with a maximum thickness of 12". Each lift shall be placed around the entire perimeter such that each lift is no more than 24" higher than the side backfill along any other location on the perimeter of the R-Tank system. No fill shall be placed over top of tanks until the side backfill has been completed.
  2. Each lift shall be compacted at the specified moisture content to a minimum of 95% of the Standard Proctor Density until no further densification is observed (for self-compacting stone materials). The side lifts must be compacted with walk behind compaction equipment. Even when "self-compacting" backfill materials are selected, a walk behind vibratory compactor must be used.
  3. Take care to ensure that the compaction process does not allow the machinery to come into contact with the modules due to the potential for damage to the geotextile and R-Tank units.
  4. No compaction equipment is permissible to operate directly on the R-Tank modules.
  5. Top Backfill: Only low pressure track vehicles shall be operated over the R-Tank system during construction. Dump Trucks and Pans shall not be operated within the R-Tank system footprint at any time. Heavy equipment should unload in an area adjacent to the R-Tank system and the material should be moved over the system using tracked equipment with an operating weight of less than 10 tons.
  - a. Typical Applications: Install a 12" (or as shown on plans) lift of freely draining material (Section 2.03 B) over the R-Tank Units, maintaining 12" between equipment tracks and R-Tank System. Lightly compacted using a walk-behind trench roller. Alternately, a roller (maximum gross vehicle weight of 6 tons) may be used. Roller must remain in static mode until a minimum of 24" of cover has been placed over the modules. Sheep foot rollers should not be used.
  - b. Shallow Applications (< 18" total cover): Install top backfill in accordance with plans.
6. If required, install a geogrid as shown on plans. Geogrid shall extend a minimum of 3 feet beyond the limits of the excavation wall.
  7. Following placement and compaction of the initial cover, subsequent lifts of structural fill (Section 2.03 C) shall be placed at the specified moisture content and compacted to a minimum of 95% of the Standard Proctor Density and shall cover the entire footprint of the R-Tank system. During placement of fill above the system, unless otherwise specified, a uniform elevation of fill shall be maintained to within 12" across the footprint of the R-Tank system. Do not exceed maximum cover depths listed in Table 2.01 B.
  8. Place additional layers of geotextile and/or geogrid at elevations as specified in the design details. Each layer of geosynthetic reinforcement placed above the R-Tank system shall extend a minimum of 3 feet beyond the limits of the excavation wall.
- B. Ensure that all unrelated construction traffic is kept away from the limits of excavation until the project is complete and final surface materials are in place. No non-installation related loading should be allowed over the R-Tank system until the final design section has been constructed (including pavement).
- C. Place surfacing materials, such as groundcovers (no large trees), or paving materials over the structure with care to avoid displacement of cover fill and damage to surrounding areas.
- D. Backfill depth over R-Tank system must be within the limitations shown in the table in Section 2.01 B. If the total backfill depth does not comply with this table, contact engineer or manufacturer's representative for assistance.

### 3.06 MAINTENANCE REQUIREMENTS

- A. A routine maintenance effort is required to ensure proper performance of the R-Tank system. The Maintenance program should be focused on pretreatment systems. Ensuring these structures are clean and functioning properly will reduce the risk of contamination of the R-Tank system and stormwater released from the site. Pre-treatment systems shall be inspected yearly, or as directed by the regulatory agency and by the manufacturer (for proprietary systems). Maintain as needed using acceptable practices or following manufacturer's guidelines (for proprietary systems).
- B. All inlet pipes and Inspection and/or Maintenance Ports in the R-Tank system will need to be inspected for accumulation of sediments at least quarterly through the first year of operation and at least yearly thereafter.
- C. If sediment has accumulated to the level noted in the R-Tank Maintenance Guide or beyond a level acceptable to the Owner's engineer, the R-Tank system should be flushed.
- D. All inspection and maintenance activities should be performed in accordance with the R-Tank Operation, Inspection & Maintenance Manual.

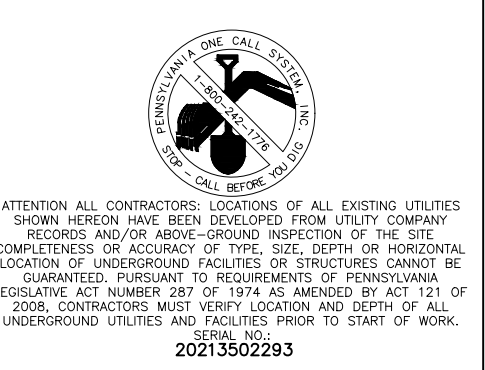


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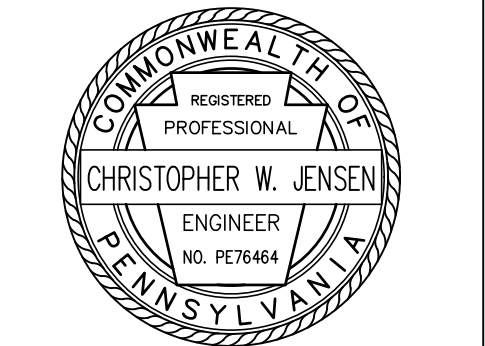
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**CHRISTOPHER W. JENSEN, P.E.**  
LICENSED PROFESSIONAL ENGINEER



4/3/2023  
LICENSED PROFESSIONAL ENGINEER  
STATE OF PA LICENSE NO. PED76464

BT WORCESTER, LLC

CITY VIEW - APN #67-00-01606-001  
2974 GERMANTOWN PIKE, WORCESTER TOWNSHIP,  
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

POST CONSTRUCTION STORMWATER  
MANAGEMENT DETAILS



1700 MARKET STREET, SUITE 3110  
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TEL 215-282-7850  
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\*FERGUSON R-TANK (OR APPROVED EQUAL)

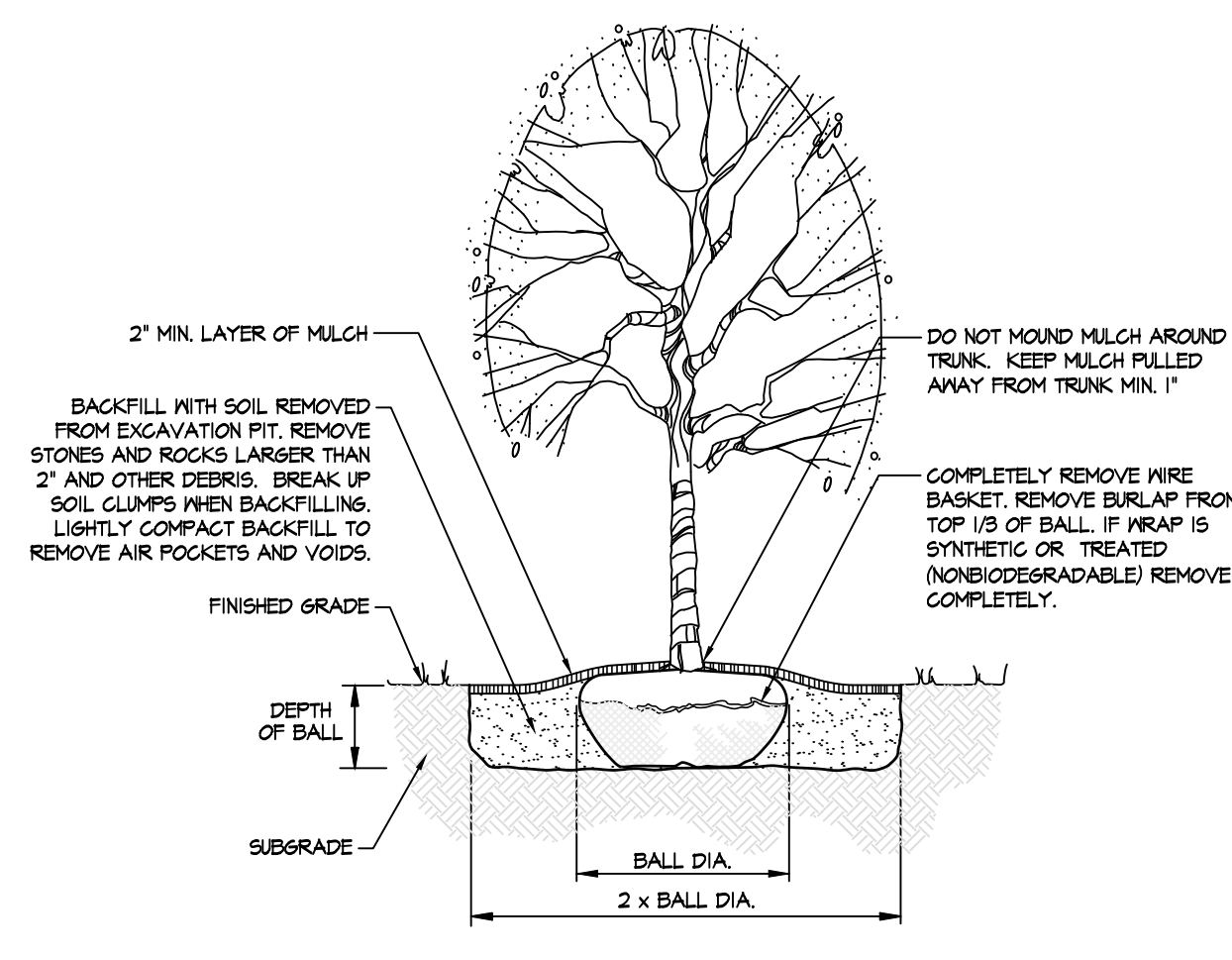




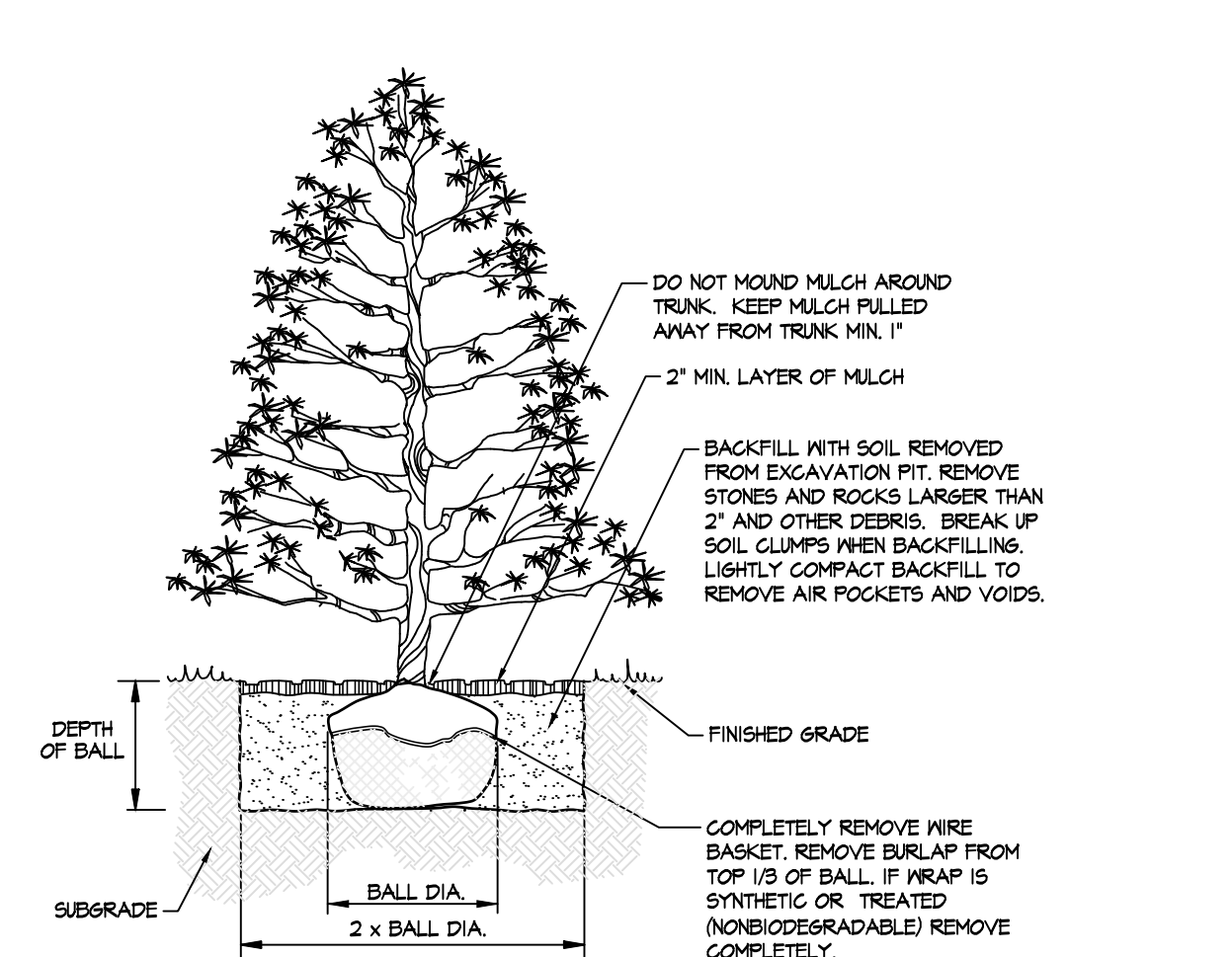


**LANDSCAPE PLANTING NOTES AND SPECIFICATIONS:**

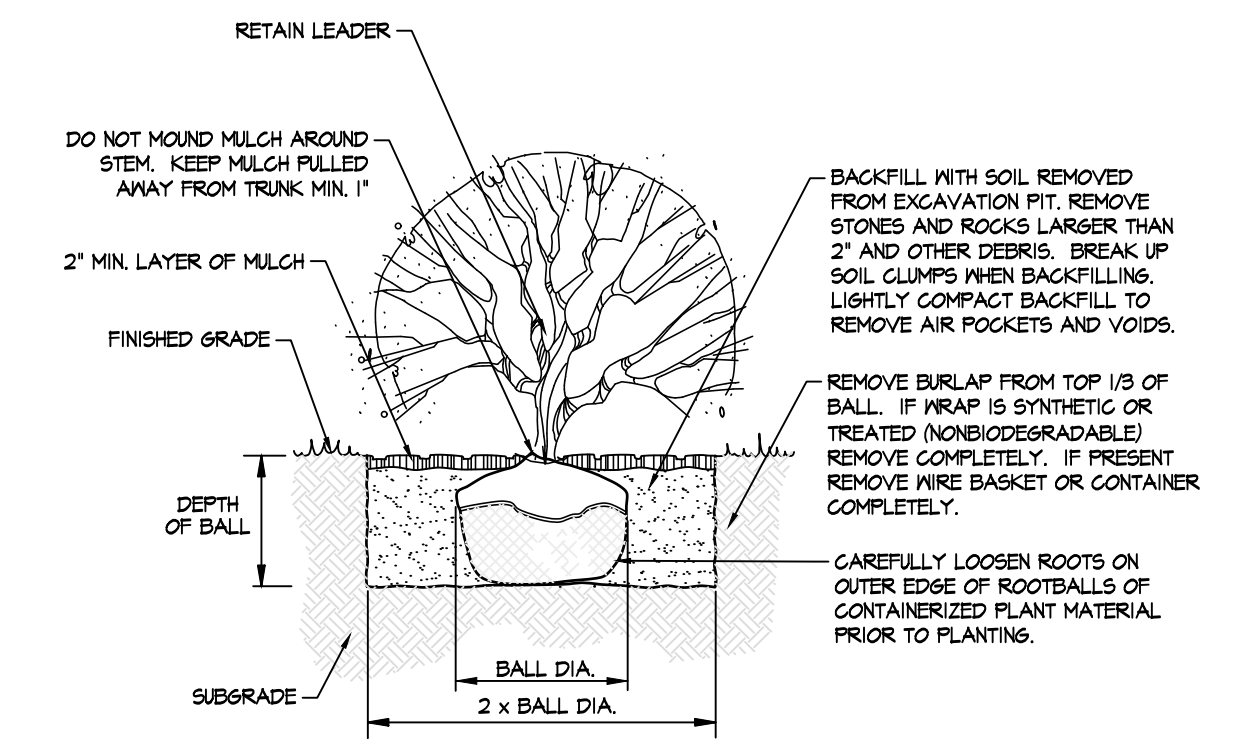
1. ALL PLANT MATERIAL SHALL BE PROVIDED AND INSTALLED IN STRICT CONFORMANCE WITH USDA STANDARDS FOR NURSERY STOCK AND THE "AMERICAN NURSERY AND LANDSCAPE ASSOCIATION" STANDARDS LATEST EDITIONS.
2. THE CONTRACTOR SHALL VERIFY ALL UTILITIES WITHIN WORK AREA PRIOR TO COMMENCING WITH ANY EXCAVATIONS AND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



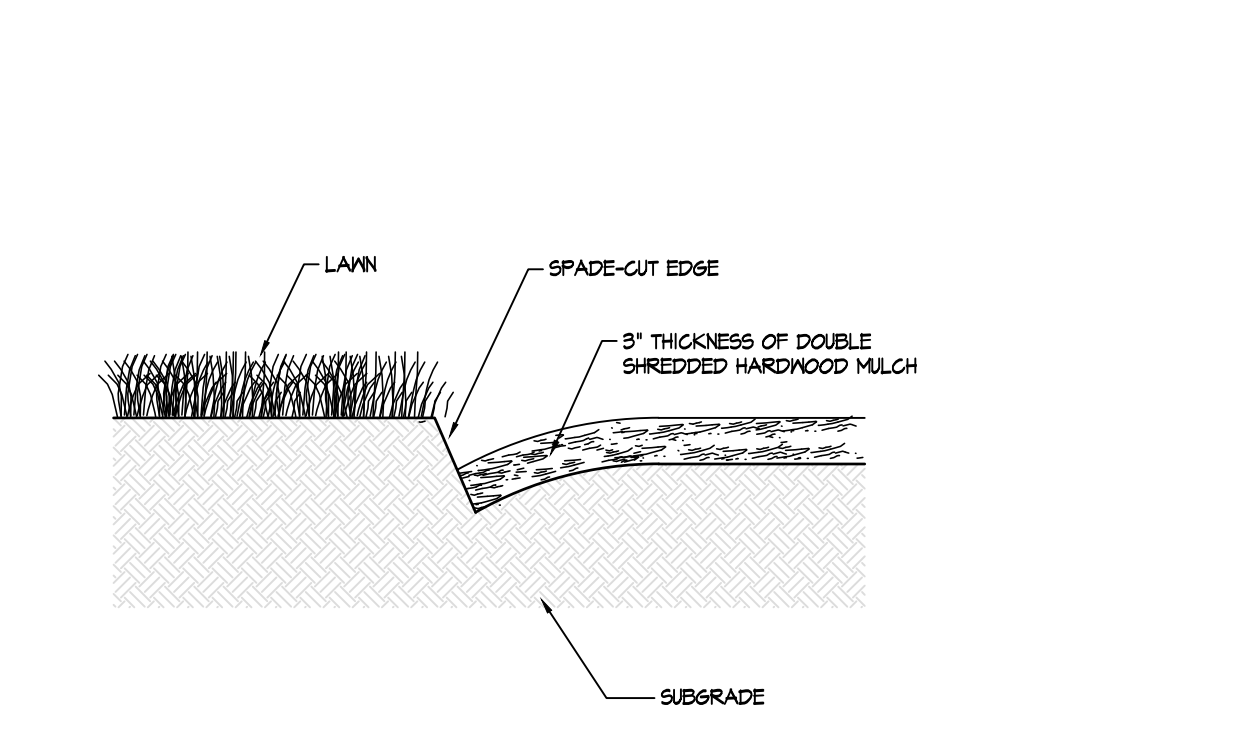
**DECIDUOUS TREE PLANTING**  
NOT TO SCALE



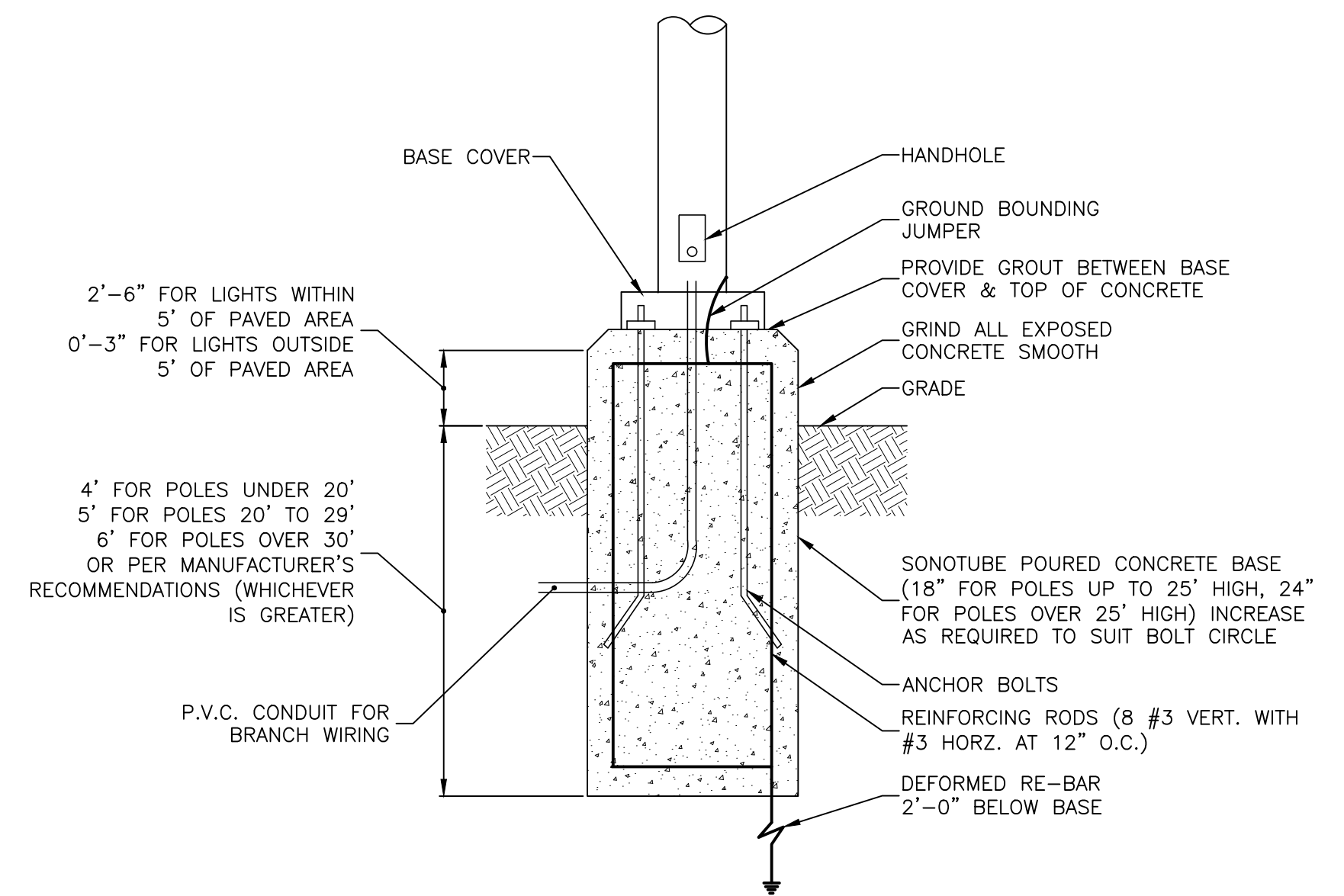
**EVERGREEN TREE PLANTING**  
NOT TO SCALE



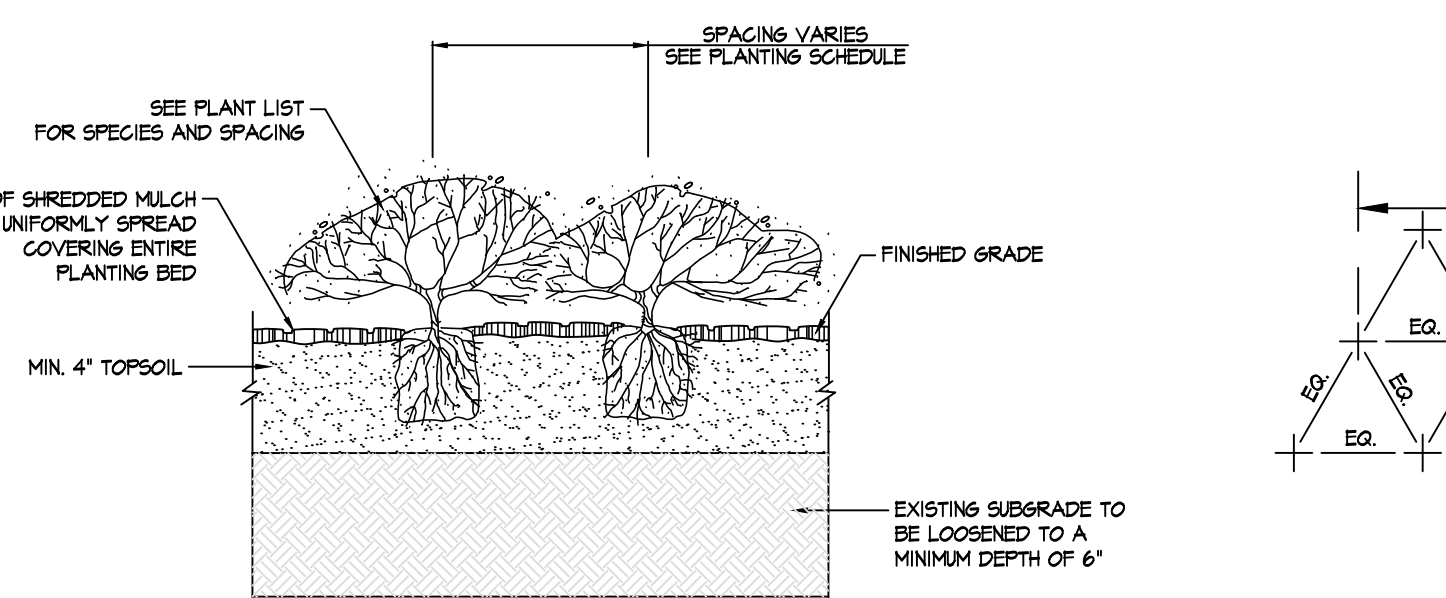
**SHRUB PLANTING**  
NOT TO SCALE



**EDGING AT MULCH BED**  
NOT TO SCALE



**LIGHT BASE**  
NOT TO SCALE



**PLANT SPACING DIAGRAM**  
NOT TO SCALE

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

**PLUG AND PERENNIAL PLANTING**  
NOT TO SCALE

**EMERGENCY SEEDING RECOMMENDATIONS TOWNSHIP OF WORCESTER**

- DURING CONSTRUCTION ALL DISTURBED AREAS SHOULD BE SEEDED ACCORDING TO THE FOLLOWING INSTRUCTIONS. SEEDING RECOMMENDATION FOR SIX TO TWELVE-MONTH PERIODS.
1. INSTALL NEEDED WATER-CONTROL MEASURES.
  2. PERFORM ALL CULTURAL OPERATIONS AT RIGHT ANGLES TO THE SLOPE.
  3. LIME ACCORDING TO SOIL TEST OR KNOWLEDGE OF THE SITE OR APPLY TWO TONS OF GROUND LIMESTONE PER ACRE.
  4. FERTILIZE ACCORDING TO SOIL TEST OR KNOWLEDGE OF THE SITE OR APPLY 40-40-40 PER ACRE.
  5. INCORPORATE LIME AND FERTILIZER INTO THE TOP FOUR INCHES OF SURFACE SOIL BY DISCS OR OTHER SUITABLE MEANS.
  6. SEED ONE OF THE FOLLOWING MIXTURES AT THE MOST SUITABLE DATE, APPLY UNIFORMLY WITH A DRILL OR BY BROADCASTING.
    - a. MARCH 1 TO OCTOBER 1: 20 POUNDS OF ANNUAL RYE GRASS OR FIELD BROMEGRASS PER ACRE.
    - b. MARCH 1 TO MAY 30: 20 POUNDS OF ANNUAL RYE GRASS OR FIELD BROMEGRASS AND 64 POUNDS OF SPRING OATS PER ACRE.
    - c. AUGUST 1 TO NOVEMBER 1: 20 POUNDS OF ANNUAL RYE GRASS OR FIELD BROMEGRASS AND 1/2 POUNDS OF WINTER RYE PER ACRE.
  7. COVER GRASS AND LEGUME SEEDS ONE-FOURTH-INCH DEEP WITH CULTIPACKER OR HARROW. COVER RYE OR OATS ABOUT TWO INCHES DEEP.
  8. MOW RYE OR OATS JUST BEFORE THEY HEAD OUT IF SLOPE PERMITS.
- SECTION 150-6 SHALL PREVAIL IN CASES OF CONFLICT WITH THE ABOVE PROVISIONS.

**OPULENCE Small Side Arm Mount**

PERFORMANCE

Lumens	100V	120V	140V	170V	18V	48V
15	0.18	0.11	0.09	0.09	0.08	0.05
30	0.25	0.14	0.12	0.11	0.09	0.06
60	0.32	0.18	0.16	0.14	0.11	0.08
90	0.43	0.25	0.22	0.19	0.15	0.11
120	0.55	0.32	0.28	0.24	0.19	0.14
150	0.66	0.38	0.33	0.29	0.23	0.18
180	0.88	0.50	0.43	0.37	0.30	0.23

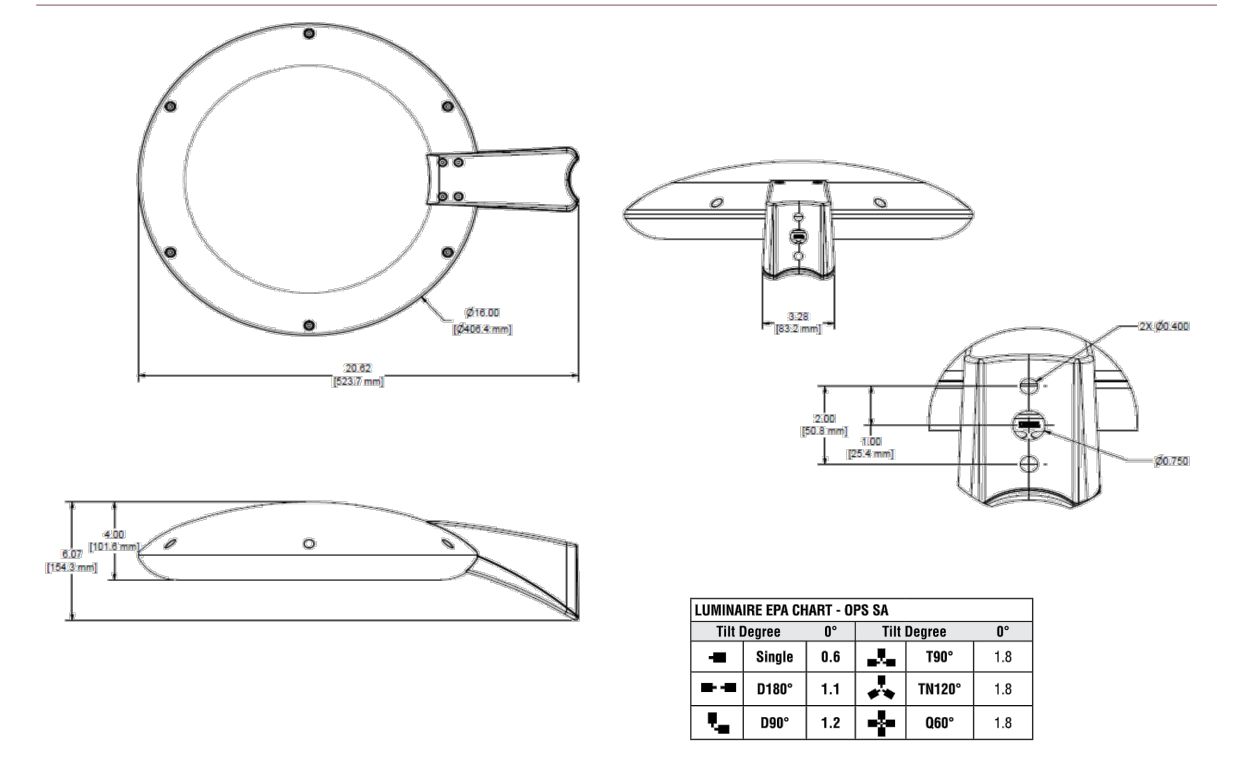
RECOMMENDED LUMEN MAINTENANCE (1)

Additional Step	0 hrs. (2)	25K hrs. (2)	50K hrs. (2)	75K hrs. (2)	100K hrs. (2)
C	100%	100%	100%	100%	100%
D	100%	100%	100%	100%	100%

1. Lumen maintenance values are calculated per TM-21 based on LM-80 data and an initial lumen testing.  
2. In accordance with IESNA TM-21-13, projected values represent interpolated value based on time durations that we within six times (6X) the IESNA LM-80 total test duration (in hours) for the device under testing (DUT) i.e. the packaged LED chip(s).  
3. In accordance with IESNA TM-21-13, Calculated Values represent time durations that exceed six times (6X) the LM-80 total test duration (in hours) for the device under testing (DUT) i.e. the packaged LED chip(s).  
\*Electrical data at 25C (77F). Actual wattage may differ by +/-10%.

ORDERING GUIDE

Typical Order Example	Ops SA	BL	4F	UNV	40K	BLK	ALBCS1
Ops - Distance Smart	SA - Side Arm Mount			UL - 3,000 Lumens	UL - 3,000 Lumens	UL - 3,000 Lumens	UL - 3,000 Lumens
				UL - 10,000 Lumens	UL - 10,000 Lumens	UL - 10,000 Lumens	UL - 10,000 Lumens
				UL - 15,000 Lumens	UL - 15,000 Lumens	UL - 15,000 Lumens	UL - 15,000 Lumens
				UL - 20,000 Lumens	UL - 20,000 Lumens	UL - 20,000 Lumens	UL - 20,000 Lumens



**OPULENCE Small Side Arm Mount**

ACCESSORY ORDERING INFORMATION

Accessory	Order Number	Description
Test Lock Protocol (200V) for use with OP17	120214	Test Lock Protocol (200V) for use with OP17
Test Lock Protocol (200V) for use with OP17	120215	Test Lock Protocol (200V) for use with OP17
Test Lock Protocol (24V) for use with OP17	120216	Test Lock Protocol (24V) for use with OP17
Test Lock Protocol (24V) for use with OP17	120217	Test Lock Protocol (24V) for use with OP17
ARCAS 5 Pin Test Lock Controller	681403	ARCAS 5 Pin Test Lock Controller
ARCAS 5 Pin Test Lock Controller	681404	ARCAS 5 Pin Test Lock Controller
ARCAS 5 Pin Test Lock Controller	681405	ARCAS 5 Pin Test Lock Controller
ARCAS 5 Pin Test Lock Controller	681406	ARCAS 5 Pin Test Lock Controller
ARCAS 5 Pin Test Lock Controller	681407	ARCAS 5 Pin Test Lock Controller
ARCAS 5 Pin Test Lock Controller	681408	ARCAS 5 Pin Test Lock Controller
ARCAS 5 Pin Test Lock Controller	681409	ARCAS 5 Pin Test Lock Controller
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ARCAS 5 Pin Test Lock Controller	681500	ARCAS 5 Pin Test Lock Controller

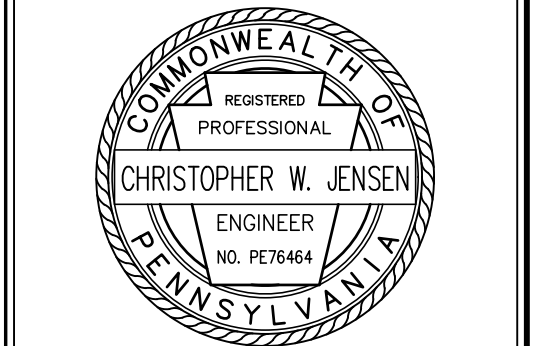
BT WORCESTER, LLC

CITY VIEW - APN #67-00-01606-001  
2974 GERMANTOWN PIKE, WORCESTER TOWNSHIP,  
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

LANDSCAPE AND LIGHTING DETAILS

NO.	DATE	REVISIONS	BY	CHKD
1	10/04/2022	PER CHS REVIEW LETTER DATED 03/11/2022	PG DS	PG DS
2	4/3/2023	REVISED ENTRANCE ON GERMANTOWN PIKE	PG DS	PG DS
3	11/17/2023	PER CHS REVIEW LETTER DATED 11/22/2022	PG DS	PG DS

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



4/3/2023  
LICENSED PROFESSIONAL ENGINEER  
STATE OF PA LICENSE NO. PE076404

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 1700 MARKET STREET, SUITE 3110  
 PHILADELPHIA, PA 19103  
 TEL 215-282-7850  
 FAX 215-627-3459  
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DESIGNED BY	CGG/JPK/ROP	DRAWING	DET-15
CHECKED BY	DS	SHEET	34
DRAWN BY	PG/SR/ROP		