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VOLUME 1 OF 5

Environmental Impact Analysis

Chalfont Industrial Park
56 Walnut Street
New Britain Township
Bucks County Pennsylvania

Date: July 28, 2026

Prepared for:
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Introduction

This Environmental Impact Assessment Report has been prepared on behalf of HCI DP Land Acquisition LLC (the "Applicant") in support of the proposed preliminary subdivision and land development application for the property located between Walnut Street, Schoolhouse Road, County Line Road and Independence Lane in New Britain Township, Bucks County, Pennsylvania.

The existing site is vacant and contains the West Branch of Neshaminy Creek traveling through the central portion of the tract, together with woodland areas, wetlands, floodplain and riparian buffer areas. The overall project consists of four lots totaling approximately 90.06 acres, which are proposed to be consolidated into one lot. The Applicant proposes to develop the property with three industrial / warehouse buildings, together with utilities, stormwater management controls, parking, loading areas, access drives, landscaping, lighting and other improvements necessary to support the development.

This report is organized as a direct response to the required components listed in Attachment 1 of the New Britain Township Zoning Ordinance entitled "Appendix A Environmental Impact Statement Report". Where a topic has already been evaluated in a technical submission prepared by another consultant, this report identifies that material and incorporates it as an attached exhibit. Where independent planning analysis is warranted - most notably as to consistency with the Township Comprehensive Plan and the broader environmental effects of the proposal - the required discussion is provided directly in this report.

The table on the next page lists materials that were reviewed in preparing this report and, where noted in the discussion below, are incorporated as exhibits. This list is intended to provide a clear record of the specific document titles, preparers and dates that inform the analysis.

Plans and Reports Reviewed and Incorporated as Exhibits

Exhibit No.	Topic	Document Title	Preparer	Date
1	Subdivision/ Land Development Plans	Preliminary Subdivision and Land Development Plans, Proposed Industrial Development	Bohler Engineering	July 28, 2026
2	Floodplain	Proposed Industrial Development Flood Study	Bohler Engineering	September 24, 2025
3	Stormwater	Post-Construction Stormwater Management Report	Bohler Engineering	July 28, 2026
4	Traffic	Walnut Street Warehouse Transportation Impact Study	Traffic Planning and Design, Inc. (TPD)	July 28, 2026
5	Traffic	Truck Turning Plan - County Line Rd and Walnut St / related turning templates	Traffic Planning and Design, Inc. (TPD)	July 28, 2026
6	Geotechnical	Geotechnical Engineering Report - Walnut Street - Chalfont, New Britain Township, Bucks County, Pennsylvania	Geo-Technology Associates, Inc.	August 28, 2025; revised November 14, 2025
7	Wetlands	Wetland Report - The Hanover Company - Walnut Street	Valley Environmental Services, Inc.	August 26, 2025
8	Environmental	Phase I Environmental Site Assessment - Farm Property, 56 Walnut Street, Chalfont, Bucks County, Pennsylvania 18914	The Vertex Companies, LLC	June 23, 2025
9	Environmental	Phase II Limited Site Investigation - Chalfont Industrial Park, 56 Walnut Street, Chalfont, Bucks County, Pennsylvania 18914	The Vertex Companies, LLC	September 2, 2025
10	Habitat	Northern Red-bellied Cooter Habitat Assessment Report	Skelly and Loy, Inc., A Terracon Company	November 13, 2025
11	Agency clearance	Pennsylvania Fish and Boat Commission Species Impact Review (SIR #61749)	Pennsylvania Fish and Boat Commission	November 25, 2025
12	Natural heritage	Pennsylvania Natural Diversity Inventory search materials (PNDI Search No. 843502_1)	Pennsylvania Natural Diversity Inventory	July 3, 2025
13	Survey	ALTA/NSPS Land Title Survey	Control Point Associates, Inc.	July 18, 2025, revised August 25, 2025
14	Utilities	Will Serve letter - public sewer service	Chalfont-New Britain Township Joint Sewer Authority	July 14, 2025
15	Utilities	Availability of Water Capacity - Walnut Street and County Line Road	North Penn Water Authority	August 4, 2025
16	Utilities	Gas service correspondence	PECO	August 28, 2025
17	Utilities	Letter of Assurance of Utilities - electric service	PECO	July 14, 2025
18	Utilities	Will Serve letter - communications service for Industrial Complex at Walnut St & County Line Rd	Verizon	August 11, 2025
19	Noise	Hanover Chalfont Pre-Construction Noise Study	SLR International Corporation	March 27, 2026

1. Overview

The purpose of the proposed project is to redevelop a large tract of land in New Britain Township with a coordinated industrial / warehouse land development that is served by public infrastructure and designed in a manner responsive to the site's natural constraints.

The project consists of the redevelopment of an approximately 90.06-acre tract, now comprised of four existing lots, into a unified industrial land development containing three warehouse / industrial buildings, associated parking and loading areas, internal circulation, stormwater management facilities, utilities, landscaping, and related site improvements.

The public benefits of the proposed project include productive reuse of a large tract in an area already influenced by industrial, transportation, and utility infrastructure; expansion of the Township's nonresidential tax base; support for construction and long-term employment; and concentration of industrial development in a corridor where the Township has planned for continued nonresidential growth.

The site is suitable for the proposed use because it lies within an existing nonresidential growth corridor, is adjacent to public roads, and is capable of being served by public water, sewer, electric, gas, and communications infrastructure, subject to final agency review and approval.

Population projections. Because the proposed development is non-residential, it will not generate new household population, school-aged children or school enrollment. Its demographic effects will consist principally of temporary construction employment and the employees, visitors, vendors and service personnel associated with the completed industrial/warehouse development.

For planning purposes, this analysis assumes approximately one full-time-equivalent employee per 1,000 square feet of building area. The following table describes the preliminary buildout estimate of employee population by building based on the building areas shown in Exhibit 1.

Employee Population Projections

Building	Gross Floor Area	Projected Employees
Building 1	339,450 square feet	339
Building 2	100,000 square feet	100
Building 3	115,500 square feet	116
Total	**554,950 square feet**	**555**

These figures are planning estimates rather than tenant-specific staffing projections and do not represent the number of persons necessarily present on the site during any individual shift. No tenants have been identified, and the precise division among warehouse, distribution, administrative, supervisory, maintenance, security and related positions—and the number and timing of work shifts—cannot presently be determined. Employees are generally expected to represent a working-age population with a range of occupational skills and wage levels typical of industrial and warehouse operations. Employee residence, household characteristics and income distribution cannot reasonably be projected without identified tenants and hiring information.

Employment densities within industrial developments vary considerably depending on the mix of warehouse, manufacturing and office space; the degree of automation; and the number of operating shifts. Local benchmarks demonstrate this range. The Kennett Region Economic Development Study[1] applies a substantially lower density of 0.25 employee per 1,000 square feet to logistics and light-industrial development, while Middletown Township in Bucks County uses two employees per 1,000 square feet for general industrial development[2], which is based on a standard published by the Urban Land Institute. A particularly relevant comparison is the highly automated UPS package-delivery facility in Philadelphia, which the project architect, NORR, identifies as containing 1,004,400 square feet and accommodating approximately 1,000 employees[3]—essentially one employee per 1,000 square feet. A 266,000-square-foot industrial and manufacturing facility in Harleysville expected to support approximately 300 positions provides a slightly higher local example of

[1] https://share.google/1lH0RO1Tnn8JGlLcv
[2] Middletown Township, Bucks County Code Section 500-3305 "Impact Statements" https://ecode360.com/13030350
[3] "UPS Last Mile Package Delivery Facility" https://norr.com/project/ups-facility/

about 1.13 employees per 1,000 square feet[4]. Against these regional benchmarks, one employee per 1,000 square feet is a reasonable and conservative planning assumption for the proposed industrial/warehouse development. Applied to approximately 555,000 square feet, it produces an estimated 555 employees. Actual employment will depend on the eventual tenant mix and operating characteristics.

Construction will create temporary employment for contractors and skilled and unskilled trades, including sitework, utility, building, mechanical, electrical, paving and landscaping personnel. The number of workers present will fluctuate substantially by construction activity and sequencing. Because a contractor, construction schedule and workforce plan have not been established, a reliable construction-period staffing count or occupational breakdown is not presently available. Construction workers will constitute a temporary daytime population and will not create permanent household or school-population effects within the Township.

2. Compatibility

The proposed development is generally consistent with the growth-management framework of the 2016 New Britain Township Comprehensive Plan, although that conclusion must recognize the permanent conversion of substantial portions of the tract from agricultural, open and wooded conditions to industrial development.

Land Use Element. The Comprehensive Plan directs growth toward areas capable of accommodating additional development and recognizes the established pattern of manufacturing and industrial uses along County Line Road within Planning Area 1. It also notes that much of the remaining open land in this planning area is zoned for Industrial-Office development.

The subject property lies within this broader County Line Road–Walnut Street nonresidential corridor and is zoned to accommodate industrial and related uses. Development of the tract with three industrial/warehouse buildings therefore continues an existing and planned nonresidential land-use pattern rather than extending industrial development into a predominantly rural or residential planning area. The availability of public water, public sewer, electric, gas and communications services further supports the location of development in this area rather than in a remote or unserved portion of the Township.

[4]Montco Today, "300 Jobs Coming to Mission Critical Group Harleysville as Texas Manufacturer Bets Big on Northeast" https://montco.today/2026/06/mission-critical-group-harleysville

The project nevertheless introduces a substantially greater intensity of use than presently exists on the tract. Its compatibility with the land-use objectives of the Comprehensive Plan therefore also depends upon appropriate access, traffic management, emergency access, landscaping, buffering, lighting control and protection of adjoining uses. Those matters are addressed through the current land-development plans and the transportation, utility, noise and other technical materials included with this report.

Open Space and Natural-Resource Elements. The Comprehensive Plan's open space and environmental objectives emphasize protection of stream corridors, wetlands, floodplains, woodlands, riparian areas, wildlife habitat and interconnected natural-resource systems. These considerations are particularly important on the subject tract because the West Branch of Neshaminy Creek crosses the property and is associated with wetlands, floodplain, riparian vegetation and wooded habitat.

The proposal does not preserve the tract in its existing agricultural and semi-natural condition. Construction of the buildings, parking areas, loading areas, access drives and stormwater facilities will permanently convert portions of cultivated fields, meadow and woodland to developed use and will reduce the overall amount and continuity of undeveloped land. This represents an incompatibility with the Comprehensive Plan's general preference for conservation of open land and natural resources.

That incompatibility is moderated, but not eliminated, by the organization of the development around the principal creek, wetland, floodplain and habitat resources. The current plans retain substantial portions of the West Branch of Neshaminy Creek corridor and associated environmentally constrained lands as undeveloped or restricted areas. The plans also provide a recreation area, landscaped buffers and stormwater-management facilities, while the wetland, floodplain, habitat and agency-review materials identify the regulated and sensitive resources considered during site design. The proposed environmental-protection areas and applicable restrictions are depicted in Exhibit 1 and the supporting natural-resource exhibits.

The project therefore does not advance the Comprehensive Plan's open space objectives through preservation of the tract as a whole. Rather, it seeks to reconcile the Plan's competing objectives by accommodating planned nonresidential growth while retaining and protecting the most significant interconnected environmental resources within the site.

Overall Compatibility. On balance, the project is generally consistent with the Comprehensive Plan's land-use element because it locates industrial development within an established and planned nonresidential growth area served by public infrastructure. Its relationship to the open space element is more qualified: the proposal will permanently reduce agricultural, wooded and undeveloped land, but the layout retains the principal creek corridor, wetlands, floodplain and associated resource areas and incorporates buffering, stormwater controls and other protective measures.

This planning conclusion does not represent a determination that every element of the current plan complies with all applicable zoning, dimensional, floodplain, natural-resource or land-development requirements. Requested zoning relief, proposed resource disturbance, access conditions and other regulatory issues remain subject to decision through the applicable Township and agency review processes. Rather, the conclusion is that the proposed use and general development pattern can be reconciled with the Comprehensive Plan when the land-use and open space policies are considered together and the required environmental protections and mitigation measures are incorporated into the approved plan.

3. Location

The subject property is located in New Britain Township, Bucks County, Pennsylvania, between Walnut Street, Schoolhouse Road, County Line Road and Independence Lane.

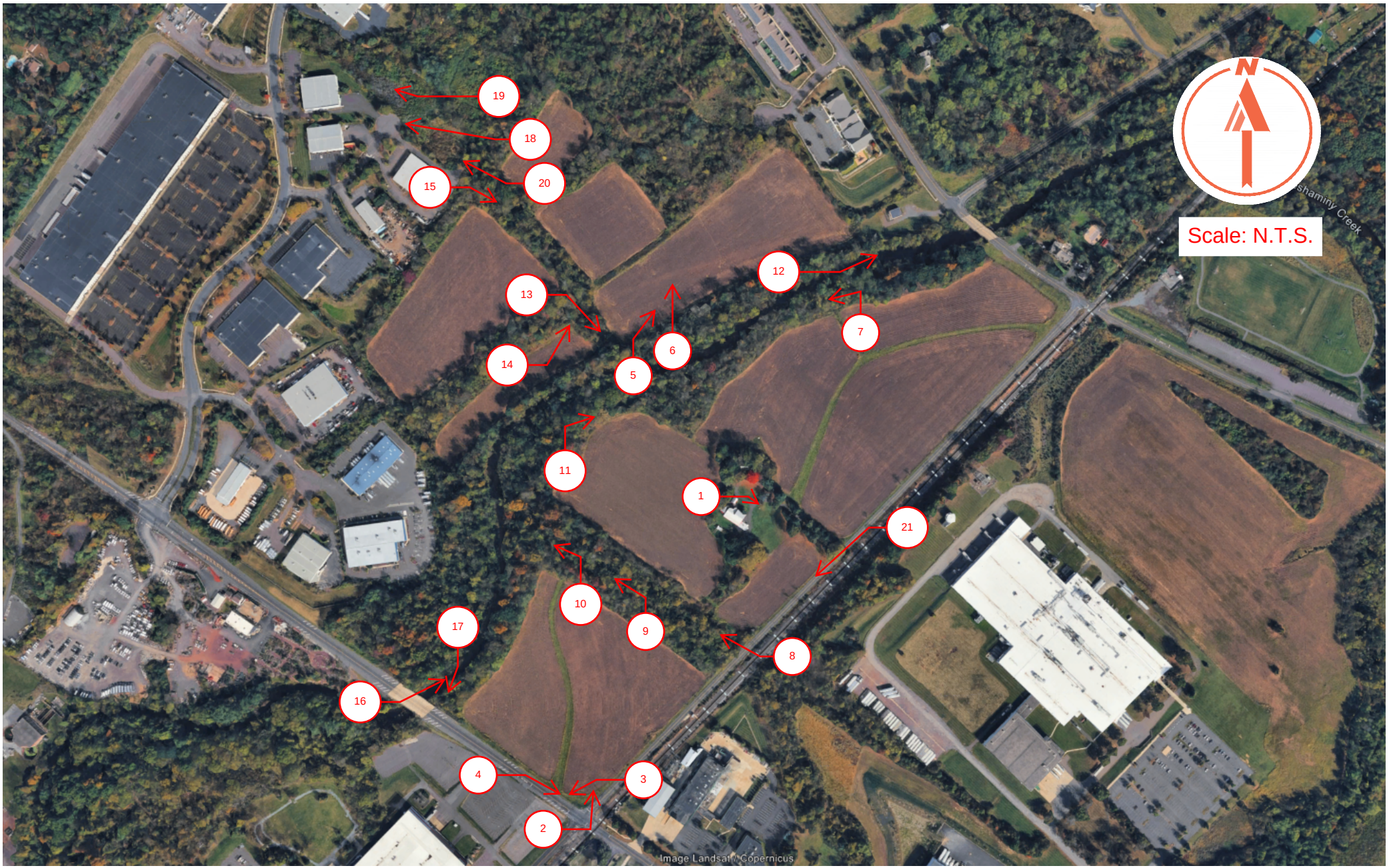
A location map depicting the site and surrounding roadway network, adjoining properties, zoning district boundaries, and municipal boundaries within the required radius is included in Exhibit 1. Because the development encompasses the tract as a whole rather than only a portion of it, no separate partial-tract relationship map is necessary.

4. Photographs

The character and appearance of the site have been documented through photographs and a keyed photographic map included in the following pages.

Those photographs show that the site presently consists of a combination of open cultivated fields, meadow areas, woodland edges, stream corridor vegetation, wetlands-related vegetation, and scattered existing improvements. They also show

the relationship of the site to surrounding industrial and business development, to public roads, and to the creek corridor.



Photographic Key Map

Photo 1: Electric box near home, looking southeast toward railroad tracks



Photo 2: North intersection of Walnut Street and County Line Road, looking north across field toward center of site



Photo 3: North intersection of Walnut Street and County Line Road, looking southwest toward Dorman



Photo 4: North intersection of Walnut Street and County Line Road, looking southeast toward KEMA



Photo 5: Northeast quadrant of site, looking northeast across field toward the preschool



Photo 6: Northeast quadrant of site, looking north toward northern boundary of site



Photo 7: Southeast quadrant of site, in woods along south bank of West Branch Neshaminy Creek, looking west toward center of site



Photo 8: Stream in southwest quadrant of site, in woods near culvert, looking northwest toward West Branch Neshaminy Creek



Photo 9: Southwest quadrant of site, in woods, looking northwest toward West Branch Neshaminy Creek



Photo 10: Stream in southwest quadrant of site, in woods, looking northwest toward West Branch Neshaminy Creek

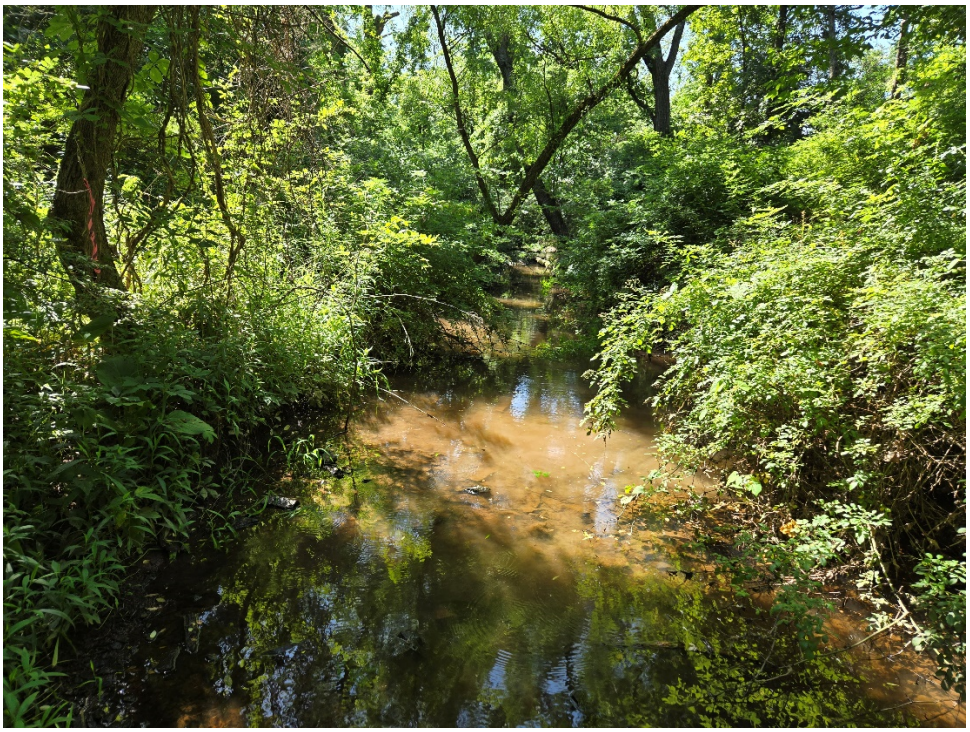


Photo 11: Central area of site, in woods along south bank of West Branch Neshaminy Creek, looking east toward Schoolhouse Road



Photo 12: Eastern portion of site, in West Branch Neshaminy Creek, looking east toward Schoolhouse Road



Photo 13: North central portion of site, in stream, looking southeast toward West Branch Neshaminy Creek



Photo 14: Northeast quadrant of site, at edge of woods, looking northeast toward stream



Photo 15: North portion of site, in stream, looking southeast toward West Branch Neshaminy Creek



Photo 16: Southwest quadrant of site, in West Branch Neshaminy Creek, looking east



Photo 17: Northwest quadrant of site, looking southwest toward County Line Road



Photo 18: Northern site access easement, looking northwest toward Independence Lane



Photo 19: Northern site access easement, looking northwest toward New Britain Blvd



Photo 20: Northern site access easement, looking northwest toward Independence Lane



Photo 21: Southeast quadrant of site, along north side of Walnut Street, looking southwest toward County Line Road



5. Description of Project

The proposed project consists of the consolidation and redevelopment of four adjoining parcels located between Walnut Street, County Line Road, Schoolhouse Road and Independence Lane. The approximately 90.06-acre site is proposed to contain three buildings devoted to wholesale business, wholesale storage and warehousing, together with associated employee parking, loading and truck-maneuvering areas, trailer parking or storage, internal circulation, utilities, stormwater-management facilities, landscaping, lighting and related improvements.

This project description and the associated development quantities are based upon the current land-development plans included as Exhibit 1. Where another exhibit depicts an earlier plan configuration, Exhibit 1 controls with respect to the current site layout, building program and development quantities. The remaining exhibits are relied upon for their applicable technical findings. The four existing parcels are identified in the following table.

Tax Parcels

Tax parcel	Existing acreage
26-001-099	32.46 acres
26-001-099-001	23.58 acres
26-001-099-002	14.84 acres
26-001-099-003	19.17 acres
Combined survey area:	**90.062 acres**

The individual parcel acreages shown above are rounded as presented on Exhibit 1. The proposed development consolidates the four parcels into a single development lot. The Lot Consolidation Plan identifies an 87.09-acre gross consolidated lot, including a 7.96-acre recreation area and 1.75 acres of right-of-way, and reports a net lot area of 77.38 acres. The proposed building program is summarized in the following table.

Proposed Building Program

Building	Gross floor area	Approximate dimensions	Proposed height
Building 1	339,450 square feet	1,095 feet by 310 feet	35 feet*
Building 2	100,000 square feet	500 feet by 200 feet	35 feet*
Building 3	115,500 square feet	550 feet by 210 feet	35 feet*
Total GFA:	**554,950 square feet**		

**Subject to increase to 42 feet, pending outcome of the zoning hearing board height variance decision appeal.*

Each building is served by the employee parking, loading facilities, truck-maneuvering areas and trailer parking or storage areas depicted on Exhibit 1. The buildings and their service areas are connected by the proposed internal circulation system and site access points shown on the plans.

The architectural rendering included with this report illustrates the anticipated general appearance and architectural character of the proposed buildings. Final architectural details remain subject to the applicable land-development approvals and construction documents.

Site Alterations and Improvements. Development of the site requires removal or modification of the existing buildings, driveways, utility connections and other improvements identified on the Existing Conditions/Demolition Plans. Proposed site work also includes clearing and grading; construction of the three building pads; access drives and internal roadways; employee parking, loading and trailer areas; sidewalks and curbing; retaining walls and guiderails where required; utility extensions and connections; stormwater conveyance and management facilities; erosion and sedimentation controls; landscaping and screening; site lighting and signage; and the recreation-area and right-of-way improvements depicted on Exhibit 1.

The project also includes the roadway-frontage, access, pedestrian and circulation improvements shown on the current plans. The precise limits and design of those improvements remain subject to Township, county and state review and approval. Their locations, dimensions and limits, together with the proposed demolition and other site improvements, are depicted more fully on the applicable sheets of Exhibit 1.

Ownership, Operation and Maintenance. The current plans identify Elizabeth Nicholas and Siobhan Welsh, Trustees of Irrevocable Agreements of Trust, and Elizabeth Nicholas as the existing owners of the four parcels. HCI DP Land Acquisition LLC is identified as the Applicant and developer.

The application proposes consolidation of the four existing parcels into a single development lot anticipated to be held under common ownership. The project does not propose separately owned development lots or establish a condominium association, homeowners' association or similar entity.

The owner of the consolidated lot is responsible for the operation and maintenance of the buildings and common site improvements, including the internal drives, parking and loading areas, landscaping, lighting, utilities, stormwater-management facilities and recreation area, except where a particular improvement is dedicated to or accepted by a public entity, utility provider or other responsible party through the final approved plans or a recorded agreement.

Project Phasing. Exhibit 1 presents the project as a single coordinated subdivision and land-development application and does not establish separate formal land-development phases. Construction may be sequenced among the buildings and associated site improvements for practical construction and permitting purposes. The environmental, community and infrastructure effects evaluated in this report are based upon completion and operation of the full three-building development.

Plans Included with This Report. The current land-development plans are included as Exhibit 1 of this report. Exhibit 1 includes plans depicting existing site conditions, proposed demolition, lot consolidation, building locations, access and internal circulation, parking and loading areas, environmental constraints, the recreation area, utilities, stormwater-management facilities and the other principal site improvements described in this section. The applicable site plans are mapped at a scale not exceeding one inch equals 100 feet.The proposed project consists of the redevelopment of an approximately 90.06-acre tract now comprised of four existing lots into a unified industrial land development containing three warehouse / industrial buildings, associated parking and loading areas, internal circulation, stormwater management facilities, utilities, landscaping and other related site improvements.



Chalfont Industrial Park Architectural Rendering

6. Physical Resources Inventory

The tract's physical resources are depicted on the Overall Existing Conditions/Demolition Plan and the applicable slope, riparian-buffer, floodplain and natural-resource plans included in Exhibit 1 at a scale not exceeding one inch equals 100 feet. Exhibit 1 reflects the current development plan and controls with respect to the proposed layout and limits of disturbance. The remaining exhibits cited below provide the supporting technical findings, although some were prepared in connection with an earlier plan iteration.

Topography, Slopes and Soils. The site generally slopes toward the West Branch of Neshaminy Creek and its associated tributaries, which occupy the lower central portions of the tract. Existing elevations range from approximately 264 feet in the creek corridor to approximately 308 feet in the northeastern portion of the property. Existing contours, regulated steep-slope areas and the corresponding limits of proposed disturbance are shown in Exhibit 1.

Mapped soils include Reaville channery silt loam and Bowmansville-Knauers, Abbottstown, Rowland, Buckingham and Readington silt loams. These soils range from somewhat poorly drained to moderately well drained and occur in upland, hillside, drainageway and floodplain settings. The soil mapping and characteristics are included in Exhibit 1 and in the soil and infiltration materials contained in Exhibits 3 and 9. The principal development limitations identified in the technical record are shallow bedrock, moisture-sensitive fine-grained soils and slow, variable infiltration rates. On-lot sewage disposal is not proposed.

Geology and Subsurface Conditions. The tract is located within the Gettysburg-Newark Lowland Section of the Piedmont Physiographic Province and is principally underlain by the Brunswick Formation, consisting generally of reddish-brown shale, mudstone and siltstone. The Site Geology Map in Exhibit 6 depicts the mapped formations and formation boundaries in the site vicinity. The report does not identify a mapped fault crossing the tract; bedding, joints and fracture spacing are discussed as factors affecting localized rock excavation rather than as separately mapped site constraints.

The subsurface investigation included 33 test pits and 30 borings. Weathered rock was encountered at depths generally ranging from approximately two to nine feet, and apparent bedrock was encountered at depths ranging from approximately 3.8 to 19 feet. The investigation concludes that the subsurface conditions are generally

suitable for the proposed development, subject to the site-preparation, excavation, foundation, drainage and construction recommendations contained in Exhibit 6.

Surface Waters, Wetlands and Drainage. The West Branch of Neshaminy Creek crosses the central portion of the tract. Three unnamed tributaries occur along portions of the northern, southern and western limits of the study area. The wetland investigation identified and delineated five wetland features, designated Wetlands A through E, together with the ordinary high-water limits of the creek and tributaries. These aquatic resources are described and mapped in Exhibit 7, while their relationship to the current development plan, floodplain, riparian buffers and proposed disturbance is shown in Exhibit 1.

Existing and proposed runoff is analyzed at three points of analysis draining either directly to the West Branch of Neshaminy Creek or through its unnamed tributaries. The stormwater analysis evaluates the one-, two-, five-, ten-, 25-, 50- and 100-year storms and provides the detailed existing and proposed runoff rates and volumes, drainage-area assumptions and calculations in Exhibit 3. The receiving waters are classified for Warm Water Fishes and Migratory Fishes. Proposed stormwater controls include an aboveground infiltration basin where subsurface conditions permit, an enhanced riparian forest buffer and level spreaders that reduce discharge velocity and establish sheet flow before runoff enters the buffer. Based on this drainage design, the current plans do not identify a separate structural streambank-stabilization project as necessary.

The West Branch floodplain is analyzed in Exhibit 2 using the effective FEMA HEC-RAS model and surveyed site topography. That analysis evaluates receiving-water flow, depth and capacity under watershed-scale flood flows and concludes that the modeled 100-year flood elevation remains unchanged or is reduced at the affected cross sections. Proposed stormwater controls include an aboveground infiltration basin where subsurface conditions permit, an enhanced riparian forest buffer and level spreaders intended to reduce discharge velocity and establish sheet flow before runoff enters the buffer. The need for any additional outlet protection, erosion control or localized streambank-stabilization measures is addressed through the detailed stormwater design, erosion and sediment control plans, and applicable agency and Township reviews as the land-development plans are refined.

Groundwater and Recharge. The Brunswick Formation constitutes the underlying bedrock aquifer. The geotechnical investigation encountered localized static or perched groundwater at depths of approximately four to ten feet, while the Phase II monitoring wells recorded groundwater at approximately 14.4 to 20.0 feet

below grade. These observations represent conditions at the particular locations and times investigated and indicate that groundwater depth varies with topography, geology and seasonal conditions. The Phase II investigation indicates that groundwater on each side of the creek generally flows toward the creek corridor.

Infiltration testing identified shallow limiting zones and slow, inconsistent infiltration rates across much of the site. The stormwater design therefore uses detention, the enhanced riparian forest buffer and infiltration in the area where testing demonstrated suitable conditions. Water service is proposed through the public water system, as documented in Exhibit 15; no groundwater withdrawal or reliance upon the tract's private-well yield is proposed.

Environmental Site Conditions. The Phase I Environmental Site Assessment in Exhibit 8 identifies trichloroethene-contaminated groundwater associated with the off-site North Penn–Area 5 Superfund site as a recognized environmental condition. The Phase II Limited Site Investigation in Exhibit 9 further evaluated groundwater and soil-gas conditions. No volatile organic compounds exceeded the applicable Pennsylvania Department of Environmental Protection groundwater criteria, and detected TCE concentrations were below the groundwater and vapor-intrusion screening values. The Phase II investigation concludes that the potential for vapor intrusion is low, that significant dewatering or impacted-water management is not anticipated, and that active or passive vapor mitigation is not indicated for the proposed non-residential buildings.

Together, Exhibit 1 and Exhibits 2, 3 and 6 through 9 provide the required narrative and mapped inventory of the tract's topography, slopes, soils, geology, surface-water, floodplain, wetland, groundwater and environmental conditions.

7. Biological Inventory

Biological resources on the tract include actively cultivated fields, fallow or meadow areas, wooded hedgerows and woodland edges, riparian woodland, wetlands, tributaries and aquatic habitat associated with the West Branch of Neshaminy Creek. These resources are depicted on the applicable existing-conditions, natural-resource, tree and disturbance plans included in Exhibit 1. Wetland boundaries, watercourses, representative sampling locations and associated field documentation are provided in the Wetland Report included as Exhibit 7. Together, these materials provide the required narrative and mapped biological-resources inventory at the applicable plan scale.

Vegetation. Much of the upland portion of the tract is actively cultivated. Field margins and fallow areas contain common grasses, herbaceous plants and early-successional vegetation. The creek corridor, tributaries, wooded hedgerows and other forested portions of the tract contain primarily deciduous hardwood vegetation such as black walnut, black cherry, box elder, hickory, pin oak, red maple and sycamore, with understory and vine species including northern spicebush, summer grape, Virginia creeper and poison ivy. Other vegetation includes Japanese stiltgrass, garlic mustard, multiflora rose, privet, burning bush, Japanese barberry, bush honeysuckle, Japanese honeysuckle and Norway maple.

Five wetland areas were delineated in Exhibit 7. These include emergent, scrub-shrub and forested wetland communities containing representative hydrophytic vegetation such as reed canary grass, sensitive fern, skunk cabbage, spotted touch-me-not, soft rush and spike rush, together with wetland shrubs and trees. The locations of woodland areas, specimen trees and proposed vegetation disturbance or preservation are shown on the applicable sheets of Exhibit 1. Exhibit 1 controls with respect to the current development layout and limits of disturbance.

Wildlife and habitat. The principal wildlife habitats on the tract are the West Branch Neshaminy Creek aquatic corridor, its associated wetlands and riparian woodland, the wooded tributary corridors, upland meadow areas and cultivated fields. The Northern Red-bellied Cooter Habitat Assessment included as Exhibit 10 identifies portions of the West Branch of Neshaminy Creek as potentially suitable aquatic habitat and identifies two upland meadow areas as potentially suitable nesting habitat. The assessment did not confirm the presence of the Northern Red-bellied Cooter. Gray treefrog, bullfrog and green frog were observed during the habitat investigation. The supporting reports do not identify invasive wildlife species.

The PNDI review materials included in Exhibit 12 identify the potential for species of special concern and document the applicable agency review and coordination. In addition to the species and habitat findings specifically addressed in the supporting reports, the tract can reasonably be expected to support wildlife commonly found in agricultural fields, woodlands, hedgerows, wetlands and stream corridors in southeastern Pennsylvania, including white-tailed deer, gray squirrels, rabbits, raccoons, opossums, groundhogs, small mammals, songbirds, raptors, reptiles and amphibians. This list is representative rather than exhaustive, as the investigations were not intended to constitute a comprehensive seasonal wildlife census.

The Pennsylvania Fish and Boat Commission correspondence included as Exhibit 11 concluded, based on the development layout reviewed by that agency, that the identified potential aquatic and nesting habitats would not be directly encroached upon and that adverse effects to the Northern Red-bellied Cooter were not anticipated, provided those habitat relationships were maintained. The applicable PNDI materials are included as Exhibit 12. Exhibit 1 depicts the current development plan and its relationship to the creek corridor, wetlands, woodlands and other identified habitat areas.

This inventory is based on the wetland field evaluations performed on June 24 and 25, 2025, the habitat assessment performed on August 6, 2025, the agency-review materials, and the current plans. It identifies the biological resources and representative species documented through those investigations; it is not intended to constitute a comprehensive seasonal census of all flora and fauna potentially occurring on the tract. Potential project effects consist primarily of conversion of cultivated land and the vegetation clearing and natural-resource disturbance depicted in Exhibit 1. Protection of retained resources is addressed through the plan's open-space and buffer areas and the applicable erosion and sedimentation, stormwater, landscaping and construction controls.

8. Land Use Inventory

Land cover. The existing tract includes cultivated fields, meadow or open land, woodland areas, stream corridor, wetlands, floodplain and limited existing improvements. The flood study also notes the presence of an existing residence and accessory structures on part of the overall property.

Encumbrances. Existing rights-of-way, easements and title matters are identified in the ALTA/NSPS Land Title Survey and related plan materials. Those documents are incorporated in Exhibits 1 and 13 for specific boundary, easement and encumbrance information.

Existing man-made features. Non-natural features on and around the tract include Walnut Street, County Line Road, Schoolhouse Road, Independence Lane, utility infrastructure, nearby industrial / business park development and related site improvements within the surrounding corridor.

Planning conclusion. The existing land use character of the tract is transitional in nature, containing both undeveloped / natural features and adjacency

to an established nonresidential corridor. That setting is important to the Township's evaluation of both compatibility and mitigation.

9. Surface Water Inventory

The principal surface-water resource on the tract is the West Branch of Neshaminy Creek, which crosses the central portion of the property. Three unnamed tributaries are also present along portions of the northern, southern and western limits of the study area. Five wetlands, identified as Wetlands A through E, have been delineated in association with the creek, tributaries and adjoining low-lying areas. The ordinary high-water limits of the watercourses and the boundaries of the delineated wetlands are documented in the Wetland Report included as Exhibit 7. Their relationship to the proposed development, limits of disturbance, riparian buffers, floodplain and floodway is shown on the current land-development plans included as Exhibit 1.

The proposed development is concentrated principally within the upland portions of the tract. The current plans nevertheless include grading, stormwater facilities, utility work, roadway improvements and a stream crossing in proximity to the creek and its associated floodplain and riparian corridor. Exhibit 1 depicts the present relationship of each proposed improvement to the identified watercourses, wetlands, floodplain and other regulated resource areas. Any disturbance requiring authorization under federal, state or Township wetland, watercourse or floodplain requirements remains subject to the applicable permit and land-development approvals.

Existing runoff from the tract and its contributing drainage areas is evaluated in the Post-Construction Stormwater Management Report included as Exhibit 3. The stormwater analysis divides the site among three points of analysis that discharge either directly to the West Branch of Neshaminy Creek or through its unnamed tributaries. Existing and proposed runoff rates and volumes are calculated for the one-, two-, five-, ten-, 25-, 50- and 100-year storm events. The calculations account for the existing drainage areas and land-cover conditions and evaluate the anticipated runoff from the proposed full buildout of the tract.

The stormwater design maintains the existing points and general patterns of discharge to the extent practicable. Proposed controls include subsurface detention systems, an aboveground infiltration basin in the area where subsurface testing demonstrated suitable conditions, level spreaders and an enhanced riparian forest buffer. These facilities are intended to control peak runoff rates and volumes, provide

water-quality treatment and reduce discharge velocity before runoff enters the creek or its tributaries. The receiving waters are classified for Warm Water Fishes and Migratory Fishes, and the stormwater-management system is designed to address the applicable Township and Pennsylvania Department of Environmental Protection rate, volume and water-quality requirements.

The West Branch floodplain has also been evaluated through the Flood Study included as Exhibit 2. That analysis used the effective FEMA hydraulic model and surveyed site topography to examine flow, depth, conveyance capacity and the effects of the improvements evaluated in the study. It concluded that the modeled improvements would not increase the 100-year flood elevation at the analyzed cross sections and that the evaluated buildings and associated parking areas would remain above the established flood elevation. Because the site plan has continued to evolve, Exhibit 1 controls with respect to the current locations and limits of proposed floodplain and floodway disturbance, while Exhibit 2 provides the supporting hydraulic analysis.

Existing drainage structures, including culverts, conveyance features and drainage facilities within the tract and adjoining roadway corridors, are shown on the existing-conditions and utility plans included in Exhibit 1. The proposed stormwater conveyance network and management facilities are likewise depicted on those plans and described in Exhibit 3. The adequacy and capacity of the proposed drainage system are addressed through the detailed hydrologic and hydraulic calculations included in the stormwater report and remain subject to Township and applicable agency engineering review.

The Wetland Report in Exhibit 7 identifies the field methods, sampling locations, vegetation, soils and hydrologic indicators used to delineate Wetlands A through E and the associated watercourse limits. Together, Exhibits 1, 2, 3 and 7 provide the mapped and technical inventory of the tract's watercourses, wetlands, floodplain, drainage areas, existing runoff conditions, receiving waters and drainage facilities required by this section. The CIA's Physical Resources Inventory similarly identifies the West Branch, its tributaries, the five delineated wetlands, the three stormwater points of analysis and the proposed detention, infiltration, level-spreader and riparian-buffer measures.

10. Subsurface Water Inventory

The tract is principally underlain by the Brunswick Formation, consisting generally of reddish-brown shale, mudstone and siltstone. The Brunswick Formation

functions as the underlying bedrock aquifer. Groundwater occurrence and movement within this formation are influenced by weathering, bedding, joints, fractures, topography and seasonal precipitation, and groundwater depth therefore varies across the property.

The geotechnical investigation included 33 test pits and 30 borings. Weathered rock was encountered at depths generally ranging from approximately two to nine feet, and apparent bedrock was encountered at depths ranging from approximately 3.8 to 19 feet. Localized static or perched groundwater was observed in portions of the geotechnical investigation at depths of approximately four to ten feet below grade. These observations reflect the conditions encountered at the individual exploration locations and should not be interpreted as a uniform groundwater elevation across the tract.

The Phase II Limited Site Investigation included groundwater monitoring on both sides of the West Branch of Neshaminy Creek. Groundwater was measured at approximately 14.4 to 20.0 feet below grade in the monitoring wells. The reported groundwater elevations indicate that groundwater beneath the upland portions of the property generally flows toward the creek corridor. Taken together, the geotechnical and environmental investigations demonstrate that groundwater depth varies with site elevation, subsurface conditions, weather and seasonal factors.

Infiltration testing conducted in support of the stormwater design identified shallow limiting zones and generally slow and variable infiltration rates across much of the tract. The proposed stormwater system therefore does not rely upon unrestricted infiltration throughout the development area. Infiltration is proposed only in the location where testing demonstrated suitable conditions, while detention, controlled conveyance, level spreaders and an enhanced riparian forest buffer are used elsewhere to manage runoff and support groundwater recharge and water-quality objectives. The infiltration-test results, soil conditions and proposed recharge measures are described in Exhibit 3 and depicted on the current plans in Exhibit 1.

The development does not propose to obtain its potable or operational water supply from on-site groundwater. Public water service is proposed through the North Penn Water Authority. The Authority has confirmed that system capacity is available to serve the development, subject to its customary final-plan, capacity, service-connection and approval requirements. Because the project will be served by public water and does not propose a production well or other substantial groundwater withdrawal, the water-supply capability of the tract is not a limiting factor in the proposed development.

The property and surrounding area have historically included agricultural and residential uses that may have been served by private wells. The available investigations do not provide a comprehensive inventory of the depth, yield or water quality of every existing well within 1,000 feet of the tract. Detailed off-site well testing is not warranted for the proposed project because no groundwater withdrawal is proposed and the development will rely upon the public water system. The proposed use is therefore not expected to reduce the yield of nearby wells through pumping or consumption of the underlying aquifer.

Groundwater quality was evaluated in connection with the Phase I and Phase II environmental investigations included as Exhibits 8 and 9. The Phase I identified the off-site North Penn–Area 5 Superfund groundwater condition as a recognized environmental condition. The Phase II investigation evaluated groundwater and soil-gas conditions and reported that no volatile organic compound exceeded the applicable Pennsylvania Department of Environmental Protection groundwater criteria. Detected trichloroethene concentrations were below the applicable groundwater and vapor-intrusion screening levels. The investigation concluded that the potential for vapor intrusion is low, that significant dewatering or impacted-water management is not anticipated and that active or passive vapor mitigation is not indicated for the proposed non-residential buildings.

Accordingly, the subsurface-water conditions relevant to the project consist of variable shallow or perched groundwater in certain locations, deeper groundwater measured in the environmental monitoring wells, generally slow and inconsistent infiltration across much of the site, and groundwater movement toward the West Branch of Neshaminy Creek. Public water service eliminates the need for development-related groundwater withdrawal, while the proposed stormwater facilities provide controlled infiltration and recharge where supported by the site testing. Exhibits 1, 3, 6, 8, 9 and 15 provide the supporting mapping, testing, environmental evaluation and utility documentation. These findings are consistent with the groundwater and recharge discussion already included in the CIA Physical Resources Inventory.

11. Existing Features Inventory

The approximately 90.06-acre tract comprises four existing parcels that have historically been used principally for agricultural and related residential purposes. Existing land cover consists predominantly of cultivated fields and meadow or old-field areas, together with woodland, wooded stream corridor, wetlands and limited

lawn and landscaped areas associated with the existing farmstead. Paved, gravel and other improved surfaces are generally limited to the existing buildings, driveways and access areas. The Aerial Plan and Overall Existing Conditions/Demolition Plan included in Exhibit 1 depict the property boundary, existing land-cover pattern and principal natural and man-made features of the tract.

Existing non-natural features include the residence and associated farm or accessory buildings, driveways and other incidental improvements; Walnut Street and the tract's frontages along County Line Road and Schoolhouse Road; drainage facilities and culverts; utility poles and overhead lines; and existing sanitary sewer, water, electric, gas and communications facilities. The Overall Existing Conditions/Demolition Plan in Exhibit 1 identifies the disposition of these features, including the buildings, drives, pavement and utility facilities proposed to be removed, modified or retained. The ALTA/NSPS Land Title Survey included as Exhibit 13 provides additional surveyed detail concerning existing structures, surface improvements and utility locations.

The tract is affected by existing road rights-of-way, utility easements and other recorded title matters. As shown and described in Exhibit 13, these include electric-utility rights, sanitary-sewer and water-authority easements or taking areas, a telephone right-of-way, access rights associated with an interior parcel, public rights within Walnut Street and County Line Road, and riparian rights associated with the West Branch Neshaminy Creek. The survey also identifies agricultural-enrollment and other title exceptions that are not survey-related or cannot be definitively plotted, including a recorded easement whose location could not be determined from the available document. Exhibit 13 should be consulted for the complete parcel-specific exception list and recording references.

Adjacent lands reflect the tract's transitional setting. They include established industrial and business-park development in the County Line Road, Independence Lane and Stewart Lane corridor; the SEPTA railroad right-of-way adjoining Walnut Street; Township and water-authority properties; and remaining open, residential and agricultural lands. Together, Exhibits 1 and 13 provide the mapped land-use and existing-features inventory required by this section.

12. Historic Resources Inventory

The historic-resources inventory is based on the Pennsylvania State Historic Preservation Office record summarized below, the existing-conditions and demolition information included in Exhibit 1, and the historical-source review

contained in the Phase I Environmental Site Assessment included as Exhibit 8. Exhibit 1 controls the current locations and proposed disposition of existing improvements.

The tract is identified in the Pennsylvania Historic and Archaeological Resource Exchange (PA-SHARE) as the Abraham Krout Farm, Resource No. 2005RE01039. The recorded farmstead includes a farmhouse, bank barn, wagon house and tenant house, with portions of the complex associated with circa 1815 and 1861 construction dates. Exhibit 8 confirms that the property was in agricultural use and contained the two residences and barn by at least the 1938–1950 period. These buildings and associated farmstead improvements are therefore more than 50 years old. The PA-SHARE record classifies the Abraham Krout Farm as "Not Eligible" for listing in the National Register of Historic Places; that eligibility determination does not alter its identification here as a resource meeting the Township's 50-year inventory threshold. The farmstead buildings are identified on the existing-conditions plans in Exhibit 1 and are shown for removal as part of the proposed development.

Historical aerial photographs and topographic mapping reviewed in Exhibit 8 also identify several man-made features on or immediately adjoining the tract that predate 1976. These include the railroad and established roadway corridors along the tract, the existing residence near the Walnut Street–Schoolhouse Road intersection, the industrial building southwest of the tract near Walnut Street and County Line Road, and commercial or industrial development southeast of the tract across Walnut Street and the railroad corridor. These adjoining features are not proposed to be removed or physically altered by the development. Their current locations, to the extent within the limits of the plan survey, are depicted in Exhibit 1.

13. Visual Resources Inventory

The tract's principal visual resources include open fields, woodland edges, the wooded stream corridor associated with the West Branch of Neshaminy Creek, wetland and riparian vegetation, and the remaining existing improvements. These features create a transitional visual setting between the tract's open and natural areas and the surrounding industrial, business, transportation and utility-influenced landscape.

The principal views onto the tract are from Walnut Street, County Line Road, Schoolhouse Road and Independence Lane, as well as from adjoining and nearby properties. Views from the tract include these roadway corridors, adjacent industrial and business properties, the railroad corridor, and the tract's open, wooded and

stream-corridor areas. The locations and directions of representative views are identified on the Photographic Key Map and accompanying photographs included in Section 4 of this report .

Development of the tract substantially changes the visual character of the portions proposed for buildings, parking, loading, circulation and related improvements. The current arrangement of the proposed buildings and site improvements, together with proposed landscaping, buffering, lighting and areas remaining outside the developed portions of the site, is depicted in Exhibit 1. These design elements provide the principal means of addressing the project's visual relationship to surrounding roads and properties.

14. Community Needs Inventory

The proposed development is non-residential and will not introduce permanent residents or school-age children. It therefore will not generate enrollment demand for the Central Bucks School District or residential demand for parks, recreation programs or libraries. Employees and visitors may make incidental use of the Township park system and the Bucks County Free Library system, but the project is not expected to require expansion of those facilities or services. New Britain Township currently maintains six identified parks, and the Doylestown Branch of the Bucks County Free Library provides nearby public-library services.

Health-care demand associated with the development will consist primarily of routine services independently obtained by employees and visitors and occasional emergency treatment. Penn Medicine Doylestown Hospital is the principal nearby full-service hospital and is identified as a 245-bed teaching hospital. The project will not generate a resident population requiring additional community health-care facilities.

Police protection is provided by the New Britain Township Police Department. The Township's audited financial statements reported 13 active employees participating in the Police Pension Plan as of December 31, 2024, which provides a publicly available general indicator of departmental staffing rather than a current deployment roster. Potential project-related demand would consist principally of routine patrol, traffic enforcement, alarm response, property-related incidents and occasional emergency calls. Because the project will not add residents, it will not generate the broader range of recurring household service demands associated with residential development.

Fire protection is provided principally by the all-volunteer Chalfont Fire Company, whose published service area includes New Britain Township. The Fire Company reports responding to approximately 300 calls annually and identifies capabilities that include structural fires, alarms, vehicle extrication, hazardous-material incidents, brush fires and water rescue. Other area fire companies may provide mutual aid through the regional emergency-response system when required. Exhibit 1 depicts the proposed site access, internal circulation and fire-protection features, while Exhibit 15 documents the availability of public water service. Compliance with applicable fire-access, fire-lane, hydrant, fire-flow and building-code requirements is addressed through the land-development, building-permit and Fire Marshal review processes.

Ambulance and emergency medical services are provided principally by Chal-Brit Regional EMS, which operates from 201 Park Avenue in New Britain Township and publicly identifies its service as providing advanced life-support emergency medical care 24 hours per day, 365 days per year. The Bucks County emergency-services system provides dispatch coordination, response-area assignments and access to additional EMS resources when simultaneous or specialized incidents require them. Rescue needs are addressed through the combined capabilities of the responding fire and EMS organizations.

For context regarding the level of site activity, the Traffic Impact Study included as Exhibit 4 estimates 1,398 vehicle trips on an average weekday, including 222 truck trips, with 133 total trips during the weekday morning peak hour and 150 during the weekday evening peak hour. These traffic estimates do not represent projected emergency calls, but they provide a quantitative indication of the employee, visitor and delivery activity upon which potential police, fire and EMS demand depends.

Available public information confirms that established police, fire, EMS, rescue, hospital, school, park and library services currently serve New Britain Township and the surrounding community. Publicly available sources do not provide the detailed overlapping-call, unit-availability, response-time or facility-capacity data necessary to calculate a precise number of project-generated emergency incidents. Nevertheless, because the development adds no residents or students, its incremental community-service demand is expected to be limited principally to occasional police, fire or medical responses typical of an industrial development. Nothing in the available information indicates that the project, by itself, will require construction or expansion of a school, park, library, hospital, police station, fire station or ambulance station.

15. Utility Needs Inventory

The proposed industrial development will require public water and sanitary sewer service, electric power, communications service and, depending upon tenant requirements, natural gas service. The proposed utility connections and on-site distribution systems are depicted in the current land-development plans included as Exhibit 1.

Public sewer. The project lies within an area planned for public sewer service, subject to final agency confirmation and applicable Act 537 planning requirements. The Chalfont-New Britain Township Joint Sewer Authority has certified the availability of treatment capacity for a maximum daily flow of 30,000 gallons per day, equivalent to 120 EDUs. The certification is included as Exhibit 14.

Public water. The North Penn Water Authority has confirmed that water-system capacity is available to serve the property, subject to capacity remaining available at the time of final approval, submission of detailed plans and determination of the required EDUs and service arrangements. The Authority's correspondence is included as Exhibit 15.

Natural gas and electric service. PECO has confirmed that the property is within its gas-service territory and that natural gas is available near the site, although a main extension and executed service agreement may be required depending upon final demand. PECO has also confirmed that electric service can be provided following completion of its service-and-meter application process and review of the final approved plans and anticipated load. The applicable PECO correspondence is included as Exhibits 16 and 17.

Communications. Verizon has confirmed that communications service can be provided upon submission of the required plans and building-address information and satisfaction of applicable easement, construction-cost and service requirements. The Verizon correspondence is included as Exhibit 18.

Stormwater management, solid waste, and recycling. Stormwater is addressed by the facilities depicted in Exhibit 1 and detailed in the Post-Construction Stormwater Management Report included as Exhibit 3. Solid waste and recyclable materials generated by future occupants are expected to be handled through private collection arrangements appropriate to the industrial uses and consistent with applicable Township requirements.

Taken together, Exhibits 14 through 18 demonstrate that the principal utilities needed to serve the development are available or can be extended to the site, subject to the providers' customary final design, capacity, easement, application and approval requirements.

16. Transportation System Inventory

The proposed development's relationship to the surrounding transportation system is shown on the current land-development plans included in Exhibit 1. The transportation analysis is provided in the *Walnut Street Warehouse Transportation Impact Study* prepared by TPD and last revised July 28, 2026, included as Exhibit 4. Exhibit 4 also includes the supporting traffic-volume, level-of-service and distribution analyses; the associated truck-turning plans and concept plan provide additional detail concerning truck movements and proposed improvements. Exhibit 1 controls with respect to the current site layout and access configuration.

The development is served by three full-movement driveways on Walnut Street and a full-movement connection to the existing Independence Lane cul-de-sac. Each site driveway is stop-controlled at its approach to the public street. Walnut Street connects directly to County Line Road at the signalized intersection adjoining the southeastern corner of the site. Independence Lane connects through New Britain Boulevard to another signalized intersection with County Line Road. County Line Road and Bethlehem Pike (Route 309) are state-maintained roadways and are expected to carry most development-related traffic beyond the immediate study area.

The TIS estimates that the development will generate approximately 1,398 vehicle trips on an average weekday, including 1,176 passenger-vehicle trips and 222 truck trips. This includes 133 trips during the weekday morning peak hour—105 passenger vehicles and 28 trucks—and 150 trips during the weekday evening peak hour—117 passenger vehicles and 33 trucks. Approximately 1,115 trips are therefore expected to occur outside the two analyzed peak hours. Trucks represent approximately 16 percent of total weekday traffic and approximately 21 to 22 percent of peak-hour traffic.

Exhibit 4 documents existing traffic counts and compares existing, future no-build and future build traffic conditions throughout the study area. The level-of-service analysis concludes that each studied intersection satisfies the applicable

level-of-service requirements under projected build conditions. Most study intersections operate at Level of Service A. The Walnut Street/County Line Road intersection is projected to change from Level of Service B under existing and no-build conditions to Level of Service C under build conditions, while the Bethlehem Pike/Line Lexington Road intersection is projected to remain at Level of Service D under both no-build and build conditions. The remaining studied intersections are projected to operate at Level of Service A.

Truck traffic is directed from the Walnut Street accesses to westbound County Line Road and then to Bethlehem Pike (Route 309). Directional signage is provided at the site driveways and at the southbound Walnut Street approach to County Line Road to reinforce this route and discourage trucks from using surrounding local roads. No connection between Independence Lane and Stewart Lane is proposed, and the project's traffic distribution, access and mitigation program does not rely upon such a connection. The site access points and interconnected internal drives also provide access for emergency vehicles, as shown on Exhibit 1, while the truck-turning plans accompanying Exhibit 4 demonstrate circulation by the applicable design vehicle.

Based on the TIS and coordination with PennDOT, New Britain Township and Hatfield Township, the following improvements are identified in the following table.

Proposed Traffic Improvements

Location	Proposed Improvements
Walnut Street and County Line Road	Modify the site-corner radius for truck turns; restripe the eastbound approach to provide a 175-foot left-turn lane; relocate the southbound Walnut Street stop bar and affected mast arm; and install truck-routing signage.
Bethlehem Pike (Route 309) and Line Lexington Road	Modify the northeast corner radius for right turns onto northbound Route 309; relocate the affected mast arm; and install reflective backplates on the traffic-signal heads.
County Line Road and Line Lexington Road	Modify the southeast corner radius to accommodate trucks turning right from Line Lexington Road onto County Line Road.
Walnut Street site frontage	Widen the frontage cartway to provide a minimum 30-foot cartway width.
Walnut Street site driveways	Provide adequate ingress and egress radii, stop-control the driveway approaches and install on-site signage directing trucks to Route 309 by way of County Line Road.
Independence Lane site access	Provide a full-movement connection to the existing cul-de-sac with adequate turning radii and stop control on the westbound site-driveway approach.

17. Adverse Impacts

Appendix A requires a discussion of probable adverse effects that cannot be entirely precluded. In this case, the proposal does present potential adverse effects, but those effects must be evaluated in context, including the site's location in an existing nonresidential corridor, the presence of public infrastructure, and the substantial technical work performed to avoid or mitigate environmental and operational impacts.

The proposed development will produce both beneficial and adverse effects. For purposes of this analysis, a primary impact is an immediate consequence of construction or operation of the development, while a secondary impact is a reasonably foreseeable consequence occurring later, off site or through an intervening effect. The following table describes anticipated impacts from the proposed development.

Impact Classification Matrix

Resource, Condition or Characteristic	Beneficial or Adverse	Duration	Influence and Implication	Analysis
Employment, tax base and economic activity	Beneficial	Short- and long-term	Direct/primary and indirect/secondary	Construction will temporarily support construction-related employment and expenditures. At buildout, the project will add permanent employment opportunities and expand the Township and School District nonresidential tax base. Employee and business spending may produce secondary economic activity in the surrounding area.
Land use and development pattern	Both	Long-term	Direct/primary	The project will convert a presently vacant, agricultural and partially wooded tract to industrial use. This is a substantial physical change, but it will place nonresidential development within an area planned and zoned for industrial or other nonresidential growth.
Agricultural land, soils and crops	Adverse	Long-term	Direct/primary; limited indirect/secondary	Cultivated land and soils classified as prime farmland or farmland of statewide importance within the development area will be permanently converted to buildings, pavement, landscaping and related improvements. Agricultural production within those areas will cease. Because the tract is not identified as part of a larger preserved agricultural district or operating farm complex, broader secondary effects on the Township's agricultural economy are expected to be limited. The current limits of disturbance and proposed land cover are shown in Exhibit 1.
Soils, grading and geologic conditions	Adverse	Primarily short-term, with permanent alteration within developed areas	Direct/primary	Clearing, excavation, filling, compaction and grading will disturb existing soils and landforms during construction. Certain changes will remain permanent beneath buildings, pavement and engineered slopes. The subsurface limitations and engineering considerations documented in the Geotechnical Engineering Report are summarized in Section 6 and provided in Exhibit 6.
Impervious cover and stormwater demand	Adverse, with engineered controls	Long-term	Direct/primary; potential indirect/secondary	Buildings, parking areas, drives and other improvements will increase impervious cover and runoff-management demand. Without control, these changes could affect runoff volume, rate and downstream water quality. The stormwater system described in Exhibit 3 maintains existing drainage patterns to the greatest extent practicable and uses detention, infiltration where supported by testing, level spreaders and riparian-buffer treatment to address peak-rate, volume and water-quality requirements.
Surface-water quality and quantity	Potentially adverse	Short- and long-term	Direct/primary and indirect/secondary	Construction presents temporary risks of sediment-laden runoff, while developed conditions create long-term runoff from roofs, pavement and vehicle-use areas. These primary effects could have secondary downstream implications for the West Branch Neshaminy Creek and its tributaries if uncontrolled. Exhibit 3 identifies the applicable drainage areas, receiving waters and proposed controls and concludes that the analyzed design satisfies the Township stormwater and applicable NPDES requirements.

Impact Classification Matrix (*continued*)

Resource, Condition or Characteristic	Beneficial or Adverse	Duration	Influence and Implication	Analysis
Floodplain and floodplain soils	Potentially adverse	Long-term	Direct/primary and indirect/secondary	Development or grading within mapped floodplain areas can directly alter floodplain soils and storage and could indirectly affect water-surface elevations or downstream conditions. The current relationship of the improvements to the floodplain is shown in Exhibit 1. The hydraulic analysis in Exhibit 2, although prepared for the plan evaluated in that report, found no increase in modeled floodplain elevation and reported that the analyzed buildings and associated parking areas were located above the established floodplain elevation.
Wetlands, riparian areas and aquatic resources	Adverse where disturbance occurs; beneficial where buffers are retained or enhanced	Long-term	Direct/primary and indirect/secondary	Construction may directly disturb portions of existing vegetation and other natural-resource areas shown by Exhibit 1. Indirect effects could include altered runoff, edge conditions or habitat connectivity. The delineated wetlands and watercourses are documented in Exhibit 7, and the stormwater design described in Exhibit 3 uses the riparian corridor for regulated water-quality treatment while providing additional native buffer plantings.
Plant and wildlife systems	Potentially adverse	Long-term	Direct/primary and indirect/secondary	The principal documented habitat system is the connected creek, wetland, riparian woodland and adjoining upland corridor. Development will convert portions of cultivated, meadow and wooded habitat and may create secondary edge and fragmentation effects. Exhibits 10 through 12 document the applicable habitat and agency findings. Exhibit 10 identifies potentially suitable Northern Red-bellied Cooter aquatic and nesting habitat, and Exhibits 10 and 11 conclude that the layout evaluated in those materials avoids direct disturbance of that habitat. Those habitat locations and technical findings are considered together with the current layout in Exhibit 1.
Air quality	Adverse, but generally limited	Primarily short-term; minor operational effects may be long-term	Direct/primary and indirect/secondary	Construction equipment, earth disturbance and truck activity may temporarily generate dust and exhaust. Operational effects will principally consist of emissions associated with employee vehicles, deliveries, ordinary building systems and backup equipment. No tenant-specific manufacturing or combustion-intensive process is proposed or evaluated as part of the present warehouse development program.
Noise and lighting	Adverse	Short- and long-term	Direct/primary	Construction noise and temporary lighting will occur during site development. After buildout, trucks, loading activity, mechanical equipment and site lighting will alter existing conditions. Exhibit 19 predicts worst-case cumulative nighttime sound levels of 59.8 to 69.9 dB(A) at the evaluated property-line locations and concludes that the analyzed operations comply with the Township's 80 dB(A) nighttime limit.
Traffic and circulation	Adverse, with certain economic benefits	Short- and long-term	Direct/primary and indirect/secondary	Construction traffic will be temporary. Employee and truck trips will continue over the life of the development and may affect intersection operations and the surrounding roadway network. Secondary effects may occur along connecting routes used to reach the arterial system. Trip generation, distribution, operating conditions and recommended improvements are addressed in the Transportation Impact Study in Exhibit 4 and summarized in Section 16.

Impact Classification Matrix (*continued*)

Resource, Condition or Characteristic	Beneficial or Adverse	Duration	Influence and Implication	Analysis
Community facilities and utilities	Both	Long-term	Direct/primary	The development will create incremental demand for police, fire, emergency medical, roadway and utility services. It will not generate new residents or school-aged children. The increased nonresidential tax base will provide revenues available to support municipal and school services. Existing providers and utility availability are addressed in Section 15 and the supporting exhibits.
Existing environmental conditions	Neutral to potentially beneficial	Long-term	Direct/primary	Redevelopment will place portions of the tract under controlled, engineered conditions. Exhibits 8 and 9 document the Phase I and Phase II environmental investigations, including the off-site groundwater condition and the reported low potential for vapor intrusion under the proposed nonresidential use.
Construction-period disturbance	Adverse	Short-term	Direct/primary; possible indirect/secondary	Clearing, grading, hauling and construction will temporarily increase noise, dust, traffic, exposed soils and equipment activity. If uncontrolled, erosion or construction runoff could produce secondary effects on adjoining land and receiving waters. These effects are limited to the construction period and are subject to the controls summarized in Section 18.
Visual character	Adverse	Long-term	Direct/primary	The project will replace predominantly open, cultivated and wooded views with industrial buildings, parking, loading and circulation improvements. Existing-condition photographs and the photo-key map in Section 4 document the present setting, while Exhibit 1 depicts the proposed site configuration and building envelopes. Together, these materials provide the before-and-after comparison at the present design stage.

18. Mitigation Measures

The principal potential adverse impacts have been avoided or reduced through the current site design, the project-specific measures, and compliance with applicable state, county and Township review and permitting requirements. Exhibit 1 depicts the current site layout and is the principal graphic exhibit for these measures. The supporting technical basis is provided in the referenced exhibits. Project-specific mitigation measures and regulatory mitigation measures are described in the following tables.

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Regulatory Mitigation Measures

Subject	Applicable Procedures and Mitigation	Supporting Exhibits
Erosion and sedimentation control	Earth disturbance will be undertaken in accordance with the approved erosion and sediment control plans, construction sequencing and stabilization requirements administered through the Chapter 102/NPDES process and Bucks County Conservation District review. These controls address sediment transport, construction entrances, temporary drainage and stabilization of disturbed areas.	Exhibit 1
Post-construction stormwater management	Runoff will be collected, conveyed and managed through the stormwater facilities shown on the current plans. The stormwater design provides rate, volume and water-quality controls in accordance with Township and PADEP requirements, including subsurface detention, an aboveground infiltration basin, level spreaders and an improved riparian forest buffer.	Exhibits 1 and 3
Water quality and riparian protection	The stormwater system maintains existing drainage patterns to the extent practicable and provides treatment before discharge to the West Branch Neshaminy Creek and its tributaries. The improved riparian forest buffer and controlled sheet-flow discharges provide additional filtration and water-quality treatment.	Exhibits 1, 3 and 7
Floodplain management	The current limits of proposed disturbance and improvements relative to the regulated floodplain are shown in Exhibit 1. Floodplain effects are evaluated in the HEC-RAS analysis, and any encroachment remains subject to the applicable Township floodplain requirements and land-development approvals.	Exhibits 1 and 2
Wetlands and regulated waters	Wetlands, streams and other aquatic resources have been delineated and incorporated into the site-planning process. Any regulated disturbance or crossing is subject to applicable federal and state authorization requirements.	Exhibits 1 and 7
Protected species	Potential Northern Red-bellied Cooter aquatic and nesting habitat was identified through the habitat assessment. The agency clearance concluded that the evaluated layout would avoid those habitat areas and associated adverse effects. The avoidance areas and conditions of the agency correspondence remain applicable to the current project.	Exhibits 1 and 10–12
Air quality and construction management	Construction-related dust, equipment emissions, sediment tracking, noise and debris will be controlled through compliance with applicable air-pollution, nuisance, erosion-control and construction requirements and the approved plans. The proposed warehouse uses do not involve an identified industrial process-emission source; ordinary vehicle, loading and mechanical-equipment effects remain subject to applicable Township standards.	Exhibits 1 and 19

Project-Specific Mitigation Measures

Potential Impact	Project-Specific Measure	Supporting Exhibits
Disturbance of natural resources	The site layout concentrates development outside the principal creek, wetland, riparian and identified habitat areas to the extent reflected on the current plans. Remaining effects are moderated through buffers, open areas and the stormwater measures described above.	Exhibits 1–3 and 7–12
Vegetation loss and visual effects	Proposed landscaping, replacement plantings, vegetated buffers and screening are shown on the current plans. The improved riparian forest buffer incorporates additional native plantings and also functions as a water-quality measure.	Exhibits 1 and 3
Stormwater effects	Subsurface detention systems, an aboveground infiltration basin, level spreaders and the improved riparian forest buffer reduce runoff rates, manage volume and provide water-quality treatment. Replacement storage is also provided where the Building 3 access affects the existing basin serving 141 Independence Lane.	Exhibits 1 and 3
Traffic and truck circulation	Mitigation includes the access design and truck-turning accommodations shown on the current plans, together with the improvements recommended in the Traffic Impact Study. These include modifications at affected intersections, restriping for an eastbound left-turn lane on County Line Road, truck-routing signage and widening of the Walnut Street site frontage, subject to final Township and PennDOT approvals.	Exhibits 1, 4 and 5
Noise and operational effects	Building placement, separation from adjoining uses and operational controls reduce potential nuisance effects. The pre-construction noise study predicts compliance with the Township nighttime property-line standard under its conservative operating assumptions. Future operations remain subject to the Township noise, storage and waste-disposal standards.	Exhibits 1 and 19
Lighting, loading and service areas	Site lighting, loading areas, trailer areas, waste facilities and related screening are located and controlled as shown on the current plans to limit spillover and visibility from adjoining properties and public streets.	Exhibit 1
Emergency and internal circulation	The planned access drives, fire lanes and internal circulation system provide emergency and service access through the tract, subject to final review under the Township's land-development and fire-safety requirements.	Exhibits 1 and 5

19. Irreversible Impacts

The proposed development will cause several direct, long-term changes that would not be readily reversible following construction.

Agricultural land and soils. Portions of the tract are presently cultivated and contain soil units classified by the U.S. Department of Agriculture as prime farmland or farmland of statewide importance. Within the proposed development and grading areas, construction of buildings, pavement, utilities and stormwater facilities will permanently remove these soils from agricultural production. This is a significant adverse impact even though the classifications describe the inherent agricultural capability of the soils and do not, by themselves, establish that the tract is preserved for agricultural use. The mapped soil units and their relationship to the proposed improvements are shown in Exhibit 1.

Land cover and natural resources. Development will permanently convert substantial portions of the tract from cultivated, wooded or otherwise pervious land to buildings, pavement and managed site improvements. Woodland and specimen-tree removal, grading and disturbance within regulated natural-resource areas will likewise represent permanent changes within the affected areas. The current extent of these impacts, together with the wetlands, woodland, riparian-buffer, floodplain and slope areas that will remain, is depicted and quantified in Exhibit 1. Wetlands and the mapped wetland margin are not proposed for disturbance, and the majority of the existing woodland and creek corridor will remain outside the principal development footprint.

Built and community character. The project represents a long-term commitment of the developable portions of the tract to industrial/warehouse use and supporting infrastructure. Existing structures and other manmade features identified for removal will not be retained, and the present open and agricultural appearance of the developed portions of the property will be permanently replaced by an industrial campus.

These irreversible effects are acknowledged and are not diminished by the site's planning context. That context is nevertheless essential to evaluating their significance. The Township has designated the property and surrounding corridor for industrial development, thereby recognizing that reasonable accommodation of anticipated growth in this location will necessarily involve some conversion of open land, agriculturally capable soils and other existing resources. A standard of "zero impact" on every sensitive receptor would be inconsistent with that land-use

designation and would effectively preclude the type of development contemplated for the area.

The relevant planning question is therefore not whether the project will leave existing conditions entirely unchanged, but whether its impacts have been appropriately identified, avoided or reduced where practicable, and balanced against the suitability of the site for the proposed use. The tract lies within the I-O Industrial District and an established non-residential and transportation corridor capable of accommodating intensive employment uses. Directing such development to a location planned for it can also reduce pressure to accommodate comparable growth in areas having stronger agricultural, conservation, residential or rural-landscape priorities.

Conclusion

The proposed development will produce substantial and lasting changes to the property. It will convert cultivated fields, woodlands and other open land—including soils classified as prime farmland and farmland of statewide importance—to industrial development. It will also affect the site's visual character, natural resources, stormwater conditions, transportation system and demand for community services. These impacts are acknowledged and evaluated in this Environmental Impact Analysis and its supporting exhibits; they are not dismissed merely because the project is subject to regulatory review and mitigation.

At the same time, the property is located in an area that the Township has planned and zoned for industrial and non-residential growth. Development of this kind cannot occur without some conversion of open land, agricultural soils and natural resources. Requiring the complete avoidance of those impacts would effectively preclude the very growth contemplated for this area. The proper planning question is therefore whether the impacts have been identified and whether they can be avoided where practicable, reduced through project design, and managed through appropriate mitigation and approval conditions.

The current plans and supporting studies demonstrate that the project can be developed within that framework. Sensitive resource areas have influenced the site design; stormwater, traffic, access, noise, utilities and environmental conditions have been evaluated; and specific mitigation measures are incorporated into the plans or remain subject to final engineering and agency review. The requested variances and conditional-use approval do not, by themselves, make the project incompatible with the Township's land-use policies. They are part of the established process for

determining whether particular aspects of the development may be approved and under what conditions.

Accordingly, it is my professional planning opinion that the proposed development represents a reasonable accommodation of planned non-residential growth in this location. Its impacts are real, but they are neither overlooked nor inherently inconsistent with the Township's planning objectives. Subject to the requested zoning relief, completion of the land-development review process and implementation of the mitigation measures described in this report, the proposal satisfies the purpose and requirements of Attachment 1 of the New Britain Township Zoning Ordinance entitled "Appendix A Environmental Impact Statement Report".

Exhibit Number	Topic	Document Title	Preparer	Date
1	Subdivision/ Land Development Plans	Preliminary Subdivision and Land Development Plans, Proposed Industrial Development	Bohler Engineering	July 28, 2026
2	Floodplain	Proposed Industrial Development Flood Study	Bohler Engineering	September 24, 2025
3	Stormwater	Post-Construction Stormwater Management Report	Bohler Engineering	July 28, 2026
4	Traffic	Walnut Street Warehouse Transportation Impact Study	Traffic Planning and Design, Inc. (TPD)	July 28, 2026
5	Traffic	Truck Turning Plan - County Line Rd and Walnut St / related turning templates	Traffic Planning and Design, Inc. (TPD)	July 28, 2026
6	Geotechnical	Geotechnical Engineering Report - Walnut Street - Chalfont, New Britain Township, Bucks County, Pennsylvania	Geo-Technology Associates, Inc.	August 28, 2025; revised November 4, 2025
7	Wetlands	Wetland Report - The Hanover Company - Walnut Street	Valley Environmental Services, Inc.	August 26, 2025
8	Environmental	Phase I Environmental Site Assessment - Farm Property, 56 Walnut Street, Chalfont, Bucks County, Pennsylvania 18914	The Vertex Companies, LLC	June 23, 2025
9	Environmental	Phase II Limited Site Investigation - Chalfont Industrial Park, 56 Walnut Street, Chalfont, Bucks County, Pennsylvania 18914	The Vertex Companies, LLC	September 2, 2025
10	Habitat	Northern Red-bellied Cooter Habitat Assessment Report	Skelly and Loy, Inc., A Terracon Company	November 13, 2025
11	Agency clearance	Pennsylvania Fish and Boat Commission Species Impact Review (SIR #61749)	Pennsylvania Fish and Boat Commission	November 25, 2025
12	Natural heritage	Pennsylvania Natural Diversity Inventory search materials (PNDI Search No. 843502_1)	Pennsylvania Natural Diversity Inventory	July 3, 2025
13	Survey	ALTA/NSPS Land Title Survey	Control Point Associates, Inc.	July 12, 2025, revised August 25, 2025
14	Utilities	Will Serve letter - public sewer service	Chalfont-New Britain Township Joint Sewer Authority	July 14, 2025
15	Utilities	Availability of Water Capacity - Walnut Street and County Line Road	North Penn Water Authority	August 4, 2025
16	Utilities	Gas service correspondence	PECO	August 28, 2025
17	Utilities	Letter of Assurance of Utilities - electric service	PECO	July 14, 2025
18	Utilities	Will Serve letter - communications service for Industrial Complex at Walnut St & County Line Rd	Verizon	August 11, 2025
19	Noise	Hanover Chalfont Pre-Construction Noise Study	SLR International Corporation	March 27, 2026

BOHLER

1515 Market Street, Suite 920
Philadelphia, PA 19102
267.402.3400

EXHIBIT 1

Preliminary Subdivision and Land Development Plans
Proposed Industrial Development

PRELIMINARY SUBDIVISION AND LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED

INDUSTRIAL DEVELOPMENT

LOCATION OF SITE

WALNUT STREET & COUNTY LINE ROAD

NEW BRITAIN TOWNSHIP, BUCKS COUNTY, PA

PARCELS: 26-001-099, 26-001-099-001, 26-001-099-002, 26-001-099-003

NEW BRITAIN TOWNSHIP ENGINEER REVIEW CERTIFICATION

CERTIFICATION OF PLAN ACCURACY

REVIEWED BE THE NEW BRITAIN TOWNSHIP ENGINEER.

_____ _____

TOWNSHIP ENGINEER DATE

APPLICANT ACKNOWLEDGEMENT

I, _____ ON THIS DATE _____ ACKNOWLEDGE THAT ANY REVISIONS TO THE APPROVED SWM SITE PLAN MUST BE APPROVED BY THE MUNICIPALITY AND THAT A REVISED EROSION AND SEDIMENT CONTROL PLAN MUST BE SUBMITTED TO THE CONSERVATION DISTRICT.

_____ _____

SIGNATURE DATE

APPROVAL OF THE NEW BRITAIN TOWNSHIP PLANNING COMMSSION:

APPROVED BY THE PLANNING COMMISSION OF NEW BRITAIN TOWNSHIP ON THIS _____ DAY OF _____, 20___.

_____ _____

CHAIRMAN SECRETARY

APPROVAL OF THE NEW BRITAIN TOWNSHIP BOARD OF SUPERVISORS:

APPROVED BY THE BOARD OF SUPERVISORS OF NEW BRITAIN TOWNSHIP ON THIS _____ DAY OF _____, 20___.

_____ _____

CHAIRMAN SECRETARY

OWNER CERTIFICATION

TO ALL WHOM THESE PRESENT MAY COME, WE, HCI DP LAND ACQUISITION LLC SEND GREETINGS.

KNOW YE THAT WE HAVE LAID OUT UPON OUR LAND, SITUATE IN THE TOWNSHIP OF NEW BRITAIN, COUNTY OF BUCKS AND COMMONWEALTH OF PENNSYLVANIA, CERTAIN LOTS ACCORDING OF THE ACCOMPANYING PLANS WHICH IS INTENDED TO BE FORTHWITH RECORDED.

WITNESS OUR HANDS AND SEALS THIS _____ DAY OF _____, 20____.

ATTEST: HCI DP LAND ACQUISITION LLC,

BY: _____ _____

NAME: WITNESS
TITLE:

COMMONWEALTH OF PENNSYLVANIA:

COUNTY OF _____:

ON THE _____ DAY OF _____, 20_____ BEFORE ME, THE SUBSCRIBER, A NOTARY PUBLIC OF THE COMMONWEALTH OF PENNSYLVANIA, PERSONALLY APPEARED WHO ACKNOWLEDGED THIS PLAN TO BE THE OFFICIAL PLAN OF PROPERTY SHOWN HEREON, SITUATE IN THE TOWNSHIP OF NEW BRITAIN, COUNTY OF BUCKS AND COMMONWEALTH OF PENNSYLVANIA, AND DESIRE THAT THIS PLAN BE RECORDED ACCORDING TO LAW.

_____

NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

ENGINEER'S CERTIFICATION

CERTIFICATION OF PLAN ACCURACY

I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE, THE PLAN SHOWN AND DESCRIBED HEREON IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BE THE NEW BRITAIN TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE.

DATE: _____

_____

SURVEYOR'S CERTIFICATION

I, JAMES C. WEED, HEREBY CERTIFY THAT I AM A REGISTERED PROFESSIONAL SURVEYOR, LICENSED IN COMPLIANCE WITH THE LAWS OF THE COMMONWEALTH OF PENNSYLVANIA; THAT THIS PLAN CORRECTLY REPRESENTS A SURVEY OF 4371 COUNTY LINE ROAD COMPLETED UNDER MY SUPERVISION IN NEW BRITAIN TOWNSHIP; THAT ALL THE MARKERS SHOWN HEREON ACTUALLY EXIST; THAT THEIR LOCATION, SIZE, TYPE AND MATERIAL ARE ACCURATELY SHOWN.

_____

JAMES C. WEED
PROFESSIONAL LAND SURVEYOR
PENNSYLVANIA LICENSE No.: #SU075250

RECORDER OF DEEDS

RECORDED IN THE OFFICE OF THE RECORDER OF DEEDS AT NEW BRITAIN TOWNSHIP,

PENNSYLVANIA IN PLAN BOOK _____PAGE_____

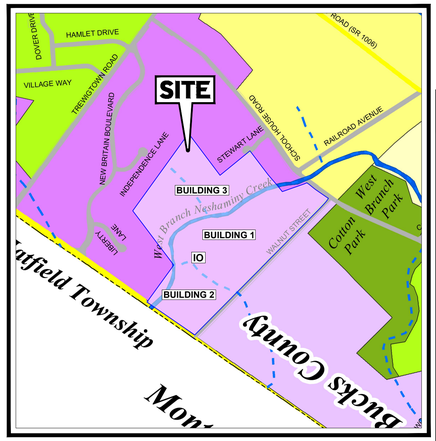
DAY OF _____ 20 _____.

WETLAND CERTIFICATION

I HEREBY CERTIFY THE DELINEATED WETLANDS SHOWN ON THE PLAN IS IN ACCORDANCE WITH THE FINDINGS OF MY FIELD INVESTIGATION AND BASED UPON THE U.S. ARMY CORPS OF ENGINEER GUIDELINES.

_____ _____

SIGNATURE DATE



ZONING MAP
SCALE: " = 1,000'
SOURCE: NEWBRITAINTOWNSHIP.ORG

REQUESTED VARIANCES, SPECIAL EXCEPTIONS AND WAIVERS

VARIANCES REQUESTED:

1. FROM 27-1802.A TO PERMIT A BUILDING HEIGHT GREATER THAN THIRTY-FIVE FEET.

SPECIAL EXCEPTIONS TO BE REQUESTED:

1. FOR SECTION 27-1904.Q FOR PLACING FILL WITHIN THE FLOODPLAIN OVERLAY DISTRICT. WAIVERS TO BE REQUESTED, PURSUANT TO 27-2400 ZONING ORDINANCE, 22-700.3 SUBDIVISION AND LAND DEVELOPMENT.

REQUESTED WAIVERS FROM LAND DEVELOPMENT ORDINANCE:

1. FROM 22-705.3.C TO DEFER ROAD WIDENING OF COUNTY LINE ROAD TO PENNDOT AND TO KEEP SCHOOLHOUSE ROAD AT ITS CURRENT WIDTH
2. FROM 22-708.6.A TO ALLOW OFF-STREET PARKING SPACES TO BE CLOSER THAN 20' TO THE PROPOSED BUILDINGS.
3. FROM 22-706.1.B FOR INSTALLATION OF CURB ALONG COUNTY LINE AND SCHOOLHOUSE ROADS.
4. FROM 22-706.2.B FOR INSTALLATION OF SIDEWALK ALONG SCHOOLHOUSE ROAD.
5. FROM 22-713.2.E FOR SPECIMEN TREE REMOVAL.



LOCATION MAP
SCALE: 1" = 800'
SOURCE: GOOGLE MAPS

OWNER
ELIZABETH NICHOLAS & SIOBHAN WELSH, TRUSTEES OF IRREVOCABLE AGREEMENTS OF TRUST and ELIZABETH NICHOLAS

DEVELOPER
HCI DP LAND ACQUISITION LLC
7200 WISCONSIN AVENUE
SUITE 820
BETHESDA, MD 20814

PREPARED BY

BOHLER

CONTACT: LINDSEY BREYLINGER



AERIAL MAP
SCALE: 1" = 1,000'
SOURCE: GOOGLE MAPS

STORMWATER MANAGEMENT FACILITIES CERTIFICATION

I ACKNOWLEDGE THAT THE STORMWATER FACILTIES AND BMP'S ARE FIXTURES THAT CAN BE ALTERED OR REMOVED ONLY AFTER APPROVAL BY THE MUNICIPALITY.

LANDOWNER: _____

DATE: _____

REFERENCES AND CONTACTS

REFERENCES

- BASE SURVEY INFORMATION:
  ALTA/NSPS LAND TITLE SURVEY
  PREPARED FOR: HCI DP LAND ACQUISITION LLC
  PREPARED BY: CONTROL POINT ASSOCIATES, INC.
  DATED: 7-18-2025
- ARCHITECTURAL PLAN:
  MGMA
  131 GREAT FALLS ST #200
  FALLS CHURCH, VA 22046
  DATED: 07/09/2025
- STORMWATER INFILTRATION REPORT:
  GEO-TECHNOLOGY ASSOCIATES, INC.
  2405 JOHN FRIES HIGHWAY
  QUAKERTOWN, PENNSYLVANIA,18951
  GTA PROJECT #: 31251589
  DATED: 09/09/2025
  LAST REVISED: 01/08/2026
- WETLAND REPORT:
  VALLEY ENVIRONMENTAL SERVICES, INC
  JOB NO. 25-228
  3282 HOPE DRIVE
  EMMAUS, PA 18049
  DATED: 08/26/2025

THE ABOVE REFERENCED DOCUMENTS ARE INCORPORATED BY REFERENCE AS PART OF THESE PLANS, HOWEVER, BOHLER ENGINEERING DOES NOT CERTIFY THE ACCURACY OF THE WORK REFERENCED OR DERIVED FROM THESE DOCUMENTS, BY OTHERS.

PURPOSE STATEMENT

THE PURPOSE OF THIS PLAN IS TO CONSTRUCT THREE WAREHOUSES AND ASSOCIATED INFRASTRUCTURE WITHIN BUCKS COUNTY. THIS PLAN CONSOLIDATES #26-001-99, #26-001-99-001, #26-001-99-002, AND #26-001-99-003 INTO ONE LOT.

BUCKS COUNTY PLANNING COMMISSION

PROCESSED AND REVIEWED. REPORT PREPARED BY THE BUCKS COUNTY PLANNING COMMISSION IN ACCORDANCE WITH THE MUNICIPALITIES PLANNING CODE. CERTIFIED THIS DAY OF _____, 20_____.

_____.

_____
EXECUTIVE DIRECTOR, BUCKS

ENGINEER CERTIFICATION

I, _____, ON THIS DATE _____, HEREBY CERTIFY THAT THE SWM SITE PLAN MEETS ALL DESIGN STANDARDS AND CRITERIA OF THE NESHAMINY CREEK WATERSHED ACT 167 STORMWATER MANAGEMENT ORDINANCE OR PLAN.

_____ _____

SIGNATURE DATE

SHEET INDEX

SHEET TITLE	NUMBER
*COVER SHEET	C-101
*NOTES SHEET	C-102
AERIAL PLAN	C-103
OVERALL EXISTING CONDITIONS / DEMOLITION PLAN	C-200
EXISTING CONDITIONS/ DEMOLITION PLANS	C-201, C-202, C-203, C-204
OVERALL WETLAND & WOODLAND PLAN	C-205
OVERALL RIPARIAN BUFFER & SLOPE DISTURBANCE PLAN	C-206
*LOT CONSOLIDATION PLAN	C-207
*OVERALL SITE PLAN	C-300
*SITE PLAN A - PLAN D	C-301, C-302, C-303, C-304
FIRE TRUCK VEHICLE CIRCULATION PLAN A- PLAN D	C-305, C-306, C-307, C-308
WB67 TRUCK VEHICLE CIRCULATION PLAN A - PLAN D	C-309, C-310, C-311, C-312
OVERALL GRADING PLAN	C-400
GRADING PLAN A - PLAN D	C-401, C-402, C-403, C-404
ADA GRADING PLANS	C-405, C-406, C-407, C-408, C-409
BUILDING ACCESS PROFILES	C-410
OVERALL UTILITY PLAN	C-500
UTILITY PLAN A - PLAN D	C-501, C-502, C-503, C-504
STORMWATER TABLES	C-505, C-506
*EASEMENT PLAN	C-507
SANITARY PROFILES	C-601
STORMWATER PROFILES	C-602, C-603, C-604, C-605
WATER & ELECTRIC PROFILES	C-606, C-607, C-608, C-609, C-610, C-611
INITIAL EROSION & SEDIMENT CONTROL PLAN A - PLAN D	C-801, C-802, C-803, C-804
EROSION & SEDIMENT CONTROL PLAN A - PLAN D	C-805, C-806, C-807, C-808
EROSION & SEDIMENT CONTROL NOTES AND DETAILS	C-809, C-810, C-811
*OVERALL POST CONSTRUCTION STORMWATER MANAGEMENT PLAN	C-812
*POST CONSTRUCTION STORMWATER MANAGEMENT PLAN A - PLAN D	C-813, C-814, C-815, C-816
*POST CONSTRUCTION STORMWATER MANAGEMENT NOTES AND DETAILS	C-817, C-818, C-819, C-820, C-821
CONSTRUCTION DETAILS	C-901, C-902, C-903
OUTSIDE CONSTRUCTION DETAILS	C-904, C-905
OVERALL LANDSCAPE PLAN	L-100
LANDSCAPE PLAN A- PLAN C	L-101, L-102, L-103, L-104
BUILDING 3 DRIVEWAY LANDSCAPE PLAN	L-104
LANDSCAPE DETAILS	L-105, L-106, L-107
OVERALL LIGHTING PLAN	L-200
LIGHTING PLAN A - PLAN C	L-201, L-202, L-203
BUILDING 3 DRIVEWAY LIGHTING PLAN	L-204
LIGHTING DETAILS	L-205, L-206
OVERALL TREE PROTECTION AND REMOVAL PLAN	L-300
TREE PROTECTION AND REMOVAL PLAN A - PLAN C	L-301, L-302, L-303
BUILDING 3 DRIVEWAY TREE PROTECTION AND REMOVAL PLAN	L-304
OVERALL RIPARIAN BUFFER REFORESTATION PLAN	L-400
RIPARIAN BUFFER REFORESTATION NOTES AND DETAILS	L-401

* SHEETS FOR RECORDING

BOHLER™
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
LAND PLANNING
PERMITTING SERVICES
TRANSPORTATION SERVICES

THE INFORMATION, DESIGN AND CONCEPTS CONTAINED IN THIS DRAWING ARE THE PROPERTY OF BOHLER AND CANNOT BE USED FOR ANY PURPOSE WITHOUT THE EXPRESS WRITTEN CONSENT OF BOHLER. ANY UNAUTHORIZED USE OF THESE PLANS SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO BOHLER. ONLY APPROVED AND PERMITTED PLANS ARE VALID FOR CONSTRUCTION PURPOSES.

REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

ATTENTION ALL CONTRACTORS. LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREIN HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 50 OF 2017, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. WWW.PA1CALL.ORG

NOT APPROVED FOR CONSTRUCTION

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVIL-CNDS

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER™
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — MATTHEW JOHN KEARSE — PROFESSIONAL — ENGINEER

MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090258

SHEET TITLE:

COVER SHEET

SHEET NUMBER:

C-101
01 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-CNDS-PAC250095.00-1A.---LAYOUT: C-101 COVR

GENERAL NOTES

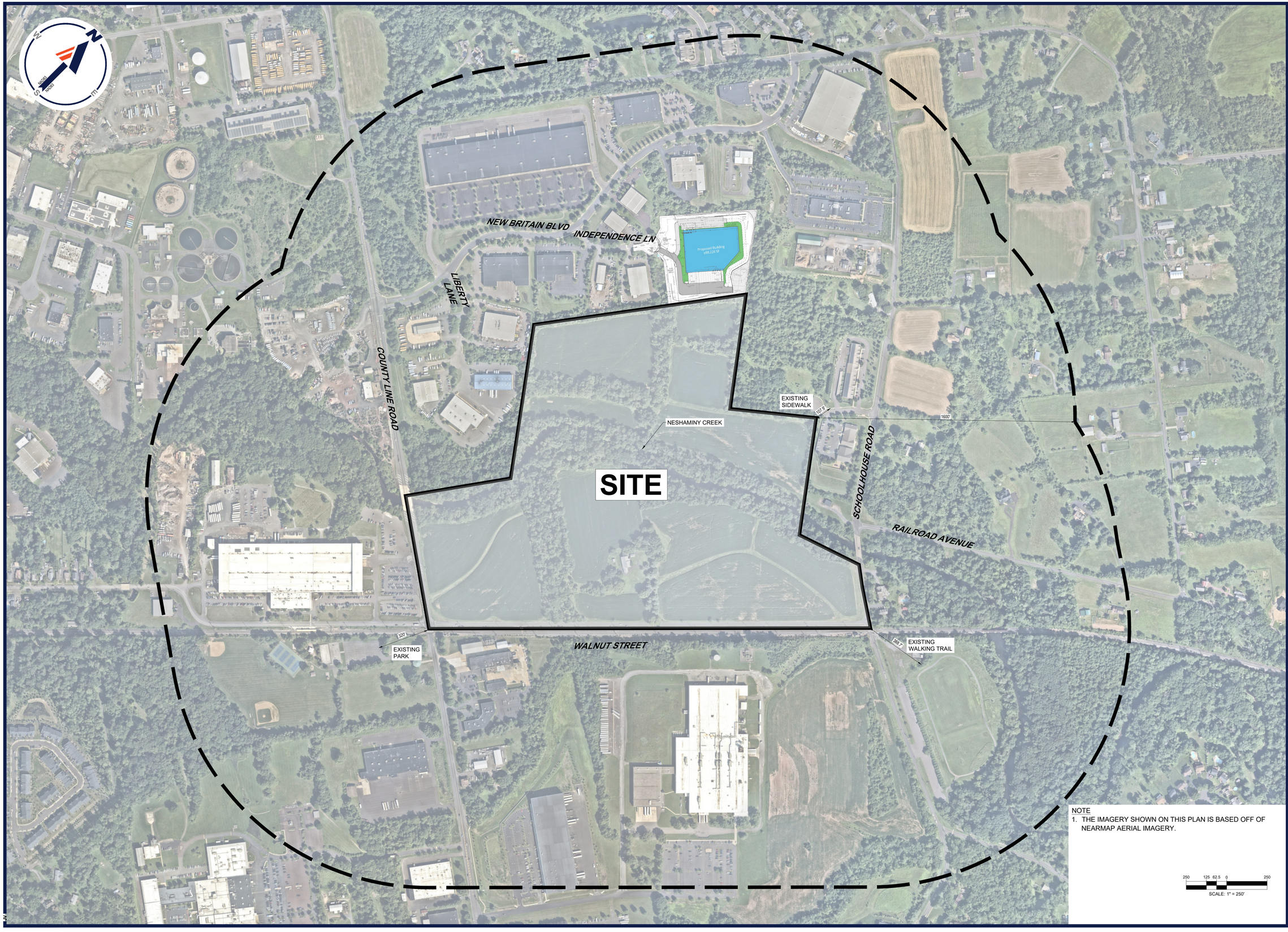
(Rev. 1/2023)

1. THESE PLANS ARE SOLELY BASED ON INFORMATION THE OWNER AND OTHERS PROVIDED TO BOHLER, LLC (HEREIN "BOHLER") PRIOR TO THE DATE ON WHICH THE PROFESSIONAL OF RECORD AND BOHLER PREPARED THESE PLANS. THE CONTRACTOR MUST FIELD VERIFY ALL EXISTING CONDITIONS AND IMMEDIATELY NOTIFY BOHLER, IN WRITING, IF ANY ACTUAL SITE CONDITIONS DIFFER FROM THOSE SHOWN ON THESE PLANS, OR IF THE PROPOSED WORK CONFLICTS WITH ANY OTHER SITE FEATURES.
2. THE CONTRACTOR MUST STRICTLY COMPLY WITH THESE NOTES AND ALL SPECIFICATIONS/REPORTS CONTAINED HEREIN. THE CONTRACTOR MUST ENSURE THAT ALL SUBCONTRACTORS FULLY AND COMPLETELY CONFIRM TO AND COMPLY WITH THESE REQUIREMENTS. THESE NOTES AND THE REQUIREMENTS ARTICULATED IN THE NOTES CONTAINED IN ALL THE OTHER DRAWINGS THAT COMPRISE THE PLAN SET OF DRAWINGS. ADDITIONAL NOTES AND SPECIFIC PLAN NOTES MAY BE FOUND ON THE INDIVIDUAL PLANS. THESE GENERAL NOTES APPLY TO THIS ENTIRE DOCUMENT PACKAGE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW ALL CONSTRUCTION CONTRACT DOCUMENTS INCLUDING, BUT NOT LIMITED TO, ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE, PRIOR TO THE INITIATION AND COMMENCEMENT OF CONSTRUCTION.
3. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR MUST CONFIRM WITH THE PROFESSIONAL OF RECORD AND BOHLER THAT THE LATEST EDITION OF THE DOCUMENTS AND/OR REPORTS REFERENCED WITHIN THE PLAN REFERENCES ARE BEING USED FOR CONSTRUCTION. THIS IS THE CONTRACTOR'S SOLE AND COMPLETE RESPONSIBILITY.
4. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR MUST ENSURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL OCCUR UNTIL THE CONTRACTOR HAS RECEIVED COPIES OF ALL PERMITS AND THE CONDITIONS OF APPROVAL TO ALL PLANS AND OTHER DOCUMENTS REVIEWED AND APPROVED BY THE PERMITTING AUTHORITIES AND HAS ALSO CONFIRMED THAT ALL NECESSARY AND REQUIRED PERMITS HAVE BEEN OBTAINED. THE CONTRACTOR MUST HAVE COPIES OF ALL PERMITS AND APPROVALS ON SITE AT ALL TIMES.
5. THE CONTRACTOR MUST ENSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS/REPORTS AND CONDITIONS OF APPROVAL AND ALL APPLICABLE REQUIREMENTS, RULES, REGULATIONS, STATUTORY REQUIREMENTS, CODES, LAWS AND STANDARDS OF ALL GOVERNMENTAL ENTITIES WITH JURISDICTION OVER THIS PROJECT, AND ALL PROVISIONS IN AND CONDITIONS OF THE CONSTRUCTION CONTRACT WITH THE OWNER/DEVELOPER INCLUDING ALL EXHIBITS, ATTACHMENTS AND ADDENDA TO SAME.
6. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR MUST COORDINATE THE BUILDING LAYOUT BY CAREFULLY REVIEWING THE MOST CURRENT ARCHITECTURAL, CIVIL AND STRUCTURAL CONSTRUCTION DOCUMENTS (INCLUDING, BUT NOT LIMITED TO, MECHANICAL, ELECTRICAL, PLUMBING AND FIRE SUPPRESSION PLANS, WHERE APPLICABLE). THE CONTRACTOR MUST IMMEDIATELY NOTIFY OWNER, ARCHITECT AND PROFESSIONAL OF RECORD AND BOHLER, IN WRITING, OF ANY CONFLICTS, DISCREPANCIES OR AMBIGUITIES WHICH EXIST BETWEEN THESE PLANS AND ANY OTHER PLANS THAT COMPRISE THE CONSTRUCTION DOCUMENTS.
7. CONTRACTOR MUST REFER TO AND ENSURE COMPLIANCE WITH THE APPROVED ARCHITECTURAL/BUILDING PLANS OF RECORD FOR EXACT LOCATIONS AND DIMENSIONS OF ENTRY/EXIT POINTS, ELEVATIONS, PRECISE BUILDING DIMENSIONS, AND EXACT BUILDING UTILITY LOCATIONS.
8. THE CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS AND MEASUREMENTS SHOWN ON THESE PLANS, PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR MUST IMMEDIATELY NOTIFY PROFESSIONAL OF RECORD AND BOHLER, IN WRITING, IF ANY CONFLICTS, DISCREPANCIES, OR AMBIGUITIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION. NO EXTRA COMPENSATION WILL BE PAID TO THE CONTRACTOR FOR WORK WHICH HAS TO BE REDONE DUE TO DIMENSIONS, MEASUREMENTS OR GRADES SHOWN INCORRECTLY ON THESE PLANS PRIOR TO BOTH (A) THE CONTRACTOR GIVING PROFESSIONAL OF RECORD AND BOHLER WRITTEN NOTIFICATION OF SAME AND (B) PROFESSIONAL OF RECORD AND BOHLER, THEREAFTER, PROVIDING THE CONTRACTOR WITH WRITTEN AUTHORIZATION TO PROCEED WITH SUCH ADDITIONAL WORK.
9. THE CONTRACTOR MUST VERIFY ALL DIMENSIONS AND MEASUREMENTS INCLUDED ON DESIGN DOCUMENTS HEREIN AND MUST NOT SCALE OFF THE DRAWINGS DUE TO POTENTIAL PRINTING INACCURACIES. ALL DIMENSIONS AND MEASUREMENTS ARE TO BE CHECKED AND CONFIRMED BY THE GENERAL CONTRACTOR PRIOR TO PREPARATION OF SHOP DRAWINGS, FABRICATION/ORDERING OF PARTS AND MATERIALS AND COMMENCEMENT OF SITE WORK. SITE PLAN DRAWINGS ARE NOT INTENDED AS SURVEY DOCUMENTS. DIMENSIONS SHOULD TAKE PRECEDENCE GRAPHICAL REPRESENTATIONS. THE CONTRACTOR MUST MAKE CONTRACTOR'S OWN MEASUREMENTS FOR LAYOUT OF IMPROVEMENTS.
10. THE OWNER AND CONTRACTOR MUST BE FAMILIAR WITH AND RESPONSIBLE FOR THE PROCUREMENT OF ANY AND ALL CERTIFICATIONS REQUIRED FOR THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
11. WHEN INCLUDED AS ONE OF THE REFERENCED DOCUMENTS, THE GEOTECHNICAL REPORT, SPECIFICATIONS AND RECOMMENDATIONS SET FORTH THEREIN ARE A PART OF THE REQUIRED CONSTRUCTION DOCUMENTS AND, IN CASE OF CONFLICT, DISCREPANCY OR AMBIGUITY, THE MORE STRINGENT REQUIREMENTS AND/OR RECOMMENDATIONS CONTAINED IN: (A) THE PLANS; AND (B) THE GEOTECHNICAL REPORT AND RECOMMENDATIONS, MUST TAKE PRECEDENCE UNLESS SPECIFICALLY NOTED OTHERWISE ON THE PLANS. THE CONTRACTOR MUST NOTIFY THE PROFESSIONAL OF RECORD AND BOHLER OF ANY SUCH CONFLICT, DISCREPANCY OR AMBIGUITY BETWEEN THE GEOTECHNICAL REPORT AND PLANS AND SPECIFICATIONS, PRIOR TO PROCEEDING WITH ANY FURTHER WORK IF A GEOTECHNICAL REPORT WAS NOT CREATED, THEN THE CONTRACTOR MUST FOLLOW AND COMPLY WITH ALL OF THE REQUIREMENTS OF ANY AND ALL MUNICIPAL, COUNTY, STATE, AND FEDERAL LAWS AND APPLICABLE SPECIFICATIONS WHICH HAVE JURISDICTION OVER THIS PROJECT.
12. PROFESSIONAL OF RECORD AND BOHLER ARE NEITHER LIABLE NOR RESPONSIBLE FOR ANY SUBSURFACE CONDITIONS AND FURTHER, HAS NO LIABILITY FOR ANY HAZARDOUS MATERIALS, HAZARDOUS SUBSTANCES, OR POLLUTANTS ON, ABOUT OR UNDER THE PROPERTY.
13. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING WHEN AND WHERE SHORING IS REQUIRED AND FOR INSTALLING ALL SHORING REQUIRED DURING EXCAVATION (TO BE PERFORMED IN ACCORDANCE WITH CURRENT OSHA STANDARDS) AND ANY ADDITIONAL PRECAUTIONS TO BE TAKEN TO ASSURE THE STABILITY OF ADJACENT, NEARBY AND CONTIGUOUS STRUCTURES AND IMPROVEMENTS. ALL OF THIS WORK IS TO BE PERFORMED AT CONTRACTOR'S SOLE COST AND EXPENSE.
14. THE CONTRACTOR MUST EXERCISE EXTREME CAUTION WHEN PERFORMING ANY WORK ACTIVITIES ADJACENT TO PAVEMENT, STRUCTURES, ETC. WHICH ARE TO REMAIN EITHER FOR AN INITIAL PHASE OF THE PROJECT OR AS PART OF THE FINAL CONDITION. THE CONTRACTOR IS RESPONSIBLE FOR TAKING ALL APPROPRIATE MEASURES REQUIRED TO ENSURE THE STRUCTURAL STABILITY OF SIDEWALKS AND PAVEMENT, UTILITIES, BUILDINGS, AND INFRASTRUCTURE WHICH ARE TO REMAIN, AND FURTHER, TO PROVIDE A SAFE WORK AREA FOR THIRD PARTIES, PEDESTRIAN AND ANYONE INVOLVED WITH THE PROJECT.
15. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE SUBJECT SITE. ALL DEMOLITION AND CONSTRUCTION WASTES, UNSUITABLE EXCAVATED MATERIAL, EXCESS SOIL AND DEBRIS (SOLID WASTE) MUST BE DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF ANY AND ALL MUNICIPAL, COUNTY, STATE, AND FEDERAL LAWS AND APPLICABLE CODES WHICH HAVE JURISDICTION OVER THIS PROJECT OR OVER THE CONTRACTOR.
16. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO MAINTAIN RECORDS TO DEMONSTRATE PROPER AND FULLY COMPLIANT DISPOSAL ACTIVITIES, TO BE PROMPTLY PROVIDED TO THE OWNER UPON REQUEST.
17. THE CONTRACTOR MUST REPAIR, AT CONTRACTOR'S COST, ALL DAMAGE DONE TO ANY NEW OR EXISTING CONSTRUCTION OR PROPERTY DURING THE COURSE OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, ETC. AND MUST BEAR ALL COSTS ASSOCIATED WITH SAME TO INCLUDE, BUT NOT BE LIMITED TO, REDESIGN, RE-SURVEY, RE-PERMITTING AND CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR AND MUST REPLACE ALL SIGNS, INTERCONNECTION CABLE, WIRING, ETC. DAMAGED DURING CONSTRUCTION AND MUST BEAR ALL UNDERGROUND ACCESSORY EQUIPMENT DAMAGED DURING CONSTRUCTION AND MUST BEAR ALL COSTS ASSOCIATED WITH SAME. THE REPAIR OF ANY SUCH NEW OR EXISTING CONSTRUCTION OR PROPERTY MUST BE COMPLETED IN ACCORDANCE WITH OR PROPERLY TO A CONDITION EQUIVALENT TO OR BETTER THAN THE CONDITIONS PRIOR TO COMMENCEMENT OF THE CONSTRUCTION, AND IN CONFORMANCE WITH APPLICABLE CODES, LAWS, RULES, REGULATIONS, STATUTORY REQUIREMENTS AND STATUTES. THE CONTRACTOR MUST BEAR ALL COSTS ASSOCIATED WITH SAME. THE CONTRACTOR MUST PROMPTLY DOCUMENT ALL EXISTING DAMAGE AND NOTIFY OWNER AND THE CONSTRUCTION MANAGER PRIOR TO THE START OF CONSTRUCTION.
18. THE PROFESSIONAL OF RECORD AND BOHLER ARE NOT RESPONSIBLE FOR AND HAVE NO CONTRACTUAL, LEGAL OR OTHER RESPONSIBILITIES FOR JOB SITE SAFETY JOB SITE SUPERVISION, OR ANYTHING RELATED TO SAME. THE PROFESSIONAL OF RECORD AND BOHLER HAVE NOT BEEN RETAINED TO PERFORM OR TO BE RESPONSIBLE FOR JOB SITE SAFETY, SAME BEING WHOLLY OUTSIDE OF PROFESSIONAL OF RECORD'S AND BOHLER SERVICES AS RELATED TO THE PROJECT. THE PROFESSIONAL OF RECORD AND BOHLER ARE NOT RESPONSIBLE FOR, AND MUST NOT BE NAMED IN, ANY JOB SITE SAFETY ISSUES OR ANY JOB SITE CONDITIONS, AT ANY TIME.
19. THE CONTRACTOR AND THE OWNER MUST INSTALL ALL ELEMENTS IN STRICT COMPLIANCE WITH AND IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDED INSTALLATION CRITERIA AND SPECIFICATIONS. IF THE CONTRACTOR AND/OR OWNER FAIL TO DO SO, THEY AGREE TO JOINTLY, INDEPENDENTLY, SEPARATELY, COLLECTIVELY, AND SEVERALLY INDEMNIFY, DEFEND, PROTECT AND HOLD PROFESSIONAL OF RECORD AND BOHLER PARTIES HARMLESS FOR ALL INJURIES AND DAMAGES THAT PROFESSIONAL OF RECORD AND BOHLER INCURS AS A RESULT OF SAID FAILURE.
20. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN AN ON-SITE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN COMPLIANCE WITH THE ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIREMENTS OR LOCAL GOVERNING AGENCY FOR SITES WHERE ONE (1) ACRE OR MORE IS DISTURBED BY CONSTRUCTION ACTIVITIES (UNLESS THE LOCAL JURISDICTION REQUIRES A DIFFERENT THRESHOLD). THE CONTRACTOR MUST ENSURE THAT ALL ACTIVITIES, INCLUDING THOSE OF ALL SUBCONTRACTORS, ARE IN COMPLIANCE WITH THE SWPPP, INCLUDING BUT NOT LIMITED TO LOGGING ACTIVITIES (MINIMUM ONCE PER WEEK AND AFTER RAINFALL EVENTS) AND CORRECTIVE MEASURES, AS APPROPRIATE AND FURTHER, THE CONTRACTOR IS SOLELY AND COMPLETELY RESPONSIBLE FOR FAILING TO DO SO.
21. AS CONTAINED IN THESE DRAWINGS AND ASSOCIATED DOCUMENTS PREPARED BY THE PROFESSIONAL OF RECORD AND BOHLER, THE USE OF THE WORDS 'CERTIFY' OR 'CERTIFICATION' CONSTITUTE(S) AN EXPRESSION ONLY OF PROFESSIONAL OPINION REGARDING THE INFORMATION WHICH IS THE SUBJECT OF THE PROFESSIONAL OF RECORD'S AND BOHLER KNOWLEDGE OR BELIEF AND IN ACCORDANCE WITH COMMON AND ACCEPTED PROCEDURE CONSISTENT WITH THE APPLICABLE STANDARDS OF PRACTICE, AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE OF ANY NATURE OR TYPE, EITHER EXPRESSED OR IMPLIED, UNDER ANY CIRCUMSTANCES.
22. THE PROFESSIONAL OF RECORD AND BOHLER ARE NOT RESPONSIBLE FOR CONSTRUCTION METHODS, MEANS, TECHNIQUES OR PROCEDURES, GENERALLY OR FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES OR PROCEDURES FOR COMPLETION OF THE WORK DEPICTED BOTH ON THESE PLANS, AND FOR ANY CONFLICTS IN SCOPE AND REVISIONS THAT RESULT FROM SAME. THE CONTRACTOR IS FULLY AND SOLELY RESPONSIBLE FOR DETERMINING THE MEANS AND METHODS FOR COMPLETION OF THE WORK, PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
23. NEITHER THE PROFESSIONAL ACTIVITIES OF BOHLER, NOR THE PRESENCE OF BOHLER AND/OR ITS PAST, PRESENT AND FUTURE OWNERS, OFFICERS, DIRECTORS, PARTNERS, SHAREHOLDERS, MEMBERS, PRINCIPALS, COMMISSIONERS, AGENTS, SERVANTS, EMPLOYEES, AFFILIATES, SUBSIDIARIES, AND RELATED ENTITIES, AND ITS SUBCONTRACTORS AND SUBCONSULTANTS AT CONSTRUCTION PROJECT SITE (HEREIN "BOHLER PARTIES"), RELIEVES OR WILL RELIEVE THE CONTRACTOR OF AND FROM CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING SUPERINTENDING AND COORDINATING THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND COMPLIANCE WITH ALL HEALTH AND SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES WITH JURISDICTION OVER THE PROJECT AND/OR PROPERTY. BOHLER PARTIES HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER (OR ANY RESPONSIBILITY FOR) ANY CONSTRUCTION, THE CONTRACTOR OR ITS PRESENT OR FUTURE EMPLOYEES AND AGENTS WITH RESPECT TO HAND SAFETY PROGRAMS OR PROCEDURES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SITE SAFETY. THE CONTRACTOR MUST INDEMNIFY, DEFEND, PROTECT AND HOLD HARMLESS BOHLER PARTIES FOR AND FROM ANY LIABILITY TO BOHLER PARTIES RESULTING FROM THE CONTRACTOR'S WORK, SERVICES AND/OR VIOLATIONS OF THIS NOTE. THESE NOTES TO BE NAMED AS SUCH IN THE PLAN SET AND, FURTHER, THE CONTRACTOR MUST NAME BOHLER AS AN ADDITIONAL INSURED UNDER THE GENERAL CONTRACTOR'S POLICIES OF GENERAL LIABILITY INSURANCE AS DESCRIBED ABOVE.
24. WHEN IT IS CLEARLY AND SPECIFICALLY WITHIN BOHLER'S SCOPE OF SERVICES CONTRACT WITH THE OWNER/DEVELOPER, BOHLER WILL REVIEW OR TAKE OTHER APPROPRIATE ACTION ON THE CONTRACTOR SUBMITTALS, SUCH AS SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND OTHER DATA, WHICH THE CONTRACTOR IS REQUIRED TO SUBMIT, BUT ONLY FOR THE LIMITED PURPOSE OF EVALUATING CONFORMANCE WITH THE DESIGN INTENT AND THE INFORMATION SHOWN IN THE CONSTRUCTION CONTRACT DOCUMENTS. CONSTRUCTION MEANS AND METHODS AND/OR TECHNIQUES OR PROCEDURES, COORDINATION OF THE WORK WITH OTHER TRADES, AND CONSTRUCTION SAFETY PRECAUTIONS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND BOHLER HAS NO RESPONSIBILITY OR LIABILITY FOR SAME. BOHLER WILL PERFORM ITS SHOP DRAWING REVIEW WITH REASONABLE PROMPTNESS, AS CONDITIONS PERMIT. ANY DOCUMENT, DOCUMENTING BOHLER'S REVIEW OF A SPECIFIC ITEM OR LIMITED SCOPE, MUST NOT INDICATE THAT BOHLER HAS REVIEWED THE ENTIRE ASSEMBLY OF WHICH THE ITEM IS A COMPONENT. BOHLER IS NOT RESPONSIBLE FOR ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR MUST, IN WRITING, PROMPTLY AND IMMEDIATELY BRING ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS TO BOHLER'S ATTENTION. BOHLER IS NOT REQUIRED TO REVIEW PARTIAL SUBMISSIONS OR THOSE FOR WHICH SUBMISSIONS OF CORRELATED ITEMS HAVE NOT BEEN RECEIVED.
25. IF THE CONTRACTOR DEVIATES FROM THESE PLANS AND/OR SPECIFICATIONS, INCLUDING THE NOTES CONTAINED HEREIN, WITHOUT FIRST OBTAINING THE PRIOR WRITTEN AUTHORIZATION OF THE PROFESSIONAL OF RECORD AND BOHLER FOR ALL DEVIATIONS WITHIN PROFESSIONAL OF RECORD'S SCOPE, THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PAYMENT OF ALL COSTS INCURRED IN CORRECTING ANY WORK PERFORMED WHICH DEVIATES FROM THE PLANS, ALL FINES AND/OR PENALTIES ASSESSED WITH RESPECT THERETO AND ALL COMPENSATORY OR PUNITIVE DAMAGES RESULTING THEREFROM AND, FURTHER, MUST DEFEND, INDEMNIFY, PROTECT, AND HOLD HARMLESS THE PROFESSIONAL OF RECORD AND BOHLER PARTIES TO THE FULLEST EXTENT PERMITTED UNDER THE LAW, FOR AND FROM ALL FEES, ATTORNEYS' FEES, MONETARY DAMAGES, COSTS, JUDGMENTS, CLAIMS, INJURIES, PENALTIES AND THE LIKE RELATED TO SAME.
26. THE CONTRACTOR IS RESPONSIBLE FOR A MAINTAINING AND PROTECTING THE TRAFFIC CONTROL PLAN AND ELEMENTS IN ACCORDANCE WITH FEDERAL, STATE, LOCAL REQUIREMENTS, FOR ALL WORK THAT AFFECTS PUBLIC TRAVEL EITHER IN THE RIGHT OF WAY OR ON SITE. THE COST FOR THIS ITEM MUST BE INCLUDED IN THE CONTRACTOR'S PRICE AND IS THE CONTRACTOR'S SOLE RESPONSIBILITY.
27. OWNER MUST MAINTAIN AND PRESERVE ALL PHYSICAL SITE FEATURES AND DESIGN FEATURES DEPICTED ON THE PLANS AND RELATED DOCUMENTS IN STRICT ACCORDANCE WITH THE APPROVED PLAN(S) AND DESIGN, AND, FURTHER, THE PROFESSIONAL OF RECORD AND BOHLER ARE NOT RESPONSIBLE FOR ANY FAILURE TO SO MAINTAIN OR PRESERVE SITE AND/OR DESIGN FEATURES. IF OWNER FAILS TO MAINTAIN AND/OR PRESERVE ALL PHYSICAL SITE FEATURES AND/OR DESIGN FEATURES DEPICTED ON THE PLANS AND RELATED DOCUMENTS, OWNER AGREES TO INDEMNIFY AND HOLD THE PROFESSIONAL OF RECORD AND BOHLER PARTIES, HARMLESS FOR ALL INJURIES, DAMAGES AND COSTS THAT PROFESSIONAL OF RECORD AND BOHLER INCUR AS A RESULT OF SAID FAILURE OR FAILURE TO PRESERVE.
28. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION ACTIVITIES AND MATERIALS COMPLY WITH AND CONFORM TO APPLICABLE FEDERAL, STATE AND LOCAL RULES AND REGULATIONS, LAWS, ORDINANCES, AND CODES, AND ALL APPLICABLE REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970, (29 U.S.C. 651 ET SEQ.) AS AMENDED, AND ANY MODIFICATIONS, AMENDMENTS OR REVISIONS TO SAME.
29. THE CONTRACTOR MUST STRICTLY COMPLY WITH THE LATEST AND CURRENT OSHA STANDARDS AND REGULATIONS, AND/OR ANY OTHER AGENCY WITH JURISDICTION OVER EXCAVATION AND TRENCHING PROCEDURES. PROFESSIONAL OF RECORD AND BOHLER HAS NO RESPONSIBILITY FOR OR AS RELATED TO EXCAVATION AND TRENCHING PROCEDURES AND WORK.
30. THE CONTRACTOR AND THE OWNER MUST INSTALL ALL ELEMENTS IN STRICT COMPLIANCE WITH AND IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDED INSTALLATION CRITERIA AND SPECIFICATIONS. IF THE CONTRACTOR AND/OR OWNER FAIL TO DO SO, THEY AGREE TO JOINTLY, INDEPENDENTLY, SEPARATELY, COLLECTIVELY, AND SEVERALLY INDEMNIFY, DEFEND, PROTECT AND HOLD PROFESSIONAL OF RECORD AND BOHLER PARTIES HARMLESS FOR ALL INJURIES AND DAMAGES THAT PROFESSIONAL OF RECORD AND BOHLER INCURS AS A RESULT OF SAID FAILURE.
31. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN AN ON-SITE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN COMPLIANCE WITH THE ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIREMENTS OR LOCAL GOVERNING AGENCY FOR SITES WHERE ONE (1) ACRE OR MORE IS DISTURBED BY CONSTRUCTION ACTIVITIES (UNLESS THE LOCAL JURISDICTION REQUIRES A DIFFERENT THRESHOLD). THE CONTRACTOR MUST ENSURE THAT ALL ACTIVITIES, INCLUDING THOSE OF ALL SUBCONTRACTORS, ARE IN COMPLIANCE WITH THE SWPPP, INCLUDING BUT NOT LIMITED TO LOGGING ACTIVITIES (MINIMUM ONCE PER WEEK AND AFTER RAINFALL EVENTS) AND CORRECTIVE MEASURES, AS APPROPRIATE AND FURTHER, THE CONTRACTOR IS SOLELY AND COMPLETELY RESPONSIBLE FOR FAILING TO DO SO.
32. AS CONTAINED IN THESE DRAWINGS AND ASSOCIATED DOCUMENTS PREPARED BY THE PROFESSIONAL OF RECORD AND BOHLER, THE USE OF THE WORDS 'CERTIFY' OR 'CERTIFICATION' CONSTITUTE(S) AN EXPRESSION ONLY OF PROFESSIONAL OPINION REGARDING THE INFORMATION WHICH IS THE SUBJECT OF THE PROFESSIONAL OF RECORD'S AND BOHLER KNOWLEDGE OR BELIEF AND IN ACCORDANCE WITH COMMON AND ACCEPTED PROCEDURE CONSISTENT WITH THE APPLICABLE STANDARDS OF PRACTICE, AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE OF ANY NATURE OR TYPE, EITHER EXPRESSED OR IMPLIED, UNDER ANY CIRCUMSTANCES.

DEMOLITION NOTES

(Rev. 1/2023)

1. THE GENERAL NOTES MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS. THE GENERAL NOTES ARE REFERENCED HEREIN, AND THE CONTRACTOR MUST REFER TO THEM AND FULLY COMPLY WITH THESE NOTES, IN THEIR ENTIRETY. THE CONTRACTOR MUST BE FAMILIAR WITH AND ACKNOWLEDGE FAMILIARITY WITH ALL OF THE GENERAL NOTES AND ALL OF THE PLANS' SPECIFIC NOTES.
2. THE CONTRACTOR MUST CONDUCT DEMOLITION/REMOVALS ACTIVITIES IN SUCH A MANNER AS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, SIDEWALKS, WALKWAYS, AND ALL OTHER ADJACENT FACILITIES. THE CONTRACTOR MUST OBTAIN ALL APPLICABLE PERMITS FROM THE APPROPRIATE GOVERNMENTAL AUTHORITY(IES) PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/REMOVALS ACTIVITIES IN OR ADJACENT TO THE RIGHT-OF-WAY.
3. WHEN DEMOLITION-RELATED ACTIVITIES IMPACT ROADWAYS AND/OR ROADWAY RIGHT-OF-WAY, THE CONTRACTOR MUST PROVIDE TRAFFIC CONTROL AND GENERALLY ACCEPTED SAFE PRACTICES IN CONFORMANCE WITH THE CURRENT FEDERAL HIGHWAY ADMINISTRATION MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AND THE FEDERAL, STATE, AND LOCAL REGULATIONS.
4. THE DEMOLITION AND/OR REMOVALS) PLAN IS INTENDED TO PROVIDE GENERAL INFORMATION AND TO IDENTIFY ONLY CONDITIONS REGARDING ITEMS TO BE DEMOLISHED, REMOVED, AND/OR TO REMAIN.
   A. THE CONTRACTOR MUST ALSO REVIEW ALL CONSTRUCTION DOCUMENTS AND INCLUDE WITHIN THE DEMOLITION ACTIVITIES ALL INCIDENTAL OPERATIONS REQUIRED FOR THE NEW SITE IMPROVEMENTS.
   B. THIS PLAN IS NOT INTENDED TO AND DOES NOT PROVIDE DIRECTION REGARDING THE MEANS, METHODS, SEQUENCING, TECHNIQUES AND PROCEDURES TO BE EMPLOYED TO ACCOMPLISH THE WORK. ALL MEANS, METHODS, SEQUENCING, TECHNIQUES AND PROCEDURES MUST BE IN STRICT CONFORMANCE WITH ALL STATE, FEDERAL, LOCAL, AND JURISDICTIONAL REQUIREMENTS. THE CONTRACTOR MUST COMPLY WITH ALL OSHA AND OTHER SAFETY PRECAUTIONS NECESSARY TO PROVIDE A SAFE WORK SITE FOR THE CONTRACTOR AND THE PUBLIC.
5. THE CONTRACTOR MUST PROVIDE ALL "METHODS AND MEANS" NECESSARY TO PREVENT MOVEMENT, SETTLEMENT, OR COLLAPSE OF EXISTING STRUCTURES, AND ANY OTHER IMPROVEMENTS THAT ARE REMAINING ON OR OFF SITE. THE CONTRACTOR, AT THE CONTRACTOR'S SOLE COST, MUST REPAIR ALL DAMAGE TO ALL STRUCTURES AND FEATURES THAT ARE TO REMAIN. CONTRACTOR MUST USE NEW MATERIAL FOR ALL REPAIRS, CONTRACTOR'S REPAIRS MUST INCLUDE THE RESTORATION OF ALL FEATURES DISTURBED UNDER PRE-DEMOLITION CONDITION, OR BETTER. CONTRACTOR MUST PERFORM ALL REPAIRS AT THE CONTRACTOR'S SOLE EXPENSE.
6. THE PROFESSIONAL OF RECORD AND BOHLER ARE NOT RESPONSIBLE FOR JOB SITE SAFETY OR SUPERVISION. THE CONTRACTOR MUST PERFORM WITH THE STRICTEST SAFETY PRECAUTIONS IN ACCORDANCE WITH ALL OSHA REQUIREMENTS, TO ENSURE PUBLIC AND CONTRACTOR SAFETY AND SAFETY TO ALL PROPERTY ON THE SITE OR ADJACENT OR NEAR TO THE SAME.
7. THE CONTRACTOR IS RESPONSIBLE FOR JOB SITE SAFETY, WHICH MUST INCLUDE, BUT IS NOT LIMITED TO, THE INSTALLATION AND MAINTENANCE OF BARRIERS, FENCING, OTHER APPROPRIATE AND/OR NECESSARY SAFETY FEATURES AND ITEMS NECESSARY TO PROTECT AREAS OF CONSTRUCTION FROM PEDESTRIAN AND VEHICULAR TRAFFIC. THE CONTRACTOR MUST BE FAMILIAR WITH AND ACKNOWLEDGE FAMILIARITY WITH ALL OF THE GENERAL NOTES AND ALL OF THE PLANS' SPECIFIC NOTES. THE CONTRACTOR MUST SAFEGUARD THE SITE AS NECESSARY TO PERFORM THE DEMOLITION IN SUCH A MANNER AS TO PREVENT THE ENTRY OF ALL UNAUTHORIZED PERSONS AT ANY TIME TO OR NEAR THE DEMOLITION AREA.
8. PRIOR TO THE COMMENCEMENT OF ANY SITE ACTIVITY AND ANY DEMOLITION ACTIVITY, THE CONTRACTOR MUST, IN WRITING, RAISE ANY QUESTIONS CONCERNING THE ACCURACY OR INTENT OF THESE PLANS AND/OR SPECIFICATIONS, ALL CONCERNS OR QUESTIONS REGARDING THE APPLICABLE SAFETY STANDARDS, AND/OR THE SAFETY OF PERSONS AND/OR THIRD PARTIES IN PERFORMING THE WORK ON THIS PROJECT. ANY SUCH CONCERNS MUST BE CONVEYED TO THE PROFESSIONAL OF RECORD AND BOHLER, IN WRITING. ALL DEMOLITION ACTIVITIES MUST BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THESE PLANS AND SPECIFICATIONS AND ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, RULES, REQUIREMENTS, STATUTES AND ORDINANCES.
9. THE CONTRACTOR MUST BECOME FAMILIAR WITH THE APPLICABLE UTILITY SERVICE PROVIDER REQUIREMENTS AND IS RESPONSIBLE FOR ANY AND ALL UTILITY DISCONNECTIONS AND/OR RELOCATIONS AND/OR DISCONNECTIONS AS IDENTIFIED OR REQUIRED FOR THE PROJECT. THE CONTRACTOR MUST PROVIDE THE OWNER WITH WRITTEN NOTIFICATION THAT THE EXISTING UTILITIES AND SERVICES HAVE BEEN TERMINATED, REMOVED AND/OR ABANDONED IN ACCORDANCE WITH THE JURISDICTION AND UTILITY COMPANY REQUIREMENTS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION ACTIVITY.
10. PRIOR TO COMMENCING ANY DEMOLITION, THE CONTRACTOR MUST:
    A. OBTAIN ALL REQUIRED PERMITS AND APPROVALS TO USE ON SITE FOR REVIEW BY THE PROFESSIONAL OF RECORD AND ALL PUBLIC AGENCIES WITH JURISDICTION THROUGHOUT THE DURATION OF THE PROJECT, SITE WORK, AND DEMOLITION WORK.
    B. NOTIFY, AT A MINIMUM, THE MUNICIPAL ENGINEER, DESIGN ENGINEER, AND LOCAL SOIL CONSERVATION JURISDICTION, AT LEAST 72 BUSINESS HOURS PRIOR TO THE COMMENCEMENT OF WORK.
    C. INSTALL THE REQUIRED SOIL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO SITE DISTURBANCE, AND MAINTAIN SAID CONTROLS UNTIL SITE IS STABILIZED.
    D. IN ACCORDANCE WITH STATE LAW, THE CONTRACTOR MUST CALL THE STATE ONE-CALL DAMAGE PROTECTION SYSTEM FOR UTILITY MARK OUT, MINIMUM 72 HOURS PRIOR.
    E. LOCATE AND PROTECT ALL UTILITIES AND SERVICES, INCLUDING BUT NOT LIMITED TO GAS, WATER, ELECTRIC, SANITARY AND STORM SEWER, TELEPHONE, CABLE, FIB



NOTE
1. THE IMAGERY SHOWN ON THIS PLAN IS BASED OFF OF NEARMAP AERIAL IMAGERY.

250 125 62.5 0 250
SCALE: 1" = 250'

BOHLER™

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
URBAN PLANNING
PERMITTING SERVICES
TRANSPORTATION SERVICES

THE INFORMATION, DESIGN AND CONTENT OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE DISCLOSED OR USED FOR ANY PURPOSE, WITHOUT THE WRITTEN AUTHORIZATION FROM BOHLER, AND ONLY APPROVED, SEALED PLANS SHALL BE UTILIZED FOR CONSTRUCTION PURPOSES.

REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREIN HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 50 OF 2017, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. WWW.PA1CALL.ORG

NOT APPROVED FOR CONSTRUCTION

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-SITE

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER™
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — PROFESSIONAL — MATTHEW JOHN KEARSE

M. KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090388

SHEET TITLE:

AERIAL PLAN

SHEET NUMBER:

C-103
03 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-SITE-PAC250095.00-1A---LAYOUT: C-103 AERIAL
JW

SURVEY NOTES:

1. PROPERTY KNOWN AS T.M.P. #'s 26-001-099, 26-001-099-001, 26-001-099-002, & 26-001-099-003 AS IDENTIFIED ON THE GIS TAX MAP OF NEW BRITAIN TOWNSHIP, BUCKS COUNTY, COMMONWEALTH OF PENNSYLVANIA.
2. AREA (OVERALL) = 3,923,094 SQUARE FEET OR 90.062 ACRES.
3. LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE. LOCATIONS AND SIZES ARE BASED ON UTILITY MARK-OUTS, ABOVE GROUND STRUCTURES THAT WERE VISIBLE & ACCESSIBLE IN THE FIELD, AND THE MAPS AS LISTED IN THE REFERENCES AVAILABLE AT THE TIME OF THE SURVEY. AVAILABLE ASBUILT PLANS AND UTILITY MARKOUT DOES NOT ENSURE MAPPING OF ALL UNDERGROUND UTILITIES AND STRUCTURES. BEFORE ANY EXCAVATION IS TO BEGIN, ALL UNDERGROUND UTILITIES SHOULD BE VERIFIED AS TO THEIR LOCATION, SIZE AND TYPE BY THE PROPER UTILITY COMPANIES. CONTROL POINT ASSOCIATES, INC. DOES NOT GUARANTEE THE UTILITIES SHOWN COMPRISE ANY OR ALL SUCH UTILITIES IN THE AREA EITHER IN SERVICE OR ABANDONED.

   A QUALITY LEVEL SYSTEM IS UTILIZED TO IDENTIFY THE SOURCE OF THE UNDERGROUND UTILITY INFORMATION. THE METHOD OF DETERMINATION IS BASED ON CONTRACTUAL AGREEMENT WITH THE CLIENT AND IS DEPICTED ON THE SURVEY BY THE LINE TYPES SHOWN IN THE DRAWING LEGEND. FOR REFERENCE, THE QUALITY LEVELS ARE AS FOLLOWS:

   QUALITY LEVEL D - UTILITIES SHOWN BASED UPON REFERENCE MAPPING OR ORAL HISTORY. NOT FIELD VERIFIED.

   QUALITY LEVEL C - LOCATION OF UTILITY SURFACE FEATURES SUPPLEMENTS REFERENCE MAPPING. INCLUDES MARKOUT BY OTHERS.

   QUALITY LEVEL B - UTILITY LOCATION DATA IS COLLECTED THROUGH GEOPHYSICAL SENSING TECHNOLOGY TO SUPPLEMENT SURFACE FEATURES AND OR REFERENCE MAPPING. INCLUDES MARKOUT BY CONTROL POINT ASSOCIATES, INC./VISIONARY SUBSURFACE SOLUTIONS

   QUALITY LEVEL A - HORIZONTAL AND VERTICAL LOCATION OF UTILITIES ARE OBTAINED USING VACUUM EQUIPMENT EXCAVATION OR OTHER METHODS TO EXPOSE THE UTILITY. LOCATION SHOWN AT SINGLE POINT WHERE EXCAVATION OCCURRED UNLESS UTILITY WAS LOCATED PRIOR TO FILLING.

   ALL FOUR TYPES MAY NOT BE PRESENT ON THIS SURVEY.

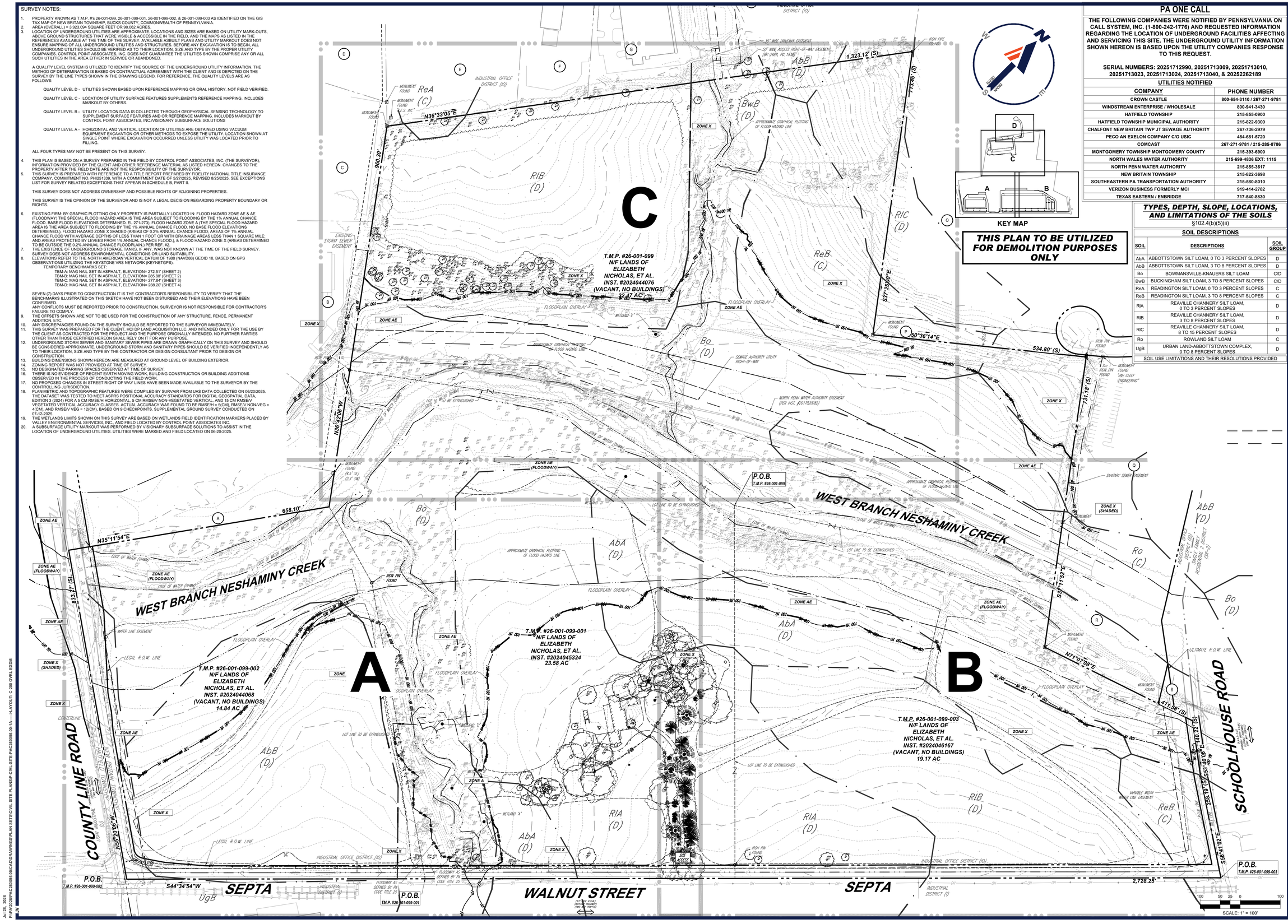
4. THIS PLAN IS BASED ON A SURVEY PREPARED IN THE FIELD BY CONTROL POINT ASSOCIATES, INC. (THE SURVEYOR). INFORMATION PROVIDED BY THE CLIENT AND OTHER REFERENCE MATERIAL AS LISTED HEREON. CHANGES TO THE PROPERTY AFTER THE FIELD DATE ARE NOT THE RESPONSIBILITY OF THE SURVEYOR.
5. THIS SURVEY IS PREPARED WITH REFERENCE TO A TITLE REPORT PREPARED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY. COMMITMENT NO. PHI2513339, WITH A COMMITMENT DATE OF 5/27/2025, REVISED 8/25/2025. SEE EXCEPTIONS LIST FOR SURVEY RELATED EXCEPTIONS THAT APPEAR IN SCHEDULE B, PART II.

   THIS SURVEY DOES NOT ADDRESS OWNERSHIP AND POSSIBLE RIGHTS OF ADJOINING PROPERTIES.

   THIS SURVEY IS THE OPINION OF THE SURVEYOR AND IS NOT A LEGAL DECISION REGARDING PROPERTY BOUNDARY OR RIGHTS.

6. EXISTING FIRM: BY GRAPHIC PLOTTING ONLY PROPERTY IS PARTIALLY LOCATED IN: FLOOD HAZARD ZONE AE & AE (FLOODWAY) THE SPECIAL FLOOD HAZARD AREA IS THE AREA SUBJECT TO FLOODING BY THE 1% ANNUAL CHANCE FLOOD. BASE FLOOD ELEVATIONS DETERMINED: EL 271-273). FLOOD HAZARD ZONE A (THE SPECIAL FLOOD HAZARD AREA IS THE AREA SUBJECT TO FLOODING BY THE 1% ANNUAL CHANCE FLOOD. NO BASE FLOOD ELEVATIONS DETERMINED.), FLOOD HAZARD ZONE X SHADED (AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD.), & FLOOD HAZARD ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.) PER REF. #2.
7. THE EXISTENCE OF UNDERGROUND STORAGE TANKS, IF ANY, WAS NOT KNOWN AT THE TIME OF THE FIELD SURVEY. SURVEY DOES NOT ADDRESS ENVIRONMENTAL CONDITIONS OR LAND SUITABILITY.
8. ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) GEOID 18, BASED ON GPS OBSERVATIONS UTILIZING THE KEYSTONE VRS NETWORK (KEYNETGPS).
   TEMPORARY BENCHMARKS SET:
   TBM-A: MAG NAIL SET IN ASPHALT, ELEVATION= 272.51' (SHEET 2)
   TBM-B: MAG NAIL SET IN ASPHALT, ELEVATION= 285.88' (SHEET 2)
   TBM-C: MAG NAIL SET IN ASPHALT, ELEVATION= 277.84' (SHEET 3)
   TBM-D: MAG NAIL SET IN ASPHALT, ELEVATION= 288.20' (SHEET 4)

   SEVEN (7) DAYS PRIOR TO CONSTRUCTION IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THE BENCHMARKS ILLUSTRATED ON THIS SKETCH HAVE NOT BEEN DISTURBED AND THEIR ELEVATIONS HAVE BEEN CONFIRMED.
   ANY CONFLICTS MUST BE REPORTED PRIOR TO CONSTRUCTION. SURVEYOR IS NOT RESPONSIBLE FOR CONTRACTOR'S FAILURE TO COMPLY.
9. THE OFFSETS SHOWN ARE NOT TO BE USED FOR THE CONSTRUCTION OF ANY STRUCTURE, FENCE, PERMANENT ADDITION, ETC.
10. ANY DISCREPANCIES FOUND ON THE SURVEY SHOULD BE REPORTED TO THE SURVEYOR IMMEDIATELY.
11. THIS SURVEY WAS PREPARED FOR THE CLIENT, HCI DP LAND ACQUISITION LLC, AND INTENDED ONLY FOR THE USE BY THE CLIENT AS CONTRACTED FOR THE PROJECT AND THE PURPOSE ORIGINALLY INTENDED. NO FURTHER PARTIES OTHER THAN THOSE CERTIFIED HEREON SHALL RELY ON IT FOR ANY PURPOSE.
12. UNDERGROUND STORM SEWER AND SANITARY SEWER PIPES ARE DRAWN GRAPHICALLY ON THIS SURVEY AND SHOULD BE CONSIDERED APPROXIMATE. UNDERGROUND STORM AND SANITARY PIPES SHOULD BE VERIFIED INDEPENDENTLY AS TO THEIR LOCATION, SIZE AND TYPE BY THE CONTRACTOR OR DESIGN CONSULTANT PRIOR TO DESIGN OR CONSTRUCTION.
13. BUILDING DIMENSIONS SHOWN HEREON ARE MEASURED AT GROUND LEVEL OF BUILDING EXTERIOR.
14. ZONING REPORT WAS NOT PROVIDED AT TIME OF SURVEY.
15. NO DESIGNATED PARKING SPACES OBSERVED AT TIME OF SURVEY.
16. THERE IS NO EVIDENCE OF RECENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELD WORK.
17. NO PROPOSED CHANGES IN STREET RIGHT OF WAY LINES HAVE BEEN MADE AVAILABLE TO THE SURVEYOR BY THE CONTROLLING JURISDICTION.
18. PLANIMETRIC AND TOPOGRAPHIC FEATURES WERE COMPILED BY SURVAIR FROM UAS DATA COLLECTED ON 06/20/2025. THE DATASET WAS TESTED TO MEET ASPRS POSITIONAL ACCURACY STANDARDS FOR DIGITAL GEOSPATIAL DATA, EDITION 3 (2024) FOR A 5 CM RMSEH HORIZONTAL, 5 CM RMSEV NON-VEGETATED VERTICAL, AND 15 CM RMSEV VEGETATED VERTICAL ACCURACY CLASSES. ACTUAL ACCURACY WAS FOUND TO BE RMSE/H = 5(CM), RMSE/V NON-VEG = 4(CM), AND RMSE/V VEG = 12(CM), BASED ON 9 CHECKPOINTS. SUPPLEMENTAL GROUND SURVEY CONDUCTED ON 07-12-2025.
19. THE WETLANDS LIMITS SHOWN ON THIS SURVEY ARE BASED ON WETLANDS FIELD IDENTIFICATION MARKERS PLACED BY VALLEY ENVIRONMENTAL SERVICES, INC., AND FIELD LOCATED BY CONTROL POINT ASSOCIATES INC.
20. A SUBSURFACE UTILITY MARKOUT WAS PERFORMED BY VISIONARY SUBSURFACE SOLUTIONS TO ASSIST IN THE LOCATION OF UNDERGROUND UTILITIES. UTILITIES WERE MARKED AND FIELD LOCATED ON 06-20-2025.



PA ONE CALL

THE FOLLOWING COMPANIES WERE NOTIFIED BY PENNSYLVANIA ON CALL SYSTEM, INC. (1-800-242-1776) AND REQUESTED INFORMATION REGARDING THE LOCATION OF UNDERGROUND FACILITIES AFFECTING AND SERVICING THIS SITE. THE UNDERGROUND UTILITY INFORMATION SHOWN HEREON IS BASED UPON THE UTILITY COMPANIES RESPONSE TO THIS REQUEST.

SERIAL NUMBERS: 20251712990, 20251713009, 20251713010, 20251713023, 20251713024, 20251713040, & 20252262189

UTILITIES NOTIFIED

COMPANY	PHONE NUMBER
CROWN CASTLE	800-654-3110 / 267-271-9781
WINDSTREAM ENTERPRISE / WHOLESALE	800-941-3430
HATFIELD TOWNSHIP	215-855-0900
HATFIELD TOWNSHIP MUNICIPAL AUTHORITY	215-822-9300
CHALFONT NEW BRITAIN TWP JT SEWAGE AUTHORITY	267-736-2979
PECO AN EXELON COMPANY C/O USIC	484-681-5720
COMCAST	267-271-9781 / 215-285-8786
MONTGOMERY TOWNSHIP MONTGOMERY COUNTY	215-393-6900
NORTH WALES WATER AUTHORITY	215-699-4836 EXT: 1115
NORTH PENN WATER AUTHORITY	215-855-3617
NEW BRITAIN TOWNSHIP	215-822-3698
SOUTHEASTERN PA TRANSPORTATION AUTHORITY	215-580-8010
VERIZON BUSINESS FORMERLY MCI	919-414-2782
TEXAS EASTERN / ENBRIDGE	717-540-8830

KEY MAP

THIS PLAN TO BE UTILIZED FOR DEMOLITION PURPOSES ONLY

TYPES, DEPTH, SLOPE, LOCATIONS, AND LIMITATIONS OF THE SOILS

§102.4(b)(5)(ii)

SOIL DESCRIPTIONS

SOIL	DESCRIPTIONS	SOIL GROUP
AbA	ABBOTTSTOWN SILT LOAM, 0 TO 3 PERCENT SLOPES	D
AbB	ABBOTTSTOWN SILT LOAM, 3 TO 8 PERCENT SLOPES	D
Bo	BOWMANSVILLE-KNAUERS SILT LOAM	C/D
BwB	BUCKINGHAM SILT LOAM, 3 TO 8 PERCENT SLOPES	C/D
ReA	READINGTON SILT LOAM, 0 TO 3 PERCENT SLOPES	C
ReB	READINGTON SILT LOAM, 3 TO 8 PERCENT SLOPES	C
RIA	REAVILLE CHANNERY SILT LOAM, 0 TO 3 PERCENT SLOPES	D
RIB	REAVILLE CHANNERY SILT LOAM, 3 TO 8 PERCENT SLOPES	D
RIC	REAVILLE CHANNERY SILT LOAM, 8 TO 15 PERCENT SLOPES	D
Ro	ROWLAND SILT LOAM	C
UgB	URBAN LAND-ABBOTTSTOWN COMPLEX, 0 TO 8 PERCENT SLOPES	D

SOIL USE LIMITATIONS AND THEIR RESOLUTIONS PROVIDED

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREIN HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 50 OF 2017, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. WWW.PA1CALL.ORG

NOT APPROVED FOR CONSTRUCTION

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PROJECT NO.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-SITE

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA
LICENSE
PROFESSIONAL
MATTHEW JOHN KRARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE092388
ENNSYLVANIA

SHEET TITLE:

OVERALL EXISTING CONDITIONS / DEMOLITION PLAN

SHEET NUMBER:

C-200

04 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-SITE-PAC250095.00-1A.----\LAYOUT: C-200 OVRL EXOM
JW

NADB3

WEST BRANCH NESHAMINY CREEK

COUNTY LINE ROAD

SEPTA

WALNUT STREET

NEW BRITAIN TOWNSHIP

APPROXIMATE GRAPHICAL PLOTTING OF FLOOD HAZARD LINE

ZONE AE (FLOODWAY)

ZONE AE

ZONE X

ZONE A

MONUMENT FOUND (4.5" SQ) (1.1' SW)

N36°42'50"W

658.10'

N35°11'54"E

633.27' (S)

N35°20'30"E

S44°34'54"W

MATCHLINE - SHEET C-203

MATCHLINE - SHEET C-202

T.M.P. #26-001-099-002
N/F LANDS OF
ELIZABETH
NICHOLAS, ET AL.
INST. #2024044068
(VACANT, NO BUILDINGS)
14.84 AC

T.M.P. #26-001-099-001
N/F LANDS OF
ELIZABETH
NICHOLAS, ET AL.
INST. #2024045324
23.58 AC

T.M.P. #26-001-099-001
N/F LANDS OF
ELIZABETH
NICHOLAS, ET AL.
INST. #2024044076

P.O.B.
T.M.P. #26-001-099-002

P.O.B.
T.M.P. #26-001-099-001

TBM - B
MAG. NAIL
ELEV.=285.68'

AbB (D)

AbA (D)

RIA (D)

UgB

INDUSTRIAL OFFICE DISTRICT (IO)

INDUSTRIAL DISTRICT (I)

KEY MAP

LEGEND

EDGE OF STREAM (ORDINARY HIGH WATER MARK - OHWM)	
LIMIT OF FLOODPRONE SOILS	
STUDIED 100-YEAR FLOODPLAIN	100 YR
FEMA MAP 100-YEAR FLOODPLAIN	
FLOODWAY	
FLOODWAY OVERLAY	
WETLANDS	

THIS PLAN TO BE UTILIZED FOR DEMOLITION PURPOSES ONLY

SCALE: 1" = 50'

Jul 29, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-SITE-PAC250095.00-1A---LAYOUT: C-201 EXDM A
JV

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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PROJECT No.: PAC250095.00-1A
DRAWN BY: PAB
CHECKED BY: RDE
DATE: 04/06/2026
CAD I.D.: P-CIVL-SITE

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER

1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090588

SHEET TITLE:

EXISTING CONDITIONS/ DEMOLITION PLAN A

SHEET NUMBER:

C-201

05 OF 102

REVISION 1 - 07/28/2026

NAD83

MATCHLINE - SHEET C-201

MATCHLINE - SHEET C-203

P.O.B.
T.M.P. #26-001-099

T.M.P. #26-001-099
N/F LANDS OF
ELIZABETH
NICHOLAS, ET AL.
INST. #2024044076
(VACANT, NO BUILDINGS)
32.46 AC

T.M.P. #26-001-099-001
N/F LANDS OF
ELIZABETH
NICHOLAS, ET AL.
INST. #2024045324

T.M.P. #26-001-099-003
N/F LANDS OF
ELIZABETH
NICHOLAS, ET AL.
INST. #2024046167
(VACANT, NO BUILDINGS)
19.17 AC

WEST BRANCH NESHAMINY CREEK

SEPTA

WALNUT STREET
(AT WIDE R.O.W.)
(TWO WAY TRAFFIC)

SCHOOLHOUSE ROAD

ZONE AE (FLOODWAY)
ZONE AE
ZONE X
ZONE X (SHADED)

AbA (D)
AbB (p)
Bo (D)
RIA (D)
RIB (D)
Ro (C)
ReB (C)

S37°11'52"E
N71°07'08"E
411.58' (S)
140.22' (S)
S53°40'06"E
258.19' (S)
S36°41'02"E
2,728.25'
S44°34'54"W
3.25'

NORTH PENN WATER AUTHORITY EASEMENT (PER INST. #2017000082)
SANITARY SEWER EASEMENT
VARIABLE WIDTH WATER LINE EASEMENT
LOT LINE TO BE EXTINGUISHED
APPROXIMATE GRAPHICAL PLOTTING OF LIMIT OF 100-YEAR FLOODPLAIN PER HECRAS STUDY, FEMA MAPPING AND PA CODE TITLE 25
FLOODPLAIN OVERLAY
INDUSTRIAL OFFICE DISTRICT (IO)
INDUSTRIAL DISTRICT (I)
SINGLE FAMILY RESIDENTIAL 2 DISTRICT (SFR-2)
EXISTING 267.73' LF OF 10" PVC SANITARY SEWER @ 0.35% SLOPE (PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)
EXISTING 10" DIP WATER LINE (PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)
EXISTING 8" PVC SANITARY SEWER (PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)
MH LL-11 RIM=263.80 INV IN(E)=253.1 INV IN(W)=253.1 INV OUT=253.1 (INV=244.21 PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)
MH LL-12 RIM=262.24 INV UNSURE (USE INV=252.07 PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)
APPROX. LOC. OF U.G. 42" WATER LINE (PER UTILITY MARKOUT)
"SCHOOL HOUSE ROAD" "WALNUT STREET" (TBR)
"RAIL ROAD AHEAD"
"WEST BRANCH NESHAMINY CREEK"
"ULTIMATE R.O.W. LINE"
TBM=1' MAG NAIL ELEV=277.84'
P.O.B.
T.M.P. #26-001-099-003

KEY MAP

LEGEND

EDGE OF STREAM (ORDINARY HIGH WATER MARK - OHWM)	
LIMIT OF FLOODPRONE SOILS	
STUDIED 100-YEAR FLOODPLAIN	100 YR
FEMA MAP 100-YEAR FLOODPLAIN	
FLOODWAY	
FLOODWAY OVERLAY	
WETLANDS	

THIS PLAN TO BE UTILIZED FOR DEMOLITION PURPOSES ONLY

SCALE: 1" = 50'

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL SERVICES
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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NOT APPROVED FOR CONSTRUCTION

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVIL-SITE

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LIC. NO. PE094088

SHEET TITLE:

EXISTING CONDITIONS/ DEMOLITION PLAN B

SHEET NUMBER:

C-202
06 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\RAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-SITE-PAC250095.00-1A-----\LAYOUT: C-202 E\XDM B
JV

NAD83

INDUSTRIAL OFFICE DISTRICT (IO)

ReA (C)

RIB (D)

AbB (D)

BwB (D)

ReB (C)

Bo (D)

MONUMENT FOUND "C.E.S. INC."

MONUMENT FOUND

N36°33'05"E

960.30'

N36°42'06"W

1,323.12' (S)

213.46' (S)

S37°25'07"E

N50°36'14"E

30' WIDE GIVEWAY EASEMENT

50' WIDE ACCESS RIGHT-OF-WAY EASEMENT (BK 1987, PG 1936)

IRON PIPE FOUND

ASPHALT PAVEMENT

EDGE OF WOODS

WOODED (TBR)

CULTIVATED AREA (TBR)

LAID SLIPSOD (TBR)

EXISTING STORM SEWER EASEMENT

EXISTING 177.00 LF OF 10" PVC SANITARY SEWER @ 0.40% SLOPE (PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)

APPROX. LOC. OF U.G. 10" SAN. LINE (NOT FIELD VERIFIED)

EXISTING 199.39 LF OF 10" PVC SANITARY SEWER @ 0.40% SLOPE (PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)

MH 11-13 RIM=265.72 INV. UNDER (VIF), BOLTED (INV=254.01, PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)

MH 11-14 RIM=265.79 INV. UNDER (VIF), BOLTED (INV=254.05, PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)

EXISTING 151.55 LF OF 10" PVC SANITARY SEWER @ 0.25% SLOPE (PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)

EXISTING 118.97 LF OF 10" PVC SANITARY SEWER @ 0.25% SLOPE (PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)

APPROX. LOC. OF U.G. 10" SAN. LINE (NOT FIELD VERIFIED)

APPROX. LOC. OF U.G. WATER LINE (PER UTILITY MARKOUT)

SEWAGE AUTHORITY UTILITY RIGHT-OF-WAY

NORTH PENN WATER AUTHORITY EASEMENT (PER INST. #2017025382)

APPROXIMATE GRAPHICAL PLOTTING OF FLOOD HAZARD LINE

APPROXIMATE GRAPHICAL PLOTTING OF LIMIT OF 100-YEAR FLOODPLAIN PER HEC/RAS STUDY, FEMA MAPPING AND PA CODE TITLE 25

FLOODPLAIN OVERLAY

WETLAND "I"

WETLAND "J"

WEST BRANCH NESHAMINY CREEK

IRON PIN FOUND

STREAM

EDGE OF WATER (DAM)

LOT LINE TO BE EXTINGUISHED

ZONE X

ZONE AE

ZONE AE (FLOODWAY)

100 YR

T.M.P. #26-001-099
N/F LANDS OF
ELIZABETH
NICHOLAS, ET AL.
INST. #2024044076
(VACANT, NO BUILDINGS)
32.47 AC

T.M.P. #26-001-099-001
N/F LANDS OF
ELIZABETH
NICHOLAS, ET AL.
INST. #2024045324

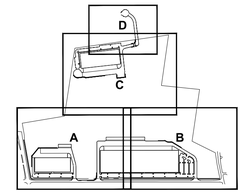
P.O.B.
T.M.P. #26-001-099

T.M.P. #26-001-099
N/F LANDS OF
ELIZABETH
NICHOLAS, ET AL.
INST. #2024044076
(VACANT, NO BUILDIN

MATCHLINE - SHEET C-201

MATCHLINE - SHEET C-202

KEY MAP



LEGEND

EDGE OF STREAM (ORDINARY HIGH WATER MARK - OHWM)	
LIMIT OF FLOODPRONE SOILS	
STUDIED 100-YEAR FLOODPLAIN	100 YR
FEMA MAP 100-YEAR FLOODPLAIN	
FLOODWAY	
FLOODWAY OVERLAY	
WETLANDS	

THIS PLAN TO BE UTILIZED FOR DEMOLITION PURPOSES ONLY

SCALE: 1" = 50'

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PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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NOT APPROVED FOR CONSTRUCTION

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-SITE

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — PROFESSIONAL — MATTHEW JOHN KEARSE — PROFESSIONAL ENGINEER

SHEET TITLE:

EXISTING CONDITIONS/ DEMOLITION PLAN C

SHEET NUMBER:

C-203

07 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-SITE-PAC250095.00-1A---LAYOUT, C-203 EXDM C

NAD83

INDEPENDENCE LANE

(50' WIDE R.O.W.)
(ASPHALT ROADWAY)
(TWO WAY TRAFFIC)

MATCHLINE - SHEET C-203

INDUSTRIAL OFFICE DISTRICT (IO)

INDUSTRIAL OFFICE DISTRICT (IO)

ZONE X

30' WIDE DRIVEWAY EASEMENT

50' WIDE ACCESS RIGHT-OF-WAY EASEMENT (BK 2687, PG 1936)

APPROXIMATE GRAPHICAL PLOTTING OF FLOOD HAZARD LINES

EDGE OF WOODS (TBR)

CULTIVATED AREA (TBR)

WOODED (TBR)

ASPHALT PAVEMENT

STONE PILE

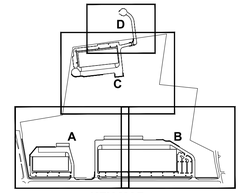
GRASS "SALE FOR LEASE"

OVERGROWN

AbB (D)

BwB (D)

SCALE: 1" = 30'



KEY MAP

LEGEND

EDGE OF STREAM (ORDINARY HIGH WATER MARK - OHWM)	
LIMIT OF FLOODPRONE SOILS	
STUDIED 100-YEAR FLOODPLAIN	100 YR
FEMA MAP 100-YEAR FLOODPLAIN	
FLOODWAY	
FLOODWAY OVERLAY	
WETLANDS	

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FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

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COMMONWEALTH OF PENNSYLVANIA
PROFESSIONAL
MATTHEW JOHN KBARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA No. 088566 DATE: 4/6/2026

SHEET TITLE:

EXISTING CONDITIONS/ DEMOLITION PLAN D

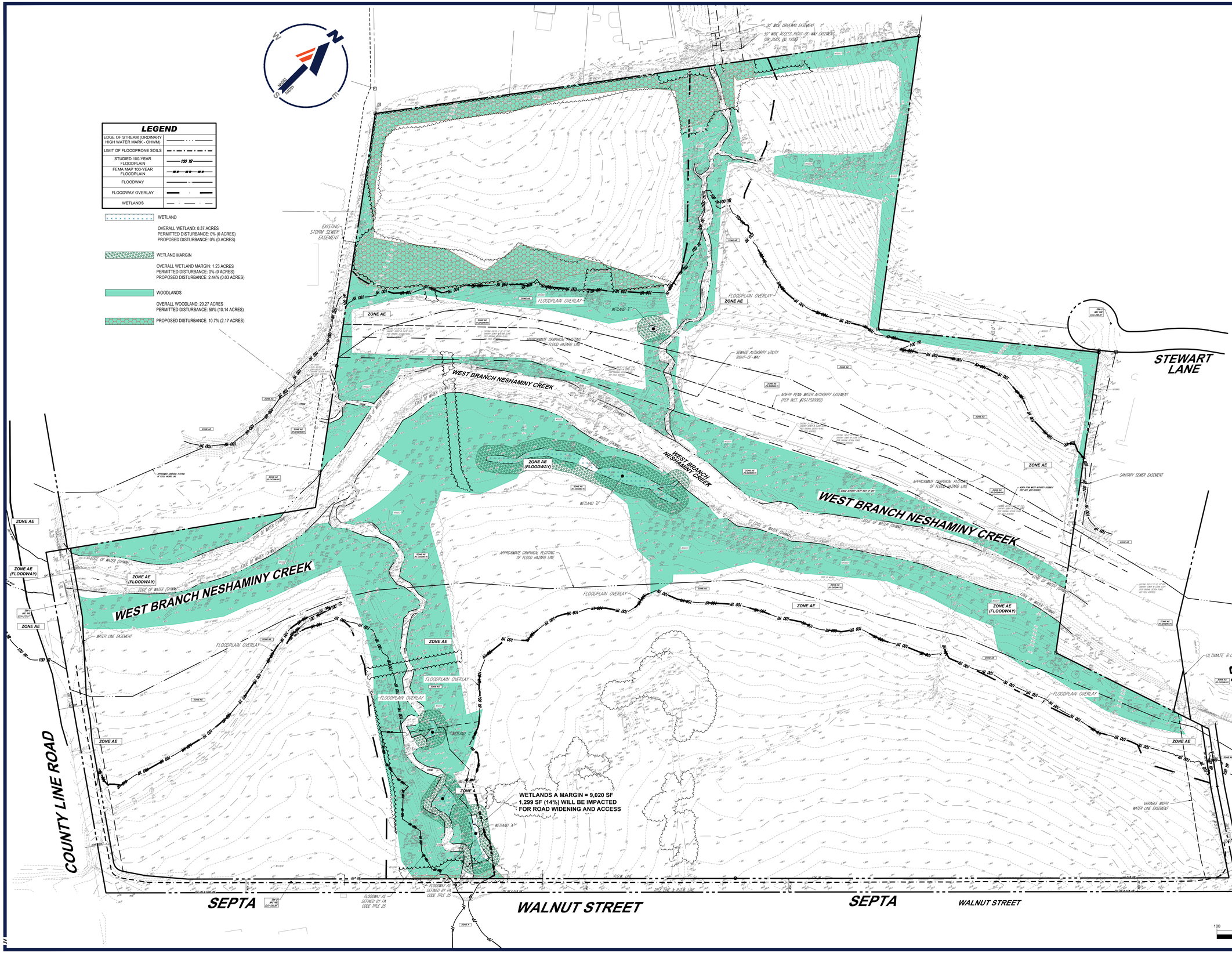
SHEET NUMBER:

C-204

8 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-SITE-PAC250095.00-1A-----LAYOUT C-204 EXDM D
JV



Jul 29, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-SITE-PAC250095.00-1A-----LAYOUT C-205 NTRL RES
JV

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PROJECT:

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FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LIC. NO. PE090588

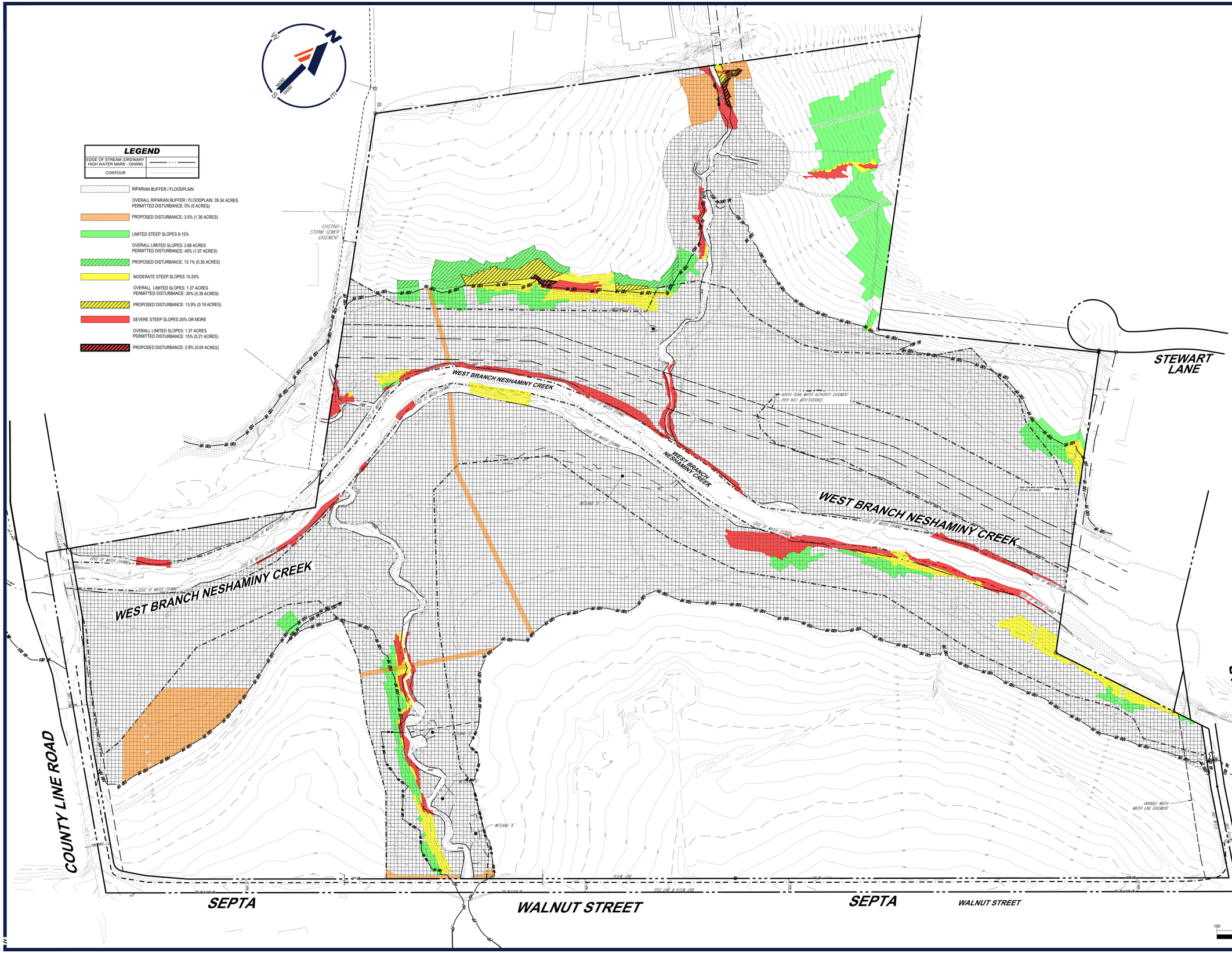
SHEET TITLE:

OVERALL WETLAND & WOODLAND PLAN

SHEET NUMBER:

C-205
09 OF 102

REVISION 1 - 07/28/2026



Jul 29, 2026
P:\PA\0029\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-SITE-PAC250095.00-1A-----LAYOUT: C-206 NTRL RES

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KEARSE
PROFESSIONAL ENGINEER
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090588

SHEET TITLE:

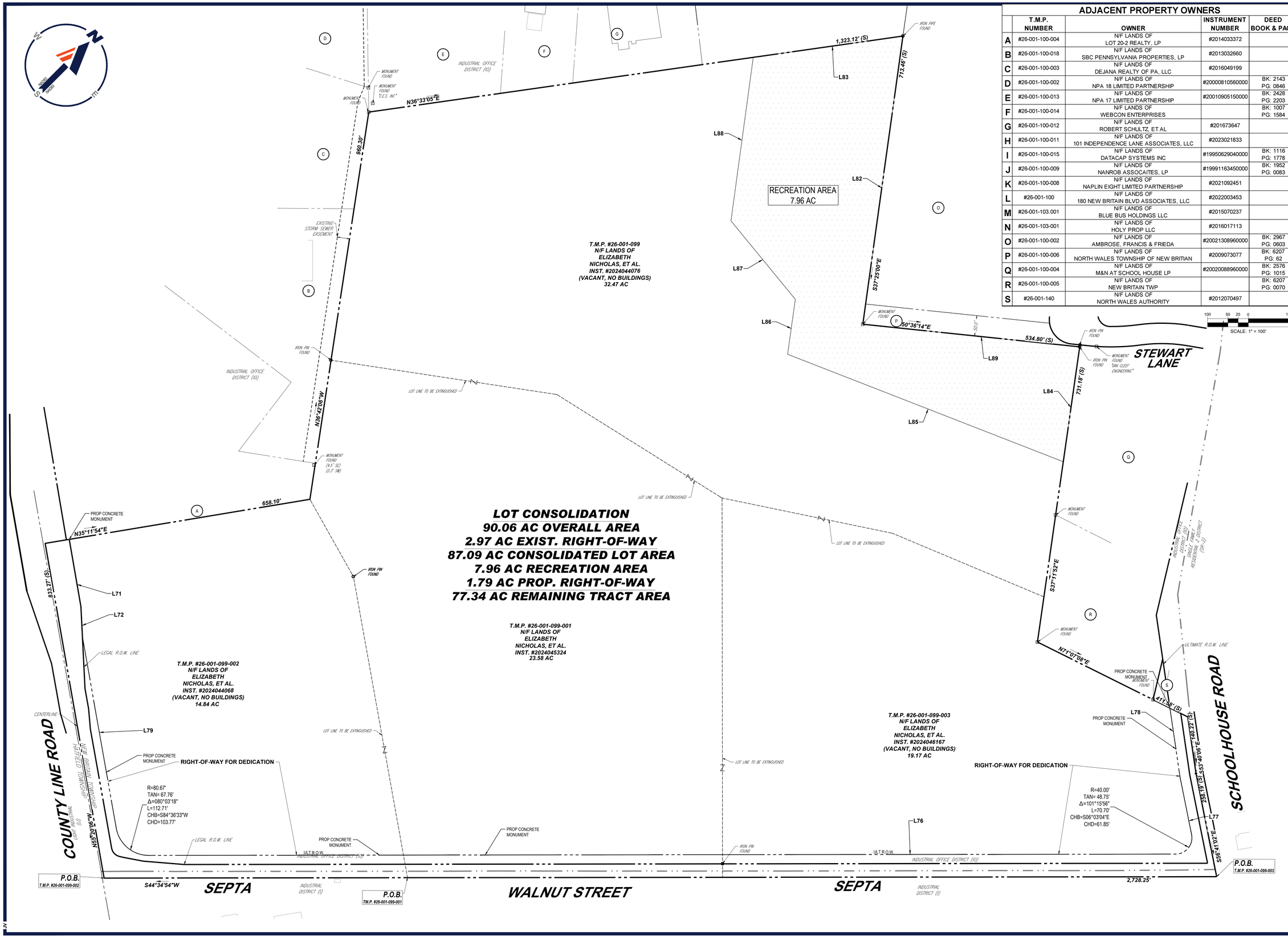
OVERALL RIPARIAN BUFFER & SLOPE DISTURBANCE PLAN

SHEET NUMBER:

C-206

10 OF 102

REVISION 1 - 07/28/2026



ADJACENT PROPERTY OWNERS

	T.M.P. NUMBER	OWNER	INSTRUMENT NUMBER	DEED BOOK & PAGE
A	#26-001-100-004	N/F LANDS OF LOT 20-2 REALTY, LP	#2014033372	
B	#26-001-100-018	N/F LANDS OF SBC PENNSYLVANIA PROPERTIES, LP	#2013032660	
C	#26-001-100-003	N/F LANDS OF DEJANA REALTY OF PA, LLC	#2016049199	
D	#26-001-100-002	N/F LANDS OF NPA 18 LIMITED PARTNERSHIP	#20000810560000	BK: 2143 PG: 0846
E	#26-001-100-013	N/F LANDS OF NPA 17 LIMITED PARTNERSHIP	#20010905150000	BK: 2428 PG: 2203
F	#26-001-100-014	N/F LANDS OF WEBCON ENTERPRISES		BK: 1007 PG: 1584
G	#26-001-100-012	N/F LANDS OF ROBERT SCHULTZ, ET AL	#201673647	
H	#26-001-100-011	N/F LANDS OF 101 INDEPENDENCE LANE ASSOCIATES, LLC	#2023021833	
I	#26-001-100-015	N/F LANDS OF DATACAP SYSTEMS INC	#19950629040000	BK: 1116 PG: 1778
J	#26-001-100-009	N/F LANDS OF NANROB ASSOCAITES, LP	#19991163450000	BK: 1952 PG: 0083
K	#26-001-100-008	N/F LANDS OF NAPLIN EIGHT LIMITED PARTNERSHIP	#2021092451	
L	#26-001-100	N/F LANDS OF 180 NEW BRITAIN BLVD ASSOCIATES, LLC	#2022003453	
M	#26-001-103.001	N/F LANDS OF BLUE BUS HOLDINGS LLC	#2015070237	
N	#26-001-103-001	N/F LANDS OF HOLY PROP LLC	#2016017113	
O	#26-001-100-002	N/F LANDS OF AMBROSE, FRANCIS & FRIEDA	#20021308960000	BK: 2967 PG: 0603
P	#26-001-100-006	N/F LANDS OF NORTH WALES TOWNSHIP OF NEW BRITIAN	#2009073077	BK: 6207 PG: 62
Q	#26-001-100-004	N/F LANDS OF M&N AT SCHOOL HOUSE LP	#20020088960000	BK: 2576 PG: 1015
R	#26-001-100-005	N/F LANDS OF NEW BRITAIN TWP		BK: 6207 PG: 0070
S	#26-001-140	N/F LANDS OF NORTH WALES AUTHORITY	#2012070497	

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PROFESSIONAL ENGINEER
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090588

SHEET TITLE:

LOT CONSOLIDATION PLAN

SHEET NUMBER:

C-207
11 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-SITE-PAC250095.00-1A---LAYOUT, C-207 SBDV
JV

SITE SPECIFIC NOTES

1. EXISTING PROPERTY INFORMATION:
   LANDS OF ELIZABETH NICHOLAS, ET AL.
   INST# 2024045324
2. APPLICANT/EQUITABLE OWNER:
   HCI DP LAND ACQUISITION LLC
   7200 WISCONSIN AVENUE, SUITE 900 BETHESDA, MD 20814
   ATTN: DAN GORDON
   PHONE: (240) 503-6522
   EMAIL: DGOMMEL@HANOVERCO.COM
3. BY GRAPHIC PLOTTING ONLY, THE PROPERTY IS PARTIALLY LOCATED IN FLOOD HAZARD ZONE AE (THE FLOODWAY IS THE CHANNEL OS A STREAM PLUS ANY ADJACENT FLOODPLAIN AREAS THAT MUST BE KEPT FREE OF ENCROACHMENT SO THAT THE 1% ANNUAL CHANCE FLOOD CAN BE CARRIED OUT WITHOUT SUBSTANTIAL INCREASES IN FLOOD HEIGHTS (BASE FLOOD ELEVATIONS DETERMINED EL 271-273)), FLOOD HAZARD ZONE AE (THE SPECIAL FLOOD ZONE HAZARD AREA IS THE AREA SUBJECT TO FLOODING BY THE 1% ANNUAL CHANCE FLOOD. (BASE FLOOD ELEVATIONS DETERMINED.)) & FLOOD HAZARD ZONE X SHADED (AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD), & FLOOD HAZARD ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.
   - SHOWN ON THE FLOOD INSURANCE RATE MAP (FIRM) 42017C0286K & 42017C0288K, MARCH 21, 2017.
4. ALL CURB AND PAVEMENT RADII ARE 5', UNLESS OTHERWISE NOTED.
5. ALL PROPOSED PINS AND MONUMENTS SHALL BE PLACED AND CERTIFIED BY A LICENSED PENNSYLVANIA PROFESSIONAL SURVEYOR DURING CONSTRUCTION.
6. NO PERSON SHALL PLACE ANY STRUCTURE, FILL, LANDSCAPING, OR VEGETATION INTO A STORMWATER FACILITY OR BMP OR WITHIN A DRAINAGE EASEMENT WHICH WOULD LIMIT OR ALTER THE FUNCTIONING OF THE STORMWATER FACILITY OR BMP WITHOUT THE WRITTEN APPROVAL OF THE MUNICIPALITY.
7. NO PERSON SHALL MODIFY, REMOVE, FILL, LANDSCAPE, OR ALTER ANY STORMWATER MANAGEMENT (SWM) BEST MANAGEMENT PRACTICES (BMPS), FACILITIES, AREAS, OR STRUCTURES UNLESS IT IS PART OF AN APPROVED MAINTENANCE PROGRAM AND WRITTEN APPROVAL OF THE MUNICIPALITY HAS BEEN OBTAINED.
8. THE TOWNSHIP IS PERMITTED TO ACCESS WATERCOURSE EASEMENTS FOR INSPECTION OR EMERGENCY REPAIR/MAINTENANCE.
9. APPLICANT IS REQUIRED TO MAINTAIN THE AREA OF THE CLEAR SIGHT TRIANGLE, AND THE TOWNSHIP HAS THE RIGHT TO ENTER THE AREA AND PERFORM MAINTENANCE IF DEEMED CRITICAL TO PUBLIC WELFARE.
10. ALL PROPOSED UTILITIES SHALL BE PLACED UNDERGROUND.
11. ALL STREETLIGHTS SHALL BE INSTALLED AND ENERGIZED PRIOR TO THE ISSUANCE OF THE FIRST OCCUPANCY PERMIT FOR ANY SUBDIVISION AND/OR LAND DEVELOPMENT OR FIRST PHASE OR SECTION THEREOF AND THE LIGHTING AND MAINTENANCE COSTS SHALL BE ASSESSED TO AFFECTED PROPERTY OWNER.
12. THE TOP SIX INCHES OF SOIL THAT EXISTED NATURALLY ON THE SITE PRIOR TO SUBDIVISION AND/OR LAND DEVELOPMENT SHALL BE STOCKPILED ON THE SITE. FOLLOWING CONSTRUCTION, THE STOCKPILED SOIL SHALL BE REDISTRIBUTED UNIFORMLY ON THE SITE TO A MINIMUM DEPTH OF SIX INCHES.
13. PRIOR TO APPLYING THE FINAL WEARING COURSE TO ANY EXISTING OR PROPOSED ROADWAY, THE APPLICANT MUST SUBMIT AS-BUILT PLANS FOR REVIEW AND APPROVAL BY THE TOWNSHIP ENGINEER.
14. THE RECREATION AREA AND AREAS OF RIGHT-OF-WAY ARE OFFERED FOR DEDICATION TO THE TOWNSHIP.
15. EASEMENTS PROPOSED BY THIS PLAN SHALL BE MAINTAINED BY THE PROPERTY OWNER.

PARKING REQUIREMENTS

ITEM	CODE	PERMITTED	EXISTING	PROPOSED
MIN STALL SIZE	§ 22-708.2.A	10' X 18'	N/A	10' X 18'
MIN AISLE WIDTH	§ 22-708.3.C	24'	N/A	MIN 24'
MIN NUMBER OF STALLS	§ 27-2901	BUILDING 1: 340 SPACES BUILDING 2: 100 SPACES BUILDING 3: 116 SPACES	N/A	BUILDING 1: 345 SPACES BUILDING 2: 102 SPACES BUILDING 3: 116 SPACES
WHOLESALE BUSINESS, WHOLESALE STORAGE, WAREHOUSING: 1 SPACE PER 1,000 SF OF TOTAL FLOOR AREA PLUS 1 SPACE FOR EACH BUSINESS VEHICLE NORMALLY STORED ON THE PREMISES REQUIRED FOR BUILDING 1: 339,450 / 1,000 = 340 SPACES (DOES NOT INCLUDE LOADING OR STORAGE PARKING) REQUIRED FOR BUILDING 2: 100,000 / 1,000 = 100 SPACES (DOES NOT INCLUDE LOADING OR STORAGE PARKING) REQUIRED FOR BUILDING 3: 115,500 / 1,000 = 116 SPACES (DOES NOT INCLUDE LOADING OR STORAGE PARKING)				
			KEY =	VARIANCE REQUIRED

SALDO TABLE
BULK REQUIREMENT

ITEM	CODE	PERMITTED	EXISTING	PROPOSED
MIN REQUIRED DEDICATED PARK AND RECREATIONAL AREA	§ 22-715.2.C.(2)	2,500 SF PER 4,000 SF OF BUILDING AREA 554,950 / 4,000 x 2,500 = 346,844 SF	N/A	346,885 SF

BASE SITE AREA CALCULATION

SITE AREA:	3,923,094 SF
COUNTY LINE, WALNUT, SCHOOLHOUSE EXISTING LEGAL R.O.W.:	- 130,376 SF
EXISTING UTILITY RIGHTS-OF-WAY OR EASEMENTS:	- 177,733 SF
BASE SITE AREA:	3,633,985 SF (83.42 ACRES)

NET BUILDABLE SITE AREA

BASE SITE AREA:	3,633,985 SF
REQUIRED OPEN SPACE:	- 0 SF
BASE SITE AREA:	3,633,985 SF (83.42 ACRES)

RATIO BASE SITE AREA CALCULATION

SITE AREA:	3,923,094 SF
COUNTY LINE, WALNUT, SCHOOLHOUSE EXISTING LEGAL R.O.W.:	- 130,376 SF
COUNTY LINE, WALNUT, SCHOOLHOUSE EXISTING EASEMENTS:	- 158,733 SF
COUNTY LINE, WALNUT, SCHOOLHOUSE ULTIMATE R.O.W.:	- 77,863 SF
PROPOSED UTILITY RIGHTS-OF-WAY OR EASEMENTS:	- 0 SF
100% PROTECT NATURAL RESOURCES (WATERCOURSES):	- 238,081 SF
100% PROTECT NATURAL RESOURCES (LIMITS OF RIPARIAN BUFFER):	- 1,470,897 SF
RATIO BASE SITE AREA:	1,847,144 SF (42.40 ACRES)

ZONING TABLE

ZONE: IO INDUSTRIAL OFFICE PARK
USE: 27-1801.a K3 WHOLESALE BUSINESS, WHOLESALE STORAGE, WAREHOUSING (PERMITTED BY-RIGHT)

OVERALL LOT AFTER CONSOLIDATION [1]
BULK REQUIREMENTS [2]

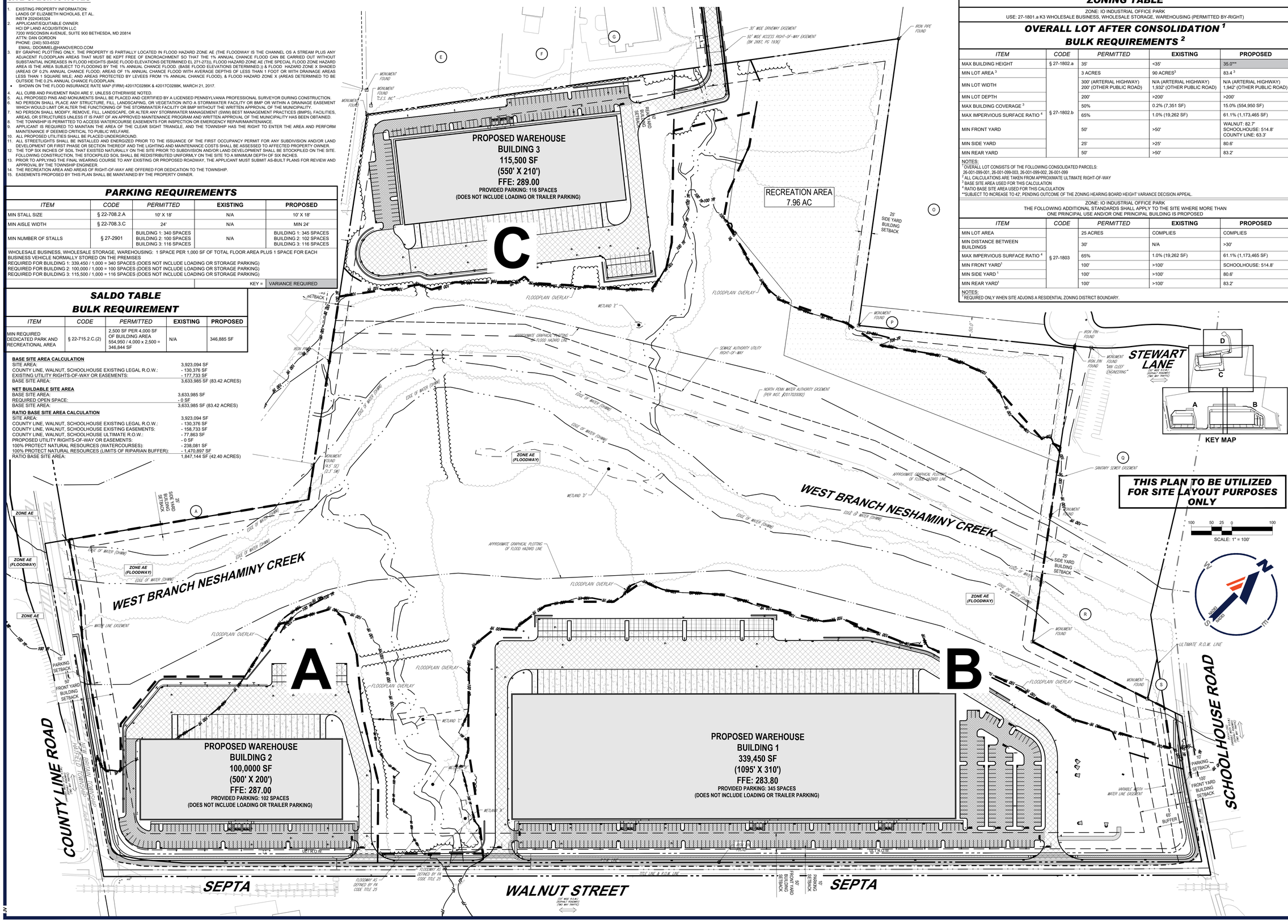
ITEM	CODE	PERMITTED	EXISTING	PROPOSED
MAX BUILDING HEIGHT	§ 27-1802.a	35'	<35'	35.0'**
MIN LOT AREA [3]	§ 27-1802.b	3 ACRES	90 ACRES[3]	83.4 [3]
MIN LOT WIDTH		300' (ARTERIAL HIGHWAY) 200' (OTHER PUBLIC ROAD)	N/A (ARTERIAL HIGHWAY) 1,932' (OTHER PUBLIC ROAD)	N/A (ARTERIAL HIGHWAY) 1,942' (OTHER PUBLIC ROAD)
MIN LOT DEPTH		200'	>200'	>200'
MAX BUILDING COVERAGE [3]		50%	0.2% (7,351 SF)	15.0% (554,950 SF)
MAX IMPERVIOUS SURFACE RATIO [4]		65%	1.0% (19,262 SF)	61.1% (1,173,465 SF)
MIN FRONT YARD		50'	>50'	WALNUT: 82.7' SCHOOLHOUSE: 514.8' COUNTY LINE: 63.3'
MIN SIDE YARD		25'	>25'	80.6'
MIN REAR YARD		50'	>50'	83.2'

NOTES:
[1] OVERALL LOT CONSISTS OF THE FOLLOWING CONSOLIDATED PARCELS:
26-001-099-001, 26-001-099-003, 26-001-099-002, 26-001-099
[2] ALL CALCULATIONS ARE TAKEN FROM APPROXIMATE ULTIMATE RIGHT-OF-WAY
[3] BASE SITE AREA USED FOR THIS CALCULATION
[4] RATIO BASE SITE AREA USED FOR THIS CALCULATION
**SUBJECT TO INCREASE TO 42', PENDING OUTCOME OF THE ZONING HEARING BOARD HEIGHT VARIANCE DECISION APPEAL.

ZONE: IO INDUSTRIAL OFFICE PARK
THE FOLLOWING ADDITIONAL STANDARDS SHALL APPLY TO THE SITE WHERE MORE THAN ONE PRINCIPAL USE AND/OR ONE PRINCIPAL BUILDING IS PROPOSED

ITEM	CODE	PERMITTED	EXISTING	PROPOSED
MIN LOT AREA	§ 27-1803	25 ACRES	COMPLIES	COMPLIES
MIN DISTANCE BETWEEN BUILDINGS		30'	N/A	>30'
MAX IMPERVIOUS SURFACE RATIO [4]		65%	1.0% (19,262 SF)	61.1% (1,173,465 SF)
MIN FRONT YARD[1]		100'	>100'	SCHOOLHOUSE: 514.8'
MIN SIDE YARD [1]		100'	>100'	80.6'
MIN REAR YARD[1]		100'	>100'	83.2'

NOTES:
[1] REQUIRED ONLY WHEN SITE ADJOINS A RESIDENTIAL ZONING DISTRICT BOUNDARY.



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PROGRAM MANAGEMENT
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PROJECT NO.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-SITE

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS
FOR
HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

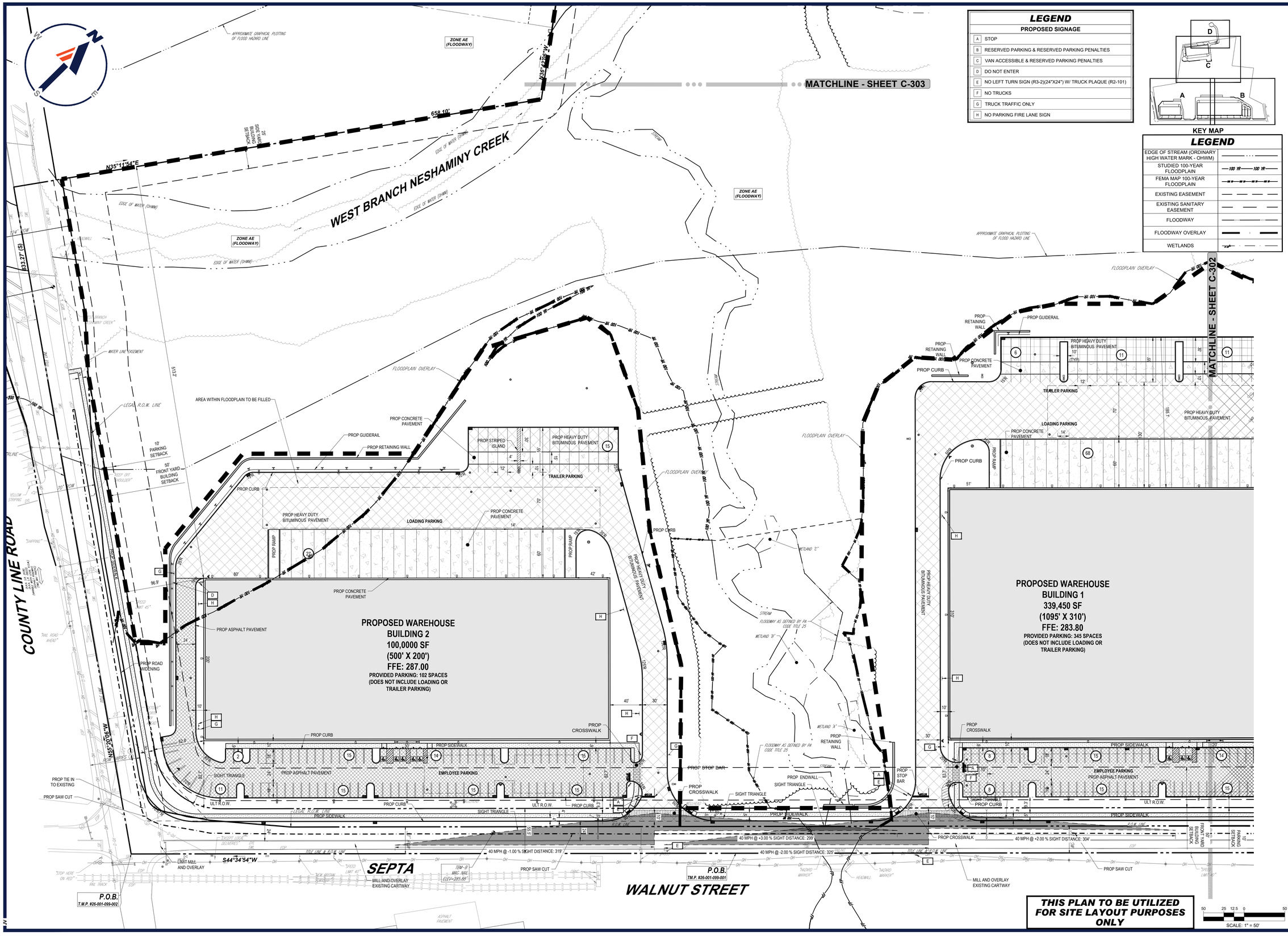
COMMONWEALTH OF PENNSYLVANIA
LICENSE
PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090380

SHEET TITLE:
OVERALL SITE PLAN

SHEET NUMBER:
C-300
12 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-SITE-PAC250095.00-1A.----\LAYOUT: C-300 OVRL SITE



LEGEND

PROPOSED SIGNAGE

A	STOP
B	RESERVED PARKING & RESERVED PARKING PENALTIES
C	VAN ACCESSIBLE & RESERVED PARKING PENALTIES
D	DO NOT ENTER
E	NO LEFT TURN SIGN (R3-2)(24"X24") W/ TRUCK PLAQUE (R2-101)
F	NO TRUCKS
G	TRUCK TRAFFIC ONLY
H	NO PARKING FIRE LANE SIGN

KEY MAP

LEGEND

EDGE OF STREAM (ORDINARY HIGH WATER MARK - OHWM)	
STUDIED 100-YEAR FLOODPLAIN	100 YR 100 YR
FEMA MAP 100-YEAR FLOODPLAIN	
EXISTING EASEMENT	
EXISTING SANITARY EASEMENT	
FLOODWAY	
FLOODWAY OVERLAY	
WETLANDS	

THIS PLAN TO BE UTILIZED FOR SITE LAYOUT PURPOSES ONLY

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DATE:	04/06/2026
CAD I.D.:	P-CIVL-SITE

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS
FOR
HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
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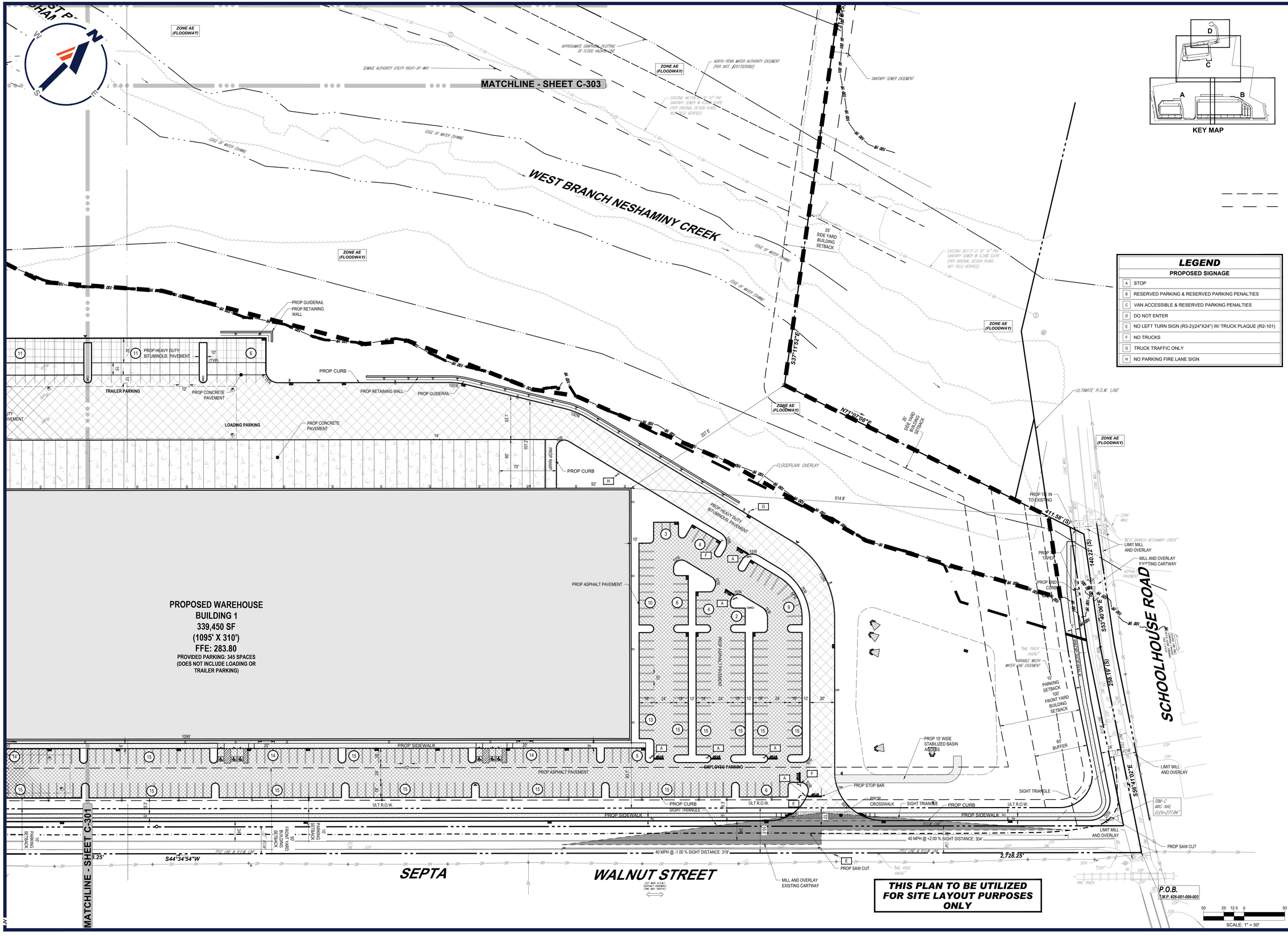
M. KEARSE
COMMONWEALTH OF PENNSYLVANIA
PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA

SHEET TITLE:
SITE PLAN A

SHEET NUMBER:
C-301
13 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-SITE-PAC250095.00-1A----->LAYOUT: C-301 SITE A



KEY MAP

LEGEND

PROPOSED SIGNAGE

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G	TRUCK TRAFFIC ONLY
H	NO PARKING FIRE LANE SIGN

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PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER

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PHILADELPHIA, PA 19102
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Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NUMBER PE 090588

SHEET TITLE:

SITE PLAN B

SHEET NUMBER:

C-302

14 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-SITE-PAC250095.00-1A-----LAYOUT C-302 SITE B
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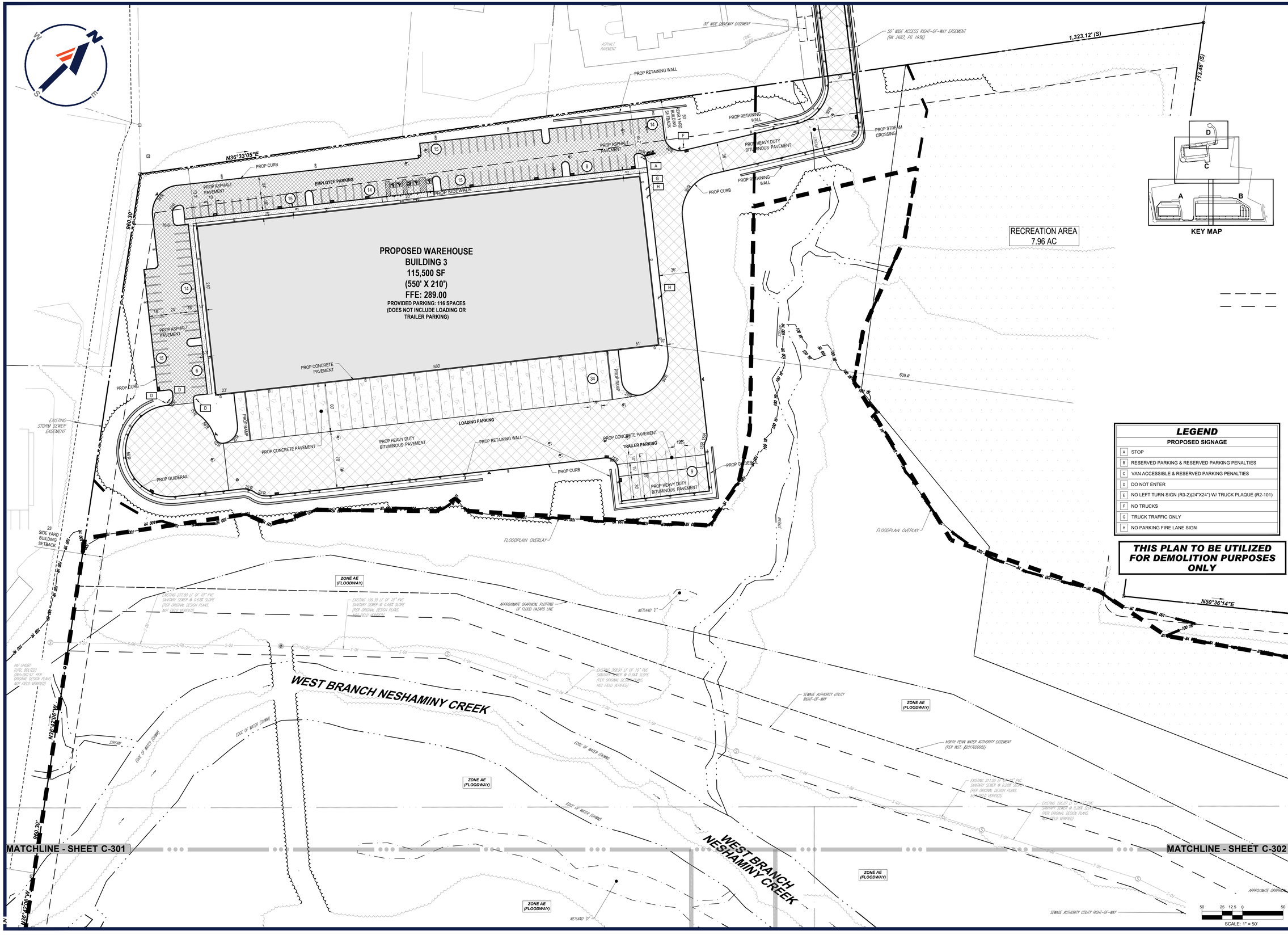

LEGEND

PROPOSED SIGNAGE

A	STOP
B	RESERVED PARKING & RESERVED PARKING PENALTIES
C	VAN ACCESSIBLE & RESERVED PARKING PENALTIES
D	DO NOT ENTER
E	NO LEFT TURN SIGN (R3-2)(24"X24") W/ TRUCK PLAQUE (R2-101)
F	NO TRUCKS
G	TRUCK TRAFFIC ONLY
H	NO PARKING FIRE LANE SIGN

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PROJECT No.: PAC250095.00-1A
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DATE: 04/06/2026
CAD I.D.: P-CIVL-SITE

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

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1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
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Fax: (267) 402-3401
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COMMONWEALTH OF PENNSYLVANIA
MATTHEW JOHN KRAISER
PROFESSIONAL
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090588

SHEET TITLE:

SITE PLAN C

SHEET NUMBER:

C-303

15 OF 102

REVISION 1 - 07/28/2026

Jul 29, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-SITE-PAC250095.00-1A-----LAYOUT: C-303 SITE C
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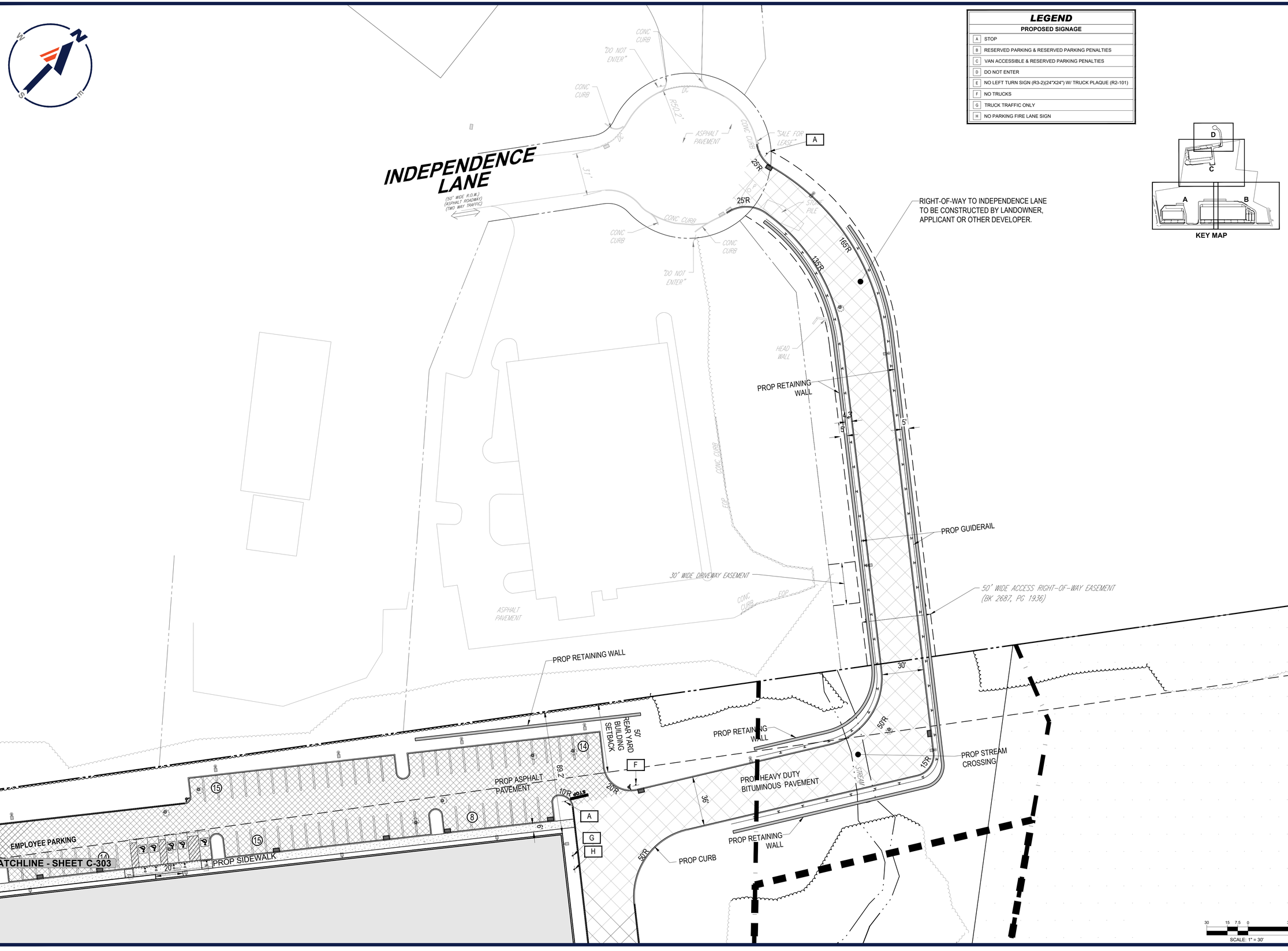

LEGEND

PROPOSED SIGNAGE

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CAD I.D.:	P-CIVL-SITE

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD NEW BRITAIN TOWNSHIP BUCKS COUNTY, PA

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PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA No. 083566
KEARSE

SHEET TITLE:

SITE PLAN D

SHEET NUMBER:

C-304
16 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
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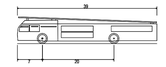
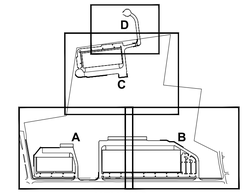
JV

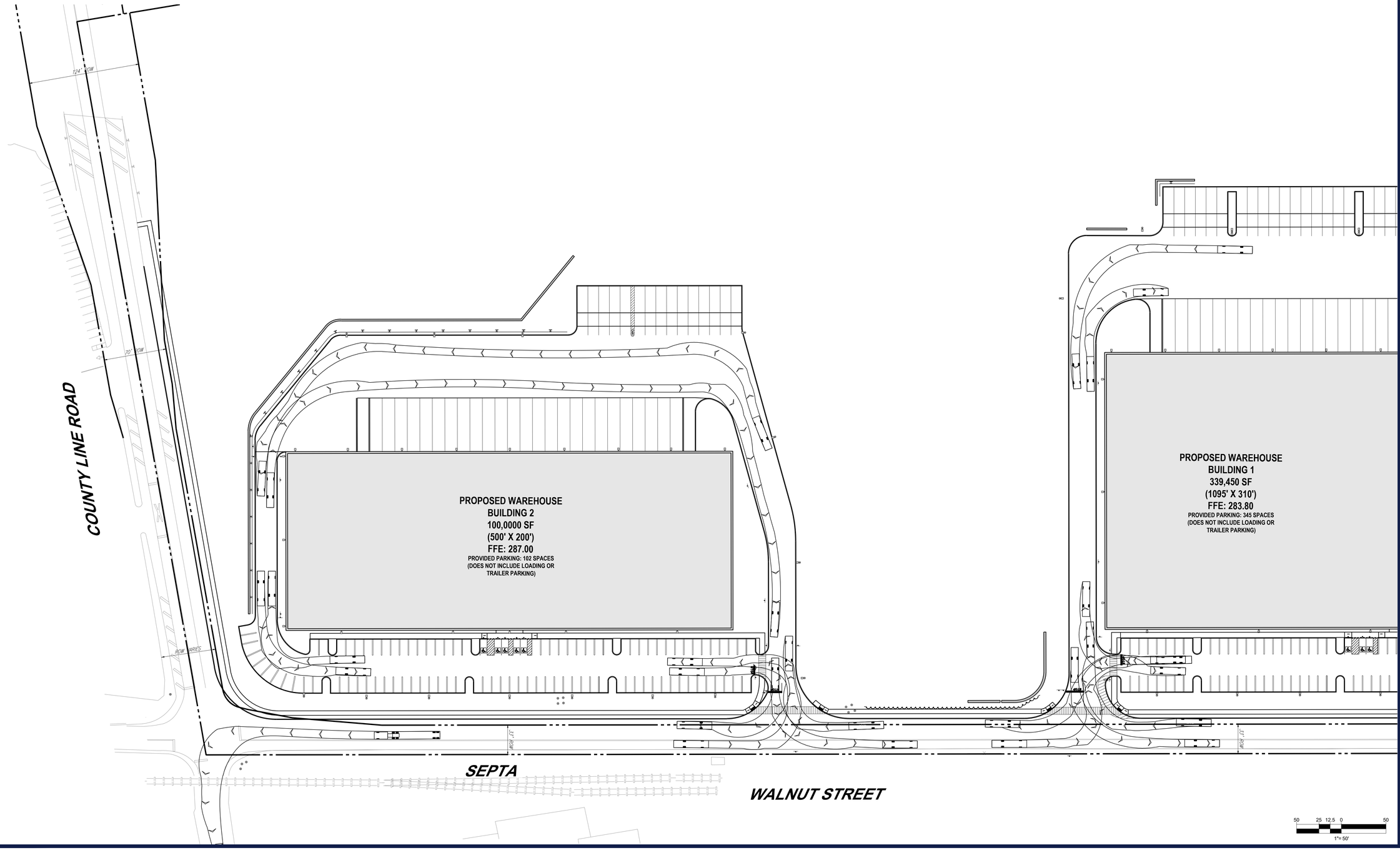




Aerial Fire Truck	
Overall Length	39.000ft
Overall Width	8.167ft
Overall Body Height	7.500ft
Min Body Ground Clearance	0.750ft
Track Width	8.167ft
Lock-to-lock time	5.00s
Max Wheel Angle	45.00°



KEY MAP



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PROJECT No.:	PAC250095.00-1A
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CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-TRCK

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS
FOR
HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

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1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
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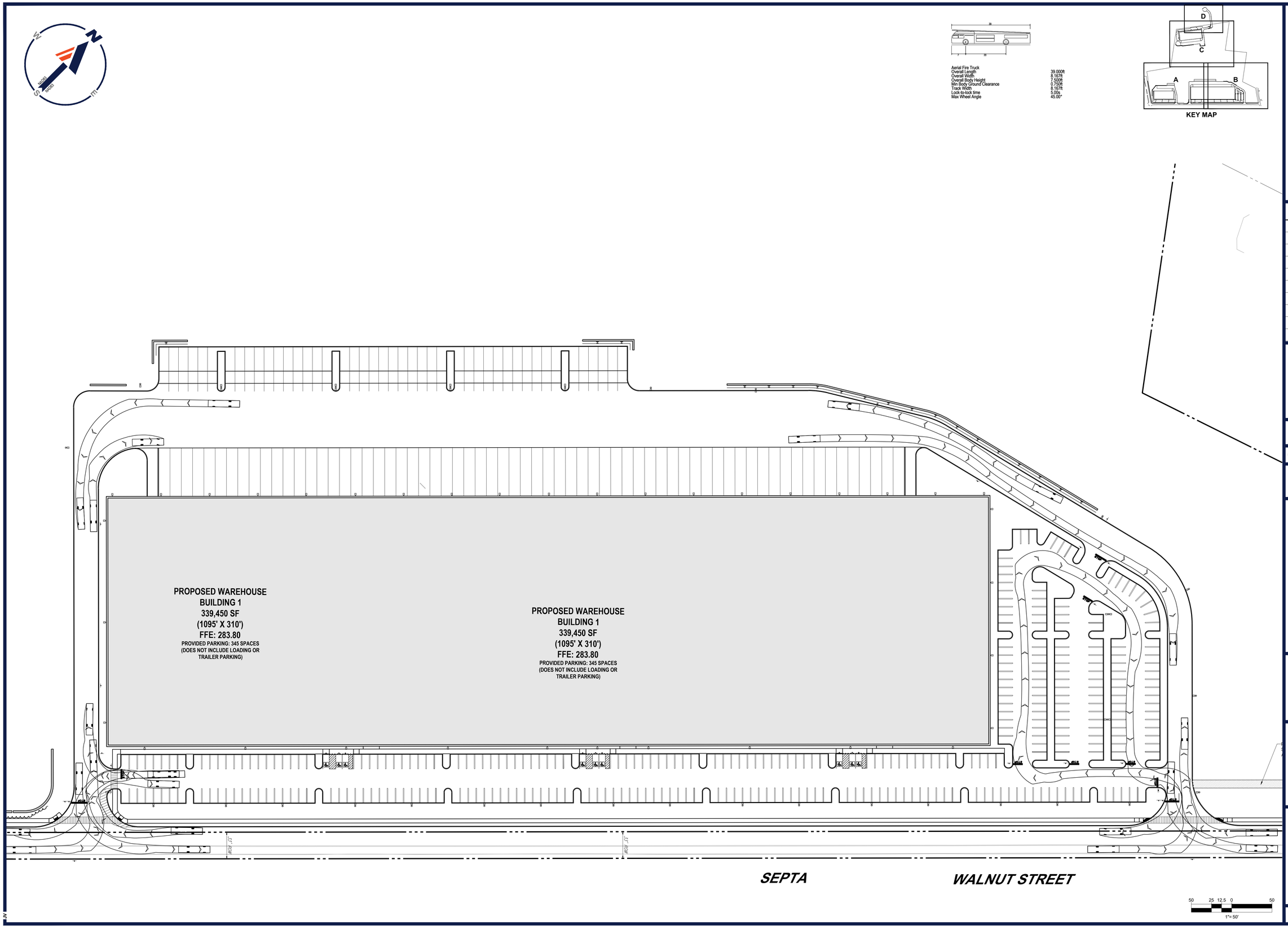
KEARSE
PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA

SHEET TITLE:
FIRE TRUCK VEHICLE CIRCULATION PLAN A

SHEET NUMBER:
C-305
17 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-TRCK-PAC250095.00-1A-----%LAYOUT: C-305 TRCK A-FIRE
JV



Aerial Fire Truck	
Overall Length	39.000ft
Overall Width	8.167ft
Overall Body Height	7.500ft
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Track Width	8.167ft
Lock-to-lock time	5.00s
Max Wheel Angle	45.00°

KEY MAP

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-TRCK

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
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BUCKS COUNTY, PA

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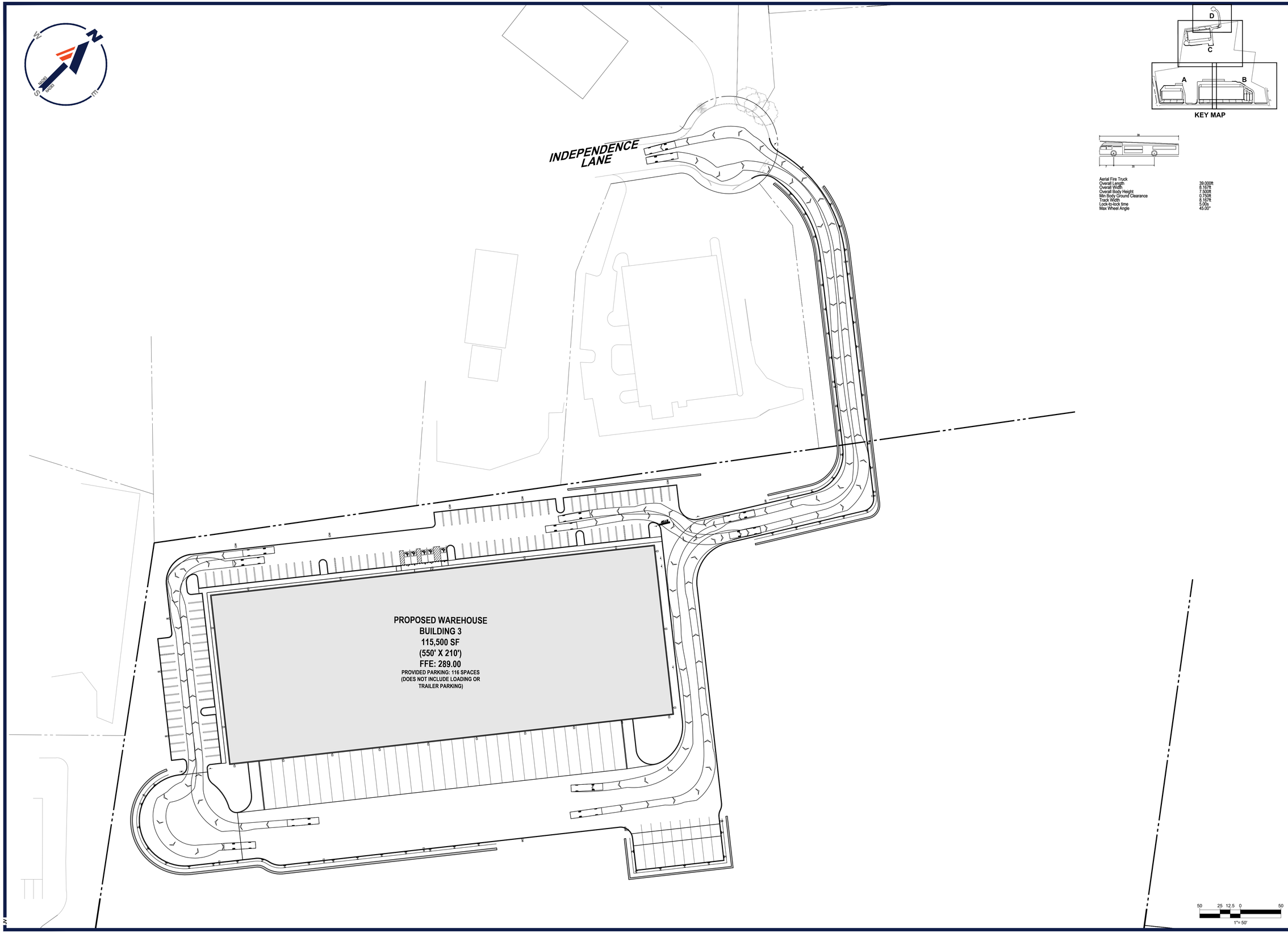
COMMONWEALTH OF PENNSYLVANIA
PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE-[illegible]

SHEET TITLE:
FIRE TRUCK VEHICLE CIRCULATION PLAN B

SHEET NUMBER:
C-306
18 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-TRCK-PAC250095.00-1A----->LAYOUT: C-306 TRCK B-FIRE
JV



Aerial Fire Truck	
Overall Length	39.000ft
Overall Width	8.167ft
Overall Body Height	7.500ft
Min Body Ground Clearance	0.750ft
Track Width	8.167ft
Lock-to-lock time	5.00s
Max Wheel Angle	45.00°

50 25 12.5 0 50
1"= 50'

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1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

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COMMONWEALTH OF PENNSYLVANIA
PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. PE-[illegible]

SHEET TITLE:
FIRE TRUCK VEHICLE CIRCULATION PLAN C

SHEET NUMBER:
C-307
19 OF 102

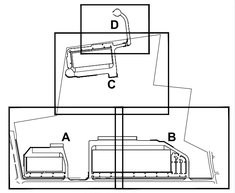
REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-TRCK-PAC250095.00-1A----->LAYOUT: C-307 TRCK C-FIRE
JV

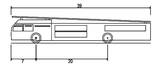


50 25 12.5 0 50

1"= 50'



KEY MAP



Aerial Fire Truck	
Overall Length	39.000ft
Overall Width	8.167ft
Overall Body Height	7.500ft
Min Body Ground Clearance	0.750ft
Track Width	8.167ft
Lock-to-lock time	5.00s
Max Wheel Angle	45.00°

50 25 12.5 0 50

1"= 50'

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PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

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BUCKS COUNTY, PA

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COMMONWEALTH OF PENNSYLVANIA
MATTHEW JOHN KEARSE
PROFESSIONAL
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090688

SHEET TITLE:

FIRE TRUCK VEHICLE CIRCULATION OFFSITE PLAN

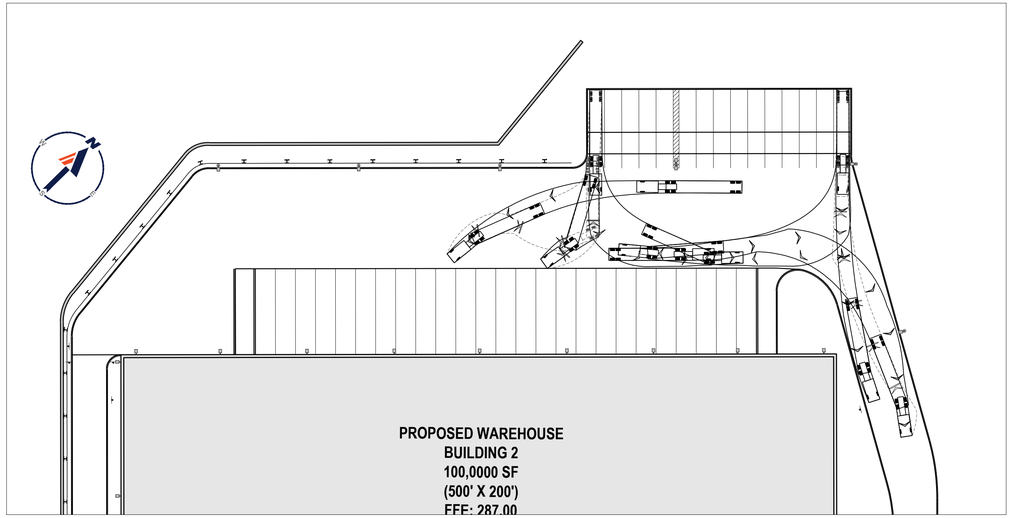
SHEET NUMBER:

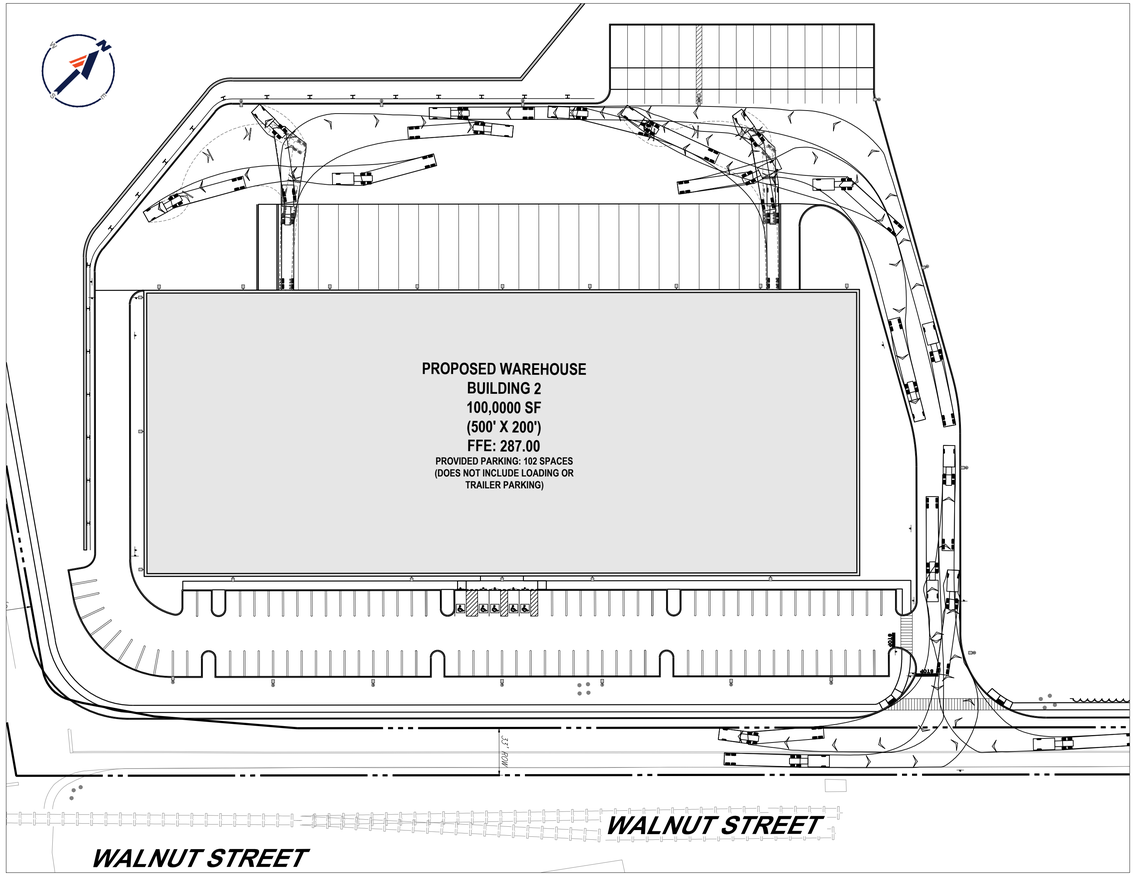
C-308

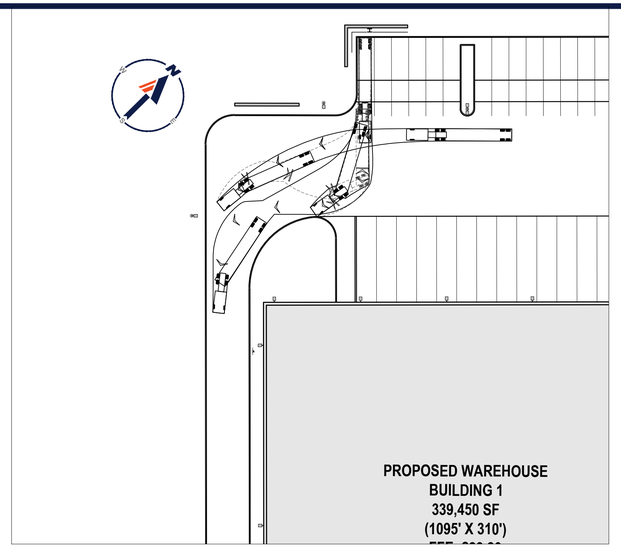
20 OF 102

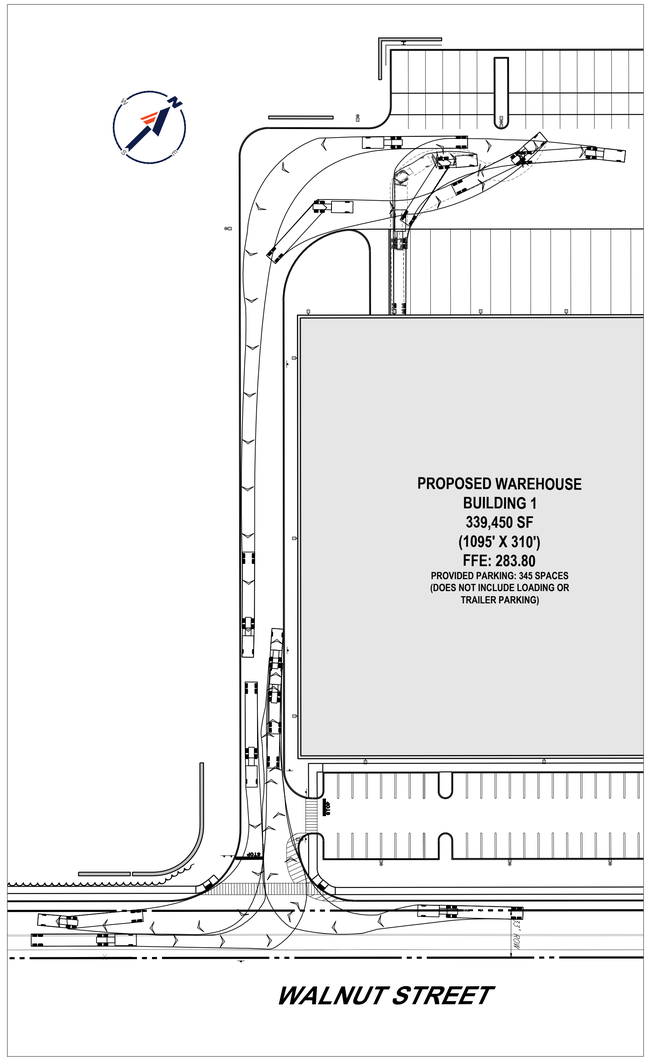
REVISION 1 - 07/28/2026

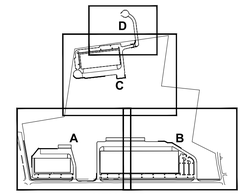
Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-TRCK-PAC250095.00-1A.----\LAYOUT: C-308 TRCK OS-FIRE



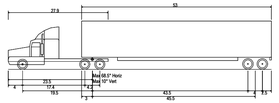








KEY MAP



WB-67 - Interstate Semi-Trailer

Overall Length	73.501ft
Overall Width	8.500ft
Overall Body Height	13.500ft
Min Body Ground Clearance	1.334ft
Max Track Width	8.500ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	28.40°

50 25 12.5 0 50

1"= 50'

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DRAWN BY:	PAB
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DATE:	04/06/2026
CAD I.D.:	P-CIVL-TRCK

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
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BUCKS COUNTY, PA

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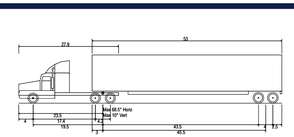
REGISTERED PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LIMITED LIABILITY COMPANY
PE-PROJECT NO. PE-[illegible]

SHEET TITLE:
WB67 TRUCK VEHICLE CIRCULATION PLAN A

SHEET NUMBER:
C-309
21 OF 102

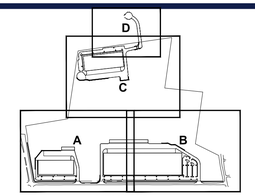
REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-TRCK-PAC250095.00-1A----->LAYOUT: C-309 TRCK A-WB67
JV

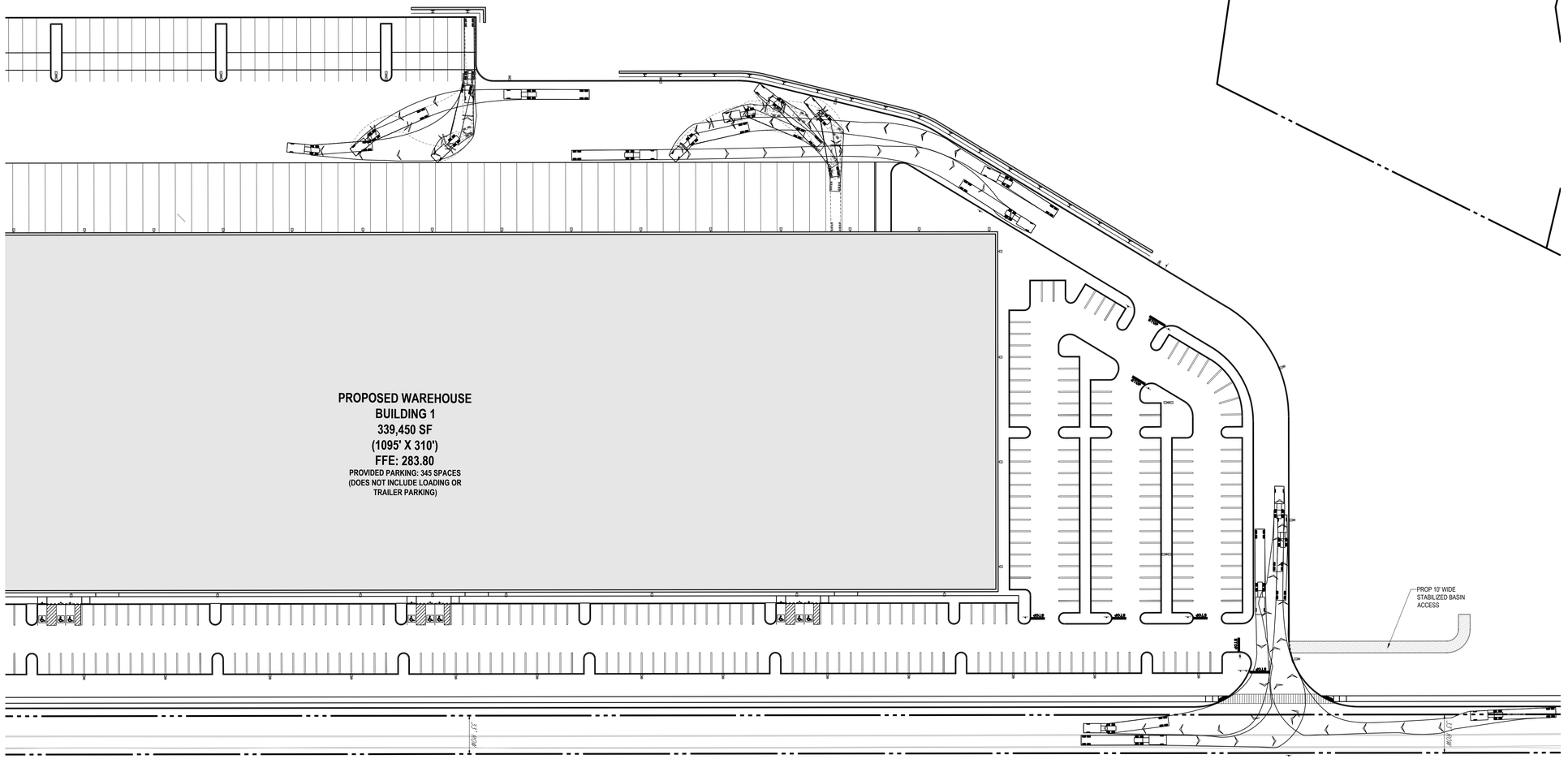


WB-67 - Interstate Semi-Trailer

Overall Length	73.501ft
Overall Width	8.500ft
Overall Body Height	13.500ft
Min Body Ground Clearance	1.334ft
Max Track Width	8.500ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	28.40°



KEY MAP



50 25 12.5 0 50

1"= 50'

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FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

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MATTHEW JOHN KEARSE
PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE088588
COMMONWEALTH OF PENNSYLVANIA

SHEET TITLE:

WB67 TRUCK VEHICLE CIRCULATION PLAN B

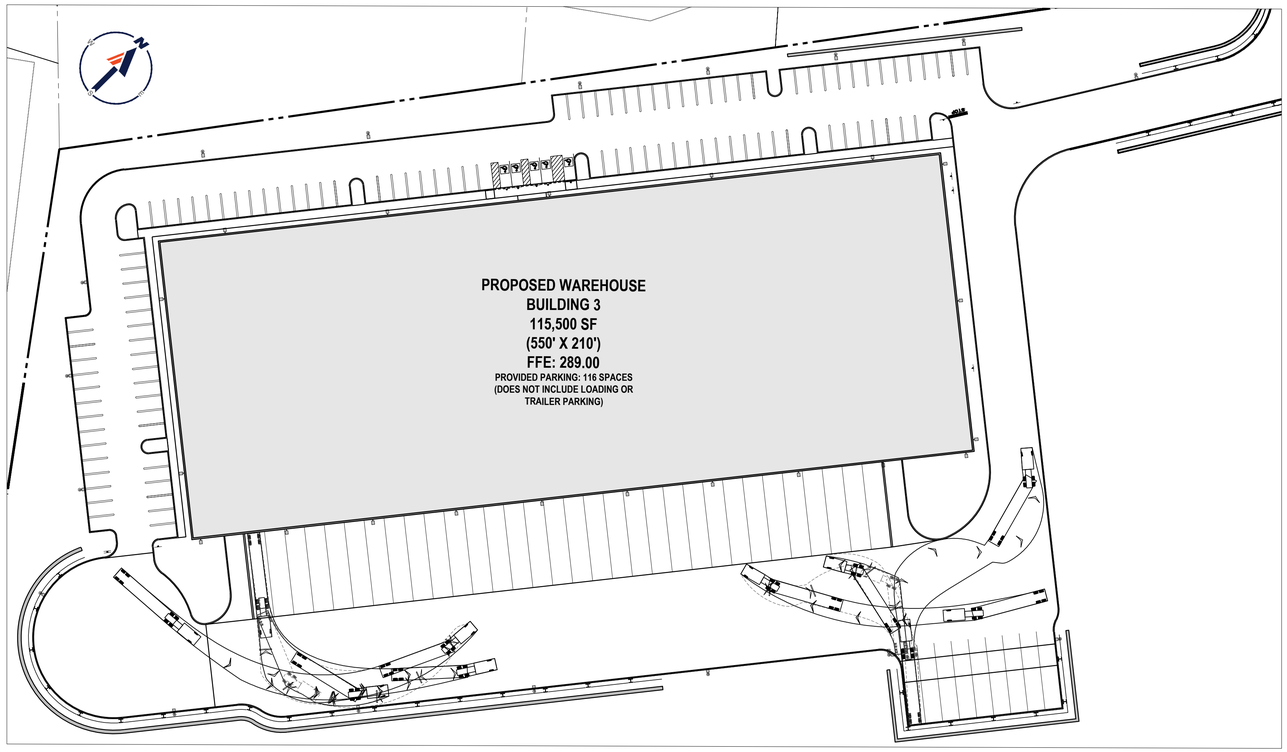
SHEET NUMBER:

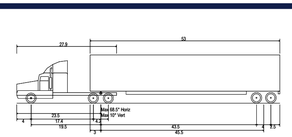
C-310

22 OF 102

REVISION 1 - 07/28/2026

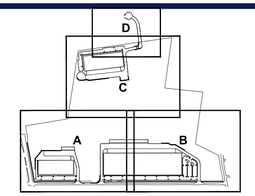
Jul 29, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-TRCK-PAC250095.00-1A-----XLAYOUT: C-310 TRCK B-WB67
JV



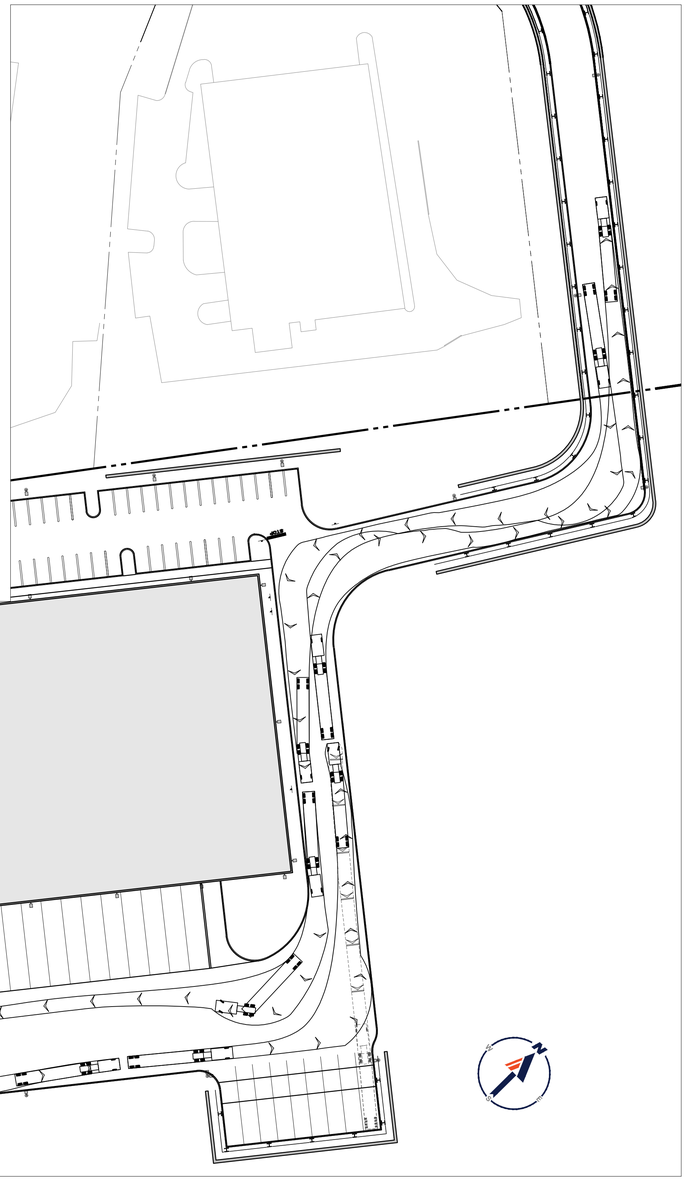


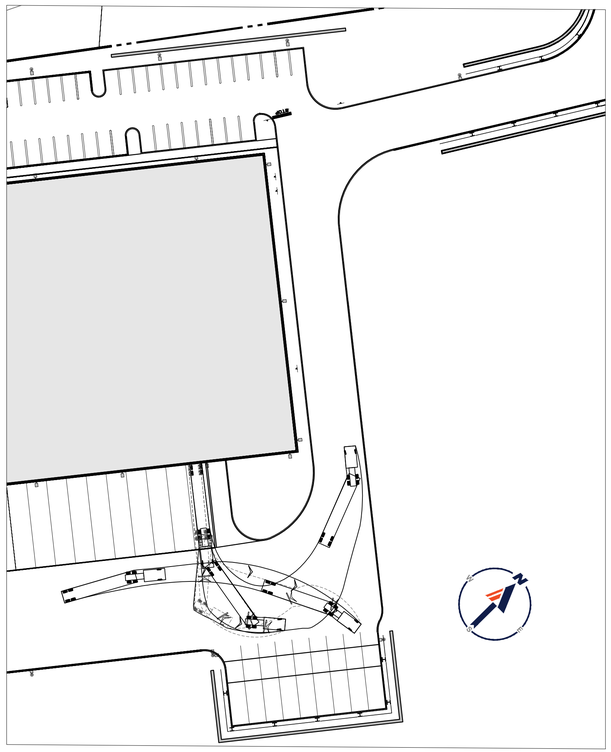
WB-67 - Interstate Semi-Trailer

Overall Length	73.501ft
Overall Width	8.500ft
Overall Body Height	13.500ft
Min Body Ground Clearance	1.334ft
Max Track Width	8.500ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	28.40°



KEY MAP





50 25 12.5 0 50

1"= 50'

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FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

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MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090588

SHEET TITLE:

WB-67 TRUCK VEHICLE CIRCULATION PLAN C

SHEET NUMBER:

C-311

23 OF 102

REVISION 1 - 07/28/2026

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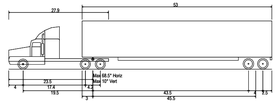
JV



WB-67 - Interstate Semi-Trailer

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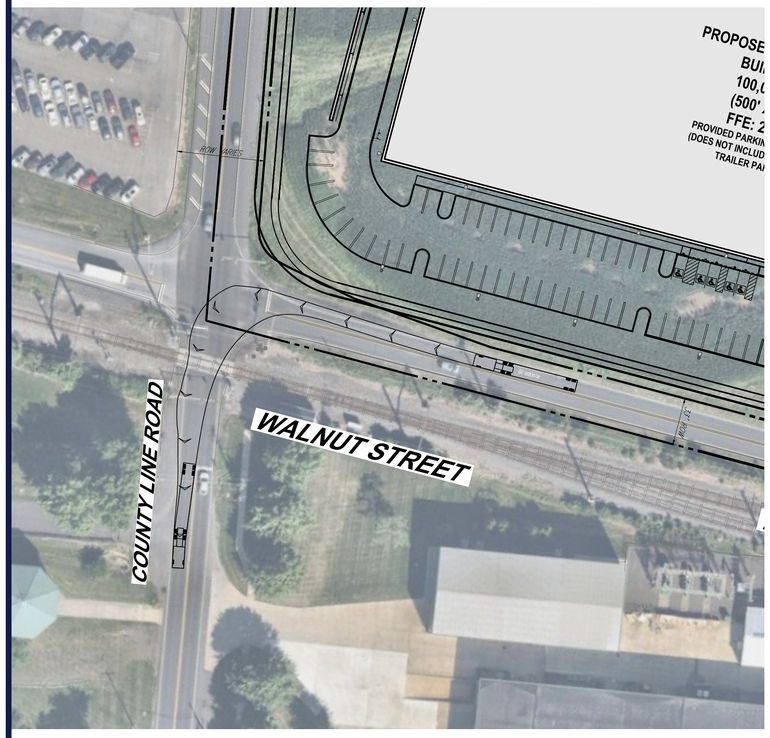

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1"= 50'



50 25 12.5 0 50
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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-TRCK

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER™
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE-[illegible]

SHEET TITLE:
WB67 TRUCK VEHICLE CIRCULATION OFFSITE PLAN

SHEET NUMBER:
C-312
24 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-TRCK-PAC250095.00-1A----LAYOUT: C-312 TRCK OS-WB67
JV

NAD83

PROPOSED WAREHOUSE
BUILDING 3
115,500 SF
(550' X 210')
FFE: 289.00
PROVIDED PARKING: 116 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

PROPOSED WAREHOUSE
BUILDING 2
100,0000 SF
(500' X 200')
FFE: 287.00
PROVIDED PARKING: 102 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

PROPOSED WAREHOUSE
BUILDING 1
339,450 SF
(1095' X 310')
FFE: 283.80
PROVIDED PARKING: 345 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

RECREATION AREA
7.96 AC

A

B

C

N36°33'05"E 960.30'

1,323.12' (S)

713.46' (S)

S37°25'00"E

N50°36'14"E 534.80' (S)

731.18' (S)

STEWART LANE
(33' WIDE R.O.W.)
(ASPHALT ROADWAY)
(TWO WAY TRAFFIC)

N36°42'06"W 658.10'

N35°11'54"E 833.27' (S)

S44°34'54"W

N35°02'06"W

WEST BRANCH NESHAMINY CREEK

COUNTY LINE ROAD

SCHOOLHOUSE ROAD

N71°07'06"E 411.38' (S)

S37°11'52"E

S53°40'06"E 740.27' (S)

S56°41'02"E 2,728.25'

SEPTA

WALNUT STREET
(33' WIDE R.O.W.)
(ASPHALT ROADWAY)
(TWO WAY TRAFFIC)

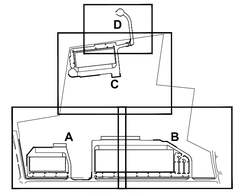
P.O.B.
T.M.P. #26-001-099-002

P.O.B.
T.M.P. #26-001-099-001

P.O.B.
T.M.P. #26-001-099-003

FLOODPLAIN OVERLAY
ZONE AE
ZONE AE (FLOODWAY)
ZONE A
APPROXIMATE GRAPHICAL PLOTTING OF FLOOD HAZARD LINE
EDGE OF WATER (TYP.)
WETLAND 'A'
WETLAND 'B'
WETLAND 'C'
LEGAL R.O.W. LINE
ULTIMATE R.O.W. LINE
CENTERLINE
FLOODWAY AS DEFINED BY PA CODE TITLE 25
100' R.R.
50' R.R.

KEY MAP



THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY

100 50 25 0 100
SCALE: 1" = 100'

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LAND SURVEYING
PROGRAM MANAGEMENT
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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-GDUL

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER™
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PHILADELPHIA, PA 19102
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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
MATTHEW JOHN KBARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA No. 088566
KBARSE
07/28/2026

SHEET TITLE:

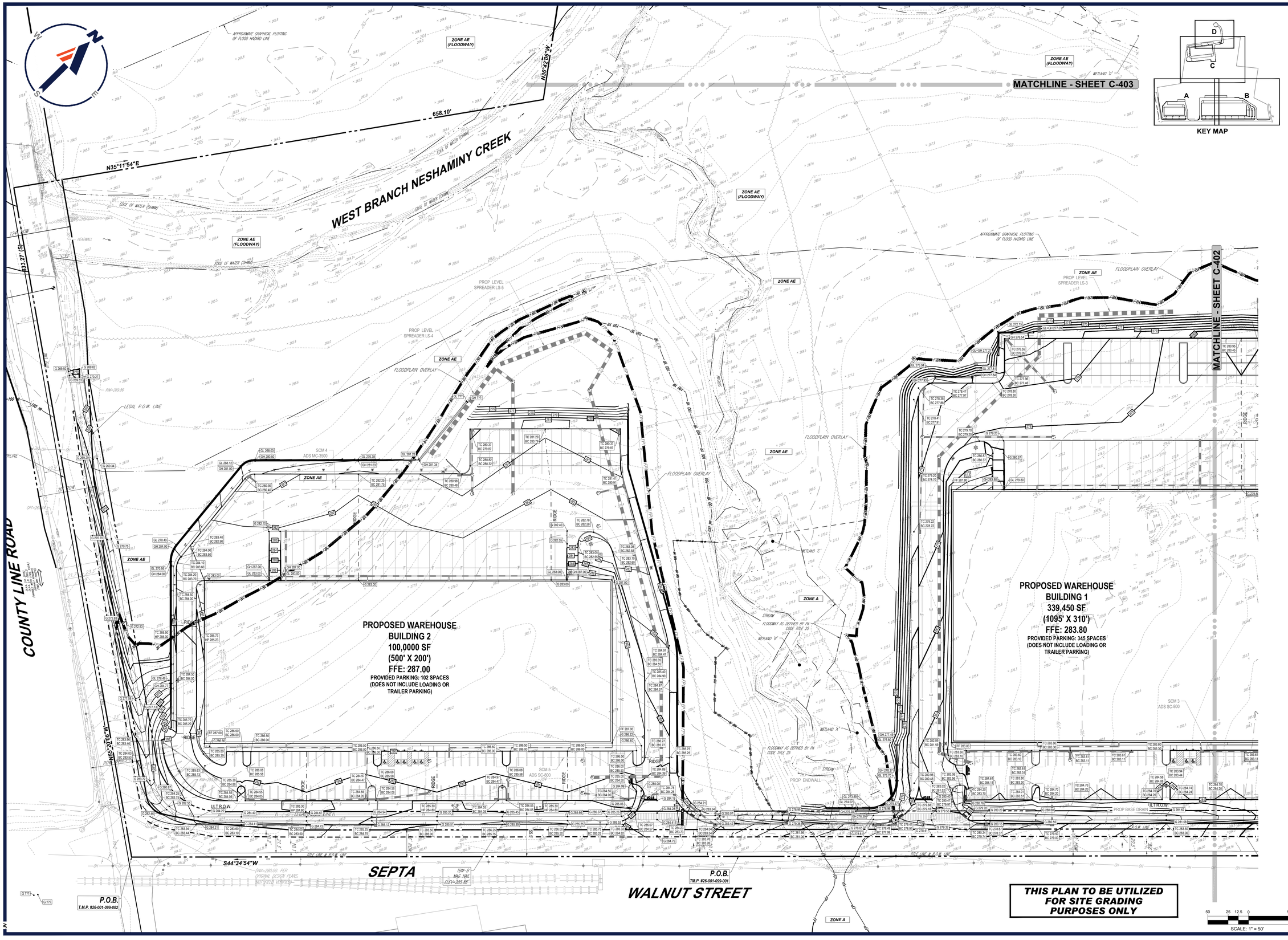
OVERALL GRADING PLAN

SHEET NUMBER:

C-400
25 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-GDUL-PAC250095.00-1A-----LAYOUT: C-400 OVRL GRAD
JV



KEY MAP

BOHLER

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LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-GDUL

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS
FOR
HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
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COMMONWEALTH OF PENNSYLVANIA
PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA

SHEET TITLE:
GRADING PLAN A

SHEET NUMBER:
C-401
26 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-GDUL-PAC250095.00-1A---->LAYOUT: C-401 GRAD A

MATCHLINE - SHEET C-403

WEST BRANCH NESHAMINY CREEK

PROPOSED WAREHOUSE
BUILDING 1
339,450 SF
(1095' X 310')
FFE: 283.80
PROVIDED PARKING: 345 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

PROP LEVEL SPREADER LS-2

PROP LEVEL SPREADER LS-1

PROP EMERGENCY SPILLWAY EL: 278.50

FLOODPLAIN OVERLAY

INFILTRATION AGB 1-3
INFILTRATION BASIN

PROP BASE DRAIN

ZONE AE
ZONE AE (FLOODWAY)

APPROXIMATE GRAPHICAL PLOTTING OF FLOOD HAZARD LINE

EXISTING 467.53 LF OF 10" PVC SANITARY SEWER @ 0.25% SLOPE (PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)

EXISTING 267.17 LF OF 10" PVC SANITARY SEWER @ 0.25% SLOPE (PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)

EDGE OF WATER (DAM)

MH LL-13
RIM=263.92

MH LL-12
RIM=263.24

ULTIMATE R.O.W. LINE

TBM-C
MAG NAIL
ELEV=277.84'

P.O.B.
T.M.P. #26-001-099-003

S37°11'52"E
73.44'

N71°07'08"E
411.58' (S)

S53°40'06"E
140.22' (S)

S53°40'06"E
258.19' (S)

S37°10'36"E
2,701.95'

S44°34'54"W
3.25'

2,728.25'

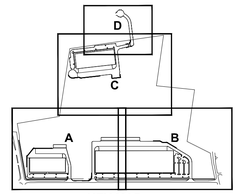
SCHOOLHOUSE ROAD

SEPTA

WALNUT STREET
(LOT WIDTH VARIES)
(DEFAULT ROADWAY)
(TWO WAY TRAFFIC)

MATCHLINE - SHEET C-401

KEY MAP



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NOTE
1. ALL DETENTION BASIN EMBANKMENTS SHALL BE PLACED IN LIFTS NOT TO EXCEED ONE FOOT IN THICKNESS. EACH LIFT SHALL BE COMPACTED TO A MINIMUM OF 95% OF MODIFIED PROCTOR DENSITY AS ESTABLISHED BY A.S.T.M. D-1557.

50 25 12.5 0 50
SCALE: 1" = 50'

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DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-GDUL

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS
FOR
HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

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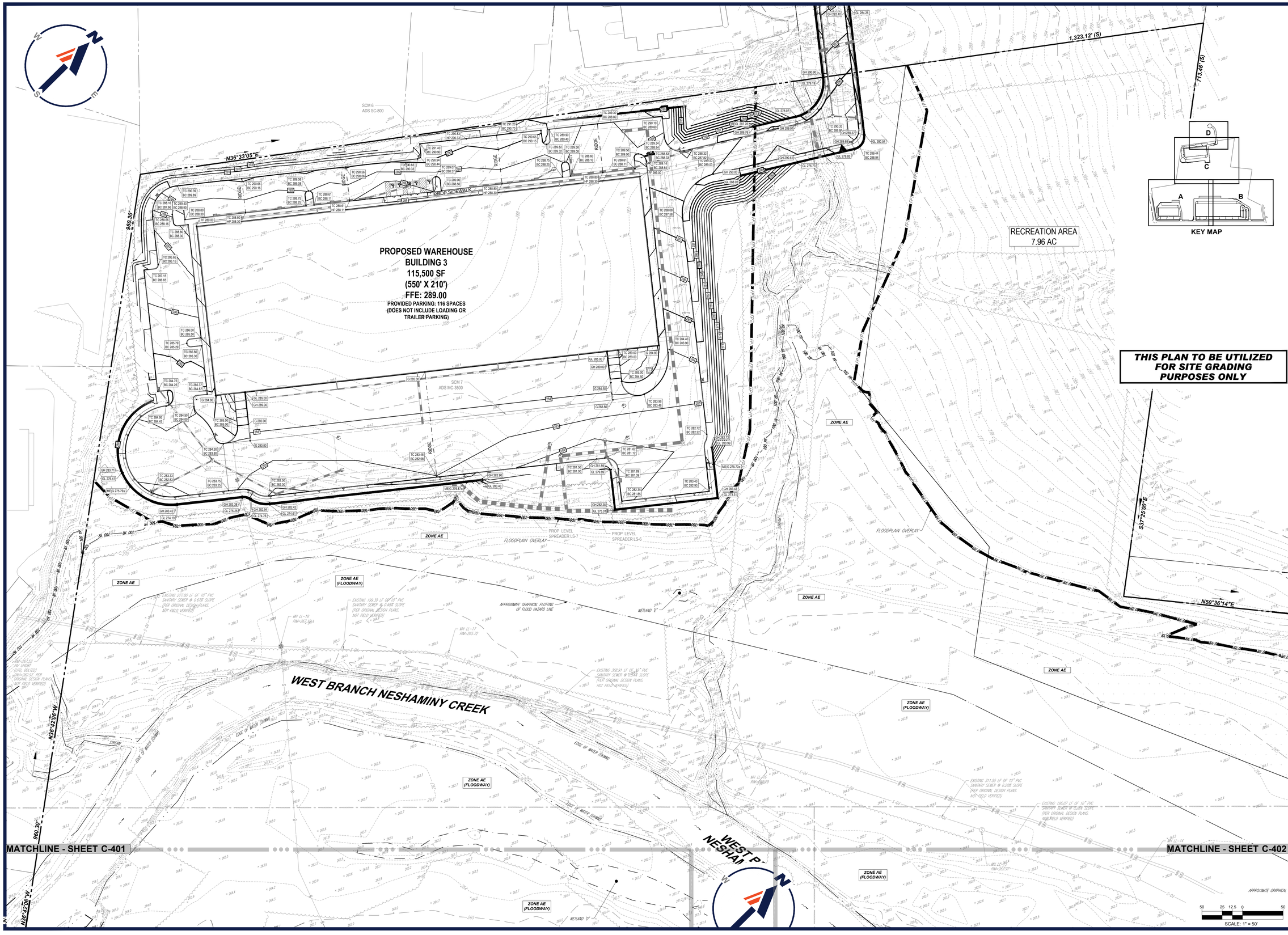
PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090588

SHEET TITLE:
GRADING PLAN B

SHEET NUMBER:
C-402
27 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-GDUL-PAC250095.00-1A-----LAYOUT C-402 GRAD B
JW


PROPOSED WAREHOUSE
BUILDING 3
115,500 SF
(550' X 210')
FFE: 289.00
PROVIDED PARKING: 116 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)
RECREATION AREA
7.96 AC
N36°33'05"E
960.30'
1,323.12' (S)
713.46' (S)
S37°25'00"E
N50°36'14"E
N36°42'06"W
960.30'
WEST BRANCH NESHAMINY CREEK
SCM 6
ADS SC-800
SCM 7
ADS MC-3500
RIDGE
SWALE
SWALE
SWAL

NAD83

INDEPENDENCE LANE

(50' WIDE R.O.W.)
(ASPHALT ROADWAY)
(TWO WAY TRAFFIC)

UNDERGROUND STORMWATER STORAGE SYSTEM FOR MODIFIED EXISTING SURFACE DETENTION BASIN ADS MC-3500

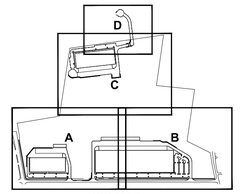
SCM 6
ADS SC-800

PROP SIDEWALK

MATCHLINE - SHEET C-403

MATCHLINE - SHEET C-402

SCALE: 1" = 30'



KEY MAP

NOTE

1. ALL DETENTION BASIN EMBANKMENTS SHALL BE PLACED IN LIFTS NOT TO EXCEED ONE FOOT IN THICKNESS. EACH LIFT SHALL BE COMPACTED TO A MINIMUM OF 95% OF MODIFIED PROCTOR DENSITY AS ESTABLISHED BY A.S.T.M. D-1557.

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-GDUL

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER

1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA
MATTHEW JOHN KRAISE
PROFESSIONAL
PROFESSIONAL ENGINEER
PENNSYLVANIA

SHEET TITLE:

GRADING PLAN D

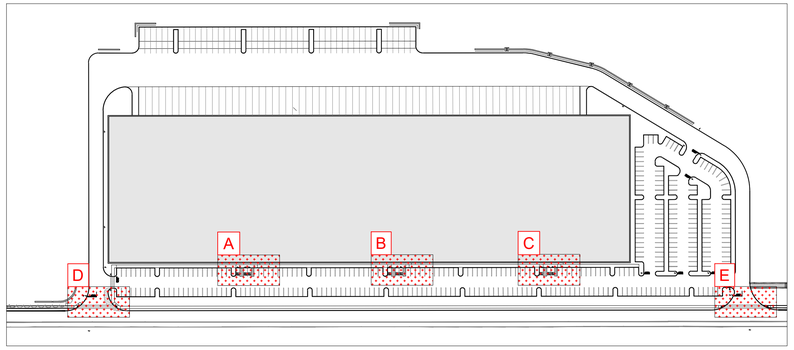
SHEET NUMBER:

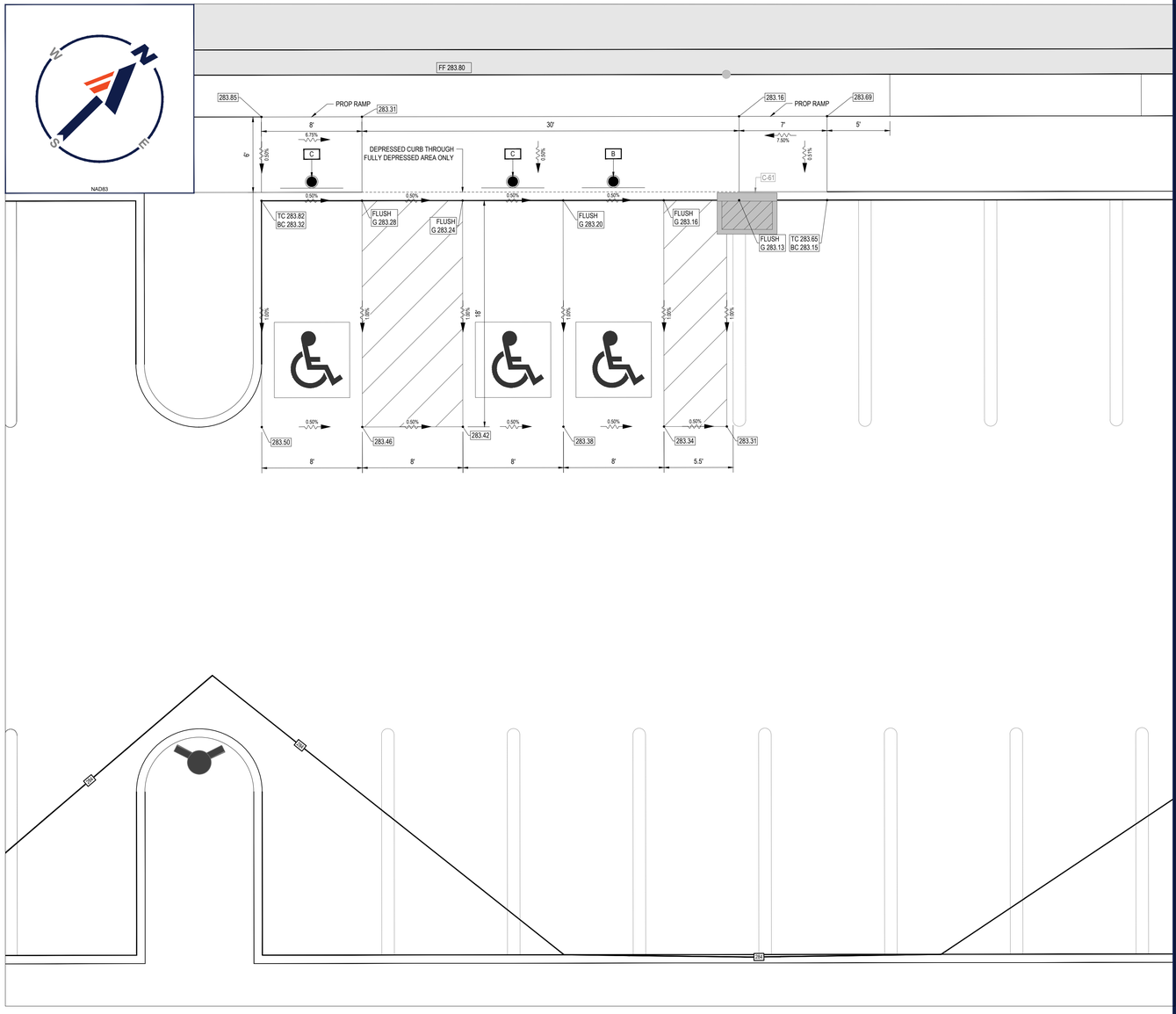
C-404

29 OF 102

REVISION 1 - 07/28/2026

Jul 29, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-GDUL-PAC250095.00-1A-----1A\LAYOUT: C-404 GRAD D
JV





BUILDING 1, SECTION 'A'

SCALE: 1" = 5'

LEGEND	
PROPOSED SIGNAGE	
B	RESERVED PARKING & RESERVED PARKING PENALTIES
C	VAN ACCESSIBLE & RESERVED PARKING PENALTIES

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SCALE: 1" = #'

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PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

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M. KEARSE
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. PE-[illegible]

SHEET TITLE:

ADA GRADING PLAN

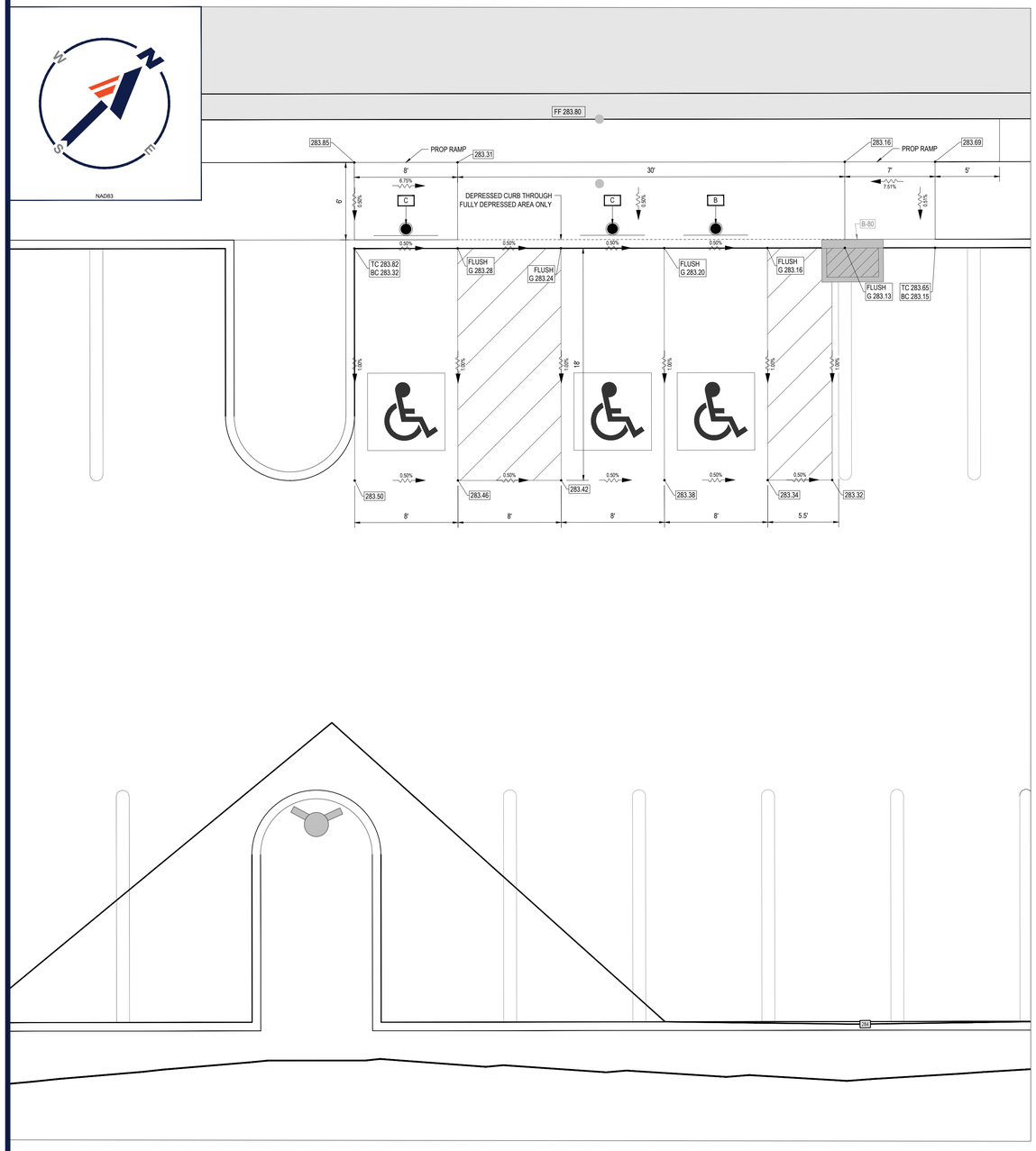
SHEET NUMBER:

C-405

30 OF 102

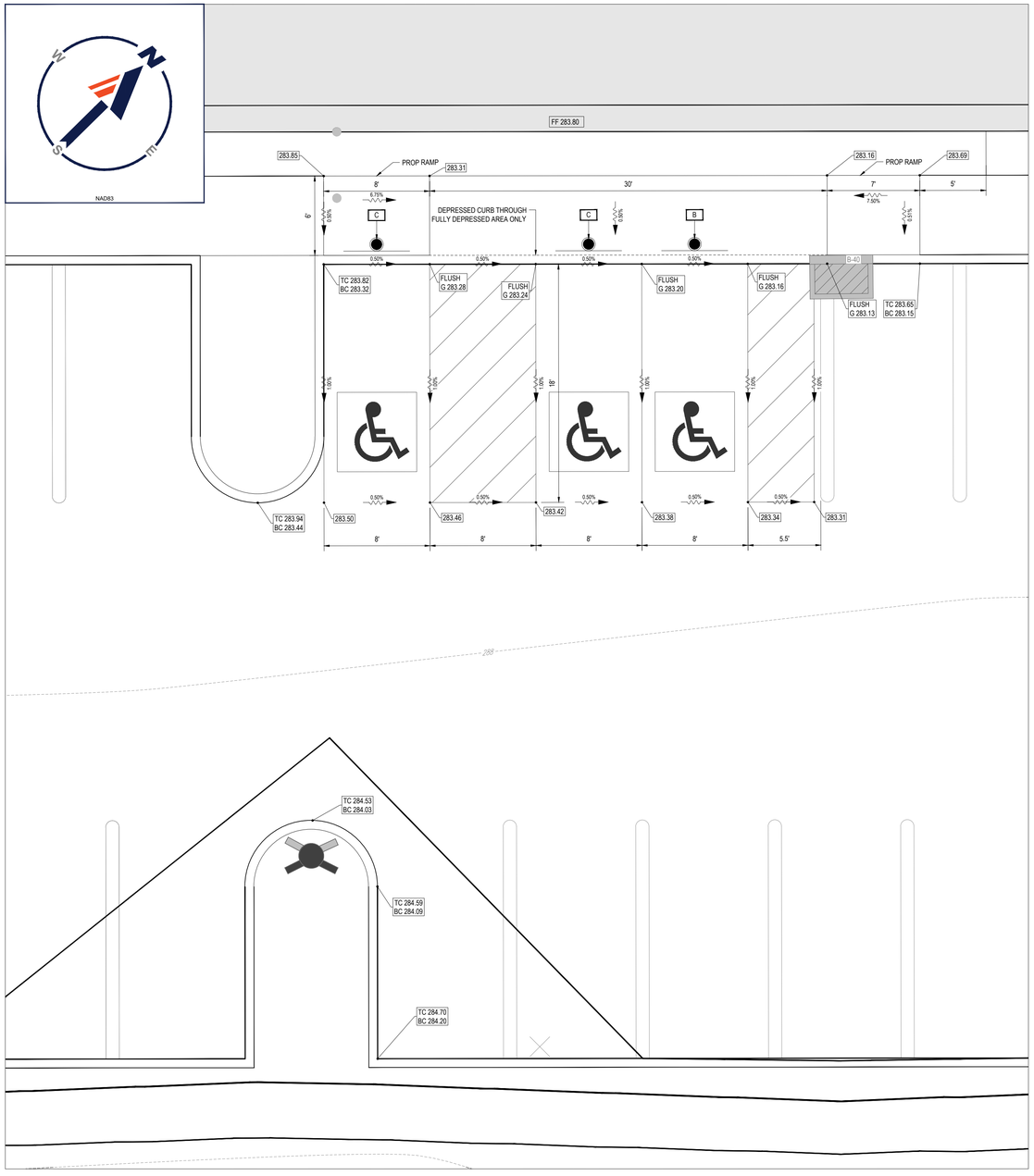
REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-GDUL-PAC250095.00-1A----->LAYOUT: C-405 GRAD ADA
JV



BUILDING 1, SECTION 'B'

SCALE: 1" = 5'



BUILDING 1, SECTION 'C'

SCALE: 1" = 5'

LEGEND	
PROPOSED SIGNAGE	
B	RESERVED PARKING & RESERVED PARKING PENALTIES
C	VAN ACCESSIBLE & RESERVED PARKING PENALTIES

THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY

####

SCALE: 1" = #

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PERMITTING SERVICES
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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREIN HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 50 OF 2017, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK.
WWW.PA1CALL.ORG

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-GDUL

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — MATTHEW JOHN KEARSE

PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090568

SHEET TITLE:

ADA GRADING PLAN

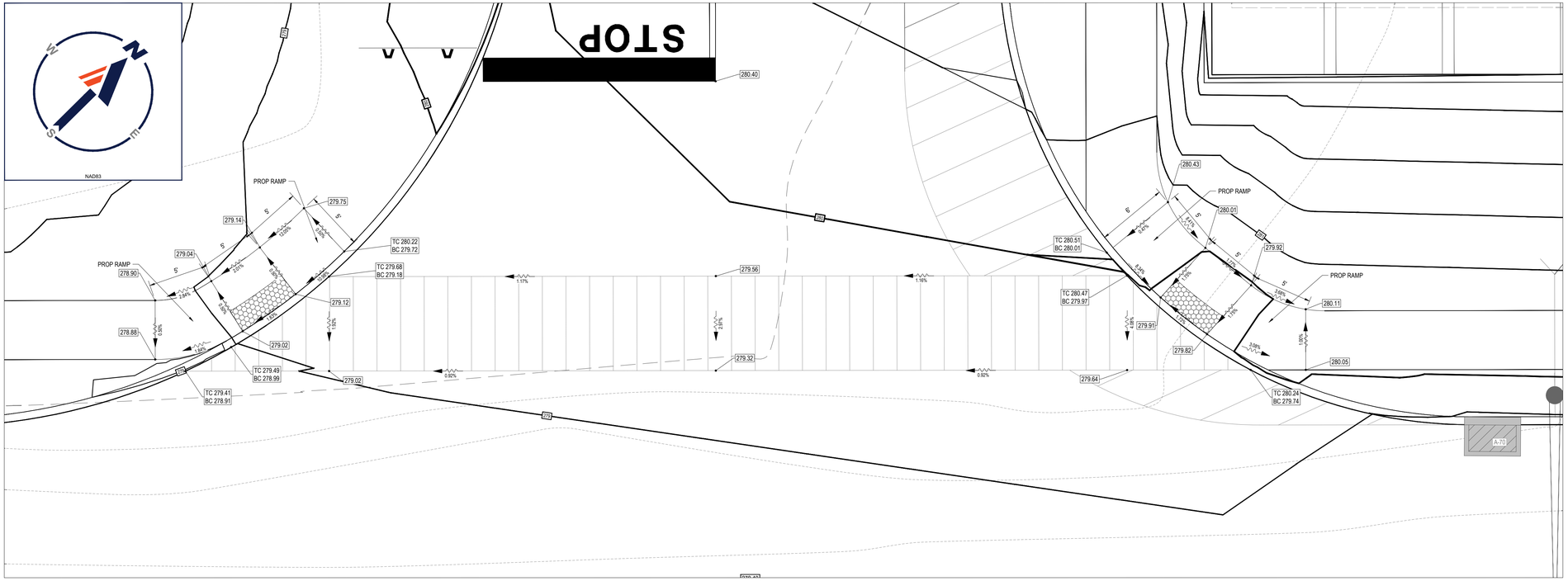
SHEET NUMBER:

C-406

31 OF 102

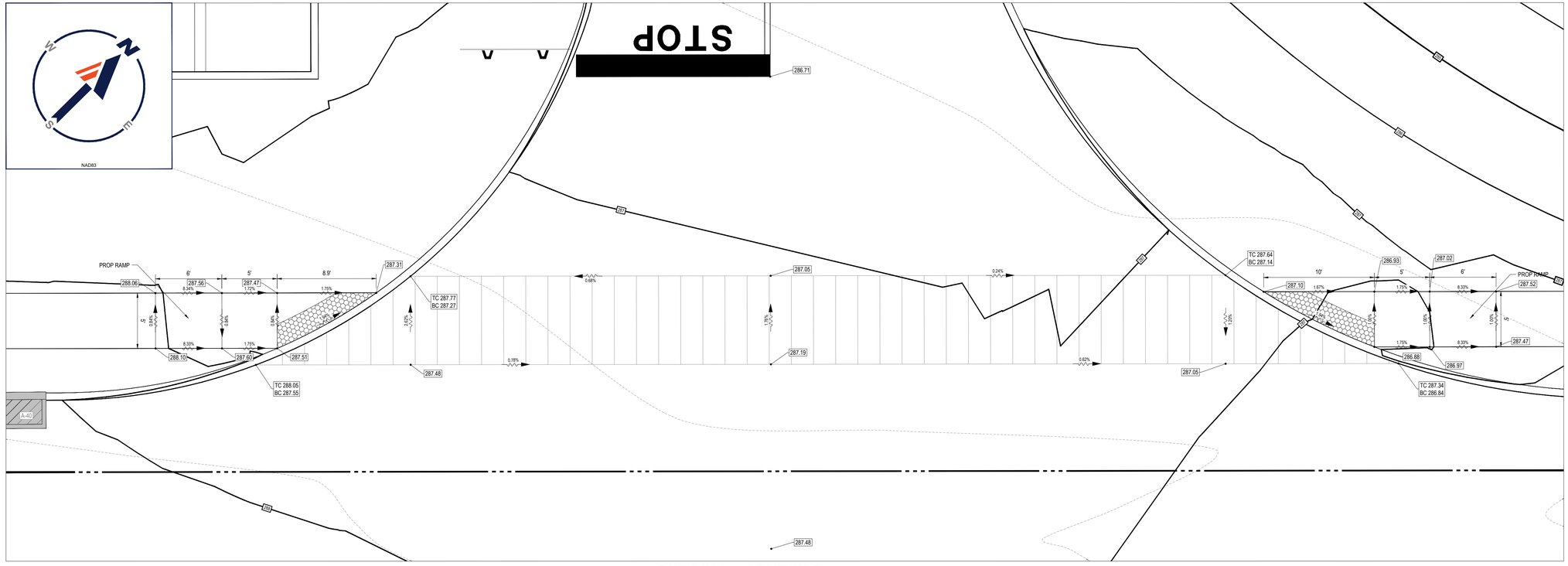
REVISION 1 - 07/28/2026

Jul 26, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-GDUL-PAC250095.00-1A-----1ALAYOUT, C-406 GRAD ADA
JV



BUILDING 1, SECTION D

SCALE: 1" = 5'



BUILDING 1, SECTION E

SCALE: 1" = 5'

LEGEND	
PROPOSED SIGNAGE	
B	RESERVED PARKING & RESERVED PARKING PENALTIES
C	VAN ACCESSIBLE & RESERVED PARKING PENALTIES

THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY

SCALE: 1" = #'

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DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-GDUL

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090588

SHEET TITLE:

ADA GRADING PLAN

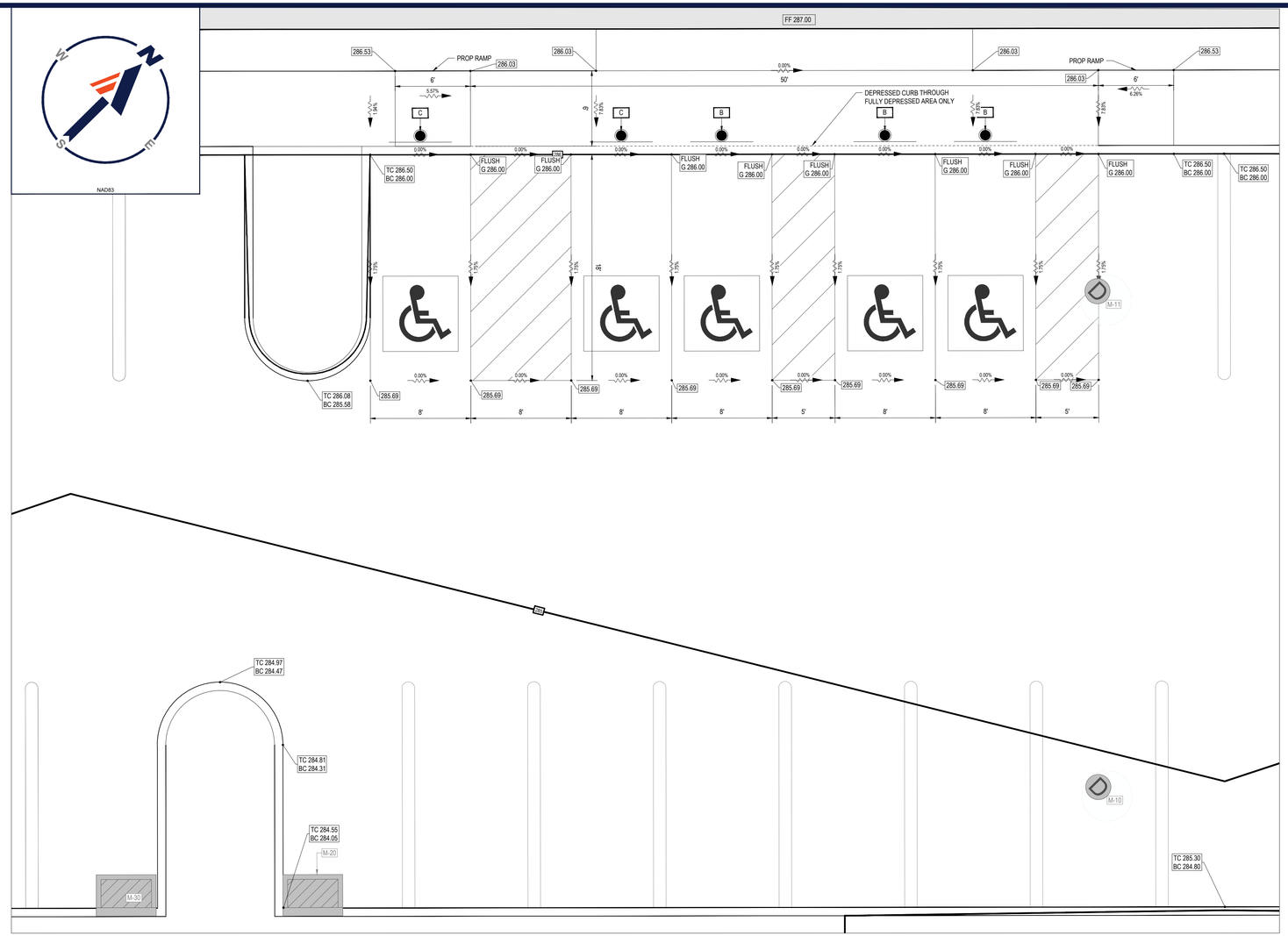
SHEET NUMBER:

C-407

32 OF 102

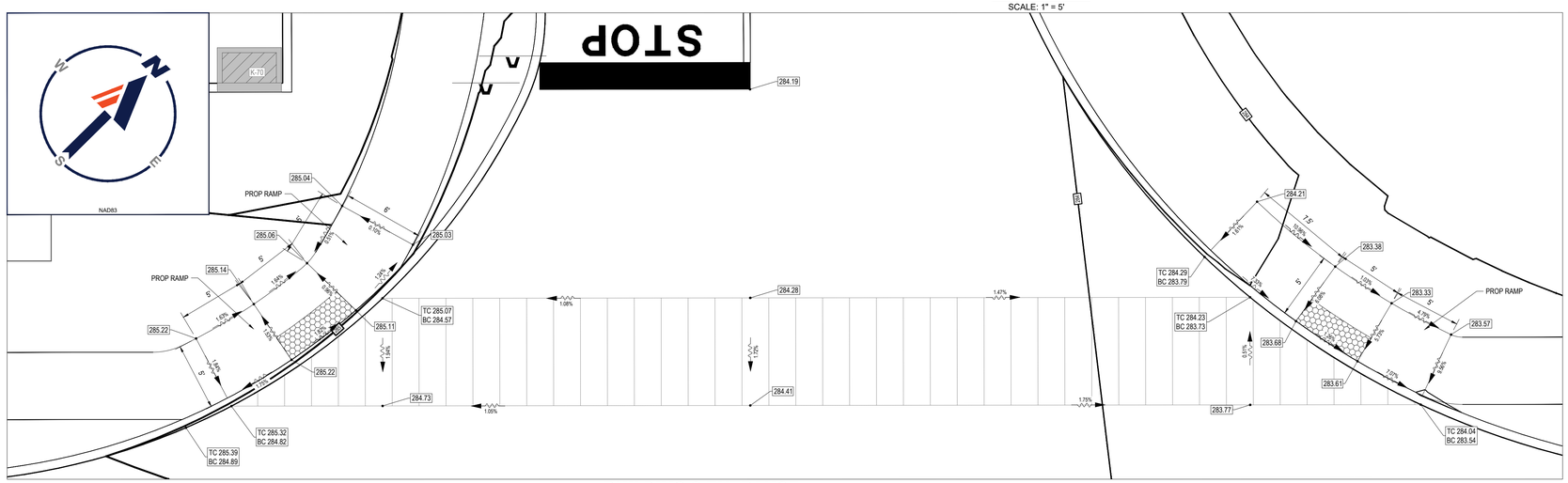
REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-GDUL-PAC250095.00-1A-----1LAYOUT C-407 GRAD ADA
JV



BUILDING 2

SCALE: 1" = 5'



BUILDING 2 ENTRANCE

SCALE: 1" = 5'

LEGEND	
PROPOSED SIGNAGE	
B	RESERVED PARKING & RESERVED PARKING PENALTIES
C	VAN ACCESSIBLE & RESERVED PARKING PENALTIES

THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY

0

SCALE: 1" = #'

Jul 29, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-GDUL-PAC250095.00-1A-----LAYOUT C-408 GRAD ADA
JV

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PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

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COMMONWEALTH OF PENNSYLVANIA
PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090388

SHEET TITLE:

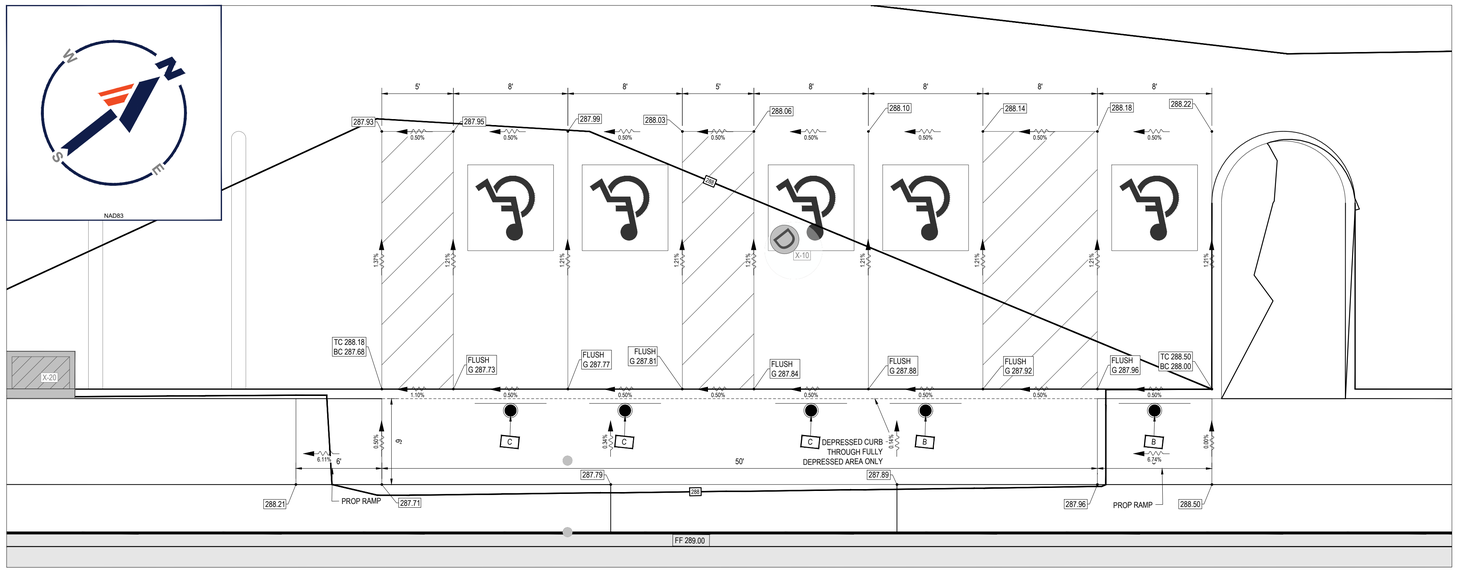
ADA GRADING PLAN

SHEET NUMBER:

C-408

33 OF 102

REVISION 1 - 07/28/2026



BUILDING 3

SCALE: 1" = 5'

LEGEND	
PROPOSED SIGNAGE	
B	RESERVED PARKING & RESERVED PARKING PENALTIES
C	VAN ACCESSIBLE & RESERVED PARKING PENALTIES

THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY

0

SCALE: 1" = #

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-GDUL

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER

1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — MATTHEW JOHN KEARSE — PROFESSIONAL — PROFESSIONAL ENGINEER
PE# 401044 | DATE: 04/06/2026

SHEET TITLE:

ADA GRADING PLAN

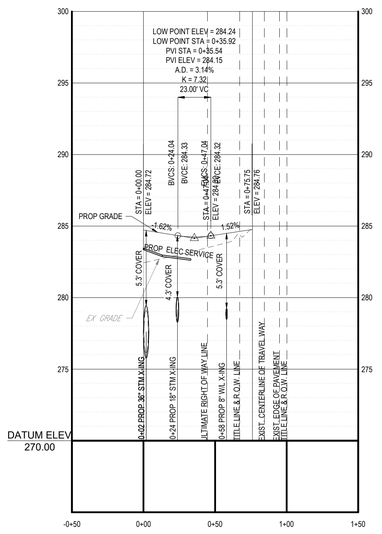
SHEET NUMBER:

C-409

34 OF 102

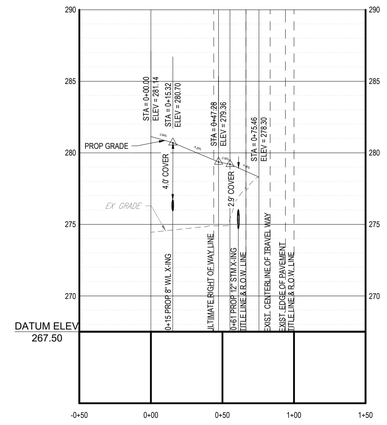
REVISION 1 - 07/28/2026

Jul 26, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-GDUL-PAC250095.00-1A-----1A LAYOUT: C-409 GRAD ADA
JV



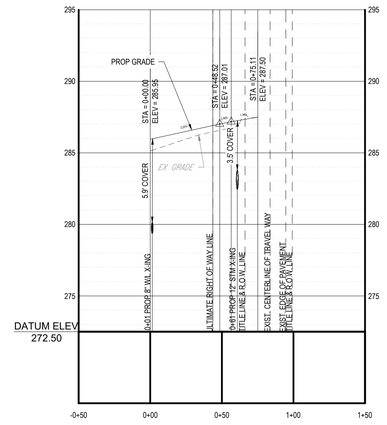
PROPOSED BUILDING 2 ACCESS PROFILE

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



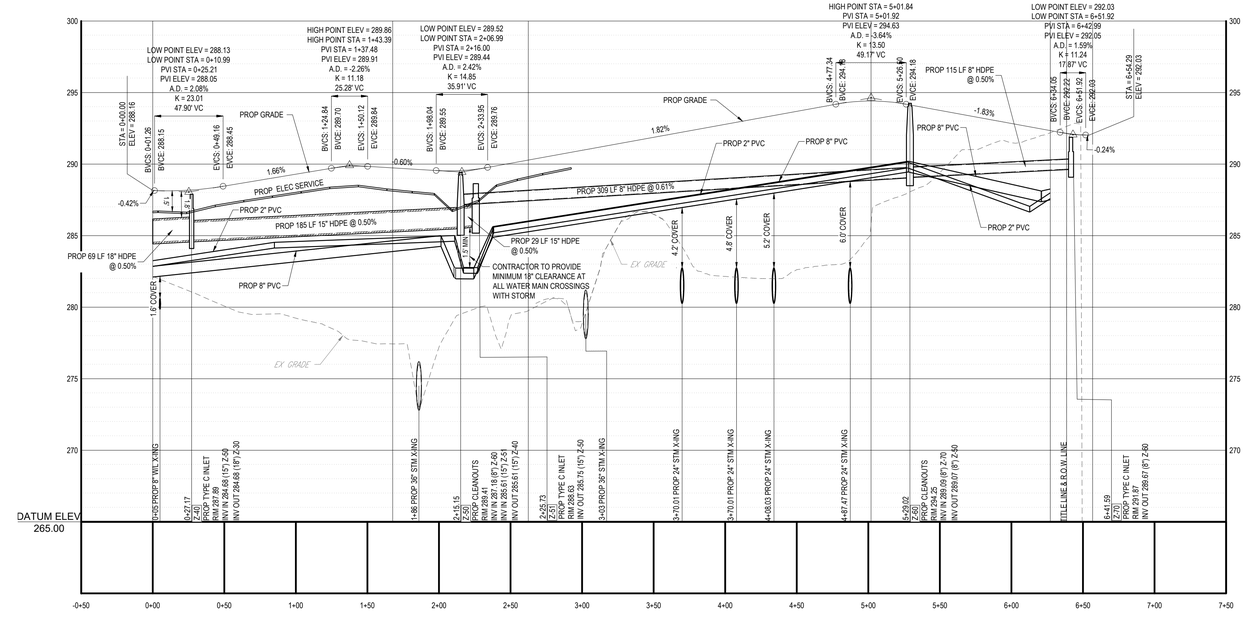
PROPOSED BUILDING 1 S ACCESS PROFILE

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED BUILDING 1 N ACCESS PROFILE

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED BUILDING 3 ACCESS PROFILE

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

Jul 26, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-PROF-PAC250095.00-1A----\LAYOUT, C-410 ACCESS PRF

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DRAWN BY:	PAB
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DATE:	04/06/2026
CAD I.D.:	P-CIVL-PROF

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD NEW BRITAIN TOWNSHIP BUCKS COUNTY, PA

BOHLER
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PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — KEARSE — PROFESSIONAL — MATTHEW JOHN KEARSE

PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090288

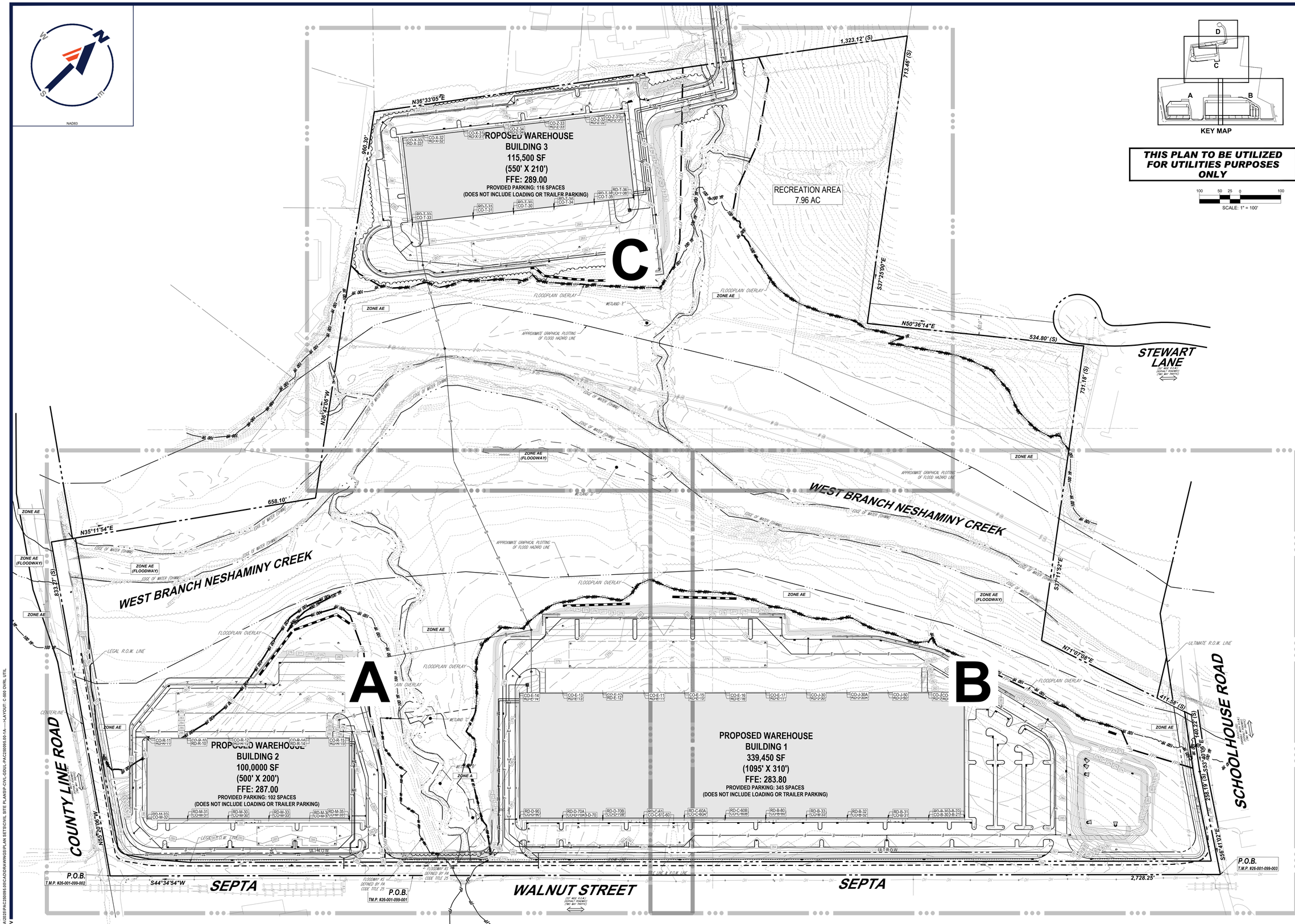
SHEET TITLE:

BUILDING ACCESS PROFILES

SHEET NUMBER:

C-410
35 OF 102

REVISION 1 - 07/28/2026



KEY MAP

THIS PLAN TO BE UTILIZED FOR UTILITIES PURPOSES ONLY

100 50 25 0 100

SCALE: 1" = 100'

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FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

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NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE-[illegible]

SHEET TITLE:

OVERALL UTILITY PLAN

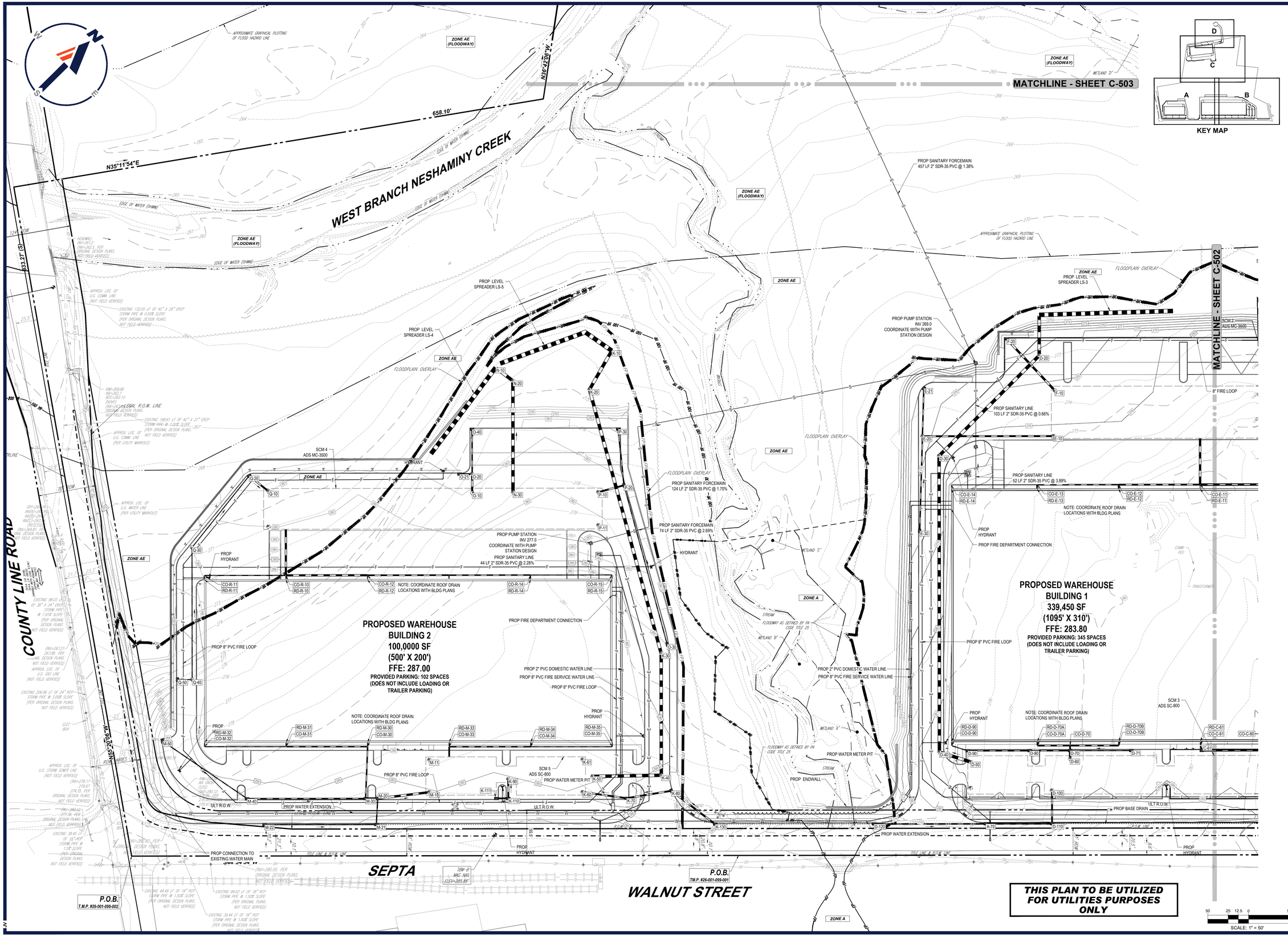
SHEET NUMBER:

C-500

36 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-GDUL-PAC250095.00-1A---->LAYOUT: C-500 OVRL UTIL
JV



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DATE:	04/06/2026
CAD I.D.:	P-CIVL-GDUL

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD NEW BRITAIN TOWNSHIP BUCKS COUNTY, PA

BOHLER

1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — LICENSE — PROFESSIONAL — MATTHEW JOHN KEARSE

PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090289

SHEET TITLE:

UTILITY PLAN A

SHEET NUMBER:

C-501

37 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-GDUL--PAC250095.00-1A---\LAYOUT: C-501 UTIL A

MATCHLINE - SHEET C-503

WEST BRANCH NESHAMINY CREEK

ZONE AE (FLOODWAY)

ZONE AE

APPROXIMATE GRAPHICAL PLOTTING OF FLOOD HAZARD LINE

EDGE OF WATER (CHAN)

EXISTING 467.59 LF OF 15" PVC SANITARY SEWER @ 0.28% SLOPE (PER ORIGINAL DESIGN PLANS. NOT FIELD VERIFIED)

APPROX. LOC. OF U.S. WATER LINE (PER UTILITY MARKOUT)

APPROX. LOC. OF U.S. 10" SAN. LINE (NOT FIELD VERIFIED)

MH 11-15 RIM=263.97 INV UNOBT (I/O3, RD(15)) (INV=255.83 PER ORIGINAL DESIGN PLANS. NOT FIELD VERIFIED)

MH 11-13 RIM=263.92 (W/O(1)=253.1 (W/O(2)=253.1 (W/C1=253.1 (INV=254.21 PER ORIGINAL DESIGN PLANS. NOT FIELD VERIFIED)

EXISTING 267.17 LF OF 10" PVC SANITARY SEWER @ 0.28% SLOPE (PER ORIGINAL DESIGN PLANS. NOT FIELD VERIFIED)

MH 11-12 RIM=262.24 INV UNOBT (I/O3, RD(10)) (INV=253.07 PER ORIGINAL DESIGN PLANS. NOT FIELD VERIFIED)

PROP LEVEL SPREADER LS-2

PROP HYDRANT

SCM 2 ADS MC-3500

PROP 8" PVC FIRE LOOP

PROP 2" PVC DOMESTIC WATER LINE

PROP LEVEL SPREADER LS-1

PROP EMERGENCY SPILLWAY EL: 278.50

FLOODPLAIN OVERLAY

ULT R.O.W. LINE

PROPOSED WAREHOUSE
BUILDING 1
339,450 SF
(1095' X 310')
FFE: 283.80
PROVIDED PARKING: 345 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

NOTE: COORDINATE ROOF DRAIN LOCATIONS WITH BLDG PLANS

PROP BASE DRAIN

PROP HYDRANT

INFILTRATION AGB 1-3
INFILTRATION BASIN

TBM-C
MAG NAIL
ELEV=277.84'

P.O.B.
T.M.P. 926-001-099-003

S37°11'52"E 411.58' (S)

N71°07'08"E 2,728.25'

S44°34'54"W 1,183.25'

S53°40'06"E 140.22' (S)

S36°41'02"E 258.18' (S)

SCHOOLHOUSE ROAD

SEPTA

WALNUT STREET
(51' WIDE R.O.W.)
(SEPARATE ROADWAY TWO WAY TRAFFIC)

MATCHLINE - SHEET C-501

KEY MAP

THIS PLAN TO BE UTILIZED FOR UTILITIES PURPOSES ONLY

SCALE: 1" = 50'

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
LIGHT AND AIR STUDY
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-GDUL

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

LICENSED PROFESSIONAL ENGINEER
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090388

SHEET TITLE:

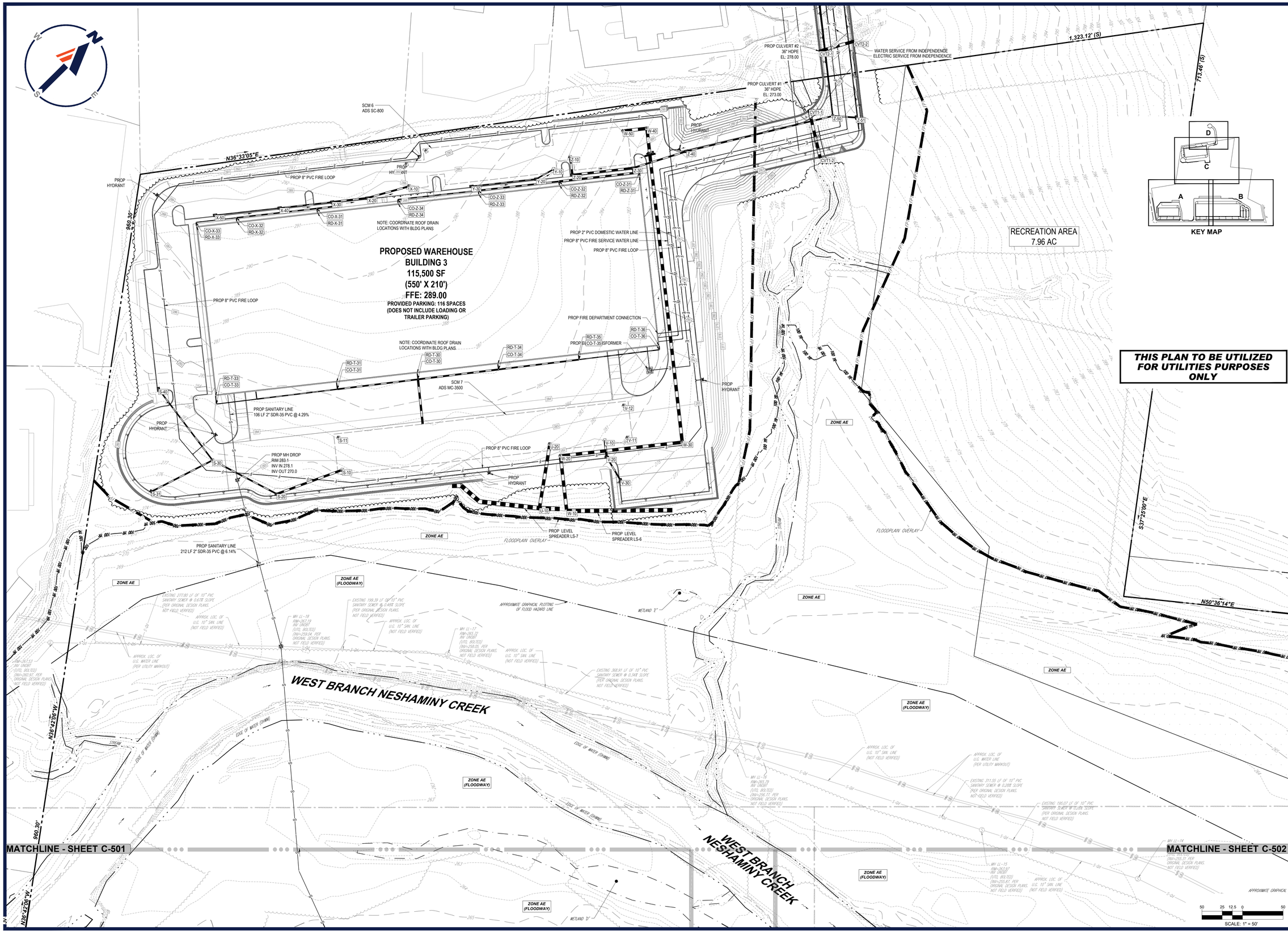
UTILITY PLAN B

SHEET NUMBER:

C-502
38 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-GDUL-PAC250095.00-1A---LAYOUT C-502 UTIL B
JV



BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

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1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVIL-GDUL

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER

1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA
PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE088388

SHEET TITLE:

UTILITY PLAN C

SHEET NUMBER:

C-503

39 OF 102

REVISION 1 - 07/28/2026

Jul 29, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-GDUL-PAC250095.00-1A---LAYOUT C-503 UTIL C
JV

NAD83

INDEPENDENCE LANE
(50' WIDE R.O.W.)
(ASPHALT ROADWAY)
(TWO WAY TRAFFIC)

PROP WATER METER PIT

PROP EQUALIZATION PIPE #1

PROP EQUALIZATION PIPE #2

PROP EQUALIZATION PIPE #3

PROP EQUALIZATION PIPE #4

UNDERGROUND STORMWATER STORAGE SYSTEM FOR MODIFIED EXISTING SURFACE DETENTION BASIN
ADS MC-3500

PROP CULVERT #2
36" HDPE
EL: 278.00

PROP CULVERT #1
36" HDPE
EL: 273.00

WATER SERVICE FROM INDEPENDENCE
ELECTRIC SERVICE FROM INDEPENDENCE

SCM 6
ADS SC-800

PROP HYDRANT

PROP HYDRANT

MATCHLINE - SHEET C-503

MATCHLINE - SHEET C-402

NOTE: COORDINATE ROOF DRAIN LOCATIONS WITH BLDG PLANS

PROP 2" PVC DOMESTIC WATER LINE

PROP 8" PVC FIRE SERVICE WATER LINE

KEY MAP

THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY

SCALE: 1" = 30'

JUI 29, 2026
P:\PA\2025\PAC250095.00\CADD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-GDUL-PAC250095.00-1A.----\LAYOUT: C-504 UTIL D

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
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TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-GDUL

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS
FOR
HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
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www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — MATTHEW JOHN KEARSE — PROFESSIONAL — SEAL

MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090589

SHEET TITLE:
UTILITY PLAN D

SHEET NUMBER:
C-504
40 OF 102

REVISION 1 - 07/28/2026

STORM STRUCTURE SCHEDULE

STRUCTURE #	CATEGORY	GRT/RIM	INV IN	INV OUT
A-10	RECTANGULAR WINGED HEADWALL	275.67	INV IN = 274.00' (12")	
A-20	MANHOLE	282.61	INV IN = 279.10' (12") INV IN = 278.17' (12")	INV OUT = 274.34 (12")
A-21	TYPE C INLET	281.66		INV OUT = 278.76 (12")
A-30	TYPE C INLET	286.22	INV IN = 282.23' (12")	INV OUT = 279.46 (12")
A-40	TYPE C INLET	288.08		INV OUT = 282.96 (12")
A-70	TYPE C INLET	278.41	INV IN = 274.53' (12")	INV OUT = 274.53 (12")
A-2120	CLEANOUTS	0.29		
B-10	RECTANGULAR WINGED HEADWALL	277.71	INV IN = 274.00' (36")	
B-20	TYPE C INLET	283.10	INV IN = 275.18' (36") INV IN = 279.93' (8")	INV OUT = 275.01 (36")
B-30	TYPE C INLET	283.13	INV IN = 276.65' (24") INV IN = 277.79' (24")	INV OUT = 275.65 (36")
B-40	TYPE C INLET	283.14	INV IN = 277.45' (21")	INV OUT = 277.03 (24")
B-50	TYPE C INLET	283.13	INV IN = 278.15' (18")	INV OUT = 277.90 (21")
B-60	TYPE C INLET	283.13	INV IN = 278.70' (18")	INV OUT = 278.53 (18")
B-70	TYPE C INLET	283.13	INV IN = 279.31' (18")	INV OUT = 279.14 (18")
B-80	TYPE C INLET	283.14	INV IN = 280.19' (12")	INV OUT = 279.69 (18")
C-10	MANHOLE	283.84	INV IN = 272.50' (18")	
C-20	TYPE C INLET	285.50	INV IN = 281.29' (18")	INV OUT = 274.14 (18")
C-30	TYPE C INLET	289.43	INV IN = 284.45' (18")	INV OUT = 284.28 (18")
C-40	TYPE C INLET	290.16		INV OUT = 285.95 (18")
C-50	MANHOLE	283.25	INV IN = 272.50' (27")	
C-60	TYPE C INLET	283.13	INV IN = 278.78' (12") INV IN = 278.71' (15") INV IN = 279.07' (18")	INV OUT = 272.67 (27")
C-61	TYPE C INLET	283.14	INV IN = 279.25' (15")	INV OUT = 279.08 (15")
C-70	TYPE C INLET	283.13	INV IN = 279.39' (10")	INV OUT = 279.23 (12")
C-80	TYPE C INLET	283.13		INV OUT = 279.80 (10")
CO-B-21	CLEANOUTS	283.71	INV IN = 280.55' (8")	INV OUT = 280.04 (8")
CO-B-30	CLEANOUTS	283.73	INV IN = 277.98' (24") INV IN = 280.40' (10")	INV OUT = 277.81 (24")
CO-B-31	CLEANOUTS	283.77	INV IN = 280.27' (12") INV IN = 278.74' (18")	INV OUT = 278.07 (24")
CO-B-32	CLEANOUTS	283.76	INV IN = 279.61' (12") INV IN = 280.26' (12")	INV OUT = 278.94 (18")
CO-B-33	CLEANOUTS	283.72	INV IN = 280.39' (10")	INV OUT = 280.05 (12")
CO-B-80	CLEANOUTS	283.25	INV IN = 280.78' (8")	INV OUT = 280.28 (12")
CO-C-60	CLEANOUTS	283.70	INV IN = 279.28' (18")	INV OUT = 279.08 (18")
CO-C-60A	CLEANOUTS	283.77	INV IN = 279.41' (15") INV IN = 280.15' (12")	INV OUT = 279.41 (18")
CO-C-60B	CLEANOUTS	283.78	INV IN = 280.15' (12")	INV OUT = 279.91 (15")
CO-C-61	NULL STRUCTURE	280.73	INV IN = 279.74' (8")	INV OUT = 279.28 (15")
CO-D-70	CLEANOUTS	283.70	INV IN = 279.72' (15") INV IN = 279.57' (15")	INV OUT = 279.50 (15")
CO-D-70A	CLEANOUTS	283.75	INV IN = 280.15' (12")	INV OUT = 279.92 (15")
CO-D-70B	CLEANOUTS	283.75	INV IN = 280.12' (12")	INV OUT = 279.87 (15")
CO-D-90	CLEANOUTS	283.57	INV IN = 280.36' (8")	INV OUT = 280.31 (8")
CO-E-10	CLEANOUTS	279.22	INV IN = 269.50' (27")	
CO-E-11	CLEANOUTS	279.75	INV IN = 274.16' (21") INV IN = 274.60' (18") INV IN = 277.00' (3")	INV OUT = 269.57 (27")
CO-E-12	CLEANOUTS	279.75	INV IN = 275.47' (12") INV IN = 276.25' (12")	INV OUT = 274.80 (18")
CO-E-13	CLEANOUTS	279.75	INV IN = 276.83' (3") INV IN = 276.25' (12")	INV OUT = 275.91 (12")
CO-E-14	CLEANOUTS	281.17	INV IN = 278.42' (3")	INV OUT = 278.25 (3")
CO-E-15	CLEANOUTS	279.75	INV IN = 274.77' (18") INV IN = 276.25' (12")	INV OUT = 274.35 (21")
CO-E-16	CLEANOUTS	279.75	INV IN = 275.64' (12") INV IN = 276.25' (12")	INV OUT = 274.97 (18")

STORM STRUCTURE SCHEDULE

STRUCTURE #	CATEGORY	GRT/RIM	INV IN	INV OUT
CO-E-17	CLEANOUTS	279.75	INV IN = 276.25' (12")	INV OUT = 276.08 (12")
CO-J-30	CLEANOUTS	279.75	INV IN = 276.62' (12") INV IN = 277.12' (12")	INV OUT = 276.62 (15")
CO-J-30A	CLEANOUTS	279.75	INV IN = 277.12' (12")	INV OUT = 277.12 (12")
CO-J-50	CLEANOUTS	279.75	INV IN = 274.80' (10") INV IN = 277.13' (12")	INV OUT = 274.80 (15")
CO-J-50A	CLEANOUTS	283.62	INV IN = 281.41' (10") INV IN = 280.35' (8")	INV OUT = 277.82 (10")
CO-J-50B	CLEANOUTS	283.01	INV IN = 280.97' (8")	INV OUT = 280.80 (8")
D-10	NULL STRUCTURE	271.77	INV IN = 268.25' (36")	
D-20	MANHOLE	277.19	INV IN = 268.67' (36")	INV OUT = 268.50 (36")
D-30	MANHOLE	278.41	INV IN = 269.71' (36")	INV OUT = 269.54 (36")
D-40	MANHOLE	281.64	INV IN = 272.55' (36")	INV OUT = 271.53 (36")
D-50	MANHOLE	283.29		INV OUT = 273.00 (36")
D-51	MANHOLE	283.13		
D-60	MANHOLE	283.25	INV IN = 272.50' (24")	
D-70	TYPE C INLET	283.13	INV IN = 279.54' (8") INV IN = 278.56' (12") INV IN = 279.18' (15")	INV OUT = 272.81 (24")
D-71	TYPE C INLET	283.13		INV OUT = 279.92 (8")
D-80	TYPE C INLET	283.12	INV IN = 278.98' (12")	INV OUT = 278.81 (12")
D-90	TYPE C INLET	283.12	INV IN = 279.86' (8")	INV OUT = 279.35 (12")
D-100	MANHOLE	283.70	INV IN = 272.50' (15")	
D-110	TYPE C INLET	279.55	INV IN = 274.13' (12")	INV OUT = 273.71 (15")
D-120	TYPE C INLET	278.00		INV OUT = 275.22 (12")
E-10	MANHOLE	279.15	INV IN = 272.69' (18")	
E-20	MANHOLE	277.83	INV IN = 274.00' (12") INV IN = 274.00' (12")	INV OUT = 273.50 (18")
E-21	TYPE C INLET	277.47		INV OUT = 274.85 (12")
E-30	TYPE C INLET	278.35		INV OUT = 275.72 (12")
F-10	MANHOLE	278.22	INV IN = 272.59' (24")	
F-20	TYPE C INLET	276.12		INV OUT = 272.71 (24")
G-10	RECTANGULAR WINGED HEADWALL	276.42	INV IN = 274.00' (21")	
G-20	TYPE C INLET	282.49	INV IN = 275.83' (21")	INV OUT = 275.83 (21")
G-30	TYPE C INLET	281.57	INV IN = 276.74' (18")	INV OUT = 276.32 (21")
G-40	TYPE C INLET	281.36	INV IN = 278.09' (8")	INV OUT = 277.09 (18")
G-50	TYPE C INLET	281.78		INV OUT = 278.52 (8")
H-10	NULL STRUCTURE	271.95	INV IN = 269.00' (30")	
H-20	TYPE M INLET	277.79		INV OUT = 274.00 (30")
H-30	RECTANGULAR WINGED HEADWALL	275.88	INV IN = 274.00' (15")	
H-40	TYPE C INLET	280.36	INV IN = 276.73' (8") INV IN = 276.15' (10")	INV OUT = 275.56 (15")
H-41	TYPE C INLET	280.58	INV IN = 277.63' (4")	INV OUT = 277.12 (8")
H-42	TYPE C INLET	280.99		INV OUT = 278.04 (4")
H-50	TYPE C INLET	279.95	INV IN = 276.74' (8")	INV OUT = 276.39 (10")
H-60	TYPE C INLET	280.41	INV IN = 277.20' (8")	INV OUT = 277.03 (8")
H-70	TYPE C INLET	280.54		INV OUT = 277.32 (8")
I-10	NULL STRUCTURE	269.80	INV IN = 268.00' (36")	
I-20	MANHOLE	279.63		INV OUT = 272.00 (36")
J-10	MANHOLE	277.97	INV IN = 269.44' (42")	
J-11	MANHOLE	279.11		
J-20	MANHOLE	277.53	INV IN = 272.07' (27") INV IN = 271.32' (30")	INV OUT = 270.44 (42")

STORM STRUCTURE SCHEDULE

STRUCTURE #	CATEGORY	GRT/RIM	INV IN	INV OUT
J-21	TYPE C INLET	276.12		INV OUT = 272.30 (27")
J-30	TYPE C INLET	278.31	INV IN = 271.78' (27") INV IN = 275.44' (15")	INV OUT = 271.53 (30")
J-40	TYPE C INLET	278.95	INV IN = 272.28' (27")	INV OUT = 272.11 (27")
J-50	TYPE C INLET	277.52	INV IN = 274.18' (15")	INV OUT = 273.01 (27")
J-60	RECTANGULAR WINGED HEADWALL	276.21	INV IN = 274.00' (18")	
J-70	TYPE C INLET	279.21		INV OUT = 275.00 (18")
RD-B-22	CLEANOUTS	283.80		INV OUT = 280.58 (8")
RD-B-30	CLEANOUTS	283.80		INV OUT = 280.46 (10")
RD-B-31	CLEANOUTS	283.80		INV OUT = 280.30 (12")
RD-B-32	CLEANOUTS	283.80		INV OUT = 280.28 (12")
RD-B-33	CLEANOUTS	283.80		INV OUT = 280.45 (10")
RD-B-80	CLEANOUTS	283.80		INV OUT = 280.97 (8")
RD-C-60A	CLEANOUTS	283.80		INV OUT = 280.17 (12")
RD-C-60B	CLEANOUTS	283.80		INV OUT = 280.17 (12")
RD-C-61	CLEANOUTS	283.80		INV OUT = 280.38 (8")
RD-D-70A	CLEANOUTS	283.80		INV OUT = 280.17 (12")
RD-D-70B	CLEANOUTS	283.80		INV OUT = 280.17 (12")
RD-D-90	CLEANOUTS	283.80		INV OUT = 280.59 (8")
RD-E-11	CLEANOUTS	279.80		INV OUT = 277.05 (3")
RD-E-12	CLEANOUTS	279.80		INV OUT = 276.27 (12")
RD-E-13	CLEANOUTS	279.80		INV OUT = 276.27 (12")
RD-E-14	CLEANOUTS	281.80		INV OUT = 279.05 (3")
RD-E-15	CLEANOUTS	279.80		INV OUT = 276.27 (12")
RD-E-16	CLEANOUTS	279.80		INV OUT = 276.27 (12")
RD-E-17	CLEANOUTS	279.80		INV OUT = 276.27 (12")
RD-J-30	CLEANOUTS	279.80		INV OUT = 277.17 (12")
RD-J-30A	CLEANOUTS	279.80		INV OUT = 277.17 (12")
RD-J-50	CLEANOUTS	279.80		INV OUT = 277.18 (12")
RD-J-50A	CLEANOUTS	284.29		INV OUT = 281.50 (10")
RD-J-50B	CLEANOUTS	283.80		INV OUT = 281.10 (8")

STORM PIPE SCHEDULE

FROM	FROM INV	TO	TO INV	PIPE LENGTH	SLOPE (%)	DIAMETER (IN.)	MATERIAL
J-70	275.00'	J-60	274.00'	198'	0.50%	18"	HDPE
CO-J-50	274.80'	J-50	274.18'	123'	0.50%	15"	HDPE
J-50	273.01'	J-40	272.28'	147'	0.50%	27"	HDPE
CO-J-30	276.62'	J-30	275.44'	127'	0.94%	15"	HDPE
J-40	272.11'	J-30	271.78'	65'	0.50%	27"	HDPE
J-30	271.53'	J-20	271.32'	35'	0.61%	30"	HDPE
J-21	272.30'	J-20	272.07'	45'	0.50%	27"	HDPE
J-20	270.44'	J-10	269.44'	42'	2.38%	42"	HDPE
I-20	272.00'	I-10	268.00'	112'	3.59%	36"	RCP
H-70	277.32'	H-60	277.20'	22'	0.57%	8"	HDPE
H-60	277.03'	H-50	276.74'	35'	0.83%	8"	HDPE
H-42	278.04'	H-41	277.63'	23'	1.77%	4"	HDPE
H-41	277.12'	H-40	276.73'	78'	0.50%	8"	HDPE
H-50	276.39'	H-40	276.15'	49'	0.50%	10"	HDPE
H-40	275.56'	H-30	274.00'	169'	0.92%	15"	HDPE
H-20	274.00'	H-10	269.00'	104'	4.79%	30"	RCP
G-50	278.52'	G-40	278.09'	12'	3.49%	8"	HDPE
G-40	277.09'	G-30	276.74'	70'	0.50%	18"	HDPE
G-30	276.32'	G-20	275.83'	99'	0.50%	21"	HDPE
G-20	275.83'	G-10	274.00'	46'	3.99%	21"	HDPE
F-20	272.71'	F-10	272.59'	87'	0.14%	24"	HDPE
E-21	274.85'	E-20	274.00'	59'	1.45%	12"	HDPE
E-30	275.72'	E-20	274.00'	116'	1.48%	12"	HDPE
E-20	273.50'	E-10	272.69'	161'	0.50%	18"	HDPE
A-70	274.53'	D-110	274.13'	81'	0.50%	12"	RCP
D-110	273.71'	D-100	272.50'	41'	2.95%	15"	RCP
CO-D-90	280.31'	D-90	279.86'	21'	2.18%	8"	HDPE
D-90	279.35'	D-80	278.98'	76'	0.50%	12"	HDPE
CO-D-70	279.50'	D-70	279.18'	6'	5.18%	15"	HDPE
D-80	278.81'	D-70	278.56'	50'	0.50%	12"	HDPE
D-71	279.92'	D-70	279.54'	75'	0.50%	8"	HDPE
D-70	272.81'	D-60	272.50'	10'	3.01%	24"	HDPE
D-50	273.00'	D-40	272.55'	40'	1.12%	36"	RCP
D-40	271.53'	D-30	269.71'	363'	0.50%	36"	RCP
D-30	269.54'	D-20	268.67'	174'	0.50%	36"	RCP
D-20	268.50'	D-10	268.25'	50'	0.50%	36"	RCP
RD-J-50B	281.10'	CO-J-50B	280.97'	5'	2.61%	8"	HDPE
CO-J-50B	280.80'	CO-J-50A	280.35'	90'	0.50%	8"	HDPE
RD-J-50A	281.50'	CO-J-50A	281.41'	5'	1.73%	10"	HDPE
RD-J-50	277.18'	CO-J-50	277.13'	5'	1.00%	12"	HDPE
CO-J-50A	277.82'	CO-J-50	274.80'	100'	3.02%	10"	HDPE
RD-J-30A	277.17'	CO-J-30A	277.12'	5'	1.00%	12"	HDPE
RD-J-30	277.17'	CO-J-30	277.12'	5'	1.00%	12"	HDPE
CO-J-30A	277.12'	CO-J-30	276.62'	100'	0.50%	12"	HDPE
RD-E-17	276.27'	CO-E-17	276.25'	5'	0.44%	12"	HDPE
RD-E-16	276.27'	CO-E-16	276.25'	5'	0.44%	12"	HDPE
CO-E-17	276.08'	CO-E-16	275.64'	100'	0.44%	12"	HDPE
RD-E-15	276.27'	CO-E-15	276.25'	5'	0.44%	12"	HDPE
CO-E-16	274.97'	CO-E-15	274.77'	100'	0.20%	18"	HDPE
RD-E-14	279.05'	CO-E-14	278.42'	5'	12.66%	3"	HDPE
CO-E-14	278.25'	CO-E-13	276.83'	105'	1.35%	3"	HDPE
RD-E-13	276.27'	CO-E-13	276.25'	5'	0.44%	12"	HDPE
CO-E-13	275.91'	CO-E-12	275.47'	100'	0.44%	12"	HDPE
RD-E-12	276.27'	CO-E-12	276.25'	5'	0.44%	12"	HDPE
RD-E-11	277.05'	CO-E-11	277.00'	5'	1.05%	3"	HDPE

STORM PIPE SCHEDULE

FROM	FROM INV	TO	TO INV	PIPE LENGTH	SLOPE (%)	DIAMETER (IN.)	MATERIAL
CO-E-12	274.80'	CO-E-11	274.60'	100'	0.20%	18"	HDPE
CO-E-15	274.35'	CO-E-11	274.16'	100'	0.19%	21"	HDPE
CO-E-11	269.57'	CO-E-10	269.50'	57'	0.13%	27"	HDPE
RD-D-90	280.59'	CO-D-90	280.36'	5'	4.63%	8"	HDPE
RD-D-70B	280.17'	CO-D-70B	280.12'	5'	1.03%	12"	HDPE
RD-D-70A	280.17'	CO-D-70A	280.15'	5'	0.50%	12"	HDPE
CO-D-70B	279.87'	CO-D-70	279.57'	60'	0.50%	15"	HDPE
CO-D-70A	279.92'	CO-D-70	279.72'	40'	0.50%	15"	HDPE
RD-C-61	280.38'	CO-C-61	279.74'	5'	12.87%	8"	HDPE
RD-C-60B	280.17'	CO-C-60B	280.15'	5'	0.50%	12"	HDPE
CO-C-60B	279.91'	CO-C-60A	279.41'	100'	0.50%	15"	HDPE
RD-C-60A	280.17'	CO-C-60A	280.15'	5'	0.54%	12"	HDPE
CO-C-60A	279.41'	CO-C-60	279.28'	26'	0.50%	18"	HDPE
RD-B-80	280.97'	CO-B-80	280.78'	5'	3.86%	8"	HDPE
RD-B-33	280.45'	CO-B-33	280.39'	5'	1.18%	10"	HDPE
RD-B-32	280.28'	CO-B-32	280.26'	5'	0.44%	12"	HDPE
CO-B-33	280.05'	CO-B-32	279.61'	100'	0.44%	12"	HDPE
RD-B-31	280.30'	CO-B-31	280.27'	5'	0.44%	12"	HDPE
CO-B-32	278.94'	CO-B-31	278.74'	100'	0.20%	18"	HDPE
RD-B-30	280.46'	CO-B-30	280.40'	5'	1.18%	10"	HDPE
CO-B-31	278.07'	CO-B-30	277.98'	100'	0.09%	24"	HDPE
RD-B-22	280.58'	CO-B-21	280.55'	5'	0.70%	8"	HDPE
C-80	279.80'	C-70	279.39'	75'	0.54%	10"	HDPE
CO-C-61	279.28'	C-61	279.25'	6'	0.50%	15"	HDPE
CO-C-60	279.08'	C-60	279.07'	6'	0.19%	18"	HDPE
C-61	279.08'	C-60	278.71'	73'	0.50%	15"	HDPE
C-70	279.23'	C-60	278.78'	84'	0.53%	12"	HDPE
C-60	272.67'	C-50	272.50'	10'	1.63%	27"	HDPE
C-40	285.95'	C-30	284.45'	300'	0.50%	18"	RCP
C-30	284.28'	C-20	281.29'	300'	1.00%	18"	RCP
C-20	274.14'	C-10	272.50'	42'	3.94%	18"	RCP
CO-B-80	280.28'	B-80	280.19'	21'	0.44%	12"	HDPE
B-80	279.69'	B-70	279.31'	73'	0.52%	18"	HDPE
B-70	279.14'	B-60	278.70'	84'	0.51%	18"	HDPE
B-60	278.53'	B-50	278.15'	75'	0.51%	18"	HDPE
B-50	277.90'	B-40	277.45'	86'	0.52%	21"	HDPE
CO-B-30	277.81'	B-30	277.79'	12'	0.15%	24"	HDPE
B-40	277.03'	B-30	276.65'	73'	0.52%	24"	HDPE
CO-B-21	280.04'	B-20	279.93'	16'	0.70%	8"	HDPE
B-30	275.65'	B-20	275.18'	94'	0.50%	36"	HDPE
B-20	275.01'	B-10	274.00'	285'	0.35%	36"	HDPE
D-120	275.22'	A-70	274.53'	137'	0.50%	12"	RCP
A-40	282.96'	A-30	282.23'	144'	0.51%	12"	RCP
A-21	278.76'	A-20	278.17'	97'	0.61%	12"	RCP
A-30	279.46'	A-20	279.10'	66'	0.53%	12"	RCP
A-20	274.34'	A-10	274.00'	57'	0.59%	12"	RCP

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL SERVICES
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREIN HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 50 OF 2017, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. WWW.PA1CALL.ORG

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PROJECT No.: PAC250095.00-1A
DRAWN BY: PAB
CHECKED BY: RDE
DATE: 04/06/2026
CAD I.D.: P-CIVL-GDUL

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
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COMMONWEALTH OF PENNSYLVANIA — KEARSE — PROFESSIONAL — MATTHEW JOHN KEARSE — PROFESSIONAL ENGINEER — PENNSYLVANIA LICENSE NO. PE090688 — COMMONWEALTH OF PENNSYLVANIA

SHEET TITLE:

STORMWATER TABLES

SHEET NUMBER:

C-505
41 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\028\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-GDUL-PAC250095.00-1A.----\LAYOUT: C-505 SWM TABLES
JV

STORM STRUCTURE SCHEDULE

STRUCTURE #	CATEGORY	GRT/RIM	INV IN	INV OUT
CO-M-30	CLEANOUTS	286.72	INV IN = 283.23' (12") INV IN = 284.51' (8")	INV OUT = 283.13 (12")
CO-M-31	CLEANOUTS	286.73	INV IN = 283.73' (8") INV IN = 284.52' (8")	INV OUT = 283.73 (12")
CO-M-32	CLEANOUTS	286.50	INV IN = 284.40' (6")	INV OUT = 284.23 (8")
CO-M-33	CLEANOUTS	286.71	INV IN = 283.49' (12") INV IN = 284.50' (8")	INV OUT = 277.27 (15")
CO-M-34	CLEANOUTS	286.71	INV IN = 283.99' (8") INV IN = 284.50' (8")	INV OUT = 283.99 (12")
CO-M-35	CLEANOUTS	286.70	INV IN = 284.66' (6")	INV OUT = 284.49 (8")
CO-R-10	CLEANOUTS	282.92	INV IN = 280.27' (8") INV IN = 278.09' (21") INV IN = 280.24' (6")	INV OUT = 277.16 (21")
CO-R-11	CLEANOUTS	282.99	INV IN = 280.77' (8")	INV OUT = 280.77 (8")
CO-R-12	CLEANOUTS	282.94	INV IN = 278.59' (15") INV IN = 279.96' (6")	INV OUT = 278.59 (21")
CO-R-13	CLEANOUTS	282.91	INV IN = 279.09' (12") INV IN = 279.96' (6")	INV OUT = 279.09 (15")
CO-R-14	CLEANOUTS	282.95	INV IN = 279.59' (6") INV IN = 279.96' (6")	INV OUT = 279.59 (12")
CO-R-15	CLEANOUTS	285.94	INV IN = 284.09' (4")	INV OUT = 282.58 (6")
K-61	MANHOLE	285.72		
K-10	NULL STRUCTURE	272.52	INV IN = 269.00' (36")	
K-20	MANHOLE	275.49	INV IN = 269.44' (36")	INV OUT = 269.28 (36")
K-30	MANHOLE	284.21	INV IN = 275.16' (36")	INV OUT = 271.13 (36")
K-40	MANHOLE	284.61	INV IN = 276.08' (36")	INV OUT = 275.91 (36")
K-50	MANHOLE	285.17		INV OUT = 276.50 (36")
K-60	MANHOLE	284.82	INV IN = 277.00' (18")	
K-70	TYPE C INLET	284.09	INV IN = 278.21' (18")	INV OUT = 278.04 (18")
K-80	TYPE C INLET	284.15	INV IN = 278.66' (18")	INV OUT = 278.49 (18")
K-90	MANHOLE	284.84	INV IN = 277.00' (18")	
K-110	TYPE C INLET	284.10	INV IN = 279.80' (18")	INV OUT = 277.23 (18")
K-111	TYPE C INLET	284.10		INV OUT = 279.88 (18")
K-130	TYPE C INLET	283.21		INV OUT = 279.00 (18")
M-10	MANHOLE	284.92	INV IN = 277.00' (24")	
M-11	MANHOLE	285.80		
M-20	TYPE C INLET	284.10	INV IN = 277.75' (24") INV IN = 280.03' (10")	INV OUT = 277.58 (24")
M-21	TYPE C INLET	284.77	INV IN = 280.36' (8")	INV OUT = 280.20 (10")
M-22	TYPE C INLET	283.26		INV OUT = 281.05 (8")
M-30	TYPE C INLET	284.10	INV IN = 278.99' (12") INV IN = 281.38' (12")	INV OUT = 277.82 (24")
M-33	CLEANOUTS	285.81	INV IN = 277.00' (15")	
M-40	TYPE C INLET	284.12	INV IN = 280.22' (8")	INV OUT = 279.72 (12")

STORM STRUCTURE SCHEDULE

STRUCTURE #	CATEGORY	GRT/RIM	INV IN	INV OUT
M-50	TYPE C INLET	283.50		INV OUT = 280.85 (8")
N-10	NULL STRUCTURE	272.52	INV IN = 269.00' (36")	
N-20	MANHOLE	278.34	INV IN = 270.12' (36")	INV OUT = 269.74 (36")
N-30	MANHOLE	281.66		INV OUT = 273.00 (36")
O-10	MANHOLE	281.11	INV IN = 273.75' (21")	
O-20	MANHOLE	280.67	INV IN = 277.01' (12") INV IN = 277.32' (18")	INV OUT = 273.90 (21")
O-21	TYPE C INLET	280.53		INV OUT = 277.39 (18")
O-30	TYPE C INLET	283.98		INV OUT = 281.77 (8")
O-40	TYPE C INLET	279.91		INV OUT = 277.28 (12")
P-10	MANHOLE	281.55	INV IN = 273.75' (18")	
P-11	MANHOLE	282.16		
P-20	TYPE C INLET	281.21	INV IN = 279.00' (8") INV IN = 276.95' (12")	INV OUT = 275.38 (18")
P-30	TYPE C INLET	279.92		INV OUT = 277.29 (12")
Q-10	MANHOLE	281.01	INV IN = 273.75' (18")	
Q-11	MANHOLE	282.00		
Q-20	TYPE C INLET	280.40	INV IN = 278.30' (6")	INV OUT = 274.19 (18")
Q-30	MANHOLE	282.99	INV IN = 280.94' (6")	INV OUT = 280.88 (6")
Q-40	MANHOLE	284.44	INV IN = 281.90' (6")	INV OUT = 281.90 (6")
Q-50	TYPE C INLET	284.03		INV OUT = 281.99 (6")
R-10	CLEANOUTS	282.09	INV IN = 276.81' (21")	
RD-M-30	CLEANOUTS	287.00		INV OUT = 284.79 (8")
RD-M-31	CLEANOUTS	287.00		INV OUT = 284.79 (8")
RD-M-32	CLEANOUTS	287.00		INV OUT = 284.48 (6")
RD-M-33	CLEANOUTS	287.00		INV OUT = 284.61 (8")
RD-M-34	CLEANOUTS	287.00		INV OUT = 284.79 (8")
RD-M-35	CLEANOUTS	287.00		INV OUT = 284.78 (6")
RD-R-10	CLEANOUTS	283.65		INV OUT = 280.27 (6")
RD-R-11	CLEANOUTS	283.00		INV OUT = 280.79 (8")
RD-R-12	CLEANOUTS	284.30		INV OUT = 280.20 (6")
RD-R-13	CLEANOUTS	284.95		INV OUT = 280.97 (6")
RD-R-14	CLEANOUTS	285.60		INV OUT = 280.97 (6")
RD-R-15	CLEANOUTS	287.00		INV OUT = 284.15 (4")

STORM PIPE SCHEDULE

FROM	FROM INV	TO	TO INV	PIPE LENGTH	SLOPE (%)	DIAMETER (IN.)	MATERIAL
CO-R-10	277.16'	R-10	276.81'	56'	0.61%	21"	HDPE
Q-50	281.99'	Q-40	281.90'	18'	0.50%	6"	HDPE
Q-40	281.90'	Q-30	280.94'	162'	0.59%	6"	HDPE
Q-30	280.88'	Q-20	278.30'	112'	2.30%	6"	HDPE
Q-20	274.19'	Q-10	273.75'	30'	1.46%	18"	HDPE
P-30	277.29'	P-20	276.95'	69'	0.50%	12"	HDPE
O-30	281.77'	P-20	279.00'	202'	1.37%	8"	HDPE
P-20	275.38'	P-10	273.75'	33'	4.99%	18"	HDPE
O-21	277.39'	O-20	277.32'	16'	0.50%	18"	HDPE
O-40	277.28'	O-20	277.01'	55'	0.50%	12"	HDPE
O-20	273.90'	O-10	273.75'	23'	0.65%	21"	HDPE
N-30	273.00'	N-20	270.12'	137'	2.11%	36"	RCP
N-20	269.74'	N-10	269.00'	27'	2.77%	36"	RCP
M-50	280.85'	M-40	280.22'	126'	0.50%	8"	HDPE
CO-M-33	277.27'	M-33	277.00'	13'	2.18%	15"	HDPE
CO-M-30	283.13'	M-30	281.38'	64'	2.76%	12"	HDPE
M-40	279.72'	M-30	278.99'	145'	0.50%	12"	HDPE
M-22	281.05'	M-21	280.36'	137'	0.50%	8"	HDPE
M-21	280.20'	M-20	280.03'	32'	0.52%	10"	HDPE
M-30	277.82'	M-20	277.75'	15'	0.50%	24"	HDPE
M-20	277.58'	M-10	277.00'	64'	0.91%	24"	HDPE
K-111	279.88'	K-110	279.80'	15'	0.50%	18"	HDPE
K-110	277.23'	K-90	277.00'	24'	0.97%	18"	HDPE
K-130	279.00'	K-80	278.66'	68'	0.50%	18"	RCP
K-80	278.49'	K-70	278.21'	56'	0.50%	18"	HDPE
K-70	278.04'	K-60	277.00'	55'	1.91%	18"	HDPE
K-50	276.50'	K-40	276.08'	84'	0.50%	36"	RCP
K-40	275.91'	K-30	275.16'	150'	0.50%	36"	RCP
K-30	271.13'	K-20	269.44'	335'	0.50%	36"	RCP
K-20	269.28'	K-10	269.00'	55'	0.50%	36"	RCP

STORM PIPE SCHEDULE

FROM	FROM INV	TO	TO INV	PIPE LENGTH	SLOPE (%)	DIAMETER (IN.)	MATERIAL
RD-R-15	284.15'	CO-R-15	284.09'	5'	1.24%	4"	HDPE
CO-R-15	282.58'	CO-R-14	279.59'	100'	2.99%	6"	HDPE
RD-R-14	280.97'	CO-R-14	279.96'	5'	20.00%	6"	HDPE
CO-R-14	279.59'	CO-R-13	279.09'	100'	0.50%	12"	HDPE
RD-R-13	280.97'	CO-R-13	279.96'	5'	20.00%	6"	HDPE
CO-R-13	279.09'	CO-R-12	278.59'	100'	0.50%	15"	HDPE
RD-R-12	280.20'	CO-R-12	279.96'	5'	4.80%	6"	HDPE
RD-R-11	280.79'	CO-R-11	280.77'	5'	0.50%	8"	HDPE
CO-R-12	278.59'	CO-R-10	278.09'	100'	0.50%	21"	HDPE
RD-R-10	280.27'	CO-R-10	280.24'	5'	0.67%	6"	HDPE
CO-R-11	280.77'	CO-R-10	280.27'	100'	0.50%	8"	HDPE
RD-M-35	284.78'	CO-M-35	284.66'	6'	2.27%	6"	HDPE
CO-M-35	284.49'	CO-M-34	283.99'	100'	0.50%	8"	HDPE
RD-M-34	284.79'	CO-M-34	284.50'	5'	5.36%	8"	HDPE
CO-M-34	283.99'	CO-M-33	283.49'	100'	0.50%	12"	HDPE
RD-M-33	284.61'	CO-M-33	284.50'	5'	1.94%	8"	HDPE
RD-M-32	284.48'	CO-M-32	284.40'	5'	1.62%	6"	HDPE
RD-M-31	284.79'	CO-M-31	284.52'	5'	5.36%	8"	HDPE
CO-M-32	284.23'	CO-M-31	283.73'	100'	0.50%	8"	HDPE
CO-M-31	283.73'	CO-M-30	283.23'	100'	0.50%	12"	HDPE
RD-M-30	284.79'	CO-M-30	284.51'	5'	5.36%	8"	HDPE

BUILDING 2 STORMWATER TABLES

STORM STRUCTURE SCHEDULE

STRUCTURE #	CATEGORY	GRT/RIM	INV IN	INV OUT
CO-T-30	CLEANOUTS	284.84	INV IN = 281.01' (18") INV IN = 281.39' (15") INV IN = 282.63' (8")	INV OUT = 274.74 (24")
CO-T-31	CLEANOUTS	284.82	INV IN = 281.89' (10") INV IN = 282.60' (8")	INV OUT = 281.89 (15")
CO-T-32	CLEANOUTS	284.80	INV IN = 282.46' (6") INV IN = 282.58' (8")	INV OUT = 282.39 (10")
CO-T-33	CLEANOUTS	285.15	INV IN = 282.71' (6")	INV OUT = 282.71 (6")
CO-T-34	CLEANOUTS	284.86	INV IN = 281.51' (15") INV IN = 282.65' (8")	INV OUT = 281.51 (18")
CO-T-35	CLEANOUTS	284.88	INV IN = 282.07' (8") INV IN = 282.67' (8")	INV OUT = 282.01 (15")
CO-T-36	CLEANOUTS	284.92	INV IN = 282.57' (8")	INV OUT = 282.57 (8")
CO-X-30	CLEANOUTS	288.72	INV IN = 285.64' (15")	INV OUT = 285.13 (15")
CO-X-31	CLEANOUTS	288.77	INV IN = 285.74' (12") INV IN = 286.55' (8")	INV OUT = 285.74 (15")
CO-X-32	CLEANOUTS	288.86	INV IN = 286.57' (6") INV IN = 286.65' (8")	INV OUT = 286.24 (12")
CO-X-33	CLEANOUTS	288.86	INV IN = 286.82' (6")	INV OUT = 286.82 (6")
CO-Z-30	CLEANOUTS	288.79	INV IN = 283.89' (21") INV IN = 286.54' (8")	INV OUT = 283.89 (21")
CO-Z-31	CLEANOUTS	288.85	INV IN = 286.80' (6")	INV OUT = 286.60 (8")
CO-Z-32	CLEANOUTS	288.85	INV IN = 284.35' (15") INV IN = 286.64' (8")	INV OUT = 284.35 (21")
CO-Z-33	CLEANOUTS	288.82	INV IN = 284.85' (10") INV IN = 286.61' (8")	INV OUT = 284.85 (15")
CO-Z-34	CLEANOUTS	287.77	INV IN = 285.40' (6")	INV OUT = 285.35 (10")
RD-T-30	CLEANOUTS	285.01		INV OUT = 282.75 (8")
RD-T-31	CLEANOUTS	285.01		INV OUT = 282.79 (8")
RD-T-32	CLEANOUTS	285.01		INV OUT = 282.79 (8")
RD-T-33	CLEANOUTS	284.80		INV OUT = 282.76 (6")
RD-T-34	CLEANOUTS	285.00		INV OUT = 282.80 (8")
RD-T-35	CLEANOUTS	285.00		INV OUT = 282.79 (8")
RD-T-36	CLEANOUTS	284.80		INV OUT = 282.59 (8")
RD-X-31	CLEANOUTS	289.00		INV OUT = 286.79 (8")
RD-X-32	CLEANOUTS	289.00		INV OUT = 286.79 (8")
RD-X-33	CLEANOUTS	289.00		INV OUT = 286.92 (6")
RD-Z-31	CLEANOUTS	289.00		INV OUT = 286.96 (6")
RD-Z-32	CLEANOUTS	289.00		INV OUT = 286.79 (8")
RD-Z-33	CLEANOUTS	289.00		INV OUT = 286.79 (8")
RD-Z-34	CLEANOUTS	289.00		INV OUT = 285.54 (6")
S-10	MANHOLE	282.74	INV IN = 273.75' (24")	
S-11	MANHOLE	283.62		
S-20	TYPE C INLET	281.78	INV IN = 278.87' (15")	INV OUT = 274.64 (24")
S-30	MANHOLE	283.56	INV IN = 280.81' (12") INV IN = 279.48' (15")	INV OUT = 279.31 (15")

STORM STRUCTURE SCHEDULE

STRUCTURE #	CATEGORY	GRT/RIM	INV IN	INV OUT
S-31	TYPE C INLET	282.78		INV OUT = 279.90 (15")
S-40	TYPE C INLET	284.31		INV OUT = 281.54 (12")
T-30	CLEANOUTS	283.76	INV IN = 273.75' (24")	
U-10	NULL STRUCTURE	274.52	INV IN = 271.00' (36")	
U-20	MANHOLE	282.40		INV OUT = 273.50 (36")
V-10	MANHOLE	282.00	INV IN = 273.75' (27")	
V-11	MANHOLE	282.20		
V-12	MANHOLE	283.44		
V-20	TYPE C INLET	281.18	INV IN = 278.26' (15")	INV OUT = 273.85 (27")
V-30	TYPE C INLET	281.57		INV OUT = 278.65 (15")
W-10	NULL STRUCTURE	274.52	INV IN = 271.00' (36")	
W-20	MANHOLE	281.78	INV IN = 275.29' (36")	INV OUT = 273.00 (36")
W-30	MANHOLE	282.17	INV IN = 276.34' (36")	INV OUT = 276.04 (36")
W-40	MANHOLE	289.21	INV IN = 279.85' (36")	INV OUT = 279.68 (36")
W-50	MANHOLE	289.01		INV OUT = 280.00 (36")
X-10	MANHOLE	287.97	INV IN = 280.50' (18")	
X-11	MANHOLE	289.78		
X-12	MANHOLE	290.52		
X-20	TYPE C INLET	287.65	INV IN = 283.83' (18")	INV OUT = 280.78 (18")
X-30	TYPE C INLET	288.05	INV IN = 284.88' (10") INV IN = 285.04' (15")	INV OUT = 284.05 (18")
X-40	TYPE C INLET	288.13	INV IN = 285.71' (6")	INV OUT = 285.21 (10")
X-50	TYPE C INLET	288.16		INV OUT = 286.11 (6")
Y-10	MANHOLE	288.59	INV IN = 280.50' (12")	
Y-20	TYPE C INLET	288.13	INV IN = 285.34' (10")	INV OUT = 280.81 (12")
Y-30	TYPE C INLET	288.15		INV OUT = 285.74 (10")
Z-10	MANHOLE	288.92	INV IN = 280.50' (24")	
Z-20	TYPE C INLET	288.17	INV IN = 283.06' (24")	INV OUT = 280.61 (24")
Z-30	TYPE C INLET	288.16	INV IN = 284.33' (18") INV IN = 283.86' (21")	INV OUT = 283.44 (24")
Z-40	TYPE C INLET	287.89	INV IN = 284.68' (15")	INV OUT = 284.68 (18")
Z-50	MANHOLE	289.41	INV IN = 287.18' (8") INV IN = 285.61' (15")	INV OUT = 285.61 (15")
Z-51	TYPE C INLET	288.63		INV OUT = 285.75 (15")
Z-60	MANHOLE	294.25	INV IN = 289.09' (8")	INV OUT = 289.07 (8")
Z-70	TYPE C INLET	291.87		INV OUT = 289.67 (8")

STORM PIPE SCHEDULE

FROM	FROM INV	TO	TO INV	PIPE LENGTH	SLOPE (%)	DIAMETER (IN.)	MATERIAL
Z-70	289.67'	Z-60	289.09'	115'	0.50%	8"	HDPE
Z-51	285.75'	Z-50	285.61'	29'	0.50%	15"	HDPE
Z-60	289.07'	Z-50	287.18'	309'	0.61%	8"	HDPE
Z-50	285.61'	Z-40	284.68'	185'	0.50%	15"	HDPE
CO-Z-30	283.89'	Z-30	283.86'	6'	0.50%	21"	HDPE
Z-40	284.68'	Z-30	284.33'	69'	0.50%	18"	HDPE
Z-30	283.44'	Z-20	283.06'	75'	0.50%	24"	HDPE
Z-20	280.61'	Z-10	280.50'	22'	0.50%	24"	HDPE
Y-30	285.74'	Y-20	285.34'	80'	0.50%	10"	HDPE
Y-20	280.81'	Y-10	280.50'	25'	1.25%	12"	HDPE
X-50	286.11'	X-40	285.71'	80'	0.50%	6"	HDPE
CO-X-30	285.13'	X-30	285.04'	6'	1.52%	15"	HDPE
X-40	285.21'	X-30	284.88'	65'	0.50%	10"	HDPE
X-30	284.05'	X-20	283.83'	44'	0.50%	18"	HDPE
X-20	280.78'	X-10	280.50'	53'	0.53%	18"	HDPE
W-50	280.00'	W-40	279.85'	29'	0.50%	36"	RCP
W-40	279.68'	W-30	276.34'	389'	0.86%	36"	RCP
W-30	276.04'	W-20	275.29'	151'	0.50%	36"	RCP
W-20	273.00'	W-10	271.00'	68'	2.93%	36"	RCP
V-30	278.65'	V-20	278.26'	33'	1.16%	15"	HDPE
V-20	273.85'	V-10	273.75'	21'	0.46%	27"	HDPE
U-20	273.50'	U-10	271.00'	80'	3.13%	36"	RCP
CO-T-30	274.74'	T-30	273.75'	55'	1.78%	24"	HDPE
S-31	279.90'	S-30	279.48'	84'	0.50%	15"	HDPE
S-40	281.54'	S-30	280.81'	110'	0.66%	12"	HDPE
S-30	279.31'	S-20	278.87'	89'	0.50%	15"	HDPE
S-20	274.64'	S-10	273.75'	86'	1.04%	24"	HDPE
RD-Z-34	285.54'	CO-Z-34	285.40'	5'	2.82%	6"	HDPE
RD-Z-33	286.79'	CO-Z-33	286.61'	5'	3.65%	8"	HDPE
CO-Z-34	285.35'	CO-Z-33	284.85'	100'	0.50%	10"	HDPE

STORM PIPE SCHEDULE

FROM	FROM INV	TO	TO INV	PIPE LENGTH	SLOPE (%)	DIAMETER (IN.)	MATERIAL
CO-Z-33	284.85'	CO-Z-32	284.35'	100'	0.50%	15"	HDPE
RD-Z-32	286.79'	CO-Z-32	286.64'	5'	3.07%	8"	HDPE
RD-Z-31	286.96'	CO-Z-31	286.80'	5'	3.07%	6"	HDPE
CO-Z-31	286.60'	CO-Z-30	286.54'	7'	0.80%	8"	HDPE
CO-Z-32	284.35'	CO-Z-30	283.89'	93'	0.50%	21"	HDPE
RD-X-33	286.92'	CO-X-33	286.82'	5'	2.03%	6"	HDPE
RD-X-32	286.79'	CO-X-32	286.65'	5'	2.75%	8"	HDPE
CO-X-33	286.82'	CO-X-32	286.57'	50'	0.50%	6"	HDPE
RD-X-31	286.79'	CO-X-31	286.55'	5'	4.48%	8"	HDPE
CO-X-32	286.24'	CO-X-31	285.74'	100'	0.50%	12"	HDPE
CO-X-31	285.74'	CO-X-30	285.64'	20'	0.50%	15"	HDPE
RD-T-36	282.59'	CO-T-36	282.57'	5'	0.50%	8"	HDPE
RD-T-35	282.79'	CO-T-35	282.67'	6'	2.02%	8"	HDPE
CO-T-36	282.57'	CO-T-35	282.07'	100'	0.50%	8"	HDPE
CO-T-35	282.01'	CO-T-34	281.51'	100'	0.50%	15"	HDPE
RD-T-34	282.80'	CO-T-34	282.65'	7'	2.06%	8"	HDPE
RD-T-33	282.76'	CO-T-33	282.71'	10'	0.50%	6"	HDPE
CO-T-33	282.71'	CO-T-32	282.46'	50'	0.50%	6"	HDPE
RD-T-32	282.79'	CO-T-32	282.58'	10'	2.11%	8"	HDPE
CO-T-32	282.39'	CO-T-31	281.89'	100'	0.50%	10"	HDPE
RD-T-31	282.79'	CO-T-31	282.60'	9'	2.10%	8"	HDPE
CO-T-31	281.89'	CO-T-30	281.39'	100'	0.50%	15"	HDPE
CO-T-34	281.51'	CO-T-30	281.01'	100'	0.50%	18"	HDPE
RD-T-30	282.75'	CO-T-30	282.63'	8'	1.60%	8"	HDPE

BUILDING 3 STORMWATER TABLES

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PROGRAM MANAGEMENT
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SUSTAINABLE DESIGN
PERMITTING SERVICES
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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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PROJECT No.: PAC250095.00-1A
DRAWN BY: PAB
CHECKED BY: RDE
DATE: 04/06/2026
CAD I.D.: P-CIVIL-GDUL

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
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COMMONWEALTH OF PENNSYLVANIA LICENSE PROFESSIONAL MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NUMBER PE090568

SHEET TITLE:

STORMWATER TABLES

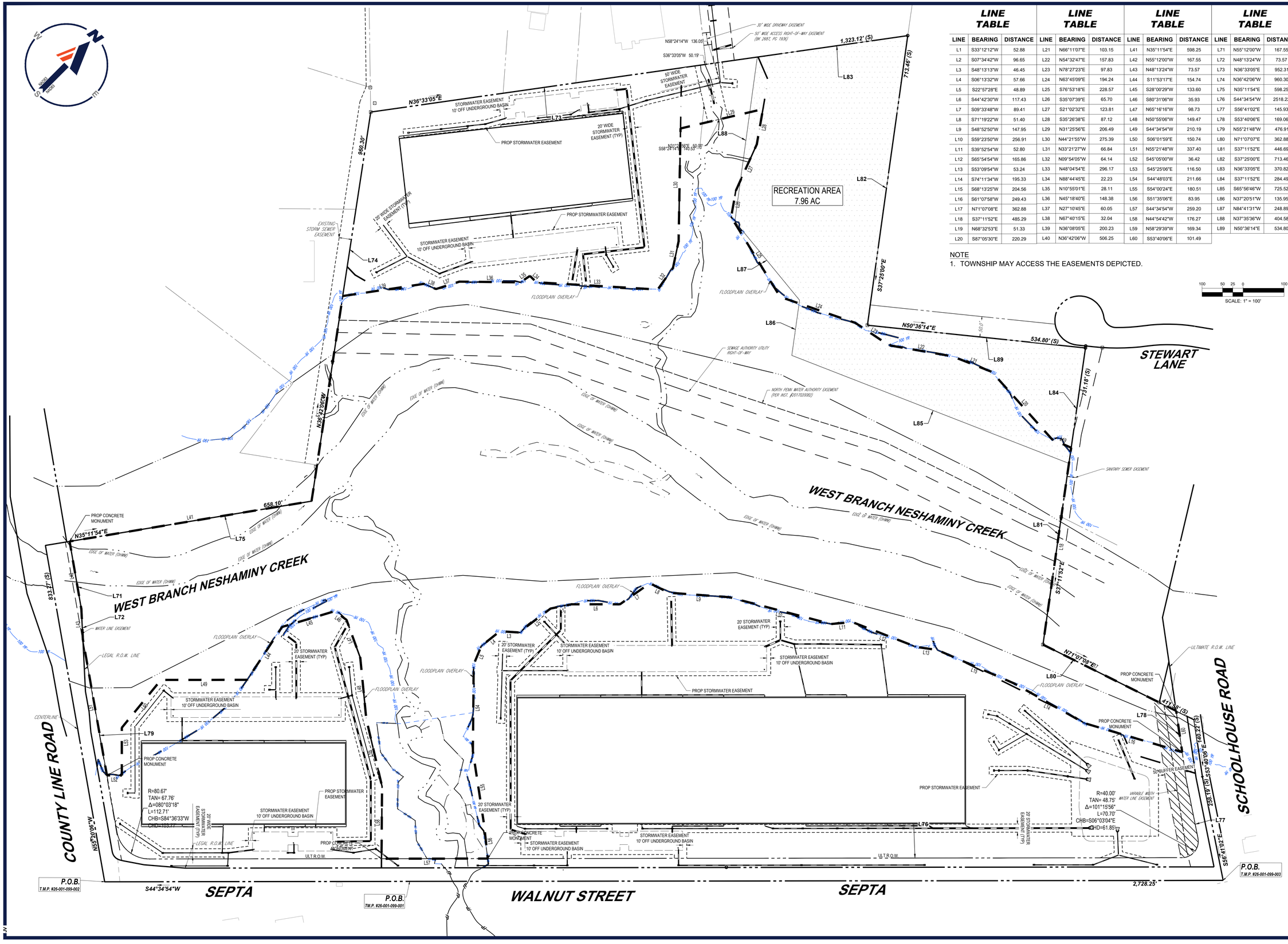
SHEET NUMBER:

C-506

42 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-GDUL-PAC250095.00-1A----\LAYOUT C-506 SWM TABLES



LINE TABLE

LINE	BEARING	DISTANCE
L1	S33°12'12"W	52.88
L2	S07°34'42"W	96.65
L3	S48°13'13"W	46.45
L4	S06°13'32"W	57.66
L5	S22°57'28"E	48.89
L6	S44°42'30"W	117.43
L7	S09°33'48"W	89.41
L8	S71°19'22"W	51.40
L9	S48°52'50"W	147.95
L10	S59°23'50"W	256.91
L11	S39°52'54"W	52.80
L12	S65°54'54"W	165.86
L13	S53°09'54"W	53.24
L14	S74°11'34"W	195.33
L15	S68°13'25"W	204.56
L16	S61°07'58"W	249.43
L17	N71°07'08"E	362.88
L18	S37°11'52"E	485.29
L19	N68°32'53"E	51.33
L20	S87°05'30"E	220.29

LINE TABLE

LINE	BEARING	DISTANCE
L21	N66°11'07"E	103.15
L22	N54°32'47"E	157.83
L23	N78°27'23"E	97.83
L24	N63°45'09"E	194.24
L25	S76°53'18"E	228.57
L26	S35°07'39"E	65.70
L27	S21°02'32"E	123.81
L28	S35°26'38"E	87.12
L29	N31°25'56"E	206.49
L30	N44°21'55"W	275.39
L31	N33°21'27"W	66.84
L32	N09°54'05"W	64.14
L33	N48°04'54"E	296.17
L34	N88°44'45"E	22.23
L35	N10°55'01"E	28.11
L36	N45°18'40"E	148.38
L37	N27°10'45"E	60.05
L38	N67°40'15"E	32.04
L39	N36°08'05"E	200.23
L40	N36°42'06"W	506.25

LINE TABLE

LINE	BEARING	DISTANCE
L41	N35°11'54"E	598.25
L42	N55°12'00"W	167.55
L43	N48°13'24"W	73.57
L44	S11°53'17"E	154.74
L45	S28°00'29"W	133.60
L46	S80°31'06"W	35.93
L47	N65°16'16"W	98.73
L48	N50°55'06"W	149.47
L49	S44°34'54"W	210.19
L50	S06°01'59"E	150.74
L51	N55°21'48"W	337.40
L52	S45°05'00"W	36.42
L53	S45°25'06"E	116.50
L54	S44°48'03"E	211.66
L55	S54°00'24"E	180.51
L56	S51°35'06"E	83.95
L57	S44°34'54"W	259.20
L58	N44°54'42"W	176.27
L59	N58°29'39"W	169.34
L60	S53°40'06"E	101.49

LINE TABLE

LINE	BEARING	DISTANCE
L71	N55°12'00"W	167.55
L72	N48°13'24"W	73.57
L73	N36°33'05"E	952.31
L74	N36°42'06"W	960.30
L75	N35°11'54"E	598.25
L76	S44°34'54"W	2518.22
L77	S56°41'02"E	145.93
L78	S53°40'06"E	169.06
L79	N55°21'48"W	476.91
L80	N71°07'07"E	362.88
L81	S37°11'52"E	446.69
L82	S37°25'00"E	713.46
L83	N36°33'05"E	370.82
L84	S37°11'52"E	284.49
L85	S65°56'46"W	725.52
L86	N37°20'51"W	135.95
L87	N84°41'31"W	248.89
L88	N37°35'36"W	404.58
L89	N50°36'14"E	534.80

NOTE
1. TOWNSHIP MAY ACCESS THE EASEMENTS DEPICTED.

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REVISIONS

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1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-SITE

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
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M. KEARSE
COMMONWEALTH OF PENNSYLVANIA
PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090508

SHEET TITLE:

EASEMENT PLAN

SHEET NUMBER:

C-507
43 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
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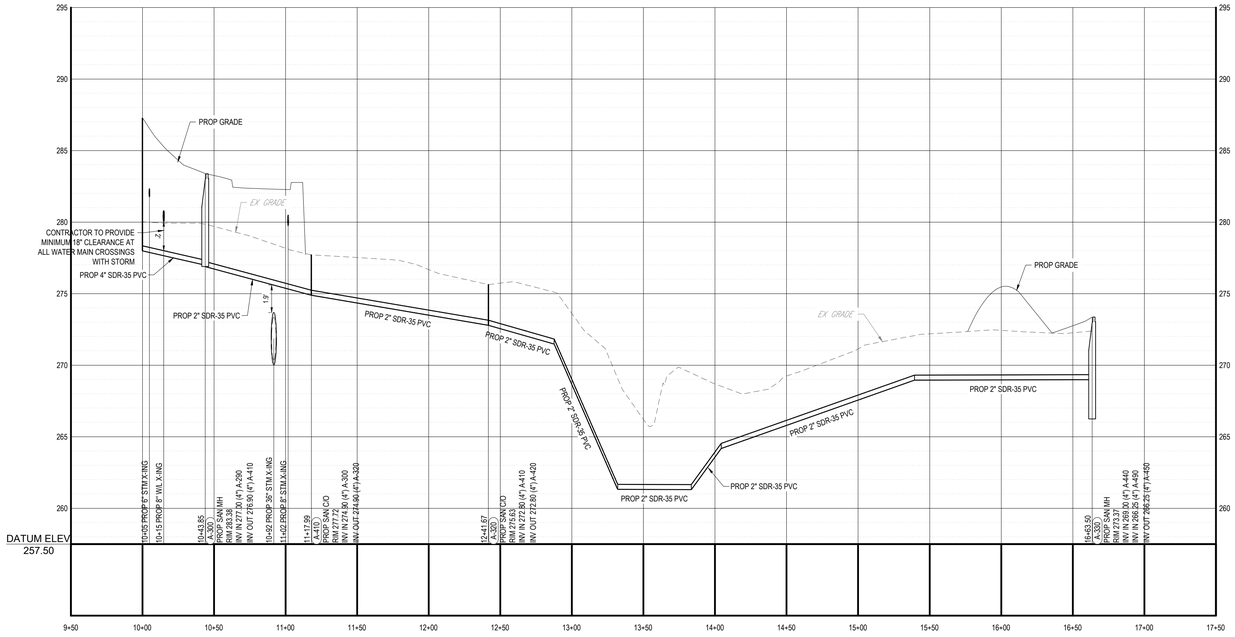
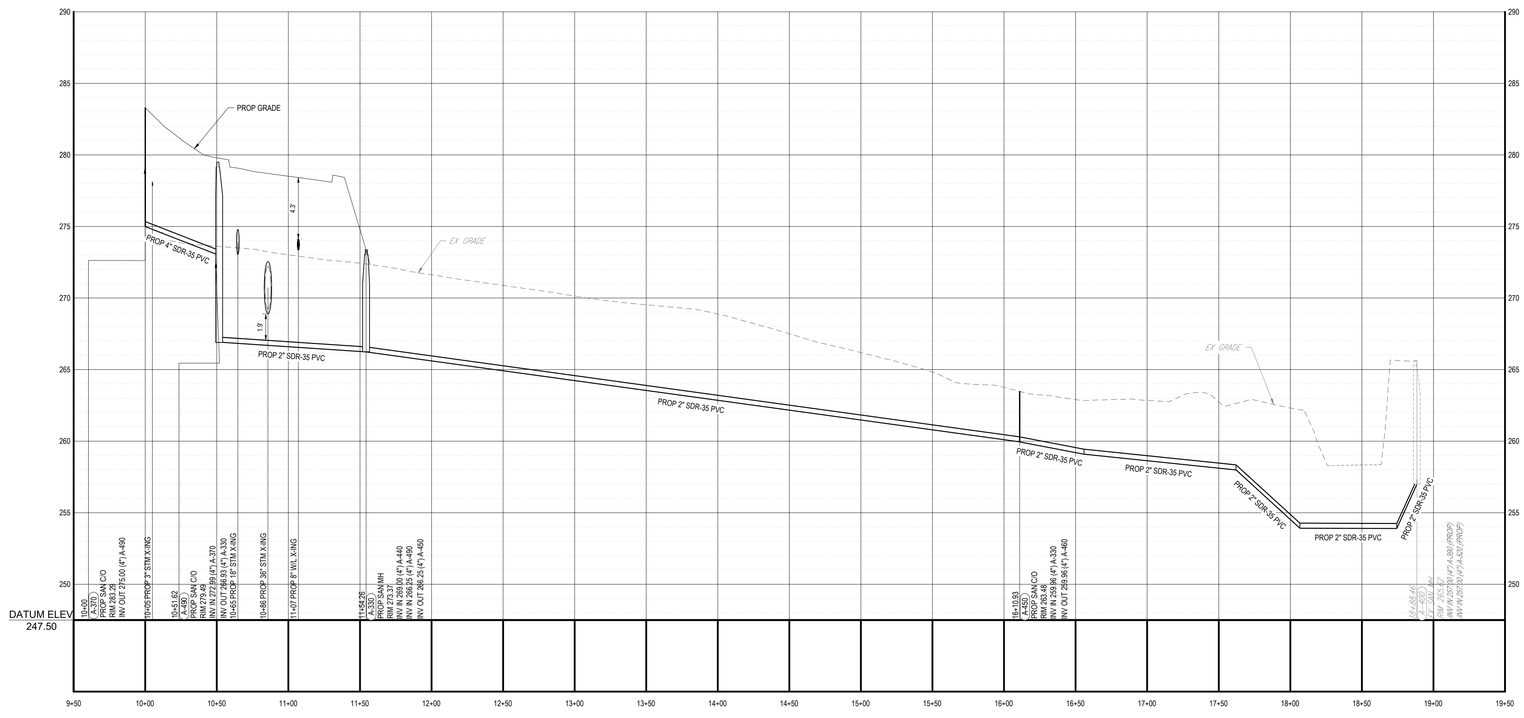


SAN 1

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

SAN 3

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



SAN 2

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

Jul 26, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SET\CIVIL SITE PLANS\P-CIVIL-PROF-PAC250095.00-1A----1A LAYOUT, C-601 SAN PRF

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-PROF

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD NEW BRITAIN TOWNSHIP BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — MATTHEW JOHN KEARSE — PROFESSIONAL

PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090569

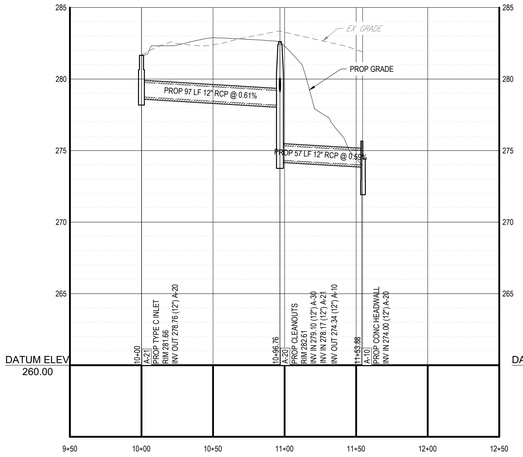
SHEET TITLE:

SANITARY PROFILES

SHEET NUMBER:

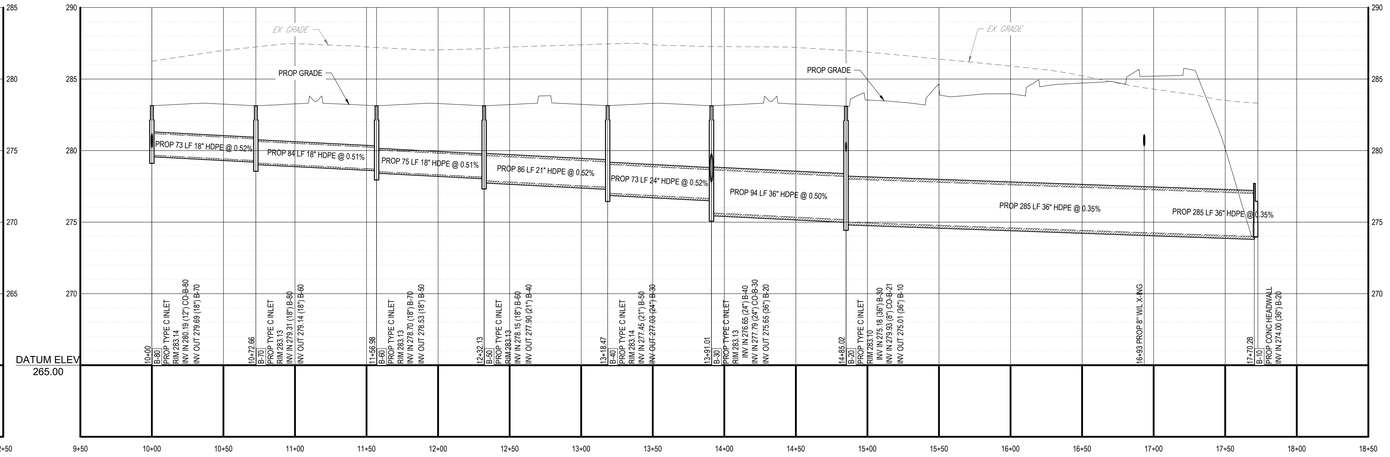
C-601
44 OF 102

REVISION 1 - 07/28/2026



PROPOSED STORMWATER PROFILE (A-10 - A-21)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORMWATER PROFILE (B-10 - B-80)

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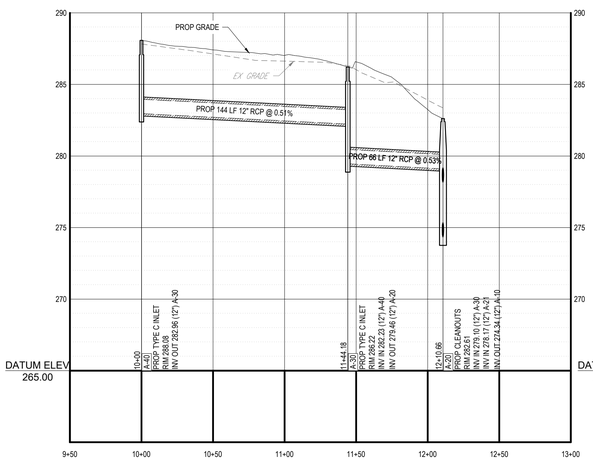
1"= 5 ' VERTICAL



PROPOSED STORMWATER PROFILE (A-20 - A-40)

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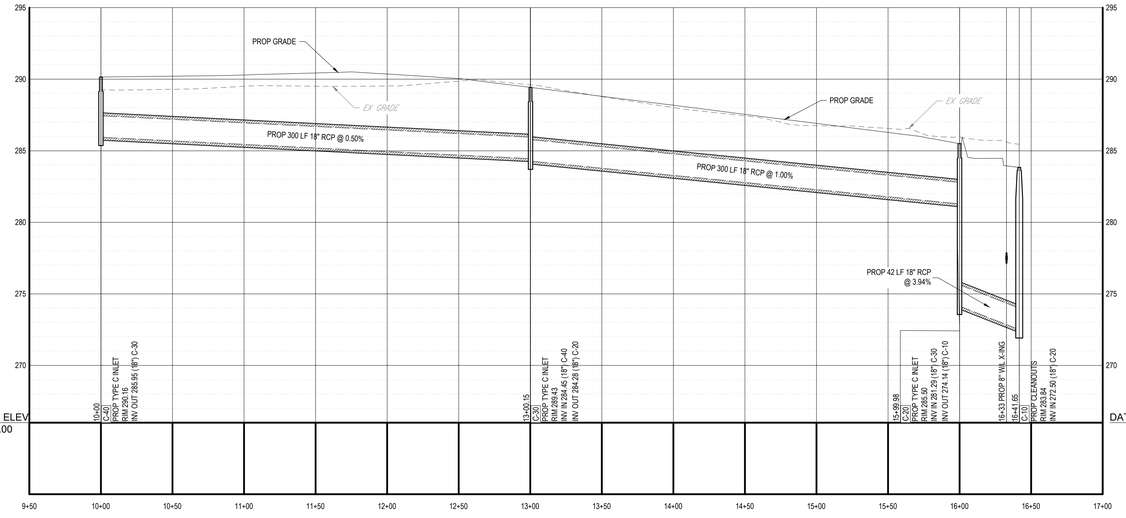
1"= 5 ' VERTICAL



PROPOSED STORMWATER PROFILE (C-10 - C-40)

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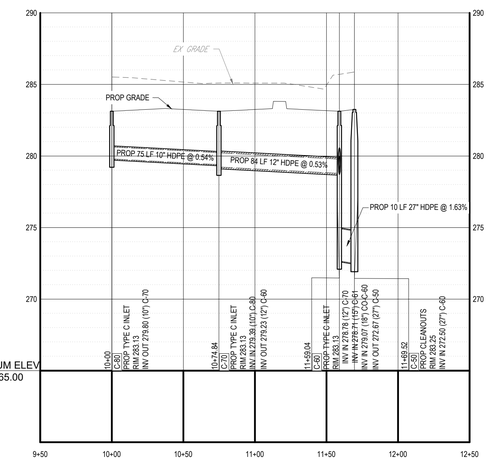
1"= 5 ' VERTICAL



PROPOSED STORMWATER PROFILE (C-50 - C-80)

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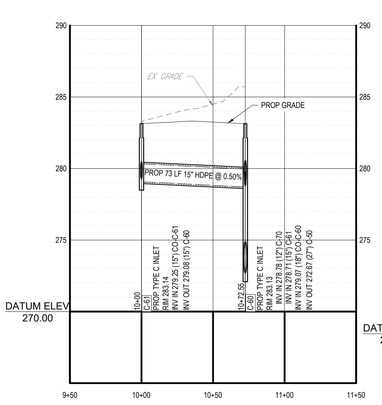
1"= 5 ' VERTICAL



PROPOSED STORMWATER PROFILE (C-60 - C-61)

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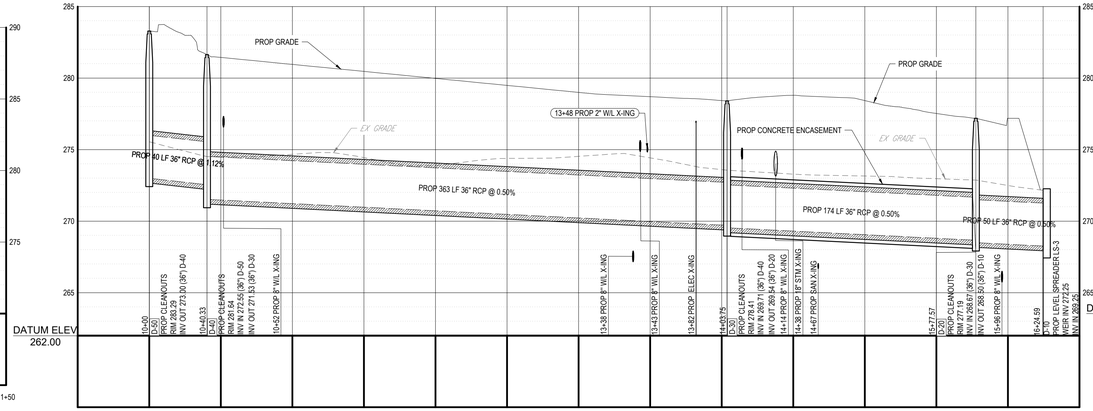
1"= 5 ' VERTICAL



PROPOSED STORMWATER PROFILE (D-10 - D-50)

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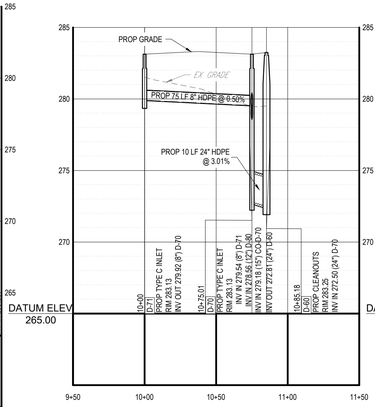
1"= 5 ' VERTICAL



PROPOSED STORMWATER PROFILE (D-60 - D-71)

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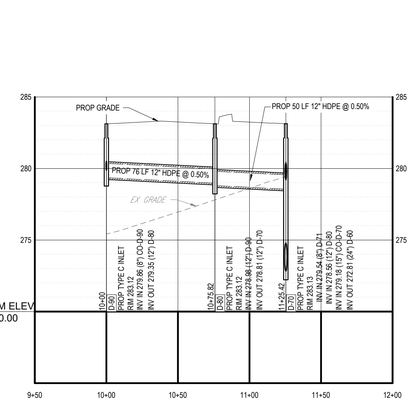
1"= 5 ' VERTICAL



PROPOSED STORMWATER PROFILE (D-70 - D-90)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
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REVISIONS

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HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

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1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

I HEREBY CERTIFY THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER IN THE COMMONWEALTH OF PENNSYLVANIA, AND THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY SUPERVISION AND DIRECTION.
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LIC. NUMBER PE090588

SHEET TITLE:

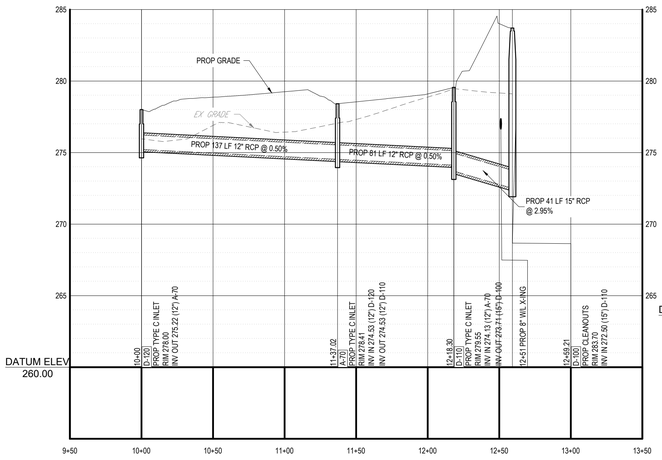
STORMWATER PROFILES

SHEET NUMBER:

C-602
45 OF 102

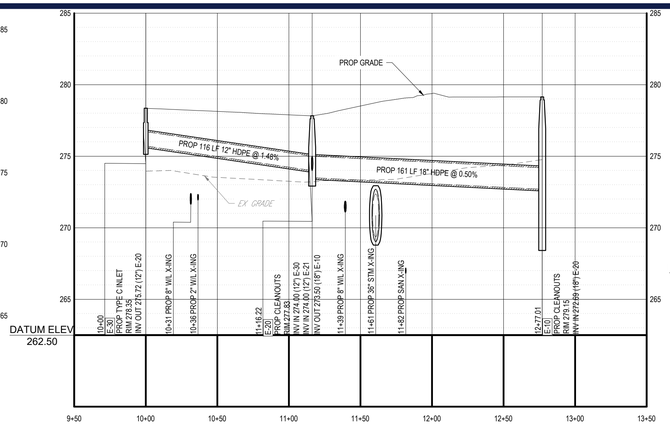
REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-PROF-PAC250095.00-1A-----LAYOUT: C-602 STMW PRF
JV



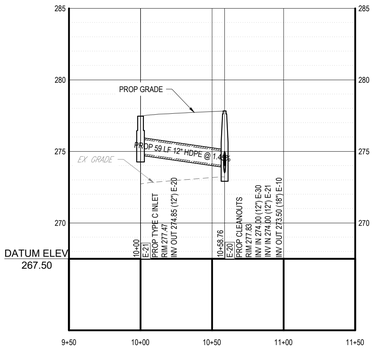
PROPOSED STORMWATER PROFILE (D-100 - D-120)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



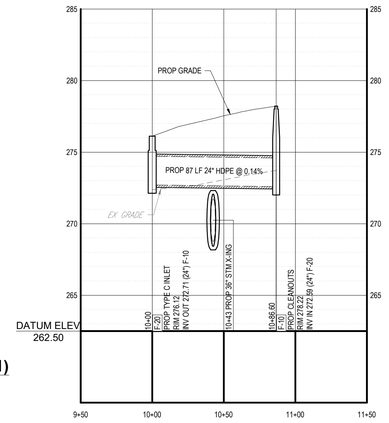
PROPOSED STORMWATER PROFILE (E-10 - E-30)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



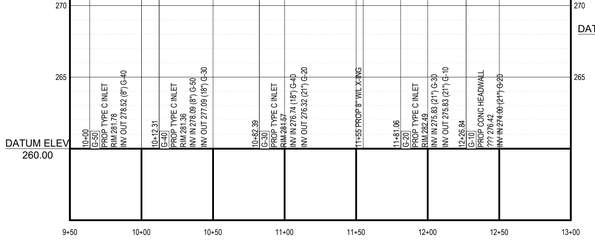
PROPOSED STORMWATER PROFILE (E-20 - E-21)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



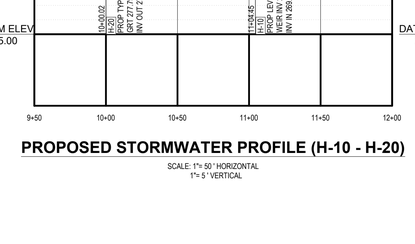
PROPOSED STORMWATER PROFILE (F-10 - F-20)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORMWATER PROFILE (G-10 - G-50)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORMWATER PROFILE (H-10 - H-20)

SCALE: 1"= 50 ' HORIZONTAL
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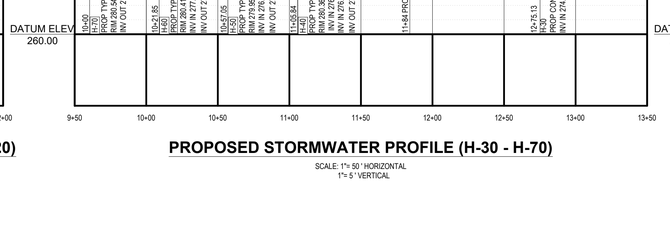
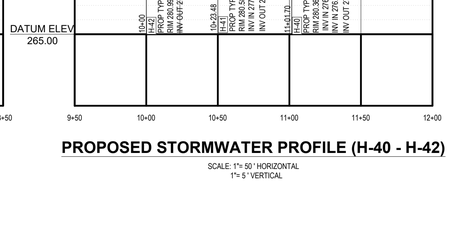


PROPOSED STORMWATER PROFILE (H-30 - H-70)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORMWATER PROFILE (H-40 - H-42)

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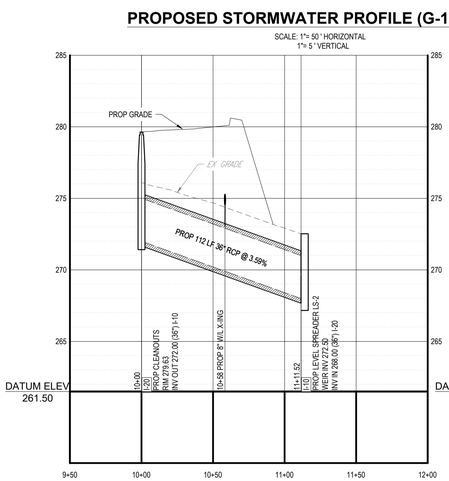
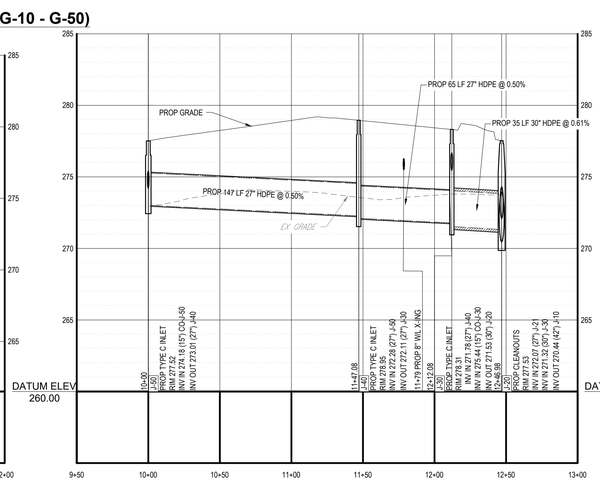
1"= 5 ' VERTICAL



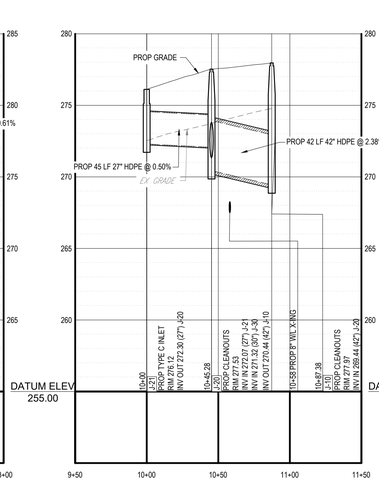
PROPOSED STORMWATER PROFILE (I-10 - I-20)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



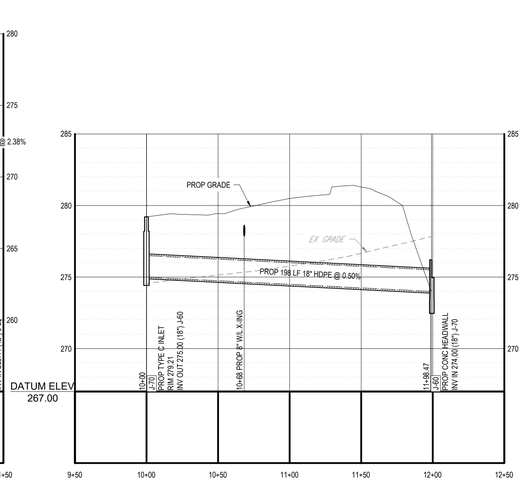
PROPOSED STORMWATER PROFILE (J-20 - J-50)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORMWATER PROFILE (J-10 - J-21)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORMWATER PROFILE (J-60 - J-70)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-PROF-PAC250095.00-1A.----\LAYOUT, C-603 STMW PRF
JW

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABILITY SERVICES
PERMITTING SERVICES
TRANSPORTATION SERVICES

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COMMONWEALTH OF PENNSYLVANIA
KEARSE
PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090388
ENNSYLVANIA

SHEET TITLE:

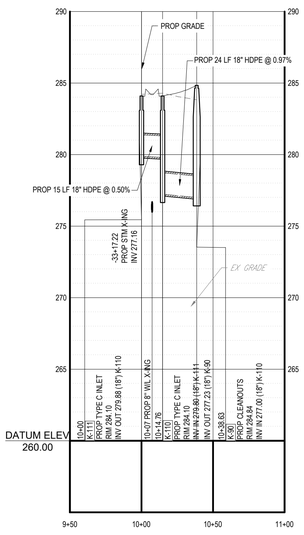
STORMWATER PROFILES

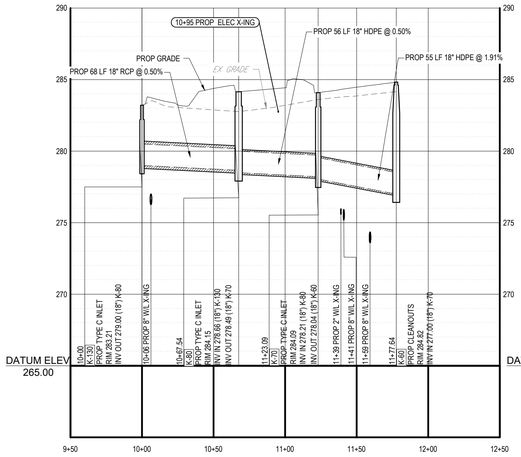
SHEET NUMBER:

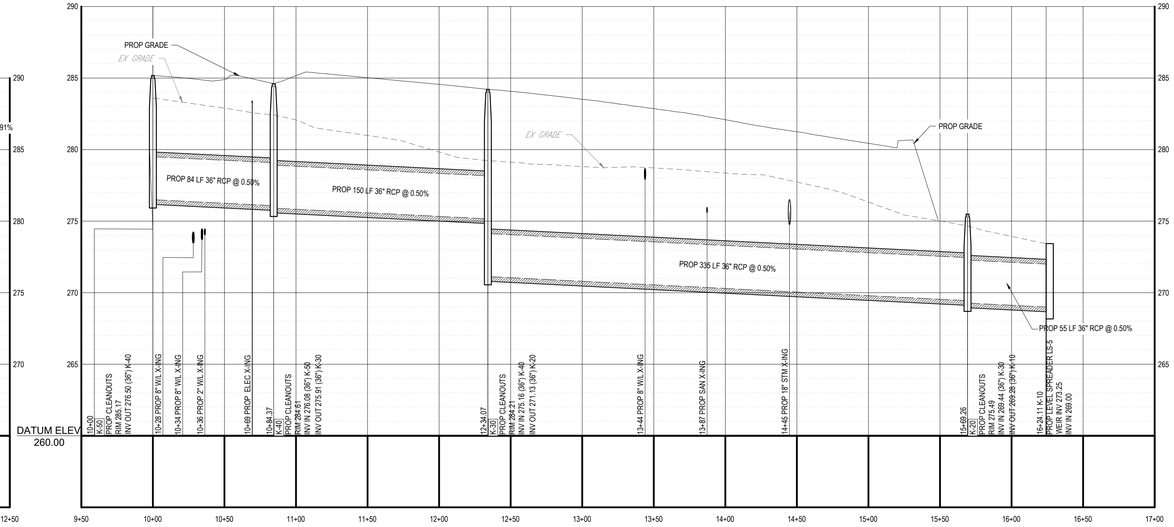
C-603

46 OF 102

REVISION 1 - 07/28/2026







PROPOSED STORMWATER PROFILE (K-90 - K-110)

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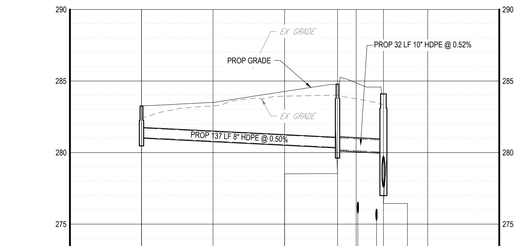

PROPOSED STORMWATER PROFILE (K-60 - K-130)

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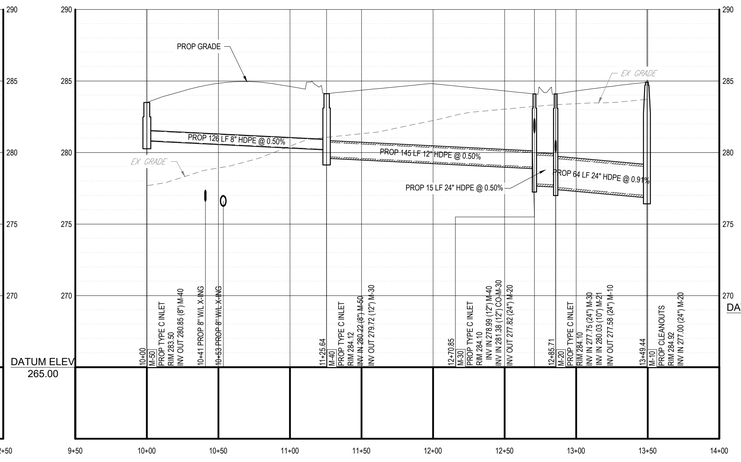
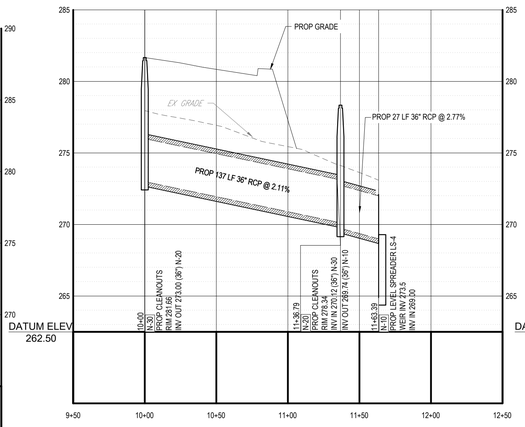
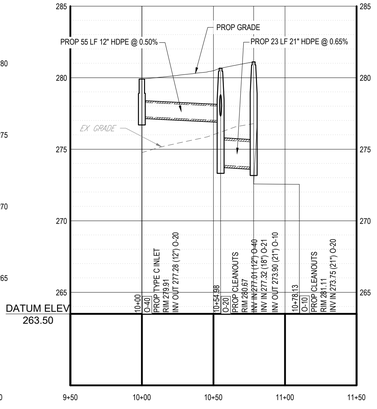
1"= 5 ' VERTICAL



PROPOSED STORMWATER PROFILE (K-10 - K-50)

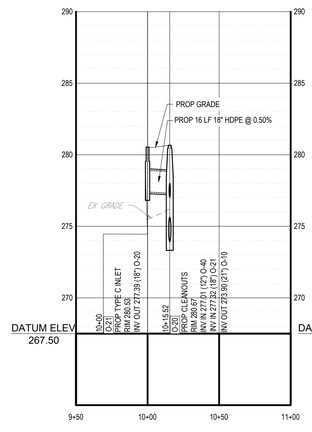
SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL





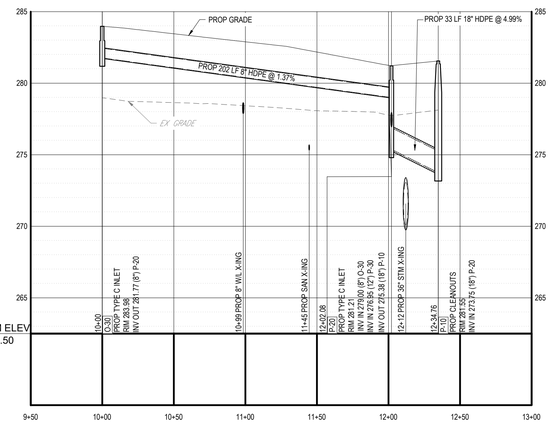
PROPOSED STORMWATER PROFILE (M-20 - M-22)

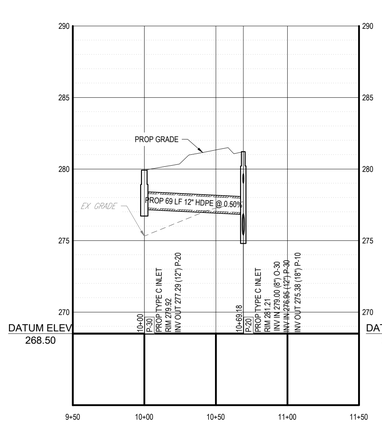
SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORMWATER PROFILE (M-10 - M-50)

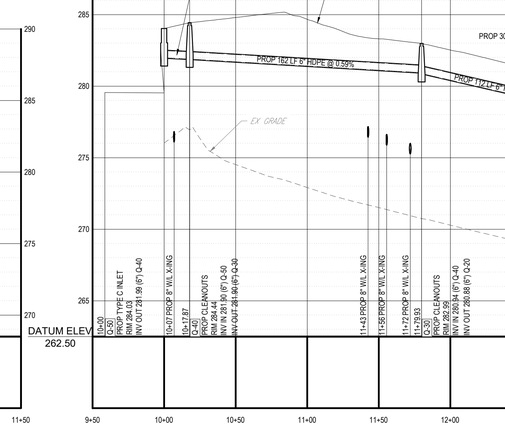
SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL





PROPOSED STORMWATER PROFILE (N-10 - N-30)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORMWATER PROFILE (O-10 - O-40)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

PROPOSED STORMWATER PROFILE (0-20 - O-21)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

PROPOSED STORMWATER PROFILE (P-10 - O-30)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

PROPOSED STORMWATER PROFILE (P-1P20 - P-30)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

PROPOSED STORMWATER PROFILE (Q-10 - Q-50)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABILITY DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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NOT APPROVED FOR CONSTRUCTION

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-PROF

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD NEW BRITAIN TOWNSHIP BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — KEARSE — PROFESSIONAL — MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090688

SHEET TITLE:

STORMWATER PROFILES

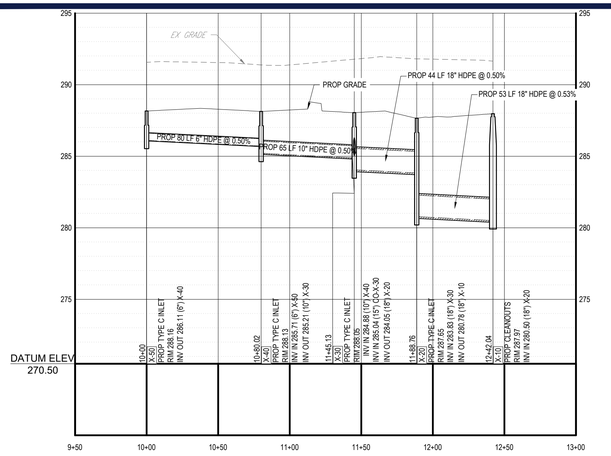
SHEET NUMBER:

C-604

47 OF 102

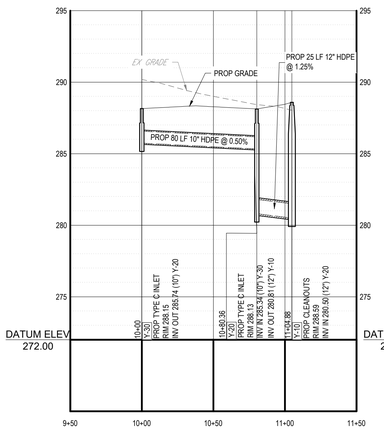
REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-PROF-PAC250095.00-1A.---\LAYOUT: C-604 STMW PRF
JV



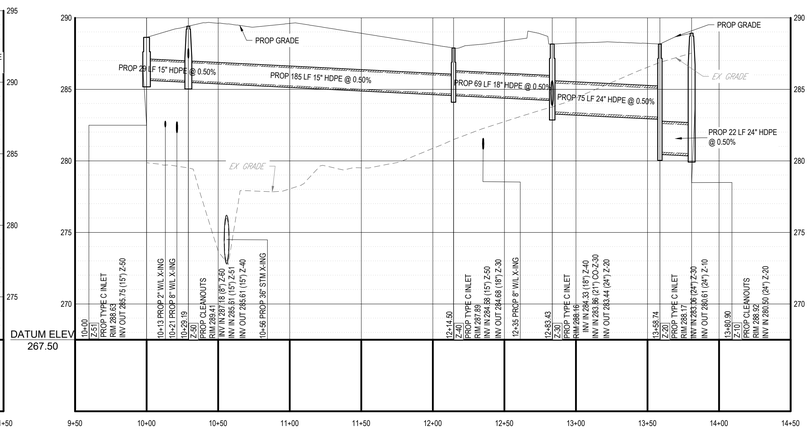
PROPOSED STORMWATER PROFILE (X-10 - X-50)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



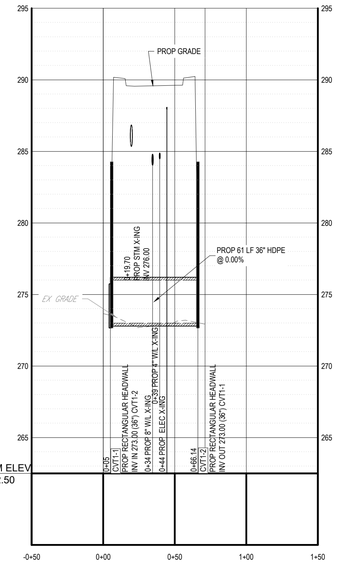
PROPOSED STORMWATER PROFILE (Y-10 - Y-30)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



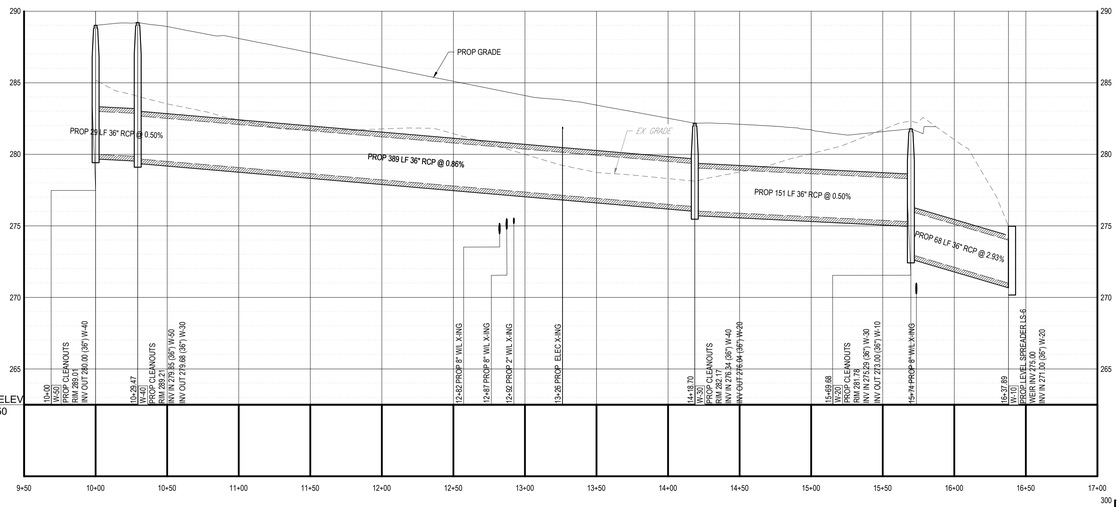
PROPOSED STORMWATER PROFILE (Z-10 - Z-51)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



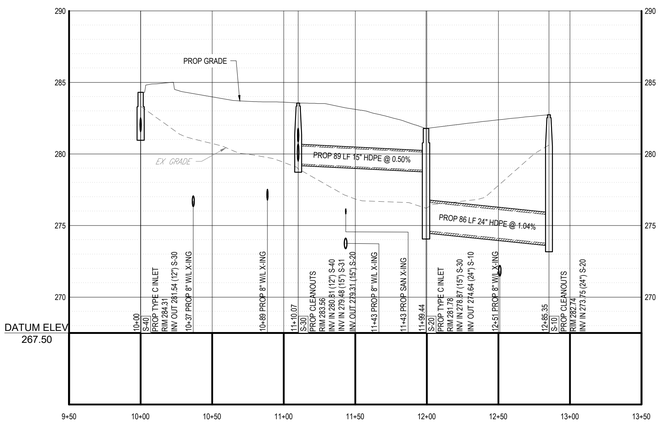
PROP CULVERT #1

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



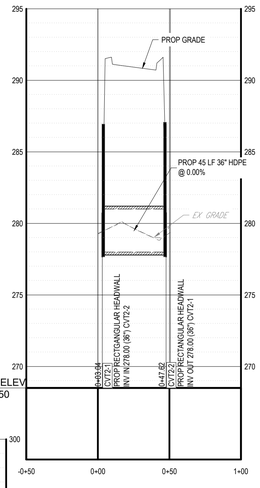
PROPOSED STORMWATER PROFILE (W-10 - W-50)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORMWATER PROFILE (S-10 - S-40)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROP CULVERT #2

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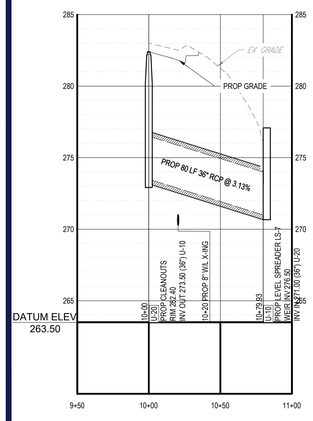
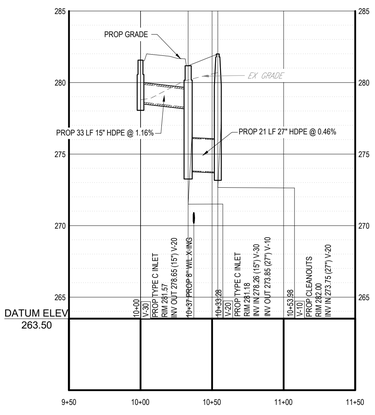
1"= 5 ' VERTICAL



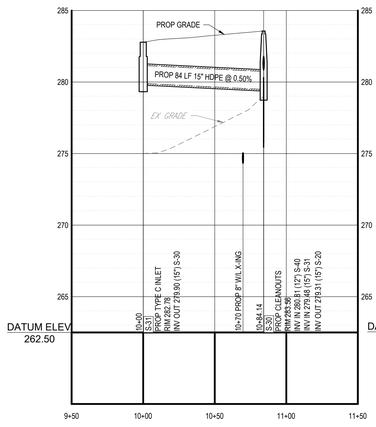
PROPOSED STORMWATER PROFILE (U-10 - U-20)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



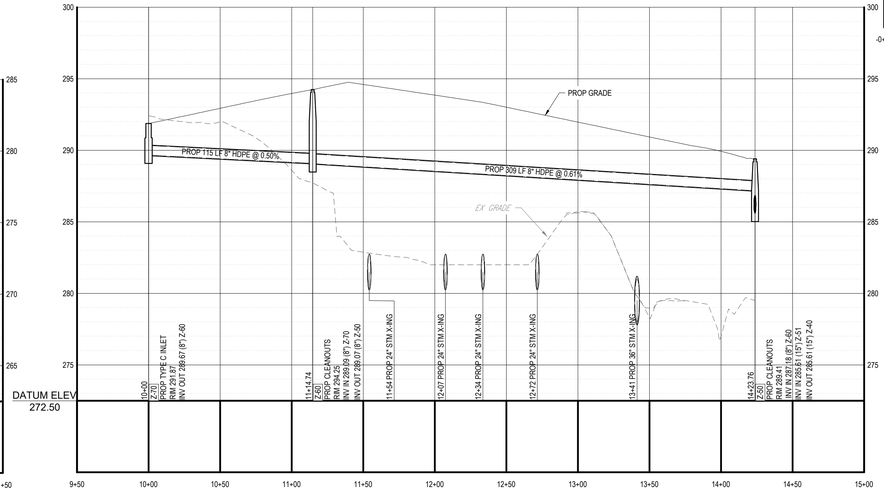
PROPOSED STORMWATER PROFILE (V-10 - V-30)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORMWATER PROFILE (S-30 - S-31)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORMWATER PROFILE (Z-50 - Z-70)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-PROF

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER

1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — PROFESSIONAL — MATTHEW JOHN KEARSE — PROFESSIONAL ENGINEER — PE084518 — NON-RESIDENTIAL — EXPIRES: 6/30/2026

SHEET TITLE:

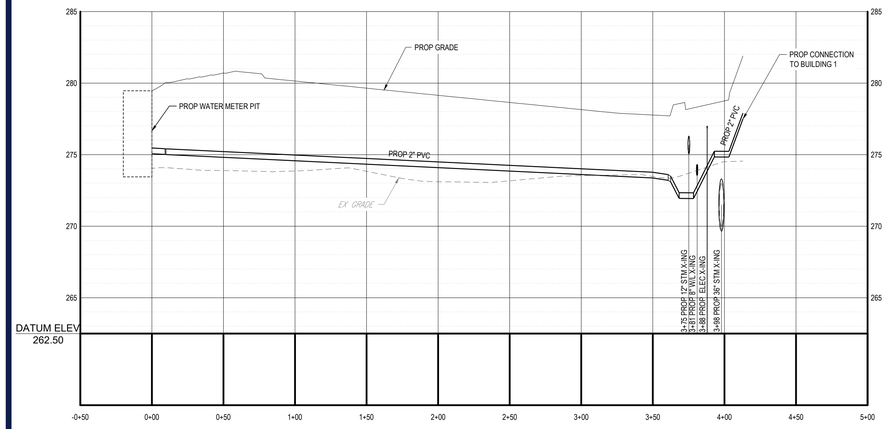
STORMWATER PROFILES

SHEET NUMBER:

C-605
48 OF 102

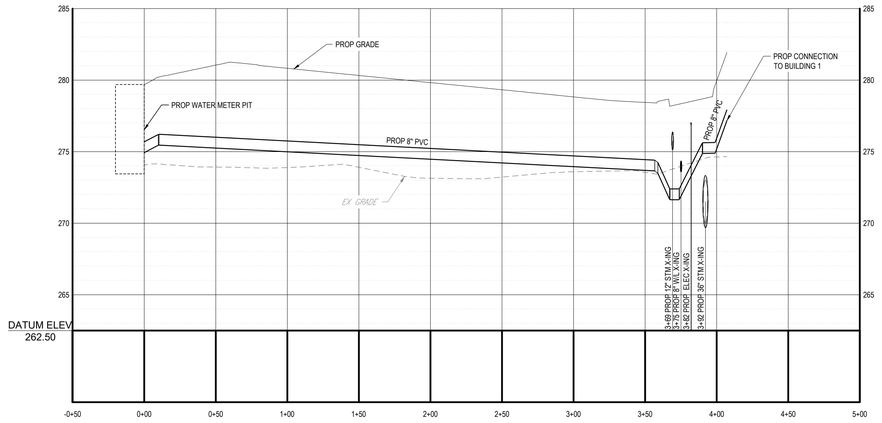
REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\RAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-PROF-PAC250095.00-1A-----LAYOUT: C-605 STMW PRF



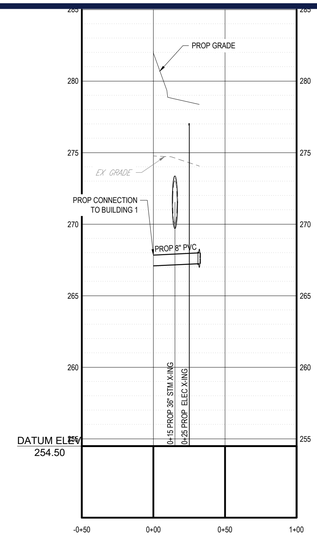
PROPOSED DOMESTIC WATER LINE PROFILE (BUILDING 1)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



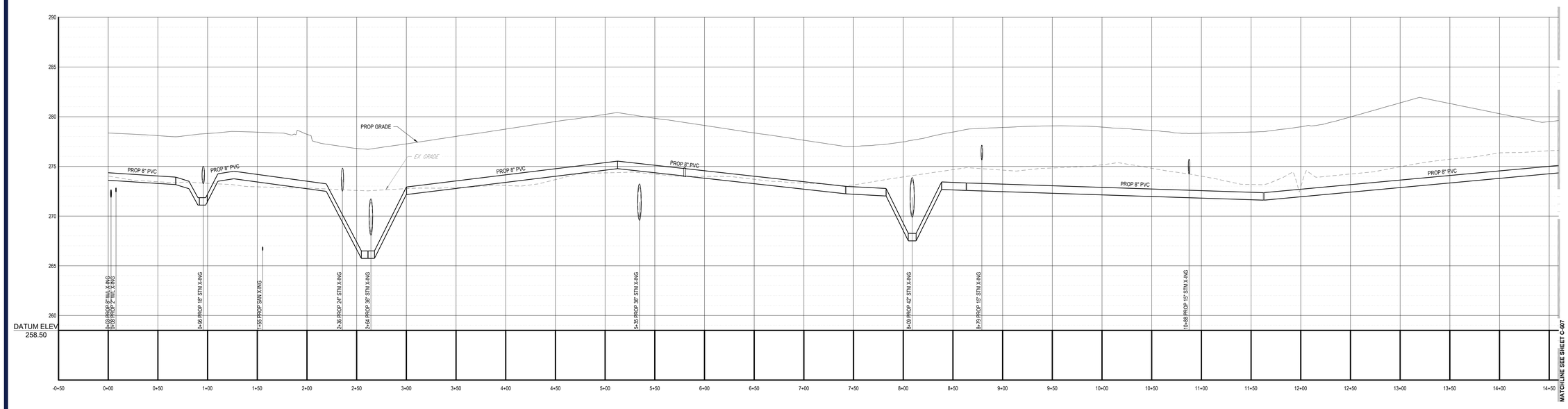
PROPOSED FIRE SERVICE WATER PROFILE (BUILDING 1)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED FIRE LOOP WATER PROFILE (BUILDING 1)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED FIRE LOOP WATER PROFILE (BUILDING 1- REAR)

STA: 0+00 TO 14+50.00

SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL

BOHLER

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-PROF

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER

1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — KEARSE — PROFESSIONAL — MATTHEW JOHN KEARSE

PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090688

SHEET TITLE:

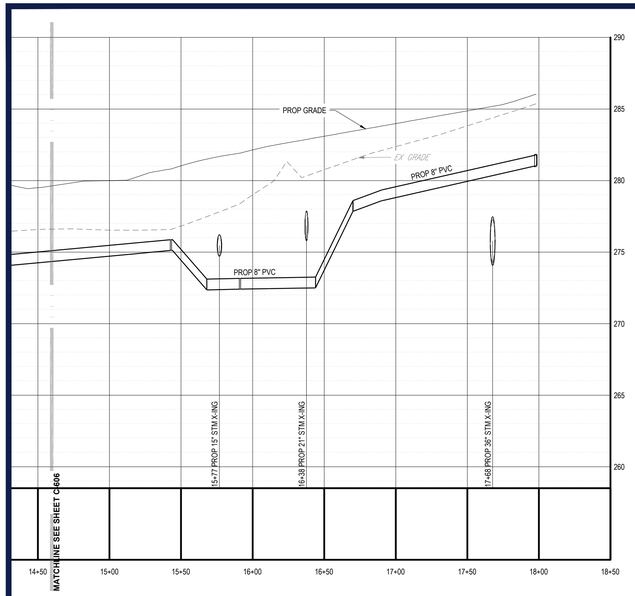
WATER PROFILES

SHEET NUMBER:

C-606
49 OF 102

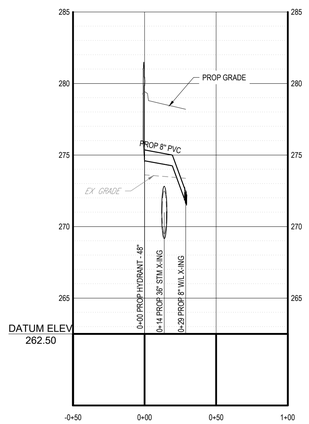
REVISION 1 - 07/28/2026

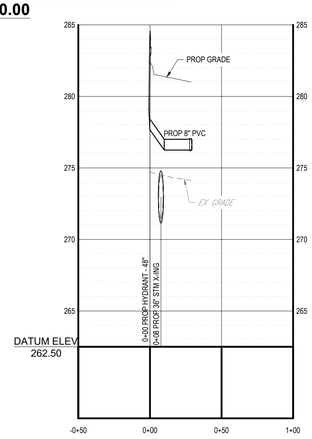
Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-PROF-PAC250095.00-1A---1A LAYOUT, C-606 WTR PRF



PROPOSED FIRE LOOP WATER PROFILE (BUILDING 1- REAR)
STA: 14+50 TO 18+50.00

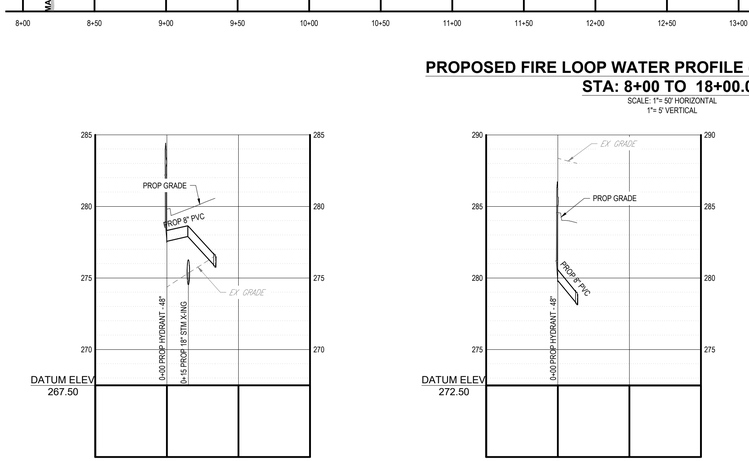
SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL

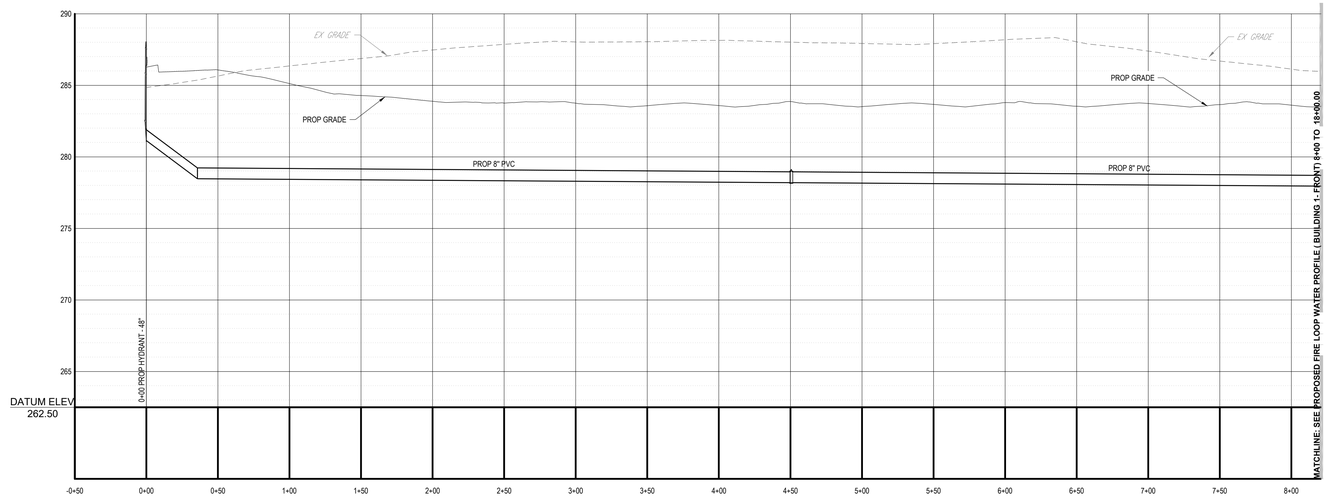




PROPOSED HYDRANT PROFILE 7 (BUILDING 1)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



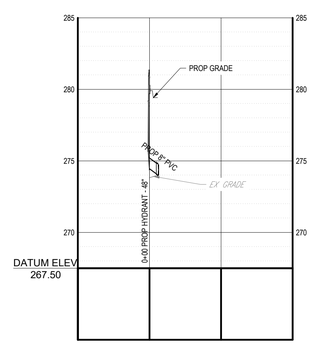


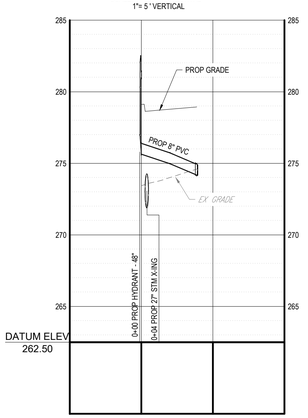
PROPOSED FIRE LOOP WATER PROFILE (BUILDING 1- FRONT)
STA: -0+50 TO 8+00.00

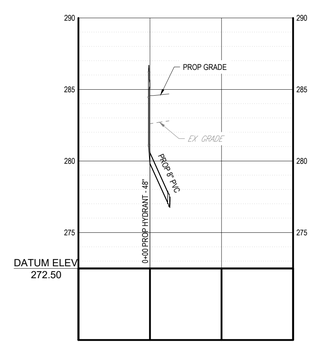
SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL

PROPOSED HYDRANT PROFILE 1 (BUILDING 1)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL







PROPOSED HYDRANY PROFILE 2 (BUILDING 1)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

PROPOSED HYDRANT PROFILE 3 (BUILDING 1)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

PROPOSED HYDRANT PROFILE 4 (BUILDING 1)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

PROPOSED HYDRANT PROFILE 5 (BUILDING 1)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

PROPOSED HYDRANT PROFILE 6 (BUILDING 1)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVIL-PROF

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD NEW BRITAIN TOWNSHIP BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE088358

SHEET TITLE:

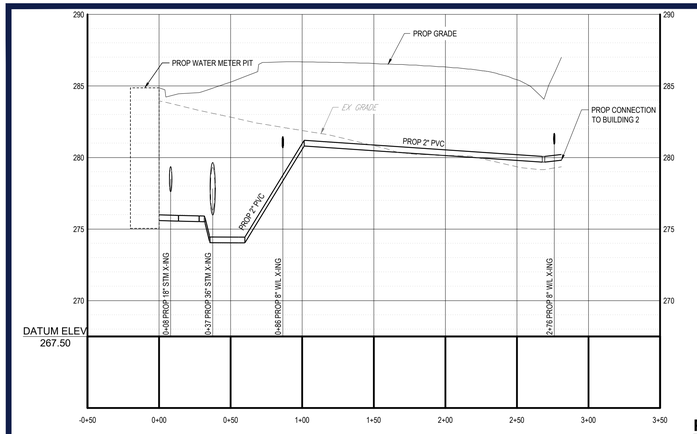
WATER PROFILES

SHEET NUMBER:

C-607
50 OF 102

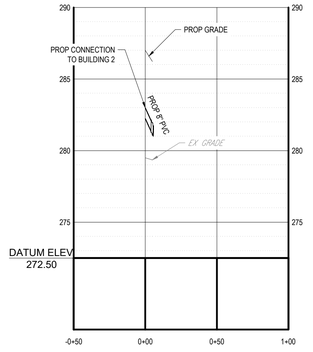
REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-PROF-PAC250095.00-1A----LAYOUT: C-607 WTR PRF
JV



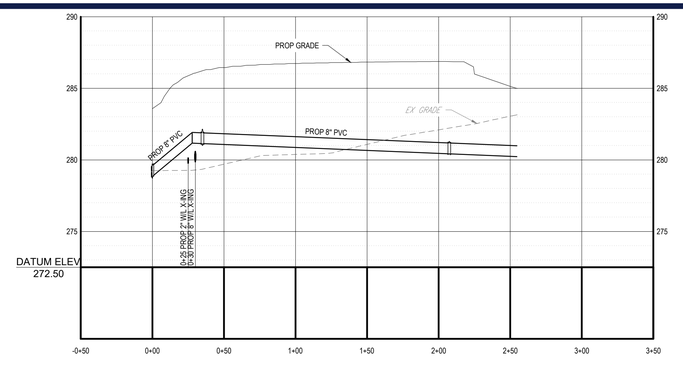
PROPOSED DOMESTIC WATER LINE PROFILE (BUILDING 2)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



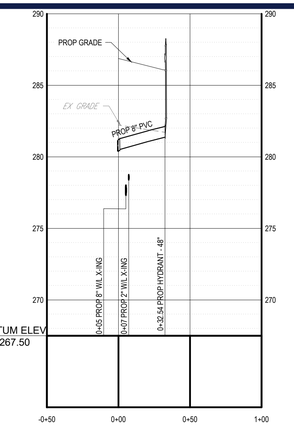
PROPOSED FIRE LOOP WATER LINE PROFILE (BUILDING 2)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



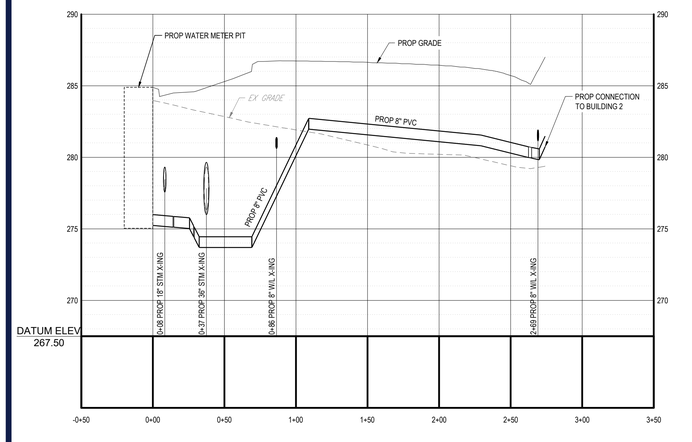
PROPOSED FIRE LOOP WATER LINE PROFILE (BUILDING 2- NORTH SIDE)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



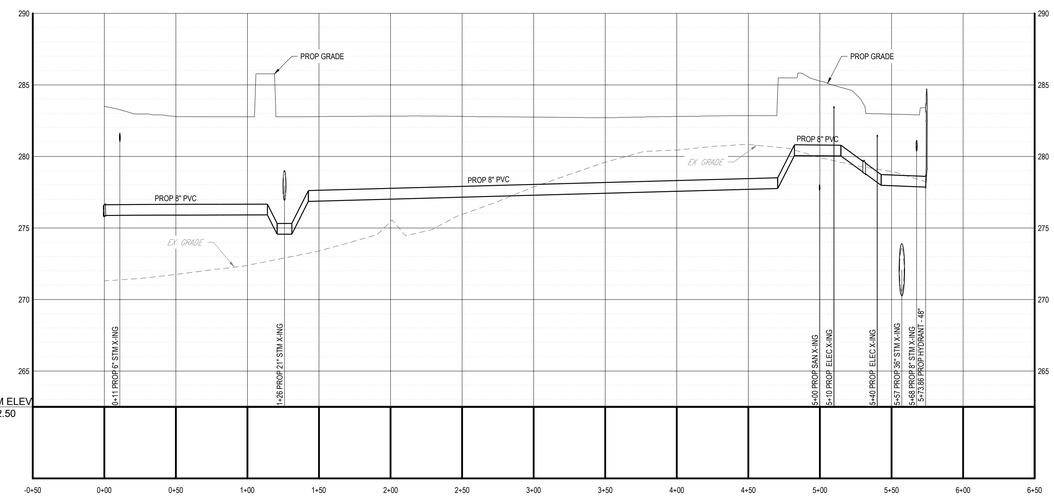
PROPOSED HYDRANT PROFILE 1 (BUILDING 2)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



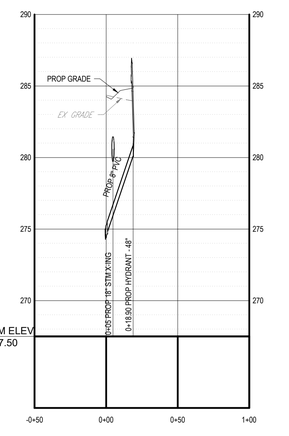
PROPOSED FIRE SERVICE WATER LINE (BUILDING 2)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



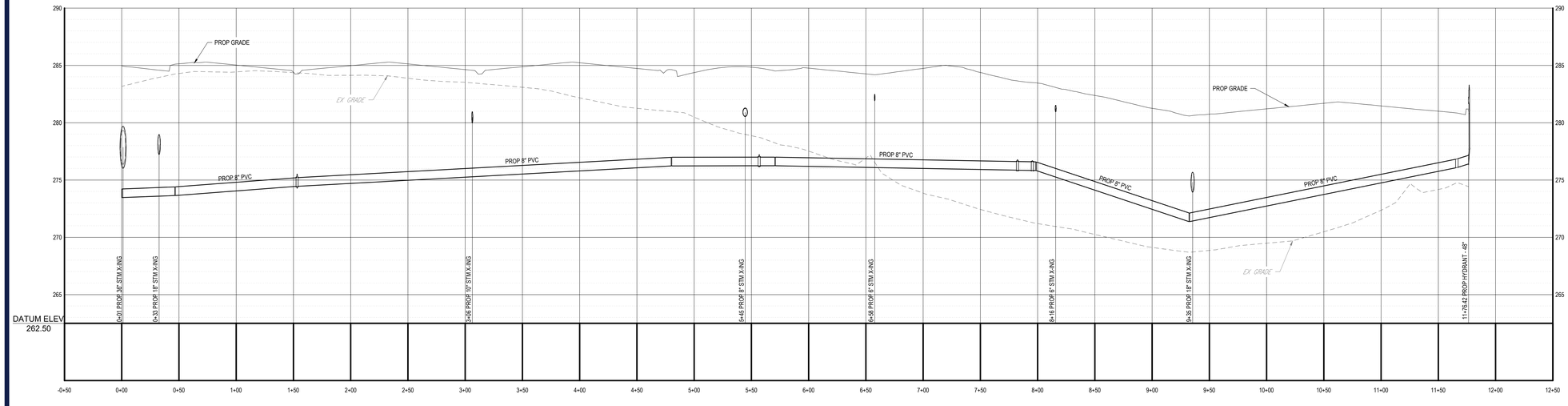
PROPOSED FIRE LOOP WATER LINE PROFILE (BUILDING 2-REAR)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED HYDRANT PROFILE 2 (BUILDING 2)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED FIRE LOOP WATER LINE PROFILE (BUILDING 2 - FRONT-REAR)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

Jul 26, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-PROF-PAC250095.00-1A---1A LAYOUT, C-608 WTR PRF

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REV	DATE	COMMENT	DRAWN BY / CHECKED BY
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PROJECT No.: PAC250095.00-1A
DRAWN BY: PAB
CHECKED BY: RDE
DATE: 04/06/2026
CAD I.D.: P-CIVL-PROF

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — LICENSE — PROFESSIONAL — MATTHEW JOHN KEARSE

PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090488

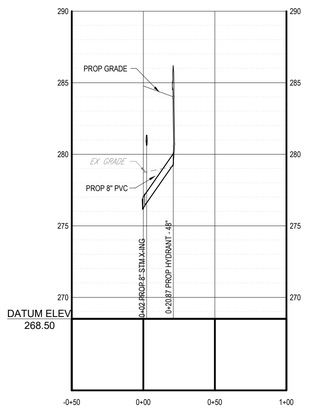
SHEET TITLE:

WATER PROFILES

SHEET NUMBER:

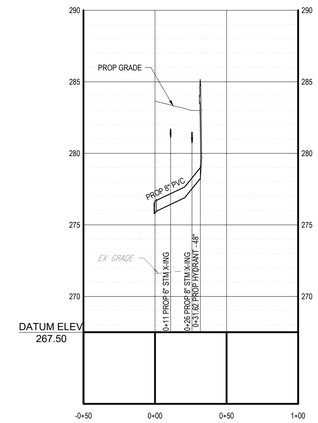
C-608
51 OF 102

REVISION 1 - 07/28/2026



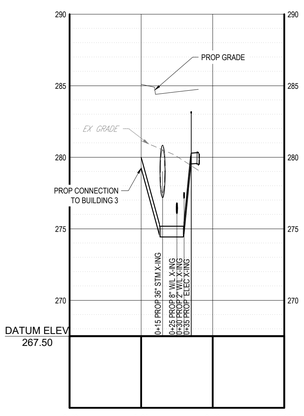
PROPOSED HYDRANT PROFILE 3 (BUILDING 2)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



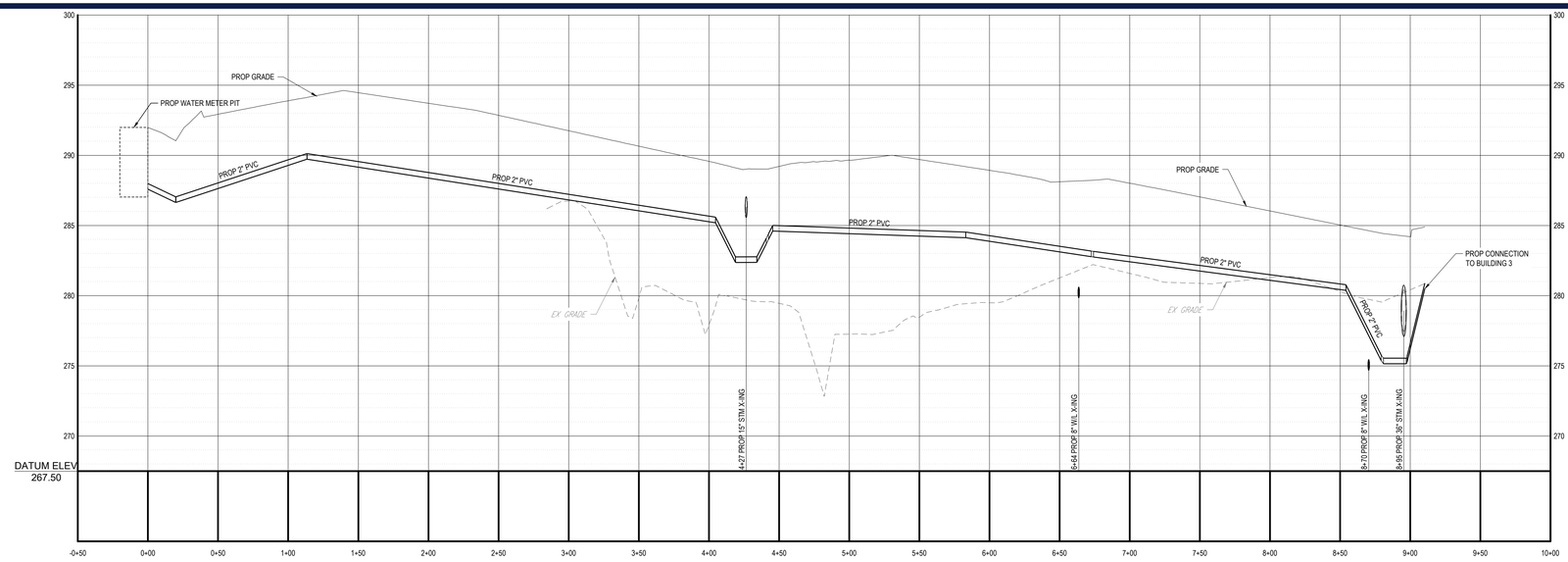
PROPOSED HYDRANT PROFILE 4 (BUILDING 2)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



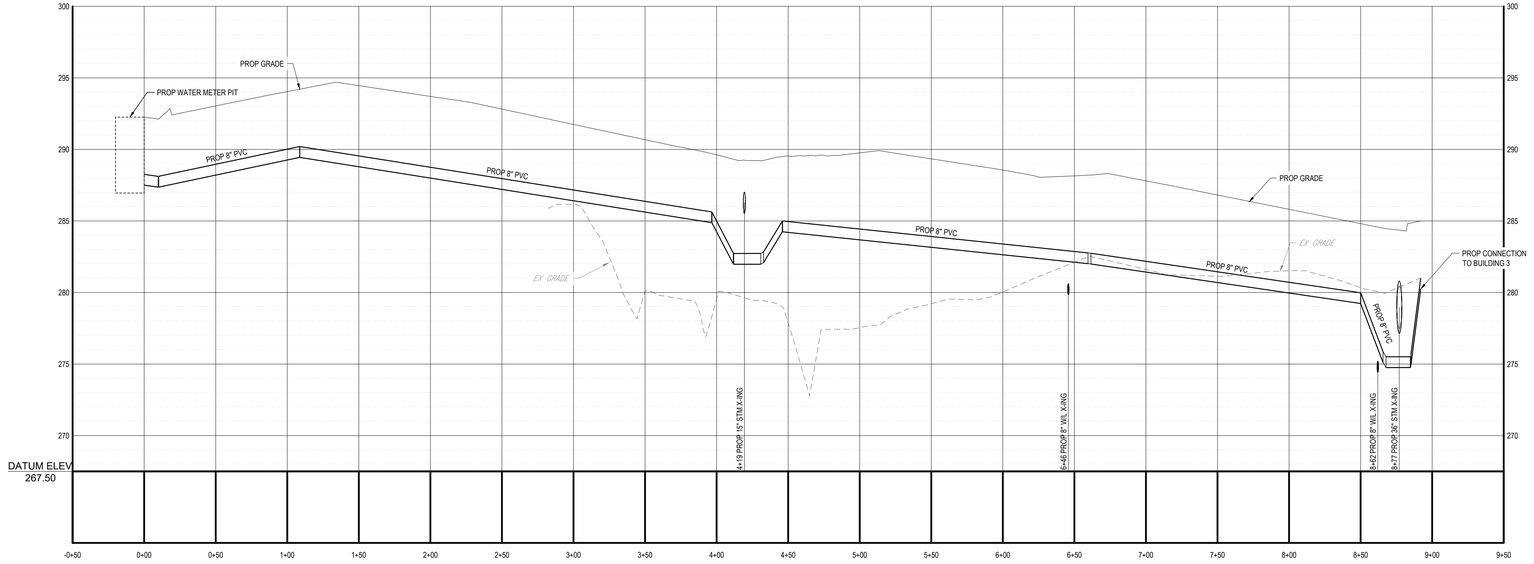
PROPOSED FIRE LOOP WATER LINE PROFILE (BUILDING 3)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED DOMESTIC WATER LINE PROFILE (BUILDING 3)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED FIRE SESRVICE WATER PROFILE (BUILDING 3)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVIL-PROF

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

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1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PE084703 | LICENSE | Expires: 09/30/2026

SHEET TITLE:

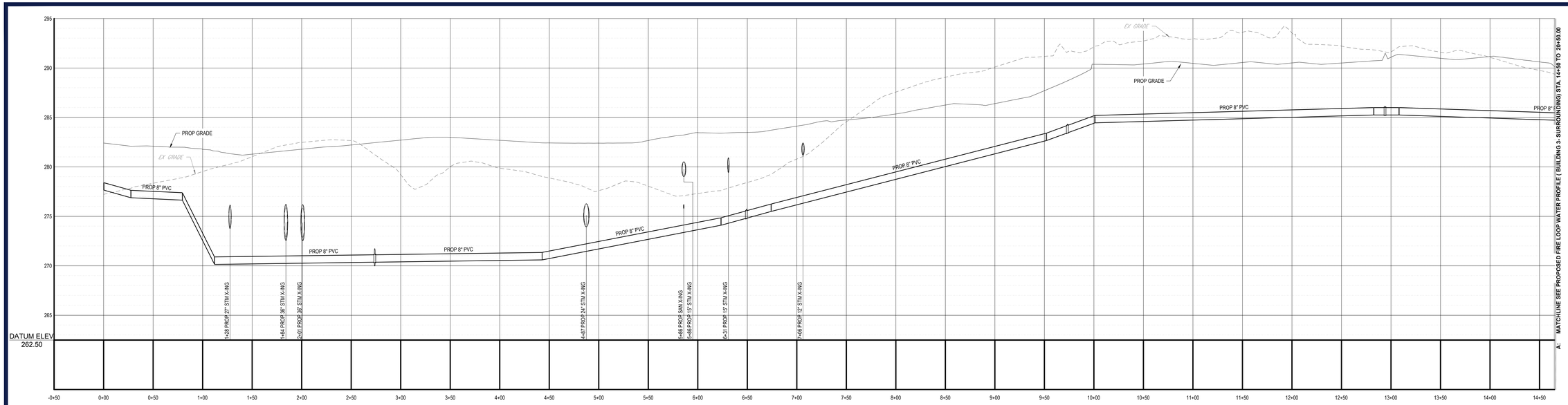
WATER PROFILES

SHEET NUMBER:

C-609
52 OF 102

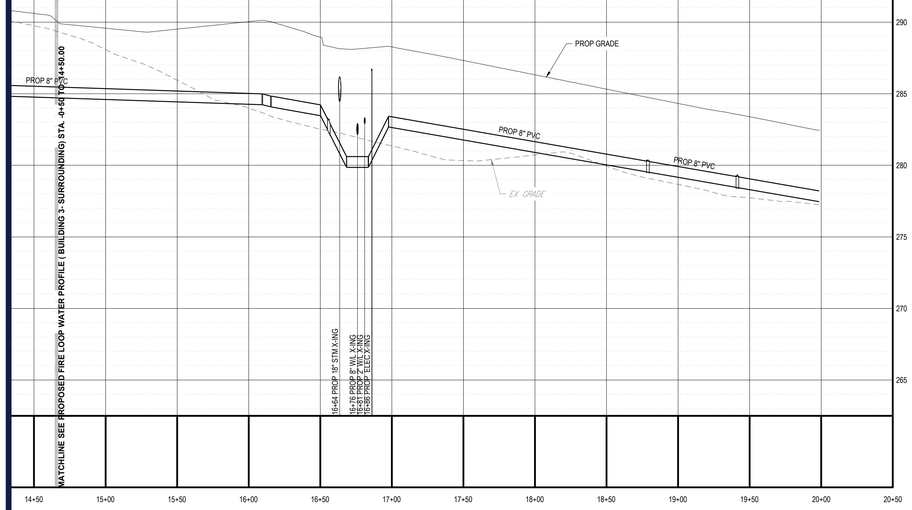
REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-PROF-PAC250095.00-1A.----:\LAYOUT: C-609 WTR PRF
JV



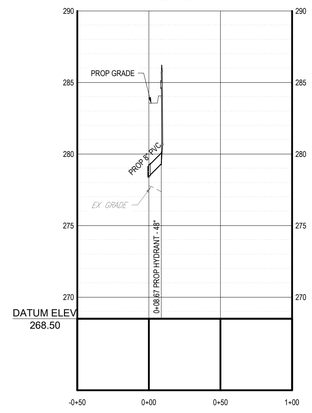
PROPOSED FIRE LOOP WATER PROFILE (BUILDING 3- SURROUNDING)
STA: -0+50 TO 14+50.00

SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL



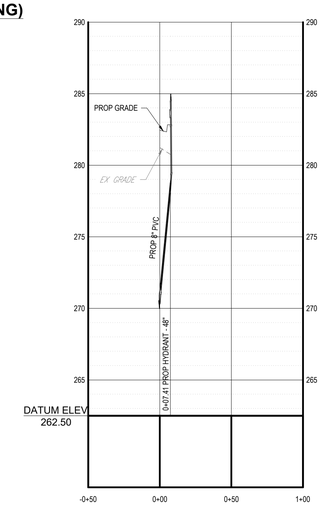
PROPOSED FIRE LOOP WATER PROFILE (BUILDING 3- SURROUNDING)
STA: 14+50 TO 20+50.00

SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL



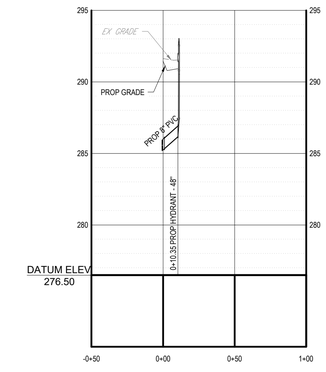
PROPOSED FIRE HYDRANT PROFILE 1 (BUILDING 3)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



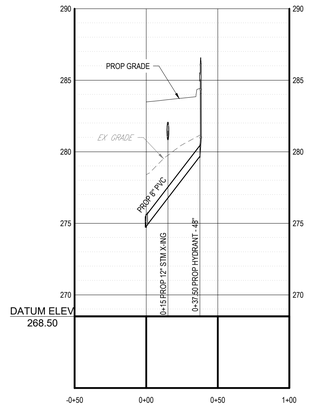
PROPOSED FIRE HYDRANT PROFILE 2 (BUILDING 3)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



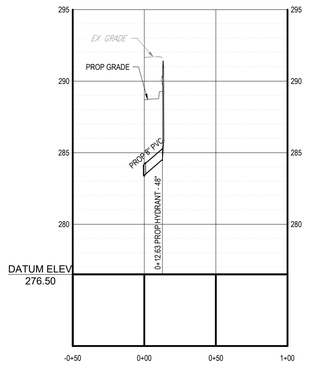
PROPOSED FIRE HYDRANT PROFILE 5 (BUILDING 3)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



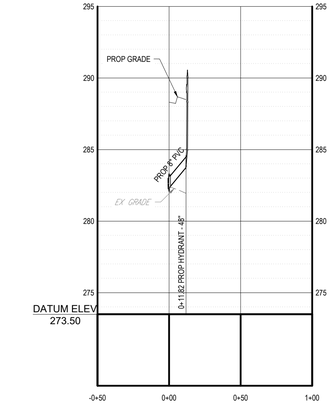
PROPOSED FIRE HYDRANT PROFILE 3 (BUILDING 3)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED FIRE HYDRANT PROFILE 4 (BUILDING 3)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED FIRE HYDRANT PROFILE 6 (BUILDING 3)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

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PROJECT No.: PAC250095.00-1A
DRAWN BY: PAB
CHECKED BY: RDE
DATE: 04/06/2026
CAD I.D.: P-CIVL-PROF

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

M. KEARSE

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — MATTHEW JOHN KEARSE — PROFESSIONAL ENGINEER — PENNSYLVANIA NO. 090568

SHEET TITLE:

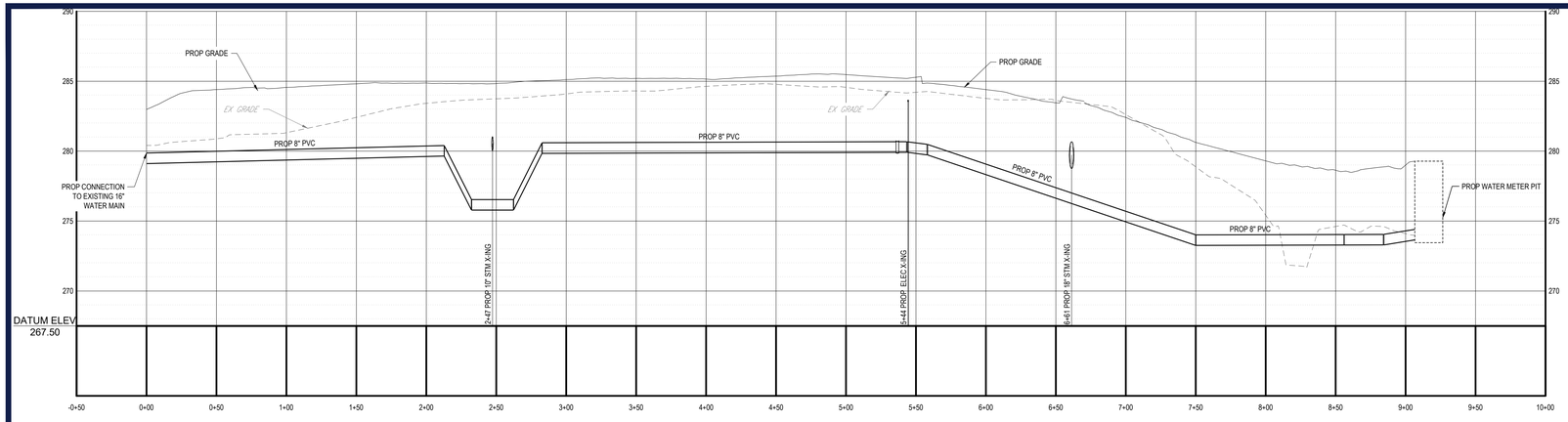
WATER PROFILES

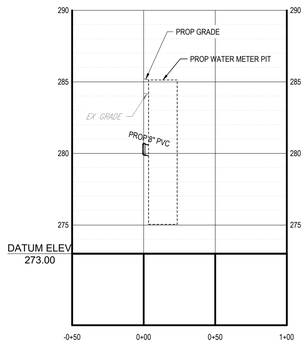
SHEET NUMBER:

C-610
53 OF 102

REVISION 1 - 07/28/2026

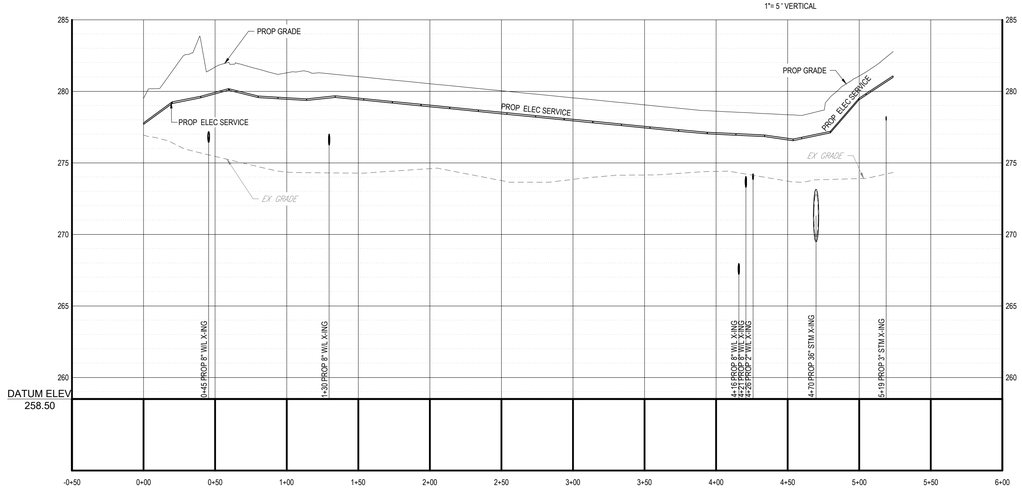
Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\RAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-PROF-PAC250095.00-1A-----LAYOUT: C-610 WTR PRF
JV





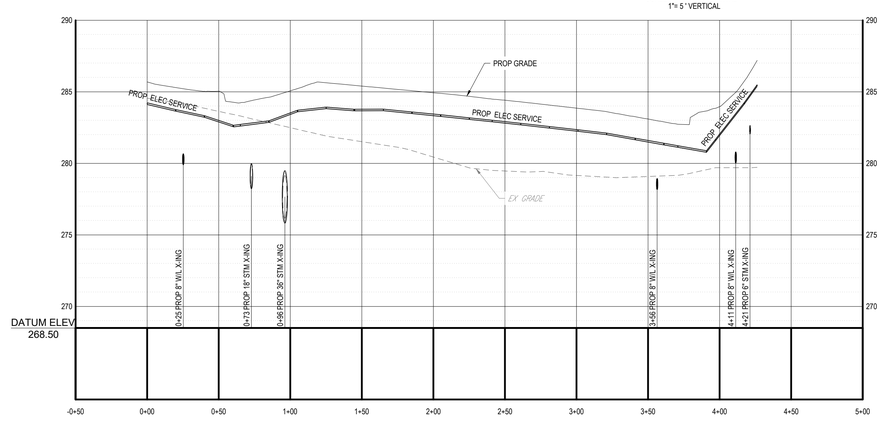
PROPOSED WATER MAIN EXTENSION PROFILE (WALNUT)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED WATER MAIN EXTENSION PROFILE (WALNUT TO VAULT)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

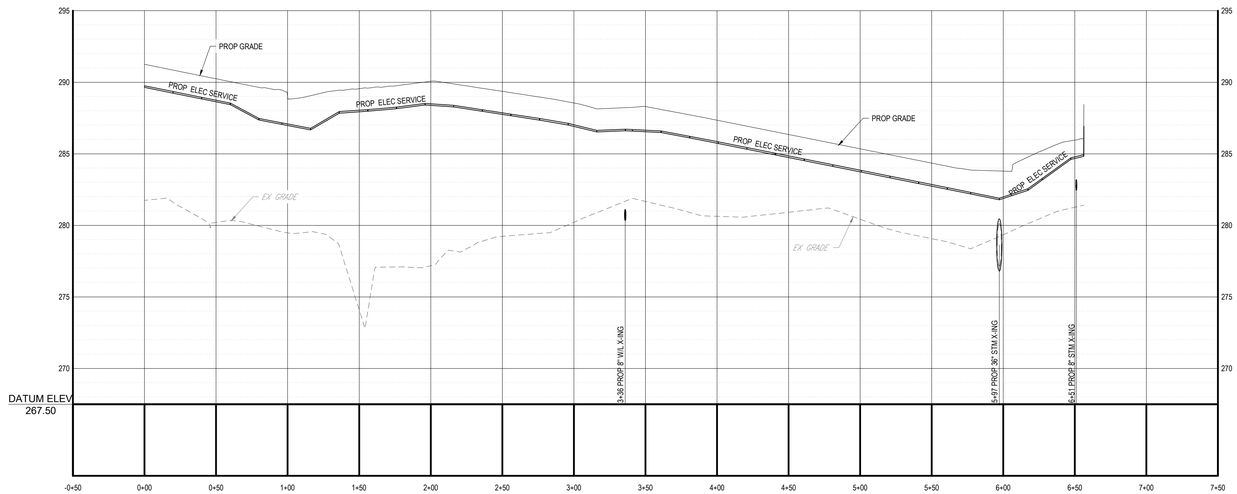


PROPOSED ELECTRIC PROFILE (BUILDING 1)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

PROPOSED ELECTRIC PROFILE (BUILDING 2)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED ELECTRIC PROFILE (BUILDING 3)

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

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FOR
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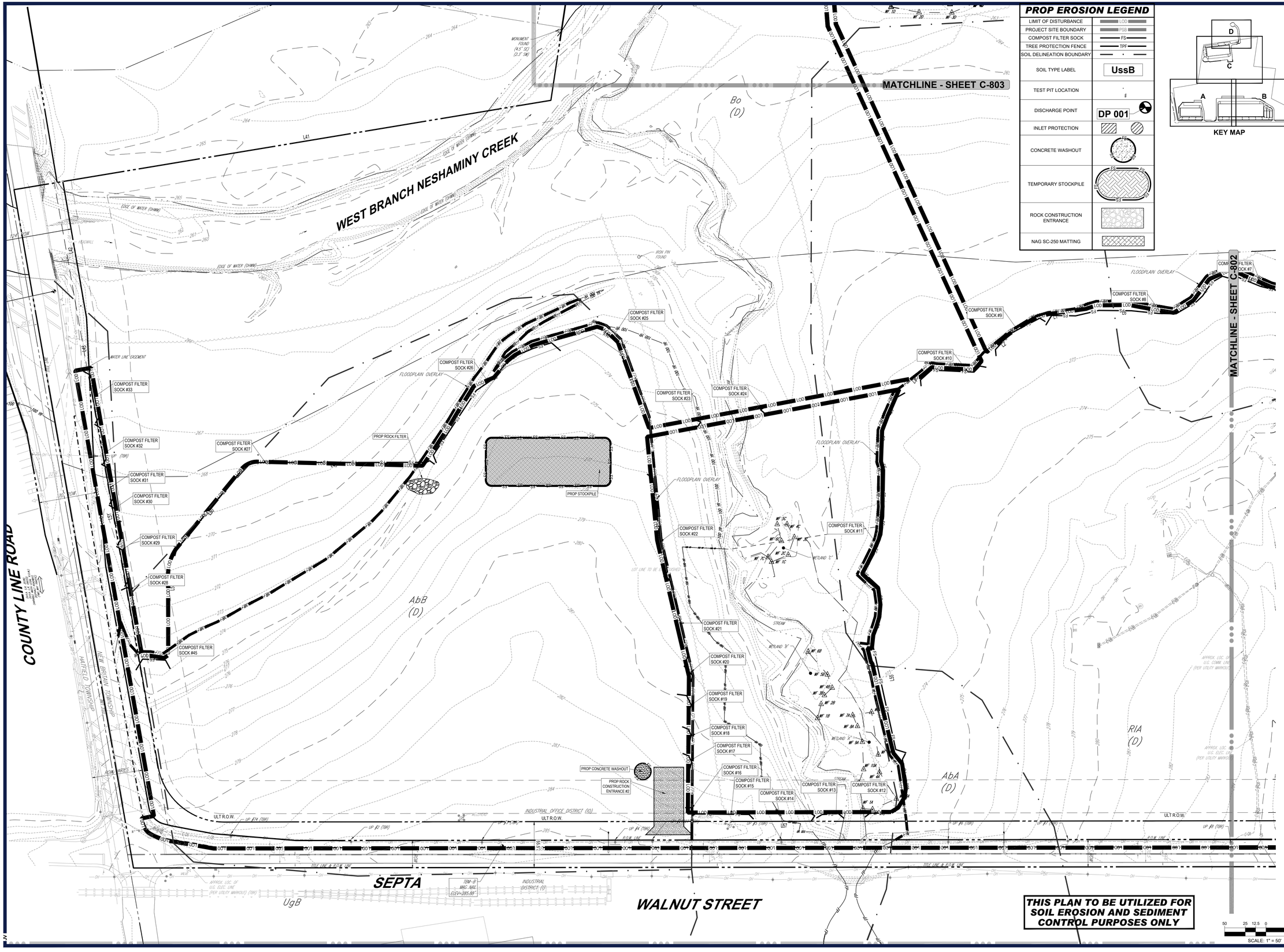
COMMONWEALTH OF PENNSYLVANIA
MATTHEW JOHN KEARSE
PROFESSIONAL
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090588

SHEET TITLE:
WATER AND ELECTRIC PROFILES

SHEET NUMBER:
C-611
54 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-PROF-PAC250095.00-1A-----1A LAYOUT, C-611 WTR PRF



PROP EROSION LEGEND

LIMIT OF DISTURBANCE	LOD
PROJECT SITE BOUNDARY	PSB
COMPOST FILTER SOCK	FS
TREE PROTECTION FENCE	TPF
SOIL DELINEATION BOUNDARY	
SOIL TYPE LABEL	UssB
TEST PIT LOCATION	#
DISCHARGE POINT	DP 001
INLET PROTECTION	
CONCRETE WASHOUT	
TEMPORARY STOCKPILE	
ROCK CONSTRUCTION ENTRANCE	
NAG SC-250 MATTING	

KEY MAP

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SITE CIVIL AND CONSULTING ENGINEERING
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ATTENTION ALL CONTRACTORS. LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREIN HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 50 OF 2017, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. WWW.PA1CALL.ORG

NOT APPROVED FOR CONSTRUCTION

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-SESC

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS
FOR
HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

LICENSE
COMMONWEALTH OF PENNSYLVANIA
PROFESSIONAL
MATTHEW JOHN KRARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE 092688
COMMONWEALTH OF PENNSYLVANIA

SHEET TITLE:
INITIAL EROSION & SEDIMENT CONTROL PLAN A

SHEET NUMBER:
C-801
55 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SET\CIVIL SITE PLANS\P-CIVL-SESC-PAC250095.00-1A-----LAYOUT, C-801 EROS1 A
JW

WEST BRANCH NESHAMINY CREEK

MATCHLINE - SHEET C-803

SEWAGE AUTHORITY UTILITY RIGHT-OF-WAY

NORTH PENN WATER AUTHORITY EASEMENT (PER INST. #2017100063)

SANITARY SEWER EASEMENT

EXISTING 462.5 LF 10" PVC SANITARY SEWER @ 0.50% SLOPE (PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)

EXISTING 267.17 LF 10" PVC SANITARY SEWER @ 0.50% SLOPE (PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)

EDGE OF WATER (CHAN)

MONUMENT FOUND

INDUSTRIAL OFFICE DISTRICT (ID)

SINGLE FAMILY RESIDENTIAL 2 DISTRICT (SFR-2)

ULTIMATE R.O.W. LINE

AbA (D)

AbB (p)

Ro (C)

ReB (C)

RIA (D)

RIB (D)

COMPOST FILTER SOCK #5

COMPOST FILTER SOCK #6

COMPOST FILTER SOCK #7

PROP ROCK FILTER

COMPOST FILTER SOCK #4

COMPOST FILTER SOCK #3

COMPOST FILTER SOCK #1

COMPOST FILTER SOCK #2

PROP FILTER SOCK DIVERSION

FLOODPLAIN OVERLAY

PROP SPILLWAY LINING

ENERGY DISSIPATOR

PROP 30" RCP

PROP OUTLET STRUCTURE

PROP STOCKPILE

PROP EROSION CONTROL MATTING

SKIMMER ATTACHED TO PERMANENT RISER

PROP SEDIMENT BASIN

155' BAFFLE

104' BAFFLE

108' BAFFLE

107' BAFFLE

104' BAFFLE

PROP CLEAN OUT STAKE

PROP FLOW PATH

PROP STAGING AREA

PROP CONCRETE WASHOUT

PROP ROCK CONSTRUCTION ENTRANCE #1

SCHOOLHOUSE ROAD

ULT R.O.W.

ROW LINE

TITLE LINE & ROW LINE

INDUSTRIAL DISTRICT (I)

SEPTA

WALNUT STREET

(57' WIDE R.O.W.) (DEPRESSED CENTER) (TWO WAY TRAFFIC)

MATCHLINE - SHEET C-801

TBM-C MAG NAIL ELEV=277.84'

D

C

A

B

KEY MAP

THIS PLAN TO BE UTILIZED FOR SOIL EROSION AND SEDIMENT CONTROL PURPOSES ONLY

PROP EROSION LEGEND

LIMIT OF DISTURBANCE	LOD
PROJECT SITE BOUNDARY	PSB
COMPOST FILTER SOCK	FS
TREE PROTECTION FENCE	TPF
SOIL DELINEATION BOUNDARY	
SOIL TYPE LABEL	UssB
TEST PIT LOCATION	T-#
DISCHARGE POINT	DP 001
INLET PROTECTION	
CONCRETE WASHOUT	CW
TEMPORARY STOCKPILE	SP
ROCK CONSTRUCTION ENTRANCE	
NAG SC-250 MATTING	

50 25 12.5 0 50

SCALE: 1" = 50'

Jul 29, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-SESC-PAC250095.00-1A---LAYOUT C-802 EROS1 B
JV

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LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
LAND DEVELOPMENT DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

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CHECKED BY: RDE
DATE: 04/06/2026
CAD I.D.: P-CIVL-SESC

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD NEW BRITAIN TOWNSHIP BUCKS COUNTY, PA

BOHLER™

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PHILADELPHIA, PA 19102
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Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — MATTHEW JOHN KEARSE — PROFESSIONAL ENGINEER — PROFESSIONAL LICENSE — PENNSYLVANIA

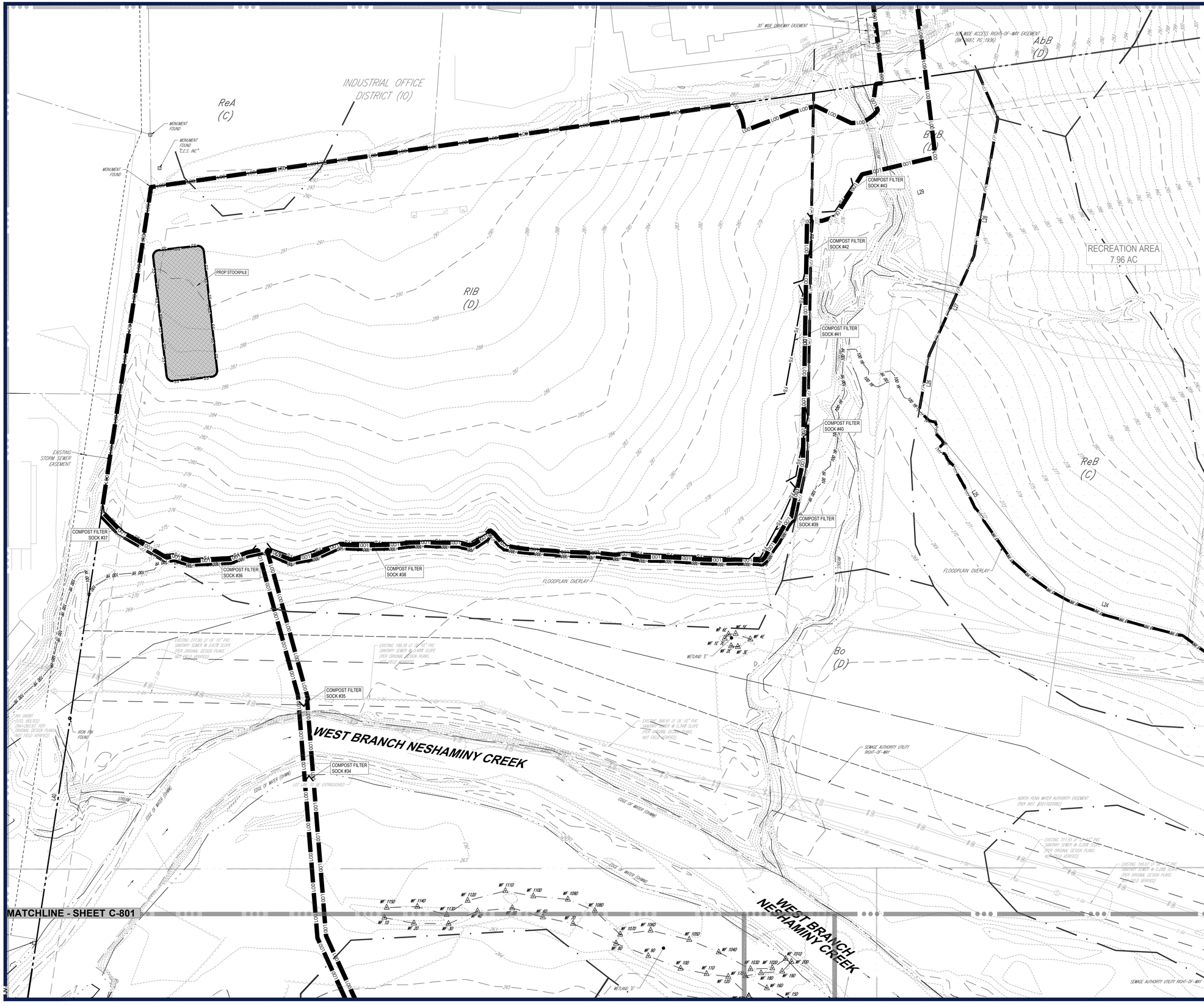
SHEET TITLE:

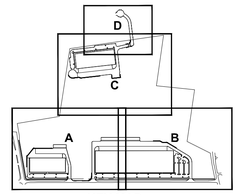
INITIAL EROSION & SEDIMENT CONTROL PLAN B

SHEET NUMBER:

C-802
56 OF 102

REVISION 1 - 07/28/2026





KEY MAP

THIS PLAN TO BE UTILIZED FOR SOIL EROSION AND SEDIMENT CONTROL PURPOSES ONLY

PROP EROSION LEGEND

LIMIT OF DISTURBANCE	LOD
PROJECT SITE BOUNDARY	PSB
COMPOST FILTER SOCK	FS
TREE PROTECTION FENCE	TPF
SOIL DELINEATION BOUNDARY	
SOIL TYPE LABEL	UssB
TEST PIT LOCATION	T-#
DISCHARGE POINT	DP 001
INLET PROTECTION	
CONCRETE WASHOUT	CW FS
TEMPORARY STOCKPILE	FS FS FS FS
ROCK CONSTRUCTION ENTRANCE	
NAG SC-250 MATTING	

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SITE CIVIL AND CONSULTING ENGINEERING
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REVISIONS

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CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-SESC

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

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NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

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PHILADELPHIA, PA 19102
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Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — MATTHEW JOHN KEARSE — PROFESSIONAL ENGINEER — PENNSYLVANIA LICENSE NO. PE088388 — COMMONWEALTH OF PENNSYLVANIA

SHEET TITLE:

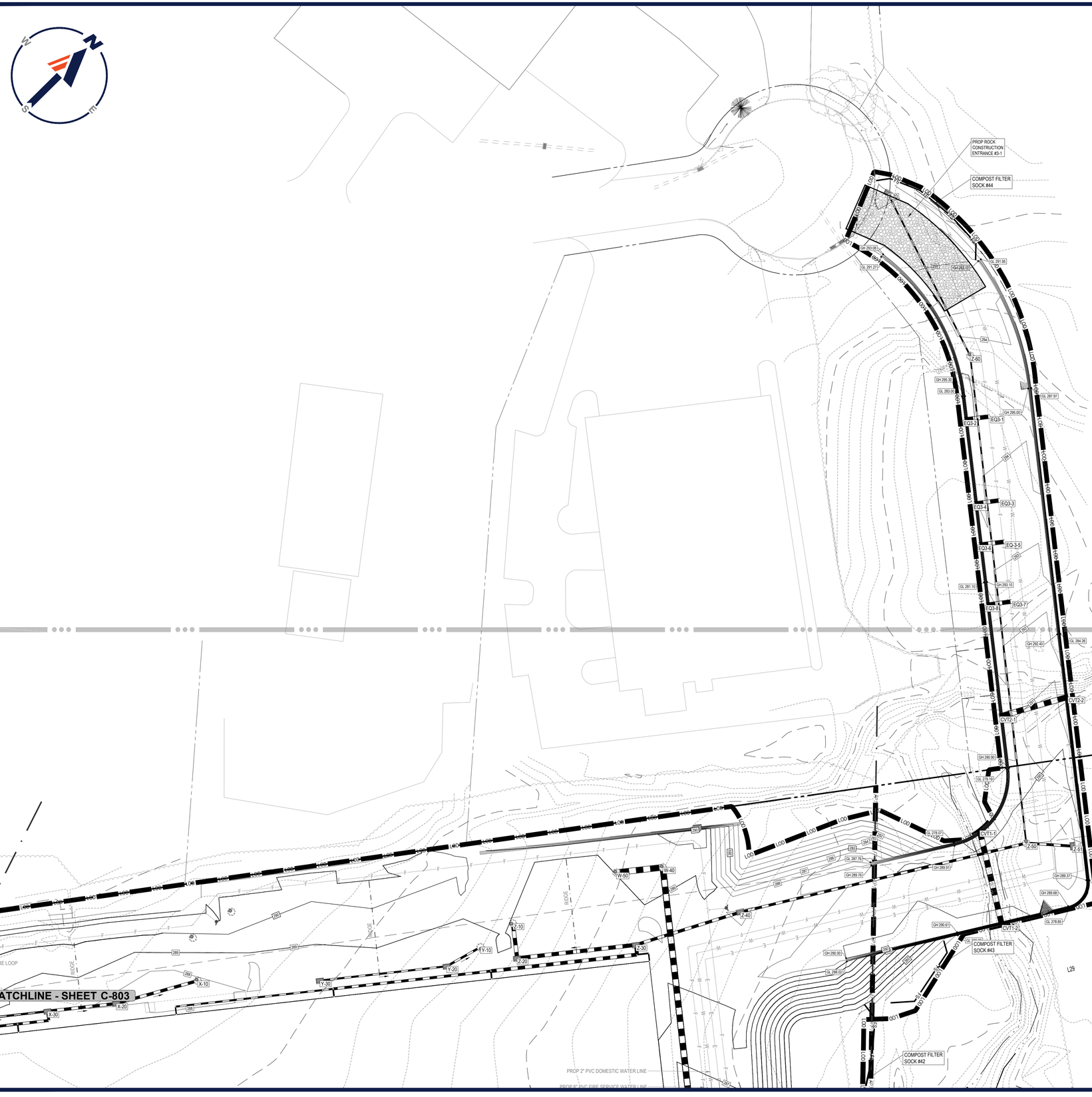
INITIAL EROSION & SEDIMENT CONTROL PLAN C

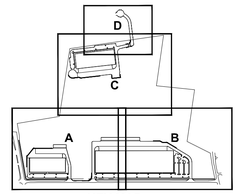
SHEET NUMBER:

C-803
57 OF 102

REVISION 1 - 07/28/2026

Jul 29, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-SESC-PAC250095.00-1A---LAYOUT C-803 ERC01 C





KEY MAP

THIS PLAN TO BE UTILIZED FOR SOIL EROSION AND SEDIMENT CONTROL PURPOSES ONLY

PROP EROSION LEGEND

LIMIT OF DISTURBANCE	LOD
PROJECT SITE BOUNDARY	PSB
COMPOST FILTER SOCK	FS
TREE PROTECTION FENCE	TPF
SOIL DELINEATION BOUNDARY	
SOIL TYPE LABEL	UssB
TEST PIT LOCATION	#
DISCHARGE POINT	DP 001
INLET PROTECTION	
CONCRETE WASHOUT	FS
TEMPORARY STOCKPILE	FS
ROCK CONSTRUCTION ENTRANCE	
NAG SC-250 MATTING	

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DATE:	04/06/2026
CAD I.D.:	P-CIVL-SESC

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

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Phone: (267) 402-3400
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www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — LICENSE — PROFESSIONAL — MATTHEW JOHN KRARSE

PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NUMBER: PE 092688

SHEET TITLE:

INITIAL EROSION & SEDIMENT CONTROL PLAN D

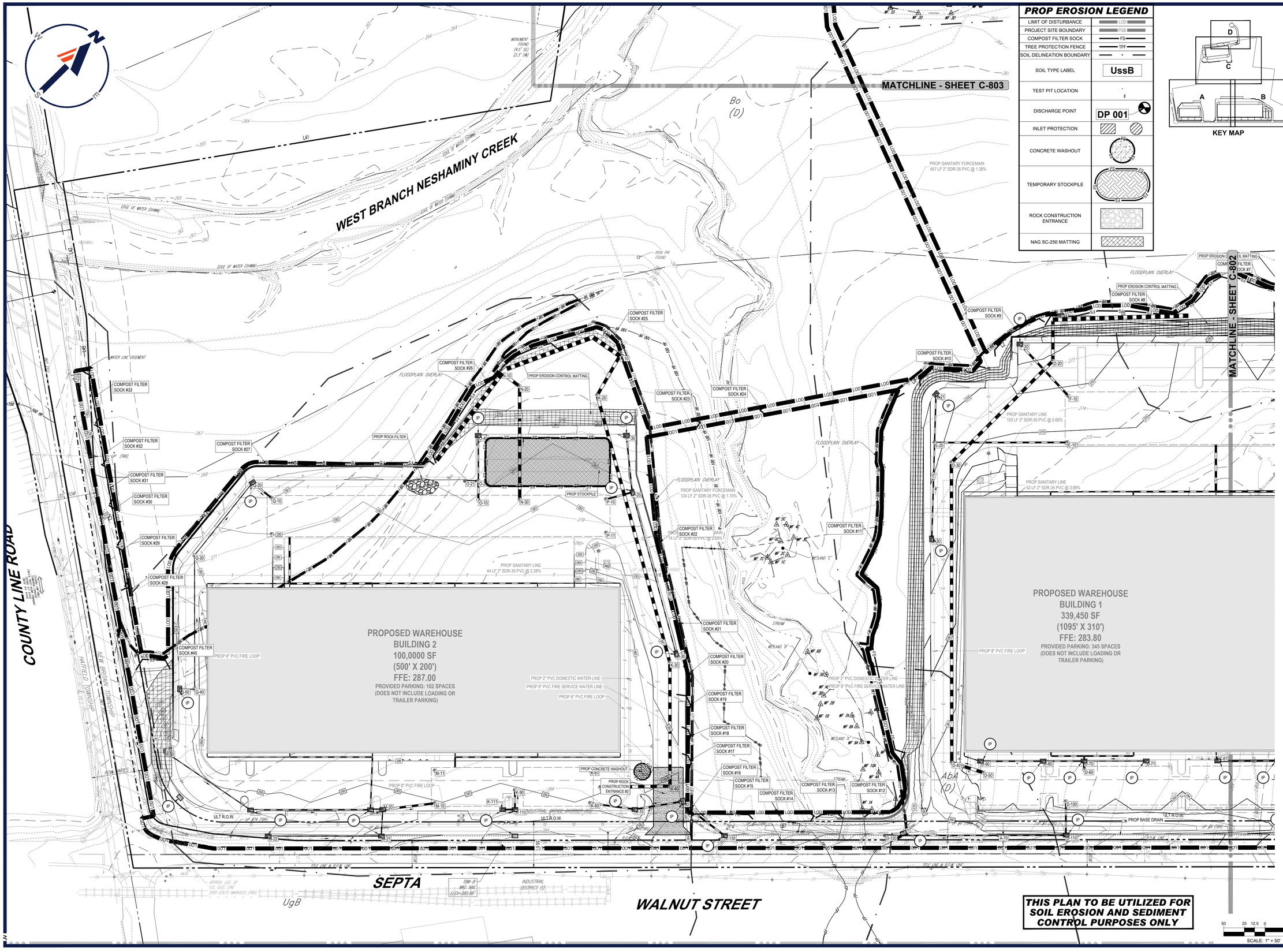
SHEET NUMBER:

C-804

58 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-SESC-PAC250095.00-1A-----LAYOUT, C-804 EROS I D
JW


MATCHLINE - SHEET C-803
WEST BRANCH NESHAMINY CREEK
COUNTY LINE ROAD
WALNUT STREET
SEPTA
PROPOSED WAREHOUSE
BUILDING 1
339,450 SF
(1095' X 310')
FFE: 283.80
PROVIDED PARKING: 345 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)
PROPOSED WAREHOUSE
BUILDING 2
100,0000 SF
(500' X 200')
FFE: 287.00
PROVIDED PARKING: 102 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)
MATCHLINE - SHEET C-802
PROP SANITARY FORCEMAIN
457 LF 2" SDR-35 PVC @ 1.38%
PROP SANITARY FORCEMAIN
124 LF 2" SDR-35 PVC @ 1.70%
PROP SANITARY LINE
44 LF 2" SDR-35 PVC @ 2.28%
PROP SANITARY LINE
103 LF 2" SDR-35 PVC @ 0.66%
PROP SANITARY LINE
52 LF 2" SDR-35 PVC @ 3.89%
PROP SANITARY FORCEMAIN
74 LF 2" SDR-35 PVC @ 2.69%
COMPOST FILTER SOCK #1
COMPOST FILTER SOCK #2
COMPOST FILTER SOCK #3
COMPOST FILTER SOCK #4
COMPOST FILTER SOCK #5
COMPOST FILTER SOCK #6
COMPOST FILTER SOCK #7
COMPOST FILTER SOCK #8
COMPOST FILTER SOCK #9
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COMPOST FILTER SOCK #28
COMPOST FILTER SOCK #29
COMPOST FILTER SOCK #30
COMPOST FILTER SOCK #31
COMPOST FILTER SOCK #32
COMPOST FILTER SOCK #33
PROP EROSION CONTROL MATTING
PROP ROCK FILTER
PROP STOCKPILE
PROP CONCRETE WASHOUT
PROP ROCK CONSTRUCTION ENTRANCE #2
PROP 8" PVC FIRE LOOP
PROP 2" PVC DOMESTIC WATER LINE
PROP 8" PVC FIRE SERVICE WATER LINE
PROP BASE DRAIN
FLOODPLAIN OVERLAY
WETLAND 'A'
WETLAND 'B'
WETLAND 'C'
STREAM
INDUSTRIAL (OFFICE, WAREHOUSE) (I)
INDUSTRIAL (DISTRICT) (I)
HATFIELD TOWNSHIP
NEW BRITAIN TOWNSHIP
WATER LINE EASEMENT
ULT R.O.W.
TITLE LINE & R.O.W. LINE
EDGE OF WATER (TYP.)
MONUMENT FOUND (4.5' SC) (2.1' SW)
IRON PIN FOUND
SBM-B MAG. NAIL ELEV.=285.88'
APPROX. LOC. OF U.G. ELEC. LINE (PER UTILITY MARKOUT) (TBR)
UgB
AbA
BoA
Bo (D)
L41
L42
L43
L44
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L75
L76
L77
L78
L79
L80

MATCHLINE - SHEET C-803

SEWAGE AUTHORITY UTILITY RIGHT-OF-WAY

NORTH PENN WATER AUTHORITY EASEMENT (PER INST. #2017100063)

SANITARY SEWER EASEMENT

EXISTING 462.53 LF OF 10" PVC SANITARY SEWER @ CLOSE SLOPE (PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)

LOT LINE TO BE EXTINGUISHED

EDGE OF WATER (DRAIN)

WEST BRANCH NESHAMINY CREEK

EXISTING 293.73 LF OF 10" PVC SANITARY SEWER @ CLOSE SLOPE (PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)

INDUSTRIAL OFFICE DISTRICT (IO)

SINGLE FAMILY RESIDENTIAL 2 DISTRICT (SFR-2)

MONUMENT FOUND

ULTIMATE R.O.W. LINE

AbB (p)

Ro (C)

RtB (D)

ReB (C)

L17

L18

PROPOSED WAREHOUSE
BUILDING 1
339,450 SF
(1095' X 310')
FFE: 283.80
PROVIDED PARKING: 345 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

COMPOST FILTER SOCK #6

COMPOST FILTER SOCK #5

COMPOST FILTER SOCK #4

PROP ROCK FILTER

COMPOST FILTER SOCK #3

COMPOST FILTER SOCK #1

COMPOST FILTER SOCK #2

PROP EROSION CONTROL MATTING

PROP SPILLWAY LINING

ENERGY DISSIPATOR

PROP 8" PVC FIRE LOOP

PROP STOCKPILE

PROP STAGING AREA

PROP CONCRETE WASHOUT

PROP CLEAN OUT STAKE

SKIMMER ATTACHED TO PERMANENT RISER

55' BAFFLE

104' BAFFLE

104' BAFFLE

108' BAFFLE

107' BAFFLE

STABILIZED NAG SC-250 MATTING

PROP FLOW PATH

PROP FILTER SOCK DIVERSION

FLOODPLAIN OVERLAY

PROP 2" PVC DOMESTIC WATER LINE

PROP 8" PVC FIRE LOOP

PROP BASE DRAIN

PROP ROCK CONSTRUCTION ENTRANCE #1

ULT R.O.W.

R.O.W.

TITLE LINE & R.O.W. LINE

ROW PIN FOUND

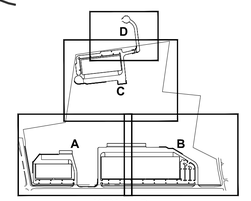
MATCHLINE - SHEET C-801

SEPTA

INDUSTRIAL DISTRICT (I)

WALNUT STREET
(37' WIDE R.O.W.)
(ASPHALT ROADWAY)
(TWO WAY TRAFFIC)

SCALE: 1" = 50'



KEY MAP

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PROP EROSION LEGEND

LIMIT OF DISTURBANCE	LOD
PROJECT SITE BOUNDARY	PSB
COMPOST FILTER SOCK	FS
TREE PROTECTION FENCE	TPF
SOIL DELINEATION BOUNDARY	
SOIL TYPE LABEL	UssB
TEST PIT LOCATION	T-#
DISCHARGE POINT	DP 001
INLET PROTECTION	
CONCRETE WASHOUT	CW
TEMPORARY STOCKPILE	FS, SP
ROCK CONSTRUCTION ENTRANCE	
NAG SC-250 MATTING	

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
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INDUSTRIAL ENGINEERING
PERMITTING SERVICES
TRANSPORTATION SERVICES

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PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

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NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

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COMMONWEALTH OF PENNSYLVANIA — PROFESSIONAL — MATTHEW JOHN KEARSE — PE088388

MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE088388

SHEET TITLE:

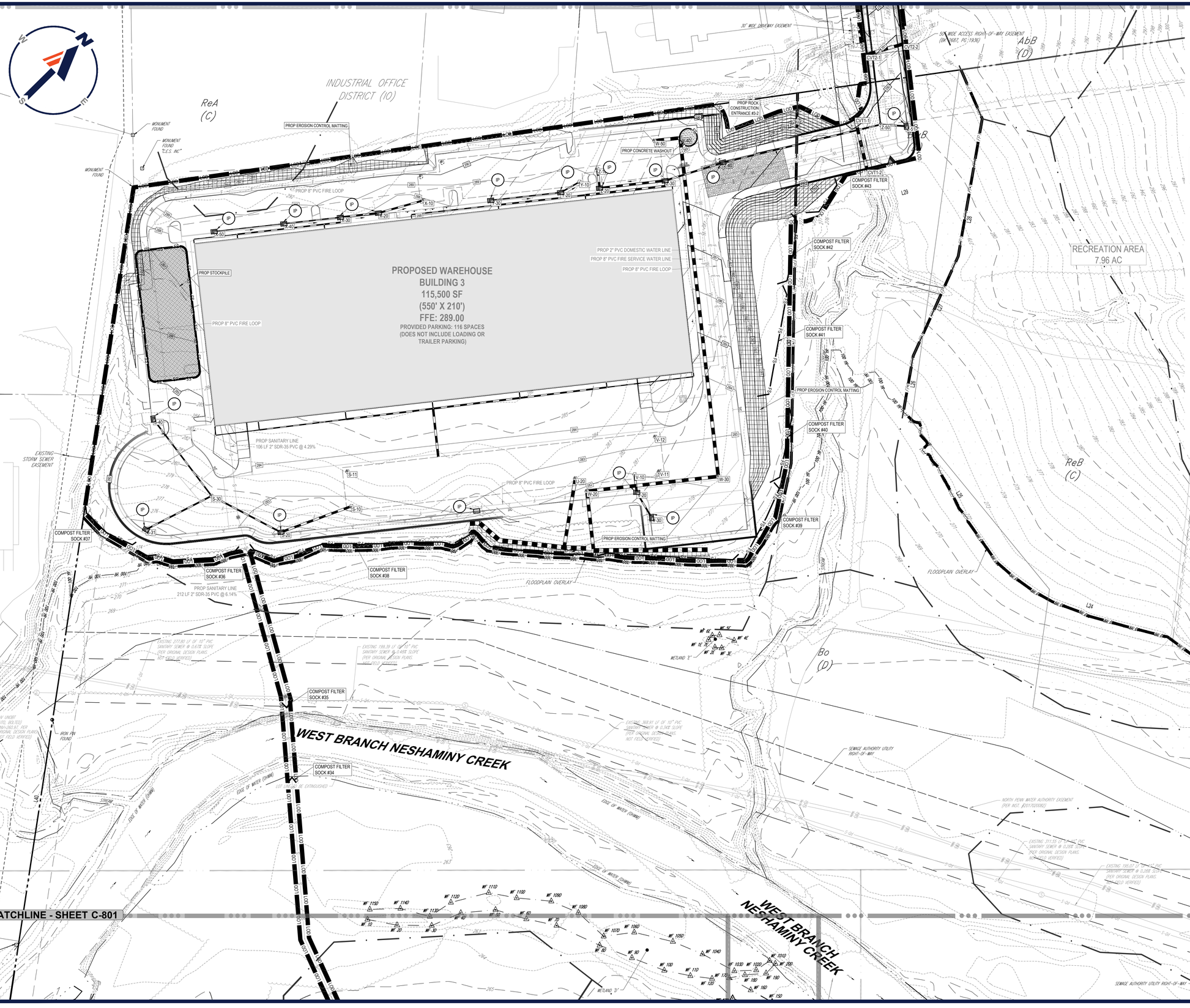
EROSION & SEDIMENT CONTROL PLAN B

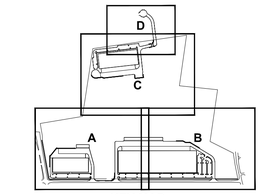
SHEET NUMBER:

C-806
60 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SET\SC\CIVIL SITE PLAN\SP-CIVIL-SESC-PAC250095.00-1A------LAYOUT C-806 ERG52 B
JV





KEY MAP

THIS PLAN TO BE UTILIZED FOR SOIL EROSION AND SEDIMENT CONTROL PURPOSES ONLY

PROP EROSION LEGEND

LIMIT OF DISTURBANCE	LOD
PROJECT SITE BOUNDARY	PSB
COMPOST FILTER SOCK	FS
TREE PROTECTION FENCE	TPF
SOIL DELINEATION BOUNDARY	
SOIL TYPE LABEL	UssB
TEST PIT LOCATION	T-#
DISCHARGE POINT	DP 001
INLET PROTECTION	
CONCRETE WASHOUT	CW FS
TEMPORARY STOCKPILE	FS
ROCK CONSTRUCTION ENTRANCE	
NAG SC-250 MATTING	

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

ATTENTION ALL CONTRACTORS. LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREIN HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 50 OF 2017, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. WWW.PA1CALL.ORG

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-SESC

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
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COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — MATTHEW JOHN KEARSE — PROFESSIONAL ENGINEER — PENNSYLVANIA LICENSE NUMBER PE088588

SHEET TITLE:

EROSION & SEDIMENT CONTROL PLAN C

SHEET NUMBER:

C-807
61 OF 102

REVISION 1 - 07/28/2026

Jul 29, 2026
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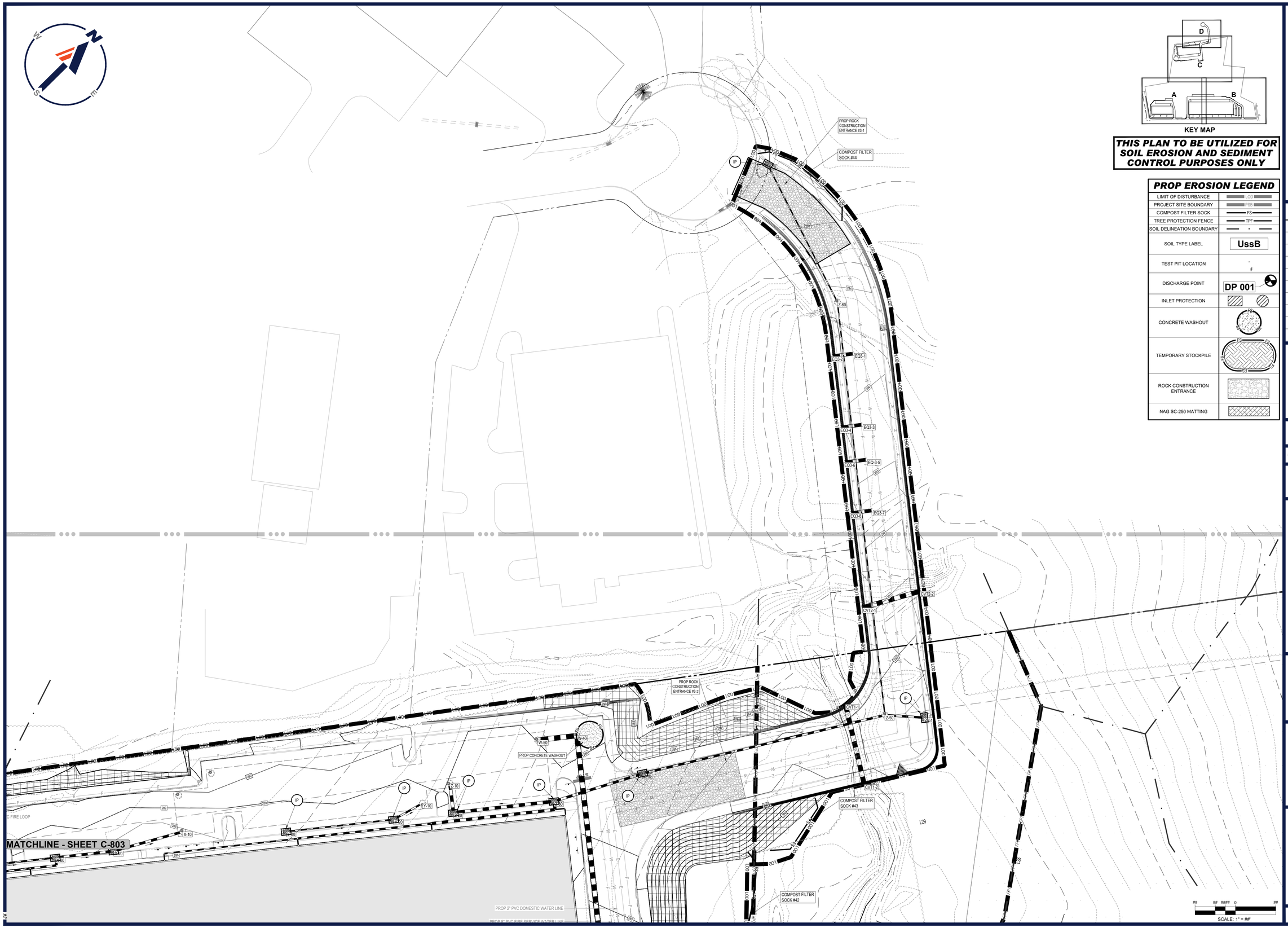

KEY MAP

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PROP EROSION LEGEND

LIMIT OF DISTURBANCE	LOD
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TREE PROTECTION FENCE	TPF
SOIL DELINEATION BOUNDARY	
SOIL TYPE LABEL	UssB
TEST PIT LOCATION	
DISCHARGE POINT	DP 001
INLET PROTECTION	
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TEMPORARY STOCKPILE	
ROCK CONSTRUCTION ENTRANCE	
NAG SC-250 MATTING	

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COMMONWEALTH OF PENNSYLVANIA
PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA NO. PE-[illegible]

SHEET TITLE:

EROSION & SEDIMENT CONTROL PLAN D

SHEET NUMBER:

C-808

62 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
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SOIL EROSION GENERAL NOTES

(Rev. 6/2024)

1. THIS PLAN REPRESENTS THE MINIMUM LEVEL OF IMPLEMENTATION OF TEMPORARY EROSION AND SEDIMENTATION CONTROL STRUCTURES. ADDITIONAL FACILITIES OR MEASURES SHALL BE INSTALLED WHERE NECESSARY OR WHERE DIRECTED BY EITHER THE TOWNSHIP OR THE COUNTY CONSERVATION DISTRICT AS CONSTRUCTION PROGRESSES.
2. THE OWNER/CONSTRUCTION MANAGER IS RESPONSIBLE FOR ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROLS AND SITE STABILIZATION. THE OWNER SHALL ASSIGN ONE INDIVIDUAL TO BE RESPONSIBLE FOR PROPER INSTALLATION AND MAINTENANCE OF ALL FACILITIES AND MEASURES.
3. PROTECTION TO THE EXISTING TREES AND SHRUBS SHALL BE TAKEN BY THE CONTRACTOR TO ELIMINATE UNNECESSARY DAMAGE.
4. ANY DRY FILL HAULED OFFSITE MUST BE TAKEN TO A LOCATION WITH AN EROSION AND SEDIMENTATION CONTROL PLAN WHICH HAS BEEN REVIEWED BY THE COUNTY CONSERVATION DISTRICT FOR ADEQUACY
5. EROSION AND SEDIMENTATION CONTROLS MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE WITHIN TRIBUTARY AREAS OF THOSE CONTROLS.
6. STOCKPILES MUST BE STABILIZED IMMEDIATELY.
7. NO GRADING, EXCAVATING, REMOVAL OR DESTRUCTION OF THE TOPSOIL, TREES OR OTHER VEGETATIVE COVER OF THE LAND SHALL BE CONDUCTED WITHIN A PROPERTY SUBDIVISION OR LAND DEVELOPMENT TRACT UNTIL SUCH TIME THAT A PLAN FOR SEDIMENTATION CONTROL AND MINIMIZING EROSION HAS BEEN REVIEWED AND FOUND SATISFACTORY BY THE COUNTY CONSERVATION DISTRICT AND REVIEWED AND APPROVED BY THE TOWNSHIP, OR THERE HAS BEEN A DETERMINATION BY THE TOWNSHIP, UPON RECOMMENDATION BY THE COUNTY CONSERVATION DISTRICT, THAT SUCH PLANS ARE NOT NECESSARY.
8. BEFORE INITIATING ANY REVISIONS TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN OR REVISIONS TO OTHER PLANS WHICH MAY AFFECT THE EFFECTIVENESS OF THE APPROVED E&S CONTROL PLAN, THE OPERATOR MUST RECEIVE APPROVAL OF THE REVISIONS FROM THE COUNTY CONSERVATION DISTRICT.
9. THE OPERATOR SHALL ASSURE THAT AN EROSION AND SEDIMENT CONTROL PLAN HAS BEEN PREPARED, APPROVED BY THE COUNTY CONSERVATION DISTRICT, AND IS BEING IMPLEMENTED AND MAINTAINED FOR ALL SOIL AND/OR ROCK SPOIL AND BORROW AREAS, REGARDLESS OF THEIR LOCATIONS.
10. CONTRACTOR SHALL USE TREADED MACHINERY AND MINIMIZE SOIL COMPACTION WHEREVER POSSIBLE.

DEFINITION OF CLEAN FILL AND IMPORT/EXPORT MATERIAL NOTES

(Rev. 5/2024)

IF THE SITE WILL NEED TO IMPORT OR EXPORT MATERIAL FROM THE SITE, THE RESPONSIBILITY FOR PERFORMING ENVIRONMENTAL DUE DILIGENCE AND DETERMINATION OF CLEAN FILL WILL REST WITH THE APPLICANT

1. CLEAN FILL IS DEFINED AS: UNCONTAMINATED, NON-WATER SOLUBLE, NONDECOMPOSABLE, INERT, SOLID MATERIAL. THE TERM INCLUDES SOIL, ROCK, STONE, DREDGED MATERIAL, USED ASPHALT, AND BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES THAT IS SEPARATE FROM OTHER WASTE AND IS RECOGNIZABLE AS SUCH. THE TERM DOES NOT INCLUDE MATERIALS PLACED IN OR ON THE WATERS OF THE COMMONWEALTH UNLESS OTHERWISE AUTHORIZED. (THE TERM "USED ASPHALT" DOES NOT INCLUDE MILLED ASPHALT OR ASPHALT THAT HAS BEEN PROCESSED FOR RE-USE).
2. CLEAN FILL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE: FILL MATERIALS AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE STILL QUALIFIES AS CLEAN FILL PROVIDED THE TESTING REVEALS THAT THE FILL MATERIAL CONTAINS CONCENTRATIONS OF REGULATED SUBSTANCES THAT ARE BELOW THE RESIDENTIAL LIMITS IN TABLES FP-1A AND FP-1B FOUND IN THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL".
3. ANY PERSON PLACING FILL THAT HAS BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE MUST USE FORM FP-001 TO CERTIFY THE ORIGIN OF THE FILL MATERIAL AND THE RESULTS OF THE ANALYTICAL TESTING TO QUALIFY THE MATERIAL AS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE OWNER OF THE PROPERTY RECEIVING THE FILL. A COPY OF FORM FP-001 IS FOUND IN THESE INSTRUCTIONS.
4. ENVIRONMENTAL DUE DILIGENCE: THE APPLICANT MUST PERFORM ENVIRONMENTAL DUE DILIGENCE TO DETERMINE IF THE FILL MATERIALS ASSOCIATED WITH THE PROJECT QUALIFY AS CLEAN FILL. ENVIRONMENTAL DUE DILIGENCE IS DEFINED AS: INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP AND USE HISTORY, SAMPLING AND TESTING OF PROPERTY, USE OF ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS. ANALYTICAL TESTING IS NOT A REQUIRED PART OF DUE DILIGENCE UNLESS VISUAL INSPECTION AND/OR REVIEW OF THE PAST LAND USE OF THE PROPERTY INDICATES THAT THE FILL MAY HAVE BEEN SUBJECTED TO A SPILL OR RELEASE OF REGULATED SUBSTANCE. IF THE FILL MAY HAVE BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE, IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL".

FILL MATERIAL THAT DOES NOT QUALIFY AS CLEAN FILL IS REGULATED FILL. REGULATED FILL IS WASTE AND MUST BE MANAGED IN ACCORDANCE WITH THE DEPARTMENT'S MUNICIPAL OR RESIDUAL WASTE REGULATIONS BASED ON 25 PA. CODE CHAPTERS 287 RESIDUAL WASTE MANAGEMENT OR 271 MUNICIPAL WASTE MANAGEMENT, WHICHEVER IS APPLICABLE. THE REGULATIONS ARE AVAILABLE ON-LINE AT WWW.PACODE.COM.

RECYCLING OR DISPOSAL OF MATERIAL

(Rev. 5/2024)

§102.4(b)(5)(xi)

THE FOLLOWING IS A LIST THAT INCLUDES, BUT THAT IS NOT LIMITED TO, THE POTENTIAL CONSTRUCTION WASTES THAT MAY EXIST ON-SITE:

- CONCRETE CURB AND SIDEWALK
- ASPHALT
- E&S BMP - COMPOST FILTER SOCKS
- E&S BMP - TEMPORARY RISER
- E&S BMP - EROSION CONTROL MATTING
- E&S BMP - INLET PROTECTION

ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 Pa. CODE 260.1 ET SEQ, 271.1, AND 287.1 ET SEQ NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE. BELOW IS A LIST OF MATERIALS AND THE PROPOSED METHOD OF DISPOSAL OF VARIOUS MATERIALS

1. DUST CONTROL - CONSTRUCTION TRAFFIC MUST ENTER AND EXIT THE SITE AT THE STABILIZED CONSTRUCTION ENTRANCE. THE PURPOSE IS TO TRAP DUST AND MUD THAT WOULD OTHERWISE BE CARRIED OFF-SITE BY CONSTRUCTION TRAFFIC. WATER TRUCKS WILL BE USED AS NEEDED DURING CONSTRUCTION TO REDUCE DUST GENERATED ON THE SITE. DUST CONTROL MUST BE PROVIDED BY THE CONTRACTOR TO A DEGREE THAT IS ACCEPTABLE TO THE LOCAL CONSERVATION DISTRICT. AFTER CONSTRUCTION, THE SITE WILL BE STABILIZED, WHICH WILL REDUCE THE POTENTIAL FOR DUST GENERATION.
2. SOLID WASTE DISPOSAL - NO SOLID MATERIALS, INCLUDING BUILDING MATERIALS, ARE ALLOWED TO BE DISCHARGED FROM THE SITE WITH STORMWATER. ALL SOLID WASTE, INCLUDING DISPOSABLE MATERIALS INCIDENTAL TO THE MAJOR CONSTRUCTION ACTIVITIES, MUST BE COLLECTED AND PLACED IN CONTAINERS. THE CONTAINERS WILL BE EMPTIED AS NECESSARY BY A CONTRACT TRASH DISPOSAL SERVICE AND HAULED AWAY FROM THE SITE.
3. SANITARY FACILITIES - ALL PERSONNEL INVOLVED WITH CONSTRUCTION ACTIVITIES MUST COMPLY WITH STATE AND LOCAL SANITARY OR SEPTIC SYSTEM REGULATIONS. TEMPORARY SANITARY FACILITIES WILL BE PROVIDED AT THE SITE THROUGHOUT THE CONSTRUCTION PHASE. THEY MUST BE UTILIZED BY ALL CONSTRUCTION PERSONNEL AND WILL BE SERVICED BY A LICENSED COMMERCIAL OPERATOR.
4. WATER SOURCE - NON-STORMWATER COMPONENTS OF SITE DISCHARGE MUST BE CLEAN WATER. WATER USED FOR CONSTRUCTION WHICH DISCHARGES FROM THE SITE MUST ORIGINATE FROM A PUBLIC WATER SUPPLY OR PRIVATE WELL APPROVED BY THE STATE HEALTH DEPARTMENT. WATER USED FOR CONSTRUCTION THAT DOES NOT ORIGINATE FROM AN APPROVED PUBLIC SUPPLY MUST NOT DISCHARGE FROM THE SITE.
5. CONCRETE WASTE FROM CONCRETE READY-MIX TRUCKS - DISCHARGE OF EXCESS OR WASTE CONCRETE AND/OR WASH WATER FROM CONCRETE TRUCKS WILL BE ALLOWED ON THE CONSTRUCTION SITE, BUT ONLY IN SPECIFICALLY DESIGNATED DIKED AREAS PREPARED TO PREVENT CONTACT BETWEEN THE CONCRETE AND/OR WASH WATER AND STORMWATER THAT WILL BE DISCHARGED FROM THE SITE.

E&S PLAN DESIGNED AND IMPLEMENTED TO BE CONSISTENT WITH PCSM PLAN

(Rev. 5/2024)

§102.4(b)(5)(xiv)

REGARDING THE LOCATIONS OF EXISTING RIPARIAN BUFFERS RELATIVE TO THE LIMIT OF DISTURBANCE AND WHETHER PROPOSED INFILTRATION FACILITIES ARE OUTSIDE OF PROPOSED GRADING AREAS, NOTE THE FOLLOWING:

- THE EXISTING RIPARIAN BUFFERS ARE LOCATED OUTSIDE THE LIMITS OF DISTURBANCE.
- THERE ARE NO PROPOSED INFILTRATION BMPs OUTSIDE OF PROPOSED GRADING AREAS.

CRITICAL STAGES

(Rev. 5/2024)

- LIST ALL CRITICAL STAGES OF PROJECT - INCLUDE ALL STRUCTURAL BMPs

LOCATION OF ALL SURFACE WATERS AND THEIR CLASSIFICATION UNDER CHAPTER 93

(Rev. 5/2024)

§102.4(b)(5)(v)

THE SUBJECT SITE DRAINS TO THE WEST BRANCH OF THE NESHAMINY CREEK, WHICH HAS A WWF CHAPTER 93 CLASSIFICATION.

RECEIVING SURFACE WATERS

(Rev. 5/2024)

§102.8(f)(5)

1. THE SUBJECT SITE DRAINS TO THE WEST BRANCH OF THE NESHAMINY CREEK, WHICH HAS A WWF CHAPTER 93 CLASSIFICATION.
2. THERE ARE WETLANDS LOCATED ON THE PROJECT SITE.

OVERALL SITE CONSTRUCTION SEQUENCE

(Rev. 06/2025)

§102.8(f)(7)

A. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE SHALL BE COMPLETED IN COMPLIANCE WITH CHAPTER 102 REGULATIONS BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING AND GRUBBING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE, UPON COMPLETION OR TEMPORARY CESSATION OF THE EARTH DISTURBANCE ACTIVITY THAT WILL EXCEED FOUR (4) DAYS (IMMEDIATELY FOR HIGH QUALITY WATERSHEDS), OR ANY STAGE THEREOF, THE PROJECT SITE SHALL BE IMMEDIATELY STABILIZED WITH THE APPROPRIATE TEMPORARY OR PERMANENT STABILIZATION.

B. REFERENCES TO 'CONSERVATION DISTRICT' USED THROUGHOUT THIS SEQUENCE ARE MEANT TO REFER TO THE BUCKS COUNTY CONSERVATION DISTRICT.

C. AT LEAST SEVEN (7) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, THE OPERATOR SHALL INVITE ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES INCLUDING, BUT NOT LIMITED TO: THE LANDOWNER, ALL APPROPRIATE MUNICIPAL OFFICIALS AND A REPRESENTATIVE OF THE CONSERVATION DISTRICT FOR AN ON-SITE PRE-CONSTRUCTION MEETING. PRIOR TO THE MEETING, THE CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH ALL ELEMENTS OF THE NPDES PERMIT, PROJECT GEOTECHNICAL INVESTIGATIONS, SOIL MANAGEMENT PLANS, WETLAND DELINEATIONS, ETC.

D. AT LEAST THREE (3) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM INC. AT 1-800-242-1776 FOR BURIED UTILITIES LOCATION.

E. THE PERMITTEE MUST RECORD THE APPROVED NPDES PERMIT AND PCSM PLANS AND PROVIDE A COPY OF THE FILING TO THE DISTRICT. THE PRE-CONSTRUCTION MEETING CANNOT BE SCHEDULED UNTIL THE FILING IS REVIEWED BY THE DISTRICT. THE DISTRICT HAS FIVE BUSINESS DAYS TO DETERMINE IF THE FILING IS ACCEPTABLE. THE PERMITTEE MUST ALSO INVITE TO THE PRE-CONSTRUCTION MEETING CO-PERMITTEES, OPERATORS, MUNICIPAL REPRESENTATIVE(S), LICENSED PROFESSIONALS OR DESIGNERS, AND ALL OTHERS RESPONSIBLE FOR IMPLEMENTING OR MONITORING THE EARTH DISTURBANCE ACTIVITY AND IMPLEMENTATION OF E&S, PCSM AND PPG PLANS AND CRITICAL STAGES OF IMPLEMENTATION OF THE APPROVED PCSM PLAN.

F. BEFORE INITIATING ANY REVISION TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN OR REVISIONS TO OTHER PLANS WHICH MAY AFFECT THE EFFECTIVENESS OF THE APPROVED E&S CONTROL PLAN, THE OPERATOR MUST RECEIVE APPROVAL OF THE REVISIONS FROM THE BUCKS COUNTY CONSERVATION DISTRICT. THE OPERATOR SHALL ASSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO ELIMINATE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.

G. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE SHALL BE COMPLETED IN COMPLIANCE WITH CHAPTER 102 REGULATIONS BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING AND GRUBBING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE. SEE BMP DETAILS FOR DETAILED SEQUENCING SPECIFIC TO THOSE BMPS.

H. UPON COMPLETION OR TEMPORARY CESSATION OF THE EARTH DISTURBANCE ACTIVITY, THE PROJECT SITE SHALL BE IMMEDIATELY STABILIZED WITH THE APPROPRIATE TEMPORARY OR PERMANENT STABILIZATION.

I. AS SOON AS SLOPES, CHANNELS, DITCHES AND OTHER DISTURBED AREAS REACH FINAL GRADE, THEY MUST BE STABILIZED. AS DISTURBED AREAS WITHIN A PROJECT APPROACH FINAL GRADE, PREPARATIONS SHOULD BE MADE FOR SEEDING AND MULCHING TO BEGIN (I.E. ANTICIPATE THE COMPLETION DATE AND SCHEDULE THE SEEDER). IN NO CASE SHOULD AN AREA EXCEEDING 15,000 SQUARE FEET, WHICH IS TO BE STABILIZED BY VEGETATION, REACH FINAL GRADE WITHOUT BEING SEEDED AND MULCHED. WAITING UNTIL EARTHMOVING IS COMPLETED BEFORE MAKING PREPARATIONS FOR SEEDING AND MULCHING IS NOT ACCEPTABLE. SEEDING AND MULCHING REQUIREMENTS ARE SPECIFIED IN THE GENERAL CONSERVATION NOTES AND SPECIFICATIONS.

J. ONLY LIMITED CLEARING AND GRUBBING IS PERMITTED FOR CONSTRUCTION OF ACCESS TO THE SEDIMENT BASINS. CONSTRUCTION OF THE SEDIMENT BASINS SHALL INCLUDE THE NECESSARY CLEARING AND GRUBBING, EARTHWORK, INSTALLATION OF THE PERMANENT BASIN OUTFALL SYSTEMS AND ALL OTHER SEDIMENT BASIN FEATURES AS SHOWN ON THE PLANS AND DETAILS. FILL AND ANY STABILIZATION OF ALL DISTURBED AREAS. THE BASINS ARE TO BE STABILIZED AND FUNCTIONING PROPERLY PRIOR TO ANY FURTHER EARTH DISTURBANCE ACTIVITIES. REFER TO THE SEDIMENT BASIN SOIL CONSERVATION DISTRICT MONITORING, INSPECTION AND REPORTING REQUIREMENTS PROVIDED ON THE SOIL EROSION AND SEDIMENT POLLUTION CONTROL NOTES FOR ADDITIONAL SEDIMENT BASIN REQUIREMENTS DURING CONSTRUCTION.

K. IN INSTANCES WHERE INITIATION OF EARHWORK NECESSARY TO REACH THE GRADES FOR BUILDINGS IS INDICATED: THE CONCRETE WASHOUT MUST BE INSTALLED BEFORE ANY CONCRETE CAN BE POURED ON-SITE. CONTRACTOR MUST PERFORM BULK OF EARTHWORK TO BALANCE CUTS AND FILLS AND TOPSOIL STOCKPILE AREAS. ANY DISTURBED AREAS DURING THE EARTHWORK PHASE OF CONSTRUCTION MUST BE TEMPORARILY SEEDED AND STABILIZED IN ACCORDANCE WITH THE GENERAL CONSERVATION NOTES AND SPECIFICATIONS AND SEEDING SPECIFICATIONS IF PERMANENT STABILIZATION CANNOT BE ACHIEVED.

L. FILL SLOPES SHOULD BE SEEDED AND MULCHED AT REGULAR VERTICAL INCREMENTS -- 15 TO 25 FEET MAXIMUM -- AS THE FILL IS BEING CONSTRUCTED. THIS WILL ALLOW THE BOTTOM OF THE FILL TO PROGRESS TOWARD STABILIZATION WHILE WORK CONTINUES ON THE UPPER PORTION, MAKING FINAL STABILIZATION EASIER TO ACHIEVE AND PROVIDING SOME VEGETATIVE BUFFERING AT THE BOTTOM OF THE SLOPE.

M. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OR OWNER'S DESIGNEE A MINIMUM OF THREE DAYS PRIOR TO THE INSTALLATION OF CRITICAL BEST MANAGEMENT PRACTICES.

N. AFTER INSTALLATION OF LEVEL SPREADERS, INSTALL FILTER SOCK UPGRADIENT TO PREVENT SEDIMENT FROM REACHING THE SPREADER.

O. A SITE INSPECTION AND APPROVAL BY THE CONSERVATION DISTRICT IS REQUIRED PRIOR TO REMOVAL OR CONVERSION OF SEDIMENT TRAPS AND BASINS. ONCE STONE BASE COURSE HAS BEEN SPREAD IN ALL PAVED AREAS AND ALL LANDSCAPE AREAS HAVE BEEN STABILIZED, BEGIN CONVERTING BASINS TO FINAL GRADES IN ACCORDANCE WITH BMP SEQUENCE OF CONSTRUCTION. THE PERMITTEE SHALL PROVIDE ENGINEERING OVERSIGHT FOR THE CONVERSION OF BASINS. THE DESIGN ENGINEER OR OTHER LICENSED PROFESSIONAL OR DESIGNEE KNOWLEDGEABLE IN THE DESIGN AND CONSTRUCTION OF SUBSURFACE INFILTRATION BASINS SHALL OVERSEE THE CONVERSION.

P. CRITICAL STAGE OBSERVATION - SEDIMENT BASINS: INSTALLATION OF BASIN APPURTENANCES INCLUDING BASIN BERM AND CORE, LINERS, SPILLWAY, OUTFALL STRUCTURES, SKIMMERS, OUTFALL PIPE(S) INCLUDING CONCRETE CRADLES, DISCHARGE PIPE OUTFALLS, ETC.

Q. CRITICAL STAGE OBSERVATION - BASIN CONVERSIONS: CONDITIONS OF BASIN AFTER SEDIMENT REMOVAL AS WELL AS APPURTENANCES INCLUDING UNDERDRAINS, MEDIA, LINERS, OUTLET CONTROL STRUCTURES, ETC.

STAGE 1 - INITIAL STAGE

1. STAKE OUT LIMIT OF DISTURBANCE THROUGHOUT ALL PROJECT AREAS AND INSTALL ORANGE CONSTRUCTION FENCING AROUND ENVIRONMENTALLY PROTECTED FEATURES INCLUDING WETLANDS, WATERCOURSES, FLOODPLAINS, AND UNDERGROUND INFILTRATION AREAS.
2. INSTALL CONSTRUCTION ENTRANCES AT ROAD FRONTAGES AS DESIGNATED ON THE PLANS. ESTABLISH LOCATIONS FOR STAGING, STOCKPILES, AND CONCRETE WASHOUTS.
3. INSTALL ALL FILTER SOCKS. ONLY LIMITED CLEARING AND GRUBBING NECESSARY TO INSTALL THE PERIMETER EROSION AND SEDIMENT POLLUTION CONTROLS IS PERMITTED.
4. INSTALL ROCK FILTERS SHOWN ON THE PLAN.
5. **CRITICAL STAGE** - CONSTRUCT SEDIMENT BASINS NEAR SCHOOLHOUSE ROAD ALONG WITH ALL RELATED APPURTENANCES. NOTE THAT THE BASIN BOTTOM ELEVATION MAY BE DIFFERENT IN THE TEMPORARY EROSION CONTROL STAGE AS COMPARED TO ITS FINAL PCSM CONDITION. INSTALL SLOPE MATTING AND APPLY SEED AND MULCH.
6. INSTALL FILTER SOCK DIVERSION.
7. ONCE THE SEDIMENT BASIN IS CONSTRUCTED, STABILIZED AND FUNCTIONING PROPERLY, BEGIN CLEARING AND GRUBBING ACTIVITIES.

STAGE 2 - PRIMARY STAGE

1. INITIATE THE NECESSARY EARTHWORK TO REACH THE GRADES INDICATED. MAXIMIZE DIVERSION OF RUNOFF TO THE SEDIMENT BASIN THE TEMPORARY DIVERSION.
2. CONSTRUCT THE ACCESS DRIVE FROM INDEPENDENCE LANE TO THE BUILDING 3 CONSTRUCTION AREA INCLUDING RETAINING WALLS, UNDERGROUND STORMWATER BASIN, EQUALIZATION PIPES, AND CULVERTS. PLACE AND MAINTAIN STONE SUBGRADE ALONG THE ACCESS WAY. INSTALL TEMPOROARY ROCK CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT AT THE BUILDING 3 CONSTRUCTION AREA.
3. BEGIN BUILDING CONSTRUCTION.
4. INSTALL RETAINING WALLS ALONG NORTHERN PERIMETERS OF BUILDINGS 1 AND 2 AND SOUTHERN PERIMETER OF BUILDING3. INSTALL UNDERGROUND DETENTIN BASINS UNDER TRUCK COURTS AND STORMWATER PIPING TRIBUTARY TO THOSE BASINS.
5. INSTALL INLET PROTECTION IN ALL INLETS.
6. INSTALL STORMWATER PIPING TRIBUTARY TO THE SEDIMENT BASIN.
7. INSTALL UNDERGROUND DETENTIN BASINS UNDER AUTO PARKING AREAS AND STORMWATER PIPING TRIBUTARY TO THOSE BASINS. INSTALL INLET PROTECTION IN ALL INLETS.
8. INSTALL UNDERGROUND UTILITIES
9. BEGIN ROADWAY FRONTAGE IMPROVEMENTS.

SITE STABILIZATION & DEMOBILIZATION

1. INITIATE FINAL GRADING AND PLACEMENT OF TOPSOIL IN ALL LANDSCAPE AREAS. AS SOON AS SLOPES, CHANNELS, DITCHES AND OTHER DISTURBED AREAS REACH FINAL GRADE, THEY MUST BE STABILIZED. ALL LANDSCAPE AREAS MUST BE STABILIZED AND PERMANENT SEEDING OR PLACEMENT OF SOD MUST BE APPLIED. WHEN FINAL GRADE IS ACHIEVED DURING NON-GERMINATING MONTHS, THE AREA SHOULD BE MULCHED UNTIL THE BEGINNING OF THE NEXT PLANTING SEASON. HOWEVER, THE AREA WILL NOT BE CONSIDERED STABILIZED UNTIL A MINIMUM UNIFORM 70% VEGETATIVE COVER OF EROSION RESISTANT PERENNIAL SPECIES HAS BEEN ACHIEVED. AS DISTURBED AREAS WITHIN A PROJECT APPROACH FINAL GRADE, PREPARATIONS SHOULD BE MADE FOR SEEDING AND MULCHING TO BEGIN (I.E. ANTICIPATE THE COMPLETION DATE AND SCHEDULE THE SEEDER). IN NO CASE SHOULD AN AREA EXCEEDING 15,000 SQUARE FEET, WHICH IS TO BE STABILIZED BY VEGETATION, REACH FINAL GRADE WITHOUT BEING SEEDED AND MULCHED. WAITING UNTIL EARTHMOVING IS COMPLETED BEFORE MAKING PREPARATIONS FOR SEEDING AND MULCHING IS NOT ACCEPTABLE. SEEDING AND MULCHING REQUIREMENTS ARE SPECIFIED IN THE GENERAL CONSERVATION NOTES AND SPECIFICATIONS.
2. INSTALL BITUMINOUS PAVEMENT AND CONCRETE INCLUDING SIDEWALKS.
3. **CRITICAL STAGE** - CONVERT SEDIMENT BASIN TO FINAL STORMWATER MANAGEMENT CONFIGURATION (INFILTRATION BASIN), FLUSH ALL UPSTREAM PIPING SYSTEMS PRIOR TO CONVERSION. REMOVE ANY TEMPORARY MODIFICATIONS TO DIVERSION STRUCTURES
4. INSTALL FINAL VEGETATION AND LANDSCAPING SPECIFIED ON THE PLAN INCLUDING BUFFER PLANTINGS.
5. UPON SITE STABILIZATION (UNIFORM COVERAGE OR DENSITY OF 70% ACROSS ALL DISTURBED AREAS) AND NOTIFICATION OF THE BUCKS COUNTY CONSERVATION DISTRICT, REMOVE EROSION AND SEDIMENT CONTROL FACILITIES. ANY AREA DISTURBED DURING THE REMOVAL OF EROSION AND SEDIMENT CONTROL FACILITIES SHALL BE STABILIZED IMMEDIATELY.
6. CLEAR SITE OF DEBRIS AND ALL UNWANTED MATERIALS. OPERATOR SHALL REMOVE FROM SITE, RECYCLE OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ, 271.1 ET SEQ THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP OR DISCHARGE ANY BUILDING MATERIAL OR WASTE AT THIS SITE.
7. DEMOBILIZE.

WITHIN 30 DAYS AFTER THE COMPLETION OF EARTH DISTURBANCE ACTIVITIES AUTHORIZED BY THIS PERMIT, INCLUDING THE PERMANENT STABILIZATION OF THE SITE AND PROPER INSTALLATION OF PCSM BMPS IN ACCORDANCE WITH THE APPROVED PCSM PLAN, OR UPON SUBMISSION OF THE NOT IF SOONER, THE PERMITTEE SHALL FILE WITH THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT A STATEMENT SIGNED BY A LICENSED PROFESSIONAL AND BY THE PERMITTEE CERTIFYING THAT WORK HAS BEEN PERFORMED IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THIS PERMIT AND THE APPROVED E&S AND PCSM PLANS. COMPLETION CERTIFICATES ARE NEEDED TO ENSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THE PERMIT AND THE APPROVED E&S AND PCSM PLANS

GEOLOGIC FORMATIONS/SOIL CONDITIONS THAT MAY HAVE THE POTENTIAL TO CAUSE POLLUTION

(Rev. 5/2024)

§102.4(b)(5)(xii)

THERE ARE NO GEOLOGIC FORMATIONS OR SOIL CONDITIONS THAT COULD CAUSE CONTAMINANT POLLUTION DURING EARTH DISTURBANCE ACTIVITIES.

OR

ENGINEER TO CONFIRM WITH ENVIRONMENTAL ENGINEER WHAT NEEDS TO BE PROVIDED.

GENERAL CONSERVATION NOTES AND SPECIFICATIONS

(Rev. 10/2024)

I. GENERAL INFORMATION

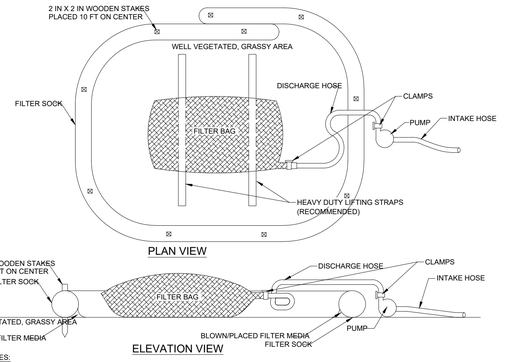
A. THIS EROSION AND SEDIMENT CONTROL PLAN SHALL BE AVAILABLE AT THE SITE.
B. NO SEDIMENT OR SEDIMENT LADEN WATER MUST BE ALLOWED TO LEAVE THE SITE WITHOUT FIRST BEING PROPERLY FILTERED.
C. ANY SEDIMENT THAT IS TRACKED ONTO THE ROAD MUST BE CLEANED OFF BEFORE THE END OF THE DAY.
D. DISTURBED AREAS ON WHICH EARTHMOVING ACTIVITIES HAVE CEASED AND WHICH WILL REMAIN EXPOSED SHALL BE STABILIZED IMMEDIATELY, EITHER TEMPORARILY OR PERMANENTLY, INCLUDING THE RESTORATION OF DRIVEWAYS, STOCKPILES, OFF-SITE UNDERGROUND UTILITY LINES AND GRADED PERIMETER AREAS. DURING NON-GERMINATION PERIODS, MULCH MUST BE APPLIED AT RECOMMENDED RATES. CRUSHED STONE ON PAVEMENT SUBGRADES IS CONSIDERED ADEQUATE PROTECTION.
E. AREAS THAT FAIL TO GERMINATE MUST BE RE-SEEDED OR MULCHED.
F. WHERE DISTURBED AREAS ARE DIFFICULT TO STABILIZE, NETTING SHOULD BE USED TO HOLD SEED AND MULCH IN PLACE; THIS IS ESPECIALLY IMPORTANT AROUND WATERCOURSES, IN SWALES AND AREAS OF CONCENTRATED FLOWS, STEEP SLOPES.
G. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENTATION MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT CONTROL AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, RE-GRADING, RE-SEEDING, RE-MULCHING, AND RE-NETTING, MUST BE PERFORMED IMMEDIATELY. IF AT ANY TIME PRIOR TO SITE STABILIZATION ANY E&SP PROBLEMS OCCUR WHICH REQUIRE ADDITIONAL CONTROLS, IMMEDIATE ACTION MUST BE TAKEN TO CORRECT THE PROBLEMS.
H. THE CONTRACTOR MUST DEVELOP AND COORDINATE WITH OWNER AND HAVE APPROVED BY THE COUNTY CONSERVATION DISTRICT, A SEPARATE EROSION AND SEDIMENT POLLUTION CONTROL PLAN FOR EACH SPOIL, BORROW OR OTHER WORK AREA NOT DETAILED ON THE PERMITTED PLANS, WHETHER LOCATED WITHIN OR OUTSIDE OF THE LIMITS OF CONSTRUCTION.
I. CONTRACTOR SHALL NOTIFY THE COUNTY CONSERVATION DISTRICT OF DISPOSAL METHOD AND LOCATION OF MATERIALS (IF ANY) TO BE REMOVED FROM SITE.
J. ALL MATERIALS TO BE RECYCLED OR DISPOSED OF MUST DO SO IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL REGULATIONS. STOCKPILES TO BE HAULED OFF SITE MUST HAVE AN APPROVED EROSION AND SEDIMENT CONTROL PLAN AT THE DESTINATION LOCATION.
K. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN SOIL STABILIZATION THROUGHOUT CONSTRUCTION. ADDITIONAL MEASURES REQUIRED TO ENSURE ON-SITE AND OFF-SITE STABILIZATION IN AND ADJACENT TO CONSTRUCTION ACTIVITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE AT NO COST TO THE OWNER. IMMEDIATE NOTIFICATION SHALL BE GIVEN TO THE OWNER AND ENGINEER SHOULD ADDITION STABILIZATION MEASURES BE NECESSARY; IN ACCORDANCE WITH THE NPDES AND/OR SWPPP REQUIREMENTS FOR THE PROJECT.
L. NPDES PERMIT REQUIRES THAT A VISUAL SITE INSPECTION REPORT USING THE CURRENT PADEP FORM BE COMPLETED BY A QUALIFIED SITE INSPECTOR AT THE FOLLOWING FREQUENCY:
   L.1. WEEKLY,
   L.2. A

BUCKS COUNTY SOIL CONSERVATION DISTRICT E&S NOTES

1. STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET; STOCKPILE SLOPES MUST NOT EXCEED 2:1.
2. THE OPERATOR/RESPONSIBLE PERSON (O/RP) ON SITE SHALL ASSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED.
3. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE O/RP SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES (BMPS) TO ELIMINATE THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.
4. THE O/RP SHALL ASSURE THAT AN EROSION AND SEDIMENT CONTROL PLAN HAS BEEN PREPARED AND APPROVED BY THE BUCKS COUNTY CONSERVATION DISTRICT AND IS BEING IMPLEMENTED AND MAINTAINED FOR ALL SOILS AND/OR ROCK SPOIL AND BORROW AREAS REGARDLESS OF THEIR LOCATIONS.
5. ALL PUMPING OF SEDIMENT-LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BMP SUCH AS A PUMPED WATER FILTER BAG DISCHARGING OVER AN UNDISTURBED AREA.
6. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN MUST BE AVAILABLE ON THE PROJECT SITE AT ALL TIMES.
7. EROSION AND SEDIMENT BMPS MUST BE CONSTRUCTED, STABILIZED AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS WITHIN THE TRIBUTARY AREAS OF THOSE BMPS.
8. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMP CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING THE REMOVAL OF THE BMPS MUST BE STABILIZED IMMEDIATELY.
9. AT LEAST SEVEN (7) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITY, THE O/RP SHALL INVITE ALL CONTRACTORS INVOLVED IN THAT ACTIVITY, THE LANDOWNER, ALL APPROPRIATE MUNICIPAL OFFICIALS, THE EROSION AND SEDIMENT CONTROL PLAN DESIGNER AND THE BUCKS COUNTY CONSERVATION DISTRICT TO A PRE-CONSTRUCTION MEETING. ALSO, AT LEAST THREE (3) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITY, ALL CONTRACTORS INVOLVED IN THAT ACTIVITY SHALL NOTIFY THE PENNSYLVANIA ONE-CALL SYSTEM INC. AT 1-800-242-1776 TO DETERMINE ANY UNDERGROUND UTILITIES LOCATIONS.
10. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITY CEASES, THE O/RP SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITY. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT SPECIFIED RATES. DISTURBED AREAS THAT ARE NOT FINISHED GRADE AND WHICH WILL BE RE-DISTURBED WITHIN ONE YEAR MUST BE STABILIZED IN ACCORDANCE WITH TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS.
11. DISTURBED AREAS THAT ARE AT A FINISHED GRADE OR WHICH WILL NOT BE RE-DISTURBED WITHIN ONE YEAR MUST BE STABILIZED IN ACCORDANCE WITH PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS.
12. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% VEGETATIVE OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.
13. UPON THE INSTALLATION OF TEMPORARY SEDIMENT BASIN RISER(S), A QUALIFIED SITE REPRESENTATIVE SHALL CONDUCT AN IMMEDIATE INSPECTION OF THE RISER(S), WHEREUPON THE BUCKS COUNTY CONSERVATION DISTRICT SHALL BE NOTIFIED IN WRITING THAT THE RISER IS SEALED (WATERTIGHT).
14. AT STREAM CROSSINGS, A 50-FOOT BUFFER SHALL BE MAINTAINED. ON BUFFERS, CLEARINGS, SOD DISTURBANCES AND EXCAVATIONS, EQUIPMENT TRAFFIC SHOULD BE MINIMIZED. ACTIVITY SUCH AS STACKING LOGS, BURNING CLEARED BRUSH, DISCHARGED RAINWATER FROM TRENCHES, WELDING PIPE SECTIONS, REFUELING AND MAINTAINING EQUIPMENT SHOULD BE AVOIDED WITHIN BUFFER ZONES.
15. UNTIL A SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION CONTROL BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEANOUT, REPAIR, REPLACEMENT, RE-GRADING, RESEEDING, RE-MULCHING AND REINETTING MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED, WILL BE REQUIRED.
16. SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF ON-SITE IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED OR PLACED IN SOIL STOCKPILES AND STABILIZED.
17. ALL BUILDING MATERIAL AND WASTES MUST BE REMOVED FROM THE SITE AND RECYCLED IN ACCORDANCE WITH DEP'S SOLID WASTE REGULATIONS (25 PA CODE 260.1 ET SEQ, 271.1 ET SEQ, AND 287.1 ET SEQ) AND/OR ANY ADDITIONAL LOCAL, STATE OR FEDERAL REGULATIONS. NO BUILDING MATERIALS (USED OR UNUSED) OR WASTE MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.

SEEDING SPECIFICATIONS

1. SEEDING DATES
   - A. SEEDING SHALL OCCUR BETWEEN MARCH 1ST AND MAY 15TH OR BETWEEN AUGUST 15TH AND NO LATER THAN OCTOBER 15TH.
   - B. IF SEEDING CANNOT BE CONDUCTED DURING THE TIMEFRAMES NOTED ABOVE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE LOCAL CONSERVATION DISTRICT AND ALL APPROPRIATE AGENCIES TO DETERMINE AN ACCEPTABLE MEANS IN WHICH TO STABILIZE THE SITE THROUGH THE NEXT GROWING SEASON.
2. SEED MIXTURES: SEED MIXTURE TO BE USED ON THIS SITE SHALL CONSIST OF THE FOLLOWING UNLESS OTHERWISE NOTED ON THE PLANS. RATES ARE IN THE FORM OF POUNDS PER ACRE (LB/A) PER PURE LIVE SEED (POUNDS / ACRE PLS). CONTRACTOR WILL NEED TO ADJUST ACCORDINGLY BASED ON THE SEED GERMINATION AND PURITY RATING (SEE ITEM #3 BELOW).
   - A. TEMPORARY SEED MIXTURES: DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE DISTURBED AGAIN WITHIN TWELVE (12) MONTHS MUST BE SEEDED WITH A TEMPORARY SEED MIXTURE AS FOLLOWS:
     - ANNUAL RYE (40 POUNDS / ACRE PLS)
     - OR SPRING OATS (96 POUNDS / ACRE PLS)
     - OR WINTER RYE (168 POUNDS / ACRE PLS)
     - (REFERENCE: PENN STATE "EROSION CONTROL & CONSERVATION PLANTINGS ON NONCROPLAND", TABLE 5)
   - B. PERMANENT SEEDING SHALL CONSIST OF A NURSE CROP PLUS A PERMANENT SEED MIXTURE, AS FOLLOWS:
     - I. NURSE CROP (SELECT ONE):
       - ANNUAL RYE (10 POUNDS / ACRE PLS)
       - OR SPRING OATS (64 POUNDS / ACRE PLS)
       - OR WINTER RYE (56 POUNDS / ACRE PLS)
       - (REFERENCE: PA DEP EROSION AND SEDIMENT CONTROL PROGRAM MANUAL, LATEST EDITION, TABLE 11.4, SEED MIX #1)
     - II. PERMANENT SEED MIX:
       - FINE FESCUE (35 POUNDS / ACRE PLS)
       - OR KENTUCKY BLUEGRASS (25 POUNDS / ACRE PLS) PLUS REDTOP (3 POUNDS / ACRE PLS)
       - OR PERENNIAL RYEGRASS (15 POUNDS / ACRE PLS)
       - (REFERENCE: PA DEP EROSION AND SEDIMENT CONTROL PROGRAM MANUAL, LATEST EDITION, TABLE 11.4, SEED MIX #2) PER PADEP: TALL FESCUES ARE NOT TO BE USED DUE TO THEIR INVASIVE STATUS, DESPITE THE MENTION OF TALL FESCUES WITHIN THE E&S MANUAL.
3. PURE LIVE SEED: MINIMUM PLS RATING ACCEPTED SHALL BE 85% PLS. SEED RATE MAY NEED TO BE ADJUSTED BASED ON THE PLS RATING OF THE SEED.
   - A. SEED USED FOR THE PURPOSE OF PERMANENT STABILIZATION SHALL BE LABELED WITH GERMINATION AND PURITY PERCENTAGES. UNLABELED SEED WILL BE REJECTED. SEED SHALL NOT BE USED MORE THAN ONE (1) YEAR BEYOND THE LABEL DATE.
   - B. DETERMINING THE PERCENT PURE LIVE SEED (PERCENT PLS) OF A LABELED SEED: MULTIPLY BY THE PERCENTAGE OF PURE SEED BY THE PERCENTAGE OF GERMINATION AND DIVIDE THE RESULT BY 100 ((%PURE X %GERMINATION) / 100).
   - C. DETERMINING THE ACTUAL SEED RATE: SIMPLY DIVIDE THE PERCENT PLS RATING OF THE SEED INTO THE PLS REQUIRED, AS NOTED ABOVE. THE RESULT IS THE POUNDS OF SEED REQUIRED. FOR EXAMPLE: IF THE REQUIRED RATE IS 64 POUNDS PLS, AND THE SEED IS RATED AT 35% PLS, DIVIDE 64 BY 0.35 TO GET 182.9 POUNDS, WHICH IS THE AMOUNT OF THAT SEED REQUIRED PER ACRE.
4. APPLICATION OF SEED: SEEDING SHALL BE APPLIED AND ESTABLISHED IN ACCORDANCE WITH THE "EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL" AS PUBLISHED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF WATER QUALITY PROTECTION (MOST RECENT EDITION).
   - A. SEEDING SHALL TAKE PLACE DURING TIMEFRAME NOTED IN THE SEEDING DATES SECTION ABOVE.
   - B. SEED SHALL BE APPLIED IN A NON-COMPACTED, ROUGHENED TOPSOIL.
   - C. SEED MAY BE APPLIED THROUGH ANY OF THE FOLLOWING MEANS AND METHODS, OR OTHER ACCEPTED INDUSTRY PRACTICES, UNLESS SPECIFICALLY NOTED OTHERWISE ON THESE PLANS:
     - I. DRILL SEEDING
     - II. BROADCAST SEEDING (TWO DIRECTIONS)
     - III. HYDROSEEDING (TWO DIRECTIONS)
   - D. ALL SEED SHALL BE TEMPORARILY OR PERMANENTLY STABILIZED UNTIL A 70% PERENNIAL COVER IS ACHIEVED:
     - I. TEMPORARY STABILIZATION WITH STRAW:
       1. STRAW MULCH SHALL BE APPLIED ON TOP OF THE FRESHLY SEEDED AREAS AT A RATE OF 3 TONS PER ACRE (4 TONS PER ACRE BETWEEN NOVEMBER 1ST AND MARCH 1ST).
       2. STRAW SHALL BE STABILIZED WITH A WOOD OR PAPER FIBER MULCH AND TACKIFIER SOLUTION IN ACCORDANCE WITH THE PRODUCT MANUFACTURER'S SPECIFICATIONS.
     - II. TEMPORARY/PERMANENT STABILIZATION WITH EROSION CONTROL MATTING/BLANKETS (WHERE SPECIFIED):
       1. MATTING/BLANKETS SHALL BE INSTALLED IN AREAS AS NOTED ON THE EROSION & SEDIMENT CONTROL PLAN OR WITHIN 50 FEET OF PONDS, STREAMS OR WETLANDS. THE PRODUCT SHALL BE INSTALLED AND STAPLED ON TOP OF THE SEEDING IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS.
       2. AREAS WITH MATTING/BLANKETS SHALL NOT BE TRACKED (CATWALKED) AFTER INSTALLATION.
       3. MATTING/BLANKETS SHALL BE VISUALLY INSPECTED DAILY TO ENSURE THAT THE PRODUCT IS FUNCTIONING PROPERLY, IS HELD FAST TO THE SOIL SURFACE AND IS IN GOOD CONDITION.
   - E. ONCE SEED HAS BEEN SET, VEHICULAR TRAFFIC OR OTHER SOURCES OF COMPACTION SHALL BE AVOIDED
5. IRRIGATION: NEW SEED APPLICATIONS SHOULD BE SUPPLIED WITH ADEQUATE WATER, A MINIMUM OF ¼" TWICE A DAY, UNTIL VEGETATION IS WELL ESTABLISHED (A MINIMUM OF 75% COVER).



NOTES:

LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE

A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.

BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5%. FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.

AS THE PROPOSED DEVELOPMENT IS WITHIN AN IMPAIRED WATERSHED, ALL FILTER BAGS MUST BE SURROUNDED BY A COMPOST FILTER SOCK RING OR OPERATED IN CONJUNCTION WITH A SUMP PIT.

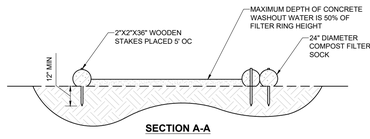
THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.

FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

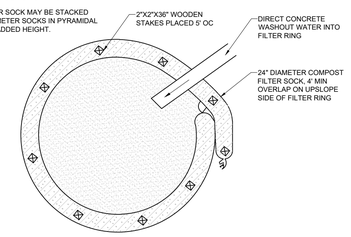
STANDARD CONSTRUCTION DETAIL #3-16 (ABACT) PUMPED WATER FILTER BAG

NOT TO SCALE (PADEP - MARCH 2012)



NOTES:

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

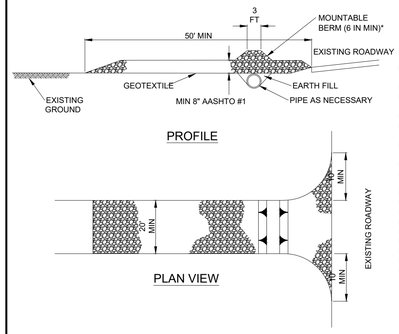


A SUITABLE IMPERVIOUS GEOMEMBRANE SHALL BE PLACED AT THE LOCATION OF THE WASHOUT PRIOR TO INSTALLING THE SOCKS.

CONCRETE WASHOUT NOTES:
-UNDER NO CIRCUMSTANCES MAY WASH WATER FROM THESE VEHICLES BE ALLOWED TO ENTER ANY SURFACE WATERS.
-WASHOUT FACILITIES SHOULD NOT BE PLACED WITHIN 50 FEET OF STORM DRAINS, OPEN DITCHES OR SURFACE WATERS.
-SHOULD BE A MINIMUM OF 10 FEET WIDE AND PROVIDE AT LEAST 12 INCHES OF FREEBOARD ABOVE THE LIQUID AND SOLID WASTE ANTICIPATED BETWEEN CLEANOUT INTERVALS. -THE PIT SHOULD BE LINED WITH PLASTIC SHEETING OF AT LEAST 10-MIL THICKNESS (WITH NO HOLES OR TEARS) TO PREVENT LEACHING OF LIQUIDS INTO THE GROUND. -ALL CONCRETE WASHOUT FACILITIES SHOULD BE INSPECTED DAILY. DAMAGED OR LEAKING WASHOUTS SHOULD BE DEACTIVATED AND REPAIRED OR REPLACED IMMEDIATELY. -ACCUMULATED MATERIALS SHOULD BE REMOVED WHEN THEY REACH 75% CAPACITY. -PLASTIC LINERS SHOULD BE REPLACED WITH EACH CLEANING OF THE WASHOUT FACILITY.

TYPICAL COMPOST SOCK WASHOUT INSTALLATION

NOT TO SCALE (PA-0020201 - 09/2023)



* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

NOTES:

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

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

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

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

STANDARD CONSTRUCTION DETAIL #3-1 ROCK CONSTRUCTION ENTRANCE

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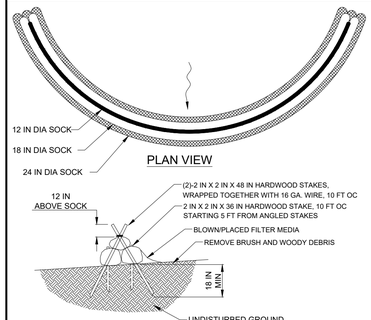

DESIGN NOTES:

1. COMPOST SOCK SEDIMENT TRAP SHALL BE SIZED TO PROVIDE 2000 CUBIC FEET OF STORAGE CAPACITY FOR EACH ACRE TRIBUTARY TO THE TRAP.
2. MINIMUM BASE WIDTH IS EQUAL TO THE HEIGHT.
3. SEDIMENT ACCUMULATION SHALL NOT EXCEED 1/3 THE TOTAL HEIGHT OF THE TRAP.
4. SOCKS SHALL BE OF LARGER DIAMETER AT THE BASE OF THE TRAP AND DECREASE IN DIAMETER FOR SUCCESSIVE LAYERS AS SHOWN ON THE PLAN VIEW.
5. ENDS OF THE TRAP SHALL BE A MINIMUM OF 1 FOOT HIGHER IN ELEVATION THAN THE MID-SECTION, WHICH SHALL BE LOCATED AT THE POINT OF DISCHARGE.

NOTES:

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

COMPOST SOCK SEDIMENT TRAPS SHALL NOT EXCEED THREE SOCKS IN HEIGHT AND SHALL BE STACKED IN PYRAMIDAL FORM AS SHOWN ABOVE. MINIMUM TRAP HEIGHT IS ONE 24" DIAMETER SOCK. ADDITIONAL STORAGE MAY BE PROVIDED BY MEANS OF AN EXCAVATED SUMP 12" DEEP EXTENDING 1 TO 3 FEET UPSLOPE OF THE SOCKS ALONG THE LOWER SIDE OF THE TRAP.

COMPOST SOCK SEDIMENT TRAPS SHALL PROVIDE 2,000 CUBIC FEET STORAGE CAPACITY WITH 12" FREEBOARD FOR EACH TRIBUTARY DRAINAGE ACRE. (SEE MANUFACTURER FOR ANTICIPATED SETTLEMENT.)

THE MAXIMUM TRIBUTARY DRAINAGE AREA IS 5.0 ACRES. SINCE COMPOST SOCKS ARE "FLOW-THROUGH," NO SPILLWAY IS REQUIRED.

COMPOST SOCK SEDIMENT TRAPS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/3 THE HEIGHT OF THE SOCKS.

PHOTODEGRADABLE AND BIODEGRADABLE SOCKS SHALL NOT BE USED FOR MORE THAN 1 YEAR.

STANDARD CONSTRUCTION DETAIL #3-11 COMPOST SOCK SEDIMENT TRAP

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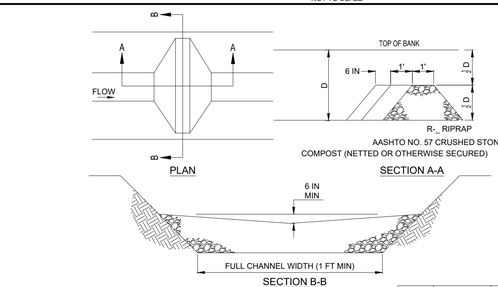


NOTES:

SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE HEIGHT OF THE FILTERS.

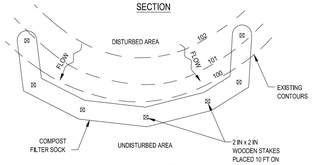
IMMEDIATELY UPON STABILIZATION OF EACH CHANNEL, REMOVE ACCUMULATED SEDIMENT, REMOVE ROCK FILTER, AND STABILIZE DISTURBED AREAS.

ROCK FILTER NO.	LOCATION	D (FT)	RIPRAP SIZE (R-_)
88	1234567890	88	8

FOR D > 3 FT - USE R-4
FOR D > 2 FT TO D < 3 FT - USE R-3
NOT APPLICABLE FOR D < 2 FT

STANDARD CONSTRUCTION DETAIL #4-1 COMPOST FILTER SOCK

NOT TO SCALE (PADEP - MARCH 2012)



FILTREXX NOTES:

- SOCK MATERIAL SHALL MEET THE STANDARDS OF PA DEP EROSION CONTROL MANUAL TABLE 4.1. COMPOST SHALL MEET THE STANDARDS OF PA DEP EROSION CONTROL MANUAL TABLE 4.2
- COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST EIGHT (8) FEET UP SLOPE AT 45° TO THE MAIN SOCK ALIGNMENT (PA DEP EROSION CONTROL MANUAL FIGURE 4.1). MAXIMUM SLOPE LENGTH ABOVE ANY SOCK SHALL NOT EXCEED THAT SHOWN ON PA DEP EROSION CONTROL MANUAL FIGURE 4.2. STAKES MAY BE INSTALLED IMMEDIATELY DOWNSLOPE OF THE SOCK IF SO SPECIFIED BY THE MANUFACTURER.
- TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.
- ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE ABOVE GROUND HEIGHT OF THE SOCK AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.
- SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
- BIODEGRADABLE FILTER SOCKS SHALL BE REPLACED AFTER SIX (6) MONTHS, PHOTODEGRADABLE SOCKS AFTER ONE (1) YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

STANDARD CONSTRUCTION DETAIL #4-14 ROCK FILTER

NOT TO SCALE (PADEP - MARCH 2012)

Location	SiltSoxx Size (inches)	Location	SiltSoxx Size (inches)
FS #1	18	FS #26	18
FS #2	18	FS #27	18
FS #3	18	FS #28	8
FS #4	8	FS #29	8
FS #5	8	FS #30	8
FS #6	12	FS #31	8
FS #7	8	FS #32	8
FS #8	8	FS #33	8
FS #9	12	FS #34	8
FS #10	8	FS #35	8
FS #11	18	FS #36	12
FS #12	12	FS #37	24
FS #13	8	FS #38	24
FS #14	8	FS #39	24
FS #15	8	FS #40	24
FS #16	8	FS #41	24
FS #17	8	FS #42	18
FS #18	8	FS #43	12
FS #19	8	FS #44	8
FS #20	8	FS #45	12
FS #21	8		
FS #22	8		
FS #23	8		
FS #24	8		
FS #25	18		

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREIN HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR, ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 50 OF 2017, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. WWW.PA1CALL.ORG

NOT APPROVED FOR CONSTRUCTION

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: PAC250095.00-1A
DRAWN BY: PAB
CHECKED BY: RDE
DATE: 04/06/2026
CAD I.D.: P-CIVIL-DNDS

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD NEW BRITAIN TOWNSHIP BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
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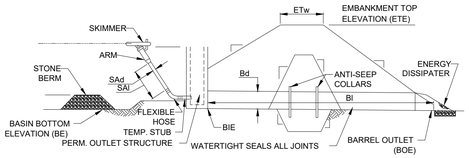
COMMONWEALTH OF PENNSYLVANIA — MATTHEW JOHN KEARSE — PROFESSIONAL — PROFESSIONAL ENGINEER

SHEET TITLE:

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

**SH



BASIN NO.	Z1 (FT)	Z2 (FT)	EMBANKMENT				CLEAN OUT ELEV COE (FT)	BOTTOM ELEV BE (FT)
			TOP ELEV ETE (FT)	TOP WIDTH ETw (FT)	KEY TRENCH DEPTH (FT)	KEY TRENCH WIDTH (FT)		
1	3	3	280.00	10	4.5	4.0	275.00	274.00

SKIMMER			OUTLET BARREL				
DIA SAd (IN)	LENGTH SAI (FT)	MATL	DIA Bd (IN)	INLET ELEV BIE (FT)	MATL	LENGTH BI (FT)	OUTLET ELEV BOE
2.5	5.0	PVC	30	274.00	RCP	105.00	269.00

NOTES:

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

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

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

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

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

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

STANDARD CONSTRUCTION DETAIL #7-4
SEDIMENT BASIN EMBANKMENT AND SPILLWAY DETAILS - SKIMMER

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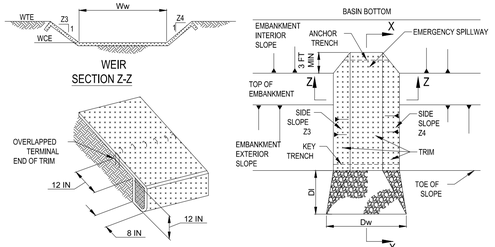

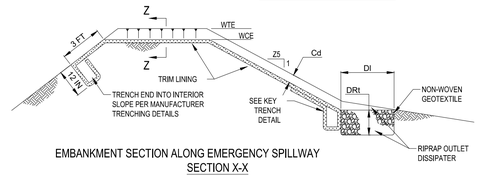

EMBANKMENT SECTION ALONG EMERGENCY SPILLWAY
SECTION X-X

BASIN NO.	WEIR					LINING		CHANNEL		DISSIPATER			
	Z3 (FT)	Z4 (FT)	TOP ELEV WTE (FT)	CREST ELEV WCE (FT)	WIDTH Ww (FT)	TRIM TYPE	STAPLE PATTERN	Z5 (FT)	DEPTH Cd (FT)	LENGTH DI (FT)	WIDTH Dw (FT)	RIPRAP SIZE (R-_)	RIPRAP THICK. DRt (IN)
AGB 1-3	3	3	280.00	278.50	120	NAG SC250	PER MANUF	3	N/A	N/A	N/A	N/A	N/A

NOTES:

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

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

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

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

STANDARD CONSTRUCTION DETAIL #7-13
SEDIMENT BASIN EMERGENCY SPILLWAY WITH TRIM LINING

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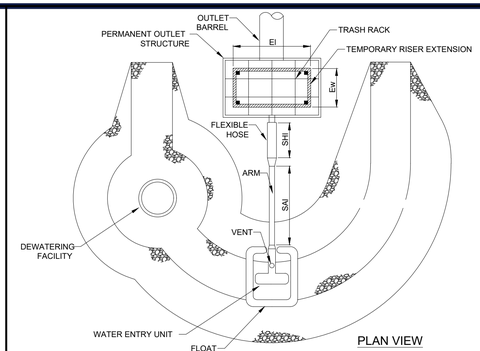

NOTES:

NO GUIDE RAILS SHALL BE REQUIRED FOR THIS INSTALLATION.

THIS DETAIL SHALL BE USED IN CONJUNCTION WITH STANDARD CONSTRUCTION DETAILS #7-2 AND #7-4.

STANDARD CONSTRUCTION DETAIL #7-3
SKIMMER WITH STONE LANDING BERM

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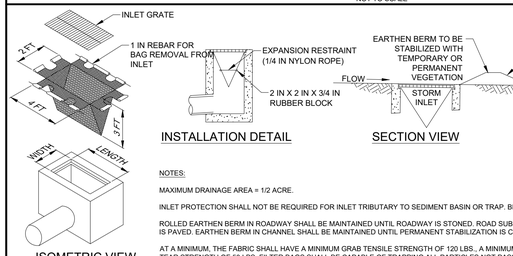

NOTES:

MAXIMUM DRAINAGE AREA = 1/2 ACRE.

INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.

ROLLED EARTHEN BERM IN ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM ON ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. EARTHEN BERM IN CHANNEL SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION IS COMPLETED OR REMAIN PERMANENTLY.

AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS., A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE OF ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.

DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

STANDARD CONSTRUCTION DETAIL #4-16
FILTER BAG INLET PROTECTION - TYPE M INLET

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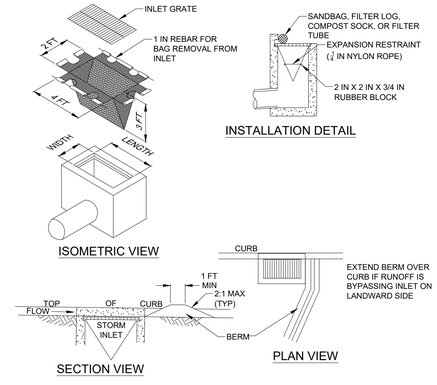

NOTES:

MAXIMUM DRAINAGE AREA = 1/2 ACRE.

INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.

ROLLED EARTHEN BERM SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. SIX INCH MINIMUM HEIGHT ASPHALT BERM SHALL BE MAINTAINED UNTIL ROADWAY SURFACE RECEIVES FINAL COAT. AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS, A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE OF ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.

DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

STANDARD CONSTRUCTION DETAIL #4-15
FILTER BAG INLET PROTECTION - TYPE C INLET

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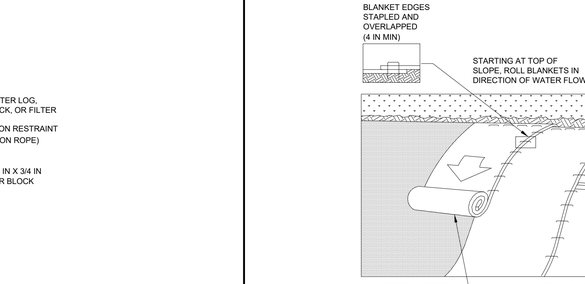


NOTES:

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

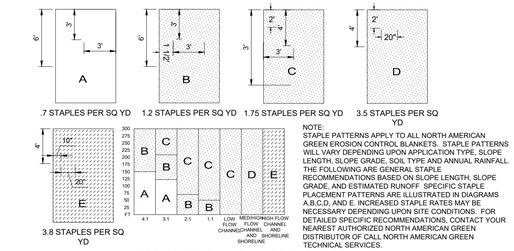
PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE.

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

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

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

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



NOTE:
STAPLE PATTERNS APPLY TO ALL NORTH AMERICAN GREEN EROSION CONTROL BLANKETS. STAPLE PATTERNS WILL VARY DEPENDING UPON APPLICATION TYPE, SLOPE LENGTH, SLOPE GRADE, SOIL TYPE AND ANNUAL RAINFALL. THE FOLLOWING ARE GENERAL STAPLE RECOMMENDATIONS BASED ON SLOPE LENGTH, SLOPE GRADE, AND ESTIMATED RUNOFF. SPECIFIC STAPLE PLACEMENT PATTERNS ARE ILLUSTRATED IN DIAGRAMS A,B,C,D, AND E. INCREASED STAPLE RATES MAY BE NECESSARY DEPENDING UPON SITE CONDITIONS. FOR DETAILED SPECIFIC RECOMMENDATIONS, CONTACT YOUR NEAREST AUTHORIZED NORTH AMERICAN GREEN DISTRIBUTOR OF CALL NORTH AMERICAN GREEN TECHNICAL SERVICES.

EROSION CONTROL BLANKET STAPLE PATTERN GUIDE

STANDARD CONSTRUCTION DETAIL #11-1
EROSION CONTROL BLANKET INSTALLATION

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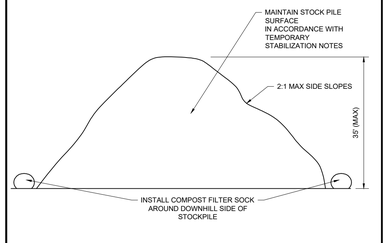

TEMPORARY SOIL STOCKPILE

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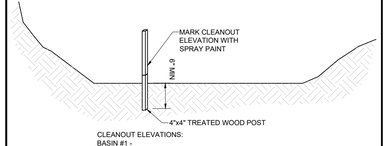

CLEANOUT ELEVATIONS:
BASIN #1 -

TEMPORARY SEDIMENT CLEANOUT STAKE

NOT TO SCALE (PA-0049901 - 09/2023)

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-CNDS

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — PROFESSIONAL — MATTHEW JOHN KRARSE — PROFESSIONAL ENGINEER — PENNSYLVANIA LICENSE NO. PE092688

SHEET TITLE:

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

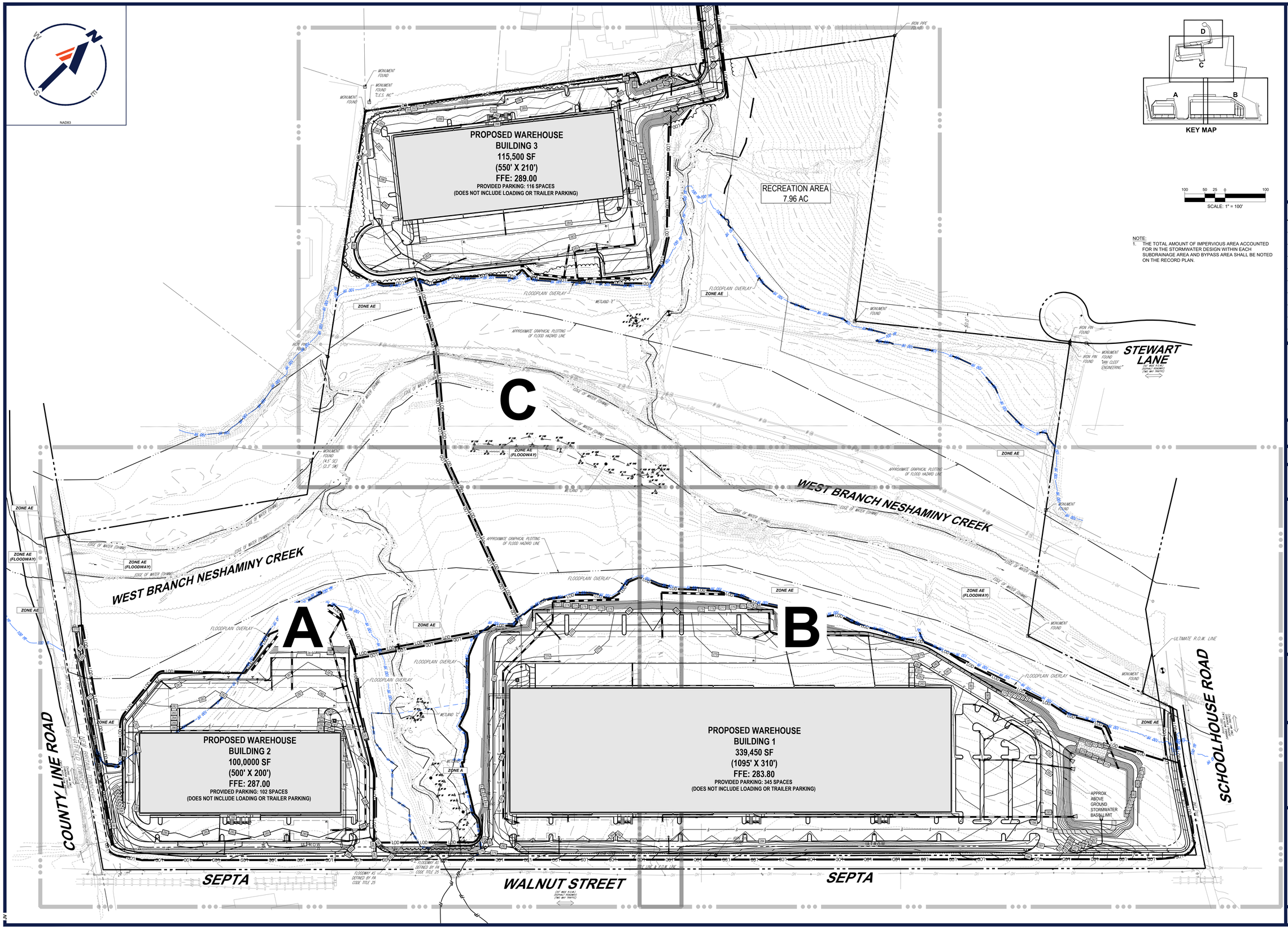
SHEET NUMBER:

C-811

65 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-CNDS-PAC250095.00-1A-----1-LAYOUT, C-811 EROS DTL



KEY MAP

100 50 25 0 100

SCALE: 1" = 100'

NOTE:
1. THE TOTAL AMOUNT OF IMPERVIOUS AREA ACCOUNTED FOR IN THE STORMWATER DESIGN WITHIN EACH SUBDRAINAGE AREA AND BYPASS AREA SHALL BE NOTED ON THE RECORD PLAN.

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-PCSM

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER™
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
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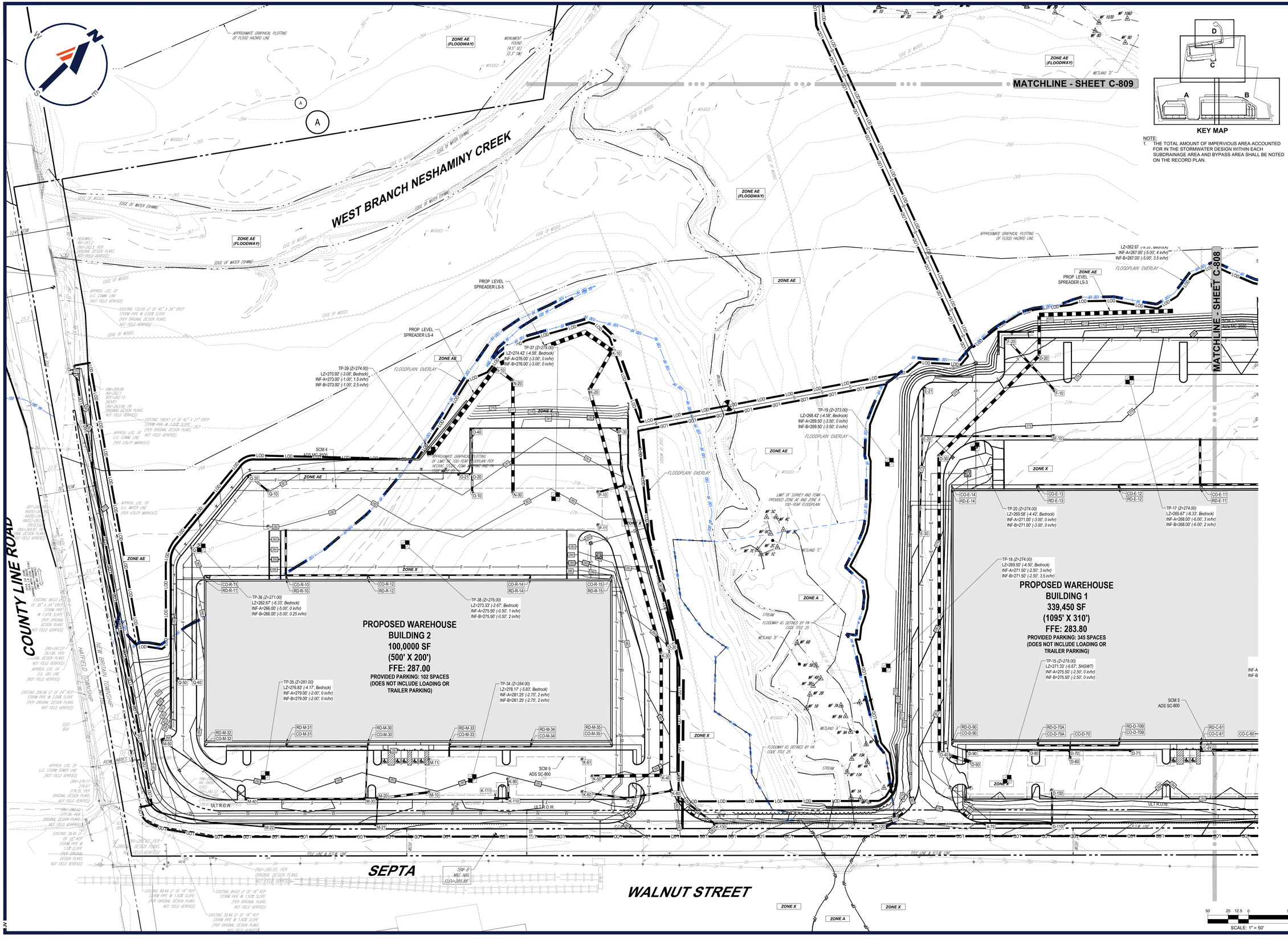
M. KEARSE
COMMONWEALTH OF PENNSYLVANIA
PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE-[illegible]

SHEET TITLE:
OVERALL POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

SHEET NUMBER:
C-812
66 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-PCSM-PAC250095.00-1A---->LAYOUT: C-812 OVRL PCSM
JV



Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SET\CIVIL SITE PLANS\P-CIVIL-PCSM-PAC250095.00-1A.------\LAYOUT: C-813 PCSM A

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DATE:	04/06/2026
CAD I.D.:	P-CIVIL-PCSM

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
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www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA
MATTHEW JOHN KEARSE
PROFESSIONAL
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090288

SHEET TITLE:

POST CONSTRUCTION STORMWATER MANAGEMENT PLAN A

SHEET NUMBER:

C-813

67 OF 102

REVISION 1 - 07/28/2026

MATCHLINE - SHEET C-809

MATCHLINE - SHEET C-807

WEST BRANCH NESHAMINY CREEK

SCHOOLHOUSE ROAD

SEPTA

WALNUT STREET

PROPOSED WAREHOUSE
BUILDING 1
339,450 SF
(1095' X 310')
FFE: 283.80
PROVIDED PARKING: 345 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

ZONE AE (FLOODWAY)
ZONE AE
ZONE X
ZONE X (SHADED)

TP-10 (Z=272.00)
LZ=266.50' (-5.50', Bedrock)
INF-A=268.50' (-3.50', 0 in/hr)
INF-B=268.50' (-3.50', 0 in/hr)

TP-9 (Z=272.00)
LZ=268.58' (-3.42', Bedrock)
INF-A=270.50' (-1.50', 2 in/hr)
INF-B=270.50' (-1.50', 2.5 in/hr)

TP-7 (Z=274.00)
LZ=267.17' (-6.83', Bedrock)
INF-A=271.50' (-2.50', 2 in/hr)
INF-B=271.50' (-2.50', 2 in/hr)

TP-11 (Z=274.00)
LZ=268.08' (-5.92', Bedrock)
INF-A=271.00' (-3.00', 0 in/hr)
INF-B=271.00' (-3.00', 0 in/hr)

TP-8 (Z=276.00)
LZ=269.33' (-6.67', Bedrock & SHGWT)
INF-A=274.00' (-2.00', 2 in/hr)
INF-B=274.00' (-2.00', 2 in/hr)

TP-14 (Z=285.00)
LZ=272.50' (-12.50', N/E)
INF-A=280.00' (-5.00', 4.5 in/hr)
INF-B=280.00' (-5.00', 3.5 in/hr)

TP-13 (Z=288.00)
LZ=284.92' (-3.08', Bedrock)
INF-A=287.50' (-0.50', 3.75 in/hr)
INF-B=287.50' (-0.50', 3.75 in/hr)

TP-12 (Z=288.00)
LZ=282.08' (-5.92', Bedrock)
INF-A=284.75' (-3.25', 0.5 in/hr)
INF-B=284.75' (-3.25', 1 in/hr)

TP-5 (Z=276.00)
LZ=269.42' (-6.58', Bedrock)
INF-A=274.25' (-1.75', 2 in/hr)
INF-B=274.25' (-1.75', 1.5 in/hr)

TP-6 (Z=276.00)
LZ=271.00' (-5.00', Bedrock)
INF-A=274.00' (-2.00', 0 in/hr)
INF-B=274.00' (-2.00', 0 in/hr)

TP-4 (Z=277.00)
LZ=271.25' (-5.75', Bedrock)
INF-A=277.00' (-0.00', 0 in/hr)
INF-B=274.00' (-3.00', 1 in/hr)

TP-1 (Z=275.00)
LZ=270.50' (-4.50', Bedrock)
INF-A=274.50' (-0.50', 1 in/hr)
INF-B=274.50' (-0.50', 1 in/hr)

TP-2 (Z=277.00)
LZ=272.00' (-5.00', Bedrock)
INF-A=276.00' (-1.00', 0 in/hr)
INF-B=276.00' (-1.00', 0 in/hr)

TP-3 (Z=277.00)
LZ=271.58' (-5.42', Bedrock)
INF-A=275.00' (-2.00', 0 in/hr)
INF-B=275.00' (-2.00', 0.5 in/hr)

INFILTRATION AGB 1-3
INFILTRATION BASIN

PROP LEVEL SPREADER LS-2
PROP LEVEL SPREADER LS-1
PROP SPILLWAY LINING
PROP EMERGENCY SPILLWAY EL: 278.50
PROP 10' WIDE STABILIZED BASIN ACCESS

RCS17
AUS-MC-3500

MONUMENT FOUND
IRON PIN FOUND
ULTIMATE R.O.W. LINE
TITLE LINE & R.O.W. LINE
FLOODPLAIN OVERLAY
APPROXIMATE GRAPHICAL PLOTTING OF LIMIT OF 100-YEAR (1%-ANNUAL-CHANCE) FLOOD HAZARD AREA (FEMA MAPPING AND VIA ATLAS GIS)
APPROXIMATE GRAPHICAL PLOTTING OF FLOOD HAZARD LINE
APPROX. LOC. OF U.S. 10" SAN. LINE (NOT FIELD VERIFIED)
APPROX. LOC. OF U.S. WATER LINE (PER UTILITY MARKOUT)
APPROX. LOC. OF U.S. 42" WATER LINE (PER UTILITY MARKOUT)
EXISTING 467.59 LF OF 10" PVC SANITARY SEWER @ 0.25% SLOPE (PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)
EXISTING 267.17 LF OF 10" PVC SANITARY SEWER @ 0.25% SLOPE (PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)
MH LL=15 RIM=263.97' INV UNDR (I/O), RD(I/O) (INV=255.80 PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)
MH LL=13 RIM=263.90' (INV(I)=253.1 INV(O)=253.1 INV(C)=253.1 (INV=254.21 PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)
MH LL=12 RIM=262.24 INV UNDR (I/O), RD(I/O) (INV=253.07 PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)
MH LL=11 RIM=263.97' INV UNDR (I/O), RD(I/O) (INV=255.83 PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)
72M-C MAG NAIL ELEV=277.84'

KEY MAP

NOTE:
1. THE TOTAL AMOUNT OF IMPERVIOUS AREA ACCOUNTED FOR IN THE STORMWATER DESIGN WITHIN EACH SUBDRAINAGE AREA AND BYPASS AREA SHALL BE NOTED ON THE RECORD PLAN.

SCALE: 1" = 50'

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-PCSM-PAC250095.00-1A---LAYOUT C-814 PCSM B
JV

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LAND SURVEYING
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LANDSCAPE ARCHITECTURE
LIGHT GAGE STEEL DESIGN
PERMITTING SERVICES
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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
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DATE:	04/06/2026
CAD I.D.:	P-CIVIL-PCSM

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS
FOR
HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — PROFESSIONAL — MATTHEW JOHN KEARSE — PROFESSIONAL ENGINEER — PENNSYLVANIA

SHEET TITLE:
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN B

SHEET NUMBER:
C-814
68 OF 102

REVISION 1 - 07/28/2026



KEY MAP

NOTE:
1. THE TOTAL AMOUNT OF IMPERVIOUS AREA ACCOUNTED FOR IN THE STORMWATER DESIGN WITHIN EACH SUBDRAINAGE AREA AND BYPASS AREA SHALL BE NOTED ON THE RECORD PLAN.

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PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS
FOR
HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

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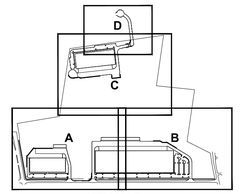
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NUMBER PE088588

SHEET TITLE:
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN C

SHEET NUMBER:
C-815
69 OF 102

REVISION 1 - 07/28/2026

Jul 29, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-PCSM-PAC250095.00-1A-----1A LAYOUT: C-815 PCSM C
JV



KEY MAP

INDEPENDENCE LANE

PROPOSED WAREHOUSE
BUILDING 3
115,500 SF
(550' X 210')
FFE: 289.00
PROVIDED PARKING: 116 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

SCM 6
ADS SC-800

SCM 7
ADS MC-3500

UNDERGROUND STORMWATER STORAGE SYSTEM FOR MODIFIED EXISTING SURFACE DETENTION BASIN
ADS MC-3500

RECREATION AREA
7.96 AC

NOTE:
1. THE TOTAL AMOUNT OF IMPERVIOUS AREA ACCOUNTED FOR IN THE STORMWATER DESIGN WITHIN EACH SUBDRAINAGE AREA AND BYPASS AREA SHALL BE NOTED ON THE RECORD PLAN.

TP-21 (Z=279.00)
LZ=273.00' (-6.00', Bedrock)
INF-A=276.75' (-2.25', 1 in/hr)
INF-B=276.75' (-2.25', 1 in/hr)

TP-22 (Z=282.00)
LZ=277.00' (-5.00', Bedrock)
INF-A=280.50' (-1.50', 0 in/hr)
INF-B=280.50' (-1.50', 0 in/hr)

TP-23 (Z=284.00)
LZ=278.67' (-5.33', Bedrock)
INF-A=282.75' (-1.25', 0.25 in/hr)
INF-B=282.75' (-1.25', 0 in/hr)

TP-24 (Z=278.00)
LZ=274.25' (-3.75', Bedrock)
INF-A=277.00' (-1.00', 9.75 in/hr)
INF-B=277.00' (-1.00', 10.0+ in/hr)

TP-25 (Z=279.00)
LZ=273.58' (-5.42', Bedrock)
INF-A=277.00' (-2.00', 0 in/hr)
INF-B=277.00' (-2.00', 0 in/hr)

TP-26 (Z=275.00)
LZ=270.67' (-4.33', Bedrock)
INF-A=273.00' (-2.00', 0.5 in/hr)
INF-B=273.00' (-2.00', 0.25 in/hr)

TP-27 (Z=298.00)
LZ=290.08' (-7.92', Bedrock & SHGWT)
INF-A=292.00' (-6.00', 10.0+ in/hr)
INF-B=295.50' (-2.50', 0 in/hr)

TP-28 (Z=292.00)
LZ=283.00' (-9.00', Bedrock)
INF-A=287.00' (-5.00', 0 in/hr)
INF-B=287.00' (-5.00', 0 in/hr)

TP-29 (Z=284.00)
LZ=272.00' (-12.00', Bedrock)
INF-A=278.00' (-6.00', 0 in/hr)
INF-B=278.00' (-6.00', 0 in/hr)

TP-30 (Z=287.00)
LZ=281.00' (-6.00', Bedrock)
INF-A=283.00' (-4.00', 0 in/hr)
INF-B=283.00' (-4.00', 0 in/hr)

TP-31 (Z=290.00)
LZ=283.33' (-6.67', Bedrock)
INF-A=286.25' (-3.75', 0.5 in/hr)
INF-B=286.25' (-3.75', 0 in/hr)

TP-32 (Z=276.00)
LZ=268.75' (-7.25', Bedrock)
INF-A=271.50' (-4.50', 10.0+ in/hr)
INF-B=271.50' (-4.50', 10.0+ in/hr)

TP-33 (Z=282.00)
LZ=274.00' (-8.00', Bedrock)
INF-A=277.50' (-4.50', 10.0+ in/hr)
INF-B=277.50' (-4.50', 1.5 in/hr)

PROP LEVEL SPREADER LS-7

PROP LEVEL SPREADER LS-6

ZONE X

ZONE AE

ZONE AE (FLOODWAY)

APPROXIMATE GRAPHICAL PLOTTING OF FLOOD HAZARD LINE

APPROXIMATE GRAPHICAL PLOTTING OF LIMIT OF 100-YEAR FLOODPLAIN PER HECRAS STUDY, FEMA MAPPING AND PA CODE TITLE 25

FLOODPLAIN OVERLAY

MATCHLINE - SHEET C-807

MATCHLINE - SHEET C-808

SCALE: 1" = 50'

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PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

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BUCKS COUNTY, PA

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COMMONWEALTH OF PENNSYLVANIA — LICENSED PROFESSIONAL — MATTHEW JOHN KEARSE — PROFESSIONAL ENGINEER — PE044201 — DATE OF SIGNATURE: 04/06/2026

SHEET TITLE:

POST CONSTRUCTION STORMWATER MANAGEMENT PLAN D

SHEET NUMBER:

C-816
70 OF 102

REVISION 1 - 07/28/2026

Jul 26, 2026
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PCSM - GENERAL SCM NOTES

(Rev. 01/2025)

1. A SITE INSPECTION AND APPROVAL BY THE COUNTY CONSERVATION DISTRICT IS REQUIRED PRIOR TO THE REMOVAL OR CONVERSION OF SEDIMENT BASINS AND TRAPS.
2. BOHLER ENGINEERING SHALL BE NOTIFIED OF PRE-CONSTRUCTION MEETING DATE AND SCM CONSTRUCTION SCHEDULE.
3. THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO LIMIT THE COMPACTION IN THE PROPOSED SCM BOTTOMS.
4. REFER TO THE SCM CONSTRUCTION DETAILS FOR THE CONSTRUCTION OF ALL PROPOSED STORMWATER MANAGEMENT SCMs.
5. REFER TO THE PCSM PLAN AND DETAILS FOR SPECIFIC SCM CONSTRUCTION GUIDELINES.
6. AS-BUILT PLANS OF THE STORMWATER SCMs FOR EACH PROJECT PHASE SHALL BE PROVIDED WITHIN FOURTEEN DAYS FOLLOWING THE COMPLETION OF EACH PHASE. THIS IS TO ENSURE THAT THE CERTIFICATION FORM CAN BE COMPLETED WITHIN THIRTY DAYS OF CONSTRUCTION COMPLETION. THE AS-BUILT PLANS SHALL BE SIGNED AND SEALED BY A PA REGISTERED PROFESSIONAL SURVEYOR.
7. A NOTICE OF TERMINATION (NOT) WILL BE REQUIRED TO BE SUBMITTED FOLLOWING APPROVAL OF THE FINAL AS-BUILT PLANS. PRIOR TO ACCEPTING THE NOT, THE DEPARTMENT AND/OR CONSERVATION DISTRICT STAFF WILL PERFORM A FINAL INSPECTION TO ENSURE SITE STABILIZATION AND VERIFY ADEQUATE INSTALLATION AND FUNCTION OF STORMWATER SCMs.

LONG-TERM OPERATION AND MAINTENANCE SCHEDULE

(Rev. 01/2025)

§102.8(f)(10)

1. UNTIL THE SITE IS STABILIZED AND DURING THE CONSTRUCTION ACTIVITIES, ALL SCMs MUST BE MAINTAINED PROPERLY BY CONTRACTOR. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL SCMs AS SPECIFIED, ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN-OUT, REPAIR, REPLACEMENT, RE-GRADING, RE-SEEDING, RE-MULCHING AND RE-NETTING MUST BE PERFORMED IMMEDIATELY AND IN ACCORDANCE WITH THESE PROCEDURES, PLANS, AND DETAILS. ANY AREAS DISTURBED DURING MAINTENANCE MUST BE STABILIZED IMMEDIATELY IN ACCORDANCE WITH THE GENERAL CONSERVATION NOTES AND SPECIFICATIONS.
2. ALL SITE INSPECTIONS MUST BE DOCUMENTED IN AN INSPECTION LOG KEPT FOR THIS PURPOSE INDICATING THE COMPLIANCE ACTIONS AND THE DATE, TIME AND NAME OF THE PERSON CONDUCTING THE INSPECTION. THE INSPECTION LOG MUST BE KEPT ON SITE AT ALL TIMES AND MADE AVAILABLE TO THE DISTRICT UPON REQUEST.
3. SHOULD ON-SITE EROSION OCCUR FROM THE LANDSCAPED AREAS, THE SOURCE OF EROSION SHALL BE IMMEDIATELY STABILIZED AND THE INLETS AND STORMWATER PIPING SHALL BE CHECKED FOR ACCUMULATION AND CLEARED IF ACCUMULATION OF SEDIMENT EXISTS.
4. HEAVY CONSTRUCTION VEHICLES SHALL NOT BE PARKED ON OR DRIVEN OVER SCM FACILITIES AND CARE SHOULD BE TAKEN TO AVOID EXCESSIVE COMPACTION BY EQUIPMENT, INCLUDING MOWERS.
5. INSPECT INFILTRATION FACILITIES AFTER RUNOFF EVENTS AND MAKE SURE THAT RUNOFF DRAINS DOWN WITHIN 72 HOURS. INSPECT FOR ACCUMULATION OF SEDIMENT, DAMAGE TO OUTLET CONTROL STRUCTURES, SIGNS OF WATER CONTAMINATION/SPILLS, AND SIGNS OF EROSION.
6. REMOVE ACCUMULATED SEDIMENT FROM THE FACILITIES AS REQUIRED. RESTORE ORIGINAL CROSS-SECTION IF NECESSARY. PROPERLY DISPOSE OF SEDIMENT AS SPECIFIED. FOR ABOVE-GROUND INFILTRATION FACILITIES, REMOVE AND REPLACE SAND/STONE LAYER AS NECESSARY IF FACILITY DEWATERING TIME EXCEEDS 72 HOURS.

HCI DP LAND ACQUISITION LLC IS RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF THE STORMWATER MANAGEMENT SCMs AS DESCRIBED HEREIN

DEFINITION OF CLEAN FILL AND IMPORT/EXPORT MATERIAL NOTES

(Rev. 5/2024)

IF THE SITE WILL NEED TO IMPORT OR EXPORT MATERIAL FROM THE SITE, THE RESPONSIBILITY FOR PERFORMING ENVIRONMENTAL DUE DILIGENCE AND DETERMINATION OF CLEAN FILL WILL REST WITH THE APPLICANT.

1. CLEAN FILL IS DEFINED AS: UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSABLE, INERT, SOLID MATERIAL. THE TERM INCLUDES SOIL, ROCK, STONE, DREDGED MATERIAL, USED ASPHALT, AND BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES THAT IS SEPARATE FROM OTHER WASTE AND IS RECOGNIZABLE AS SUCH. THE TERM DOES NOT INCLUDE MATERIALS PLACED IN OR ON THE WATERS OF THE COMMONWEALTH UNLESS OTHERWISE AUTHORIZED. (THE TERM "USED ASPHALT" DOES NOT INCLUDE MILLED ASPHALT OR ASPHALT THAT HAS BEEN PROCESSED FOR RE-USE).
2. CLEAN FILL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE: FILL MATERIALS AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE STILL QUALIFIES AS CLEAN FILL PROVIDED THE TESTING REVEALS THAT THE FILL MATERIAL CONTAINS CONCENTRATIONS OF REGULATED SUBSTANCES THAT ARE BELOW THE RESIDENTIAL LIMITS IN TABLES FP-1A AND FP-1B FOUND IN THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL".
3. ANY PERSON PLACING CLEAN FILL THAT HAS BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE MUST USE FORM FP-001 TO CERTIFY THE ORIGIN OF THE FILL MATERIAL AND THE RESULTS OF THE ANALYTICAL TESTING TO QUALIFY THE MATERIAL AS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE OWNER OF THE PROPERTY RECEIVING THE FILL. A COPY OF FORM FP-001 CAN BE FOUND AT THE END OF THESE INSTRUCTIONS.
4. ENVIRONMENTAL DUE DILIGENCE: THE APPLICANT MUST PERFORM ENVIRONMENTAL DUE DILIGENCE TO DETERMINE IF THE FILL MATERIALS ASSOCIATED WITH THE PROJECT QUALIFY AS CLEAN FILL. ENVIRONMENTAL DUE DILIGENCE IS DEFINED AS INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS. ANALYTICAL TESTING IS NOT A REQUIRED PART OF DUE DILIGENCE UNLESS VISUAL INSPECTION AND/OR REVIEW OF THE PAST LAND USE OF THE PROPERTY INDICATES THAT THE FILL MAY HAVE BEEN SUBJECTED TO A SPILL OR RELEASE OF REGULATED SUBSTANCE. IF THE FILL MAY HAVE BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE, IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL".

FILL MATERIAL THAT DOES NOT QUALIFY AS CLEAN FILL IS REGULATED FILL. REGULATED FILL IS WASTE AND MUST BE MANAGED IN ACCORDANCE WITH THE DEPARTMENT'S MUNICIPAL OR RESIDUAL WASTE REGULATIONS BASED ON 25 PA. CODE CHAPTERS 287 RESIDUAL WASTE MANAGEMENT OR 271 MUNICIPAL WASTE MANAGEMENT, WHICHEVER IS APPLICABLE. THE REGULATIONS ARE AVAILABLE ON-LINE AT WWW.PACODE.COM.

LOCATION OF ALL SURFACE WATERS AND THEIR CLASSIFICATION UNDER CHAPTER 93

(Rev. 5/2024)

§102.4(b)(5)(v)

THE SUBJECT SITE DRAINS TO THE WEST BRANCH OF THE NESHAMINY CREEK, WHICH HAS A WWF CHAPTER 93 CLASSIFICATION.

RECEIVING SURFACE WATERS

(Rev. 5/2024)

§102.8(f)(5)

1. THE SUBJECT SITE DRAINS TO THE WEST BRANCH OF THE NESHAMINY CREEK, WHICH HAS A WWF CHAPTER 93 CLASSIFICATION.
2. THERE ARE WETLANDS LOCATED ON THE PROJECT SITE.

GEOLOGIC FORMATIONS/SOIL CONDITIONS THAT MAY HAVE THE POTENTIAL TO CAUSE POLLUTION

(Rev. 5/2024)

§102.4(b)(5)(xii)

ENGINEER TO CONFIRM WITH ENVIRONMENTAL ENGINEER THAT NO GEOLOGIC FORMATIONS OR SOIL CONDITIONS THAT COULD CAUSE CONTAMINANT POLLUTION DURING EARTH DISTURBANCE ACTIVITIES.

RECYCLING OR DISPOSAL OF MATERIALS

(Rev. 01/2025)

§102.8(f)(11)

THE FOLLOWING IS A LIST THAT INCLUDES, BUT THAT IS NOT LIMITED TO, THE POTENTIAL CONSTRUCTION WASTES THAT MAY EX ON-SITE:
- TRASH (CANS, BOTTLES, ETC.)
- YARD WASTE (LEAVES, GRASS CLIPPINGS, ETC.)
- DEBRIS COLLECTED IN INLETS
- SEDIMENT CAPTURED IN ANY PCSM SCM

ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH LOCAL REQUIREMENTS. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.

SEQUENCE OF PSCM INSTALLATION AND REMOVAL

(Rev. 01/2025)

§102.4(b)(5)(vii)

AT LEAST SEVEN (7) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, THE OPERATOR SHALL INVITE ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES INCLUDING, BUT NOT LIMITED TO: THE LANDOWNER, ALL APPROPRIATE MUNICIPAL OFFICIALS AND A REPRESENTATIVE OF THE BUCKS COUNTY CONSERVATION DISTRICT FOR AN ON-SITE PRE-CONSTRUCTION MEETING. PRIOR TO THE MEETING, THE CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH ALL ELEMENTS OF THE NPDES PERMIT, PROJECT GEOTECHNICAL INVESTIGATIONS, SOIL MANAGEMENT PLANS, WETLAND DELINEATIONS, ETC.

AT LEAST THREE (3) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM INC. AT 1-800-242-1776 FOR BURIED UTILITIES LOCATION.

THE PERMITTEE MUST RECORD THE APPROVED NPDES PERMIT AND PCSM PLANS AND PROVIDE A COPY OF THE FILING TO THE DISTRICT. THE PRE-CONSTRUCTION MEETING CANNOT BE SCHEDULED UNTIL THE FILING IS REVIEWED BY THE DISTRICT. THE DISTRICT HAS FIVE BUSINESS DAYS TO DETERMINE IF THE FILING IS ACCEPTABLE. THE PERMITTEE MUST ALSO INVITE TO THE PRE-CONSTRUCTION MEETING CO-PERMITTEES, OPERATORS, MUNICIPAL REPRESENTATIVE(S), LICENSED PROFESSIONALS OR DESIGNEES, AND ALL OTHERS RESPONSIBLE FOR IMPLEMENTING OR MONITORING THE EARTH DISTURBANCE ACTIVITY AND IMPLEMENTATION OF E&S, PCSM AND PPC PLANS AND CRITICAL STAGES OF IMPLEMENTATION OF THE APPROVED PCSM PLAN.

BEFORE INITIATING ANY REVISION TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN OR REVISIONS TO OTHER PLANS WHICH MAY AFFECT THE EFFECTIVENESS OF THE APPROVED E&S CONTROL PLAN, THE OPERATOR MUST RECEIVE APPROVAL OF THE REVISIONS FROM THE BUCKS COUNTY CONSERVATION DISTRICT. THE OPERATOR SHALL ASSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMMEDIATELY IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO ELIMINATE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.

ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE SHALL BE COMPLETED IN COMPLIANCE WITH CHAPTER 102 REGULATIONS BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING AND GRUBBING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE.

SEE BMP DETAILS FOR DETAILED SEQUENCING SPECIFIC TO THOSE BMPS.

UPON COMPLETION OR TEMPORARY CESSATION OF THE EARTH DISTURBANCE ACTIVITY, THE PROJECT SITE SHALL BE IMMEDIATELY STABILIZED WITH THE APPROPRIATE TEMPORARY OR PERMANENT STABILIZATION.

AS SOON AS SLOPES, CHANNELS, DITCHES AND OTHER DISTURBED AREAS REACH FINAL GRADE, THEY MUST BE STABILIZED. AS DISTURBED AREAS WITHIN A PROJECT APPROACH FINAL GRADE, PREPARATIONS SHOULD BE MADE FOR SEEDING AND MULCHING TO BEGIN (I.E. ANTICIPATE THE COMPLETION DATE AND SCHEDULE THE SEEDER). IN NO CASE SHOULD AN AREA EXCEEDING 15,000 SQUARE FEET, WHICH IS TO BE STABILIZED BY VEGETATION, REACH FINAL GRADE WITHOUT BEING SEEDED AND MULCHED. WAITING UNTIL EARTHMOVING IS COMPLETED BEFORE MAKING PREPARATIONS FOR SEEDING AND MULCHING IS NOT ACCEPTABLE. SEEDING AND MULCHING REQUIREMENTS ARE SPECIFIED IN THE GENERAL CONSERVATION NOTES AND SPECIFICATIONS.

ONLY LIMITED CLEARING AND GRUBBING IS PERMITTED FOR CONSTRUCTION OF ACCESS TO THE SEDIMENT BASINS. CONSTRUCTION OF THE SEDIMENT BASINS SHALL INCLUDE THE NECESSARY CLEARING AND GRUBBING, EARTHWORK, INSTALLATION OF THE PERMANENT BASIN OUTFALL SYSTEMS AND ALL OTHER SEDIMENT BASIN FEATURES AS SHOWN ON THE PLANS AND DETAILS, AND ANY NECESSARY TEMPORARY STABILIZATION OF ALL DISTURBED AREAS. THE BASINS ARE TO BE STABILIZED AND FUNCTIONING PROPERLY PRIOR TO ANY FURTHER EARTH DISTURBANCE ACTIVITIES. REFER TO THE SEDIMENT BASIN SOIL CONSERVATION DISTRICT MONITORING, INSPECTION AND REPORTING REQUIREMENTS PROVIDED ON THE SOIL EROSION AND SEDIMENT POLLUTION CONTROL NOTES FOR ADDITIONAL SEDIMENT BASIN REQUIREMENTS DURING CONSTRUCTION.

IN INSTANCES WHERE INITIATION OF EARHWORK NECESSARY TO REACH THE GRADES FOR BUILDINGS IS INDICATED: THE CONCRETE WASHOUT MUST BE INSTALLED BEFORE ANY CONCRETE CAN BE POURED ON-SITE. CONTRACTOR MUST PERFORM BULK OF EARTHWORK TO BALAUNTE CUTS AND FILLS TO TO THE GREATEST EXTENT POSSIBLE. ALL AREAS DISTURBED DURING THE EARTHWORK PHASE OF CONSTRUCTION MUST BE TEMPORARILY SEEDED AND STABILIZED IN ACCORDANCE WITH THE GENERAL CONSERVATION NOTES AND SPECIFICATIONS AND SEEDING SPECIFICATIONS IF PERMANENT STABILIZATION CANNOT BE ACHIEVED.

FILL SLOPES SHOULD BE SEEDED AND MULCHED AT REGULAR VERTICAL INCREMENTS ~ 15 TO 25 FEET MAXIMUM -- AS THE FILL IS BEING CONSTRUCTED. THIS WILL ALLOW THE BOTTOM OF THE FILL TO PROGRESS TOWARD STABILIZATION WHILE WORK CONTINUES ON THE UPPER PORTION, MAKING FINAL STABILIZATION EASIER TO ACHIEVE AND PROVIDING SOME VEGETATIVE BUFFERING AT THE BOTTOM OF THE SLOPE.

THE CONTRACTOR SHALL NOTIFY THE ENGINEER OR OWNER'S DESIGNEE A MINIMUM OF THREE DAYS PRIOR TO THE INSTALLATION OF CRITICAL BEST MANAGEMENT PRACTICES.

AFTER INSTALLATION OF LEVEL SPREADERS, INSTALL FILTER SOCK UPGRADIENT TO PREVENT SEDIMENT FROM REACHING THE SPREADER.

A SITE INSPECTION AND APPROVAL BY THE CONSERVATION DISTRICT IS REQUIRED PRIOR TO REMOVAL OR CONVERSION OF SEDIMENT TRAPS AND BASINS. ONCE STONE BASE COURSE HAS BEEN SPREAD IN ALL PAVED AREAS AND ALL LANDSCAPE AREAS HAVE BEEN STABILIZED, BEGIN CONVERTING BASINS TO FINAL GRADES IN ACCORDANCE WITH BMP SEQUENCE OF CONSTRUCTION. THE PERMITTEE SHALL PROVIDE ENGINEERING OVERSIGHT FOR THE CONVERSION OF BASINS. THE DESIGN ENGINEER OR OTHER LICENSED PROFESSIONAL OR DESIGNEE KNOWLEDGEABLE IN THE DESIGN AND CONSTRUCTION OF SUBSURFACE INFILTRATION BASINS SHALL CONDUCT THE OVERSIGHT.

CRITICAL STAGE OBSERVATION - SEDIMENT BASINS: INSTALLATION OF BASIN APPURTENANCES INCLUDING BASIN BERM AND CORE, LINERS, SPILLWAY, OUTFALL STRUCTURES, SKIMMERS, OUTFALL PIPE(S) INCLUDING CONCRETE CRADLES, DISCHARGE PIPE OUTFALLS, ETC.

CRITICAL STAGE OBSERVATION - BASIN CONVERSIONS: CONDITIONS OF BASIN AFTER SEDIMENT REMOVAL AS WELL AS APPURTENANCES INCLUDING UNDERDRAINS, MEDIA, LINERS, OUTLET CONTROL STRUCTURES, ETC.

STAGE 1 - INITIAL STAGE

1. STAKE OUT LIMIT OF DISTURBANCE THROUGHOUT ALL PROJECT AREAS AND INSTALL ORANGE CONSTRUCTION FENCING AROUND ENVIRONMENTALLY PROTECTED FEATURES INCLUDING WETLANDS, WATERCOURSES, FLOODPLAINS, AND UNDERGROUND INFILTRATION AREAS.

2. INSTALL CONSTRUCTION ENTRANCES AT ROAD FRONTAGES AS DESIGNATED ON THE PLANS. ESTABLISH LOCATIONS FOR STAGING, STOCKPILES, AND CONCRETE WASHOUTS.

3. INSTALL ALL FILTER SOCKS. ONLY LIMITED CLEARING AND GRUBBING NECESSARY TO INSTALL THE PERIMETER EROSION AND SEDIMENT POLLUTION CONTROLS IS PERMITTED.

4. INSTALL ROCK FILTERS SHOWN ON THE PLAN.

5. **CRITICAL STAGE** - CONSTRUCT SEDIMENT BASINS NEAR SCHOOLHOUSE ROAD ALONG WITH ALL RELATED APPURTENANCES. NOTE THAT THE BASIN BOTTOM ELEVATION MAY BE DIFFERENT IN THE TEMPORARY EROSION CONTROL STAGE AS COMPARED TO ITS FINAL PCSM CONDITION. INSTALL SLOPE MATTING AND APPLY SEED AND MULCH.

6. INSTALL FILTER SOCK DIVERSION.

7. ONCE THE SEDIMENT BASIN IS CONSTRUCTED, STABILIZED AND FUNCTIONING PROPERLY, BEGIN CLEARING AND GRUBBING ACTIVITIES.

STAGE 2 - PRIMARY STAGE

1. INITIATE THE NECESSARY EARTHWORK TO REACH THE GRADES INDICATED. MAXIMIZE DIVERSION OF RUNOFF TO THE SEDIMENT BASIN THE TEMPORARY DIVERSION.

2. CONSTRUCT THE ACCESS DRIVE FROM INDEPENDENCE LANE TO THE BUILDING 3 CONSTRUCTION AREA INCLUDING RETAINING WALLS, UNDERGROUND STORMWATER BASIN, EQUALIZATION PIPES, AND CULVERTS. PLACE AND MAINTAIN STONE SUBGRADE ALONG THE ACCESS WAY. INSTALL TEMPORARY ROCK CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT AT THE BUILDING 3 CONSTRUCTION AREA.

3. BEGIN BUILDING CONSTRUCTION.

4. INSTALL RETAINING WALLS ALONG NORTHERN PERIMETERS OF BUILDINGS 1 AND 2 AND SOUTHERN PERIMETER OF BUILDING 3

5. INSTALL UNDERGROUND DETENTIN BASINS UNDER TRUCK COURTS AND STORMWATER PIPING TRIBUTARY TO THOSE BASINS. INSTALL INLET PROTECTION IN ALL INLETS.

6. INSTALL STORMWATER PIPING TRIBUTARY TO THE SEDIMENT BASIN.

7. INSTALL UNDERGROUND DETENTIN BASINS UNDER AUTO PARKING AREAS AND STORMWATER PIPING TRIBUTARY TO THOSE BASINS. INSTALL INLET PROTECTION IN ALL INLETS.

8. INSTALL UNDERGROUND UTILITIES

9. BEGIN ROADWAY FRONTAGE IMPROVMENTS.

SITE STABILIZATION & DEMOBILIZATION

1. INITIATE FINAL GRADING AND PLACEMENT OF TOPSOIL IN ALL LANDSCAPE AREAS. AS SOON AS SLOPES, CHANNELS, DITCHES AND OTHER DISTURBED AREAS REACH FINAL GRADE, THEY MUST BE STABILIZED. ALL LANDSCAPE AREAS MUST BE STABILIZED AND PERMANENT SEEDING OR PLACEMENT OF SOD MUST BE APPLIED. WHEN FINAL GRADE IS ACHIEVED DURING NON-GERMINATING MONTHS, THE AREA SHOULD BE MULCHED UNTIL THE BEGINNING OF THE NEXT PLANTING SEASON. HOWEVER, THE AREA WILL NOT BE CONSIDERED STABILIZED UNTIL A MINIMUM UNIFORM 70% VEGETATIVE COVER OF EROSION RESISTANT PERENNIAL SPECIES HAS BEEN ACHIEVED. AS DISTURBED AREAS WITHIN A PROJECT APPROACH FINAL GRADE, PREPARATIONS SHOULD BE MADE FOR SEEDING AND MULCHING TO BEGIN (I.E. ANTICIPATE THE COMPLETION DATE AND SCHEDULE THE SEEDER). IN NO CASE SHOULD AN AREA EXCEEDING 15,000 SQUARE FEET, WHICH IS TO BE STABILIZED BY VEGETATION, REACH FINAL GRADE WITHOUT BEING SEEDED AND MULCHED. WAITING UNTIL EARTHMOVING IS COMPLETED BEFORE MAKING PREPARATIONS FOR SEEDING AND MULCHING IS NOT ACCEPTABLE. SEEDING AND MULCHING REQUIREMENTS ARE SPECIFIED IN THE GENERAL CONSERVATION NOTES AND SPECIFICATIONS.

2. INSTALL BITUMINOUS PAVEMENT AND CONCRETE INCLUDING SIDEWALKS.

3. **CRITICAL STAGE** - CONVERT SEDIMENT BASIN TO FINAL STORMWATER MANAGEMENT CONFIGURATION (INFILTRATION BASIN). FLUSH ALL UPSTREAM PIPING SYSTEMS PRIOR TO CONVERSION. REMOVE ANY TEMPORARY MODIFICATIONS TO DIVERSION STRUCTURES

4. INSTALL FINAL VEGETATION AND LANDSCAPING SPECIFIED ON THE PLAN INCLUDING BUFFER PLANTINGS.

5. UPON SITE STABILIZATION (UNIFORM COVERAGE OR DENSITY OF 70% ACROSS ALL DISTURBED AREAS) AND NOTIFICATION OF THE BUCKS COUNTY CONSERVATION DISTRICT, REMOVE EROSION AND SEDIMENT CONTROL FACILITIES. ANY AREA DISTURBED DURING THE REMOVAL OF EROSION AND SEDIMENT CONTROL FACILITIES SHALL BE STABILIZED IMMEDIATELY.

6. CLEAR SITE OF DEBRIS AND ALL UNWANTED MATERIALS. OPERATOR SHALL REMOVE FROM SITE, RECYCLE OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ. 271.1 ET SEQ THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP OR DISCHARGE ANY BUILDING MATERIAL OR WASTE AT THIS SITE.

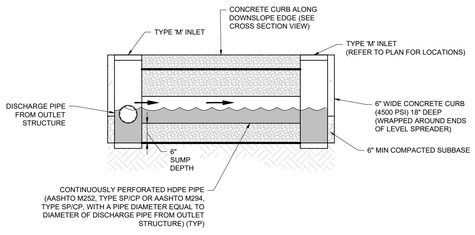
7. DEMOBILIZE.

WITHIN 30 DAYS AFTER THE COMPLETION OF EARTH DISTURBANCE ACTIVITIES AUTHORIZED BY THIS PERMIT, INCLUDING THE PERMANENT STABILIZATION OF THE SITE AND PROPER INSTALLATION OF PCSM BMPS IN ACCORDANCE WITH THE APPROVED PCSM PLAN, OR UPON SUBMISSION OF THE NOT IF SOONER, THE PERMITTEE SHALL FILE WITH THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT A STATEMENT SIGNED BY A LICENSED PROFESSIONAL AND BY THE PERMITTEE CERTIFYING THAT WORK HAS BEEN PERFORMED IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THIS PERMIT AND THE APPROVED E&S AND PCSM PLANS. COMPLETION CERTIFICATES ARE NEEDED TO ENSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THE PERMIT AND THE APPROVED E&S AND PCSM PLANS

LONG-TERM OPERATION AND MAINTENANCE SCHEDULE

SCM	SCHEDULE	INSPECTION TASK	MAINTENANCE	FAILURE INDICATORS
STORM DRAINAGE SYSTEM	EVERY 3 MONTHS	- INSPECT INLETS, MANHOLES, LEVEL SPREADERS, AND STORMWATER PIPING	CLEAR SEDIMENT AND DEBRIS FROM ALL ON-SITE INLETS, MANHOLES, LEVEL SPREADERS, AND STORMWATER PIPING.	EXCESSIVE PONDING AROUND THE INLET GRATES COULD INDICATE THAT THERE MAY BE SEDIMENT/DEBRIS BUILDUP.
SCM 6.4.2 INFILTRATION BASIN	REQUIRED AFTER STORM EVENT OF 1" OR MORE OF RAIN ALL WITHIN A 24-HOUR PERIOD	- INSPECT WATER DRAWDOWN TIME TO BE WITHIN 72 HOURS	ACCUMULATED DEBRIS AND SEDIMENT IN INLETS OR YARD DRAINS SHOULD BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.	IF ANY INFILTRATION BASIN IS OBSERVED TO FAIL TO DEWATER WITHIN THE ALLOWABLE 72 HOURS THE OWNER SHALL NOTIFY THE ENGINEER OF RECORD OR QUALIFIED GEOTECHNICAL ENGINEER TO DEVELOP A PLAN TO ADDRESS THE DEFICIENCY
	4 TIMES PER YEAR	- INSPECT FOR ANY PONDING WATER		
	2 TIMES PER YEAR	- INSPECT STRUCTURES - INSPECT FOR SEDIMENT ACCUMULATION - INSPECT VEGETATIVE COVER CONDITION		
	ANNUALLY	- INSPECT FOR INVASIVE PLANT SPECIES		
SCM 6.6.3 DRY EXTENDED DETENTION BASIN	REQUIRED AFTER STORM EVENT OF 1" OR MORE OF RAIN ALL WITHIN A 24-HOUR PERIOD	- INSPECT WATER DRAWDOWN TIME TO BE WITHIN 72 HOURS	ACCUMULATED DEBRIS AND SEDIMENT IN INLETS OR YARD DRAINS SHOULD BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.	IF ANY DRY EXTENDED DETENTION BASIN IS OBSERVED TO FAIL TO DEWATER WITHIN THE ALLOWABLE 72 HOURS THE OWNER SHALL NOTIFY THE ENGINEER OF RECORD OR QUALIFIED GEOTECHNICAL ENGINEER TO DEVELOP A PLAN TO ADDRESS THE DEFICIENCY
	4 TIMES PER YEAR	- INSPECT FOR ANY PONDING WATER		
	2 TIMES PER YEAR	- INSPECT STRUCTURES - INSPECT FOR SEDIMENT ACCUMULATION - INSPECT VEGETATIVE COVER CONDITION		
	ANNUALLY	- INSPECT FOR INVASIVE PLANT SPECIES		

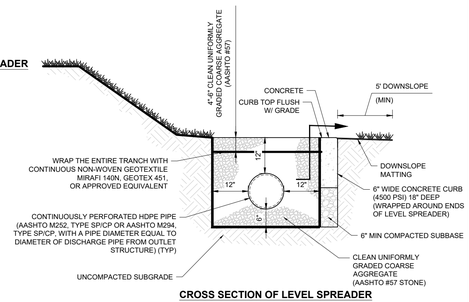
LEVEL SPREADER NUMBER	DISCHARGE BMP	TOP OF CURB ELEVATION (FEET)*	BOTTOM OF STONE ELEVATION (FEET)	OVERALL LENGTH OF LEVEL SPREADER (FEET)	GRATE ELEVATION (FEET)	INLET SUMP ELEVATION (FEET)	PERFORATED HDPE PIPE DIA (FEET)	PERFORATED HDPE PIPE INV (FEET)
LS-1	SCM 1	272.50	268.50	20	273.00	268.50	30	272.00
LS-2	SCM 2	272.50	267.50	164	273.00	267.50	36	268.25
LS-3	SCM 3	272.25	268.75	157	273.00	268.75	36	268.25
LS-4	SCM 4	273.50	268.50	106	273.50	268.50	36	269.00
LS-5	SCM 5	273.25	268.50	150	274.00	268.50	36	269.00
LS-6	SCM 6	275.00	270.50	130	275.00	270.50	36	271.00
LS-7	SCM 7	276.50	270.50	139	276.50	270.50	36	271.00



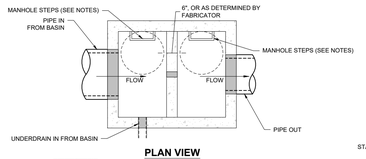
PROFILE OF LEVEL SPREADER

LEVEL SPREADER CONSTRUCTION SEQUENCE

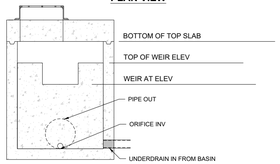
NOTE: PLEASE REFER TO THE PLANS FOR HORIZONTAL LAYOUT OF EACH LEVEL SPREADER.
1. PROTECT TRENCH AREA FROM COMPACTION PRIOR TO INSTALLATION.
2. EXCAVATE TRENCH BOTTOM TO A UNIFORM, UNCOMPACTED SUBGRADE FREE FROM ROCKS AND DEBRIS AND AT A SLOPE OF 0.0% FROM END TO END.
3. COMPLETELY WRAP STONE IN THE LEVEL SPREADER WITH NON-WOVEN GEOTEXTILE FABRIC. FOLD BACK GEOTEXTILE FABRIC DURING STONE PLACEMENT. COVER TOP OF FABRIC WITH A LAYER OF STONE.
4. INSTALL 6-INCH BED BOTTOM STONE. PLACE PERFORATED HDPE PIPE IN THE CENTER OF THE TRENCH.
5. INSTALL CONCRETE CURB, ALONG THE INTERIOR AND SIDES OF THE DOWNSLOPE EDGE. TOP OF CURB SHOULD BE LEVEL WITH TOP OF TRENCH ELEVATION.
6. PLACE REMAINING STONE IN 8-INCH LIFTS, LIGHTLY COMPACTING BETWEEN LIFTS.
7. INSTALL SC250 NORTH AMERICAN GREEN MATTING FOR A MINIMUM LENGTH OF 5 FT. DOWNSLOPE FROM THE EDGE OF LEVEL SPREADER. INSTALL PER MANUFACTURER'S SPECIFICATIONS. REFER TO EROSION CONTROL BLANKET INSTALLATION DETAIL FOR ADDITIONAL INFORMATION.


4"-6" CLEAN UNIFORMLY GRADED COARSE AGGREGATE (AASHTO #57)
CONCRETE CURB TOP FLUSH W/ GRADE
5' DOWNSLOPE (MIN)
WRAP THE ENTIRE TRANCH WITH CONTINUOUS NON-WOVEN GEOTEXTILE MIRAFI 140N, GEOTEX 451, OR APPROVED EQUIVALENT
DOWNSLOPE MATTING
6" WIDE CONCRETE CURB (4500 PSI) 18" DEEP (WRAPPED AROUND ENDS OF LEVEL SPREADER)
CONTINUOUSLY PERFORATED HDPE PIPE (AASHTO M252, TYPE SP/CP OR AASHTO M294, TYPE SP/CP, WITH A PIPE DIAMETER EQUAL TO DIAMETER OF DISCHARGE PIPE FROM OUTLET STRUCTURE) (TYP)
6" MIN COMPACTED SUBBASE
CLEAN UNIFORMLY GRADED COARSE AGGREGATE (AASHTO #57 STONE)
UNCOMPACTED SUBGRADE

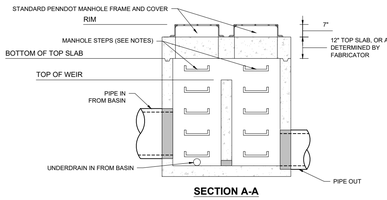
BASIN NUMBER	NUMBER OF ASSOCIATED OUTLET STRUCTURES	OUTLET STRUCTURE NAMES	PIPE INV. IN (FT)	PIPE INV. OUT (FT)	PIPE OUT DIAMETER (IN)	ORIFICE #1 INVERT (FT)	ORIFICE #1 SIZE (IN)	ORIFICE #2 INVERT (FT)	ORIFICE #2 SIZE (IN)	ORIFICE #3 INVERT (FT)	ORIFICE #3 SIZE (IN)	ORIFICE #4 INVERT (FT)	ORIFICE #4 SIZE (IN)	WEIR INVERT (FT)	WEIR CREST LENGTH (FT)	RIM ELEV. (FT)
SCM 2	1	I-10	268.75	268.25	36" RCP	268.75	3 - 3"	269.25	24" WIDE X 6" HIGH	270.50	30" WIDE X 12" HIGH	271.75	42" WIDE X 6" HIGH	272.50	4'	279.63
SCM 3	1	D-10	272.00	268.25	36" RCP	272.00	3 - 3"	272.50	24" WIDE X 6" HIGH	273.25	30" WIDE X 12" HIGH	274.50	42" WIDE X 6" HIGH	275.25	4'	283.29
SCM 4	1	N-10	273.00	269.00	36" RCP	273.00	3 - 3"	273.25	24" WIDE X 6" HIGH	274.00	30" WIDE X 12" HIGH	274.75	42" WIDE X 4" HIGH	275.09	4'	281.66
SCM 5	1	K-10	276.50	269.00	36" RCP	276.50	3 - 3"	277.00	24" WIDE X 6" HIGH	277.75	30" WIDE X 12" HIGH	279.00	42" WIDE X 4" HIGH	279.60	4'	284.82
SCM 6	1	W-10	280.00	271.00	36" RCP	280.00	3 - 3"	280.50	24" WIDE X 6" HIGH	281.25	30" WIDE X 12" HIGH	282.50	42" WIDE X 3" HIGH	283.00	4'	289.01
SCM 7	1	U-10	273.00	271.00	36" RCP	273.00	3 - 3"	273.50	24" WIDE X 6" HIGH	274.25	30" WIDE X 12" HIGH	275.50	42" WIDE X 3" HIGH	276.00	4'	282.40



PLAN VIEW



SECTION B-B

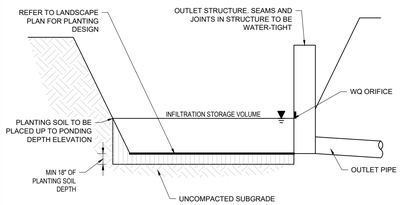


SECTION A-A

NOTES:
1. PRECAST BOX SHALL COMPLY WITH LATEST PENNDOT PUBLICATION 72M & PUBLICATION 408 STANDARDS.
2. BUTYL RESIN MASTIC SEAL SHALL BE PLACED WITHIN ALL JOINTS OF THE OUTLET STRUCTURE WHEN ASSEMBLED AND BETWEEN THE MANHOLE FRAME AND TOP OF STRUCTURE TO ENSURE A WATER TIGHT SEAL.
3. FURNISH OUTLET BOX WITH STEPS MEETING PADOT PUB 408 SECTION 605.2(c).
4. ANY DRILLED ORIFICE INTO THE OUTLET STRUCTURE SHALL BE SANDED, FREE OF BURRS AND IRREGULARITIES.
5. DIMENSIONS AND CONFIGURATION SHOWN ARE SUBJECT TO CHANGE BASED ON FINAL DESIGNS AS PREPARED BY THE FABRICATOR.
6. SHOP DRAWINGS SHALL BE PROVIDED FOR REVIEW TO BOHLER ENGINEERING PA, LLC PRIOR TO FABRICATION.
7. UNDERDRAIN SHALL BE PERFORATED PIPE WITHIN BASIN SURROUNDING STONE LIMITS. UNDERDRAIN SHALL SWITCH TO SOLID PIPE ONCE THE UNDERDRAIN IS OUTSIDE OF BASIN SURROUNDING STONE LIMITS.

UNDERGROUND DETENTION BASIN OUTLET CONTROL STRUCTURE

NOT TO SCALE (PA-U010403 - 04/2024)



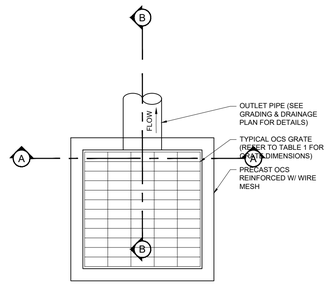
INFILTRATION BASIN CONSTRUCTION SEQUENCE
1. PRIOR TO AND DURING CONVERSION OF THE SEDIMENT FACILITY TO AN INFILTRATION BASIN, THE FACILITY AREA SHALL BE SURROUNDED BY FILTER SOCK TO PREVENT SILT AND EROSION UNTIL THE FACILITY AND THE CONTRIBUTING DRAINAGE AREA ARE FULLY STABILIZED.
2. FLUSH SEDIMENT FROM THE UPSTREAM STORM SEWER.
3. INITIATE CONVERTING THE SEDIMENT FACILITY TO AN INFILTRATION BASIN. REMOVE ALL TEMPORARY E&S CONTROLS WITHIN THE BASIN EXCEPT FOR TEMPORARY E&S CONTROLS ON THE OUTLET STRUCTURE.
4. THE FACILITY SHALL BE EXCAVATED TO THE DEPTH AND SIZE REQUIRED. ALL SEDIMENT-LADEN SOILS SHALL BE REMOVED FROM THE FACILITY. THE CONTRACTOR MUST TAKE CARE NOT TO COMPACT THE IN-SITU SOILS.
5. ONCE THE AREA IS EXCAVATED TO SUBGRADE ELEVATIONS, A QUALIFIED SOIL ENGINEER/SCIENTIST SHALL CONDUCT INFILTRATION TESTING TO DETERMINE IF THE DESIGN INFILTRATION RATES AS SPECIFIED CAN BE ACHIEVED. THE INFILTRATION RATES SHALL BE PROVIDED TO THE ENGINEER PROVIDING OVERSIGHT.
6. SUBSOILS IN THE ENTIRE BASIN AREA MUST BE THOROUGHLY AND DEEPLY SCARIFIED. SCARIFYING MUST BE DONE WITH A TOOTHED BACKHOE.
7. COMPLETE FINAL GRADING TO ACHIEVE DESIGN GRADE.
8. REMOVE TEMPORARY E&S CONTROLS ON THE OUTLET STRUCTURE.
9. PLANT BASIN FACILITY WORKING FROM THE BOTTOM OF THE FACILITY UP THE SIDES, PER THE LANDSCAPE PLAN.
10. ALL PROTECTION MEASURES INSTALLED AT THE BEGINNING OF CONSTRUCTION (SEE STEP 1 ABOVE) SHALL BE MAINTAINED AND REMAIN IN PLACE UNTIL THE FACILITY AND ADJACENT AREAS ARE FULLY STABILIZED.
11. THE PERMITTEE MUST DOCUMENT THE IMPLEMENTATION OF EACH STRUCTURAL PCSM SCM USING DEP'S SCM CONSTRUCTION CERTIFICATION FORM (3800-FM-BCW0271J) AND SUBMIT THE COMPLETED FORM TO THE DISTRICT WITHIN 30 DAYS OF THE COMPLETION (INCLUDING STABILIZATION) OF THE SCM CONSTRUCTION, AS DETERMINED BY A LICENSED PROFESSIONAL.

CROSS SECTION SCHEMATIC OF INFILTRATION BASIN

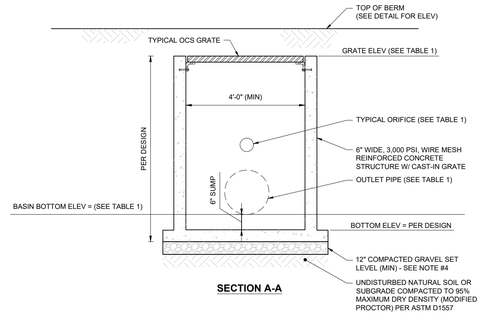
NOT TO SCALE (PA-U019806 - 09/2023)

TABLE 1: OCS DETAILS

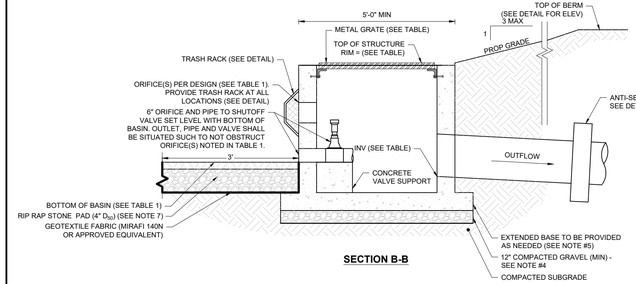
BASIN #	OCS #	GRATE ELEV	GRATE SIZE (IN)	ORIFICE SIZE (IN)	ORIFICE INV	ORIFICE SIZE (IN)	ORIFICE INV	ORIFICE SIZE (IN)	ORIFICE INV	OUTLET PIPE SIZE (IN)	OUTLET INV	BOTTOM BASIN ELEV
SCM 1	H-20	277.50'	48" X 24"	12" X 3"	275.75'	24" X 6"	276.25'	24" X 4"	277.00	30.0"	274.00'	274.00'



PLAN VIEW



SECTION A-A

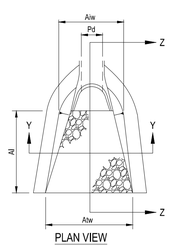


SECTION B-B

NOTES:
1. CONTRACTOR TO SUBMIT SHOP DRAWING TO ENGINEER (BOHLER) FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
2. IF COMPONENTS ARE PRECAST AND ATTACHED IN THE FIELD ALL JOINTS TO BE FILLED WITH NON-SHRINK GROUT. ANY BOLTS AND/OR STRAPS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED.
3. GENERAL CONTRACTOR TO CONSTRUCT CONCRETE OUTLET CONTROL STRUCTURE IN BASIN BERM TO MINIMIZE VISUAL REVEAL OF CONCRETE.
4. IN LOCATIONS WHERE UTILITY TRENCHING / EXCAVATION ENCOUNTERS SUBGRADE CONDITIONS CONSISTING OF FILL OR UNSUITABLES / ORGANICS, 3'-0" OF MATERIAL SHALL BE OVER-EXCAVATED BELOW THE PIPE / STRUCTURE INVERT. TRENCH SHALL THEN BE BACKFILLED WITH CRUSHED STONE WRAPPED IN FILTER FABRIC.
5. PRIOR TO FABRICATION CONTRACTOR SHALL PREPARE BUOYANCY CALCULATIONS AND SUBMIT DETAIL TO DESIGN ENGINEER ACCOUNTING FOR PROPER BUOYANCY PROVISIONS BASED ON SITE SPECIFIC GROUNDWATER CONDITIONS.
6. CONTRACTOR SHALL SIZE STRUCTURE AS NECESSARY TO ACCOMMODATE THE PROPOSED PIPE SIZES AND PENETRATIONS USING GEOMETRY SHOWN ON THE GRADING AND DRAINAGE PLANS AS WELL AS INFORMATION PROVIDED IN THIS DETAIL.
7. TOP OF STONE PAD SHALL BE SET LEVEL WITH MAINTENANCE OUTLET AND SHALL EXTEND FOR THE FULL WIDTH OF THE STRUCTURE.

OUTLET CONTROL STRUCTURE (OCS) FOR ABOVE GROUND BASINS

NOT TO SCALE (NE-U010104 - 11/2025)

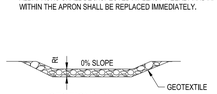


PLAN VIEW

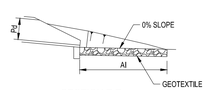
NOTES:

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

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



SECTION Y-Y



SECTION Z-Z

STANDARD CONSTRUCTION DETAIL #9-1
RIPRAP APRON AT PIPE OUTLET WITH FLARED END SECTION OR ENDWALL

NOT TO SCALE (PADEP - MARCH 2012)

BOHLER™
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES
THE INFORMATION, DESIGN AND CONTENT OF THESE PLANS IS COPYRIGHT AND SHALL NOT BE COPIED OR USED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM BOHLER. ONLY APPROVED, SIGNED AND SEALED PLANS SHALL BE UTILIZED FOR CONSTRUCTION PURPOSES BY BOHLER.

REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREIN HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 50 OF 2017, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. WWW.PA1CALL.ORG

NOT APPROVED FOR CONSTRUCTION

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT NO.: PAC250095.00-1A
DRAWN BY: PAB
CHECKED BY: RDE
DATE: 04/06/2026
CAD I.D.: P-CIVL-CNDS

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS
FOR
HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER™
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — MATTHEW JOHN KEARSE — PROFESSIONAL — ENGINEER

MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090388

SHEET TITLE:
POST CONSTRUCTION STORMWATER MANAGEMENT NOTES AND DETAILS

SHEET NUMBER:
C-818
72 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-CNDS-PAC250095.00-1A-----3-LAYOUT C-818 PCSM DTL
JV

Advanced Drainage Systems, Inc.

ADS SiteAssist®
FOR STORMTECH INSTALLATION INSTRUCTIONS VISIT CUR WEBSITE

SC-800 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC-800.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL, STORMWATER COLLECTION CHAMBERS".
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 700 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS.
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.
10. MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECHNICAL NOTE 6.32 FOR MANIFOLD SIZING GUIDANCE. DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
11. ADS DOES NOT DESIGN OR PROVIDE MEMBRANE LINER SYSTEMS. TO MINIMIZE THE LEAKAGE POTENTIAL OF LINER SYSTEMS, THE MEMBRANE LINER SYSTEM SHOULD BE DESIGNED BY A KNOWLEDGEABLE GEOTEXTILE PROFESSIONAL AND INSTALLED BY A QUALIFIED CONTRACTOR.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-800 SYSTEM

1. STORMTECH SC-800 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH SC-800 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH INSTALLATION GUIDE SC-310/DC-780/SC-800".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONE SHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 3" (75 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE; AASHTO M43: #3, 357, 4, 467, 5, 56, OR 57.
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
9. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

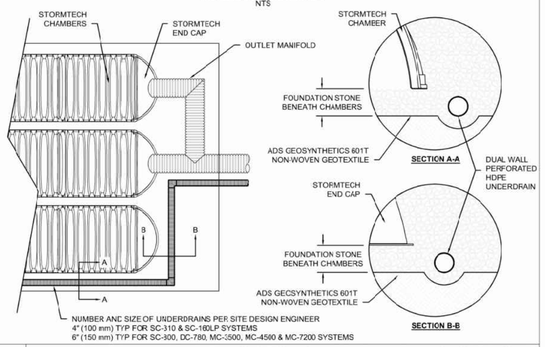
NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH SC-800 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH INSTALLATION GUIDE SC-310/DC-780/SC-800".
2. THE USE OF CONSTRUCTION EQUIPMENT OVER SC-800 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH INSTALLATION GUIDE SC-310/DC-780/SC-800".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH INSTALLATION GUIDE SC-310/DC-780/SC-800".
3. FILL ≥ 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

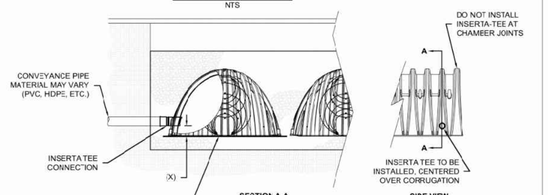
CONTACT STORMTECH AT 1-800-821-6710 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

UNDERDRAIN DETAIL
NTS



5 UNDERDRAIN DETAIL

INSERTA TEE DETAIL
NTS

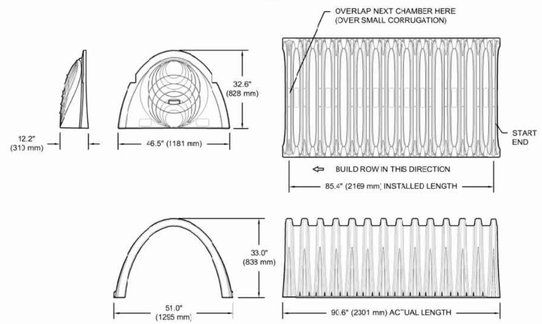


NOTES:
- PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.
- CONTACT ADS ENGINEERING SERVICES IF INSERTA TEE INLET MUST BE RAISED AS NOT ALL INVERTS ARE POSSIBLE.

CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	9" (150 mm)	4" (100 mm)
SC-800	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)
MC-7200	12" (300 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

6 INSERTA-TEE SIDE INLET DETAIL

SC-800 TECHNICAL SPECIFICATION
NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 33.0" X 85.4"	(1295 mm X 838 mm X 2169 mm)
CHAMBER STORAGE	50.6 CUBIC FEET	(1.43 m³)
MINIMUM INSTALLED STORAGE*	78.4 CUBIC FEET	(2.22 m³)
WEIGHT	81.8 lbs.	(37.1 kg)

NOMINAL END CAP SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	46.5" X 32.6" X 10.5"	(1181 mm X 828 mm X 267 mm)
END CAP STORAGE	3.4 CUBIC FEET	(0.09 m³)
MINIMUM INSTALLED STORAGE**	14.7 CUBIC FEET	(0.42 m³)
WEIGHT	15.7 lbs.	(7.1 kg)

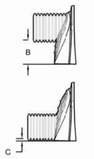
* ASSUMES 6" (150 mm) STONE ABOVE AND BELOW CHAMBER, 3" (75 mm) BETWEEN CHAMBERS
**ASSUMES 6" (150 mm) STONE ABOVE AND BELOW END CAPS, 3" (75 mm) BETWEEN ROWS, 12" (300 mm) BEYOND END CAPS

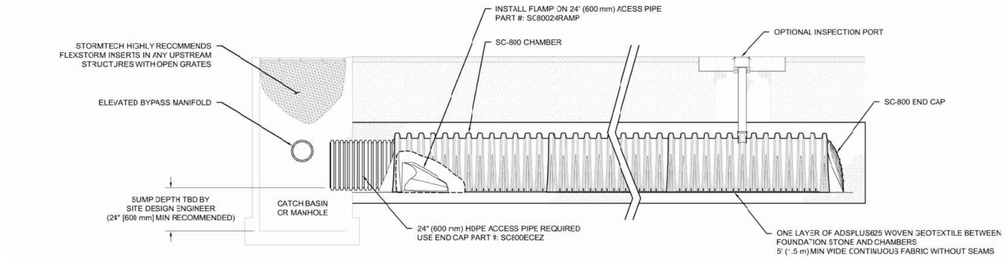
PRE-CORED HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "BPC"
PRE-CORED HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "TPC"

PART #	STUB	B	C
SC800EPE06TPC	6" (150 mm)	21.4" (544 mm)	---
SC800EPE06BPC		---	0.9" (23 mm)
SC800EPE08TPC	8" (200 mm)	19.2" (488 mm)	---
SC800EPE08BPC		---	1.0" (25 mm)
SC800EPE10TPC	10" (250 mm)	17.0" (432 mm)	---
SC800EPE10BPC		---	1.2" (30 mm)
SC800EPE12TPC	12" (300 mm)	14.4" (366 mm)	---
SC800EPE12BPC		---	1.6" (41 mm)
SC800EPE15TPC	15" (375 mm)	11.3" (287 mm)	---
SC800EPE15BPC		---	1.7" (43 mm)
SC800EPE18TPC	18" (450 mm)	8.0" (203 mm)	---
SC800EPE18BPC		---	2.0" (51 mm)
SC800ECEZ	24" (600 mm)	---	2.3" (58 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL

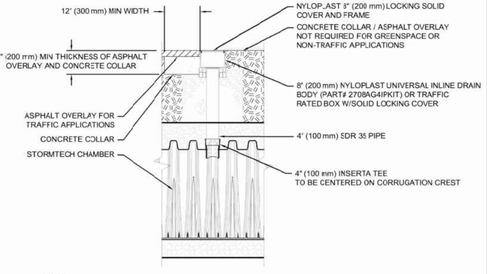
2 SC-800 TECHNICAL SPECIFICATIONS





SC-800 ISOLATOR ROW PLUS DETAIL
NTS

3 SC-800 ISOLATOR ROW PLUS DETAIL



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION CREST.

4" PVC INSPECTION PORT DETAIL (SC SERIES CHAMBER)
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACULM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

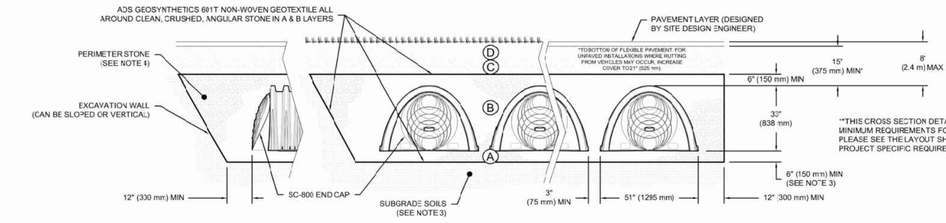
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT AND ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

4 4" PVC INSPECTION PORT DETAIL (SC SERIES CHAMBER)

ACCEPTABLE FILL MATERIALS: STORMTECH SC-800 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 15" (375 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
5. WHERE RECYCLED CONCRETE AGGREGATE IS USED IN LAYERS 'A' OR 'B' THE MATERIAL SHOULD ALSO MEET THE ACCEPTABILITY CRITERIA OUTLINED IN TECHNICAL NOTE 6.20 "RECYCLED CONCRETE STRUCTURAL BACKFILL".



**THIS CROSS SECTION DETAIL REPRESENTS MINIMUM REQUIREMENTS FOR INSTALLATION. PLEASE SEE THE LAYOUT SHEET(S) FOR PROJECT SPECIFIC REQUIREMENTS.

NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-800 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS. REFERENCE STORMTECH DESIGN MANUAL FOR BEARING CAPACITY GUIDANCE.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2" (50 mm).
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 700 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

1 SC-800 CROSS SECTION DETAIL

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES
THE INFORMATION, DESIGN AND CONTENT OF THIS PLAN IS PROPRIETARY AND SHALL NOT BE COPIED OR USED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM BOHLER. ONLY APPROVED, SEALED PLANS SHALL BE UTILIZED FOR CONSTRUCTION PURPOSES.
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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREIN HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 50 OF 2017, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. WWW.PA1CALL.ORG

NOT APPROVED FOR CONSTRUCTION

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT NO.: PAC250095.00-1A
DRAWN BY: PAB
CHECKED BY: RDE
DATE: 04/06/2026
CAD I.D.: P-CIVL-CNDS

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS
FOR
HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
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COMMONWEALTH OF PENNSYLVANIA — PROFESSIONAL — MATTHEW JOHN KEARSE — PROFESSIONAL ENGINEER — PENNSYLVANIA

SHEET TITLE:
POST CONSTRUCTION STORMWATER MANAGEMENT NOTES AND DETAILS
SHEET NUMBER:
C-819
73 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SET\CIVIL SITE PLANS\P-CIVL-CNDS-PAC250095.00-1A-----LAYOUT: C-819 PCSM DTL
JV

Advanced Drainage Systems, Inc.

SiteAssist®
FOR STORMTECH INSTALLATION INSTRUCTIONS VISIT OUR WEBSITE

MC-3500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-3500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 500 LBS/FT/%, THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418, AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTION 3 AND 12, 12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.
10. MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECHNICAL NOTE 6.32 FOR MANIFOLD SIZING GUIDANCE. DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
11. ADS DOES NOT DESIGN OR PROVIDE MEMBRANE LINER SYSTEMS. TO MINIMIZE THE LEAKAGE POTENTIAL OF LINER SYSTEMS, THE MEMBRANE LINER SYSTEM SHOULD BE DESIGNED BY A KNOWLEDGEABLE GEOTEXTILE PROFESSIONAL AND INSTALLED BY A QUALIFIED CONTRACTOR.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

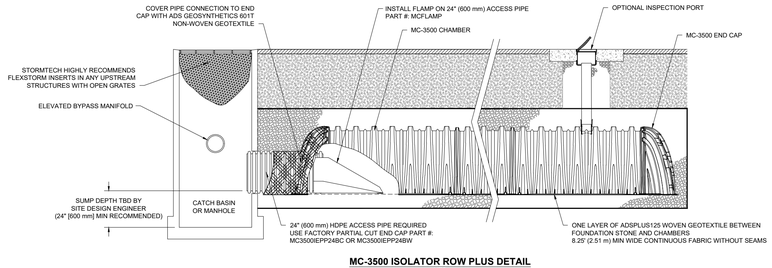
1. STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH INSTALLATION GUIDE MC-3500 & MC-4500 CHAMBER".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE; AASHTO M43 #3, 357, 4, 467, 5, 56, OR 57.
9. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
10. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
11. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH INSTALLATION GUIDE MC-3500 & MC-4500 CHAMBER".
2. THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH INSTALLATION GUIDE MC-3500 & MC-4500 CHAMBER".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH INSTALLATION GUIDE MC-3500 & MC-4500 CHAMBER".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

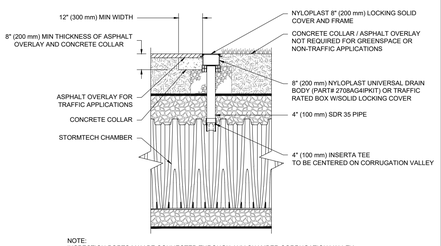
USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-800-821-6710 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



MC-3500 ISOLATOR ROW PLUS DETAIL
NTS

3 MC-3500 ISOLATOR ROW PLUS DETAIL



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.

4" PVC INSPECTION PORT DETAIL (MC SERIES CHAMBER)
NTS

4 4" PVC INSPECTION PORT DETAIL (MC SERIES CHAMBER)

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

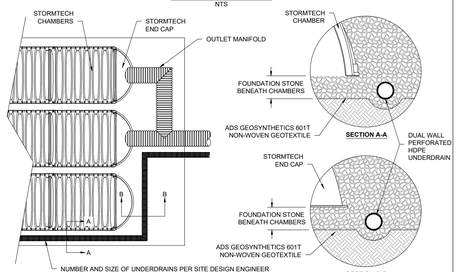
STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

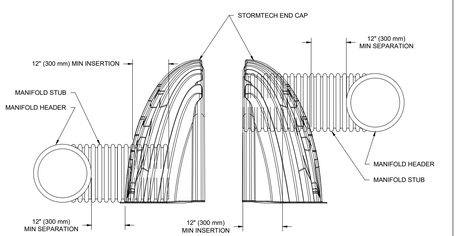
1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

UNDERDRAIN DETAIL
NTS



5 UNDERDRAIN DETAIL

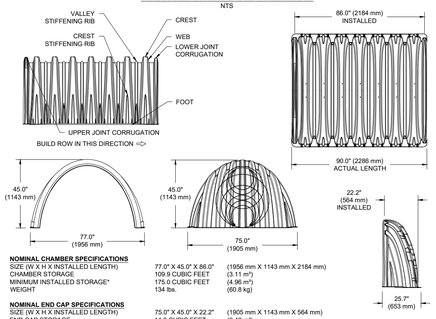
MC-SERIES END CAP INSERTION DETAIL
NTS



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

6 MC-SERIES END CAP INSERTION DETAIL

MC-3500 TECHNICAL SPECIFICATION
NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	77.0" X 45.0" X 86.0"	(1956 mm X 1143 mm X 2184 mm)
CHAMBER STORAGE	109.9 CUBIC FEET	(3.11 m³)
MINIMUM INSTALLED STORAGE*	175.0 CUBIC FEET	(4.96 m³)
WEIGHT	134 lbs.	(60.8 kg)

NOMINAL END CAP SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	75.0" X 45.0" X 22.2"	(1905 mm X 1143 mm X 564 mm)
END CAP STORAGE	14.9 CUBIC FEET	(0.42 m³)
MINIMUM INSTALLED STORAGE*	45.1 CUBIC FEET	(1.28 m³)
WEIGHT	49 lbs.	(22.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION, 6" (152 mm) STONE BETWEEN CHAMBERS, 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"
END CAPS WITH A WELDED CROWN PLATE END WITH "C"

PART #	STUB	B	C
MC3500IEPP06T	6" (150 mm)	33.21" (844 mm)	---
MC3500IEPP06B		---	0.66" (17 mm)
MC3500IEPP08T	8" (200 mm)	31.16" (791 mm)	---
MC3500IEPP08B		---	0.81" (21 mm)
MC3500IEPP10T	10" (250 mm)	29.04" (738 mm)	---
MC3500IEPP10B		---	0.93" (24 mm)
MC3500IEPP12T	12" (300 mm)	26.36" (670 mm)	---
MC3500IEPP12B		---	1.35" (34 mm)
MC3500IEPP15T	15" (375 mm)	23.39" (594 mm)	---
MC3500IEPP15B		---	1.50" (38 mm)
MC3500IEPP18TC	18" (450 mm)	20.03" (509 mm)	---
MC3500IEPP18TW			
MC3500IEPP18BC		---	1.77" (45 mm)
MC3500IEPP18BW			
MC3500IEPP24TC	24" (600 mm)	14.48" (368 mm)	---
MC3500IEPP24TW			
MC3500IEPP24BC		---	2.06" (52 mm)
MC3500IEPP24BW			
MC3500IEPP30BC	30" (750 mm)	---	2.75" (70 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL

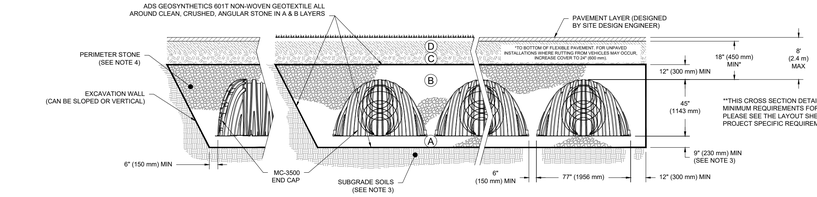
CUSTOM PARTIAL CUT INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

2 MC-3500 TECHNICAL SPECIFICATIONS

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 18" (450 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
5. WHERE RECYCLED CONCRETE AGGREGATE IS USED IN LAYERS 'A' OR 'B' THE MATERIAL SHOULD ALSO MEET THE ACCEPTABILITY CRITERIA OUTLINED IN TECHNICAL NOTE 6.20 "RECYCLED CONCRETE STRUCTURAL BACKFILL".



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS"
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS. REFERENCE STORMTECH DESIGN MANUAL FOR BEARING CAPACITY GUIDANCE.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3" (75 mm).
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

1 MC-3500 CROSS SECTION DETAIL

DRAWN: SMW | DATE: 08/05/2024
REVIEWED: JLM | PROJECT NO: 724-390
REV: | NOT TO SCALE

MC-3500 STANDARD DETAILS

StormTech® Chamber System

4640 TRUEMAN BLVD
HILLIARD, OH 43026

Advanced Drainage Systems, Inc.

SHEET 1

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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PROJECT No.: PAC250095.00-1A
DRAWN BY: PAB
CHECKED BY: RDE
DATE: 04/06/2026
CAD I.D.: P-CIVL-CNDS

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS
FOR
HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER™
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
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COMMONWEALTH OF PENNSYLVANIA
MATTHEW JOHN KRAISER
PROFESSIONAL ENGINEER
PE039703 PROFESSIONAL ENGINEER
PENNSYLVANIA

SHEET TITLE:
POST CONSTRUCTION STORMWATER MANAGEMENT NOTES AND DETAILS

SHEET NUMBER:
C-820
74 OF 102

REVISION 1 - 07/28/2026

Jul 29, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SET\CIVIL SITE PLANS\P-CIVL-CNDS-PAC250095.00-1A---LAYOUT, C-820 PCSM DTL
JV

Runoff Calculation CN Worksheets

Project: **PAC250095.00: Hanover Industrial - Chalfont**

Description: **Pre-Development**

*Q = [(P - 0.2S)^2 / (P + 0.8S)] * 1/12 * 43,560, where S = (1000/CN) - 10 and:*
P = 3.24 *Rainfall (in)*

Catchment Areas

Description	HSG C / CN Meadow 71	HSG C / CN Woods, Good Condition 70	HSG D / CN Meadow 78	HSG D / CN Woods, Good Condition 77	Impervious 98	Impervious as Meadow 71	Impervious as Meadow 78	Total Area (Ac)	Composite CN	Runoff Q (cuft)
POA #1 to West Branch Neshaminy Creek										
POA #1	0.620	0.204	25.830	2.517	0.292	0.292		29.755	**78**	140,288
Total	0.620	0.204	25.830	2.517	0.292	0.292		29.755		140,288
POA #2 to UNT 02875 to West Branch Neshaminy Creek										
POA #2			4.899	1.156	0.142		0.142	6.339	**78**	30,594
Total			4.899	1.156	0.142		0.142	6.339		30,594
POA #3 to UNT 02874 to West Branch Neshaminy Creek										
POA #3	0.257		3.339	0.750				4.346	**77**	20,009
Total	0.257		3.339	0.750				4.346		20,009
Totals										
POA #2 to UNT 02875 to West **Totals:**	0.877	0.204	34.068	4.423	0.434	0.292	0.284	40.440		190,891

Runoff Calculation CN Worksheets

Project: **PAC250095.00: Hanover Industrial - Chalfont**

Description: **Post-Development**

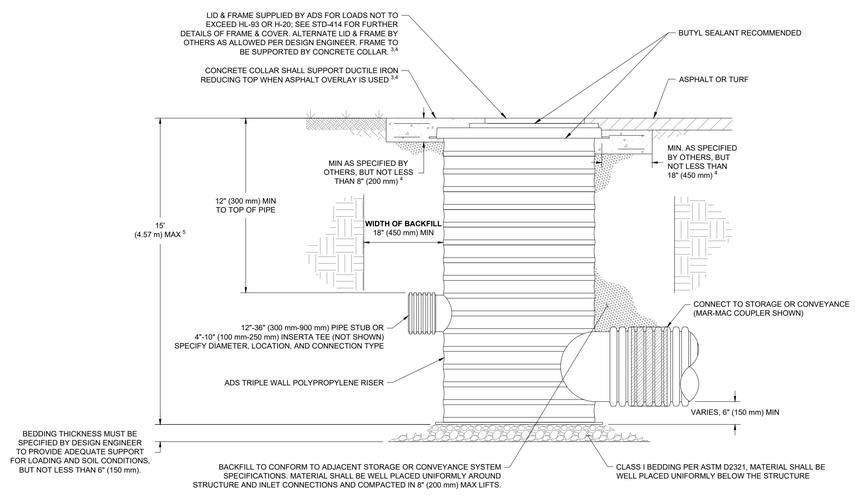
*Q = [(P - 0.2S)^2 / (P + 0.8S)] * 1/12 * 43,560, where S = (1000/CN) - 10 and:*
P = 3.24

Catchment Areas

Description	HSG C / CN Open Space (Lawns), Good Condition 74	HSG C / CN Woods, Good Condition 70	HSG D / CN Open Space (Lawns), Good Condition 80	HSG D / CN Woods, Good Condition 77	Impervious 98	Total Area (Ac)	Composite CN	Runoff Q (cuft)
POA #1 to West Branch Neshaminy Creek								
DA-1	0.222		1.658		4.859	6.739	**93**	62,524
DA-2			0.137		7.977	8.114	**98**	87,795
DA-3			0.587		3.830	4.417	**96**	44,864
DA-4			0.310	3.275		3.585	**77**	16,359
DA-5			0.381		2.500	2.881	**96**	29,273
DA-6	0.255	0.084	0.328	0.089	2.580	3.336	**93**	31,516
DA-7			0.299		3.954	4.253	**97**	44,719
DA-8	0.374		3.905		0.101	4.380	**80**	22,855
Total	0.851	0.084	7.805	3.364	25.801	37.705		339,905
POA #2 to UNT 02875 to West Branch Neshaminy Creek								
Bypass POA #2			1.462		0.030	1.492	**80**	7,931
Total			1.462		0.030	1.492		7,931
POA #3 to UNT 02874 to West Branch Neshaminy Creek								
Bypass to POA #3	0.072		1.171			1.243	**80**	6,368
Total	0.072		1.171			1.243		6,368
Totals								
Total	0.923	0.084	10.238	3.364	25.831	40.440		354,205

HP MANHOLE W/DUCTILE IRON FLAT FRAME INSTALLATION

NTS



NOTES:
1. ADS POLYPROPYLENE BASINS ARE TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS.
2. ADAPTERS CAN BE MOUNTED ON ANGLES 0° TO 359°. TO DETERMINE MAXIMUM ANGLE BETWEEN ADAPTERS, SEE DRAWING NO. 7009-110-026
3. AVOID CONSTRUCTION LOADING ON REDUCING PLATE AND STRUCTURE PRIOR TO CONCRETE COLLAR INSTALLATION
4. CONCRETE SLAB DIMENSIONS ARE FOR GUIDELINE PURPOSES ONLY. ACTUAL CONCRETE SLAB MUST BE DESIGNED TAKING INTO CONSIDERATION LOCAL SOIL CONDITIONS, TRAFFIC LOADING, AND OTHER APPLICABLE DESIGN FACTORS.
5. FOR BURIAL DEPTHS GREATER THAN 15' (4.57 m), OR WHERE GROUNDWATER WILL BE ENCOUNTERED, CONTACT ADS ENGINEERING.
6. GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
7. FRAMES & REDUCING PLATE SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.

ARCADIA AR4HPDT
HP MANHOLE
DUCTILE IRON FLAT TOP

DATE: 04/23/25 | DRAWN: JLM
DRAWING #: 530-420 | CHECKED: CJD/AT

DATE	DRAWN CHKD	DESCRIPTION

ARCADIA Stormwater Separator

ADS 4640 TRUEMAN BLVD HILLIARD, OH 43026

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SHEET 2 OF 2

Jul 26, 2026
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1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-CNDS

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS
FOR
HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD NEW BRITAIN TOWNSHIP BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
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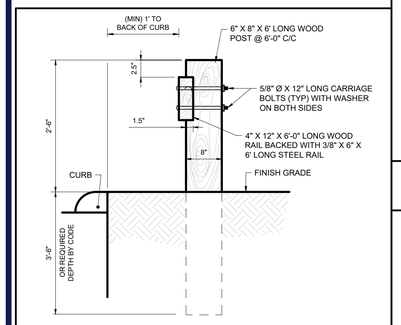
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA LICENSE PROFESSIONAL ENGINEER MATTHEW JOHN KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE NO. PE090488

SHEET TITLE:
POST CONSTRUCTION STORMWATER MANAGEMENT NOTES AND DETAILS

SHEET NUMBER:
C-821
75 OF 102

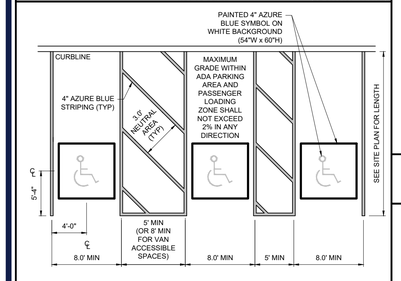
REVISION 1 - 07/28/2026



NOTE: ALL CARRIAGE BOLTS, NUTS & WASHERS TO BE GALVANIZED & ALL WOOD POSTS & RAILS TO BE PRESSURE TREATED.

WOODEN GUIDE RAIL

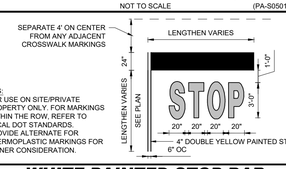
NOT TO SCALE (BE-S090101 - 03/2026)



NOTES:
1. CURB RAMPS MAY NOT EXTEND INTO ANY PORTION OF THE PARKING SPACE OR ASSOCIATED STRIPED PASSENGER LOADING ZONE.
2. CURB RAMPS, PAVEMENT MARKINGS, AND APPLICABLE SIGNAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST A.D.A. ACCESSIBILITY GUIDELINES.

ADA ACCESSIBLE PARKING SPACE STRIPING (3 SPACES)

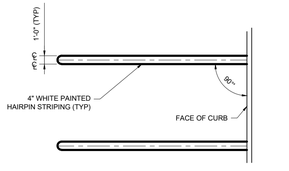
NOT TO SCALE (PA-S050101 - 09/2023)



NOTES:
1. FOR USE ON SITE/PRIVATE PROPERTY ONLY. FOR MARKINGS WITHIN THE ROW, REFER TO LOCAL DOT STANDARDS.
2. PROVIDE ALTERNATE FOR THERMOPLASTIC MARKINGS FOR OWNER CONSIDERATION.

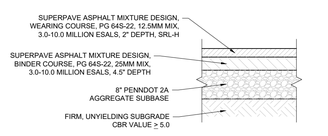
WHITE PAINTED STOP BAR AND "STOP" LETTERING

NOT TO SCALE (BE-S050302 - 06/2025)



HAIRPIN STRIPING

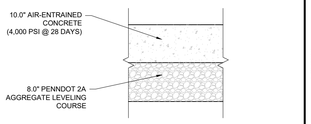
NOT TO SCALE (PA-S050201 - 09/2023)



NOTES:
1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL COMPLY WITH THE LATEST EDITIONS OF PENNDOT PUBLICATION 408 AND 242 (PAVEMENT POLICY MANUAL).
2. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT PAVEMENT DESIGN RECOMMENDATIONS. IN CASE OF ANY DISCREPANCIES, THE GEOTECHNICAL REPORT RECOMMENDATIONS SHALL SUPERSEDE.

HEAVY DUTY ASPHALT PAVEMENT (BUILDING #1)

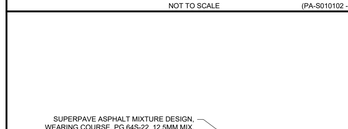
NOT TO SCALE (PA-S010102 - 06/2025)



NOTES:
1. JOINT SPACING SHALL BE 12 FT.
2. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL COMPLY WITH THE LATEST EDITIONS OF PENNDOT PUBLICATION 408 AND 242 (PAVEMENT POLICY MANUAL).
3. CONTRACTOR SHALL REFER TO GEOTECHNICAL REPORT PAVEMENT DESIGN RECOMMENDATIONS. IN CASE OF ANY DISCREPANCIES, THE GEOTECHNICAL REPORT RECOMMENDATIONS SHALL SUPERSEDE.

HEAVY DUTY CONCRETE PAVEMENT (BUILDING #1)

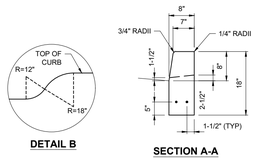
NOT TO SCALE (BE-S010203 - 03/2024)



NOTES:
1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL COMPLY WITH THE LATEST EDITIONS OF PENNDOT PUBLICATION 408 AND 242 (PAVEMENT POLICY MANUAL).
2. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT PAVEMENT DESIGN RECOMMENDATIONS. IN CASE OF ANY DISCREPANCIES, THE GEOTECHNICAL REPORT RECOMMENDATIONS SHALL SUPERSEDE.

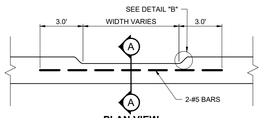
HEAVY DUTY ASPHALT PAVEMENT (BUILDING #2 & #3)

NOT TO SCALE (PA-S010102 - 06/2025)



DETAIL B

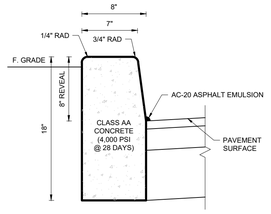
SECTION A-A



PLAN VIEW

DEPRESSED CURB

NOT TO SCALE (PA-S020204 - 09/2023)



CURBING SHALL BE CONSTRUCTED IN TEN-FOOT LENGTHS. A PREMOLDED EXPANSION MATERIAL HAVING A MINIMUM THICKNESS OF 1/4 INCH SHALL BE PLACED BETWEEN SECTIONS OF CURVED CURB AND AT INTERVALS OF NOT MORE THAN 120 FEET. INTERMEDIATE JOINTS BETWEEN TEN-FOOT SECTIONS SHALL BE FORMED OF TWO LAYERS OF SINGLE-PLY BITUMINOUS PAPER.

~~TYPICAL 8" REVEAL CONCRETE CURB~~

NOT TO SCALE (PA-S020201 - 03/2024)



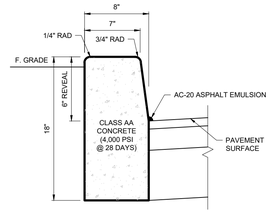
NOTES:
1. REFER TO "ACCESSIBILITY NOTES" PROVIDED HEREIN FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS.
2. DETECTABLE WARNING SURFACES (DWS) ARE DEPICTED IN ONE OF MULTIPLE CONFIGURATIONS. THE DWS SHALL BE PLACED IN ACCORDANCE WITH APPLICABLE REQUIREMENTS.
3. THE CONFIGURATION OF THE RAMPS, LANDINGS, DWS, AND CROSSWALKS SHOWN IN THE DETAIL ARE MEANT TO DEPICT THE VARIOUS REQUIREMENTS ASSOCIATED WITH CURB RAMPS AND RELATED ELEMENTS. REFER TO THE PLANS HEREIN FOR SPECIFIC CONFIGURATIONS.
4. THE RAMP IS TO BE COMPLETELY CONTAINED WITHIN THE LIMITS OF ANY CROSSWALK LINES.
5. CURB RAMPS REQUIRE LANDINGS WHERE PEDESTRIANS PERFORM TURNING MANEUVERS.

ADA CURB RAMP - PERPENDICULAR

NOT TO SCALE (BE-S030505 - 11/2023)

HEAVY DUTY CONCRETE PAVEMENT (BUILDING #2 & #3)

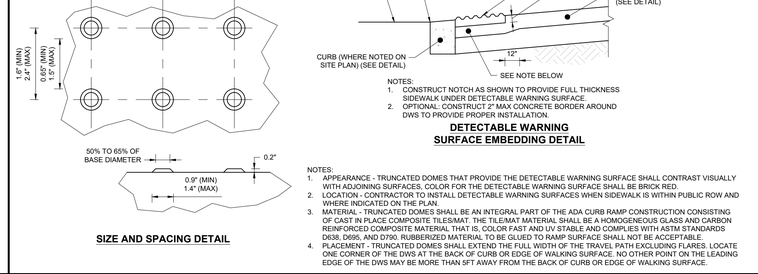
NOT TO SCALE (BE-S010203 - 03/2024)



NOTES:
1. EXPANSION JOINTS, USING 3/4" PREMOLDED EXPANSION JOINT FILLER, SHALL BE PLACED WHERE CURB IS COMPLETED AT THE END OF EACH WORKDAY OR MEETS STRUCTURES, WHICHEVER IS SHORTER.
2. CONTRACTION JOINTS SHALL BE SPACED IN UNIFORM LENGTHS AND NO MORE THAN 20' APART. CONTRACTION JOINTS SHALL BE RECESSED 2" FROM THE TOP AND FRONT OF THE CURB.

TYPICAL CONCRETE CURB

NOT TO SCALE (PA-S020201 - 10/2024)



NOTES:
1. CONSTRUCT NOTCH AS SHOWN TO PROVIDE FULL THICKNESS SIDEWALK UNDER DETECTABLE WARNING SURFACE.
2. OPTIONAL: CONSTRUCT 2" MAX CONCRETE BORDER AROUND DWS TO PROVIDE PROPER INSTALLATION.

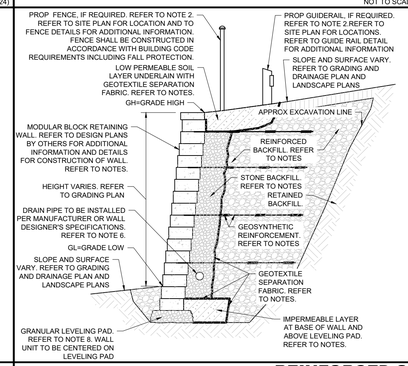
DETECTABLE WARNING SURFACE EMBEDDING DETAIL

SIZE AND SPACING DETAIL

NOTES:
1. APPEARANCE - TRUNCATED DOMES THAT PROVIDE THE DETECTABLE WARNING SURFACE SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, COLOR FOR THE DETECTABLE WARNING SURFACE SHALL BE BRICK RED.
2. LOCATION - CONTRACTOR TO INSTALL DETECTABLE WARNING SURFACES WHEN SIDEWALK IS WITHIN PUBLIC ROW AND WHERE INDICATED ON THE PLAN.
3. MATERIAL - TRUNCATED DOMES SHALL BE AN INTEGRAL PART OF THE ADA CURB RAMP CONSTRUCTION CONSISTING OF CAST IN PLACE COMPOSITE TILES/MAT, THE TILE/MAT MATERIAL SHALL BE A HOMOGENEOUS GLASS AND CARBON REINFORCED COMPOSITE MATERIAL THAT IS, COLOR FAST AND UV STABLE AND COMPLIES WITH ASTM STANDARDS D638, D695, AND D790. RUBBERIZED MATERIAL TO BE GLUED TO RAMP SURFACE SHALL NOT BE ACCEPTABLE.
4. PLACEMENT - TRUNCATED DOMES SHALL EXTEND THE FULL WIDTH OF THE TRAVEL PATH EXCLUDING FLARES. LOCATE ONE CORNER OF THE DWS AT THE BACK OF CURB OR EDGE OF WALKING SURFACE. NO OTHER POINT ON THE LEADING EDGE OF THE DWS MAY BE MORE THAN 5FT AWAY FROM THE BACK OF CURB OR EDGE OF WALKING SURFACE.

DETECTABLE WARNING SURFACE (DWS) (TYP)

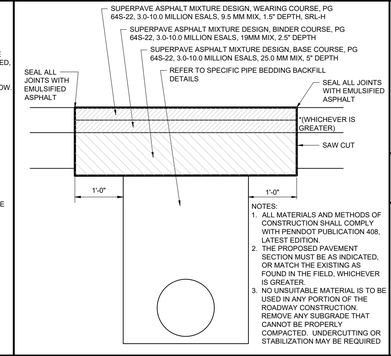
NOT TO SCALE (PAC250095.00 - 07/2026)



NOTES:
1. THIS TYPICAL DETAIL IS NOT FOR CONSTRUCTION AND IS PRELIMINARY AND CONCEPTUAL IN NATURE. THIS DETAIL IS PROVIDED FOR GRAPHICAL REFERENCE PURPOSES ONLY. DESIGN OF THE PROPOSED RETAINING WALL(S) SHALL BE PREPARED BY THE APPROPRIATE PROFESSIONAL (E.G. STRUCTURAL ENGINEER) LICENSED IN THE STATE WHERE THE CONSTRUCTION OCCURS. THE PROFESSIONAL SHALL BE FAMILIAR WITH THE ACTUAL SITE CONDITIONS AND MATERIALS AS WELL AS APPLICABLE, LOCAL, STATE AND FEDERAL REGULATIONS.
2. RETAINING WALL & ANY ASSOCIATED REINFORCEMENT SHALL BE DESIGNED ACCOUNTING FOR SOIL TYPES, WATER TABLE ELEVATION, EXISTING & PROPOSED SURROUNDING IMPROVEMENTS/CONDITIONS (INCLUDING BUT NOT LIMITED TO SLOPES, DRIVE AISLES, ROADS, FENCING (INCLUDING WIND LOAD), GUIDERAILS (INCLUDING COLLISION LOADING), UTILITIES, DRAINAGE FACILITIES, STRUCTURES, FOUNDATIONS), LIVE LOADS AND OTHER SITE AMENITIES THAT COULD HAVE AN INFLUENCE OR IMPACT ON THE RETAINING WALL(S) CONSTRUCTABILITY AND/OR LONGEVITY SHALL BE CONSIDERED AND INCORPORATED INTO THE RETAINING WALL DESIGN AS WELL AS THE GLOBAL STABILITY ANALYSIS. WALL DESIGNER SHALL PROVIDE ALL NECESSARY SLEEVING DETAILS FOR INSTALLATION OF LIGHTS, RAILINGS, GUARDRAILS, OR OTHER MEASURES WITHIN THE REINFORCEMENT ZONE.
3. RETAINING WALL DESIGNER SHALL ACCOUNT FOR MULTIPLE STORM STRUCTURES BEHIND WALL INCLUDING PARALLEL STORM PIPE THAT MAY INTERFERE WITH THE DESIGN OF THE WALL AND ANY ASSOCIATED REINFORCEMENT.
4. SEE GRADING AND DRAINAGE PLAN FOR PROPOSED ELEVATIONS AND SLOPES ASSOCIATED WITH SAME.
5. REFER TO GENERAL GRADING NOTES ON GENERAL NOTES SHEET FOR ADDITIONAL NOTES REGARDING DESIGN AND CONSTRUCTION OF RETAINING WALLS.
6. DRAIN PIPE SHALL DISCHARGE TO CRUSHED STONE PAD AT GRADE (I.E. DAYLIGHT) OR CONNECT TO PROP. DRAINAGE SYSTEM IF UNABLE TO DAYLIGHT. A RODENT SCREEN SHALL BE PROVIDED AT PIPE END WHERE PIPE DAYLIGHTS.
7. THIS DETAIL IS NOT APPLICABLE FOR WALLS UTILIZED TO RETAIN WATER.
8. MATERIALS UTILIZED IN CONSTRUCTION OF THE RETAINING WALL SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS AND WALL DESIGNER'S SPECIFICATIONS INCLUDING ANY REQUIRED COMPACTION AND TESTING.
9. WALL DESIGNER SHALL ACCOUNT FOR PROXIMITY OF DRAINAGE SYSTEMS AND ANY ASSOCIATED STORMWATER INFILTRATION INCLUDING PREPARATION OF GLOBAL STABILITY AND MOUNDING ANALYSES.

FLEXIBLE PAVEMENT RESTORATION

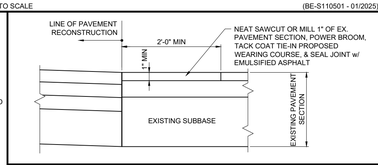
NOT TO SCALE (PA-S019902 - 09/2023)



NOTES:
1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL COMPLY WITH PENNDOT PUBLICATION 408, LATEST EDITION.
2. THE PROPOSED PAVEMENT SECTION MUST BE AS INDICATED, OR MATCH THE EXISTING AS FOUND IN THE FIELD, WHICHEVER IS GREATER.
3. NO UNSUITABLE MATERIAL IS TO BE USED IN ANY PORTION OF THE ROADWAY CONSTRUCTION. REMOVE ANY SUBGRADE THAT CANNOT BE PROPERLY COMPACTED. UNDERCUTTING OR STABILIZATION MAY BE REQUIRED

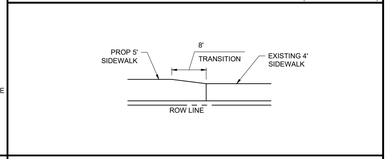
REINFORCED SEGMENTAL BLOCK RETAINING WALL TO BE DESIGNED BY OTHERS

NOT TO SCALE (BE-S110501 - 01/2025)



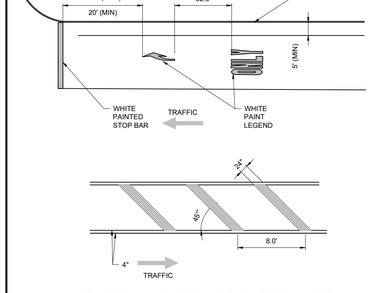
PAVEMENT TIE-IN

NOT TO SCALE (PA-S019901 - 09/2023)



SIDEWALK TIE-IN

NOT TO SCALE (PA-S039901 - 09/2023)



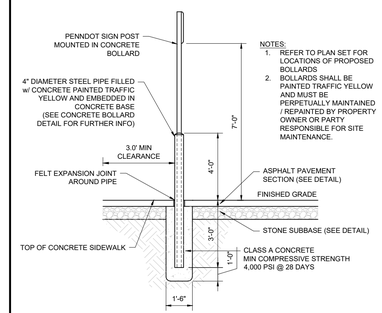
NOTE: DIMENSIONS MAY BE MODIFIED SLIGHTLY TO MEET FIELD CONDITIONS.

PAVEMENT MARKING

NOT TO SCALE (PA-S050302 - 09/2023)

SIGN WITHIN BOLLARD IN ASPHALT

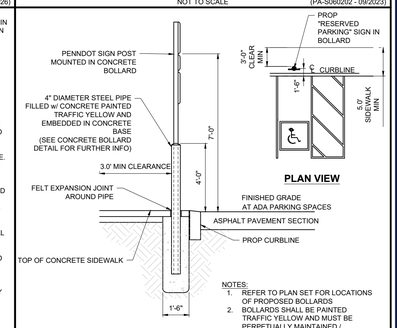
NOT TO SCALE (PA-S060202 - 09/2023)



NOTES:
1. REFER TO PLAN SET FOR LOCATIONS OF PROPOSED BOLLARDS
2. BOLLARDS SHALL BE PAINTED TRAFFIC YELLOW AND MUST BE PERPETUALLY MAINTAINED / REPAINTED BY PROPERTY OWNER OR PARTY RESPONSIBLE FOR SITE MAINTENANCE.

RESERVED PARKING SIGN WITHIN BOLLARD

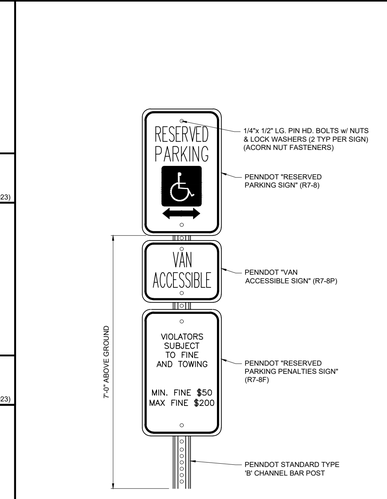
NOT TO SCALE (PA-S060103 - 09/2023)



NOTES:
1. REFER TO PLAN SET FOR LOCATIONS OF PROPOSED BOLLARDS
2. BOLLARDS SHALL BE PAINTED TRAFFIC YELLOW AND MUST BE PERPETUALLY MAINTAINED / REPAINTED BY PROPERTY OWNER OR PARTY RESPONSIBLE FOR SITE MAINTENANCE.

RESERVED PARKING SPACE WITH PENALTIES AND VAN ACCESSIBLE SIGNS

NOT TO SCALE (PA-S060101 - 09/2023)



NOTES:
1. POST MOUNTED SIGNS SHALL BE TYPE B CHANNEL BAR POSTS AND SHALL CONFORM TO PENNDOT "TRAFFIC CONTROL SIGNING STANDARDS" TC-8702B. APPROPRIATE POSTS SHALL BE SELECTED BASED ON THE SIZE OF THE SIGN USING THE SELECTION TABLES CONTAINED THEREIN
2. SIGN INSTALLATION SHALL BE IN ACCORDANCE WITH PENNDOT "TRAFFIC CONTROL SIGNING STANDARDS" TC-8702B, AS AMENDED.
3. SEE CIVIL PLANS FOR EXACT LOCATION, TYPE AND SIZE OF SIGNS. ALL REGULATORY (R SERIES), SIGNS SHALL CONFORM TO THE PENNDOT "HANDBOOK OF APPROVED SIGNS", PUBLICATION 236M, AS AMENDED, UNLESS OTHERWISE SPECIFIED.
4. SIGNS SHALL BE SETBACK 2.0' FROM CURB LINES OR OTHER OBSTRUCTIONS AS MEASURED FROM THE FACE/EDGE OF THE SIGN.
5. RESERVED PARKING SPACE SIGNS SHALL CONFORM TO DEPARTMENT OF JUSTICE "ADA STANDARDS FOR ACCESSIBLE DESIGN" AS AMENDED.
6. ALL SIGNS SHALL BE INSTALLED WITH ACORN NUT FASTENERS.

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL SERVICES
PERMITTING SERVICES
TRANSPORTATION SERVICES
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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREIN HAVE BEEN DEVELOPED UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 50 OF 2017, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. WWW.PA1CALL.ORG

NOT APPROVED FOR CONSTRUCTION

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT NO.: PAC250095.00-1A
DRAWN BY: PAB
CHECKED BY: RDE
DATE: 04/06/2026
CAD I.D.: P-CIVL-CNDS

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD NEW BRITAIN TOWNSHIP BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — PROFESSIONAL — MATTHEW JOHN KBARSE — PROFESSIONAL ENGINEER — PENNSYLVANIA NO. PE088008

SHEET TITLE:

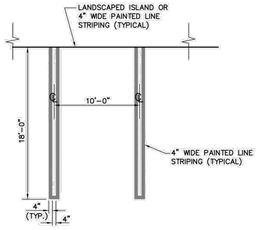
CONSTRUCTION DETAILS

SHEET NUMBER:

C-901
76 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-CNDS-PAC250095.00-1A---LAYOUT: C-901 DETL
JV

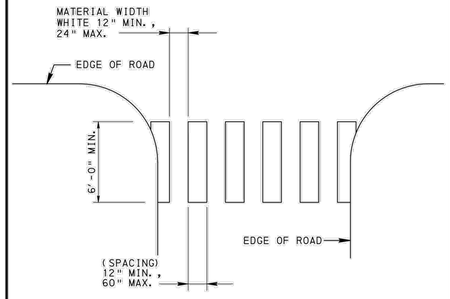


PARKING SPACE STRIPING DETAIL

NEW BRITAIN TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
65 EAST BUTLER AVENUE, SUITE 100; NEW BRITAIN, PA 18901-5106 • (215) 345-4330
www.gilmore-assoc.com

DATE:	LAST REVISED:	SCALE:	DRAWING No:
5/22/09	07/31/24	N.T.S.	16 OF 22



TYPE 3 PERPENDICULAR CROSSWALK

NOTE:

1. ALL CROSSWALK STRIPING WITHIN RIGHT-OF-WAY TO BE THERMOPLASTIC MATERIAL UNLESS OTHERWISE SPECIFIED BY THE TOWNSHIP.
2. CROSSWALKS SHALL BE IN ACCORDANCE WITH PENNDOT PUB TC-8600 – PAVEMENT MARKINGS

PEDESTRIAN CROSSWALK DETAIL

NEW BRITAIN TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA

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ENGINEERING & CONSULTING SERVICES
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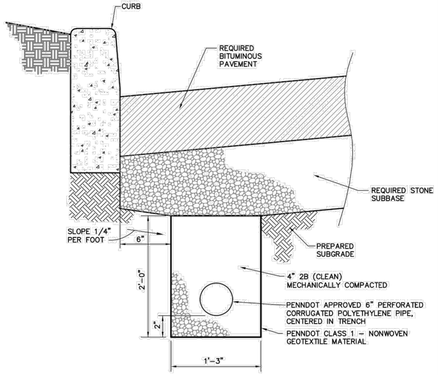
DATE:	LAST REVISED:	SCALE:	DRAWING No:
8/16/22	07/31/24	N.T.S.	18 OF 22



ROAD UNDERDRAIN DETAIL

NEW BRITAIN TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA

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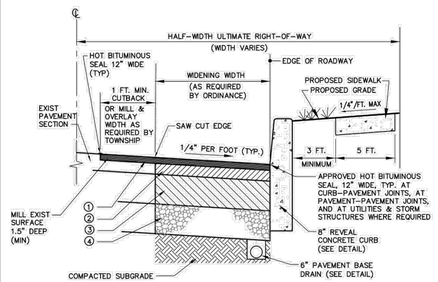
DATE:	LAST REVISED:	SCALE:	DRAWING No:
5/22/09	07/31/24	N.T.S.	14 OF 22



NOTES:

1. NEW ROADS SHALL COMPLY WITH THE ABOVE SPECIFICATION.
2. PAVEMENT BASE DRAIN TO BE INSTALLED AS DEEMED NECESSARY BY TOWNSHIP ENGINEER BASED ON FIELD CONDITIONS

TYPICAL ROADWAY WIDENING SECTION DETAIL FOR ARTERIAL, COLLECTOR, AND NON-RESIDENTIAL ROADS

NEW BRITAIN TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES
65 EAST BUTLER AVENUE, SUITE 100; NEW BRITAIN, PA 18901-5106 • (215) 345-4330
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DATE:	LAST REVISED:	SCALE:	DRAWING No:
5/22/09	07/31/24	N.T.S.	2 OF 22

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-CNDS-PAC250095.00-1A-----1A LAYOUT C-902 DETL
JV

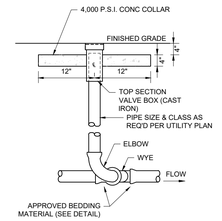
LIST OF APPLICABLE PENNDOT DETAILS & STANDARDS

ALL PAVEMENT MARKINGS SHOULD BE IN ACCORDANCE WITH PENNDOT PUBLICATION 111, TC-8600 & TC-8700 STANDARDS, LATEST EDITION.

SIGNAGE: PENNDOT PUBLICATION 236
"STOP" SIGN - R1-1 (24" x 24")
"NO LEFT TURN" SIGN - R3-2 (24" x 24")
"CENTER LANE - LEFT TURN - ONLY" SIGN - R3-9B (24" x 36")
"BEGIN" SIGN - R3-9CP (24" x 12")
"KEEP RIGHT" SIGN - R4-7 (12" x 18")
"DO NOT ENTER" SIGN - R5-1 (30" x 30")
VERTICAL "ONE WAY" LEFT SIGN - R6-2L (18" x 24")
VERTICAL "ONE WAY" RIGHT SIGN - R6-2R (18" x 24")
NO PARKING SYMBOL SIGN - R8-3 (24" x 24")
PEDESTRIAN SIGN - W11-2 (30" x 30" W/ FLUORESCENT YELLOW-GREEN BACKGROUND)
DOWNWARD POINTING ARROW SIGN - W16-7P (24" x 12" W/ FLUORESCENT YELLOW-GREEN BACKGROUND)
OBJECT MARKER - OM1-3 (18" x 18")

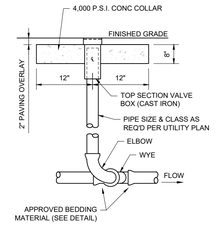
ADDITIONAL DETAILS ASSOCIATED WITH PENNDOT ROAD IMPROVEMENTS ARE ON THE FOLLOWING STANDARD DETAILS FROM THE LATEST EDITION OF PENNDOT PUBLICATION 72M:
(THE PERMITTEE IS REQUIRED TO PROVIDE THE CONTRACTOR WITH COPIES OF THE MOST CURRENT APPLICABLE RC DRAWINGS)

STANDARD DRAWING NUMBER	DRAWING NAME
RC - 26M	CONCRETE PAVEMENT REHABILITATION
RC - 28M	OVERLAY TRANSITIONS AND PAVING NOTCHES
RC - 30M	SUBSURFACE DRAINS
RC - 33M	END SECTIONS FOR PIPE CULVERTS
RC - 38M	SANITARY SEWER MANHOLES
RC - 39M	STORMWATER MANHOLES
RC - 45M	INLET TOPS, GRATES AND FRAMES
RC - 46M	INLET BOXES
RC - 64M	CURBS AND GUTTERS
RC - 65M	CONCRETE MOUNTABLE CURBS
RC - 67M	CURB RAMPS AND SIDEWALKS



TYPICAL CLEANOUT (LANDSCAPE AREAS)

NOT TO SCALE (PA-U020202 - 09/2023)



TYPICAL CLEANOUT (PAVED AREAS)

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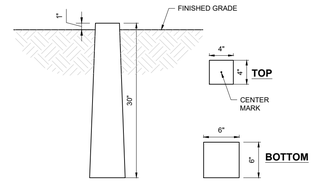
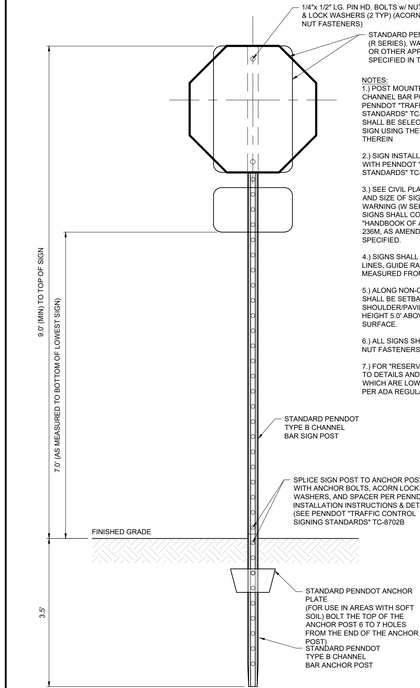


1.) SPECIFICATIONS:
- CLASS 'A' CONCRETE- MINIMUM STRENGTH (3,000 P.S.I. @ 28 DAYS)
- STEEL REINFORCEMENT (#4 REBAR)

SURVEYOR'S MONUMENT

NOT TO SCALE (PA-S130102 - 07/2024)



NOTES:

1. STANDARD POST MOUNTED SIGNS SHALL BE TYPE B CHANNEL BAR POSTS AND SHALL CONFORM TO PENNDOT "TRAFFIC CONTROL SIGNING STANDARDS" TC-8702B. APPROPRIATE POSTS SHALL BE SELECTED BASED ON THE SIZE OF THE SIGN USING THE SELECTION TABLES CONTAINED THEREIN
2. SIGN INSTALLATION SHALL BE IN ACCORDANCE WITH PENNDOT "TRAFFIC CONTROL SIGNING STANDARDS" TC-8702B, AS AMENDED.
3. SEE CIVIL PLANS FOR EXACT LOCATION, TYPE AND SIZE OF SIGNS. ALL REGULATORY (R SERIES), WARNING (W SERIES) OR OTHER APPROVED SIGNS SHALL CONFORM TO THE PENNDOT "HANDBOOK OF APPROVED SIGNS", PUBLICATION 236M, AS AMENDED, UNLESS OTHERWISE SPECIFIED.
4. SIGNS SHALL BE SETBACK 2.0' FROM CURB LINES, GUIDE RAILS OR OTHER OBSTRUCTIONS AS MEASURED FROM THE FACE/EDGE OF THE SIGN.
5. ALONG NON-CURBED LOCAL ROADWAYS SIGNS SHALL BE SETBACK 6.0' FROM THE SHOULDER/PAVING EDGE AND SHALL BE AT A HEIGHT 5.0' ABOVE THE EDGE OF PAVEMENT SURFACE.
6. ALL SIGNS SHALL BE INSTALLED WITH ACORN NUT FASTENERS.
7. FOR "RESERVED PARKING SIGN" (R7-8) REFER TO DETAILS AND SPECIFIED MOUNTING HEIGHTS WHICH ARE LOWER FOR INCREASED VISIBILITY PER ADA REGULATIONS.

STANDARD POLE MOUNTED SIGN INSTALLATION

NOT TO SCALE (PA-S060201 - 09/2023)

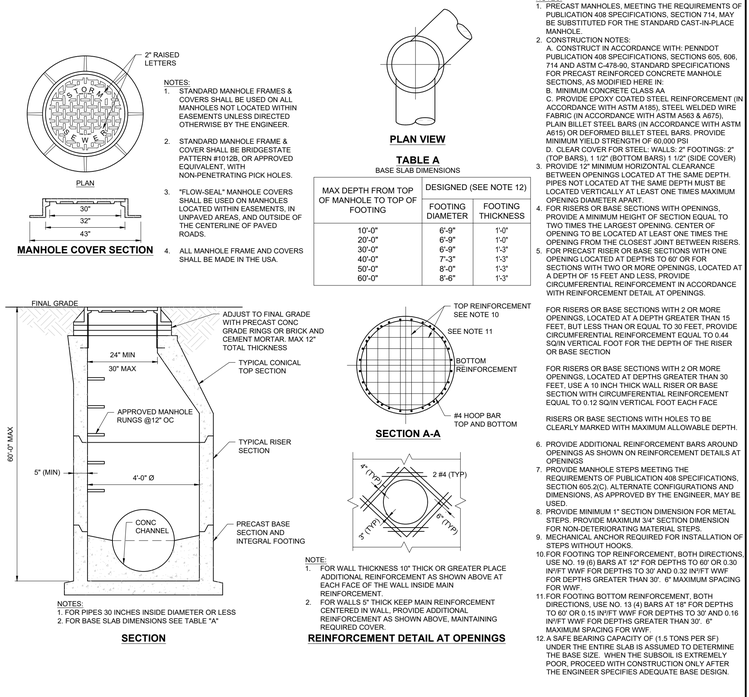


TABLE A
BASE SLAB DIMENSIONS

MAX DEPTH FROM TOP OF MANHOLE TO TOP OF FOOTING	DESIGNED (SEE NOTE 12)	
	FOOTING DIAMETER	FOOTING THICKNESS
10'-0"	6'-9"	1'-0"
20'-0"	6'-9"	1'-0"
30'-0"	6'-9"	1'-3"
40'-0"	7'-3"	1'-3"
50'-0"	8'-0"	1'-3"
60'-0"	8'-6"	1'-3"

NOTES:

1. STANDARD MANHOLE FRAMES & COVERS SHALL BE USED ON ALL MANHOLES NOT LOCATED WITHIN EASEMENTS UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
2. STANDARD MANHOLE FRAME & COVER SHALL BE BRIDGESTATE PATTERN #1012B, OR APPROVED EQUIVALENT, WITH NON-PENETRATING PICK HOLES.
3. "FLOW-SEAL" MANHOLE COVERS SHALL BE USED ON MANHOLES LOCATED WITHIN EASEMENTS, IN UNPAVED AREAS, AND OUTSIDE OF THE CENTERLINE OF PAVED ROADS.
4. ALL MANHOLE FRAME AND COVERS SHALL BE MADE IN THE USA.

MANHOLE COVER SECTION

NOTES:

1. FOR PIPES 30 INCHES INSIDE DIAMETER OR LESS
2. FOR BASE SLAB DIMENSIONS SEE TABLE "A"

SECTION

NOTE:

1. FOR WALL THICKNESS 10" THICK OR GREATER PLACE ADDITIONAL REINFORCEMENT AS SHOWN ABOVE AT EACH FACE OF THE WALL INSIDE MAIN REINFORCEMENT.
2. FOR WALLS 5" THICK KEEP MAIN REINFORCEMENT CENTERED IN WALL. PROVIDE ADDITIONAL REINFORCEMENT AS SHOWN ABOVE, MAINTAINING REQUIRED COVER.

REINFORCEMENT DETAIL AT OPENINGS

NOTES:

1. PRECAST MANHOLES, MEETING THE REQUIREMENTS OF PUBLICATION 408 SPECIFICATIONS, SECTION 714, MAY BE SUBSTITUTED FOR THE STANDARD CAST-IN-PLACE MANHOLE.
2. CONSTRUCTION NOTES:
   A. CONSTRUCT IN ACCORDANCE WITH: PENNDOT PUBLICATION 408 SPECIFICATIONS, SECTIONS 605, 606, 714 AND ASTM C-478-90, STANDARD SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS, AS MODIFIED HERE IN:
   B. MINIMUM CONCRETE CLASS AA
   C. PROVIDE EPOXY COATED STEEL REINFORCEMENT (IN ACCORDANCE WITH ASTM A185), STEEL WELDED WIRE FABRIC (IN ACCORDANCE WITH ASTM A563 & A675), PLAIN BILLET STEEL BARS (IN ACCORDANCE WITH ASTM A615) OR DEFORMED BILLET STEEL BARS. PROVIDE MINIMUM YIELD STRENGTH OF 60,000 PSI
   D. CLEAR COVER FOR STEEL: WALLS: 2" FOOTINGS: 2" (TOP BARS), 1 1/2" (BOTTOM BARS) 1 1/2" (SIDE COVER)
3. PROVIDE 12" MINIMUM HORIZONTAL CLEARANCE BETWEEN OPENINGS LOCATED AT THE SAME DEPTH. PIPES NOT LOCATED AT THE SAME DEPTH MUST BE LOCATED VERTICALLY AT LEAST ONE TIMES MAXIMUM OPENING DIAMETER APART.
4. FOR RISERS OR BASE SECTIONS WITH OPENINGS, PROVIDE A MINIMUM HEIGHT OF SECTION EQUAL TO TWO TIMES THE LARGEST OPENING. CENTER OF OPENING TO BE LOCATED AT LEAST ONE TIMES THE OPENING FROM THE CLOSEST JOINT BETWEEN RISERS.
5. FOR PRECAST RISER OR BASE SECTIONS WITH ONE OPENING LOCATED AT DEPTHS TO 60' OR FOR SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT A DEPTH OF 15 FEET AND LESS, PROVIDE CIRCUMFERENTIAL REINFORCEMENT IN ACCORDANCE WITH REINFORCEMENT DETAIL AT OPENINGS.

   FOR RISERS OR BASE SECTIONS WITH 2 OR MORE OPENINGS, LOCATED AT A DEPTH GREATER THAN 15 FEET, BUT LESS THAN OR EQUAL TO 30 FEET, PROVIDE CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.44 SQ/IN VERTICAL FOOT FOR THE DEPTH OF THE RISER OR BASE SECTION

   FOR RISERS OR BASE SECTIONS WITH 2 OR MORE OPENINGS, LOCATED AT DEPTHS GREATER THAN 30 FEET, USE A 10 INCH THICK WALL RISER OR BASE SECTION WITH CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ/IN VERTICAL FOOT EACH FACE.

   RISERS OR BASE SECTIONS WITH HOLES TO BE CLEARLY MARKED WITH MAXIMUM ALLOWABLE DEPTH.
6. PROVIDE ADDITIONAL REINFORCEMENT BARS AROUND OPENINGS AS SHOWN ON REINFORCEMENT DETAILS AT OPENINGS.
7. PROVIDE MANHOLE STEPS MEETING THE REQUIREMENTS OF PUBLICATION 408 SPECIFICATIONS, SECTION 605.2(C). ALTERNATE CONFIGURATIONS AND DIMENSIONS, AS APPROVED BY THE ENGINEER, MAY BE USED.
8. PROVIDE MINIMUM 1" SECTION DIMENSION FOR METAL STEPS. PROVIDE MAXIMUM 3/4" SECTION DIMENSION FOR NON-DETERIORATING MATERIAL STEPS.
9. MECHANICAL ANCHOR REQUIRED FOR INSTALLATION OF STEPS WITHOUT HOOKS.
10. FOR FOOTING TOP REINFORCEMENT, BOTH DIRECTIONS, USE NO. 19 (6) BARS AT 12" FOR DEPTHS TO 60' OR 0.30 IN²/FT W/#F FOR DEPTHS TO 30' AND 0.32 IN²/FT W/#F FOR DEPTHS GREATER THAN 30'. 6" MAXIMUM SPACING FOR W/#F.
11. FOR FOOTING BOTTOM REINFORCEMENT, BOTH DIRECTIONS, USE NO. 13 (4) BARS AT 18" FOR DEPTHS TO 60' OR 0.15 IN²/FT W/#F FOR DEPTHS TO 30' AND 0.16 IN²/FT W/#F FOR DEPTHS GREATER THAN 30'. 6" MAXIMUM SPACING FOR W/#F.
12. A SAFE BEARING CAPACITY OF (1.5 TONS PER SF) UNDER THE ENTIRE SLAB IS ASSUMED TO DETERMINE THE BASE SIZE. WHEN THE SUBSOIL IS EXTREMELY POOR, PROCEED WITH CONSTRUCTION ONLY AFTER THE ENGINEER SPECIFIES ADEQUATE BASE DESIGN.

PRECAST STORM MANHOLE

NOT TO SCALE (PA-U010101 - 09/2023)

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREIN HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 50 OF 2017, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. WWW.PA1CALL.ORG

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PROJECT No.:	PAC250095.00-1A
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CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVIL-CNDS

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
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SHEET TITLE:

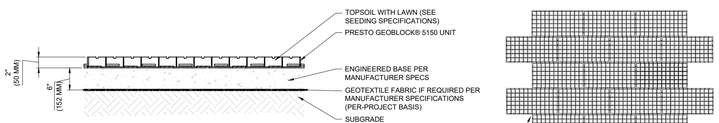
CONSTRUCTION DETAILS

SHEET NUMBER:

C-902

77 OF 102

REVISION 1 - 07/28/2026



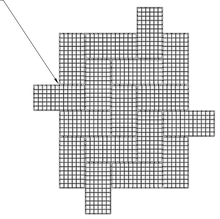
ELEVATION VIEW

HEAVY FIRE TRUCK ACCESS & H-20 LOADING, INFREQUENT PASSES
SINGLE AXLE LOADING - 145 KN (32 KIP)
TANDEM AXLE LOADING - 220 KN (48 KIP)

GROSS VEHICLE LOADING - 36.3 TONNE (80,000 LB)
MAXIMUM TIRE PRESSURE - 758 KPA (110 PSI)
SUBGRADE CBR = 4

PLAN VIEW
TYPICAL LAYOUT
BRICKLAYER PATTERN

CUT GEOBLOCK5150 UNITS IN HALF ALONG OUTER EDGE OF SYSTEM TO FORM STRAIGHT EDGE



PLAN VIEW
TYPICAL LAYOUT
HERRINGBONE PATTERN

PRESTO GEOSYSTEMS
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GEOBLOCK® 5150 MATERIAL SPECIFICATION
MATERIAL: UP TO 97% RECYCLED POLYETHYLENE
COLOR: RANGES DARK SHADES OF GRAY TO BLACK
CHEMICAL RESISTANCE: SUPERIOR
CARBON BLACK FOR UV STABILIZATION: 1.5% - 2.0%
UNIT MIN CRUSH STRENGTH - EMPTY AT 21°C (73°F): 420 PSI (2,900 KPA)
FLEXURAL MODULUS AT 21°C (73°F): 35,000 PSI (240,000 KPA)
NOMINAL DIMENSIONS (WIDTH X LENGTH): 20" X 40" (0.5 M X 1 M)
NOMINAL UNIT DEPTH: 2" (50 MM)
NOMINAL AREA: 5.38 FT² (0.5 M²)
CELLS PER UNIT: 72
CELL SIZE: 3.1" X 3.2" (79 MM X 81 MM)
TOP OPEN AREA PER UNIT: 87%
BOTTOM OPEN AREA PER UNIT: 41%
INTERLOCKING OFFSET SHEAR TRANSFER PINS: 12 TABS PER 40" (PER 1 M)
NOMINAL WEIGHT PER UNIT: 9.0 LBS (4 KG)
RUNOFF COEFFICIENT AT 2.5 IN/HR (64 MM) RAINFALL: 0.15
UNITS PER PALLET: 50

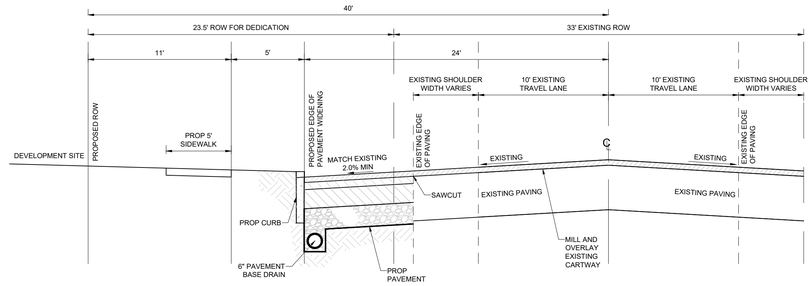
DESIGN GUIDELINES - BASE DEPTH		
LOAD DESCRIPTION	CBR 2-4%	CBR>4%
HEAVY FIRE TRUCK ACCESS & H/HS-20 LOADING, TYPICAL 110 PSI (758 KPA) TIRE PRESSURE. SINGLE AXLE LOADINGS OF 32 KIPS (145 KN), TANDEM AXLE LOADINGS OF 48 KIPS (220 KN), GROSS VEHICLE WEIGHT OF 80,000 LBS (36.3 MT). INFREQUENT PASSES.	DESIGN 1 - 6" BASE	DESIGN 2 - 4" BASE
LIGHT FIRE TRUCK ACCESS & H/HS-15 LOADING. TYPICAL 85 PSI (586 KPA) TIRE PRESSURE. SINGLE AXLE LOADINGS OF 24 KIPS (110 KN). GROSS VEHICLE LOADS OF 60,000 LBS (27.2 MT). INFREQUENT PASSES.	DESIGN 2 - 4" BASE	DESIGN 3 - 2" BASE
UTILITY & DELIVERY TRUCK ACCESS & H/HS-10 LOADING. TYPICAL 60 PSI (414 KPA) TIRE PRESSURE. SINGLE AXLE LOADINGS OF 16 KIPS (75 KN). GROSS VEHICLE LOADS OF 40,000 LBS (18.1 MT). INFREQUENT PASSES.	DESIGN 3 - 2" BASE	DESIGN 3 - 2" BASE
CARS & PICK-UP TRUCK ACCESS. TYPICAL 45 PSI (310 KPA) TIRE PRESSURE. SINGLE AXLE LOADINGS OF 4 KIPS (18 KN). GROSS VEHICLE LOADS OF 8,000 LBS (3.6 MT). INFREQUENT PASSES.	DESIGN 4 - NO BASE	DESIGN 4 - NO BASE
TRAIL USE. LOADING FOR PEDESTRIAN, WHEELCHAIR, EQUESTRIAN, BICYCLE, MOTORCYCLE AND ATV TRAFFIC.	DESIGN 4 - NO BASE	DESIGN 4 - NO BASE

MANUFACTURER NOTES:
1. CBR MEANS CALIFORNIA BEARING RATIO.
2. ENGINEERED BASE IS A HOMOGENOUS MIXTURE CONSISTING OF CRUSHED ROCK HAVING AN AASHTO #5 OR SIMILAR DESIGNATION BLENDED WITH PULVERIZED TOPSOIL AND VOID COMPONENT GENERALLY CONTAINING AIR AND/OR WATER. THIS HOMOGENOUS MIXTURE WILL PROMOTE VEGETATIVE GROWTH AND PROVIDE REQUIRED STRUCTURAL SUPPORT. THE AGGREGATE PORTION SHALL HAVE A PARTICLE RANGE FROM 9.5 MM TO 25 MM (0.375" - 1") WITH A D50 OF 13 MM (0.5"). THE PERCENTAGE VOID-SPACE OF THE AGGREGATE PORTION WHEN COMPACTED SHALL BE AT LEAST 30%. THE PULVERIZED TOPSOIL PORTION SHALL EQUAL 25% +/- OF THE TOTAL VOLUME AND BE ADDED AND BLENDED TO PRODUCE A HOMOGENOUS MIXTURE PRIOR TO PLACEMENT OR WASHED INTO THE IN-PLACE COMPACTED AGGREGATE. ONCE PLACED, THE MIXTURE SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY
3. REFER TO THE GEOBLOCK 5150 DESIGN AND CONSTRUCTION OVERVIEW FOR A COMPLETE DESCRIPTION OF THE DESIGN AND CONSTRUCTION METHODS.

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWING.
3. THIS DRAWING IS INTENDED FOR USE BY ARCHITECTS, ENGINEERS, CONTRACTORS, CONSULTANTS AND DESIGN PROFESSIONALS FOR PLANNING PURPOSES ONLY. THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION.
4. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.
5. CONTRACTOR'S NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info AND ENTER REFERENCE NUMBER

GRASS PAVER

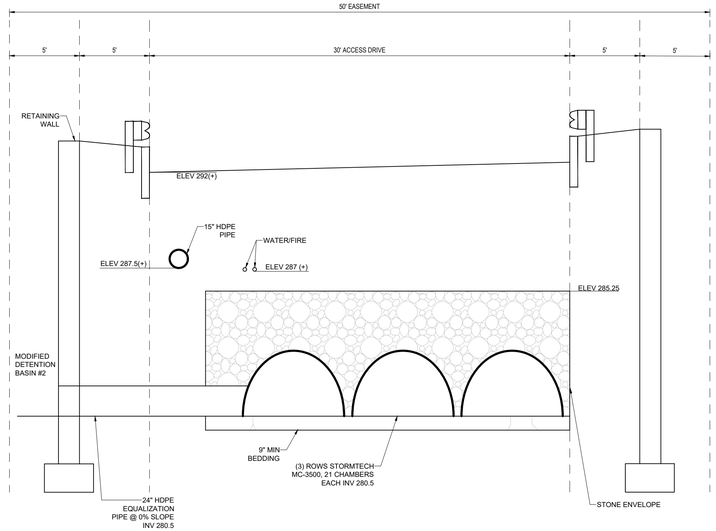
NOT TO SCALE (PA-S019903 - 09/2023)



NOTES:
1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL COMPLY WITH THE LATEST EDITIONS OF PENNDOT PUBLICATION 408 AND PUBLICATION 242 (PAVEMENT POLICY MANUAL)
2. THE PROPOSED OVERLAY THICKNESS, MUST BE AS INDICATED, OR MATCH THE EXISTING AS FOUND IN THE FIELD, WHICHEVER IS GREATER. A LESSER WEARING COURSE THICKNESS IS NOT PERMITTED, UNLESS OTHERWISE DEEMED ACCEPTABLE BY PENNDOT

TOWNSHIP ROAD WIDENING TYPICAL SECTION

NOT TO SCALE



EXTENDED STORAGE DETAIL
EXISTING DETENTION BASIN 2 (141 INDEPENDENCE DR)

NOT TO SCALE

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
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REVISIONS

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1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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PROJECT No.: PAC250095.00-1A
DRAWN BY: PAB
CHECKED BY: RDE
DATE: 04/06/2026
CAD I.D.: P-CIVL-CNDS

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — PROFESSIONAL — MATTHEW JOHN KRARSE — PROFESSIONAL ENGINEER — PENNSYLVANIA LICENSE NO. PE090388

SHEET TITLE:
CONSTRUCTION DETAILS

SHEET NUMBER:
C-903
78 OF 102

REVISION 1 - 07/28/2026

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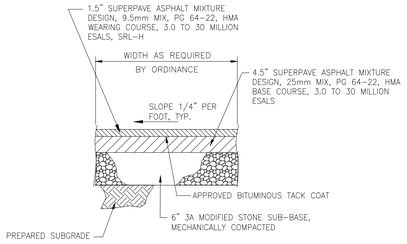

NON-RESIDENTIAL AND MULTI-RESIDENTIAL DRIVEWAYS, PARKING AREAS AND LOADING AREAS PAVING SECTION DETAIL

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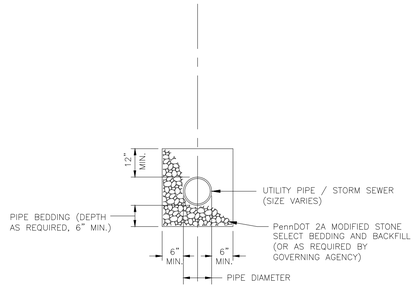
5/22/09	12/12/09	N.T.S.	8 OF 17



NOTE: REFER TO NWWA DETAIL FOR WATER MAIN

PIPE BEDDING DETAIL

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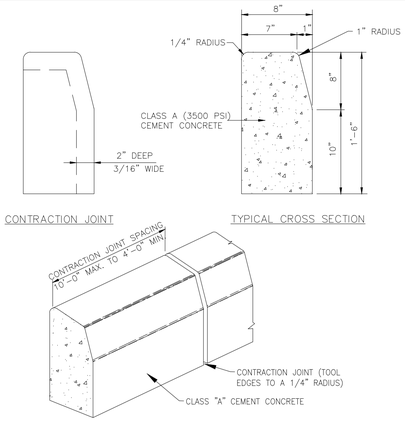

NOTES:

1. PLACE 1/2" PREMOLDED EXPANSION JOINT MATERIAL EVERY 50 FEET (MAX.) AND AT ALL DRIVEWAYS (DEPRESSED CURB CUTS), INLETS, AND CURB RADII.
2. MINIMUM 2-#6 REINFORCING BARS PER SIDE WHERE CURB ABUTS INLET HOODS, INCLUDING PREMOLDED EXPANSION JOINT MATERIAL.
3. WHERE CURB ARE INSTALLED BY A MACHINE, SAW CUTS SHALL BE 2" DEEP, EVERY 10 FEET.

PLAIN CEMENT CONCRETE CURB DETAIL

NEW BRITAIN TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA

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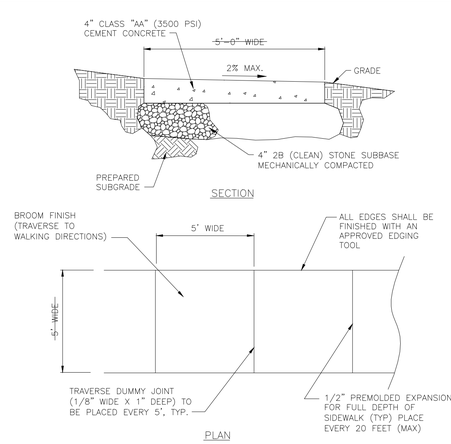
5/22/09	12/12/09	N.T.S.	9 OF 17



NOTES:

1. WITH ALL PROPOSED SIDEWALK, A NON-SLIP SURFACE TEXTURE SHALL BE BROOMED TRAVERSE TO THE SLOPE OF THE SIDEWALK.
2. ALL SIDEWALK SHALL BE IN ACCORDANCE WITH ACI & PENNDOT STANDARDS.

CONCRETE SIDEWALK DETAIL

NEW BRITAIN TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA

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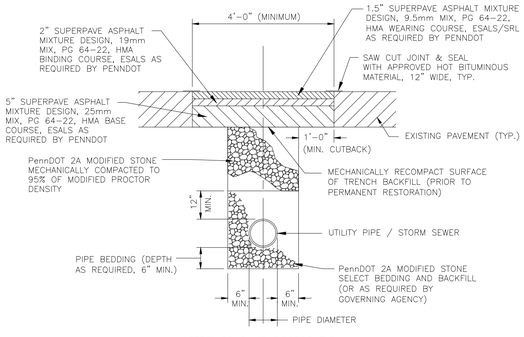
5/22/09	12/12/09	N.T.S.	11 OF 17

STANDARD DUTY ASPHALT PAVEMENT DETAIL

SCALE: N.T.S.



NOTES:

NOTE: REFER TO NWWA DETAIL FOR WATER MAIN

1. BEFORE 90 DAYS, ROADS SHALL BE TEMPORARILY RESTORED WITH 2A COURSE AGGREGATE AND 2" OF PennDOT ID-2 BINDER COURSE (TO GRADE) AND ALLOWED TO SETTLE 90 DAYS PRIOR TO PERMANENT RESTORATION, AS SHOWN ABOVE. PERMANENT RESTORATION OF TRENCHES SHALL BE COMPLETED ONLY AFTER APPROVAL BY TOWNSHIP ENGINEER.
2. RETAINED SUITABLE MATERIAL MAY BE USED AS BACKFILL FOR TRENCHES IN TOWNSHIP RIGHT-OF-WAY (OUTSIDE OF CARTWAY) WHEN MORE THAN THREE (3) FEET FROM EDGE OF EXISTING CARTWAY, CURB, AND/OR SIDEWALK.
3. MINIMUM WIDTH OF ALL RESTORATION SHALL BE FOUR (4) FEET.
4. COLD PATCH SHALL BE APPLIED ON ALL TRENCH RESTORATIONS (PRIOR TO 90 DAYS) WHEN BINDING OR BASE COURSE ARE NOT AVAILABLE DUE TO WEATHER CONDITIONS.
5. FOR PLASTIC UTILITIES, INSTALL DETECTION TAPE OVER PIPE AT TOP OF STONE BACKFILL.

STORM SEWER & UTILITY TRENCH RESTORATION WITHIN PAVED AREAS DETAIL

NEW BRITAIN TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA

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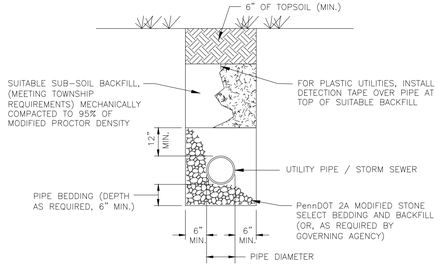
5/22/09	12/12/09	N.T.S.	5 OF 17



NOTE: REFER TO NWWA DETAIL FOR WATER MAIN

STORM SEWER & UTILITY TRENCH RESTORATION WITHIN PERVIOUS AREAS DETAIL

NEW BRITAIN TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA

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5/22/09	12/12/09	N.T.S.	6 OF 17

THE FOLLOWING NOTES PERTAIN TO ALL PROPOSED CONSTRUCTION METHODS, MATERIALS, STRUCTURES AND FACILITIES WITHIN NEW BRITAIN TOWNSHIP. THESE CONSTRUCTION NOTES, IN A SIMILAR FORMAT, MUST BE PROVIDED ON THE RECORD PLAN. THE APPLICANT SHOULD MODIFY THE CONSTRUCTION NOTES OR PROVIDE ADDITIONAL NOTES, AS NECESSARY, WHEN THE DESIGN METHODS AND STANDARDS ARE NOT SPECIFICALLY STATED. UNLESS A MORE RESTRICTIVE DESIGN METHOD OR STANDARD IS SPECIFIED IN NEW BRITAIN TOWNSHIP'S ZONING OR SUBDIVISION AND LAND DEVELOPMENT ORDINANCES, THE FOLLOWING SHALL APPLY TO ALL CONSTRUCTION ACTIVITIES:

1. ALL CONSTRUCTION METHODS AND MATERIALS MUST COMPLY WITH THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PUBLICATION 408, LATEST REVISION.
2. ALL PROPOSED STRUCTURES AND FACILITIES MUST BE CONSTRUCTED IN ACCORDANCE WITH THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PUBLICATION 72, "ROAD CONSTRUCTION STANDARDS", LATEST REVISION.
3. ALL PROPOSED STREETS, ACCESS DRIVES, DRIVEWAYS AND UTILITIES SHALL COMPLY WITH THE PENNSYLVANIA CODE, TITLE 67, CHAPTER 441, "ACCESS TO AND OCCUPANCY OF HIGHWAYS BY DRIVEWAYS AND LOCAL ROADS", AND CHAPTER 459, "OCCUPANCY OF HIGHWAYS BY UTILITIES", LATEST REVISION.
4. ALL PROPOSED STRUCTURES AND FACILITIES MUST COMPLY WITH THE AMERICANS WITH DISABILITY ACT, "ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES", LATEST REVISION.
5. ALL PROPOSED WATER AND SEWER FACILITIES MUST COMPLY WITH THE STANDARDS AND POLICIES OF THE APPLICABLE WATER AUTHORITY, SEWER AUTHORITY, BUCKS COUNTY HEALTH DEPARTMENT, PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION AND NEW BRITAIN TOWNSHIP.
6. ALL CONTRACTORS SHALL BE RESPONSIBLE FOR ENSURING ALL CONSTRUCTION ACTIVITIES ARE PERFORMED IN ACCORDANCE WITH THE STANDARDS AND POLICIES OF THE BUCKS COUNTY CONSERVATION DISTRICT.
7. ALL CONTRACTORS SHALL BE RESPONSIBLE FOR ENSURING ALL CONSTRUCTION ACTIVITIES ARE PERFORMED IN ACCORDANCE WITH THE STANDARDS AND POLICIES OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION.
8. ALL CONTRACTORS SHALL BE RESPONSIBLE FOR VERIFYING LOCATIONS OF ALL UTILITIES AND COMPLYING WITH THE PENNSYLVANIA ACT 38 AND ACT 187, AS AMENDED.
9. ALL NEW UTILITIES SHALL BE INSTALLED UNDERGROUND.
10. ALL CONTRACTORS WORKING ON THIS PROJECT SHALL COMPLY WITH THE REQUIREMENTS OF P.L. 852, No. 287, 12/10/74, AS AMENDED 12/12/86, P.L. 1574, No. 172. CONTRACTOR MUST NOTIFY PA-1 CALL SYSTEM, INC. 3 DAYS PRIOR TO CONSTRUCTION.
11. CONTRACTOR SHALL NOT ENCROACH ONTO ABUTTING PROPERTIES UNLESS A TEMPORARY CONSTRUCTION EASEMENT HAS BEEN GRANTED BY ADJOINING PROPERTY OWNER. CONTRACTOR SHALL HAVE PROPERTY LINES CLEARLY MARKED IN AREAS WHERE GRADING WILL ENCROACH WITHIN 5 FEET OF THE PROPERTY LINE AND SHALL CONSTRUCT SUCH BARRIERS WHICH ARE NECESSARY TO PREVENT ENCROACHMENT ONTO ADJACENT PROPERTIES.
12. NO EXCAVATION OR FILL SHALL BE MADE WITH A FACE STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL.

GENERAL CONSTRUCTION NOTES

NEW BRITAIN TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA

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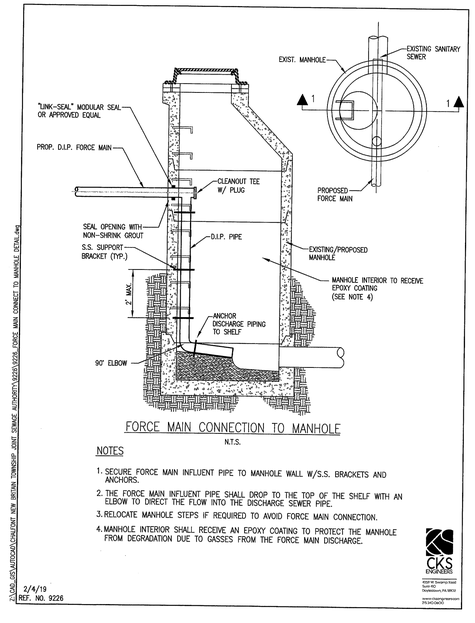
5/22/09	12/12/09	N.T.S.	1 OF 17



FORCE MAIN CONNECTION TO MANHOLE

N.T.S.

NOTES

1. SECURE FORCE MAIN INFLUENT PIPE TO MANHOLE WALL W/S.S. BRACKETS AND ANCHORS.
2. THE FORCE MAIN INFLUENT PIPE SHALL DROP TO THE TOP OF THE SHELF WITH AN ELBOW TO DIRECT THE FLOW INTO THE DISCHARGE SEWER PIPE.
3. RELOCATE MANHOLE STEPS IF REQUIRED TO AVOID FORCE MAIN CONNECTION.
4. MANHOLE INTERIOR SHALL RECEIVE AN EPOXY COATING TO PROTECT THE MANHOLE FROM DEGRADATION DUE TO GASSES FROM THE FORCE MAIN DISCHARGE.

CKS ENGINEERS
500 N. Gulph Road, Suite 600
King of Prussia, PA 19406
Tredyffrin, PA 19312
www.cksengineers.com
215.443.0600

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SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREIN HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 50 OF 2017, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. WWW.PA1CALL.ORG

NOT APPROVED FOR CONSTRUCTION

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-OCDS

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — LICENSED — PROFESSIONAL — MATTHEW JOHN KEARSE — PROFESSIONAL ENGINEER

SHEET TITLE:

OUTSIDE CONSTRUCTION DETAILS

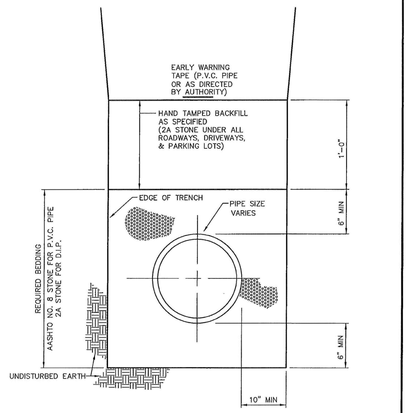
SHEET NUMBER:

C-904

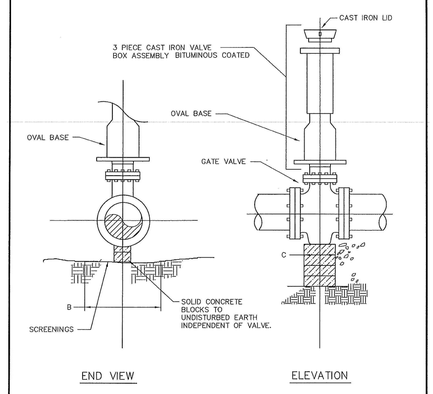
79 OF 102

REVISION 1 - 07/28/2026

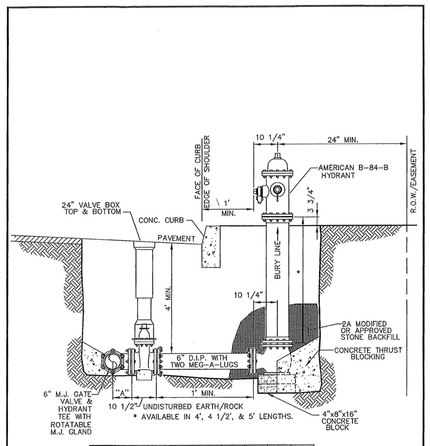
Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-OCDS-PAC250095.00-1A—3-LAYOUT C-904 OCDS
JV



NORTH WALES WATER AUTHORITY			
DSG. BY: BSF	CKD. BY: BSF		STANDARD PIPE BEDDING
DATE: 5/11	SCALE: NONE		
REVISION	DATE		
			STANDARD DETAIL M1

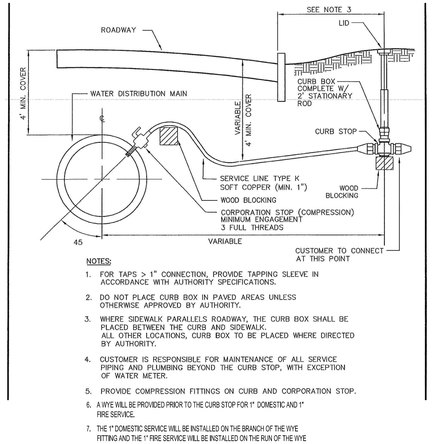


NORTH WALES WATER AUTHORITY			
DSG. BY: BSF	CKD. BY: BSF		TYPICAL GATE VALVE WITH VALVE BOX
DATE: 5/11	SCALE: NONE		
REVISION	DATE		
			STANDARD DETAIL W1



MAIN DIA.	6"	8"	10"	12"	16"	20"	24"	30"
"A" DIM.	8.25"	9.25"	11.25"	2.25"	14"	16"	18"	20.5"

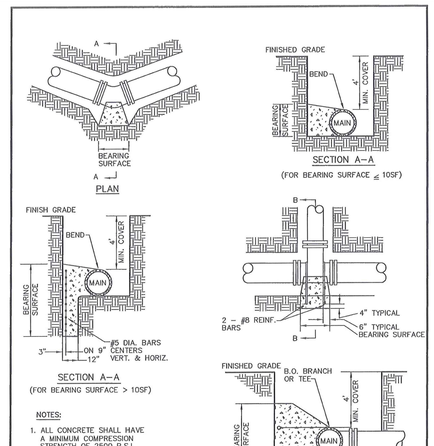
NORTH WALES WATER AUTHORITY			
DSG. BY: BSF	CKD. BY: BSF		TYPICAL FIRE HYDRANT INSTALLATION
DATE: 5/11	SCALE: NONE		
REVISION	DATE		
			STANDARD DETAIL W2



NOTES:

1. FOR TAPS > 1" CONNECTION, PROVIDE TAPPING SLEEVE IN ACCORDANCE WITH AUTHORITY SPECIFICATIONS.
2. DO NOT PLACE CURB BOX IN PAVED AREAS UNLESS OTHERWISE APPROVED BY AUTHORITY.
3. WHERE SIDEWALK PARALLELS ROADWAY, THE CURB BOX SHALL BE PLACED BETWEEN THE CURB AND SIDEWALK. ALL OTHER LOCATIONS, CURB BOX TO BE PLACED WHERE DIRECTED BY AUTHORITY.
4. CUSTOMER IS RESPONSIBLE FOR MAINTENANCE OF ALL SERVICE PIPING AND PLUMBING BEYOND THE CURB STOP, WITH EXCEPTION OF WATER METER.
5. PROVIDE COMPRESSION FITTINGS ON CURB AND CORPORATION STOP.
6. A WYE WILL BE PROVIDED PRIOR TO THE CURB STOP FOR 1" DOMESTIC AND 1" FIRE SERVICE.
7. THE 1" DOMESTIC SERVICE WILL BE INSTALLED ON THE BRANCH OF THE WYE FITTING AND THE 1" FIRE SERVICE WILL BE INSTALLED ON THE RUN OF THE WYE FITTING.
8. SEPARATE CURB BOXES WILL BE PROVIDED FOR THE DOMESTIC AND FIRE SERVICE LINES AND SHALL BE INSTALLED ON THE DOWNSTREAM SIDE OF THE WYE FITTING.
9. THE SERVICE MAIN BETWEEN THE WATER MAIN AND THE WYE FITTING SHALL BE A TYPE K SOFT COPPER 1" LINE.

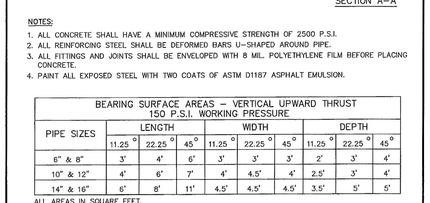
NORTH WALES WATER AUTHORITY			
DSG. BY: BSF	CKD. BY: BSF		STANDARD WATER SERVICE CONNECTION
DATE: 5/11	SCALE: NONE		
REVISION	DATE		
			STANDARD DETAIL W3



NOTES:

1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSION STRENGTH OF 2500 P.S.I.
2. ALL REINFORCING STEEL SHALL BE DEFORMED BARS U-SHAPED AROUND PIPE.
3. ALL FITTINGS AND JOINTS SHALL BE ENVELOPED WITH 8 MIL. POLYETHYLENE FILM BEFORE PLACING CONCRETE.
4. PAINT ALL EXPOSED STEEL WITH TWO COATS OF ASTM D1187 ASPHALT EMULSION.
5. FOR THE REQUIRED BEARING SURFACE SEE STANDARD DETAIL W8.

NORTH WALES WATER AUTHORITY			
DSG. BY: BSF	CKD. BY: BSF		HORIZONTAL THRUST BLOCK ORIENTATION
DATE: 5/11	SCALE: NONE		
REVISION	DATE		
			STANDARD DETAIL W21



NOTES:

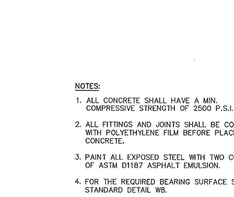
1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2500 P.S.I.
2. ALL REINFORCING STEEL SHALL BE DEFORMED BARS U-SHAPED AROUND PIPE.
3. ALL FITTINGS AND JOINTS SHALL BE ENVELOPED WITH 8 MIL. POLYETHYLENE FILM BEFORE PLACING CONCRETE.
4. PAINT ALL EXPOSED STEEL WITH TWO COATS OF ASTM D1187 ASPHALT EMULSION.

BEARING SURFACE AREAS – VERTICAL UPWARD THRUST
150 P.S.I. WORKING PRESSURE

PIPE SIZES	LENGTH			WIDTH			DEPTH		
	11.25°	22.25°	45°	11.25°	22.25°	45°	11.25°	22.25°	45°
6" & 8"	3'	4'	6'	3'	3'	3'	2'	3'	4'
10" & 12"	4'	6'	7'	4'	4.5'	4'	2.5'	3'	4'
14" & 16"	6'	8'	11'	4.5'	4.5'	4.5'	3.5'	5'	5'

ALL AREAS IN SQUARE FEET.

NORTH WALES WATER AUTHORITY			
DSG. BY: BSF	CKD. BY: BSF		VERTICAL UPWARD THRUST BLOCKS
DATE: 5/11	SCALE: NONE		
REVISION	DATE		
			STANDARD DETAIL W23



NOTES:

1. ALL CONCRETE SHALL HAVE A MIN. COMPRESSIVE STRENGTH OF 2500 P.S.I.
2. ALL FITTINGS AND JOINTS SHALL BE COVERED WITH POLYETHYLENE FILM BEFORE PLACING CONCRETE.
3. PAINT ALL EXPOSED STEEL WITH TWO COATS OF ASTM D1187 ASPHALT EMULSION.
4. FOR THE REQUIRED BEARING SURFACE SEE STANDARD DETAIL W8.

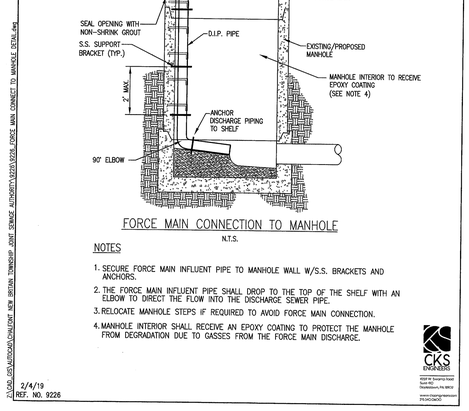
NORTH WALES WATER AUTHORITY			
DSG. BY: BSF	CKD. BY: BSF		VERTICAL DOWNWARD THRUST BLOCKS
DATE: 5/11	SCALE: NONE		
REVISION	DATE		
			STANDARD DETAIL W24

BEARING SURFACE AREAS
HORIZONTAL THRUST & VERTICAL DOWNWARD THRUST
150 P.S.I. WORKING PRESSURE

PIPE SIZE	3"					4"					6"					8"				
TYPE OF BEARING MATERIAL AND ALLOWABLE LOADS	DEGREE OF BEND OR DEFLECTION																			
	D.E.	90°	45°	22.5°/11.25°	D.E.	90°	45°	22.5°/11.25°	D.E.	90°	45°	22.5°/11.25°	D.E.	90°	45°	22.5°/11.25°	D.E.	90°	45°	22.5°/11.25°
SOFT CLAY (1,000#/SF)	2.8	3.9	2.1	1.1	1.0	4.1	5.8	3.1	1.6	1.0	8.4	11.9	6.4	3.3	1.6	14.5	20.5	11.1	5.6	2.8
SILT (1,500#/SF)	1.8	2.6	1.4	1.0	1.0	2.7	3.8	2.1	1.1	1.0	5.6	7.9	4.6	2.2	1.1	9.6	13.6	7.4	3.8	1.9
SANDY SILT (3,000#/SF)	1.0	1.3	1.0	1.0	1.0	1.4	1.9	1.0	1.0	1.0	2.8	4.0	2.1	1.1	1.0	4.8	6.8	3.7	1.9	1.0
SAND (4,000#/SF)	1.0	1.0	1.0	1.0	1.0	1.0	1.4	1.0	1.0	1.0	2.1	3.0	1.6	1.0	1.0	3.6	5.1	2.8	1.4	1.0
SANDY CLAY (6,000#/SF)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.4	2.0	1.1	1.0	1.0	2.4	3.4	1.8	1.0	1.0
HARD CLAY (9,000#/SF)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.3	1.8	1.0	1.0	1.0	1.6	2.3	1.2	1.0	1.0
PIPE SIZE	10"					12"					14"					16"				
TYPE OF BEARING MATERIAL AND ALLOWABLE LOADS	DEGREE OF BEND OR DEFLECTION																			
	D.E.	90°	45°	22.5°/11.25°	D.E.	90°	45°	22.5°/11.25°	D.E.	90°	45°	22.5°/11.25°	D.E.	90°	45°	22.5°/11.25°	D.E.	90°	45°	22.5°/11.25°
SOFT CLAY (1,000#/SF)	21.8	30.8	16.7	8.5	4.3	30.8	43.5	23.6	12.0	6.0	41.4	58.5	31.7	16.1	8.1	53.5	75.6	40.9	20.9	10.5
SILT (1,500#/SF)	14.5	20.5	11.1	5.7	2.8	20.5	29.0	15.7	8.0	4.0	27.6	39.0	21.1	10.8	5.4	35.7	50.4	27.3	13.9	7.0
SANDY SILT (3,000#/SF)	7.3	10.3	5.6	2.8	1.4	14.5	14.5	7.9	4.0	2.0	13.8	19.5	10.6	5.4	2.7	17.8	25.2	13.6	7.0	3.5
SAND (4,000#/SF)	5.4	7.7	4.2	2.1	1.1	10.9	10.9	5.9	3.0	1.5	10.3	14.6	7.9	4.0	2.0	13.4	18.9	10.2	5.2	2.6
SANDY CLAY (6,000#/SF)	3.6	5.1	2.8	1.4	1.0	5.1	7.3	3.9	2.0	1.0	6.9	9.7	5.3	2.7	1.4	8.9	12.6	6.8	3.5	1.7
HARD CLAY (9,000#/SF)	2.4	3.4	1.9	1.0	1.0	3.4	4.8	2.06	1.3	1.0	4.6	6.5	3.5	1.8	1.0	5.9	8.4	4.5	2.3	1.2

NOTE: D.E. DENOTES DEAD END OR TEE
ALL AREAS IN SQUARE FEET.

NORTH WALES WATER AUTHORITY			
DSG. BY: BSF	CKD. BY: BSF		HORIZONTAL AND VERTICAL DOWNWARD THRUST BLOCK DIMENSIONS
DATE: 5/11	SCALE: NONE		
REVISION	DATE		
			STANDARD DETAIL W22



FORCE MAIN CONNECTION TO MANHOLE
N.T.S.

NOTES

1. SECURE FORCE MAIN INFLUENT PIPE TO MANHOLE WALL W/S.S. BRACKETS AND ANCHORS.
2. THE FORCE MAIN INFLUENT PIPE SHALL DROP TO THE TOP OF THE SHELF WITH AN ELBOW TO DIRECT THE FLOW INTO THE DISCHARGE SEWER PIPE.
3. RELOCATE MANHOLE STEPS IF REQUIRED TO AVOID FORCE MAIN CONNECTION.
4. MANHOLE INTERIOR SHALL RECEIVE AN EPOXY COATING TO PROTECT THE MANHOLE FROM DEGRADATION DUE TO GASSES FROM THE FORCE MAIN DISCHARGE.

CKS ENGINEERS
2/6/19
REF. NO. 9226

J:\DWG\PAC\250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-OCDS-PAC250095.00-1A.---LAYOUT: C-905 OCDS
Jul 28, 2026
JV

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
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1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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PROJECT No.: PAC250095.00-1A
DRAWN BY: PAB
CHECKED BY: RDE
DATE: 04/06/2026
CAD I.D.: P-CIVL-OCDS

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS
FOR
HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

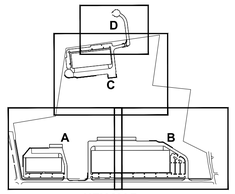
COMMONWEALTH OF PENNSYLVANIA — KEARSE — PROFESSIONAL — MATTHEW JOHN KEARSE — PROFESSIONAL ENGINEER — PENNSYLVANIA LICENSE NO. PE090588

SHEET TITLE:
OUTSIDE CONSTRUCTION DETAILS

SHEET NUMBER:
C-905
80 OF 102

REVISION 1 - 07/28/2026





KEY MAP

GENERAL LANDSCAPE NOTES:

1. THESE LANDSCAPE PLANS ARE TO BE READ IN CONJUNCTION WITH THE LANDSCAPE SPECIFICATIONS, AND ASSOCIATED DETAILS FOUND ON THE LANDSCAPE DETAILS SHEET. THE GENERAL NOTES, FOUND ON THE NOTES PAGE OF THIS PLAN SET, ARE CONSIDERED PART OF LANDSCAPE PLANS. THE CONTRACTOR MUST REFER TO, AND FULLY COMPLY WITH, ALL NOTES, SPECIFICATIONS AND DETAILS DESCRIBED HEREIN, ON THE LANDSCAPE PLANS AND IN THE LANDSCAPE DETAILS SHEET.
2. ALL DISTURBED UNPAVED AREAS, EXCLUDING PLANTING BEDS, ARE TO BE INSTALLED AS LAWN IN ACCORDANCE WITH "MATERIALS" SECTION OF THE LANDSCAPE SPECIFICATIONS, UNLESS OTHERWISE SPECIFICALLY STATED ON THIS PLAN.
3. SHRUBS PLANTED ALONG HEAD-IN PARKING STALLS SHALL BE INSTALLED TO ALLOW A CLEARANCE OF TWO FEET FROM FACE OF CURB TO ALLOW FOR BUMPER OVERHANG.
4. PLANT MATERIAL SUBSTITUTIONS MUST BE FORMALLY SUBMITTED TO BOHLER AND THE MUNICIPALITY'S ENGINEERING AND LANDSCAPE CONSULTANTS FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
5. WITHOUT EXCEPTION, WEED BARRIER FABRIC SHALL NOT BE INSTALLED WITHIN ANY STORMWATER FACILITY, INCLUDING RAINGARDENS, INFILTRATION TRENCHES, VEGETATIVE SWALES AND STORMWATER BASINS.
6. IF IRRIGATION IS REQUIRED BY THE OWNER OR APPROVING MUNICIPALITY, THE CONTRACTOR SHALL PROVIDE AN IRRIGATION SYSTEM MEETING THE SPECIFICATIONS OF THE CHOSEN PRODUCT'S MANUFACTURER. THE IRRIGATION DESIGN SHALL ACCOMMODATE LAWN AND BED AREAS EACH UNDER SEPARATE ZONES TO MAXIMIZE WATER EFFICIENCY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ANY PERMITS REQUIRED FOR THE INSTALLATION OF AN IRRIGATION SYSTEM.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL LANDSCAPING UNTIL PROJECT MAINTENANCE IS TURNED OVER TO THE PROPERTY OWNER OR OTHER RESPONSIBLE PARTY. SUCH RESPONSIBILITIES INCLUDE, BUT ARE NOT LIMITED TO, THE CARE, WATERING, AND MAINTENANCE OF ALL PLANT MATERIAL; LAWN MOWING; AND SEASONAL MAINTENANCE.
8. THE TOWNSHIP ENGINEER SHALL INSPECT AND APPROVE THE TREE PROTECTION FENCE INSTALLATION PRIOR TO ANY CLEARING OR EARTHMOVING ACTIVITIES.
9. IN THE OPINION OF THE TOWNSHIP ENGINEER'S REPRESENTATIVE OR CERTIFIED ARBORIST, ANY TREES INTENDED TO REMAIN AND ARE DISTURBED, DAMAGED OR KILLED DURING OR AS A RESULT OF CONSTRUCTION SHALL BE REPLACED AT A RATE OF ONE CALIPER INCH FOR ONE CALIPER INCH.
10. ALL TREES SHALL BE PLANTED A MINIMUM OF 10' FROM ALL UNDERGROUND LINES. ANY PLANTINGS DISTURBED, DAMAGED, OR REMOVED FOR FUTURE UNDERGROUND UTILITY MAINTENANCE SHALL BE REPLACED IN KIND.
11. SEE SHEETS L-105 AND L-106 FOR LANDSCAPE COMPLIANCE CHART.
12. WITHIN THE AREA OF CLEAR SIGHT TRIANGLES, OBSTRUCTIONS TO VISIBILITY SHALL NOT BE PERMITTED WITHIN THE RANGES OF HEIGHT BETWEEN TWO FEET AND SEVEN FEET ABOVE THE EDGE OF PAVING. ANY PLANT MATERIALS PLACED WITHIN CLEAR SIGHT TRIANGLES SHALL BE PROPERLY MAINTAINED TO CONTINUALLY COMPLY WITH THE HEIGHT RESTRICTIONS HEREIN.
13. PLANT SPECIFICATIONS. ALL PLANT MATERIAL SHALL MEET THE MINIMUM STANDARDS FOR HEALTH, FORM, AND ROOT CONDITION AS OUTLINED IN THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) Z60.1 — 2014, AS AMENDED. ALL PLANT MATERIAL SHALL BE HARDY AND WITHIN THE UNITED STATES DEPARTMENT OF AGRICULTURE (USDA) HARDINESS ZONE 6, APPLICABLE TO BUCKS COUNTY, PENNSYLVANIA.
14. INSTALLATION. ALL SHADE AND EVERGREEN TREES SHALL BE SUPPORTED WITH STAKES AND GUY WIRING IN ACCORDANCE WITH THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION (ANLA) STANDARDS. THE BACKFILL FOR EXCAVATED PLANTING AREAS SHALL BE COMPOSED OF NATIVE TOPSOIL AND SHALL BE MULCHED SIX INCHES BEYOND THE DRIPLINE. MULCH SHALL NOT BE APPLIED AGAINST THE TRUNK. THE TRUNK FLARE SHALL REMAIN VISIBLE.
15. MAINTENANCE AND GUARANTEE. THE LANDSCAPE PLAN SHALL CONTAIN PLAN NOTATION STATING THAT THE APPLICANT IS REQUIRED TO MAINTAIN AND GUARANTEE ALL PLANT MATERIAL UNTIL THE END OF THE EIGHTEEN-MONTH MAINTENANCE PERIOD, ANY PLANT MATERIAL THAT IS DEEMED, IN THE OPINION OF THE TOWNSHIP ENGINEER, NOT TO HAVE SURVIVED OR NOT TO HAVE GROWN IN A MANNER CHARACTERISTIC OF ITS TYPE, SHALL BE REPLACED WITHIN THE EIGHTEEN-MONTH MAINTENANCE PERIOD.

PROPOSED WAREHOUSE
BUILDING 3
115,500 SF
(550' X 210')
FFE: 289.00
PROVIDED PARKING: 116 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

C

PROPOSED WAREHOUSE
BUILDING 2
100,0000 SF
(500' X 200')
FFE: 287.00
PROVIDED PARKING: 102 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

A

PROPOSED WAREHOUSE
BUILDING 1
339,450 SF
(1095' X 310')
FFE: 283.80
PROVIDED PARKING: 345 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

B

50' WIDE ACCESS RIGHT-OF-WAY EASEMENT (BK 2687, PG 1936)
EXISTING STORM SEWER EASEMENT
WETLAND 1
WETLAND 2
WETLAND 3
SEWAGE AUTHORITY UTILITY RIGHT-OF-WAY
NORTH PENN WATER AUTHORITY EASEMENT (PER INST. #2017020082)
SANITARY SEWER EASEMENT
WATER LINE EASEMENT
IRON PIN FOUND
EDGE OF WATER (TYP.)
WEST BRANCH NESHAMINY CREEK
STEWART LANE
(50' WIDE R.O.W.)
(ASPHALT ROADWAY)
(TWO WAY TRAFFIC)
THIS PLAN TO BE UTILIZED FOR LANDSCAPE PURPOSES ONLY
ULTIMATE R.O.W. LINE
COUNTY LINE ROAD
SCHOOLHOUSE ROAD
SEPTA
WALNUT STREET
(33' WIDE R.O.W.)
(ASPHALT ROADWAY)
(TWO WAY TRAFFIC)
SEPTA
CENTERLINE & R.O.W. LINE

100 50 25 0 100
SCALE: 1" = 100'

BOHLER™
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVIL-LLGT

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS
FOR
HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER™
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PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

SHEET TITLE:
OVERALL LANDSCAPE PLAN

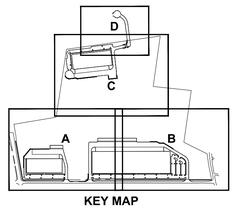
SHEET NUMBER:
L-100
50 OF 102

REVISION 1 - 07/28/2026

Jul 29, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-LLGT-PAC250095.00-1A-----LAYOUT L-100 OVRL LSCP
JB

PLANT SCHEDULE

CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
CANOPY TREES					
ARA	15	ACER RUBRUM 'ARMSTRONG'	ARMSTRONG RED MAPLE	2.5" CAL.	B&B
GTIK	63	GLEDITSIA TRIACANTHOS INERMIS `SKYCOLE`	SKYLINE THORNLESS HONEY LOCUST	2.5" CAL.	B&B
LS	32	LIQUIDAMBAR STYRACIFLUA 'SLENDER SILHOUETTE'	SLENDER SILHOUETTE SWEET GUM	2.5" CAL.	B&B
LSR	36	LIQUIDAMBAR STYRACIFLUA `ROTUNDILOBA`	ROUND-LOBED SEEDLESS SWEET GUM	2.5" CAL.	B&B
NS	52	NYSSA SYLVATICA	SOUR GUM	2.5" CAL.	B&B
QBC	12	QUERCUS BICOLOR	SWAMP WHITE OAK	2.5" CAL.	B&B
QPH	35	QUERCUS PHELLOS	WILLOW OAK	2.5" CAL.	B&B
TA	13	TILIA AMERICANA	AMERICAN LINDEN	2.5" CAL.	B&B
TD	8	TAXODIUM DISTICHUM	BALD CYPRESS	2.5" CAL.	B&B
UP	29	ULMUS AMERICANA `PRINCETON`	AMERICAN ELM	2.5" CAL.	B&B
EVERGREEN TREES					
TO	7	THUJA OCCIDENTALIS	AMERICAN ARBORVITAE	6-8'	B&B
ORNAMENTAL TREES					
CFCP	7	CORNUS FLORIDA 'CHEROKEE PRINCESS'	CHEROKEE PRINCESS DOGWOOD	2-2.5" CAL.	B&B
MV	8	MAGNOLIA VIRGINIANA	SWEET BAY	8-10'	B&B
SHRUBS					
AML	224	ARONIA MELANOCARPA `LOW SCAPE MOUND`	LOW SCAPE MOUND CHOKEBERRY (DWARF)	30" MIN.	CONTAINER
CA	14	CEANOTHUS AMERICANUS	NEW JERSEY TEA	30" MIN.	CONTAINER
CO	36	CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH	30" MIN.	CONTAINER
CW	36	CORNUS SERICEA ARCTIC FIRE RED	RED TWIG DOGWOOD	30" MIN.	CONTAINER
IGG	57	ILEX GLABRA 'SMNIGAB17'	GEM BOX INKBERRY HOLLY	18-24"	CONTAINER
IGS	266	ILEX GLABRA `SHAMROCK`	SHAMROCK INKBERRY	30" MIN.	CONTAINER
IV	100	ITEA VIRGINICA	VIRGINIA SWEETSPIRE	30" MIN.	CONTAINER
IVJD	11	ILEX VERTICILLATA `JIM DANDY`	JIM DANDY WINTERBERRY	30" MIN.	CONTAINER
IVRS	78	ILEX VERTICILLATA `RED SPRITE`	RED SPRITE WINTERBERRY	30" MIN.	CONTAINER
JJ	113	JUNIPERUS COMMUNIS	COMMON JUNIPER	30" MIN.	CONTAINER
JO	272	JUNIPERUS VIRGINIANA `GREY OWL`	GREY OWL JUNIPER	15-18" SPRD	CONTAINER
KL	112	KALMIA LATIFOLIA	MOUNTAIN LAUREL	30" MIN.	CONTAINER
LB	18	LINDERA BENZOIN	SPICEBUSH	30-36"	CONTAINER
PTW	12	PHYSOCARPUS OPULIFOLIUS `TINY WINE`	TINY WINE NINEBARK (DWARF)	30" MIN.	CONTAINER
RAG	243	RHUS AROMATICA `GRO-LOW`	GRO-LOW FRAGRANT SUMAC	30" MIN.	CONTAINER
RC	179	RHODODENDRON CATAWBIENSE	CATAWBA RHODODENDRON	30" MIN.	CONTAINER
CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING
PERENNIALS						
AT	176	AMSONIA TABERNAEMONTANA	EASTERN BLUESTAR	1 GAL.	CONTAINER	24" o.c.
BA	361	BAPTISIA AUSTRALIS	BLUE WILD INDIGO	1 GAL.	CONTAINER	18" o.c.
EE	84	EUPATORIUM PERFOLIATUM	COMMON BONESET	1 GAL.	CONTAINER	30" o.c.
SA	359	SENECIO AUREUS	GOLDEN RAGWORT	1 GAL.	CONTAINER	12" o.c.



KEY MAP

MATCHLINE - SHEET L-103

MATCHLINE - SHEET L-102

COUNTY LINE ROAD

WALNUT STREET

SEPTA

PROPOSED WAREHOUSE
BUILDING 2
100,0000 SF
(500' X 200')
FFE: 287.00
PROVIDED PARKING: 102 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

PROPOSED WAREHOUSE
BUILDING 1
339,450 SF
(1095' X 310')
FFE: 283.80
PROVIDED PARKING: 345 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

PROP LAWN AREA (TYP)

PROP RETAINING WALL

WETLAND 'B'

WETLAND 'C'

WATER LINE EASEMENT

THIS PLAN TO BE UTILIZED FOR LANDSCAPE PURPOSES ONLY

50 25 12.5 0 50
SCALE: 1" = 50'

Jul 26, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-LLGT-PAC250095.00-1A-----LAYOUT L-101 LSCP A
JB

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SHEET TITLE:
LANDSCAPE PLAN A

SHEET NUMBER:
L-101
51 OF 102

REVISION 1 - 07/28/2026

PLANT SCHEDULE

CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	
CANOPY TREES						
ARA	15	ACER RUBRUM 'ARMSTRONG'	ARMSTRONG RED MAPLE	2.5" CAL.	B&B	
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LSR	36	LIQUIDAMBAR STYRACIFLUA 'ROTUNDILOBA'	ROUND-LOBED SEEDLESS SWEET GUM	2.5" CAL.	B&B	
NS	52	NYSSA SYLVATICA	SOUR GUM	2.5" CAL.	B&B	
QBC	12	QUERCUS BICOLOR	SWAMP WHITE OAK	2.5" CAL.	B&B	
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TA	13	TILIA AMERICANA	AMERICAN LINDEN	2.5" CAL.	B&B	
TD	8	TAXODIUM DISTICHUM	BALD CYPRESS	2.5" CAL.	B&B	
UP	29	ULMUS AMERICANA 'PRINCETON'	AMERICAN ELM	2.5" CAL.	B&B	
EVERGREEN TREES						
TO	7	THUJA OCCIDENTALIS	AMERICAN ARBORVITAE	6-8'	B&B	
ORNAMENTAL TREES						
CFCP	7	CORNUS FLORIDA 'CHEROKEE PRINCESS'	CHEROKEE PRINCESS DOGWOOD	2-2.5" CAL.	B&B	
MV	8	MAGNOLIA VIRGINIANA	SWEET BAY	8-10'	B&B	
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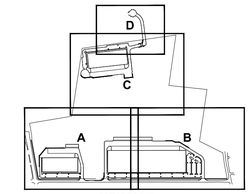
CW	36	CORNUS SERICEA ARCTIC FIRE RED	RED TWIG DOGWOOD	30" MIN.	CONTAINER	
IGG	57	ILEX GLABRA 'SMNIGAB17'	GEM BOX INKBERRY HOLLY	18-24"	CONTAINER	
IGS	266	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY	30" MIN.	CONTAINER	
IV	100	ITEA VIRGINICA	VIRGINIA SWEETSPIRE	30" MIN.	CONTAINER	
IVJD	11	ILEX VERTICILLATA `JIM DANDY`	JIM DANDY WINTERBERRY	30" MIN.	CONTAINER	
IVRS	78	ILEX VERTICILLATA `RED SPRITE`	RED SPRITE WINTERBERRY	30" MIN.	CONTAINER	
JJ	113	JUNIPERUS COMMUNIS	COMMON JUNIPER	30" MIN.	CONTAINER	
JO	272	JUNIPERUS VIRGINIANA `GREY OWL`	GREY OWL JUNIPER	15-18" SPRD	CONTAINER	
KL	112	KALMIA LATIFOLIA	MOUNTAIN LAUREL	30" MIN.	CONTAINER	
LB	18	LINDERA BENZOIN	SPICEBUSH	30-36"	CONTAINER	
PTW	12	PHYSOCARPUS OPULIFOLIUS `TINY WINE`	TINY WINE NINEBARK (DWARF)	30" MIN.	CONTAINER	
RAG	243	RHUS AROMATICA `GRO-LOW`	GRO-LOW FRAGRANT SUMAC	30" MIN.	CONTAINER	
RC	179	RHODODENDRON CATAWBIENSE	CATAWBA RHODODENDRON	30" MIN.	CONTAINER	
CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING
PERENNIALS						
AT	176	AMSONIA TABERNAEMONTANA	EASTERN BLUESTAR	1 GAL.	CONTAINER	24" o.c.
BA	361	BAPTISIA AUSTRALIS	BLUE WILD INDIGO	1 GAL.	CONTAINER	18" o.c.
EE	84	EUPATORIUM PERFOLIATUM	COMMON BONESET	1 GAL.	CONTAINER	30" o.c.
SA	359	SENECIO AUREUS	GOLDEN RAGWORT	1 GAL.	CONTAINER	12" o.c.



KEY MAP

MATCHLINE - SHEET L-103

MATCHLINE - SHEET L-101

WEST BRANCH NESHAMINY CREEK

SEWAGE AUTHORITY UTILITY RIGHT-OF-WAY

EDGE OF WATER (DRAIN)

EDGE OF WOODS

PROP RETAINING WALL

PROPOSED WAREHOUSE
BUILDING 1
339,450 SF
(1095' X 310')
FFE: 283.80
PROVIDED PARKING: 345 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

(1) LS
(9) IV

PROP LAWN AREA (TYP)

PROP BASE DRAIN

PROP CONCRETE MONUMENT

ULTIMATE R.O.W. LINE

AREA TO BE SEEDED WITH ERNST RETENTION BASIN WILDLIFE SEED MIX (ERNMX-127. SEE SPECIFICATIONS)

SCHOOLHOUSE ROAD

SEPTA

WALNUT STREET
(57' WIDE R.O.W.)
(ASPHALT ROADWAY)
(TWO WAY TRAFFIC)

PROP TREE LINE & R.O.W. LINE

THIS PLAN TO BE UTILIZED FOR LANDSCAPE PURPOSES ONLY

50 25 12.5 0 50
SCALE: 1" = 50'

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-LLGT-PAC250095.00-1A-----LAYOUT: L-102 LSCP B

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABILITY SERVICES
PERMITTING SERVICES
TRANSPORTATION SERVICES

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DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVIL-LLGT

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

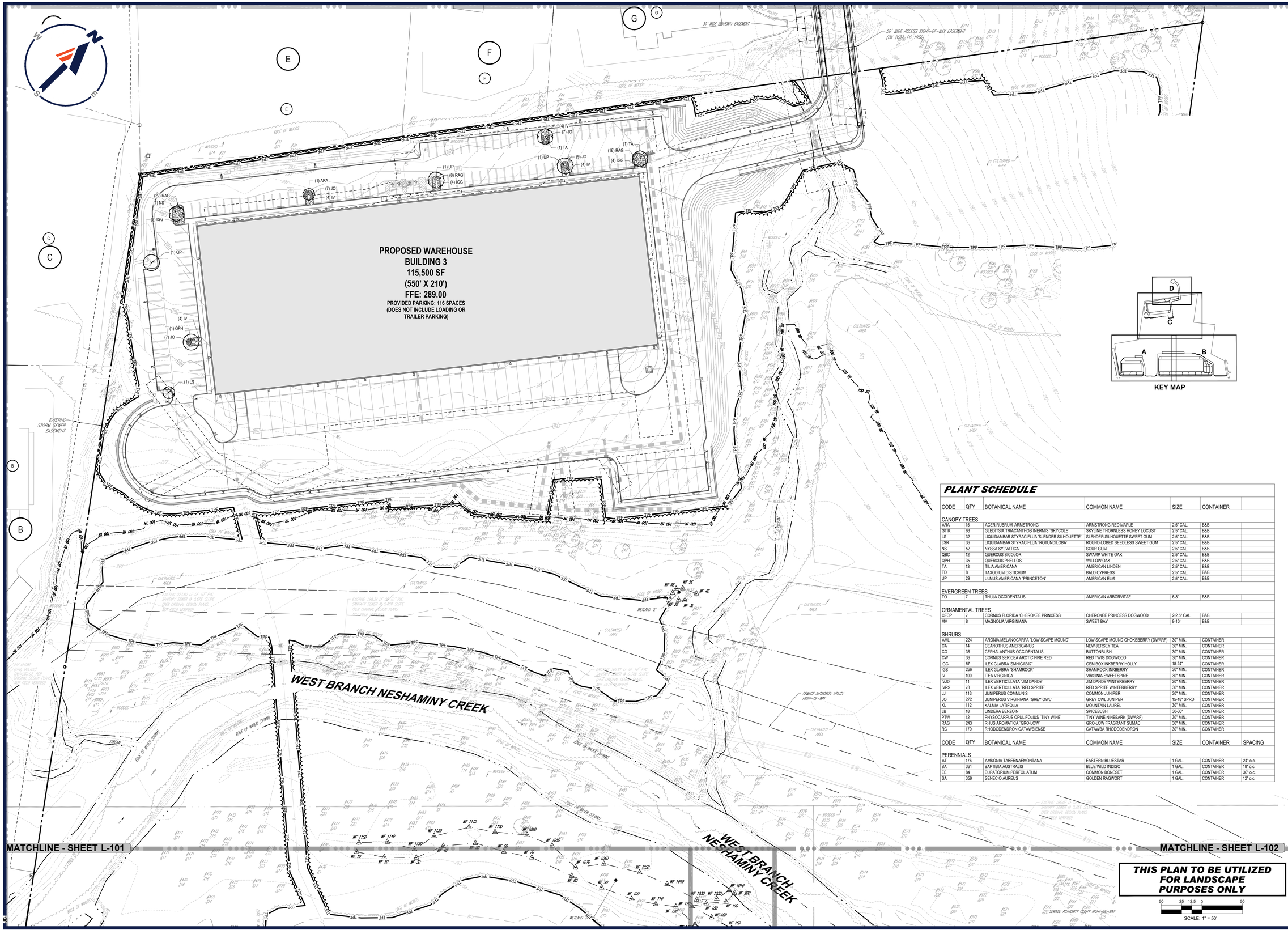
SHEET TITLE:

LANDSCAPE PLAN B

SHEET NUMBER:

L-102
52 OF 102

REVISION 1 - 07/28/2026



PLANT SCHEDULE

CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	
CANOPY TREES						
ARA	15	ACER RUBRUM 'ARMSTRONG'	ARMSTRONG RED MAPLE	2.5" CAL.	B&B	
GTIK	63	GLEDITSIA TRIACANTHOS INERMIS 'SKYCOLE'	SKYLINE THORNLESS HONEY LOCUST	2.5" CAL.	B&B	
LS	32	LIQUIDAMBAR STYRACIFLUA 'SLENDER SILHOUETTE'	SLENDER SILHOUETTE SWEET GUM	2.5" CAL.	B&B	
LSR	36	LIQUIDAMBAR STYRACIFLUA 'ROTUNDILOBA'	ROUND-LOBED SEEDLESS SWEET GUM	2.5" CAL.	B&B	
NS	52	NYSSA SYLVATICA	SOUR GUM	2.5" CAL.	B&B	
QBC	12	QUERCUS BICOLOR	SWAMP WHITE OAK	2.5" CAL.	B&B	
QPH	35	QUERCUS PHELLOS	WILLOW OAK	2.5" CAL.	B&B	
TA	13	TILIA AMERICANA	AMERICAN LINDEN	2.5" CAL.	B&B	
TD	8	TAXODIUM DISTICHUM	BALD CYPRESS	2.5" CAL.	B&B	
UP	29	ULMUS AMERICANA 'PRINCETON'	AMERICAN ELM	2.5" CAL.	B&B	
EVERGREEN TREES						
TO	7	THUJA OCCIDENTALIS	AMERICAN ARBORVITAE	6-8'	B&B	
ORNAMENTAL TREES						
CFCP	7	CORNUS FLORIDA 'CHEROKEE PRINCESS'	CHEROKEE PRINCESS DOGWOOD	2-2.5" CAL.	B&B	
MV	8	MAGNOLIA VIRGINIANA	SWEET BAY	8-10'	B&B	
SHRUBS						
AML	224	ARONIA MELANOCARPA `LOW SCAPE MOUND`	LOW SCAPE MOUND CHOKEBERRY (DWARF)	30" MIN.	CONTAINER	
CA	14	CEANOTHUS AMERICANUS	NEW JERSEY TEA	30" MIN.	CONTAINER	
CO	36	CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH	30" MIN.	CONTAINER	
CW	36	CORNUS SERICEA ARCTIC FIRE RED	RED TWIG DOGWOOD	30" MIN.	CONTAINER	
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THIS PLAN TO BE UTILIZED FOR LANDSCAPE PURPOSES ONLY

SCALE: 1" = 50'

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
PLANNING AND DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

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DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVIL-LLGT

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

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NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

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PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

SHEET TITLE:

LANDSCAPE PLAN C

SHEET NUMBER:

L-103

53 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-LLGT-PAC250095.00-1A-----3-LAYOUT L-103 LSCP C

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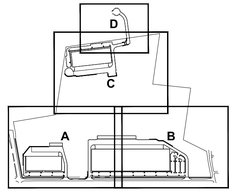

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MATCHLINE - SHEET L-303

INDEPENDENCE LANE
(50' WIDE R.O.W.)
(ASPHALT ROADWAY)
(TWO WAY TRAFFIC)

(4) IV
(7) JO
(1) TA
(1) UP
(9) JO
(4) IV
(1) TA
(16) RAG
(4) IGG
(1) UP
(8) RAG
(4) IGG
(1) ARA
(7) JO
(4) IV

30' WIDE DRIVEWAY EASEMENT
50' WIDE ACCESS RIGHT-OF-WAY EASEMENT (BK 2687, PG 1936)
PROP GUIDERAIL
ZONE X
APPROXIMATE GRAPHICAL PLOTTING OF FLOOD HAZARD LINE
NATURAL RESOURCES EASEMENT
CULTIVATED AREA
EDGE OF WOODS
WOODED
OVERGROWN
GRASS

30 60' 30' 0 120'
SCALE: 1" = 30'

Jul 29, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-LLGT-PAC250095.00-1A-----LAYOUT(L-104).SCP D

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FOR
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SHEET TITLE:
BUILDING 3 DRIVEWAY LANDSCAPE PLAN

SHEET NUMBER:
L-104
54 OF 102

REVISION 1 - 07/28/2026

LANDSCAPE COMPLIANCE CHART

SECTION	REQUIREMENT	CALCULATIONS (REQUIRED / PROVIDED)	COMPLIANCE
ZONING: 27-2400 NATURAL RESOURCES	f.2. IN ALL OTHER ZONING DISTRICTS, NO MORE THAN 50% OF WOODLANDS LOCATED UPON A LOT OR SITE MAY BE ALTERED, REGRADED, CLEARED, OR BUILT UPON, PROVIDED THE FOLLOWING REQUIREMENTS ARE MET: (a) WHERE MORE THAN 20% OF THE WOODLANDS ARE BEING DISTURBED, ALL DISTURBED WOODLANDS EXCEEDING THIS 20% LIMIT SHALL BE REPLACED ON AN ACRE-FOR-ACRE BASIS THROUGH THE PLANTING OF REPLACEMENT TREES. THE ACTUAL NUMBER OF REPLACEMENT TREES SHALL BE CALCULATED BY MULTIPLYING THE ACREAGE OF DISTURBANCE EXCEEDING 20% BY 200 TREES PER ACRE. ALL REPLACEMENT TREES SHALL HAVE A MINIMUM TREE CALIPER OF 3 1/2 INCHES' DBH.	TOTAL WOODLANDS ON-SITE = 28.535± AC PERMITTED WOODLAND DISTURBANCE WITH NO REPLACEMENT REQUIRED (20%): 5.707 AC PROPOSED WOODLAND DISTURBANCE: 4.789± AC (16.8%) NO REPLACEMENT REQUIRED	COMPLIES
	i.1.ZONE 1. THIS BUFFER AREA WILL BEGIN AT THE EDGE OF THE LAKE, POND OR WATERCOURSE AND OCCUPY A MARGIN OF LAND WITH A MINIMUM WIDTH OF 25 FEET MEASURED HORIZONTALLY ON A LINE PERPENDICULAR TO THE EDGE OF WATER AT BANKFULL FLOW OR LEVEL. OPEN SPACE USES THAT ARE PRIMARILY PASSIVE IN NATURE MAY BE PERMITTED IN ZONE 1, INCLUDING: (f) THE RIPARIAN BUFFER EASEMENT SHALL BE PLANTED WITH NATIVE TREES, SHRUBS AND OTHER VEGETATION TO CREATE A DIVERSE NATIVE PLANT COMMUNITY APPROPRIATE TO THE INTENDED ECOLOGICAL CONTEXT OF THE SITE. INVASIVE SPECIES SHALL BE REMOVED, WHENEVER PRACTICABLE.	EXISTING VEGETATION TO REMAIN TO MEET THE INTENT OF THIS REQUIREMENT.	COMPLIES
	i.2.ZONE 2. THIS BUFFER ZONE WILL BEGIN AT THE OUTER EDGE OF ZONE 1 AND OCCUPY A MINIMUM WIDTH OF 50 FEET IN ADDITION TO ZONE 1. HOWEVER, WHERE THE WIDTH OF THE 100-YEAR FLOODPLAIN EXTENDS GREATER THAN 75 FEET FROM THE EDGE OF WATER AT BANKFULL FLOW OR LEVEL, ZONE 1 SHALL REMAIN A MINIMUM OF 25 FEET AND ZONE 2 SHALL EXTEND FROM THE OUTER EDGE OF ZONE 1 TO THE OUTER EDGE OF THE 100-YEAR FLOODPLAIN. USES PERMITTED IN THIS BUFFER AREA INCLUDE OPEN SPACE USES THAT ARE PRIMARILY PASSIVE IN NATURE, INCLUDING: (e) THE RIPARIAN BUFFER EASEMENT SHALL BE PLANTED WITH NATIVE TREES, SHRUBS AND OTHER VEGETATION TO CREATE A DIVERSE NATIVE PLANT COMMUNITY APPROPRIATE TO THE INTENDED ECOLOGICAL CONTEXT OF THE SITE. INVASIVE SPECIES SHALL BE REMOVED, WHENEVER PRACTICABLE.	EXISTING VEGETATION TO REMAIN TO MEET THE INTENT OF THIS REQUIREMENT.	COMPLIES
	i.4.REVEGETATION OF RIPARIAN AREA. IN CASES WHERE A MAJOR SUBDIVISION OR LAND DEVELOPMENT IS PROPOSED, REPLANTING OF THE RIPARIAN CORRIDOR SHALL BE REQUIRED WHERE THERE IS LITTLE OR NO EXISTING STREAMSIDE VEGETATION. NATIVE VEGETATION APPROVED BY THE TOWNSHIP MUST BE USED IN REPLANTING. THREE LAYERS OF VEGETATION ARE REQUIRED WHEN REPLANTING THE RIPARIAN CORRIDOR. THESE LAYERS INCLUDE HERBACEOUS PLANTS THAT SERVE AS GROUND COVER, UNDERSTORY SHRUBS AND TREES THAT FORM AN OVERHEAD CANOPY. THE REVEGETATION PLAN SHALL BE PREPARED BY A QUALIFIED PROFESSIONAL, WHO HAS SPECIFIC EXPERIENCE IN THE DELINEATION OF RIPARIAN BUFFER AREAS, AND SHALL COMPLY WITH THE FOLLOWING MINIMUM REQUIREMENTS, UNLESS MODIFIED BY THE BOARD OF SUPERVISORS UPON RECOMMENDATION OF THE PLANNING COMMISSION. (a) GROUND COVER. GROUND COVER CONSISTING OF A NATIVE SEED MIX EXTENDING A MINIMUM OF 25 FEET IN WIDTH FROM THE EDGE OF THE STREAM BANK MUST BE PROVIDED ALONG THE PORTION(S) OF THE STREAM CORRIDOR WHERE LITTLE OR NO RIPARIAN VEGETATION EXISTS. APPROPRIATE GROUND COVER INCLUDES NATIVE MATERIAL, EXCLUSIVE OF NOXIOUS WEEDS, AS DEFINED BY THE PENNSYLVANIA STATE DEPARTMENT OF AGRICULTURE. THIS 25-FOOT WIDE PLANTED AREA SHALL BE DESIGNATED ON THE PLAN AS A "NO MOW ZONE" AND SHALL BE LEFT AS NATURAL COVER, EXCEPT IN ACCORDANCE WITH THE MAINTENANCE INSTRUCTIONS STATED ON THE PLAN. (b) TREES AND SHRUBS. THESE PLANTING LAYERS INCLUDE TREES THAT FORM AN OVERHEAD CANOPY AND UNDERSTORY SHRUBS. SPECIES SHALL BE TAKEN FROM APPENDIX D OF THIS CHAPTER REQUIRED PLANT MATERIAL LIST. THESE PLANTS SHALL BE PLANTED IN AN INFORMAL MANNER CLUSTERED WITHIN ZONE 1 OF THE RIPARIAN BUFFER AS INDICATED IN SUBSECTION 9.D.(1) ABOVE. THESE PLANTS SHALL BE PROVIDED AT A RATE OF AT LEAST ONE OVERSTORY TREE AND THREE SHRUBS FOR EVERY 20 LINEAR FEET OF WATERWAY.	EXISTING VEGETATION TO REMAIN TO MEET THE INTENT OF THIS REQUIREMENT.	COMPLIES
27-2800 BUFFER YARD PURPOSE AND APPLICABILITY	a. BUFFER YARDS SHALL BE REQUIRED WHERE A NONRESIDENTIAL ZONING DISTRICT (C-1, C-2, C-3, OP, IN, I, IO) ADJOINS A RESIDENTIAL ZONING DISTRICT (CR, WS, SR-1, SR-2, RR, VR, MHP). THE BUFFER YARD SHALL BE REQUIRED FOR PROPOSED DEVELOPMENT IN EITHER CLASS (RESIDENTIAL OR NONRESIDENTIAL) OF ZONING DISTRICT.	SEE BELOW FOR BUFFER YARD REQUIREMENTS.	SEE BELOW
27-2801 MINIMUM BUFFER AREA WIDTHS	DISTRICT MINIMUM WIDTH (FEET) IO INDUSTRIAL-OFFICE 65	LENGTH ALONG SCHOOLHOUSE ROAD OPPOSITE SR-2: REQUIRED: MINIMUM 65' BUFFER WIDTH PROVIDED: MINIMUM 65' BUFFER WIDTH	COMPLIES
27-2802 CONTENT OF PLANTING STRIPS	a.1. EACH STRIP SHALL CONTAIN TWO STAGGERED ROWS OF EVERGREENS OR A COMBINATION OF TREES AND SHRUBS LISTED BELOW. 2. WHERE ROWS OF EVERGREENS ARE BEING PLANTED, EACH ROW SHALL BE NO GREATER THAN 20 FEET APART, AND THE PLANTS IN EACH ROW SHALL BE PLANTED AT A DENSITY OF ONE PLANT EVERY NINE LINEAR FEET. 3. WHERE A COMBINATION OF TREES AND SHRUBS IS BEING PLANTED, THIS MIXTURE OF PLANTS SHALL BE CHOSEN AND PLANTED IN SUCH A FASHION AND DENSITY AS TO PROVIDE THE REQUIRED SCREENING OF THE NEIGHBORING PROPERTIES. THE TABLE BELOW INDICATES THE MINIMUM AMOUNT OF PLANT MATERIAL THAT IS REQUIRED PER LINEAR FOOT OF BUFFER LENGTH. UNLESS REQUIRED ELSEWHERE IN THIS CHAPTER, PLANTINGS ARE NOT REQUIRED TO RUN PARALLEL OR BE ALIGNED ON PROPERTY OR RIGHT-OF-WAY BOUNDARIES. AT THE DISCRETION OF THE TOWNSHIP, PLANT MATERIAL MAY BE SITED ON ANY PORTION OF THE PROPERTY FOR BUFFER PURPOSES AND MAY BE STAGGERED OR GROUPED, IF A SATISFACTORY BUFFER CAN BE ACHIEVED IN THIS FASHION. BUFFER WIDTH — PLANTING OPTIONS 45 FEET OR GREATER — (e)1 CANOPY TREE PER 50 FEET AND 1 FLOWERING TREE PER 50 FEET AND 1 EVERGREEN PER 50 FEET AND 1 SHRUB PER 15 FEET (f) 1 CANOPY TREE PER 100 FEET AND 1 EVERGREEN PER 30 FEET AND 1 HEDGE PLANTED 1 TO 5 FEET INSIDE THE BOUNDARY LINE WITH PLANTS 3 FEET ON CENTER (g) 1 EVERGREEN PER 25 FEET AND 1 SHRUB PER 10 FEET (h) A BERM VARYING IN HEIGHT FROM 3 TO 5 FEET WITH MAXIMUM SIDE SLOPES OF ALL TO BE 4 HORIZONTAL TO 1 VERTICAL AND 1 FLOWERING OR EVERGREEN TREE PER 20 FEET AND 1 SHRUB PER 10 FEET	LENGTH ALONG SCHOOLHOUSE ROAD OPPOSITE SR-2: 364± LF REQUIRED: 45 FEET OR GREATER BUFFER WIDTH PLANTING - OPTION (E) 364 / 50 = 7.3 OR 7 CANOPY TREES 7.3 OR 7 ORNAMENTAL TREES 7.3 OR 7 EVERGREEN TREES (364) / 15 = 24.3 OR 24 SHRUBS PROVIDED: 7 NS (7 CANOPY TREES), 7 PIAB (7 EVERGREEN TREES), 7 CF (7 ORNAMENTAL TREES); 12 IW, 12 PN (24 SHRUBS)	COMPLIES

27-2802 CONTENT OF PLANTING STRIPS (CONT'D)	b. PLANT DIVERSITY. TO PROMOTE DIVERSITY AND MINIMIZE THE IMPACT OF DISEASE ON TREE, SHRUB, AND PLANT POPULATIONS, THE FOLLOWING TABLES SHALL BE FOLLOWED TO DETERMINE THE NUMBER OF DIFFERENT GENERA (PLURAL OF THE TAXONOMIC RANK GENUS) TO BE PLANTED: 1. TREES: # of TREES PROPOSED — MINIMUM # OF TREE GENERA — MAXIMUM % OF ANY ONE GENUS 1-10 — 1 — 100% 11-25 — 2 — 75% 26-50 — 3 — 50% 51-100 — 4 — 40% 101-200 — 6 — 30% 201+ — 8 — 20%	NUMBER OF TREES PROPOSED IN BUFFER PLANTING STRIP ALONG SCHOOLHOUSE RD: 21 REQUIRED: MINIMUM 2 GENERA, MAX 75% 1 GENUS PROVIDED: 3 GENERA, MAX 33% 1 GENUS	COMPLIES
	2. SHRUBS AND HEDGE / HEDGEROW PLANTS: # OF PLANTS PROPOSED — MINIMUM # OF PLANT GENERA — MAXIMUM % OF ANY ONE GENUS 1-25 — 1 — 100% 26-50 — 2 — 75% 51-100 — 3 — 50% 101-200 — 4 — 40% 201-400 — 6 — 30% 401+ — 8 — 20%	NUMBER OF SHRUBS PROPOSED IN BUFFER PLANTING STRIP ALONG SCHOOLHOUSE RD: 24 REQUIRED: MINIMUM 1 GENERA, MAX 100% 1 GENUS PROVIDED: 2 GENERA, MAX 50% 1 GENUS	COMPLIES
SALDO: 22-600 NATURAL RESOURCES	6.B. IN ALL OTHER ZONING DISTRICTS, NO MORE THAN 50% OF WOODLANDS LOCATED UPON A LOT OR SITE MAY BE ALTERED, REGRADED, CLEARED, OR BUILT UPON, PROVIDED THE FOLLOWING REQUIREMENTS ARE MET: (1) WHERE MORE THAN 20% OF THE WOODLANDS ARE BEING DISTURBED, ALL DISTURBED WOODLANDS EXCEEDING THIS 20% LIMIT SHALL BE REPLACED ON AN ACRE-FOR-ACRE BASIS THROUGH THE PLANTING OF REPLACEMENT TREES. THE ACTUAL NUMBER OF REPLACEMENT TREES SHALL BE CALCULATED BY MULTIPLYING THE ACREAGE OF DISTURBANCE EXCEEDING 20% BY 200 TREES PER ACRE. ALL REPLACEMENT TREES SHALL HAVE A MINIMUM TREE CALIPER OF 3 1/2 INCHES' DBH.	TOTAL WOODLANDS ON-SITE = 28.535± AC PERMITTED WOODLAND DISTURBANCE WITH NO REPLACEMENT REQUIRED (20%): 5.707 AC PROPOSED WOODLAND DISTURBANCE: 4.789± AC (16.8%) NO REPLACEMENT REQUIRED	COMPLIES
	9.A.ZONE 1. THIS BUFFER AREA WILL BEGIN AT THE EDGE OF THE LAKE, POND OR WATERCOURSE AND OCCUPY A MARGIN OF LAND WITH A MINIMUM WIDTH OF 25 FEET MEASURED HORIZONTALLY ON A LINE PERPENDICULAR TO THE EDGE OF WATER AT BANKFULL FLOW OR LEVEL. OPEN SPACE USES THAT ARE PRIMARILY PASSIVE IN NATURE MAY BE PERMITTED IN ZONE 1, INCLUDING: (6) THE RIPARIAN BUFFER EASEMENT SHALL BE PLANTED WITH NATIVE TREES, SHRUBS AND OTHER VEGETATION TO CREATE A DIVERSE NATIVE PLANT COMMUNITY APPROPRIATE TO THE INTENDED ECOLOGICAL CONTEXT OF THE SITE. INVASIVE SPECIES SHALL BE REMOVED, WHENEVER PRACTICABLE.	EXISTING VEGETATION TO REMAIN TO MEET THE INTENT OF THIS REQUIREMENT.	COMPLIES
	9.B.ZONE 2. THIS BUFFER ZONE WILL BEGIN AT THE OUTER EDGE OF ZONE 1 AND OCCUPY A MINIMUM WIDTH OF 50 FEET IN ADDITION TO ZONE 1. HOWEVER, WHERE THE WIDTH OF THE 100-YEAR FLOODPLAIN EXTENDS GREATER THAN 75 FEET FROM THE EDGE OF WATER AT BANKFULL FLOW OR LEVEL, ZONE 1 SHALL REMAIN A MINIMUM OF 25 FEET AND ZONE 2 SHALL EXTEND FROM THE OUTER EDGE OF ZONE 1 TO THE OUTER EDGE OF THE 100-YEAR FLOODPLAIN. USES PERMITTED IN THIS BUFFER AREA INCLUDE OPEN SPACE USES THAT ARE PRIMARILY PASSIVE IN NATURE, INCLUDING: (5) THE RIPARIAN BUFFER EASEMENT SHALL BE PLANTED WITH NATIVE TREES, SHRUBS AND OTHER VEGETATION TO CREATE A DIVERSE NATIVE PLANT COMMUNITY APPROPRIATE TO THE INTENDED ECOLOGICAL CONTEXT OF THE SITE. INVASIVE SPECIES SHALL BE REMOVED, WHENEVER PRACTICABLE.	EXISTING VEGETATION TO REMAIN TO MEET THE INTENT OF THIS REQUIREMENT.	COMPLIES
	9. D.REVEGETATION OF RIPARIAN AREA. IN CASES WHERE A MAJOR SUBDIVISION OR LAND DEVELOPMENT IS PROPOSED, REPLANTING OF THE RIPARIAN CORRIDOR SHALL BE REQUIRED WHERE THERE IS LITTLE OR NO EXISTING STREAMSIDE VEGETATION. NATIVE VEGETATION APPROVED BY THE TOWNSHIP MUST BE USED IN REPLANTING. THREE LAYERS OF VEGETATION ARE REQUIRED WHEN REPLANTING THE RIPARIAN CORRIDOR. THESE LAYERS INCLUDE HERBACEOUS PLANTS THAT SERVE AS GROUND COVER, UNDERSTORY SHRUBS AND TREES THAT FORM AN OVERHEAD CANOPY. THE REVEGETATION PLAN SHALL BE PREPARED BY A QUALIFIED PROFESSIONAL, WHO HAS SPECIFIC EXPERIENCE IN THE DELINEATION OF RIPARIAN BUFFER AREAS, AND SHALL COMPLY WITH THE FOLLOWING MINIMUM REQUIREMENTS, UNLESS MODIFIED BY THE BOARD OF SUPERVISORS UPON RECOMMENDATION OF THE PLANNING COMMISSION. (1) GROUND COVER. GROUND COVER CONSISTING OF A NATIVE SEED MIX EXTENDING A MINIMUM OF 25 FEET IN WIDTH FROM THE EDGE OF THE STREAM BANK MUST BE PROVIDED ALONG THE PORTION(S) OF THE STREAM CORRIDOR WHERE LITTLE OR NO RIPARIAN VEGETATION EXISTS. APPROPRIATE GROUND COVER INCLUDES NATIVE MATERIAL, EXCLUSIVE OF NOXIOUS WEEDS, AS DEFINED BY THE PENNSYLVANIA STATE DEPARTMENT OF AGRICULTURE. THIS 25-FOOT WIDE PLANTED AREA SHALL BE DESIGNATED ON THE PLAN AS A "NO MOW ZONE" AND SHALL BE LEFT AS NATURAL COVER, EXCEPT IN ACCORDANCE WITH THE MAINTENANCE INSTRUCTIONS STATED ON THE PLAN. (2) TREES AND SHRUBS. THESE PLANTING LAYERS INCLUDE TREES THAT FORM AN OVERHEAD CANOPY AND UNDERSTORY SHRUBS. SPECIES SHALL BE TAKEN FROM APPENDIX D OF THIS CHAPTER REQUIRED PLANT MATERIAL LIST. THESE PLANTS SHALL BE PLANTED IN AN INFORMAL MANNER CLUSTERED WITHIN ZONE 1 OF THE RIPARIAN BUFFER AS INDICATED IN SUBSECTION 9.D.(1) ABOVE. THESE PLANTS SHALL BE PROVIDED AT A RATE OF AT LEAST ONE OVERSTORY TREE AND THREE SHRUBS FOR EVERY 20 LINEAR FEET OF WATERWAY.	EXISTING VEGETATION TO REMAIN TO MEET THE INTENT OF THIS REQUIREMENT.	COMPLIES
22-708 PARKING AREAS	2.C. ALL PROPOSED PLANTING ISLANDS AND STRIPS SHALL BE PROVIDED WITH CURB DEPRESSED CURB OR CURB CUTS ARE PERMITTED WHERE PLANTING ISLANDS AND STRIPS ARE ADJACENT TO A STORMWATER FACILITY UPON APPROVAL OF THE TOWNSHIP ENGINEER.	ALL PLANTING ISLANDS AND STRIPS HAVE BEEN PROVIDED WITH CURB.	COMPLIES
	2.D. NO MORE THAN 15 PARKING SPACES SHALL BE PERMITTED IN A CONTINUOUS ROW WITHOUT BEING SEPARATED BY A MINIMUM 10' BY 18' PLANTING ISLAND.	NO MORE THAN 15 CAR PARKING SPACES PROPOSED IN A ROW WITHOUT ISLAND SEPARATION.	COMPLIES
	2.E. NO PARKING AREAS SHALL EXCEED 30 SPACES IN CAPACITY, WITHOUT BEING SEPARATED INTO SMALLER PARKING AREAS BY A MINIMUM TEN-FOOT PLANTINGS STRIP.	PLANTING STRIPS HAVE BEEN PROVIDED WHERE PARKING AREAS EXCEED 30 SPACES.	COMPLIES
	2.G. TO SEPARATE PARKING AREAS AND ACCESS DRIVES, PLANTING ISLANDS, A MINIMUM OF 10 FEET BY 36 FEET, SHALL BE PROVIDED AT THE END OF EACH ROW OF PARKING STALLS.	PLANTING ISLANDS HAVE BEEN PROPOSED AT ENDS OF ALL PARKING AREAS.	COMPLIES
	2.H. A SINGLE ROW OF PARKING STALLS LOCATED PARALLEL TO AND BETWEEN TWO ACCESS DRIVES SHALL BE SEPARATED BY A TEN-FOOT PLANTING STRIP.	NOT APPLICABLE.	NOT APPLICABLE
	6.A. ALL OFF-STREET PARKING SHALL BE SET BACK A MINIMUM OF 10 FEET FROM ANY STREET ULTIMATE RIGHT-OF-WAY LINE, PROPERTY LINE, SEWAGE DISPOSAL SYSTEM OR PRIVATE WELL-ALL OFF-STREET PARKING SPACES SHALL BE SET BACK A MINIMUM OF TWENTY (20) FEET FROM ANY SIDE OF ANY NON-RESIDENTIAL BUILDING. THIS SETBACK SHALL NOT APPLY TO DRIVEWAYS ENTERING GARAGES, SERVICE BAYS OR CARPORTS AND IS INTENDED TO ALLOW SUFFICIENT AREA FOR FIREFIGHTING, SIDEWALKS, AND FOUNDATION LANDSCAPING.	REQUIRED: 10' MINIMUM SETBACK BETWEEN PARKING AND ULTIMATE RIGHT OF WAY 20' SETBACK BETWEEN PARKING AND BUILDING PROVIDED: 10' MINIMUM SETBACK BETWEEN PARKING AND ULTIMATE RIGHT OF WAY 10' SETBACK BETWEEN PARKING AND BUILDING.	WAIVER
22-712 STORMWATER MANAGEMENT	4.P. BASINS SHALL BE SCREENED AND LANDSCAPED IN ACCORDANCE WITH THE LANDSCAPE PLANTING REQUIREMENTS OF THIS CHAPTER AND THE FOLLOWING MINIMUM REQUIREMENTS: 1.) BIORETENTION AND INFILTRATION FACILITIES SHALL BE PLANTED WITH VEGETATION AND/OR SEED MIX OTHER THAN TURF GRASS TO ENCOURAGE EVAPOTRANSPIRATION. PLANTING SOIL DEPTH SHALL BE AT LEAST 18" WHERE ONLY HERBACEOUS PLANT SPECIES WILL BE UTILIZED. IF TREES AND WOODY SHRUBS WILL BE USED, SOIL MEDIA DEPTH SHALL BE INCREASED DEPENDING ON PLANT SPECIES. 2.) PLANTING SOIL SHALL BE AMENDED WITH A COMPOSTED ORGANIC MATERIAL. A TYPICAL ORGANIC AMENDED SOIL IS COMBINED WITH 20-30% ORGANIC MATERIAL (COMPOST), AND 70-80% SOIL BASE (PREFERABLY TOPSOIL).	AN APPROPRIATE SEED MIX HAS BEEN PROPOSED IN THE ABOVE GROUND INFILTRATION BASINS.	COMPLIES

22-713 LANDSCAPE PLANTING	2.E. ANY SPECIMEN TREE HAVING A DIAMETER OF THIRTY (30) INCHES OR MORE, MEASURED AT TWELVE (12) INCHES ABOVE NATURAL GRADE LINE, SHALL NOT BE REMOVED, WHETHER LOCATED WITHIN A WOODLAND AREA OR STANDALONE.	REQUIRED: NO SPECIMEN TREE REMOVAL PERMITTED PROPOSED: 86 SPECIMEN TREES TO BE REMOVED.	WAIVER
	3.A. PLANTING ISLANDS. ALL 10-FOOT BY 36-FOOT PLANTING ISLANDS SHALL CONTAIN 2 SHADE TREES AND ALL 10-FOOT BY 18-FOOT PLANTINGS ISLANDS SHALL CONTAIN ONE SHADE TREE. PLANTING ISLANDS REQUIRE A MINIMUM OF 85% GROUND COVERAGE OF LOW-GROWING SHRUBS, GRASSES, AND/OR GROUND COVER PLANTS, AS DETERMINED BY THE DESIGN GROUND COVERAGE OF THE PLANT SPECIES PROPOSED, INCLUDING ANY PARKING ISLANDS THAT ARE DESIGNED AS A STORMWATER FACILITY WHICH SHALL HAVE WET TOLERANT SPECIES.	NUMBER OF 10 x 36 ISLANDS = 5 10 x 18 ISLANDS = 47 REQUIRED: 10 x 36 ISLAND: 5 x 2 = 10 SHADE TREES 10 x 18 ISLAND: 47 x 1 = 47 SHADE TREES TOTAL: 57 SHADE TREES PROVIDED: 13 ARA, 14 LS, 5 NS, 3 QPH, 13 TA, 9 UP (57 SHADE TREES)	COMPLIES
	3.B. PLANTINGS STRIPS. PLANTING STRIPS SHALL BE PROVIDED FOR ALL ROWS OF PARKING SPACES NOT SEPARATED BY A DRIVE AISLE A MINIMUM OF 10 FEET WIDE AND SHALL RUN THE LENGTH OF THE PARKING ROW. PLANTING STRIPS SHALL CONTAIN ONE SHADE TREE AT INTERVALS OF EVERY 25 FEET ON AVERAGE, INCLUDING ANY PARKING STRIPS THAT ARE DESIGNED AS A STORMWATER FACILITY WHICH SHALL HAVE WET TOLERANT SPECIES.	LENGTH OF PLANTING STRIPS = 711± LF REQUIRED: 711 / 25 = 28.4 OR 28 SHADE TREES PROVIDED: 2 ARA, 12 NS, 6 QPH, 8 UP (28 SHADE TREES)	COMPLIES
	3.C. ANY LOT WITH 30 PARKING SPACES OR MORE SHALL HAVE LANDSCAPED AREAS WITHIN THE PAVED AREA EQUAL TO A MINIMUM OF 5% OF THE TOTAL PAVED AREA. THE TOTAL PAVED AREA SHALL EXCLUDE LANDSCAPE STRIPS AROUND THE PERIMETER.	TOTAL PAVED CAR PARKING AREA = 211,341± SF REQUIRED (5%): 10,567± SF LANDSCAPE AREA PROVIDED: 15,220± SF LANDSCAPE AREA (7.2%)	COMPLIES
	3.D. ALL PLANTING ISLANDS AND STRIPS SHALL BE UNDERLAIN BY SOIL IMPROVED TO A MINIMUM DEPTH OF 30 INCHES, NOT STONE OR BITUMINOUS MATERIAL, AND SHALL BE GRADED NOT TO EXCEED A SLOPE OF 5 HORIZONTAL TO 1 VERTICAL. A SOIL IMPROVEMENT DETAIL AND NOTES ON THE LANDSCAPE PLAN SHALL INCLUDE THE REMOVAL OF ALL CONSTRUCTION DEBRIS AND EXISTING COMPACTED SOILS AND THE SPECIFICATIONS FOR THE SOIL IMPROVEMENT MIX.	MINIMUM REQUIRED SOIL DEPTH HAS BEEN PROVIDED. SEE DETAILS.	COMPLIES
	3.F. ALL REQUIRED PLANTINGS SHALL BE NATIVE PLANTS AND SHALL BE SELECTED FROM THE LIST OF REQUIRED PLANT MATERIAL CONTAINED IN THE APPENDIX.	ALL PROPOSED PLANTINGS ARE NATIVE AND HAVE BEEN SELECTED FROM THE TOWNSHIP'S PLANT LIST.	COMPLIES
	3.G. A SUBSTANTIAL PROPORTION OF THE TREES REQUIRED BY THIS SECTION SHOULD BE PLANTED WITHIN THE PARKING LOT WITHIN PROTECTED ISLANDS WELL-DISTRIBUTED THROUGHOUT THE PAVED SURFACE. THESE PROTECTED ISLANDS SHOULD BE USED TO DIRECT THE FLOW OF TRAFFIC THROUGH THE PARKING LOT IN A SMOOTH AND SAFE MANNER TO PREVENT "CROSS-TAXING."	A SUBSTANTIAL AMOUNT OF TREES REQUIRED BY THIS SECTION HAVE BEEN PROVIDED IN LANDSCAPE ISLANDS OR PLANTING STRIPS WITHIN THE PARKING AREAS.	COMPLIES
	4.A. STREET TREES. STREET TREES SHALL BE PLANTED EVERY 30 FEET ALONG ALL PROPOSED STREETS AND EXISTING STREETS WHEN THEY ABUT OR LIE WITHIN THE PROPOSED SUBDIVISION AND/OR LAND DEVELOPMENT. IF EXISTING TREES MEET THE INTENT OF THIS SECTION, THEY MAY BE UTILIZED TO MEET THE STREET TREE REQUIREMENTS SUBJECT TO APPROVAL BY THE TOWNSHIP ENGINEER.	LENGTH ALONG COUNTY LINE ROAD = 590.3± LF (EXCLUDING 195.5± LF OF EXISTING VEGETATION TO REMAIN) REQUIRED: 590.3 / 30 = 19.7 OR 20 STREET TREES PROVIDED: 7 GTIK, 7 LSR, 6 UP (20 STREET TREES)	COMPLIES
		LENGTH ALONG WALNUT STREET = 2,447± LF (EXCLUDING DRIVEWAY WIDTHS) REQUIRED: 2,447 / 30 = 81.5 OR 82 STREET TREES PROVIDED: 37 GTIK, 11 LSR, 17 NS, 17 QPH (82 STREET TREES)	COMPLIES
		LENGTH ALONG SCHOOLHOUSE ROAD = 364± LF REQUIRED: 364 / 30 = 12.1 OR 12 STREET TREES PROVIDED: 6 QBC, 6 UP (12 TREES)	COMPLIES
	4.B. STREET TREES SHALL BE PLANTED BETWEEN FIVE AND TEN FEET OUTSIDE THE ULTIMATE RIGHT-OF-WAY LINE UNLESS OTHERWISE SPECIFIED IN THIS CHAPTER, AND AS AN ALTERNATIVE, THE SAME QUANTITY OF TREES MAY BE PLANTED IN AN INFORMAL ARRANGEMENT ALONG THE PERIMETER OF THE STREET, WHEN APPROVED BY THE BOARD.	STREET TREES HAVE BEEN PROVIDED BETWEEN 5 AND 10 FEET OUTSIDE OF THE ULTIMATE RIGHT OF WAY.	COMPLIES
	5.A. ALL SUBDIVISIONS AND/OR LAND DEVELOPMENTS SHALL COMPLY WITH THE BUFFER YARD REQUIREMENTS OF THE TOWNSHIP ZONING ORDINANCE [CHAPTER 27], THE SPACING AND COMPOSITION OF THE BUFFER YARD PLANTINGS STRIPS REQUIRED BY THE ZONING ORDINANCE SHALL COMPLY WITH THE FOLLOWING PROVISIONS: (1) EACH STRIP SHALL CONTAIN A COMBINATION OF NATIVE EVERGREEN AND DECIDUOUS TREES AND SHRUBS LISTED BELOW IN NATURALISTIC GROUPINGS RATHER THAN LINEAR STRIPS. (2) THE MIXTURE OF PLANTS SHALL BE CHOSEN AND PLANTED IN SUCH A FASHION AND DENSITY AS TO PROVIDE THE REQUIRED SCREENING OF THE NEIGHBORING PROPERTIES. THE TABLE BELOW INDICATES THE MINIMUM AMOUNT OF PLANT MATERIAL THAT IS REQUIRED PER LINEAR FOOT OF BUFFER LENGTH. UNLESS REQUIRED ELSEWHERE IN THIS CHAPTER, PLANTINGS ARE NOT REQUIRED TO RUN PARALLEL OR BE ALIGNED ON PROPERTY OR RIGHT-OF-WAY BOUNDARIES. AT THE DISCRETION OF THE TOWNSHIP, PLANT MATERIAL MAY BE SITED ON ANY PORTION OF THE PROPERTY FOR BUFFER PURPOSES AND MAY BE STAGGERED OR GROUPED, IF A SATISFACTORY BUFFER CAN BE ACHIEVED IN THIS FASHION. BUFFER WIDTH PLANTING OPTIONS 25-FOOT BUFFER WIDTH (a) 1 CANOPY TREE PER 40 FEET AND 1 FLOWERING TREE PER 60 FEET AND 1 EVERGREEN PER 60 FEET 35 AND 45-FOOT BUFFER WIDTHS (b) 1 CANOPY TREE PER 40 FEET AND 1 FLOWERING TREE PER 60 FEET AND 1 EVERGREEN TREE PER 30 FEET AND 1 SHRUB PER 20 FEET (c) A VEGETATED FILTER STRIP IN ACCORDANCE WITH THE PA STORMWATER BMP MANUAL INCLUDING 1 CANOPY TREE PER 60 FEET AND 1 FLOWERING TREE EVERY 60 FEET AND 1 EVERGREEN PER 60 FEET AND PLANTED WITH NATIVE GRASSES OR FLOWERING MEADOW MIX WITH A WIDE VARIETY OF SPECIES, NOT STANDARD TURF GRASS. (d) 1 CANOPY TREE PER 40 FEET AND 1 EVERGREEN PER 30 FEET AND 1 SHRUB PER 5 FEET 45 FEET BUFFER WIDTH OR GREATER (e) 1 CANOPY TREE PER 40 FEET AND 1 FLOWERING TREE PER 50 FEET AND 1 EVERGREEN PER 50 FEET AND 1 SHRUB PER 15 FEET (f) 1 CANOPY TREE PER 100 FEET AND 1 EVERGREEN PER 30 FEET AND 1 SHRUB PER 15 FEET (g) 1 EVERGREEN PER 25 FEET AND 1 SHRUB PER 10 FEET (h) A BERM VARYING IN HEIGHT WITH MAXIMUM SIDE SLOPES OF ALL TO BE 4 HORIZONTAL TO 1 VERTICAL AND 1 FLOWERING OR EVERGREEN TREE PER 20 FEET AND 1 SHRUB PER 10 FEET STORMWATER INFILTRATION BERMS ARE PERMITTED IN ACCORDANCE WITH THE PA STORMWATER BMP MANUAL, AS AMENDED, WITH SPECIES CHOSEN TO SUIT THE PROPOSED SOIL CONDITIONS.	LENGTH ALONG SCHOOLHOUSE ROAD OPPOSITE SR-2 DISTRICT = 364 x LF REQUIRED: 45' OR GREATER BUFFER YARD PROVIDED: BUFFER PLANTING OPTION (E) PROVIDED AS REQUIRED BY 27-2802.A.	COMPLIES
	5.B.(1) OFF-STREET PARKING AREAS. DENSELY PLANTED WITH A MIXTURE OF EVERGREEN AND DECIDUOUS SHRUBS AND GRASSES TO CREATE A SCREEN ALONG THE PERIMETER OF THE PARKING AREA. (a) IN ADDITION TO THE ABOVE, FOR EVERY PARKING LOT BUFFER THAT ABUTS A SIDEWALK OR A STREET FOR A PARKING AREA OF 5 SPACES OR MORE, ONE OF THE OPTIONS BELOW SHALL BE INSTALLED TO BLOCK HEADLIGHTS: (1) OPTION A: ONE (1) SHADE TREE AND 10 EVERGREEN SHRUBS SHALL BE PLANTED FOR EACH 30 FEET OF BUFFER LENGTH AND 1 SQUARE FOOT OF PERENNIAL PLANTINGS FOR EVERY LINEAR FOOT OF TOTAL BUFFER. (2) OPTION B: A LOW-WALL FENCE OR BERM NOT TO EXCEED 4 FEET IN HEIGHT OR 3:1 SLOPE AS MEASURED FROM THE ADJOINING SIDEWALK, ALONG WITH 1 TREE PER 30 FEET OF BUFFER LENGTH AND THREE SHRUBS FOR EVERY 20 FEET OF BUFFER LENGTH. AN INCREASED HEIGHT MAY BE PERMITTED UP TO 8 FEET HIGH WHERE THERE IS UNUSUAL TOPOGRAPHY, LARGER VEHICLES, OR OTHER SIMILAR CIRCUMSTANCES.	LENGTH OF PARKING ALONG WALNUT STREET = 1,830± LF REQUIRED: OPTION A (1,830 / 30) =

22-713 LANDSCAPE PLANTING (CONT'D)	5.B.(2) TRASH COLLECTION AREAS AND MECHANICAL UNITS. A MINIMUM SIX-FOOT OPAQUE FENCE OR WALL, ON AT LEAST THREE SIDES, WITH A STAGGERED ROW OF EVERGREEN TREES PLANTED EVERY 10 FEET ALONG THE FENCE PERIMETER.	NO EXTERIOR TRASH COLLECTION AREAS PROPOSED. NOT APPLICABLE.	NOT APPLICABLE
	5.B.(3) DETENTION/RETENTION BASINS. ONE DECIDUOUS OR EVERGREEN TREE PLANTED EVERY 20 FEET, PLUS ONE DECIDUOUS OR EVERGREEN SHRUB EVERY 10 FEET ALONG THE BASIN PERIMETER, PLANTED IN AN INFORMAL ARRANGEMENT.	PERIMETER LENGTH OF BASIN BUILDING 1 = 677 LF REQUIRED: 677 / 20 = 33.9 OR 34 SHADE OR EVERGREEN TREES 677 / 10 = 67.7 OR 68 DECIDUOUS OR EVERGREEN SHRUBS PROVIDED: 9 LSR, 3 NS, 6 OBC, 8 TD, 8 MV (34 SHADE OR EVERGREEN TREES); 14 CA, 36 CO, 18 LB (68 DECIDUOUS OR EVERGREEN SHRUBS)	COMPLIES
	5.B.(4) OUTDOOR STORAGE AREAS. A MINIMUM SIX-FOOT WOODEN SHADOW-BOX FENCE, OR APPROVED EQUAL, ON AT LEAST THREE SIDES, WITH EVERGREEN TREES PLANTED EVERY 10 FEET ALONG THE FENCE PERIMETER.	NO OUTDOOR STORAGE AREAS PROPOSED. NOT APPLICABLE.	NOT APPLICABLE
	5.B.(5) PUBLIC OR PRIVATE SEWAGE PUMP STATIONS AND TREATMENT PLANTS. A MINIMUM SIX-FOOT WOODEN SHADOW-BOX FENCE, OR APPROVED EQUAL, ON ALL SIDES, WITH A STAGGERED ROW OF EVERGREEN TREES PLANTED EVERY 10 FEET ALONG THE FENCE PERIMETER.	NO PUBLIC OR PRIVATE SEWAGE PUMP STATIONS PROPOSED. NOT APPLICABLE.	NOT APPLICABLE
	5.B.(8) THE BOUNDARY OF A PEDESTRIAN ACCESS EASEMENT, WHEN LOCATED ON, OR ADJACENT TO PRIVATE PROPERTY, SHALL HAVE A METHOD OF PHYSICAL DELINEATION CONSISTING OF SIX-FOOT ARBORVITAE TREES, PLANTED NINE FEET ON CENTER, WITH FOUR-FOOT-HIGH SPLIT-RAIL FENCE, OR OTHER TYPE OF DELINEATION AS APPROVED BY THE BOARD OF SUPERVISORS.	NO SUCH ACCESS EASEMENTS ON SITE. NOT APPLICABLE.	NOT APPLICABLE
	5.B.(9) THE BOUNDARY OF A VEHICULAR ACCESS EASEMENT, SUCH AS EMERGENCY ACCESS EASEMENTS, WHEN LOCATED ON, OR ADJACENT TO A PRIVATE PROPERTY, SHALL HAVE A METHOD OF PHYSICAL DELINEATION ON BOTH SIDES CONSISTING OF SIX-FOOT ARBORVITAE TREES, PLANTED NINE FEET ON CENTER, WITH FOUR-FOOT-HIGH SPLIT-RAIL FENCE, OR OTHER TYPE OF DELINEATION AS APPROVED BY THE BOARD OF SUPERVISORS AND FIRE MARSHALL.	NO SUCH ACCESS EASEMENTS ON SITE. NOT APPLICABLE.	NOT APPLICABLE
	5.B.(10) PROPOSED AND EXISTING CONSERVATION EASEMENTS SHALL BE PHYSICALLY DELINEATED IN THE FIELD BY A CONCRETE MONUMENT AT THE INTERSECTION OF THE EASEMENT WITH THE PROPERTY LINE. A TWO OR THREE-RAIL SPLIT-RAIL TAPERED FENCE OR STONE-SHAPED CONCRETE MONUMENT CORNER MAY BE SUBSTITUTED AT THE DISCRETION OF THE BOARD OF SUPERVISORS.	CONCRETE MONUMENTS WILL BE PROVIDED FOR PROPOSED CONSERVATION ACCESS EASEMENTS AS NECESSARY.	COMPLIES
	6.A. GENERAL REQUIREMENTS. THE LOCATION, DIMENSIONS AND SPACING OF REQUIRED PLANTINGS SHOULD BE ADEQUATE FOR THEIR PROPER GROWTH AND MAINTENANCE, TAKING INTO ACCOUNT THE SIZES OF SUCH PLANTINGS AT MATURITY AND THEIR PRESENT AND FUTURE ENVIRONMENTAL REQUIREMENTS, SUCH AS WIND, SOIL, MOISTURE AND SUNLIGHT. PLANTINGS SHOULD BE SELECTED AND LOCATED WHERE THEY WILL NOT CONTRIBUTE TO CONDITIONS HAZARDOUS TO PUBLIC SAFETY AND TREES SHALL BE A MINIMUM OF 10 FEET FROM ALL EXISTING AND PROPOSED UNDERGROUND AND OVERHEAD UTILITIES.	MATURE SIZES OF PLANTINGS HAVE BEEN CONSIDERED IN THE PROPOSED LANDSCAPE DESIGN. TREES HAVE BEEN LOCATED 10' FROM ALL EXISTING AND PROPOSED UNDERGROUND AND OVERHEAD UTILITIES WHERE POSSIBLE.	WAIVER
	6.C. INSTALLATION. ALL SHADE AND EVERGREEN TREES SHALL BE SUPPORTED WITH STAKES AND GUY WIRING IN ACCORDANCE WITH THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION (ANLA) STANDARDS. THE BACKFILL FOR EXCAVATED PLANTING AREAS SHALL BE COMPOSED OF NATIVE TOPSOIL AND SHALL BE MULCHED SIX INCHES BEYOND THE DRIPLINE. MULCH SHALL NOT BE APPLIED AGAINST THE TRUNK. THE TRUNK FLARE SHALL REMAIN VISIBLE.	PLANTING DETAILS HAVE BEEN PROVIDED ACCORDINGLY. SEE DETAILS.	COMPLIES
	6.E. TO ENSURE PLANT DIVERSITY AND THE SUSTAINABILITY OF THE INSTALLATION IN PARKING LOTS, THE FOLLOWING PLANT DIVERSITY IS REQUIRED, WHERE 60% OF TREES IN PARKING LOTS MUST BE LARGE SHADE TREE SPECIES AND 25% OF ALL TREES EVERGREEN: PLANT DIVERSITY REQUIREMENTS MINIMUM NUMBER OF REQUIRED TREES / MINIMUM NUMBER OF TREE SPECIES / MAXIMUM % OF ANY 1 SPECIES 1-5 / 1 / 100 6-15 / 2 / 50 16-30 / 3 / 40 31-50 / 4 / 30 51+ / 5 / 20	NUMBER OF PROPOSED PARKING LOT TREES = 85 SHADE TREES [TREES PROVIDED PER 22-713.3.A & 22-713.3.B] REQUIRED: MIN 5 SPECIES, MAX 20% ONE SPECIES PROVIDED: 6 SPECIES, 20% ONE SPECIES	COMPLIES

ERNST SEED CO. RETENTION BASIN WILDLIFE SEED MIX SPECIFICATIONS (ERNMX-127)

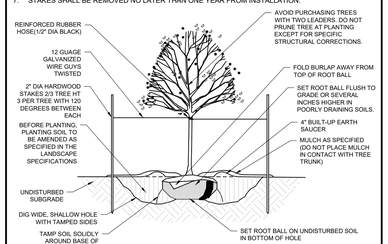
PANICUM CLANDESTINUM 'TIOGA'	DEERTONGUE, TIOGA	30%
CAREX VULPINOIDEA (PA ECOTYPE)	FOX SEDGE	29.5%
ELYMUS VIRGINICUS (PA ECOTYPE)	VIRGINIA WILD RYE	20%
CAREX LURIDA (PA ECOTYPE)	LURID SEDGE	7%
CAREX SCOPARIA (PA ECOTYPE)	BLUNT BROOM SEDGE	7%
VERBENA HASTATA (PA ECOTYPE)	BLUE VERVAIN	3%
JUNCUS EFFUSUS	SOFT RUSH	1.5%
AGROSTIS PERENNANS (NY ECOTYPE)	AUTUMN BENTGRASS, ALBANY PINE BUSH	0.5%
ASCLEPIAS INCARNATA (PA ECOTYPE)	SWAMP MILKWEED	0.5%
SCIRPUS CYPERINUS (PA ECOTYPE)	WOOL GRASS	0.3%
HELENIUM AUTUMNALE (PA ECOTYPE)	COMMON SNEEZEWEED	0.2%
ASTER NOVAE-ANGLIAE (PA ECOTYPE)	NEW ENGLAND ASTER	0.1%
ASTER PUNICEUS (PA ECOTYPE)	PURPLESTEM ASTER ASTER	0.1%
ASTER UMBELLATA (PA ECOTYPE)	FLAT TOPPED WHITE ASTER	0.1%
EUPATORIUM PERFOLIATUM (PA ECOTYPE)	BONESET	0.1%
LOBELIA SIPHILITICA (PA ECOTYPE)	GREAT BLUE LOBELIA	0.1%

SEEDING RATE: 20 LBS PER ACRE OF THE ERNST MIX

NURSE CROP: THE ERNST SEED MIX MUST BE ACCOMPANIED BY ONE OF THE FOLLOWING TEMPORARY SEED SPECIFICATIONS APPROPRIATE FOR THE TIME OF YEAR:
- ANNUAL RYE (10 LBS PER ACRE)
- OR SPRING OATS (64 LBS PER ACRE)
- OR WINTER RYE (56 LBS PER ACRE)

NOTES:
1. THE FORMULATION NOTED ABOVE IS REPRESENTATIVE OF THE ERNST SEED SPECIFICATION. THE MOST CURRENT FORMULATION AS SPECIFIED BY THE ERNST COMPANY AT THE TIME OF PLANTING SHALL BE USED.
2. SEED SHOULD BE APPLIED USING DRILL SEEDING OR BROADCAST SEEDING METHODS ONLY. THE CONTRACTOR MUST ENSURE DIRECT SEED-TO-SOIL CONTACT. HYDROSEEDING IS NOT PERMITTED WITH THIS SEED MIX; IT WILL PROHIBIT GERMINATION.
3. THE ENTIRE FACILITY SHALL BE STABILIZED WITH A NORTH AMERICAN GREEN SC150 STRAW & COCONUT BLANKET (OR APPROVED EQUAL). THE BLANKET SHOULD BE INSTALLED ON TOP OF THE SEED IN ACCORDANCE WITH THE MANUFACTURER SPECIFICATIONS.
4. SEED MIX WILL NEED DAILY SUPPLEMENTAL WATERING UNTIL IT HAS GERMINATED AND REACHED AN AVERAGE HEIGHT OF AT 12-18".
5. THE SEEDING AREA SHALL BE MOWED ONCE AFTER THE FIRST GROWING SEASON, EARLY IN THE SPRING, AND THEN SHALL BE MOWED NO MORE THAN ONCE EVERY THREE YEARS THEREAFTER EARLY IN SPRING ONLY.

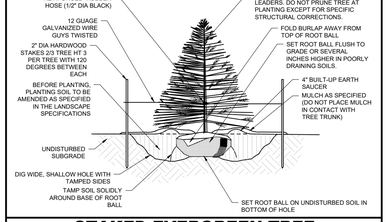
NOTES:
1. NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT COLLAR OF PLANT.
2. REMOVE ALL ROPE FROM TRUNK & TOP OF ROOT BALL. FOLD OR CUT BURLAP BACK FROM TOP 1/3 OF ROOT BALL.
3. PLANTING DEPTH SHALL BE THE SAME AS GROWN IN NURSERY.
4. THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
5. THE BOTTOM OF PLANTING PIT EXCAVATIONS SHOULD BE SCARIFIED TO AVOID MATTING OF SOIL.
6. THE MINIMUM DIAMETER OF THE TREE PIT SHALL BE 3 TIMES THE DIAMETER OF THE ROOT BALL.
7. STAKES SHALL BE REMOVED NO LATER THAN ONE YEAR FROM INSTALLATION.



STAKED DECIDUOUS TREE PLANTING

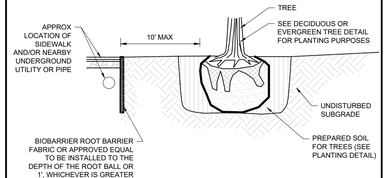
NOT TO SCALE (PA-L040103 - 11/2023)

NOTES:
1. NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT COLLAR OF PLANT.
2. REMOVE ALL NON-BIODEGRADABLE MATERIAL AND ROPE FROM TRUNK & TOP OF ROOT BALL. FOLD BURLAP BACK 1/3 FROM ROOT BALL.
3. PLANTING DEPTH SHALL BE THE SAME AS GROWN IN NURSERY.
4. THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
5. THE BOTTOM OF PLANTING PIT EXCAVATIONS SHOULD BE SCARIFIED TO AVOID MATTING OF SOIL.
6. THE MINIMUM DIAMETER OF THE TREE PIT SHALL BE 3 TIMES THE DIAMETER OF THE ROOT BALL.
7. STAKES SHALL BE REMOVED NO LATER THAN ONE YEAR FROM INSTALLATION.



STAKED EVERGREEN TREE PLANTING

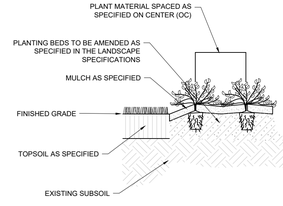
NOT TO SCALE (PA-L040104 - 11/2023)



NOTES:
1. ANY TREE INSTALLED WITHIN 10 FT OF NEW CONCRETE SIDEWALKS AND/OR NEARBY UNDERGROUND UTILITY OR PIPE SHOULD BE INSTALLED WITH BIOBARRIER ROOT BARRIER FABRIC AS SHOWN.
2. TREES SHALL BE INSTALLED ACCORDING TO THE APPROPRIATE PLANTING DETAIL.

BIOBARRIER ROOT BARRIER

NOT TO SCALE (PA-L049903 - 11/2023)



PERENNIAL AND GROUND PLANTING

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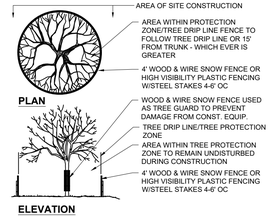

TREE PROTECTION DURING SITE CONSTRUCTION

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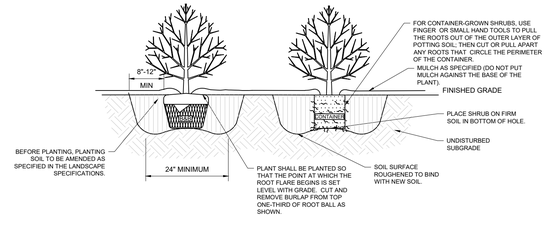
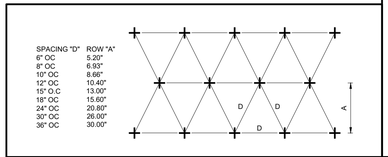


SHRUB PLANTING

NOT TO SCALE (PA-L040108 - 11/2023)



GROUNDCOVER & ANNUAL SPACING

NOT TO SCALE (PA-L040112 - 11/2023)

LANDSCAPE SPECIFICATIONS

1. SCOPE OF WORK:
THE CONTRACTOR SHALL BE REQUIRED TO PERFORM ALL CLEARING, FINISHED GRADING, SOIL PREPARATION, PERMANENT SEEDING OR SODDING, PLANTING AND MULCHING INCLUDING ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY FOR THE COMPLETION OF THIS PROJECT, UNLESS OTHERWISE CONTRACTED BY THE GENERAL CONTRACTOR.

2. MATERIALS
A. GENERAL - ALL HARDSCAPE MATERIALS SHALL MEET OR EXCEED SPECIFICATIONS AS OUTLINED IN THE STATE DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS.
B. TOPSOIL - NATURAL, FRIABLE, LOAMY SILT SOIL HAVING AN ORGANIC CONTENT NOT LESS THAN 5%, A PH RANGE BETWEEN 5.5-7.0. IT SHALL BE FREE OF DEBRIS, ROCKS LARGER THAN ONE INCH (1"), WOOD, ROOTS, VEGETABLE MATTER AND CLAY CLODS.
C. LAWN - LAWN AREAS SHALL BE SEEDED OR SODDED IN ACCORDANCE WITH THE PERMANENT STABILIZATION METHODS INDICATED WITHIN THE SOIL EROSION AND SEDIMENT CONTROL NOTES. FOR SOIL BED PREPARATIONS, REFER TO ITEM 8 BELOW.
- LAWN SEED MIXTURE SHALL BE FRESH, CLEAN NEW CROP SEED.
- SOD SHALL BE STRONGLY ROOTED, WEED AND DISEASE/PEST FREE WITH A UNIFORM THICKNESS. SOD INSTALLED ON SLOPES GREATER THAN 4:1 SHALL BE PEGGED TO HOLD SOD IN PLACE.
D. MULCH - ALL PLANTING BEDS SHALL BE MULCHED WITH A 3" THICK LAYER OF DOUBLE SHREDDED HARDWOOD BARK MULCH, UNLESS OTHERWISE STATED ON THE LANDSCAPE PLAN.
E. FERTILIZER
- FERTILIZER SHALL BE DELIVERED TO THE SITE MIXED AS SPECIFIED IN THE ORIGINAL UNOPENED STANDARD BAGS SHOWING WEIGHT, ANALYSIS AND NAME OF MANUFACTURER. FERTILIZER SHALL BE STORED IN A WEATHERPROOF PLACE SO THAT IT CAN BE KEPT DRY PRIOR TO USE.
- FOR THE PURPOSE OF BIDDING, ASSUME THAT FERTILIZER SHALL BE 10% NITROGEN, 6% PHOSPHORUS AND 4% POTASSIUM BY WEIGHT A FERTILIZER SHOULD NOT BE SELECTED WITHOUT A SOIL TEST PERFORMED BY A CERTIFIED SOIL LABORATORY.
F. PLANT MATERIAL
- ALL PLANTS SHALL IN ALL CASES CONFORM TO THE REQUIREMENTS OF THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.2), LATEST EDITION, AS PUBLISHED BY AMERICAN HORT (FORMERLY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION).
- IN ALL CASES, BOTANICAL NAMES SHALL TAKE PRECEDENCE OVER COMMON NAMES FOR ANY AND ALL PLANT MATERIAL.
- PLANTS SHALL BE LEGIBLY TAGGED WITH THE PROPER NAME AND SIZE. TAGS ARE TO REMAIN ON AT LEAST ONE PLANT OF EACH SPECIES FOR VERIFICATION PURPOSES DURING THE FINAL INSPECTION.
- TREES WITH ABRASION OF THE BARK, SUN SCALDS, DISFIGURATION OR FRESH CUTS OF LIMBS OVER 1¼", WHICH HAVE NOT BEEN COMPLETELY CALLUSED, SHALL BE REJECTED. PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE THE BARK OR BREAK BRANCHES.
- ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OF GROWTH: WELL DEVELOPED BRANCHES, DENSELY FOLIATED, VIGOROUS ROOT SYSTEMS AND BE FREE OF DISEASE, INSECTS, PESTS, EGGS OR LARVAE.
- CALIPER MEASUREMENTS OF NURSERY GROWN TREES SHALL BE TAKEN AT A POINT ON THE TRUNK SIX INCHES (6") ABOVE THE NATURAL GRADE FOR TREES UP TO AND INCLUDING A FOUR INCH (4") CALIPER SIZE. IF THE CALIPER AT SIX INCHES (6") ABOVE THE GROUND EXCEEDS FOUR INCHES (4") IN CALIPER, THE CALIPER SHOULD BE MEASURED AT A POINT 12" ABOVE THE NATURAL GRADE.
- SHRUBS SHALL BE MEASURED TO THE AVERAGE HEIGHT OR SPREAD OF THE SHRUB, AND NOT TO THE LONGEST BRANCH.
- TREES AND SHRUBS SHALL BE HANDLED WITH CARE BY THE ROOT BALL.

3. GENERAL WORK PROCEDURES
A. CONTRACTOR TO UTILIZE WORKMANLIKE INDUSTRY STANDARDS IN PERFORMING ALL LANDSCAPE CONSTRUCTION. THE SITE IS TO BE LEFT IN A CLEAN STATE AT THE END OF EACH WORKDAY. ALL DEBRIS, MATERIALS AND TOOLS SHALL BE PROPERLY STORED, STOCKPILED OR DISPOSED OF.
B. WASTE MATERIALS AND DEBRIS SHALL BE COMPLETELY DISPOSED OF AT THE CONTRACTOR'S EXPENSE. DEBRIS SHALL NOT BE BURIED, INCLUDING ORGANIC MATERIALS, BUT SHALL BE REMOVED COMPLETELY FROM THE SITE.

4. SITE PREPARATIONS
A. BEFORE AND DURING PRELIMINARY GRADING AND FINISHED GRADING, ALL WEEDS AND GRASSES SHALL BE DUG OUT BY THE ROOTS AND DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES OUTLINED HEREIN.
B. ALL EXISTING TREES TO REMAIN SHALL BE PRUNED TO REMOVE ANY DAMAGED BRANCHES. THE ENTIRE LIMB OF ANY DAMAGED BRANCH SHALL BE CUT OFF AT THE BRANCH COLLAR. CONTRACTOR SHALL ENSURE THAT CUTS ARE SMOOTH AND STRAIGHT ANY EXPOSED ROOTS SHALL BE CUT BACK WITH CLEAN, SHARP TOOLS AND TOPSOIL SHALL BE PLACED AROUND THE REMAINDER OF THE ROOTS. EXISTING TREES SHALL BE MONITORED ON A REGULAR BASIS FOR ADDITIONAL ROOT OR BRANCH DAMAGE AS A RESULT OF CONSTRUCTION. ROOTS SHALL NOT BE LEFT EXPOSED FOR MORE THAN ONE (1) DAY. CONTRACTOR SHALL WATER EXISTING TREES AS NEEDED TO PREVENT SHOCK OR DECLINE.
C. CONTRACTOR SHALL ARRANGE TO HAVE A UTILITY STAKE-OUT TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF ANY LANDSCAPE MATERIAL. UTILITY COMPANIES SHALL BE CONTACTED THREE (3) DAYS PRIOR TO THE BEGINNING OF WORK.

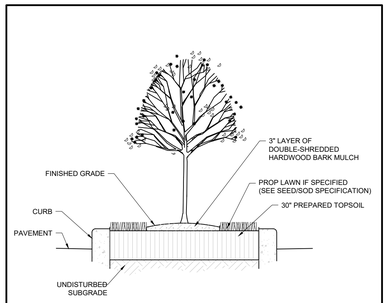
5. TREE PROTECTION
A. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TREES TO REMAIN. A TREE PROTECTION ZONE SHALL BE ESTABLISHED AT THE DRIP LINE OR 15 FEET FROM THE TRUNK OR AT THE LIMIT OF CONSTRUCTION DISTURBANCE, WHICHEVER IS GREATER. LOCAL STANDARDS THAT MAY REQUIRE A MORE STRICT TREE PROTECTION ZONE SHALL BE HONORED.
B. A FORTY-EIGHT INCH (48") HIGH WOODEN SNOW FENCE OR ORANGE COLORED HIGH-DENSITY 'VISI-FENCE', OR APPROVED EQUAL, MOUNTED ON STEEL POSTS SHALL BE PLACED ALONG THE BOUNDARY OF THE TREE PROTECTION ZONE. POSTS SHALL BE LOCATED AT A MAXIMUM OF EIGHT FEET (8') ON CENTER OR AS INDICATED WITHIN THE TREE PROTECTION DETAIL.
C. WHEN THE TREE PROTECTION FENCING HAS BEEN INSTALLED, IT SHALL BE INSPECTED BY THE APPROVING AGENCY PRIOR TO DEMOLITION, GRADING, TREE CLEARING OR ANY OTHER CONSTRUCTION. THE FENCING ALONG THE TREE PROTECTION ZONE SHALL BE REGULARLY INSPECTED BY THE CONTRACTOR AND MAINTAINED UNTIL ALL CONSTRUCTION ACTIVITY HAS BEEN COMPLETED.
D. AT NO TIME SHALL MACHINERY, DEBRIS, FALLEN TREES OR OTHER MATERIALS BE PLACED, STOCKPILED OR LEFT STANDING IN THE TREE PROTECTION ZONE.

6. SOIL MODIFICATIONS
A. CONTRACTOR SHALL ATTAIN A SOIL TEST FOR ALL AREAS OF THE SITE PRIOR TO CONDUCTING ANY PLANTING. SOIL TESTS SHALL BE PERFORMED BY A CERTIFIED SOIL LABORATORY.
B. CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITIONS CONSIDERED DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL. SOIL MODIFICATIONS, AS SPECIFIED HEREIN, MAY NEED TO BE CONDUCTED BY THE CONTRACTOR DEPENDING ON SITE CONDITIONS.
C. THE FOLLOWING AMENDMENTS AND QUANTITIES ARE APPROXIMATE AND ARE FOR BIDDING PURPOSES ONLY. COMPOSITION OF AMENDMENTS SHOULD BE REVISED DEPENDING ON THE OUTCOME OF A TOPSOIL ANALYSIS PERFORMED BY A CERTIFIED SOIL LABORATORY.
- TO INCREASE A SANDY SOIL'S ABILITY TO RETAIN WATER AND NUTRIENTS, THOROUGHLY TILL ORGANIC MATTER INTO THE TOP 6-12". USE COMPOSTED BARK, COMPOSTED LEAF MULCH OR PEAT MOSS. ALL PRODUCTS SHOULD BE COMPOSTED TO A DARK COLOR AND BE FREE OF PIECES WITH IDENTIFIABLE LEAF OR WOOD STRUCTURE. AVOID MATERIAL WITH A PH HIGHER THAN 7.5.
- TO INCREASE DRAINAGE, MODIFY HEAVY CLAY OR SILT (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) AND/OR AGRICULTURAL GYPSUM. COARSE SAND MAY BE USED IF ENOUGH IS ADDED TO BRING THE SAND CONTENT TO MORE THAN 60% OF THE TOTAL MIX. SUBSURFACE DRAINAGE LINES MAY NEED TO BE ADDED TO INCREASE DRAINAGE.
- MODIFY EXTREMELY SANDY SOILS (MORE THAN 85%) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.

7. FINISHED GRADING
A. UNLESS OTHERWISE CONTRACTED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF TOPSOIL AND THE ESTABLISHMENT OF FINE-GRADING WITHIN THE DISTURBANCE AREA OF THE SITE.
B. CONTRACTOR SHALL VERIFY THAT SUBGRADE FOR INSTALLATION OF TOPSOIL HAS BEEN ESTABLISHED. THE SUBGRADE OF THE SITE MUST MEET THE FINISHED GRADE LESS THE REQUIRED TOPSOIL THICKNESS (1"±).
C. ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN AND UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE AS DEPICTED WITHIN THIS SET OF CONSTRUCTION PLANS, UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER OR LANDSCAPE ARCHITECT.
D. ALL PLANTING AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW FREE FLOW OF SURFACE WATER IN AND AROUND THE PLANTING BEDS. STANDING WATER SHALL NOT BE PERMITTED IN PLANTING BEDS.

8. TOPSOILING
A. CONTRACTOR SHALL PROVIDE A SIX INCH (6") THICK MINIMUM LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, IN ALL PLANTING AND LAWN AREAS. TOPSOIL SHOULD BE SPREAD OVER A PREPARED SURFACE IN A UNIFORM LAYER TO ACHIEVE THE DESIRED COMPACTED THICKNESS.
B. ON-SITE TOPSOIL MAY BE USED TO SUPPLEMENT THE TOTAL AMOUNT REQUIRED. TOPSOIL FROM THE SITE MAY BE REJECTED IF IT HAS NOT BEEN PROPERLY REMOVED, STORED AND PROTECTED PRIOR TO CONSTRUCTION.
C. CONTRACTOR SHALL FURNISH TO THE APPROVING AGENCY AN ANALYSIS OF BOTH IMPORTED AND ON-SITE TOPSOIL TO BE UTILIZED IN ALL PLANTING AREAS. THE PH AND NUTRIENT LEVELS MAY NEED TO BE ADJUSTED THROUGH SOIL MODIFICATIONS AS NEEDED TO ACHIEVE THE REQUIRED LEVELS AS SPECIFIED IN THE MATERIALS SECTION ABOVE.
D. ALL LAWN AREAS ARE TO BE CULTIVATED TO A DEPTH OF SIX INCHES (6"). ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES SECTION ABOVE. THE FOLLOWING SHALL BE TILLED INTO THE TOP FOUR INCHES (4") IN TWO DIRECTIONS (QUANTITIES BASED ON A 1,000 SQUARE FOOT AREA - FOR BID PURPOSES ONLY [SEE SPECIFICATION 6.A.]):
- 20 POUNDS 'GRO-POWER' OR APPROVED EQUAL SOIL CONDITIONER/FERTILIZER
- 20 POUNDS 'NITRO-FORM' (COURSE) 38-0-0 BLUE CHIP OR APPROVED NITROGEN FERTILIZER
E. THE SPREADING OF TOPSOIL SHALL NOT BE CONDUCTED UNDER MUDDY OR FROZEN CONDITIONS.

9. PLANTING
A. ANY PLANT THAT IT IS FEASIBLE, PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY. IN THE EVENT THAT THIS IS NOT POSSIBLE, CONTRACTOR SHALL PROTECT UNINSTALLED PLANT MATERIAL. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE DAY PERIOD AFTER DELIVERY. PLANTS THAT WILL NOT BE PLANTED FOR A PERIOD OF TIME GREATER THAN THREE DAYS SHALL BE HEALED IN WITH TOPSOIL AND MULCH TO HELP PRESERVE ROOT MOISTURE.
B. PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTS SHALL NOT BE INSTALLED IN TOPSOIL THAT IS IN A MUDDY OR FROZEN CONDITION.
C. ANY INJURED ROOTS OR BRANCHES SHALL BE PRUNED TO MAKE CLEAN-CUT ENDS PRIOR TO PLANTING UTILIZING CLEAN, SHARP TOOLS. ONLY INJURED OR DISEASED BRANCHING SHALL BE REMOVED.
D. ALL PLANTING CONTAINERS, BASKETS AND NON-BIODEGRADABLE MATERIALS SHALL BE REMOVED FROM ROOT BALLS DURING PLANTING. NATURAL FI



PLANTING ISLAND

NOT TO SCALE (PA-L040106 - 11/2023)

CAR PARKING AREA LANDSCAPE

TOTAL PAVED CAR PARKING AREA = 211,341± SF

REQUIRED (5%): 10,567± SF LANDSCAPE AREA
PROVIDED: 15,220± SF LANDSCAPE AREA (7.2%)

THIS PLAN TO BE UTILIZED FOR LANDSCAPE PURPOSES ONLY

100 50 25 0 100

SCALE: 1" = 100'

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVIL-LLGT

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER™

1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
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Fax: (267) 402-3401
www.BohlerEngineering.com

SHEET TITLE:

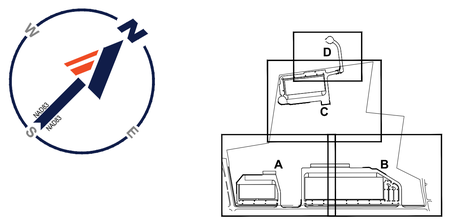
LANDSCAPE DETAILS

SHEET NUMBER:

L-107
56 OF 102

REVISION 1 - 07/28/2026

Jul 29, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-LLGT-PAC250095.00-1A---LAYOUT L-107 LSCP DTLS
JB



KEY MAP

GENERAL LIGHTING NOTES:

1. THE GENERAL NOTES, FOUND ON THE NOTES PAGE OF THIS PLAN SET, MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS. THE ELECTRICAL CONTRACTOR MUST BECOME FAMILIAR WITH, REFER TO AND FULLY COMPLY WITH THESE NOTES, IN THEIR ENTIRETY.
2. THE ELECTRICAL CONTRACTOR MUST COMPLY WITH ALL APPLICABLE CONTRACTOR REQUIREMENTS INDICATED IN THIS LIGHTING PLAN, INCLUDING BUT NOT LIMITED TO GENERAL NOTES, GRADING AND UTILITY NOTES, SITE SAFETY, AND ALL APPLICABLE AGENCY AND GOVERNMENTAL REGULATIONS. THE LIGHTING PLAN DEPICTS PROPOSED, SUSTAINED ILLUMINATION LEVELS CALCULATED USING DATA PROVIDED BY THE NOTED MANUFACTURER(S). ACTUAL SUSTAINED SITE ILLUMINATION LEVELS AND PERFORMANCE OF LUMINAIRES MAY DIFFER FROM THE VALUES DEPICTED ON THIS PLAN DUE TO VARIATIONS IN WEATHER, ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, MAINTENANCE, THE SERVICE LIFE OF EQUIPMENT AND LUMINAIRES, EXISTING AMBIENT LIGHT SOURCE ON AND OFF SITE, AND OTHER RELATED VARIABLE FIELD CONDITIONS.
3. THE LIGHTING VALUES AND CALCULATION POINTS DEPICTED ON THIS PLAN ARE ANALYZED ON A HORIZONTAL GEOMETRIC PLANE AT GROUND LEVEL UNLESS OTHERWISE NOTED. ILLUMINATION LEVELS ARE SHOWN IN FOOTCANDLES (FC).
4. THE LIGHTING PLAN IS INTENDED TO SHOW THE LOCATIONS AND TYPE OF LUMINAIRES, POWER SYSTEM, CONDUITS, WIRING, CONTROLS, AND OTHER ELECTRICAL COMPONENTS ARE SOLELY THE ARCHITECT'S, ELECTRICAL ENGINEER'S AND/OR ELECTRICAL CONTRACTOR'S RESPONSIBILITY, AS INDICATED IN THE CONSTRUCTION CONTRACT DOCUMENTS. THE CONTRACTOR MUST COORDINATE WITH THE PROJECT ARCHITECT AND/OR ELECTRICAL ENGINEER REGARDING ANY AND ALL POWER SOURCES AND TIMING DEVICES NECESSARY TO MEET THE DESIGN INTENT. THESE ITEMS MUST BE INSTALLED AS REQUIRED BY FEDERAL, STATE AND LOCAL REGULATIONS. CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF LIGHTING FIXTURES AND APPURTENANCES IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) AND ALL APPLICABLE BUILDING AND LOCAL ELECTRICAL CODES.
5. THE ELECTRICAL CONTRACTOR MUST BRING IMMEDIATELY, IN WRITING, ANY LIGHT LOCATIONS THAT CONFLICT WITH DRAINAGE, UTILITIES, OR OTHER STRUCTURE(S) TO THE PROFESSIONAL OF RECORD'S ATTENTION, PRIOR TO THE START OF CONSTRUCTION.
6. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL LIGHTING IS INSTALLED PER THIS LIGHTING PLAN, INCLUDING THE LOCATION, ORIENTATION, SHIELDING, AND/OR ROTATED OPTICS IN ORDER TO ACHIEVE THE LIGHTING LEVELS DEPICTED ON THIS PLAN. EXISTING POLES AND FOUNDATIONS ARE NOT TO BE REUSED.
7. UPON OWNER'S ACCEPTANCE OF THE COMPLETED PROJECT, THE OWNER SHALL BE RESPONSIBLE FOR ALL MAINTENANCE, SERVICING, REPAIR AND INSPECTION OF THE LIGHTING SYSTEM AND ALL OF ITS COMPONENTS AND RELATED SYSTEMS. THE LUMINAIRES, LAMPS AND LENSES MUST BE REGULARLY INSPECTED/MAINTAINED TO ENSURE THAT THEY FUNCTION PROPERLY. THIS WORK SHOULD INCLUDE, BUT IS NOT LIMITED TO, VISUAL OBSERVATION, CLEANING OF LENSES, AND OTHER MAINTENANCE SPECIFIED BY THE MANUFACTURER. FAILURE TO FOLLOW THE ABOVE STEPS COULD RESULT IN IMPROPER LIGHT DISTRIBUTION AND FAILURE TO COMPLY WITH THE APPROVED DESIGN.
8. THE LIGHT LOSS FACTORS (LLF) DEPICTED IN THE LUMINAIRE SCHEDULE ON THIS PLAN ARE BASED ON DATA PROVIDED BY THE MANUFACTURER FOLLOWING IES LM-80-21 TESTING (OR MOST RECENT EDITION). THE LIGHT LEVELS DEPICTED ON THIS PLAN WERE CALCULATED BASED ON THE LLF LISTED IN THE LUMINAIRE SCHEDULE.
9. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE SUBMITTALS TO BOHLER FOR REVIEW AND APPROVAL. SUBSTITUTION REQUESTS MUST BE ACCOMPANIED BY A HORIZONTAL PHOTOMETRIC STUDY DEMONSTRATING THAT THE LUMINAIRE(S) IN QUESTION WILL MEET THE DESIGN INTENT OF THIS PLAN. SUBSTITUTION REQUESTS WITHOUT A PHOTOMETRIC STUDY WILL BE REJECTED.
10. LIGHT POLE FOUNDATIONS ARE SHOWN ON THE PLAN IN THE INTENDED LOCATION BASED ON THE LIGHTING CALCULATIONS, UNLESS OTHERWISE NOTED. LIGHT SYMBOLS ARE SHOWN LARGER THAN ACTUAL SIZE, HOWEVER FOUNDATION SIZE IS SHOWN AT ACTUAL SIZE.
11. ALL LIGHTING FIXTURES SHALL BE CONTROLLED BY PROGRAMMABLE TIMERS THAT ACCOMMODATE SEASONAL AND ANNUAL VARIATIONS AND BATTERY OR MECHANICAL (E.G. SPRING-WOUND) BACKUP TO EXTINGUISH LIGHT SOURCES BETWEEN 11 PM AND DAWN OR WITHIN 1 HOUR OF THE CLOSE OF BUSINESS, WHICHEVER IS EARLIER, TO CONSERVE ENERGY AND MITIGATE NUISANCE GLARE AND SKY LIGHTING CONSEQUENCES. SECURITY LIGHTING MAY BE PERMITTED UP TO 25% OF THE TOTAL NUMBER OF FIXTURES ONSITE.
12. THE TOWNSHIP RESERVES THE RIGHT TO CONDUCT POST-INSTALLATION INSPECTIONS TO VERIFY COMPLIANCE WITH THE REQUIREMENTS OF THIS ORDINANCE AND APPROVED LIGHTING PLAN COMMITMENTS, AND TO REQUIRE REMEDIAL ACTION AT NO EXPENSE TO THE TOWNSHIP
13. SEE SHEET L-205 FOR COMPLIANCE CHART, LUMINAIRE SCHEDULE AND CALCULATION SUMMARY.
14. ALL LIGHTING FIXTURES SHALL BE CONTROLLED BY PROGRAMMABLE TIMERS THAT ACCOMMODATE SEASONAL AND ANNUAL VARIATIONS AND BATTERY OR MECHANICAL (E.G., SPRING-WOUND) BACKUP TO EXTINGUISH LIGHT SOURCES BETWEEN 11:00 P.M. AND DAWN OR WITHIN ONE HOUR OF THE CLOSE OF BUSINESS, WHICHEVER IS EARLIER, TO CONSERVE ENERGY AND MITIGATE NUISANCE GLARE AND SKY LIGHTING CONSEQUENCES. SECURITY LIGHTING MAY BE PERMITTED UP TO 25% OF THE TOTAL NUMBER OF FIXTURES ONSITE.

PROPOSED WAREHOUSE
BUILDING 3
115,500 SF
(550' X 210')
FFE: 289.00
PROVIDED PARKING: 116 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

PROPOSED WAREHOUSE
BUILDING 2
100,0000 SF
(500' X 200')
FFE: 287.00
PROVIDED PARKING: 102 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

PROPOSED WAREHOUSE
BUILDING 1
339,450 SF
(1095' X 310')
FFE: 283.80
PROVIDED PARKING: 345 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

THIS PLAN TO BE UTILIZED FOR LIGHTING PURPOSES ONLY

SCALE: 1" = 100'

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-LLGT

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS
FOR
HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

SHEET TITLE:
OVERALL LIGHTING PLAN

SHEET NUMBER:
L-200
57 OF 102

REVISION 1 - 07/28/2026

REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

Jul 29, 2026
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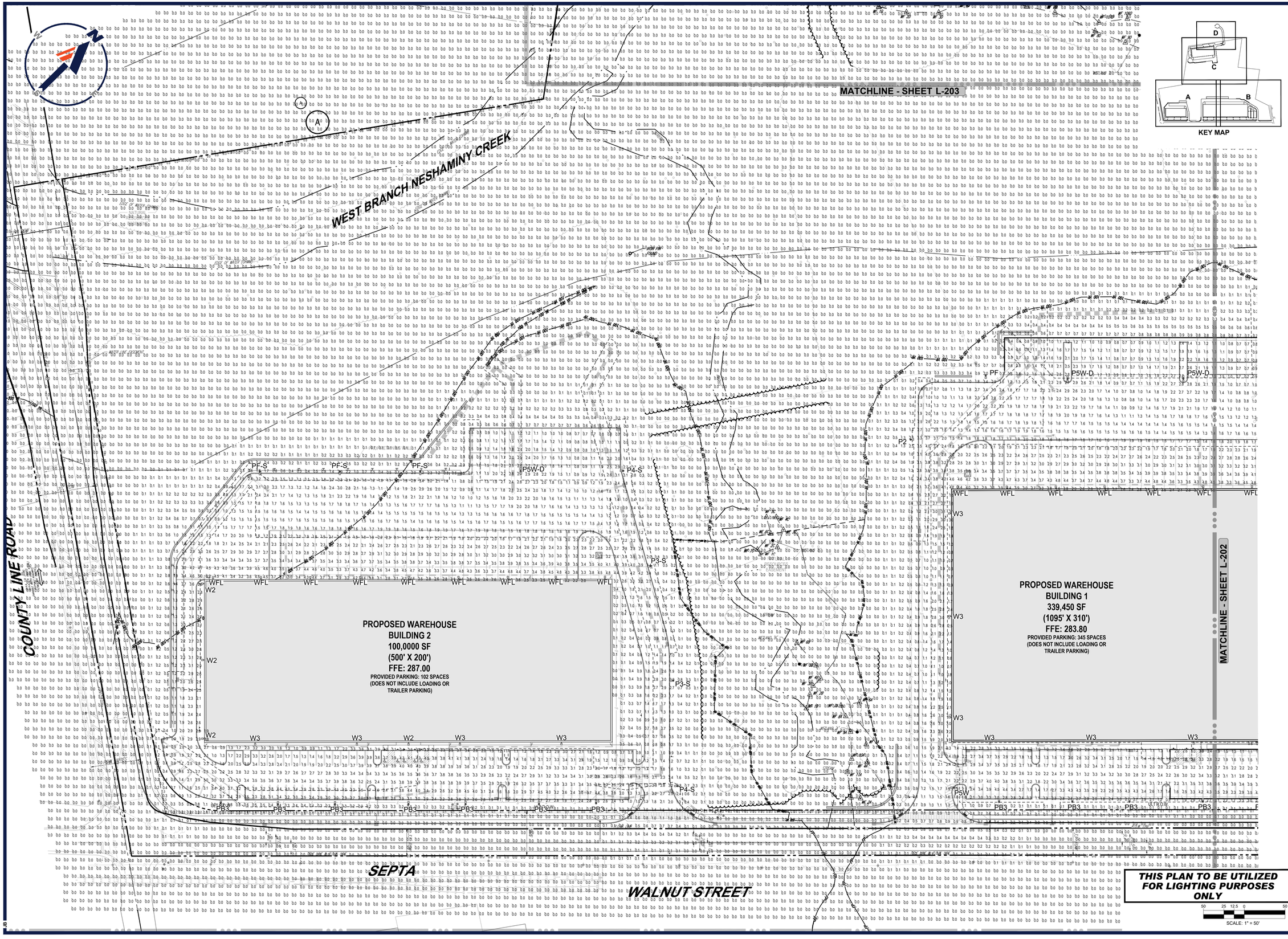
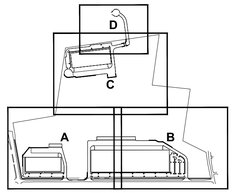
JB





KEY MAP

THIS PLAN TO BE UTILIZED FOR LIGHTING PURPOSES ONLY

SCALE: 1" = 50'

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CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVIL-LLGT

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

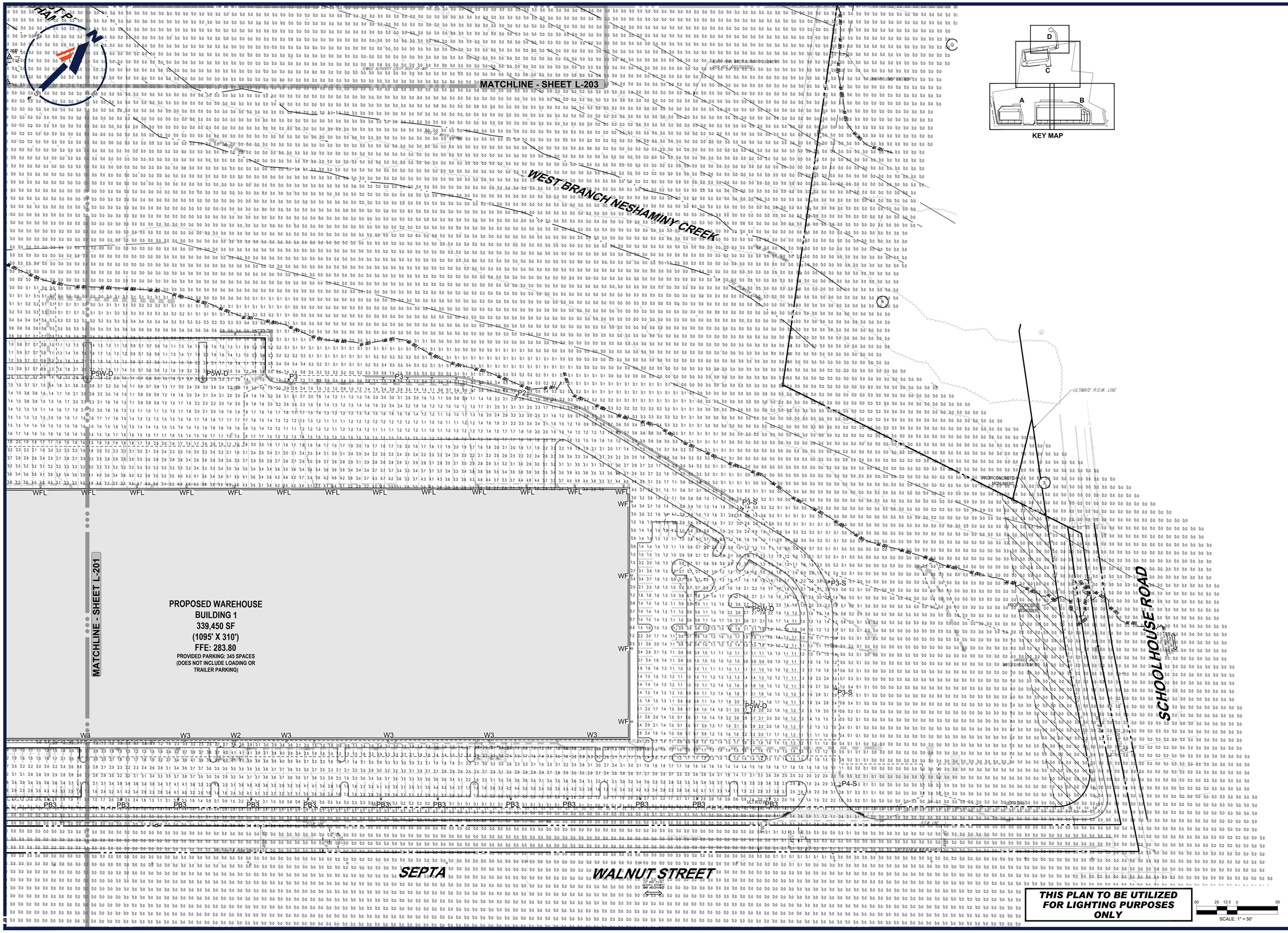
BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

SHEET TITLE:
LIGHTING PLAN A

SHEET NUMBER:
L-201
58 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-LLGT-PAC250095.00-1A---->LAYOUT: L-201 LIGHT A



KEY MAP

THIS PLAN TO BE UTILIZED FOR LIGHTING PURPOSES ONLY

50 25 12.5 0 50
SCALE: 1" = 50'

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PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
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SHEET TITLE:

LIGHTING PLAN B

SHEET NUMBER:

L-202

59 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-LLGT-PAC250095.00-1A----->LAYOUT: L-202 LIGHT B
JB

PROPOSED WAREHOUSE
BUILDING 3
115,500 SF
(550' X 210')
FFE: 289.00
PROVIDED PARKING: 116 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

WEST BRANCH NESHAMINY CREEK

MATCHLINE - SHEET L-201

MATCHLINE - SHEET L-202

THIS PLAN TO BE UTILIZED FOR LIGHTING PURPOSES ONLY

SCALE: 1" = 50'

KEY MAP

Jul 28, 2026
P:\PA2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-LLGT-PAC250095.00-1A-----1A LAYOUT L-203 LGHT C
JB

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DRAWN BY:	PAB
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DATE:	04/06/2026
CAD I.D.:	P-CIVIL-LLGT

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

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SHEET TITLE:

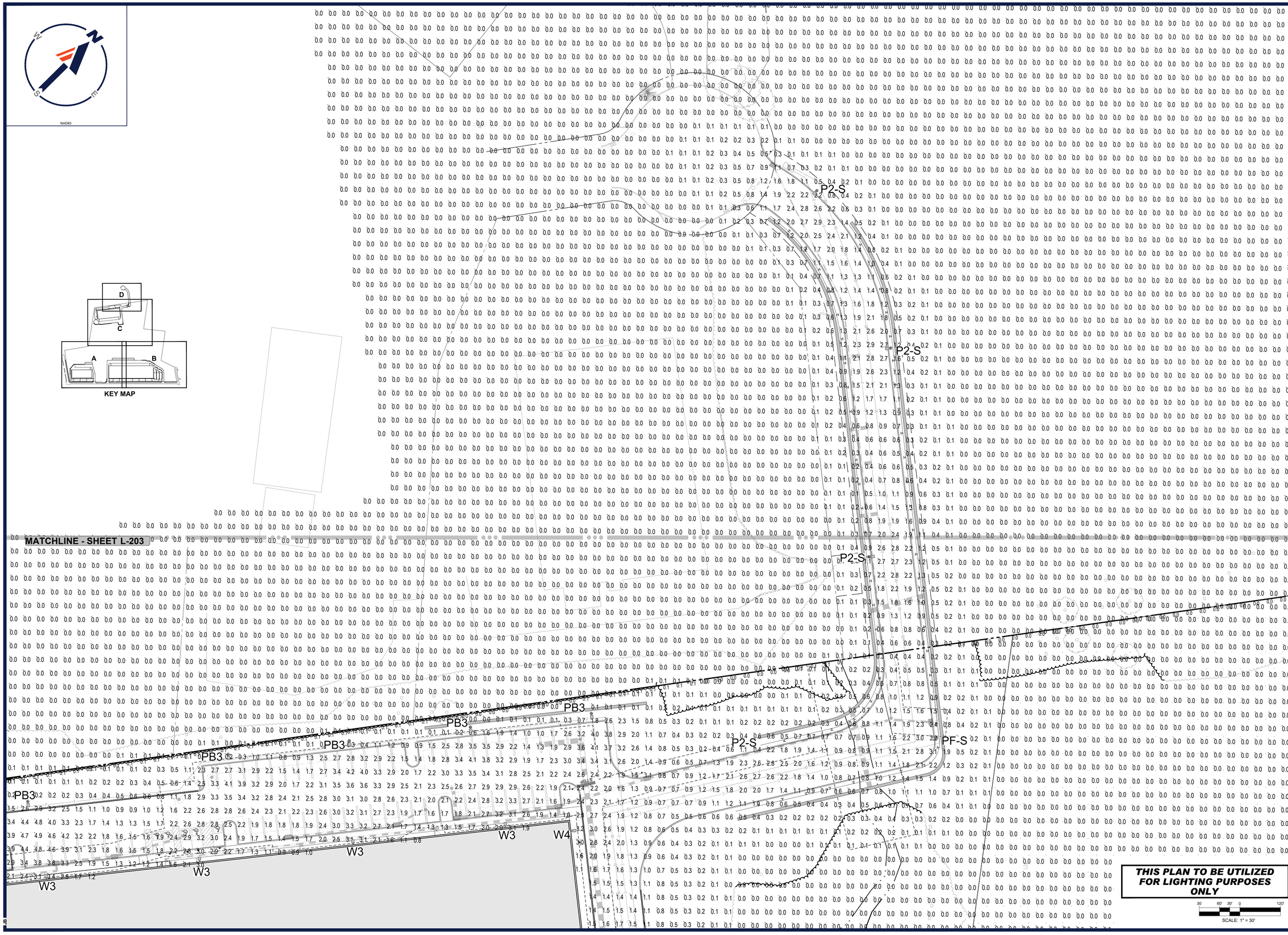
LIGHTING PLAN C

SHEET NUMBER:

L-203

60 OF 102

REVISION 1 - 07/28/2026



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PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

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BUCKS COUNTY, PA

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Phone: (267) 402-3400
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SHEET TITLE:
BUILDING 3 DRIVEWAY LIGHTING PLAN

SHEET NUMBER:
L-204
61 OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-LLGT-PAC250095.00-1A---->LAYOUT: L-204 LGHT D
JB

LIGHTING COMPLIANCE CHART

SECTION	REQUIREMENT	COMPLIANCE
ZONING: 27-2904 DESIGN STANDARDS FOR OFF-STREET PARKING	d.1 ANY PAVED AREA OF 1,000 SQUARE FEET OR MORE DESIGNED FOR USE, OR THAT WOULD BE OPEN TO THE PUBLIC DURING NIGHT HOURS SHALL BE ADEQUATELY ILLUMINATED IN ACCORDANCE WITH THE LIGHTING STANDARDS FOR PARKING AREAS OF THE SUBDIVISION AND LAND DEVELOPMENT ORDINANCE.	COMPLIES
SALDO: 22-714 LIGHTING	5.A. ILLUMINATION LEVELS LIGHTING OF PARKING AREAS, INCLUDING ACCESS DRIVE, LOADING FACILITIES, PEDESTRIAN WALKWAYS AND BUILDING ENTRANCES, SHALL HAVE INTENSITIES AND UNIFORMITY RATIOS IN ACCORDANCE WITH THE RECOMMENDED PRACTICES OF THE ILLUMINATING ENGINEERING SOCIETY (IES) AS CONTAINED IN THE MOST CURRENT EDITIONS OF THE FOLLOWING PUBLICATIONS: (1) IES RP-43-22 LIGHTING EXTERIOR APPLICATIONS (2)IES RP-8-22 LIGHTING ROADWAY AND PARKING FACILITIES (3)IES G-1-22 GUIDE FOR SECURITY LIGHTING FOR PEOPLE, PROPERTY AND CRITICAL INFRASTRUCTURE DESCRIPTION OF USE/AREA — LIGHT LEVEL (FOOTCANDLES) — UNIFORMITY GENERAL UNCOVERED PARKING AREA DRIVE AISLES & PARKING SPACES — 0.2 MINIMUM — 20:1 MAX:MIN PARKING AREA GENERAL PEDESTRIAN & VEHICLE TRANSACTION AREAS — 0.9 MINIMUM — 15:1 MAX:MIN MIXED USE TRAILS (WHEN REQUIRED) — 0.8 MINIMUM — 5:1 AVE:MIN BUILDING ENTRANCES — 1.0 AVERAGE — 5:1 AVE:MIN	COMPLIES
	5.B.(1) MOUNTING HEIGHT. LIGHT STANDARDS SHALL BE A MAXIMUM OF 20 FEET IN HEIGHT.	COMPLIES
	5.B.(2) LOCATION. LIGHT STANDARDS SHALL BE LOCATED IN PLANTING ISLANDS OR PLANTING STRIPS WITHIN PARKING AREAS. LIGHT STANDARDS SHALL NOT BE INSTALLED DIRECTLY ON THE PARKING AREA SURFACE. POLES SHALL BE A MINIMUM OF FIVE FEET (5') FROM THE EDGE OF PAVEMENT OR PROTECTED BY A RAISED CONCRETE BASE THIRTY INCHES (30") IN HEIGHT.	COMPLIES
	5.B.(3) COLOR TEMPERATURE. LUMINAIRES SHALL HAVE A MAXIMUM COLOR TEMPERATURE OF 3,000K.	COMPLIES
	5.B.(4) UPLIGHT (U) VALUE FOR ALL LUMINAIRES SHALL BE ZERO (0).	COMPLIES
	5.B.(5) ALL ELECTRICAL POWER LINES TO LIGHTING FIXTURES SHALL BE UNDERGROUND.	COMPLIES
	5.C.(1) FOR ALL COMMERCIAL, INDUSTRIAL, PUBLIC RECREATIONAL, AND INSTITUTIONAL APPLICATIONS, A NOTE SHALL BE ADDED TO THE RECORD PLAN THAT ALL LIGHTING FIXTURES SHALL BE CONTROLLED BY PROGRAMMABLE TIMERS THAT ACCOMMODATE SEASONAL AND ANNUAL VARIATIONS AND BATTERY OR MECHANICAL (E.G. SPRING-WOUND) BACKUP TO EXTINGUISH LIGHT SOURCES BETWEEN 11 PM AND DAWN OR WITHIN 1 HOUR OF THE CLOSE OF BUSINESS, WHICHEVER IS EARLIER, TO CONSERVE ENERGY AND MITIGATE NUISANCE GLARE AND SKY LIGHTING CONSEQUENCES. SECURITY LIGHTING MAY BE PERMITTED UP TO 25% OF THE TOTAL NUMBER OF FIXTURES ONSITE.	COMPLIES
	5.C.(2) THE MAXIMUM LIGHT INTENSITY MEASURED AT ANY POINT ALONG THE PROPERTY LINE SHALL BE 0.1 FOOTCANDLES AT ANY POINT ALONG OFF-STREET AREAS AND 0.30 FOOTCANDLES ALONG PUBLIC ROADWAYS.	COMPLIES
	5.C.(3) THE MAXIMUM UPLIGHT (U) VALUE AS DEFINED BY IES TM 15-20 SHALL BE 0 AND THE MAXIMUM GLARE (G) VALUE SHALL BE 2 ADJACENT TO PROPERTIES WITH A RESIDENTIAL USE.	NOT ADJACENT TO RESIDENTIAL USE. NOT APPLICABLE
	5.C.(4) ALL LIGHTING SHALL BE EFFECTIVELY SHIELDED AND DIRECTED TOWARDS THE INTERIOR OF THE PARKING AREA AWAY FROM ADJACENT PROPERTIES.	COMPLIES
	5.C.(5) ILLUMINATED SIGNS SHALL HAVE A SHIELDED LIGHTING SOURCE AND SHALL BE DIRECTED AWAY FROM ALL STREET RIGHTS-OF-WAY.	COMPLIES
	8. WHERE REQUIRED BY THIS CHAPTER, ILLUMINATION LEVELS SHALL HAVE INTENSITIES AND UNIFORMITY RATIOS IN ACCORDANCE WITH RECOMMENDED PRACTICES OF THE IESNA HANDBOOK RP-20-98 AND IESNA HANDBOOK RP-8-00, AS AMENDED, AND IN ACCORDANCE WITH THE MINIMUM STANDARDS LISTED BELOW: DESCRIPTION OF USE/AREA — LIGHT LEVEL (FOOTCANDLES) MEDIUM ACTIVITY NONRESIDENTIAL PARKING, LOADING FACILITIES, AND DRIVES — 0.4 BUILDING ENTRANCES — 2.0	COMPLIES

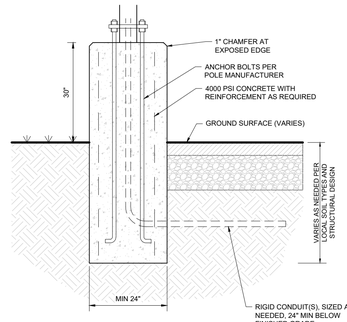
LUMINAIRE SCHEDULE

LABEL	QTY	MOUNTING HEIGHT	ARRANGEMENT	LUM. LUMENS	LLF	BUG Rating	DESCRIPTION	POLE	FILENAME
P2	2	20'-0" AFG	SINGLE	13053	0.900	B2-U0-G3	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 2, ZERO UP-LIGHT (DSX1-LED-P3-30K-70CRI-T2M-X-RPA)	LITHONIA LIGHTING, ROUND STRAIGHT STEEL POLE, 17'-6" LENGTH (RSS-17-6-4B-DM19AS)	DSX1 LED P3 30K 70CRI T2M.ies
P2-S	4	20'-0" AFG	SINGLE	11326	0.900	B1-U0-G3	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 2 WITH HOUSESIDE SHIELD, ZERO UP-LIGHT (DSX1-LED-P3-30K-70CRI-T2M-HS-X-RPA)	LITHONIA LIGHTING, ROUND STRAIGHT STEEL POLE, 17'-6" LENGTH (RSS-17-6-4B-DM19AS)	DSX1 LED P3 30K 70CRI T2M HS.ies
P3	2	20'-0" AFG	SINGLE	13205	0.900	B2-U0-G4	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 3, ZERO UP-LIGHT (DSX1-LED-P3-30K-70CRI-T3M-X-RPA)	LITHONIA LIGHTING, ROUND STRAIGHT STEEL POLE, 17'-6" LENGTH (RSS-17-6-4B-DM19AS)	DSX1 LED P3 30K 70CRI T3M.ies
P3-S	9	20'-0" AFG	SINGLE	11446	0.900	B1-U0-G3	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 3 WITH HOUSESIDE SHIELD, ZERO UP-LIGHT (DSX1-LED-P3-30K-70CRI-T3M-HS-X-RPA)	LITHONIA LIGHTING, ROUND STRAIGHT STEEL POLE, 17'-6" LENGTH (RSS-17-6-4B-DM19AS)	DSX1 LED P3 30K 70CRI T3M HS.ies
P4-S	4	20'-0" AFG	SINGLE	11529	0.900	B1-U0-G3	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 4 WITH HOUSESIDE SHIELD, ZERO UP-LIGHT (DSX1-LED-P3-30K-70CRI-T4M-HS-X-RPA)	LITHONIA LIGHTING, ROUND STRAIGHT STEEL POLE, 17'-6" LENGTH (RSS-17-6-4B-DM19AS)	DSX1 LED P3 30K 70CRI T4M HS.ies
P4-S-2@90	1	20'-0" AFG	2 @ 90 DEGREES	11529	0.900	B1-U0-G3	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 4 WITH HOUSESIDE SHIELD, ZERO UP-LIGHT (DSX1-LED-P3-30K-70CRI-T4M-HS-X-RPA)	LITHONIA LIGHTING, ROUND STRAIGHT STEEL POLE, 17'-6" LENGTH (RSS-17-6-4B-DM29AS)	DSX1 LED P3 30K 70CRI T4M HS.ies
P5W	1	20'-0" AFG	SINGLE	14011	0.900	B4-U0-G3	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 5, ZERO UP-LIGHT (DSX1-LED-P3-30K-70CRI-T5W-X-RPA)	LITHONIA LIGHTING, ROUND STRAIGHT STEEL POLE, 17'-6" LENGTH (RSS-17-6-4B-DM19AS)	DSX1 LED P3 30K 70CRI T5W.ies
P5W-D	7	20'-0" AFG	BACK-BACK	14011	0.900	B4-U0-G3	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 5, ZERO UP-LIGHT (DSX1-LED-P3-30K-70CRI-T5W-X-RPA)	LITHONIA LIGHTING, ROUND STRAIGHT STEEL POLE, 17'-6" LENGTH (RSS-17-6-4B-DM28AS)	DSX1 LED P3 30K 70CRI T5W.ies
PB3	32	20'-0" AFG	SINGLE	9604	0.900	B0-U0-G2	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 3, BACK LIGHT CONTROL (DSX1-LED-P3-30K-70CRI-BLC3-X-RPA)	LITHONIA LIGHTING, ROUND STRAIGHT STEEL POLE, 17'-6" LENGTH (RSS-17-6-4B-DM19AS)	DSX1 LED P3 30K 70CRI BLC3.ies
PF	1	20'-0" AFG	SINGLE	13495	0.900	B2-U0-G4	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE TFTM, ZERO UP-LIGHT (DSX1-LED-P3-30K-70CRI-TFTM-X-RPA)	LITHONIA LIGHTING, ROUND STRAIGHT STEEL POLE, 17'-6" LENGTH (RSS-17-6-4B-DM19AS)	DSX1 LED P3 30K 70CRI TFTM.ies
PF-S	5	20'-0" AFG	SINGLE	11317	0.900	B1-U0-G3	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE TFTM WITH HOUSESIDE SHIELD, ZERO UP-LIGHT (DSX1-LED-P3-30K-70CRI-TFTM-HS-X-RPA)	LITHONIA LIGHTING, ROUND STRAIGHT STEEL POLE, 17'-6" LENGTH (RSS-17-6-4B-DM19AS)	DSX1 LED P3 30K 70CRI TFTM HS.ies
W2	5	20'-0" AFF	SINGLE	13053	0.900	B2-U0-G3	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 2, ZERO UP-LIGHT (DSX1-LED-P3-30K-70CRI-T2M-X-WBA)	----------	DSX1 LED P3 30K 70CRI T2M.ies
W3	23	20'-0" AFF	SINGLE	13205	0.900	B2-U0-G4	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 3, ZERO UP-LIGHT (DSX1-LED-P3-30K-70CRI-T3M-X-WBA)	----------	DSX1 LED P3 30K 70CRI T3M.ies
W4	3	20'-0" AFF	SINGLE	13402	0.900	B2-U0-G4	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE 4, ZERO UP-LIGHT (DSX1-LED-P3-30K-70CRI-T4M-X-WBA)	----------	DSX1 LED P3 30K 70CRI T4M.ies
WF	4	20'-0" AFF	SINGLE	13495	0.900	B2-U0-G4	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE TFTM, ZERO UP-LIGHT (DSX1-LED-P3-30K-70CRI-TFTM-X-WBA)	----------	DSX1 LED P3 30K 70CRI TFTM.ies
WFL	38	20'-0" AFF	SINGLE	17286	0.900	B2-U0-G4	LITHONIA LIGHTING, D-SERIES SIZE 1 LED AREA LUMINAIRE, TYPE TFTM, ZERO UP-LIGHT (DSX1-LED-P5-30K-70CRI-TFTM-X-WBA)	----------	DSX1 LED P5 30K 70CRI TFTM.ies

CALCULATION SUMMARY

LABEL	CALCTYPE	UNITS	AVG	MAX	Min	AVG/MIN	MAX/MIN
ALL POINTS	ILLUMINANCE	Fc	0.31	5.7	0.0	N.A.	N.A.
PROPERTY LINE *	ILLUMINANCE	Fc	0.02	0.1	0.0	N.A.	N.A.
ROW - COUNTY LINE ROAD	ILLUMINANCE	Fc	0.04	0.3	0.0	N.A.	N.A.
ROW - SCHOOLHOUSE ROAD	ILLUMINANCE	Fc	0.00	0.0	0.0	N.A.	N.A.
ROW - WALNUT ST **	ILLUMINANCE	Fc	0.08	0.3	0.0	N.A.	N.A.
OFFSITE CONNECTION - INDEPENDENCE LANE	ILLUMINANCE	Fc	1.55	3.2	0.4	3.88	8.00
WAREHOUSE 1 - CAR PARKING NE	ILLUMINANCE	Fc	1.54	4.2	0.6	2.57	7.00
WAREHOUSE 1 - CAR PARKING SE	ILLUMINANCE	Fc	2.79	4.5	0.9	3.10	5.00
WAREHOUSE 1 - LOADING	ILLUMINANCE	Fc	3.78	4.8	2.1	1.80	2.29
WAREHOUSE 1 - TRUCK COURT	ILLUMINANCE	Fc	1.87	4.0	0.4	4.68	10.00
WAREHOUSE 2 - CAR PARKING	ILLUMINANCE	Fc	2.80	4.5	0.4	7.00	11.25
WAREHOUSE 2 - LOADING	ILLUMINANCE	Fc	3.70	4.8	2.2	1.68	2.18
WAREHOUSE 2 - TRUCK COURT	ILLUMINANCE	Fc	2.01	5.2	0.7	2.87	7.43
WAREHOUSE 3 - CAR PARKING NW	ILLUMINANCE	Fc	2.64	5.1	0.7	3.77	7.29
WAREHOUSE 3 - LOADING	ILLUMINANCE	Fc	3.77	4.8	2.1	1.80	2.29
WAREHOUSE 3 - TRUCK COURT	ILLUMINANCE	Fc	1.79	5.7	0.6	2.98	9.50

* EXCLUDING POINTS WITHIN THE SHARED ACCESS CONNECTION TO THE NORTHWEST
** EXCLUDING POINTS WITHIN ENTRY/EXIT POINTS FOR SAFE VEHICULAR TRANSITION WITH WALNUT STREET



NOTE:
THIS DETAIL SERVES AS A GUIDELINE ONLY. CONTRACTOR SHALL ENSURE DESIGN IS PREPARED BY A QUALIFIED STRUCTURAL ENGINEER CONSIDERING LIGHTING MANUFACTURER REQUIREMENTS, LOCAL WIND LOADS, AND SITE-SPECIFIC SOIL PARAMETERS. SOME SITE LOCATIONS MAY REQUIRE VIBRATION DAMPENING MEASURES AS DETERMINED BY A STRUCTURAL ENGINEER. THE STRUCTURAL ENGINEER SHALL BE NOTIFIED OF THE INTENT TO MOUNT ANYTHING ASIDE FROM THE LIGHT FIXTURE INCLUDING (BUT NOT LIMITED TO) CAMERAS, BANNERS, FLAGS, SIGNAGE, ETC. AS IT WILL IMPACT THE POLE AND FOUNDATION DESIGN.

CONCRETE LIGHT POLE BASE

NOT TO SCALE (BE-L020101 - 01/2025)

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
LAND DEVELOPMENT
PERMITTING SERVICES
TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

ATTENTION ALL CONTRACTORS:
LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREIN HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 50 OF 2017, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK.
WWW.PA1CALL.ORG

NOT APPROVED FOR CONSTRUCTION

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: PAC250095.00-1A
DRAWN BY: PAB
CHECKED BY: RDE
DATE: 04/06/2026
CAD I.D.: P-CIVIL-LLGT

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

COMMONWEALTH OF PENNSYLVANIA — REGISTERED LANDSCAPE ARCHITECT

SHEET TITLE:

LIGHTING DETAILS

SHEET NUMBER:

L-205
62 OF 102

REVISION 1 - 07/28/2026

Jul 26, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-LLGT-PAC250095.00-1A.----\LAYOUT: L-205 LGHT DTLS
JB

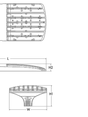


D-Series Size 1
LED Area Luminaire

d-series

Specifications

EPA:	0.69 ft² (0.06 m²)
Length:	32.71" (831.1 mm)
Width:	14.26" (362.2 mm)
Height H1:	7.88" (200.2 mm)
Height H2:	2.73" (69.3 mm)
Weight:	34.5lbs (15.6 kg)



Design Selection indicated by the tiles color background.



design select

Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect.
***See ordering tree for details**

Ordering Information

EXAMPLE: DSX1 LED P7 40K 70CRI T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX1 LED

Series	Lens	Color temperature*	Color Rendering Index*	Distribution	Voltage	Shielding
DSX1 LED	**Forward optics** (fills section 3DCR only)			AFR Automotive front row	T5 Type V short throw	MVOLT (120-277V)*
	P1 P5	3000K	70CRI	T5LG Type V low glare	T5W Type V wide	HVOLT (277V - 480V)*
	P2 P6	4000K	70CRI	T2M Type II medium	T3M Type III medium	
	P3 P7	5000K	70CRI	T3LG Type III low glare*	BLC3 Type III backlight control	
	P4 P8			T4M Type IV medium	T4W Type IV wide	
	Rotated optics	27K	270CRI	T5VS Type V very short throw	BLC4 Type IV backlight control	
	P10* P12*	30K	300K	T5W Forward throw medium	LCCO Left corner cutoff*	
	P11* P13*	50K	500K		RCCO Right corner cutoff*	

Shipped included

NLTAIR2 PIRHN	eLCOM light gen 2 installed with 5-pin twist-lock receptacle, sensor, 8-40 mounting height, ambient sensor enabled at 25 fc.*,**
PIR	High/low, motion/ambient sensor, 8-40 mounting height, ambient sensor enabled at 25 fc.*,**
PER	NEMA twist-lock receptacle only (controls ordered separate) *,**
PERS	Five pin receptacle only (controls ordered separate) *,**

Shipped installed

SF	Single fuse (120, 277, 347V) *
DF	Double fuse (208, 240, 480V) *
DS	Dual switching * ,**

Shipped separately

EGSB	External Gear Shield (wrandcoat, field install required, matches housing finish)
BUGB	Bird Spikes (field install required)

Mounting

SPA	Square pole mounting (#8 drilling)
RPA	Round pole mounting (#8 drilling)
SPAS	Square pole mounting 4" drilling*
RPAS	Round pole mounting 4" drilling*
SPABN	Square narrow pole mounting (#8 drilling)
WBA	Wall bracket*
WA	Wall arm adapter (mounts on 2 3/8" OD horizontal tenon)

Shielding

Shipped included

SBK	Black
DNAXD	Natural Aluminum
DWXD	White
DDBTXD	Textured dark bronze
DBLBXD	Textured black
DNATXD	Textured natural aluminum
DWHGXD	Textured white

Finish (required)

Shipped installed

DNATXD	Textured natural aluminum
DWHGXD	Textured white

Shipped separately

DSBXD	Dark bronze
DBLXD	Black
DNAXD	Natural aluminum
DWXD	White
DSSXD	Sandstone
DNGXD	Charcoal gray
DTGXD	Tennis green
DBRXD	Bright red
DSBRXD	Steel blue
DDBTXD	Textured dark bronze
DBLBXD	Textured black
DNATXD	Textured natural aluminum
DWHGXD	Textured white
Other finishes	
GALV	Galvanized finish
Architectural colors and special finishes*	
PRAFTG GALV	Paint over galvanizing
YF20	3 year warranty extension
YF25	5 year warranty extension
BALANW	Use designated Lithonia Lighting nomenclature to order
Custom color	Nomenclature assigned through Customer Care "Custom Color Process"

Control options

NLTAIR2 PIRHN	eLCOM light gen 2 installed with 5-pin twist-lock receptacle, sensor, 8-40 mounting height, ambient sensor enabled at 25 fc.*,**
PIR	High/low, motion/ambient sensor, 8-40 mounting height, ambient sensor enabled at 25 fc.*,**
PER	NEMA twist-lock receptacle only (controls ordered separate) *,**
PERS	Five pin receptacle only (controls ordered separate) *,**
DMG	0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately)*
DS	Dual switching * ,**

Accessories

PLUG	Plug for CSA drillings
PLUSB	Plug for DNAorG drillings
FIDUraFT	Field installed vibration damper (scale style)

Finish (required)

DDBXD	Dark Bronze
DBLXD	Black
DNAXD	Natural Aluminum
DWXD	White
DDBTXD	Textured dark bronze
DBLBXD	Textured black
DNATXD	Textured natural aluminum
DWHGXD	Textured white

NOTES
1. Standard cooling available with packages P15, P17, P12 and P13. Must be combined with option CBU or IPD.
2. 3K, 30K, and 50K available in 70CRI and 80CRI. 27K and 30K only available with 80CRI. Contact Technical Support for other possible combinations.
3. T3LG, T4LG, BLC3, BLC4, LCCO, RCCO not available with option HS.
4. HVOLT not available with options E10WC, E20WC, E20WCM, or E20WCH.
5. HVOLT driver operates on any line voltage from 347-480V (50/60 Hz).
6. HVOLT not available with package P1 and P15 when combined with option NLTAIR2 PIRHN or option PIR.
7. Not available with options E10WC, E20WC, E20WCM, or E20WCH.
8. XVOLT not available in packages P1 or P15. XVOLT not available with P1, P2, P5, P6, P15, P17, and P13 when combined with option NLTAIR2 PIRHN or option PIR.
9. SPA3 and RPA3 for use with #3 drilling only (not for use with #8 drilling).
10. Not available with options E10WC, E20WC, E20WCM, or E20WCH. Not available with P15.
11. NLTAIR2 and PIRHN must be ordered together. For more information on eLight AIR2 and this link.
12. NLTAIR2 PIRHN not available with other controls including PIR, PER, PERS, PERT, FAO, BLR, BLSR, DMG and DS. NLTAIR2 PIRHN not available with P1 or P15.
13. PIR not available with NLTAIR2 PIRHN, PER, PERS, PERT, FAO, BLR, BLSR, DMG and DS.
14. PER/PERS/PERT not available with NLTAIR2 PIRHN, PIR, BLSR, BLSR, FAO, DMG and DS. Photocell ordered and shipped as a separate line item from the luminaire. Specify PER7 for 480V operation.
15. FAO not available with other dimming controls NLTAIR2 PIRHN, PIR, PERS, PERT, BLSR, BLSR, DMG and DS.
16. Not available with P1, P2, P5, P6, P15, P17, P12, P13, T5LG, T5W, T5VS, T5FT, T5LGW, T4LG, T4W or BLC4 mounted more specific LCO or LCCO.
17. DMG not available with NLTAIR2 PIRHN, PIR, PER, PERS, PERT, BLR, BLSR, FAO and DS.
18. DS not available with NLTAIR2 PIRHN, PIR, PER, PERS, PERT, BLR, BLSR, FAO and DMG.
19. DS requires 2 circuits. DS provides 50% light output to each circuit. DS provides 50/50 dual switching of two different sets of banks using (2) drivers. DS only available with packages P4, P5, P7, P11, P17 and P13.
20. Reference Controls Options Specifications table on page 4 for use functionality.
21. Reference Controls Options Specifications table on page 4.
22. HS not available with T3LG, T4LG, BLC3, BLC4, LCCO and RCCO distribution. Also available as a separate accessory; see Accessories information.
23. Optional back box (PBBW). Required for use in certain wet locations. See Ordering Info page 3.
24. Option HA not available with performance packages P1, P5, P7, P9, P11, P15, P17, P12, P13.
25. Requires luminaire to be specified with PER, PIRHN or PIR7 option. See Controls Table on page 4.
26. Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V. HVOLT not available with fusing (SF or DF).

Shield Accessories



External Glare Shield (EGSR)



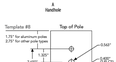
House Side Shield (HS)

Drilling

HANDHOLE ORIENTATION



Template #8 Top of Pole



Tenon Mounting Slipfitter

Tenon O.D.	Single	2 @ 180°	2 @ 90°	3 @ 90°	3 @ 120°	4 @ 90°
2.375"	89%	89%	89%	89%	89%	89%
3"	89%	89%	89%	89%	89%	89%

Mounting Option	Adding Single	Adding 2 @ 180°	Adding 2 @ 90°	Adding 3 @ 90°	Adding 3 @ 120°	Adding 4 @ 90°
Mast Location	Side-S	Side-R & S	Side-S & C	Side-R, S & C	Side-R, S, C & D	
Bolt Reinforcement	#4	[BKT4S]	[BKT4S]	[BKT4S]	[BKT4S]	[BKT4S]
Mounting Option	Mounting Increment Required					
EPA	.46	1.7"	1.7"	1.7"	1.7"	3.4"
BPA	.46	3"	3"	3"	3"	6"
SPA3	.46	3"	3"	3"	3"	6"
RPA3	.46	3"	3"	3"	3"	6"

DSX1 Area Luminaire - EPA
*Includes luminaire and integral mounting arm. Other luminaires, arms, brackets or other accessories are not included in this EPA data.

Mounting Type	Single	2@180°	2@90°	3@90°	3@120°	4@90°
DSX1 with SPA	0.69	1.38	1.23	1.54	—	1.38
DSX1 with SPA3, SPABN	0.75	1.49	1.30	1.66	—	1.66
DSX1 with RPA, RPA3	0.70	1.40	1.30	1.66	1.68	1.68
DSX1 with WA	0.65	1.66	1.30	2.00	2.09	2.09

LITHONIA LIGHTING. COMMERCIAL OUTDOOR
1 Acuity Way • Decatur, Georgia 30035 • Phone: 1-800-705-SERV (7378) • www.lithonia.com
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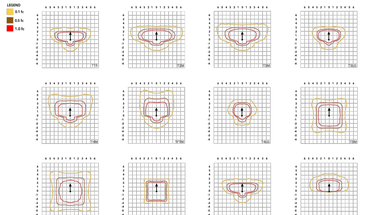
DSX1 LED Rev. 09/29/25 Page 2 of 10

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's homepage.

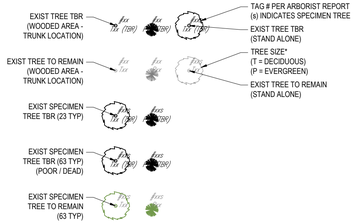
Isofootcandle plots for the DSX1 LED P9 40K 70CRI. Distances are in units of mounting height (20').

LEGEND
- 40 fc
- 30 fc
- 20 fc
- 10 fc


1.13H
1.13H
1.13H



LEGEND



*ALL MEASUREMENTS ARE DBH, EXCEPT FOR SPECIMEN TREES 30" AND GREATER WHICH ARE MEASURED ONE FOOT ABOVE GRADE PER CODE [SALDO 22-713.2.E.]

EXISTING WOODLAND = 1,242,987±SF OR 28.535±AC

EXISTING WOODLAND PROPOSED TO BE REMOVED = 208,588± SF OR 4.789± AC (16.8%)

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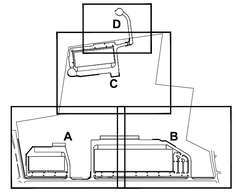

KEY MAP

PROPOSED WAREHOUSE
BUILDING 3
115,500 SF
(550' X 210')
FFE: 289.00
PROVIDED PARKING: 116 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

PROPOSED WAREHOUSE
BUILDING 2
100,0000 SF
(500' X 200')
FFE: 287.00
PROVIDED PARKING: 102 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

PROPOSED WAREHOUSE
BUILDING 1
339,450 SF
(1095' X 310')
FFE: 283.80
PROVIDED PARKING: 345 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

WEST BRANCH NESHAMINY CREEK

COUNTY LINE ROAD

SCHOOLHOUSE ROAD

STEWART LANE
(33' WIDE R.O.W.)
(ASPHALT ROADWAY)
(TWO WAY TRAFFIC)

WALNUT STREET
(33' WIDE R.O.W.)
(ASPHALT ROADWAY)
(TWO WAY TRAFFIC)

SEPTA

SEPTA

50' WIDE DRIVEWAY EASEMENT

50' WIDE ACCESS RIGHT-OF-WAY EASEMENT (BK 2687, PG 1935)

EXISTING STORM SEWER EASEMENT

FLOODPLAIN OVERLAY

SEWAGE AUTHORITY UTILITY RIGHT-OF-WAY

NORTH PENN WATER AUTHORITY EASEMENT (PER INST. #2017020082)

SANITARY SEWER EASEMENT

WATER LINE EASEMENT

VARIABLE WIDTH WATER LINE EASEMENT

ULTIMATE R.O.W. LINE

APPROX. ABOVE GROUND STORMWATER BASIN LIMIT

WETLAND 'A'

WETLAND 'B'

100 50 25 0 100

SCALE: 1" = 100'

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PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
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NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

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SHEET TITLE:

OVERALL TREE PROTECTION AND REMOVAL PLAN

SHEET NUMBER:

L-300
64 OF 102

REVISION 1 - 07/28/2026

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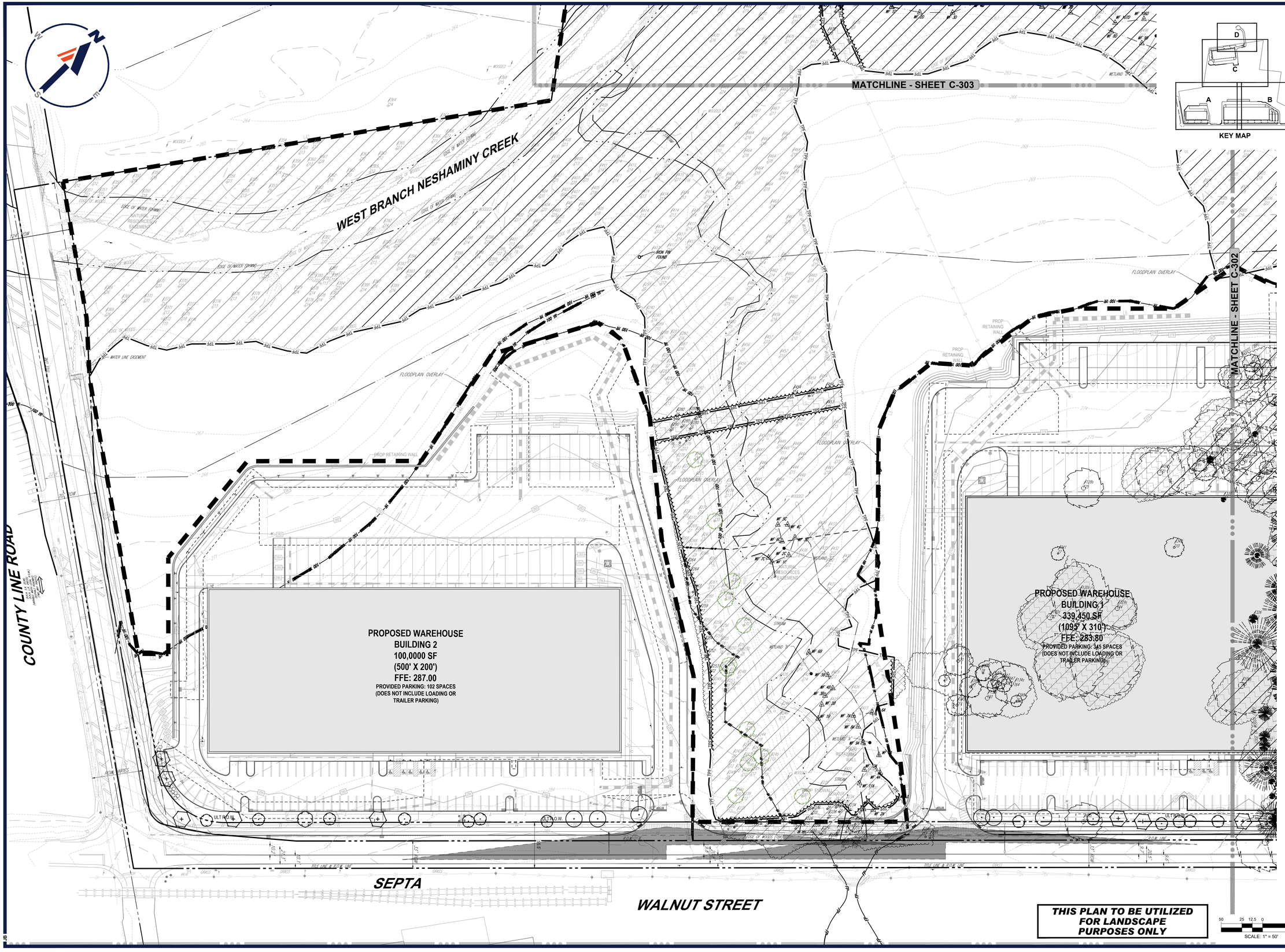

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PROJECT:
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FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

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BUCKS COUNTY, PA

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SHEET TITLE:
TREE PROTECTION AND REMOVAL PLAN A

SHEET NUMBER:
L-301
65 OF 102

REVISION 1 - 07/28/2026

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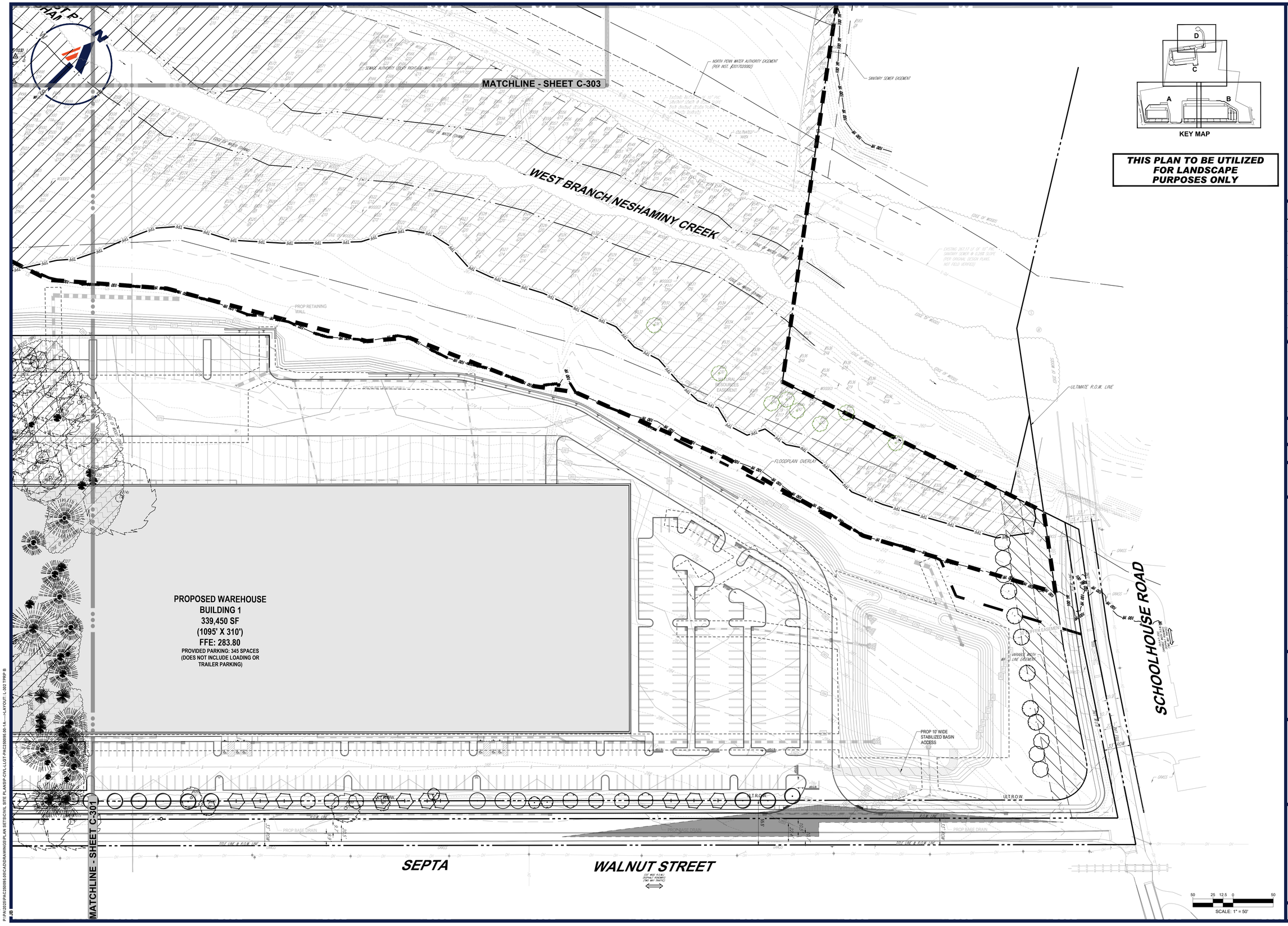

KEY MAP

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PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
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BUCKS COUNTY, PA

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SHEET TITLE:
TREE PROTECTION AND REMOVAL PLAN B

SHEET NUMBER:
L-302
66 OF 102

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THIS PLAN TO BE UTILIZED FOR LANDSCAPE PURPOSES ONLY

PROPOSED WAREHOUSE
BUILDING 3
115,500 SF
(550' X 210')
FFE: 289.00
PROVIDED PARKING: 116 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

AREA: 39,255 SF (0.90 AC)

AREA: 7,963 SF (0.18 AC)

AREA: 8,039 SF (0.18 AC)

WEST BRANCH NESHAMINY CREEK

MATCHLINE - SHEET C-301

MATCHLINE - SHEET C-302

KEY MAP

SCALE: 1" = 50'

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PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

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SHEET TITLE:

TREE PROTECTION AND REMOVAL PLAN C

SHEET NUMBER:

L-303

67 OF 102

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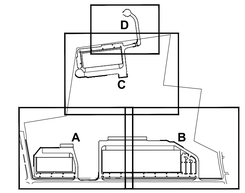
NAD83

MATCHLINE - SHEET L-303



KEY MAP

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30 60' 30' 0 120'

SCALE: 1" = 30'

Jul 29, 2026
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PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
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BUCKS COUNTY, PA

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SHEET TITLE:

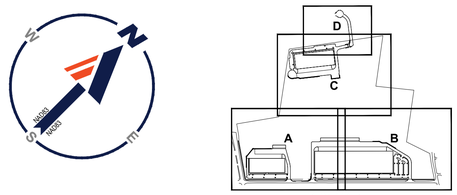
BUILDING 3 DRIVEWAY TREE PROTECTION AND REMOVAL PLAN

SHEET NUMBER:

L-304

68 OF 102

REVISION 1 - 07/28/2026



KEY MAP

LEGEND

- STREAM EDGE
- STREAM EDGE 100' OFFSET
- EXIST TREE CANOPY TO REMAIN
- PROP STREAM RIPARIAN BUFFER - REFORESTATION AREA (148,876± SF) SEE DETAILS SHEET L-401
- PROP STREAM RIPARIAN BUFFER - MEADOW AREA (79,848± SF) SEE ERNMX-178 SHEET L-401

AREA: 279 SF (0.01 AC)
AREA: 2,612 SF (0.06 AC)
AREA: 20,261 SF (0.47 AC)
AREA: 20,165 SF (0.46 AC)
AREA: 45,617 SF (1.05 AC)
AREA: 1,323 SF (0.03 AC)
AREA: 5,100 SF (0.12 AC)
AREA: 39,255 SF (0.90 AC)
AREA: 8,039 SF (0.18 AC)
AREA: 7,963 SF (0.18 AC)
AREA: 1,280 SF (0.03 AC)
AREA: 18,237 SF (0.42 AC)
AREA: 1,809 SF (0.04 AC)
AREA: 10,349 SF (0.24 AC)
AREA: 6,609 SF (0.15 AC)
AREA: 3,340 SF (0.08 AC)
AREA: 3,579 SF (0.08 AC)
AREA: 2,774 SF (0.06 AC)
AREA: 12,517 SF (0.29 AC)
AREA: 5,632 SF (0.13 AC)
AREA: 5,306 SF (0.12 AC)
AREA: 1,605 SF (0.04 AC)

PROPOSED WAREHOUSE
BUILDING 3
115,500 SF
(550' X 210')
FFE: 289.00
PROVIDED PARKING: 116 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

PROPOSED WAREHOUSE
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(500' X 200')
FFE: 287.00
PROVIDED PARKING: 102 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

PROPOSED WAREHOUSE
BUILDING 1
339,450 SF
(1095' X 310')
FFE: 283.80
PROVIDED PARKING: 345 SPACES
(DOES NOT INCLUDE LOADING OR TRAILER PARKING)

WEST BRANCH NESHAMINY CREEK

STEWART LANE (33' WIDE R.O.W.) (ASPHALT ROADWAY) (TWO WAY TRAFFIC)

COUNTY LINE ROAD

SCHOOLHOUSE ROAD

WALNUT STREET (33' WIDE R.O.W.) (ASPHALT ROADWAY) (TWO WAY TRAFFIC)

SEPTA

SEPTA

SCALE: 1" = 100'

RIPARIAN BUFFER MAINTENANCE NOTES

1. FOR THE FIRST FIVE (5) YEARS AFTER INSTALLATION, IDENTIFICATION AND SELECTIVE REMOVAL OF INVASIVE PLANT SPECIES SHALL BE PERFORMED FOUR (4) TIMES A YEAR BY A SKILLED HORTICULTURIST OR LANDSCAPE CONTRACTOR. DOCUMENTATION INCLUDING MAPS / LOGS SHALL BE PROVIDED. THIS SHALL BE DONE TO ENSURE THE PROPOSED PLANT MATERIALS WILL HAVE A CHANCE TO ESTABLISH. USE OF CHEMICALS, FERTILIZERS, HERBICIDES AND/OR PESTICIDES WITHIN THE REFORESTATION AREAS SHALL BE KEPT TO A MINIMUM.
2. AS THE REFORESTED WOODLAND MATURES, TREES MAY DIE, LOSE BRANCHES, LEAVES OF FALL DUE TO NATURAL AGING OR DISASTER. DEAD LEAVES ON THE FOREST FLOOR SHALL BE LEFT IN PLACE TO DECAY NATURALLY. DEAD TREES AND FALLEN TREES OR BRANCHES SHALL ALSO BE LEFT IN PLACE. IN ADDITION, NATIVE SELF-ESTABLISHING PLANTS SHALL BE PERMITTED TO GROW. THIS SHALL ENCOURAGE NATIVE WILDLIFE AND ORGANISMS TO COLONIZE THE REFORESTED AREAS AND AID IN THE NATURAL LIFE CYCLE OF A HEALTHY WOODLAND.
3. ANY TREE WITHIN THE RIPARIAN BUFFER THAT DIES WITHIN 5 YEARS AFTER CONSTRUCTION SHALL BE REPLACED IN KIND. ESCROW SHALL BE PROVIDED FOR THESE TREES DURING THIS 5 YEAR PERIOD (SEE LANDSCAPE SPECIFICATION 12). SURVIVAL TABULATION AND REPLACEMENT LOGS SHALL BE PROVIDED AS DOCUMENTATION.
4. AS-BUILT RESTORATION MAPPING DEMONSTRATING PROGRESS OF RESTORATION OF DEFICIENT SEGMENTS SHALL BE PROVIDED ON A YEARLY BASIS.

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REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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PROJECT NO.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVIL-LLGT

PROJECT:
PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS
FOR
HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

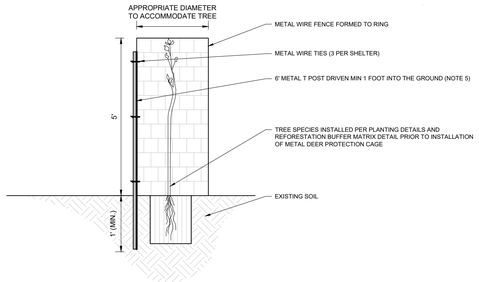
BOHLER™
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

SHEET TITLE:
OVERALL RIPARIAN BUFFER REFORESTATION PLAN

SHEET NUMBER:
L-400
69 OF 102

REVISION 1 - 07/28/2026

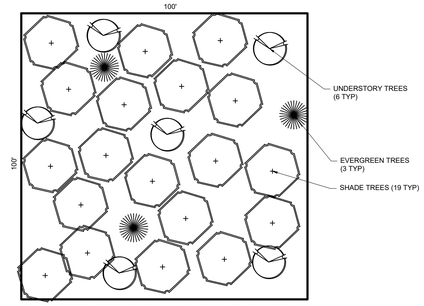
Jul 29, 2026
P:\PA\2025\PAC250095.00\CAD\RAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-LLGT-PAC250095.00-1A-----LAYOUT L-400 OVRL RFBP
JB



NOTES:
1. PLANT THE WHIP PER PLANTING DETAILS.
2. CUT WIRE FENCE TO APPROPRIATE LENGTH TO FORM RING AROUND WHIP.
3. ANCHOR THE FENCE IN PLACE WITH A METAL T STAKE. ONCE THE STAKE IS INSTALLED, USE METAL WIRE TIES TO SECURE THE SHELTER TO THE STAKE.

METAL CAGE DEER PROTECTION DETAIL

NOT TO SCALE (PA-L040103 - 11/2023)



SYMBOLS REPRESENT APPROPRIATE SPACING AND NOT THE SIZE AT TIME OF PLANTING

NOTES:
1. REFORESTATION AREAS TO BE PLANTED BASED ON THE ABOVE 10,000 SF PLANTING MATRIX. FOR EACH 10,000 SF AREA, EACH OF THE FOLLOWING SHALL BE PROVIDED:
   A. 19 DECIDUOUS SHADE TREES (4-6' HT)
   B. 6 DECIDUOUS UNDERSTORY TREES (4-5' HT)
   C. 3 EVERGREEN TREES (4-6' HT).
2. ONCE THE ROUGH GRADE HAS BEEN MET IN ALL OF THE AREAS THAT WILL BE CONVERTED TO RIPARIAN BUFFER AREAS, THE CONTRACTOR SHALL CLEARLY DELINEATE THE LIMITS OF THE REFORESTATION AREA IN THE FIELD WITH TEMPORARY STAKES AND FLAGGING PRIOR TO THE INSTALLATION OF THE PLANTS OUTLINED IN THIS MATRIX.
3. THIS SITE HAS SIXTEEN (16) REFORESTATION AREAS TOTALING 148,676± SF (3.42 AC) OF REFORESTATION AREA. THE FOLLOWING QUANTITIES OF TREES SHALL BE REQUIRED FOR THE TOTAL REFORESTATION AREA:
   A. 283 SHADE TREES (SPECIES TO BE SELECTED FROM THE FOLLOWING: ACER RUBRUM, ACER SACCHARUM, CELTIS OCCIDENTALIS, FAGUS GRANDIFOLIA, LIRIODENDRON TULIPFERA, NYSSA SYLVATICA, PLATANUS OCCIDENTALIS, QUERCUS BICOLOR OR OTHER APPROPRIATE SPECIES SELECTED BY THE PROJECT ARBORIST.)
   B. 90 UNDERSTORY TREES (SPECIES TO BE SELECTED FROM THE FOLLOWING: AMELANCHIER SP., BETULA NIGRA, CARPINUS CAROLINIANA, CERCIS CANADENSIS, CORNUS FLORIDA, SASSAFRAS ALBIDUM OR OTHER APPROPRIATE SPECIES SELECTED BY THE PROJECT ARBORIST.)
   C. 45 EVERGREEN TREES (SPECIES TO BE SELECTED FROM THE FOLLOWING: ILEX OPACA, JUNIPERUS VIRGINIANA, PICEA GLAUCA, PICEA PUNGENS, PINUS STROBUS OR OTHER APPROPRIATE SPECIES SELECTED BY THE PROJECT ARBORIST.)
4. PLANT MATERIAL SELECTED FOR REFORESTATION SHALL BE NATIVE TO THE AREA. NO SINGLE SPECIES SHOULD ACCOUNT FOR MORE THAN 20% OF THE TOTAL QUANTITY OF ONE TYPE OF TREE. ALL SPECIES SELECTIONS SHALL BE REVIEWED AND APPROVED BY THE APPROVING AGENCY AND PROJECT ARBORIST.
5. NO TREE SHALL BE INSTALLED WITHIN 10 FEET OF ANY ABOVE- OR UNDERGROUND UTILITY.
6. WHIPS SHALL BE PLANTED WITH METAL WIRE CAGES (SEE PLANTING DETAIL), STAKED IN PLACE WITHIN THE REFORESTATION AREAS TO PREVENT DEER-BROWSE OR DAMAGE CAUSED BY OTHER WILDLIFE. METAL CAGE SHALL BE REMOVED ONCE TREES HAVE BEEN ESTABLISHED AND HAVE REACHED A SIZE SUITABLE FOR SURVIVAL.
9. THE ENTIRE REFORESTATION AREA SHALL BE SEEDED WITH A ERNST RIPARIAN BUFFER SEED MIX (ERNMX-178, SEE SPECIFICATIONS). MEADOW GRASSES SHALL BE MOWED NO MORE THAN ONCE PER YEAR, AND ONLY IF NECESSARY, UNTIL WHIPS HAVE BEEN FULLY ESTABLISHED AND METAL DEER CAGES HAVE BEEN REMOVED (ABOUT 2-4 YEARS). ONCE WHIPS HAVE GROWN LARGE ENOUGH, METAL DEER CAGES SHALL BE REMOVED AND MEADOW GRASS MAINTENANCE SHALL CEASE. THE SHADE AND FALLEN LEAVES PROVIDED BY THE MATURE CANOPY OF THE SHADE, UNDERSTORY AND EVERGREEN TREES WILL NATURALLY CREATE A FOREST FLOOR TYPICAL OF A HEALTHY WOODLAND.
10. AS THE REFORESTED WOODLAND MATURES, TREES MAY DIE, LOOSE BRANCHES, LEAVES OF FALL DUE TO NATURAL AGING OR DISASTER. DEAD LEAVES ON THE FOREST FLOOR SHALL BE LEFT IN PLACE TO DECAY NATURALLY. DEAD TREES AND FALLEN TREES OR BRANCHES SHALL ALSO BE LEFT IN PLACE. IN ADDITION, NATIVE SELF-ESTABLISHING PLANTS SHALL BE PERMITTED TO GROW. THIS SHALL ENCOURAGE NATIVE WILDLIFE AND ORGANISMS TO COLONIZE THE REFORESTED AREAS AND AID IN THE NATURAL LIFE CYCLE OF A HEALTHY WOODLAND.

REFORESTATION MATRIX

NOT TO SCALE (PA-L080201 - 11/2023)

ERNST SEED CO. RIPARIAN BUFFER MIX SEEDING SPECIFICATIONS (ERNMX-178)

PANICUM CLANDESTINUM		DEERTONGUE, 'TIOGA'	22.1%
ELYMUS VIRGINICUS (PA ECOTYPE)		WILDRYE, 'MADISON'	20%
ANDROPOGON GERARDII		BIG BLUESTEM, 'NIAGARA'	18%
SORGHASTRUM NUTANS (WI ECOTYPE)		INDIANGRASS	18%
PANICUM VIRGATUM (NC ECOTYPE)		SWITCHGRASS, 'SHAWNEE'	10%
RUDBECKIA HIRTA		BLACKEYED SUSAN	3%
ASCLEPIA INCARNATA (PA ECOTYPE)		SWAMP MILKWEED	2%
VERBENA HASTATA (PA ECOTYPE)		BLUE VERVAIN	2%
EUPOATORIUM PERFOLIATUM (PA ECOTYPE)		BONESET	1%
HELENIUM AUTUMNALE (PA ECOTYPE)		COMMON SNEEZEWEED	1%
ASTER NOVAE-ANGLIAE (PA ECOTYPE)		NEW ENGLAND ASTER	0.7%
ASTER UMBELLATUS (PA ECOTYPE)		FLAT TOPPED WHITE ASTER	0.7%
ZIZIA AUREA (PA ECOTYPE)		GOLDEN ALEXANDERS	0.7%
MONARDA FISTULOSA (PA ECOTYPE)		WILD BERGAMOT	0.5%
SOLIDAGO RUGOSA (PA ECOTYPE)		WRINKLELEAF GOLDENROD	0.3%

SEEDING RATE: 20 lb. PER ACRE OF THE ERNST MIX

NURSE CROP: THE ERNST SEED MIX MUST BE ACCOMPANIED BY ONE OF THE FOLLOWING TEMPORARY SEED SPECIFICATIONS APPROPRIATE FOR THE TIME OF YEAR:
- ANNUAL RYE (10 LBS PER ACRE)
- OR SPRING OATS (64 LBS PER ACRE)
- OR WINTER RYE (56 LBS PER ACRE)

NOTES:
1. THE FORMULATION NOTED ABOVE IS REPRESENTATIVE OF THE ERNST SEED SPECIFICATION. THE MOST CURRENT FORMULATION AS SPECIFIED BY THE ERNST COMPANY AT THE TIME OF PLANTING SHALL BE USED.
2. SEED SHOULD BE APPLIED USING DRILL SEEDING OR BROADCAST SEEDING METHODS ONLY. THE CONTRACTOR MUST ENSURE DIRECT SEED-TO-SOIL CONTACT. HYDROSEEDING IS NOT PERMITTED WITH THIS SEED MIX; IT WILL PROHIBIT GERMINATION.
3. THE ENTIRE FACILITY SHALL BE STABILIZED WITH A NORTH AMERICAN GREEN SC150 STRAW & COCONUT BLANKET (OR APPROVED EQUAL). THE BLANKET SHOULD BE INSTALLED ON TOP OF THE SEED IN ACCORDANCE WITH THE MANUFACTURER SPECIFICATIONS.
4. THE SEED MIX WILL NEED DAILY SUPPLEMENTAL WATERING UNTIL IT HAS GERMINATED AND REACHED AN AVERAGE HEIGHT OF AT 12-18".
5. THE SEEDING AREA SHALL BE MOWED ONCE AFTER THE FIRST GROWING SEASON, EARLY IN THE SPRING, AND THEN SHALL BE MOWED NO MORE THAN ONCE EVERY THREE YEARS THEREAFTER EARLY IN SPRING ONLY.

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-LLGT

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
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PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

SHEET TITLE:

RIPARIAN BUFFER REFORESTATION NOTES AND DETAILS

SHEET NUMBER:

L-401
70 OF 102

REVISION 1 - 07/28/2026

JUL 29, 2026
P:\PA\20\29\PAC250095.00\9CADD\9AWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-LLGT-PAC250095.00-1A-----LAYOUT L-401 RFBP DTL3
JB

1515 Market Street, Suite 920
Philadelphia, PA 19102
267.402.3400

EXHIBIT 2

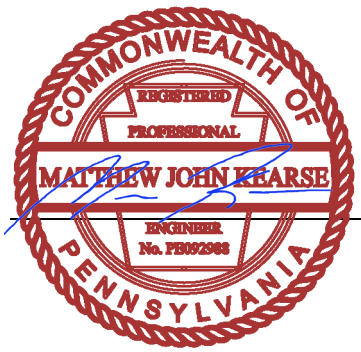
Proposed Industrial Development Flood Study

1600 Manor Drive, Suite 200
Chalfont, PA 18914

Proposed Industrial Development Flood Study

Project:	**Proposed Industrial Development** Walnut St. & County Line Rd. New Britain Township Bucks County, Pennsylvania
Client:	**HCI DP Land Acquisition, LLC** 7200 Wisconsin Avenue, Suite 820 Bethesda, MD 20814
Project Number:	**PAC250095.00**
Date:	**9/24/2025**

Professional Engineer:	Matthew Kearse PA License #PE092988



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Flood Analysis Narrative

GENERAL PROJECT DESCRIPTION

HCI DP Land Acquisition, LLC proposes the development of three existing parcels—Lot 1 (39.86 acres), Lot 2 (12.93 acres), and Lot 3 (32.47 acres)—into three warehouse buildings. The site is located at the intersection of Walnut Street and County Line Road in New Britain Township.

Lot 1 currently contains a single residence, agricultural fields, and wooded areas. Lots 2 and 3 are vacant and consist primarily of farmland and woods. The proposed development includes the construction of three warehouse buildings, along with associated driveways, parking areas, utilities, landscaping, and stormwater management infrastructure necessary to support the project.

The West Branch of the Neshaminy Creek borders the northwest portion of Lots 1 and 2 and the southeast portion of Lot 3. This creek flows in a south-to-north direction. The site is located on Flood Insurance Rate Map (FIRM) Panel 42017C0288K, last revised March 21, 2017. The Base Flood Elevation (BFE) across the site ranges from elevation 273 to 271 feet, referenced to the NAVD 88 datum. Although a significant portion of the site lies within the Special Flood Hazard Area (SFHA) Zone AE, the proposed improvements have been strategically located outside of the SFHA to the greatest extent feasible. The HEC-RAS model has been updated to reflect all proposed improvements; however, only the improvements associated with Lot 2 fall within the SFHA.

The enclosed analysis has been prepared to confirm that the proposed improvements on Lot 2 will not result in an increase in floodplain elevation.

WEST BRANCH OF NESHAMINY CREEK METHODOLOGY

The effective Hydrologic Engineering Center's River Analysis System (HEC-RAS) model, obtained from FEMA, served as the foundation for this analysis. The proposed development is situated between River Stations (RS) 18+388.17 and 15+388.21 along the West Branch of the Neshaminy Creek. These stations define the extent of all modifications applied to the effective HEC-RAS model.

Existing Conditions

Cross sections within the effective HEC-RAS model that intersect the subject property were updated to reflect the site's surveyed topography. The bank stationing and Manning's *n* values were maintained in accordance with the effective FEMA model to ensure consistency. These updates to the effective model resulted in a generally de minimis impact on floodplain elevation, as illustrated in the chart on page 4.

Proposed Conditions

For the purposes of this study, the updated existing HEC-RAS model served as the baseline for developing the proposed conditions model. As previously noted, the model was revised to incorporate all proposed site improvements; however, only those associated with Lot 2 fall within the Special Flood Hazard Area (SFHA).

For all cross sections within the proposed development area, topography was updated to reflect the proposed grading design. Manning's *n* values were adjusted to correspond with anticipated changes in ground cover and are consistent with the values listed in Table 3-1 of the HEC-RAS River Analysis System Hydraulic Reference Manual. Additionally, obstructions were introduced to represent the proposed warehouse buildings located at River Stations (RS) 18+288.75, 17+408.13, 17+013.07, and 15+916.41.

As described above, the proposed grading ensures that the finished floor elevations of the buildings and associated parking areas are elevated above the floodplain. The hydraulic analysis confirms that the 100-year floodplain elevation is either reduced or remains unchanged across all affected cross sections.

CONCLUSION

In summary, the proposed development has been carefully designed to ensure that it does not result in any increase in floodplain elevation. All buildings and associated parking areas are strategically located above the established floodplain elevation, minimizing flood risk and maintaining compliance with FEMA guidelines.

WEST BRANCH OF NESHAMINY CREEK – HEC-RAS CALCULATIONS

100-yr Water Surface Elevation

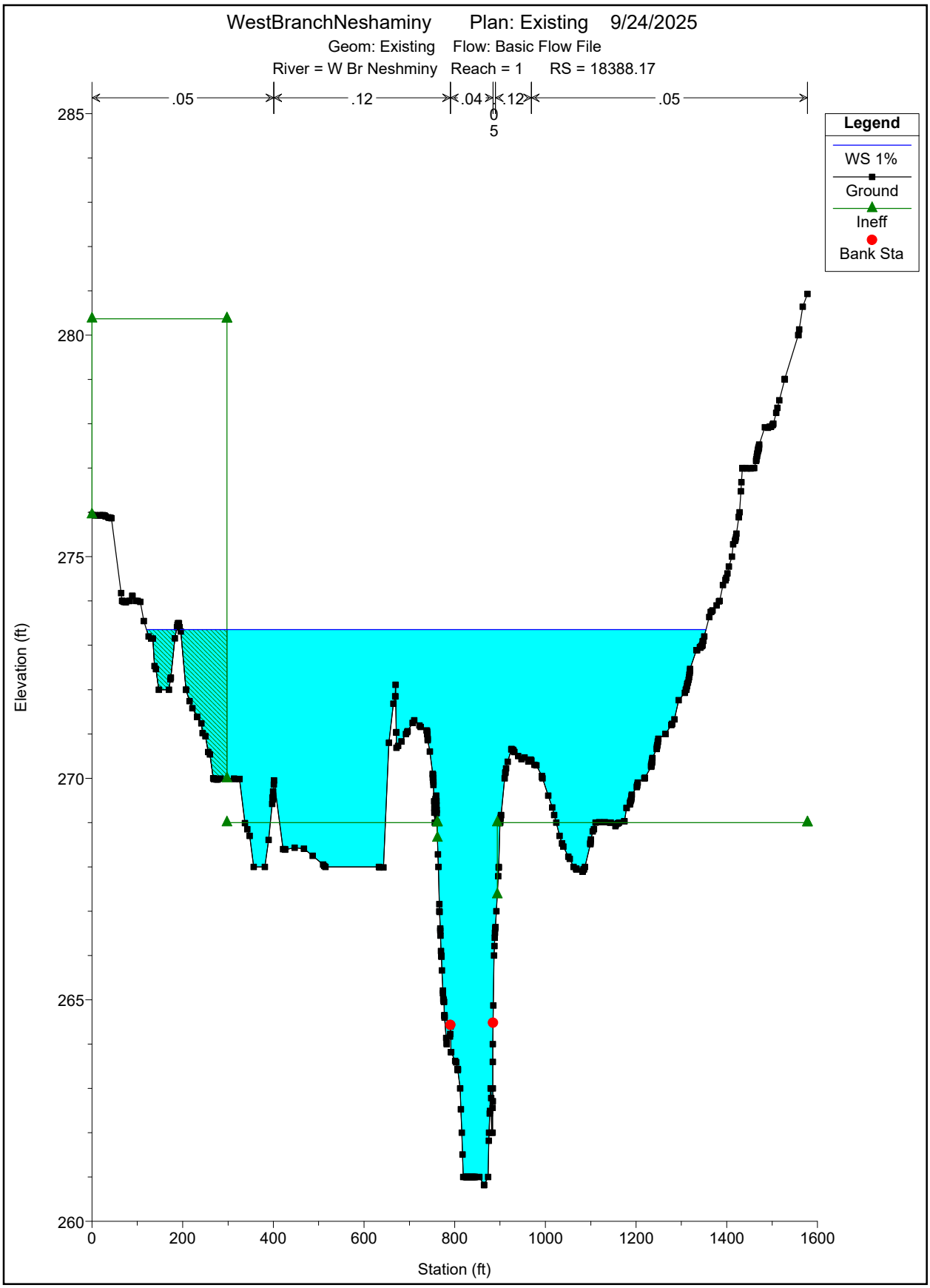
Project: PROPOSED INDUSTRIAL DEVELOPMENT

Description: EXISTING V. PROPOSED CONDITIONS - 100 YR STORM

	FEMA Effective	Bohler Existing	Bohler Proposed	Difference (Existing vs. Proposed)
RS 18937.81	273.73	273.74	273.73	-0.01
RS 18500.98	273.56	273.57	273.56	-0.01
RS 18388.17	273.44	273.35	273.35	0.00
RS 18288.75	273.31	273.30	273.29	-0.01
RS 17911.97	272.56	272.53	272.53	0.00
RS 17408.13	272.25	272.24	272.24	0.00
RS 17013.07	272.03	272.03	272.03	0.00
RS 16436.43	271.77	271.74	271.74	0.00
RS 15916.41	271.5	271.33	271.33	0.00
RS 15388.21	271.26	271.28	271.28	0.00
RS 15308.34	271.10	271.10	271.10	0.00

HEC-RAS Plan: Ex-MP River: W Br Neshminy Reach: 1 Profile: 1%

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	18937.81 19	1%	12761.00	259.70	273.74	267.68	273.85	0.000277	3.30	5126.80	897.02	0.17
1	18500.98	1%	12761.00	258.70	273.57	269.49	273.71	0.000367	4.18	5639.13	1187.62	0.20
1	18437.76		Bridge									
1	18388.17	1%	12761.00	260.82	273.35	270.78	273.66	0.001030	5.96	4937.48	1225.53	0.31
1	18288.75 T	1%	12761.00	260.00	273.30	269.39	273.52	0.000896	5.50	5369.90	953.44	0.28
1	17911.97 754	1%	12761.00	260.00	272.53	268.74	273.05	0.001684	7.44	3508.51	470.90	0.40
1	17408.13 755	1%	12761.00	258.00	272.24	267.65	272.47	0.000691	5.38	5305.67	905.03	0.26
1	17013.07 S	1%	12761.00	258.00	272.03	267.30	272.22	0.000688	5.44	5160.25	807.28	0.26
1	16436.43 756	1%	12761.00	257.00	271.74	266.08	271.90	0.000471	4.64	5158.52	732.68	0.22
1	15916.41 R	1%	12761.00	256.00	271.33	266.02	271.69	0.000289	6.09	4771.43	679.49	0.29
1	15388.21 Q	1%	12761.00	255.08	271.28	263.94	271.47	0.000353	4.34	4580.29	572.23	0.19
1	15308.34 737	1%	12761.00	254.30	271.10	264.87	271.40	0.000731	6.20	3534.50	552.98	0.27
1	15257.58		Bridge									
1	15200.99 P	1%	12761.00	254.00	269.93	266.70	270.49	0.001458	8.37	3273.24	547.31	0.38
1	14915.63 766	1%	12761.00	253.22	269.86	263.84	270.08	0.000497	5.04	4855.70	766.17	0.23
1	14578.26 O	1%	12761.00	252.76	269.57	263.38	269.88	0.000714	5.86	5680.58	770.88	0.27
1	14203.75 N	1%	12761.00	252.00	269.33	260.73	269.65	0.000756	5.70	4116.07	772.98	0.27
1	14145.82		Bridge									
1	14099.93 744	1%	12761.00	253.20	266.45	262.83	267.28	0.001887	8.20	1933.74	678.51	0.42
1	13997.64 M	1%	12761.00	253.58	265.86	262.53	266.97	0.002360	9.31	2142.83	689.08	0.47
1	13592.2 752	1%	12761.00	253.03	264.26	261.73	265.75	0.003680	10.17	1410.12	687.81	0.57
1	12998.26 753	1%	12761.00	251.97	263.16	260.66	263.85	0.002376	7.87	4028.30	1112.61	0.46
1	12717.34 L	1%	12761.00	251.72	263.15	260.40	263.35	0.001050	5.74	6238.03	1307.17	0.31
1	12347.56 759	1%	12761.00	251.60	263.01	259.48	263.15	0.000715	4.72	6157.79	1090.17	0.25
1	11770.05 K	1%	12761.00	249.85	262.54	259.16	262.82	0.000898	5.57	5132.17	903.05	0.29
1	11466.44 765	1%	12761.00	249.70	262.13	259.03	262.49	0.001503	6.93	5200.86	878.49	0.37
1	11130.8 J	1%	12761.00	249.21	261.68	258.12	262.12	0.001691	7.65	4374.72	673.80	0.40
1	10624.89 760	1%	12761.00	248.76	261.06	257.07	261.51	0.001372	6.64	4251.33	641.81	0.36
1	10209.28 I	1%	12761.00	247.71	260.60	257.24	261.00	0.001407	7.09	4232.54	611.02	0.36
1	9873.511 746	1%	12761.00	247.59	260.14	256.24	260.54	0.001267	6.63	4220.21	580.85	0.34
1	9475.018 747	1%	12761.00	247.44	259.38	256.26	259.93	0.002181	8.39	3947.13	577.70	0.45
1	8965.166 748	1%	12761.00	245.99	258.16	255.00	258.92	0.002131	8.52	3038.81	449.69	0.45
1	8454.733 749	1%	12761.00	245.14	256.43	254.00	257.59	0.003173	9.84	2477.83	388.52	0.54
1	7955.335 750	1%	12761.00	244.77	255.56	252.89	256.10	0.002450	8.45	3735.65	638.16	0.47
1	7649.488 751	1%	12761.00	244.27	255.06	252.80	255.51	0.002030	7.47	3882.40	851.40	0.42
1	7377.751 H	1%	12761.00	243.95	254.66	252.12	255.03	0.001661	6.75	4825.93	1096.88	0.38
1	6919.301 758	1%	12761.00	242.73	253.70	250.61	254.25	0.001727	7.20	3953.65	888.97	0.40
1	6428.657 G	1%	12761.00	242.19	253.02	251.31	253.45	0.002278	7.86	5240.25	1099.89	0.45
1	5952.17 762	1%	12761.00	242.06	252.39	250.27	252.78	0.002080	7.10	5119.10	1111.81	0.42
1	5604.917 F	1%	12761.00	241.45	251.98	249.73	252.39	0.002048	7.24	5030.02	979.14	0.42
1	5177.776 763	1%	12761.00	240.21	251.60	248.81	251.90	0.001052	5.95	5453.58	1015.89	0.32
1	4842.552 E	1%	12761.00	239.55	251.43	247.69	251.60	0.000618	4.34	4732.84	820.64	0.24
1	4310.577 761	1%	12761.00	238.69	251.08	247.54	251.28	0.000743	5.08	5131.87	873.34	0.26
1	3983.411	1%	12761.00	238.18	250.58	247.31	250.96	0.001430	6.95	4500.26	806.08	0.37
1	3498.278 757	1%	12761.00	236.85	249.97	246.02	250.37	0.001395	7.15	4126.65	787.77	0.36
1	3023.827 C	1%	12761.00	236.11	249.53	245.68	249.83	0.000880	5.87	4625.94	923.59	0.29
1	2697.228 22	1%	12761.00	236.02	249.33	245.42	249.58	0.000784	5.59	5036.48	762.91	0.28
1	2480.647 740	1%	12761.00	235.50	249.23	244.05	249.41	0.000525	4.51	4283.00	906.54	0.23
1	2460.118		Bridge									
1	2439.608 745	1%	12761.00	236.10	249.19	244.08	249.37	0.000537	4.50	4182.24	997.19	0.23
1	2173.758 18	1%	12761.00	235.21	249.12	243.83	249.28	0.000458	4.29	4345.37	765.28	0.21
1	1933.057 B	1%	12761.00	234.43	249.02	242.73	249.21	0.000400	4.17	4122.32	616.29	0.20
1	1774.36 742	1%	12761.00	233.90	248.67	243.22	249.04	0.001012	6.49	2995.13	540.70	0.30
1	1728.924		Bridge									
1	1685.841 743	1%	12761.00	233.70	247.50	242.71	247.89	0.001321	7.04	3106.60	555.43	0.34
1	1488.97 A	1%	12761.00	233.68	246.80	243.02	247.51	0.001654	8.11	3092.03	603.54	0.40
1	1218.175 764	1%	12761.00	233.52	246.70	243.05	247.06	0.001029	6.40	4087.97	755.15	0.32
1	839.6553 23	1%	12761.00	233.21	246.53	241.93	246.73	0.000627	5.06	4193.11	1227.82	0.25
1	241.2043 24	1%	12761.00	231.89	246.22	239.31	246.39	0.000542	4.83	5402.57	1130.12	0.23
1	58.01602	1%	12761.00	231.86	246.10	237.77	246.31	0.000377	4.10	5930.41	856.28	0.19


WestBranchNeshaminy Plan: Existing 9/24/2025
Geom: Existing Flow: Basic Flow File
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.05
.12
.04
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.05
0
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Legend
WS 1%
Ground
Ineff
Bank Sta
Elevation (ft)
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280
275
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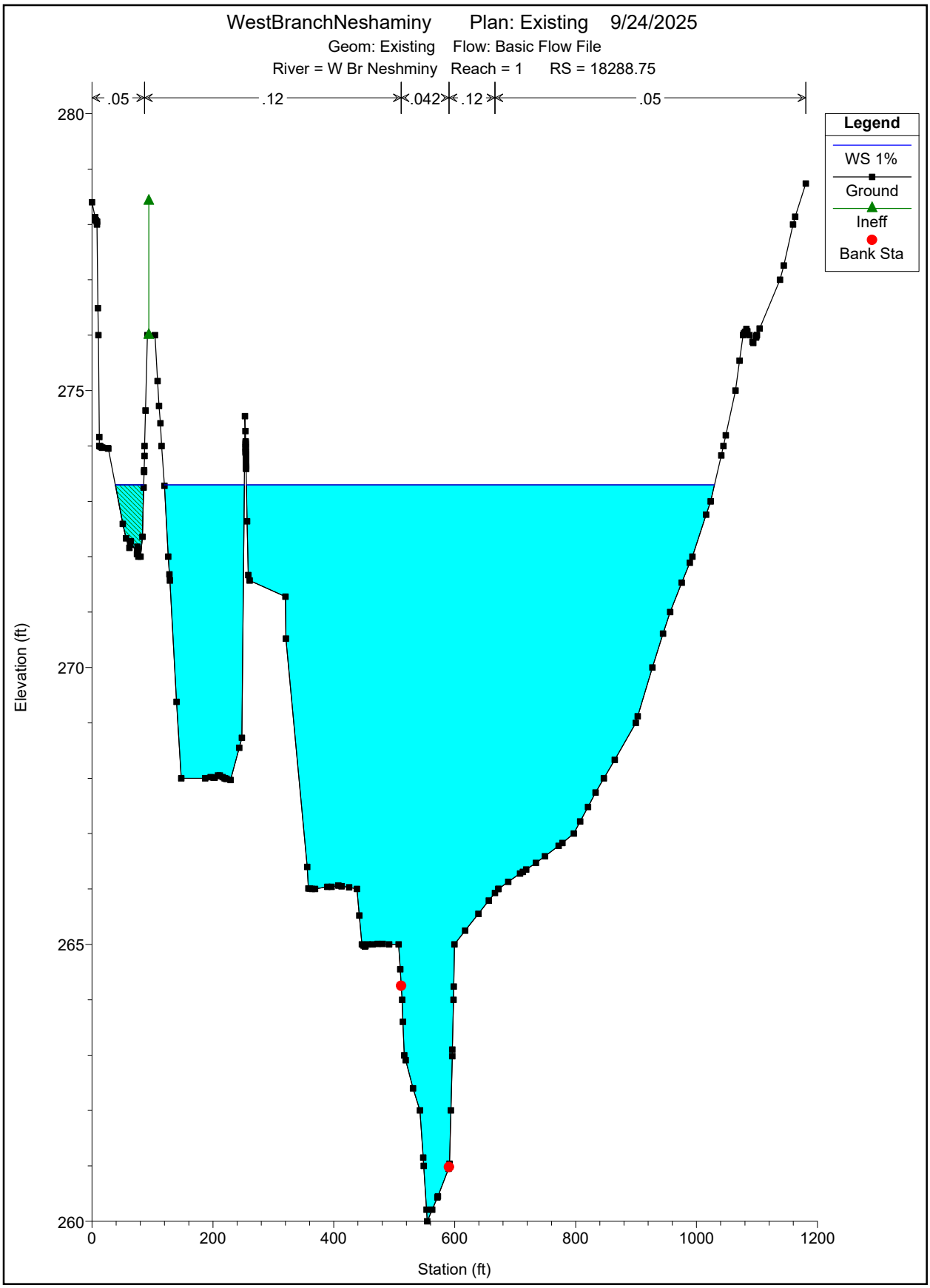
Station (ft)


WestBranchNeshaminy Plan: Existing 9/24/2025
Geom: Existing Flow: Basic Flow File
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WS 1%
Ground
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Elevation (ft)
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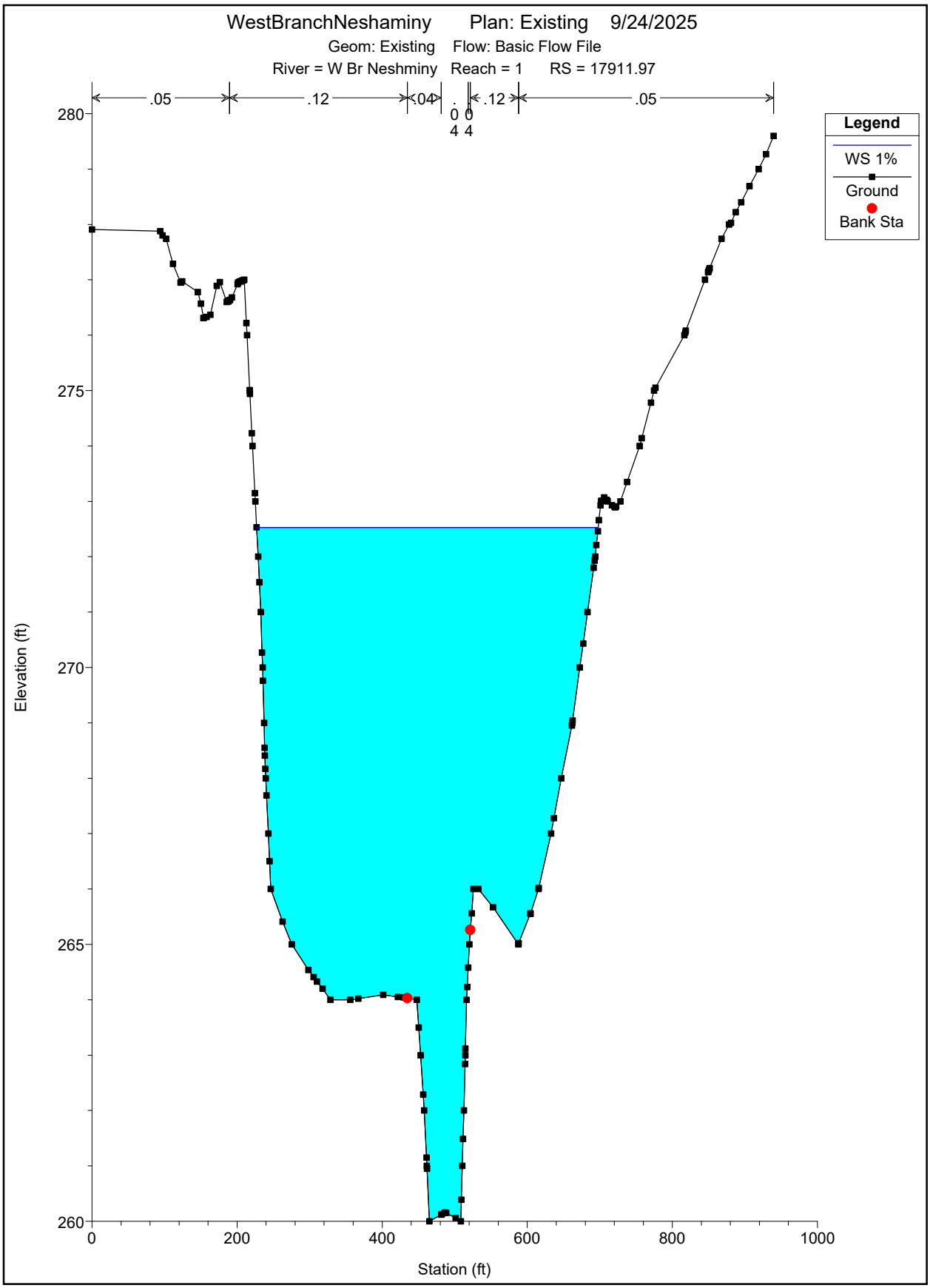
Station (ft)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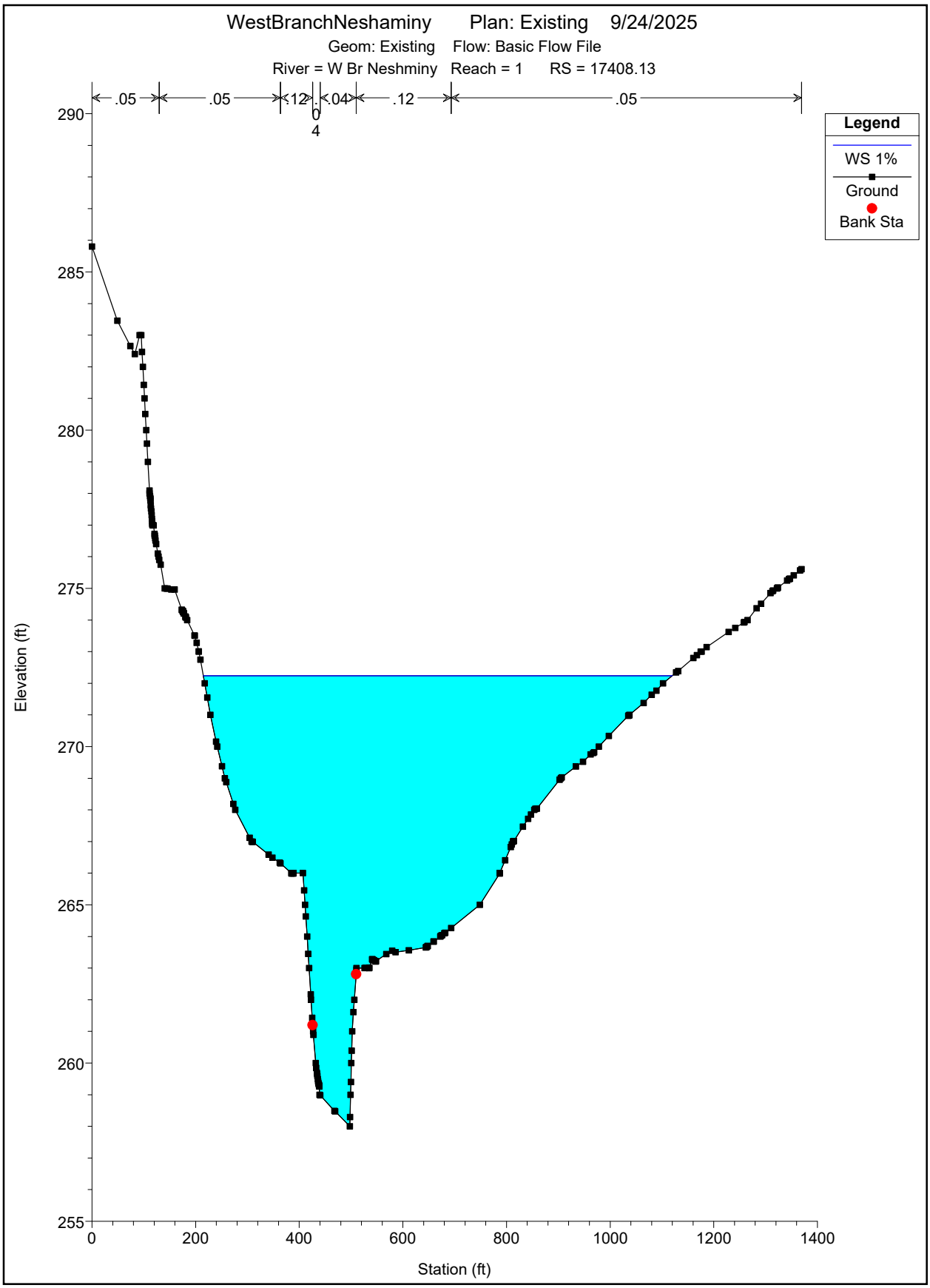
Station (ft)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Geom: Existing Flow: Basic Flow File
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WS 1%
Ground
Bank Sta
Elevation (ft)
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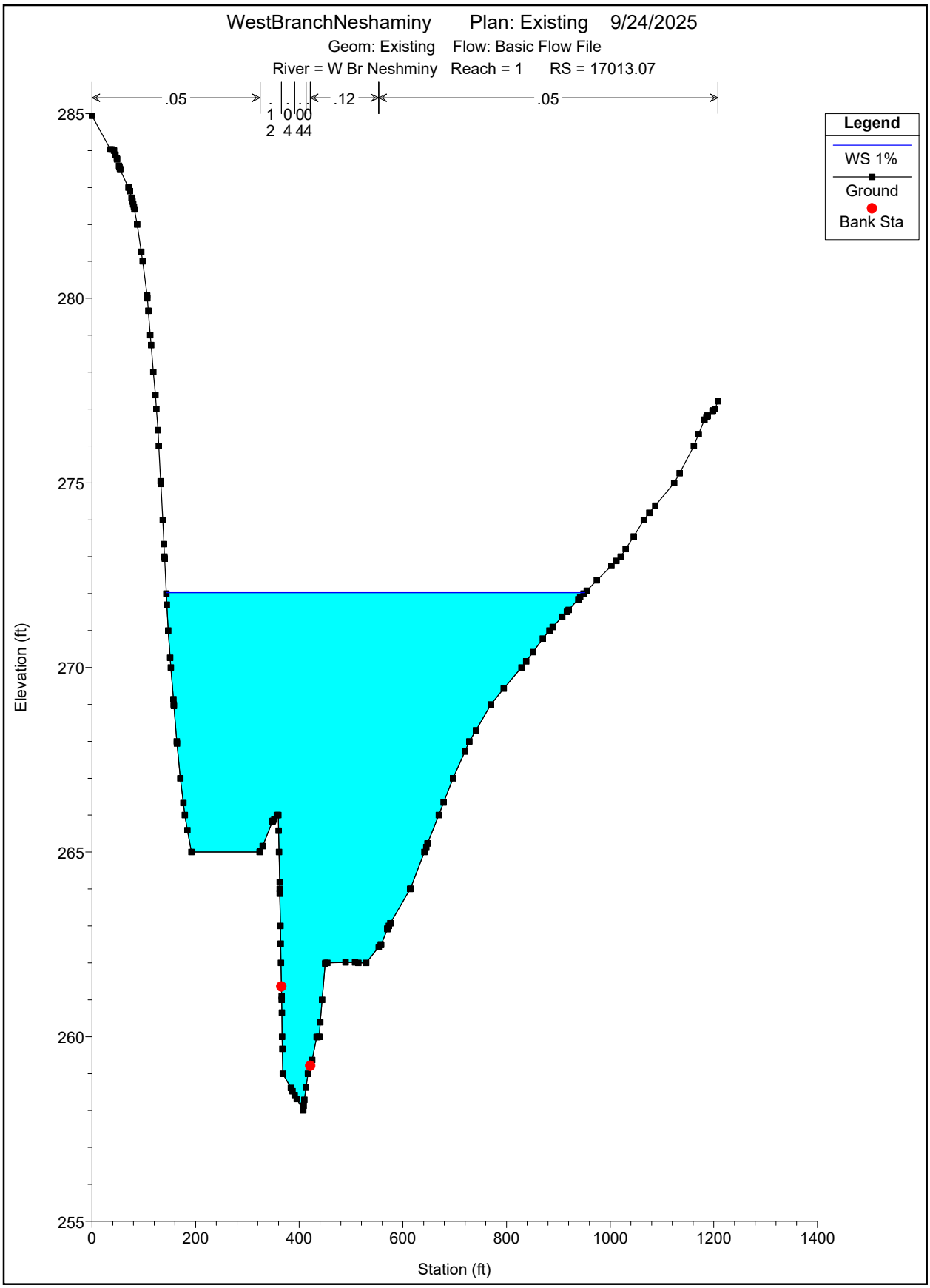
Station (ft)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Geom: Existing Flow: Basic Flow File
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Legend
WS 1%
Ground
Bank Sta
Elevation (ft)
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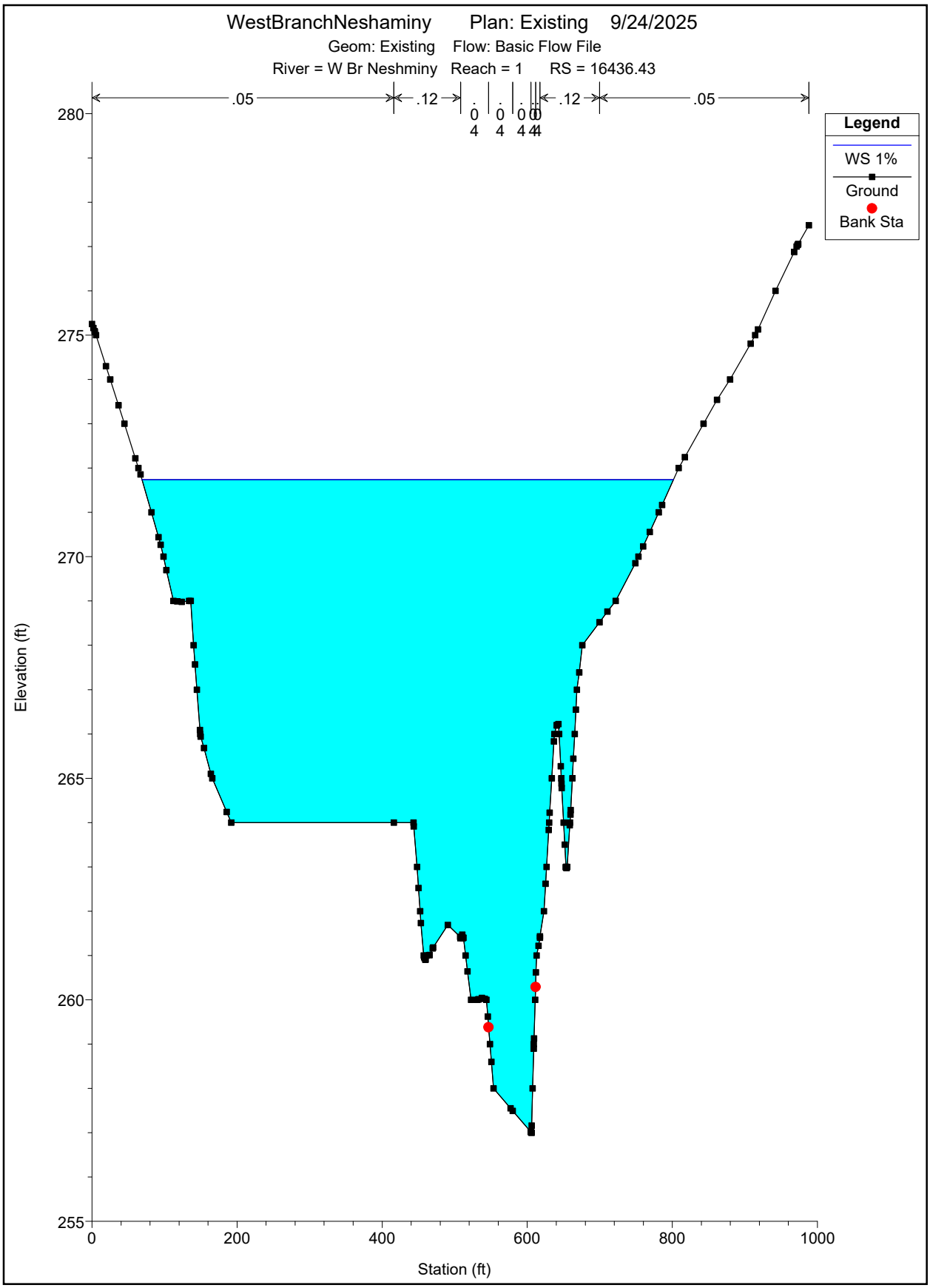
Station (ft)


WestBranchNeshaminy Plan: Existing 9/24/2025
Geom: Existing Flow: Basic Flow File
River = W Br Neshminy Reach = 1 RS = 16436.43
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Legend
WS 1%
Ground
Bank Sta
Elevation (ft)
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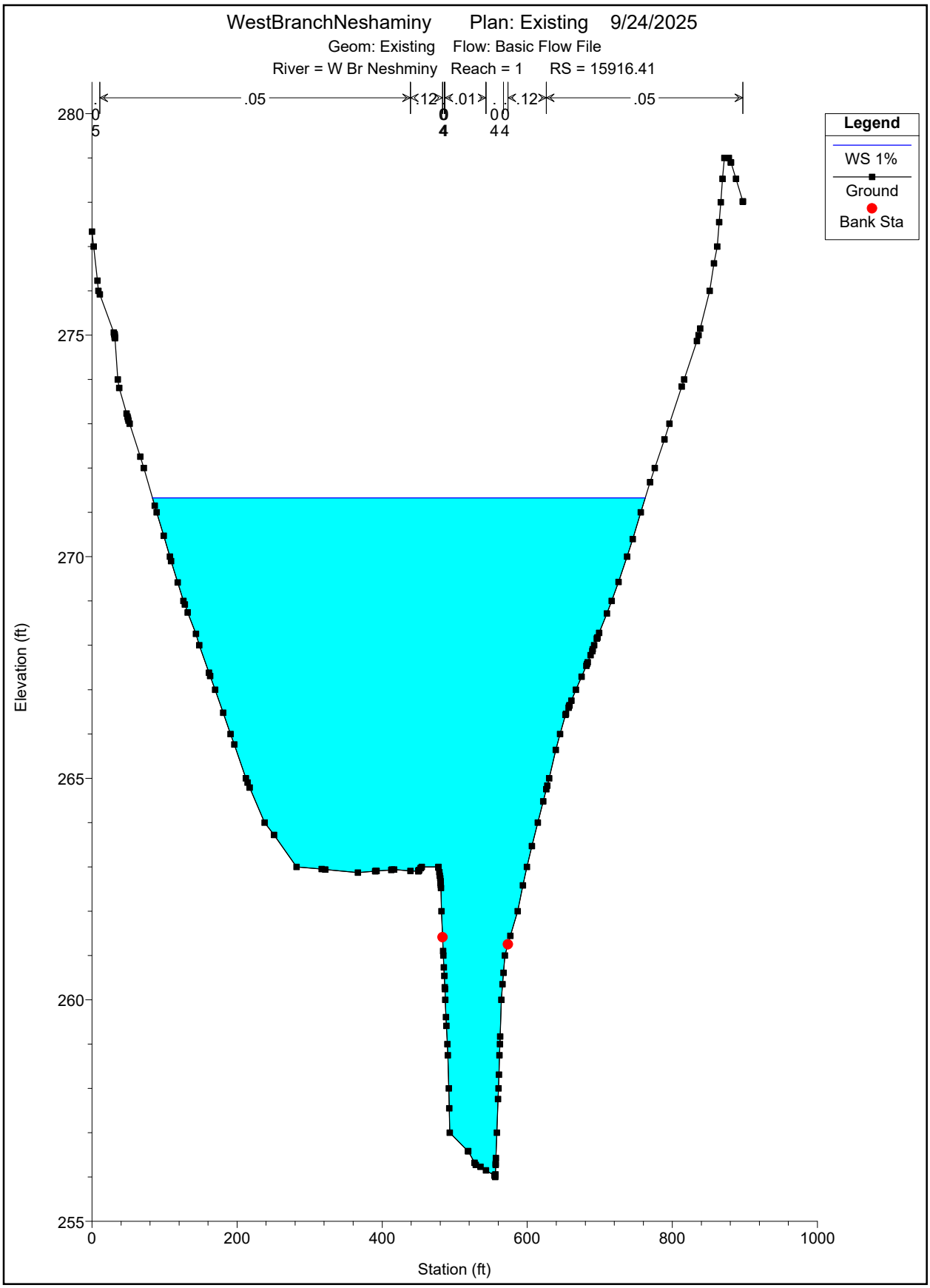
Station (ft)


WestBranchNeshaminy Plan: Existing 9/24/2025
Geom: Existing Flow: Basic Flow File
River = W Br Neshminy Reach = 1 RS = 15916.41
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Legend
WS 1%
Ground
Bank Sta
Elevation (ft)
Station (ft)
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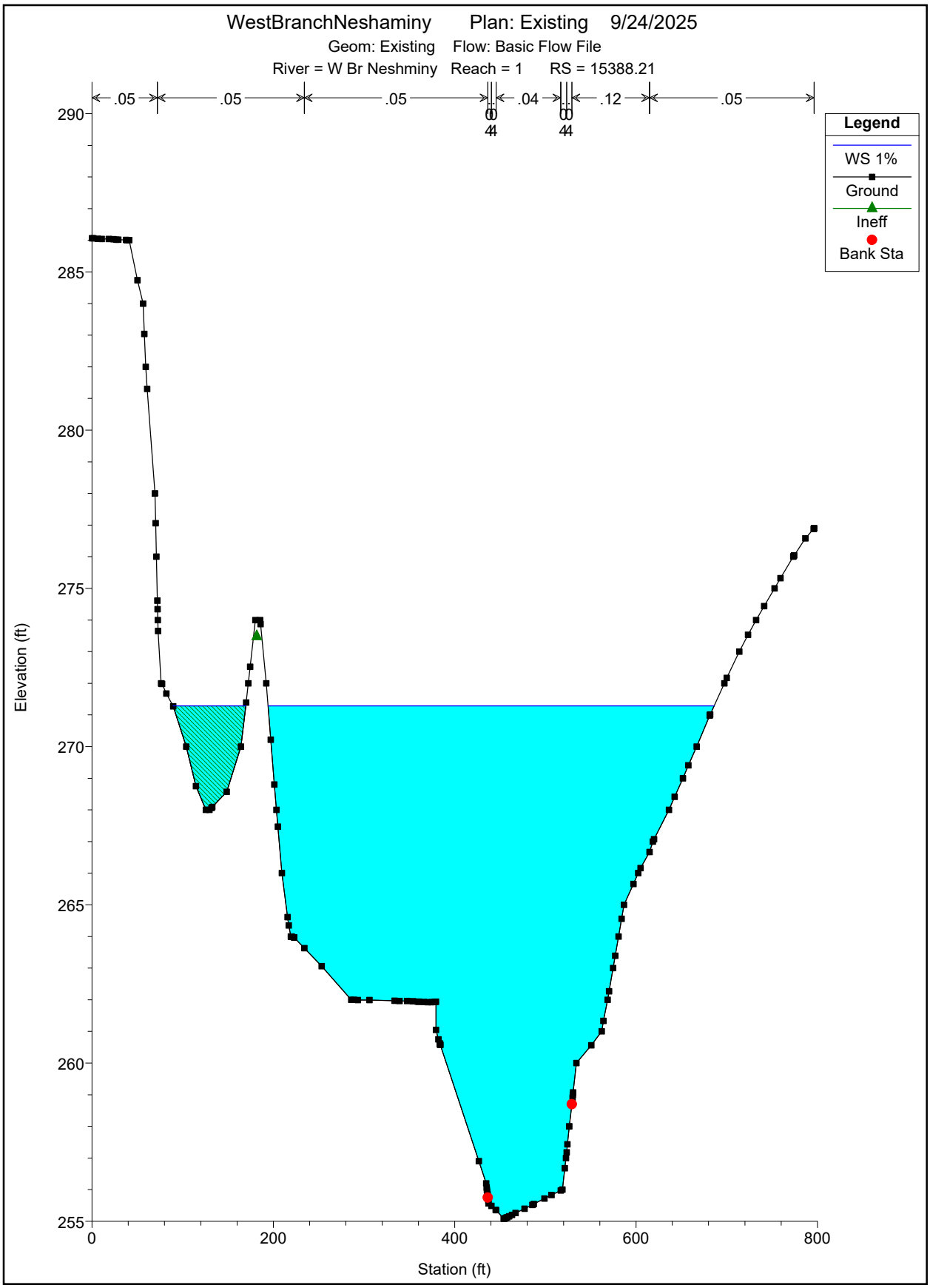
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Geom: Existing Flow: Basic Flow File
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Legend
WS 1%
Ground
Ineff
Bank Sta
Elevation (ft)
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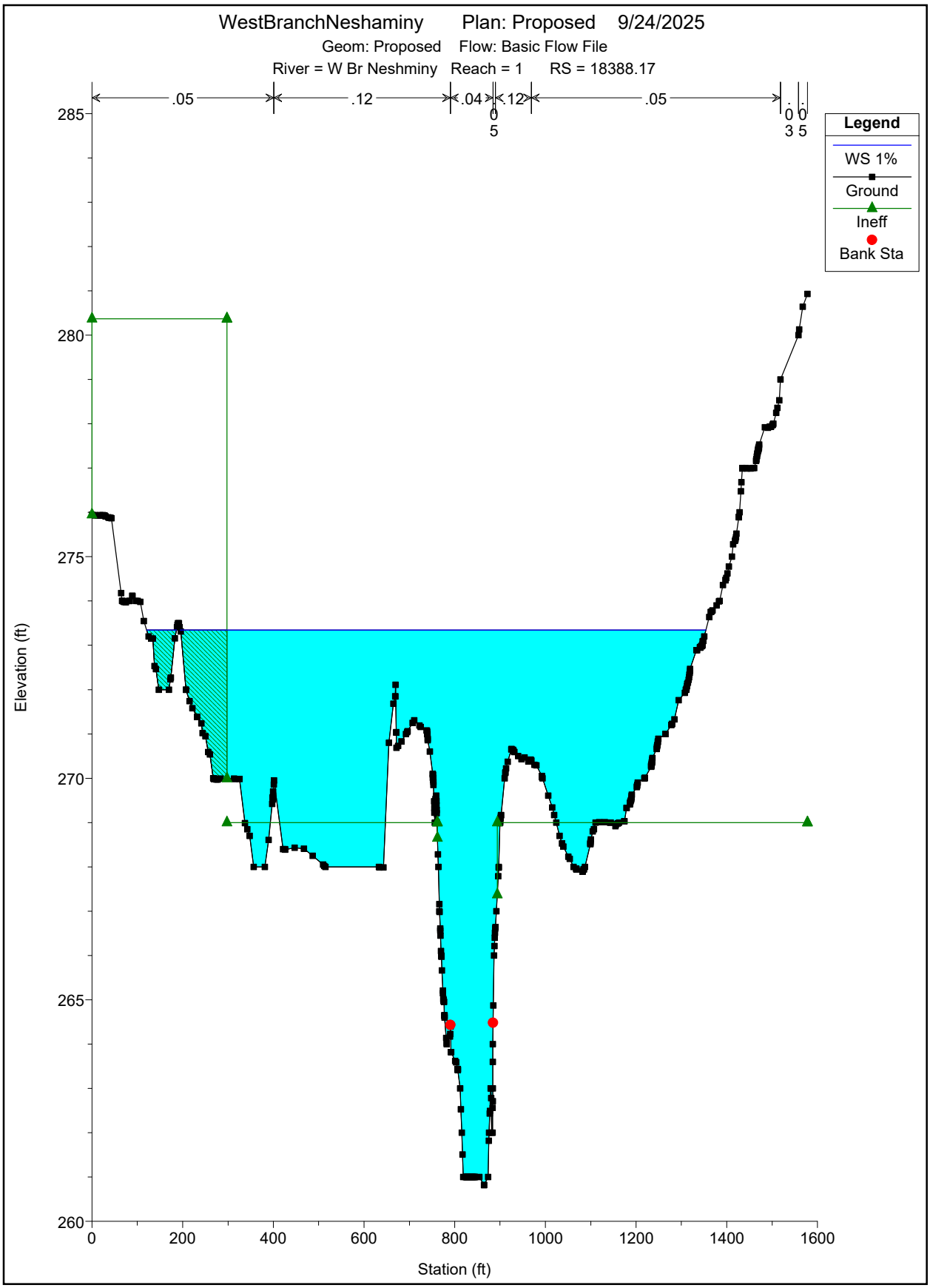
800
Station (ft)

HEC-RAS Plan: Prop River: W Br Neshminy Reach: 1 Profile: 1%

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	18937.81 19	1%	12761.00	259.70	273.73	267.68	273.85	0.000278	3.31	5121.11	896.90	0.17
1	18500.98	1%	12761.00	258.70	273.56	269.49	273.70	0.000369	4.18	5630.06	1186.30	0.20
1	18437.76		Bridge									
1	18388.17	1%	12761.00	260.82	273.35	270.78	273.65	0.001034	5.97	4929.42	1224.81	0.31
1	18288.75 T	1%	12761.00	260.00	273.29	269.40	273.52	0.000881	5.45	5154.84	840.82	0.28
1	17911.97 754	1%	12761.00	260.00	272.53	268.74	273.05	0.001684	7.44	3508.51	470.90	0.40
1	17408.13 755	1%	12761.00	258.00	272.24	267.65	272.47	0.000691	5.38	5305.67	905.03	0.26
1	17013.07 S	1%	12761.00	258.00	272.03	267.30	272.22	0.000688	5.44	5160.25	807.28	0.26
1	16436.43 756	1%	12761.00	257.00	271.74	266.08	271.90	0.000471	4.64	5158.52	732.68	0.22
1	15916.41 R	1%	12761.00	256.00	271.33	266.02	271.69	0.000289	6.09	4771.43	679.49	0.29
1	15388.21 Q	1%	12761.00	255.08	271.28	263.94	271.47	0.000353	4.34	4580.29	572.23	0.19
1	15308.34 737	1%	12761.00	254.30	271.10	264.87	271.40	0.000731	6.20	3534.50	552.98	0.27
1	15257.58		Bridge									
1	15200.99 P	1%	12761.00	254.00	269.93	266.70	270.49	0.001458	8.37	3273.24	547.31	0.38
1	14915.63 766	1%	12761.00	253.22	269.86	263.84	270.08	0.000497	5.04	4855.70	766.17	0.23
1	14578.26 O	1%	12761.00	252.76	269.57	263.38	269.88	0.000714	5.86	5680.58	770.88	0.27
1	14203.75 N	1%	12761.00	252.00	269.33	260.73	269.65	0.000756	5.70	4116.07	772.98	0.27
1	14145.82		Bridge									
1	14099.93 744	1%	12761.00	253.20	266.45	262.83	267.28	0.001887	8.20	1933.74	678.51	0.42
1	13997.64 M	1%	12761.00	253.58	265.86	262.53	266.97	0.002360	9.31	2142.83	689.08	0.47
1	13592.2 752	1%	12761.00	253.03	264.26	261.73	265.75	0.003680	10.17	1410.12	687.81	0.57
1	12998.26 753	1%	12761.00	251.97	263.16	260.66	263.85	0.002376	7.87	4028.30	1112.61	0.46
1	12717.34 L	1%	12761.00	251.72	263.15	260.40	263.35	0.001050	5.74	6238.03	1307.17	0.31
1	12347.56 759	1%	12761.00	251.60	263.01	259.48	263.15	0.000715	4.72	6157.79	1090.17	0.25
1	11770.05 K	1%	12761.00	249.85	262.54	259.16	262.82	0.000898	5.57	5132.17	903.05	0.29
1	11466.44 765	1%	12761.00	249.70	262.13	259.03	262.49	0.001503	6.93	5200.86	878.49	0.37
1	11130.8 J	1%	12761.00	249.21	261.68	258.12	262.12	0.001691	7.65	4374.72	673.80	0.40
1	10624.89 760	1%	12761.00	248.76	261.06	257.07	261.51	0.001372	6.64	4251.33	641.81	0.36
1	10209.28 I	1%	12761.00	247.71	260.60	257.24	261.00	0.001407	7.09	4232.54	611.02	0.36
1	9873.511 746	1%	12761.00	247.59	260.14	256.24	260.54	0.001267	6.63	4220.21	580.85	0.34
1	9475.018 747	1%	12761.00	247.44	259.38	256.26	259.93	0.002181	8.39	3947.13	577.70	0.45
1	8965.166 748	1%	12761.00	245.99	258.16	255.00	258.92	0.002131	8.52	3038.81	449.69	0.45
1	8454.733 749	1%	12761.00	245.14	256.43	254.00	257.59	0.003173	9.84	2477.83	388.52	0.54
1	7955.335 750	1%	12761.00	244.77	255.56	252.89	256.10	0.002450	8.45	3735.65	638.16	0.47
1	7649.488 751	1%	12761.00	244.27	255.06	252.80	255.51	0.002030	7.47	3882.40	851.40	0.42
1	7377.751 H	1%	12761.00	243.95	254.66	252.12	255.03	0.001661	6.75	4825.93	1096.88	0.38
1	6919.301 758	1%	12761.00	242.73	253.70	250.61	254.25	0.001727	7.20	3953.65	888.97	0.40
1	6428.657 G	1%	12761.00	242.19	253.02	251.31	253.45	0.002278	7.86	5240.25	1099.89	0.45
1	5952.17 762	1%	12761.00	242.06	252.39	250.27	252.78	0.002080	7.10	5119.10	1111.81	0.42
1	5604.917 F	1%	12761.00	241.45	251.98	249.73	252.39	0.002048	7.24	5030.02	979.14	0.42
1	5177.776 763	1%	12761.00	240.21	251.60	248.81	251.90	0.001052	5.95	5453.58	1015.89	0.32
1	4842.552 E	1%	12761.00	239.55	251.43	247.69	251.60	0.000618	4.34	4732.84	820.64	0.24
1	4310.577 761	1%	12761.00	238.69	251.08	247.54	251.28	0.000743	5.08	5131.87	873.34	0.26
1	3983.411	1%	12761.00	238.18	250.58	247.31	250.96	0.001430	6.95	4500.26	806.08	0.37
1	3498.278 757	1%	12761.00	236.85	249.97	246.02	250.37	0.001395	7.15	4126.65	787.77	0.36
1	3023.827 C	1%	12761.00	236.11	249.53	245.68	249.83	0.000880	5.87	4625.94	923.59	0.29
1	2697.228 22	1%	12761.00	236.02	249.33	245.42	249.58	0.000784	5.59	5036.48	762.91	0.28
1	2480.647 740	1%	12761.00	235.50	249.23	244.05	249.41	0.000525	4.51	4283.00	906.54	0.23
1	2460.118		Bridge									
1	2439.608 745	1%	12761.00	236.10	249.19	244.08	249.37	0.000537	4.50	4182.24	997.19	0.23
1	2173.758 18	1%	12761.00	235.21	249.12	243.83	249.28	0.000458	4.29	4345.37	765.28	0.21
1	1933.057 B	1%	12761.00	234.43	249.02	242.73	249.21	0.000400	4.17	4122.32	616.29	0.20
1	1774.36 742	1%	12761.00	233.90	248.67	243.22	249.04	0.001012	6.49	2995.13	540.70	0.30
1	1728.924		Bridge									
1	1685.841 743	1%	12761.00	233.70	247.50	242.71	247.89	0.001321	7.04	3106.60	555.43	0.34
1	1488.97 A	1%	12761.00	233.68	246.80	243.02	247.51	0.001654	8.11	3092.03	603.54	0.40
1	1218.175 764	1%	12761.00	233.52	246.70	243.05	247.06	0.001029	6.40	4087.97	755.15	0.32
1	839.6553 23	1%	12761.00	233.21	246.53	241.93	246.73	0.000627	5.06	4193.11	1227.82	0.25
1	241.2043 24	1%	12761.00	231.89	246.22	239.31	246.39	0.000542	4.83	5402.57	1130.12	0.23
1	58.01602	1%	12761.00	231.86	246.10	237.77	246.31	0.000377	4.10	5930.41	856.28	0.19


WestBranchNeshaminy Plan: Proposed 9/24/2025
Geom: Proposed Flow: Basic Flow File
River = W Br Neshminy Reach = 1 RS = 18388.17
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Legend
WS 1%
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
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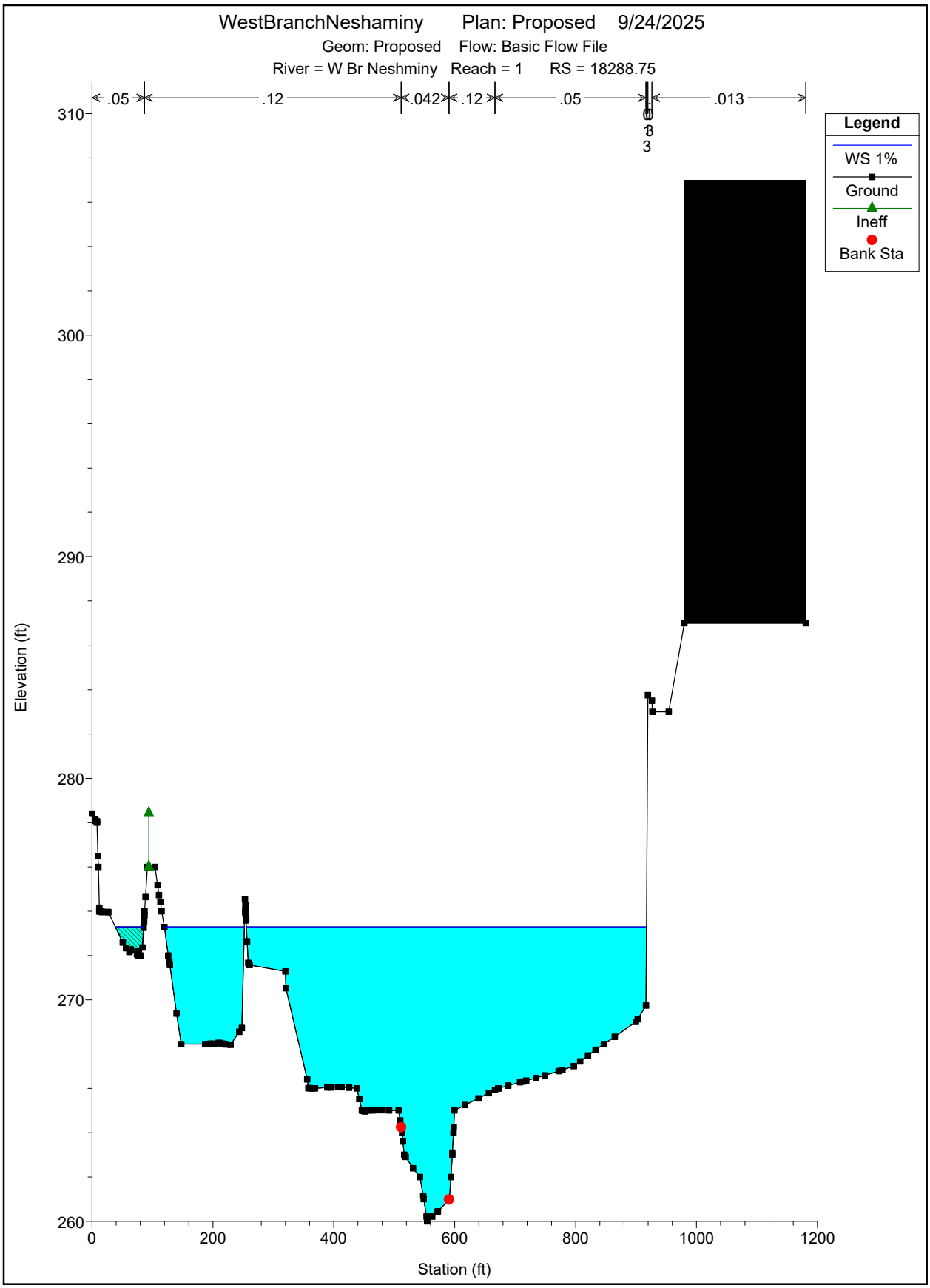
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WS 1%
Ground
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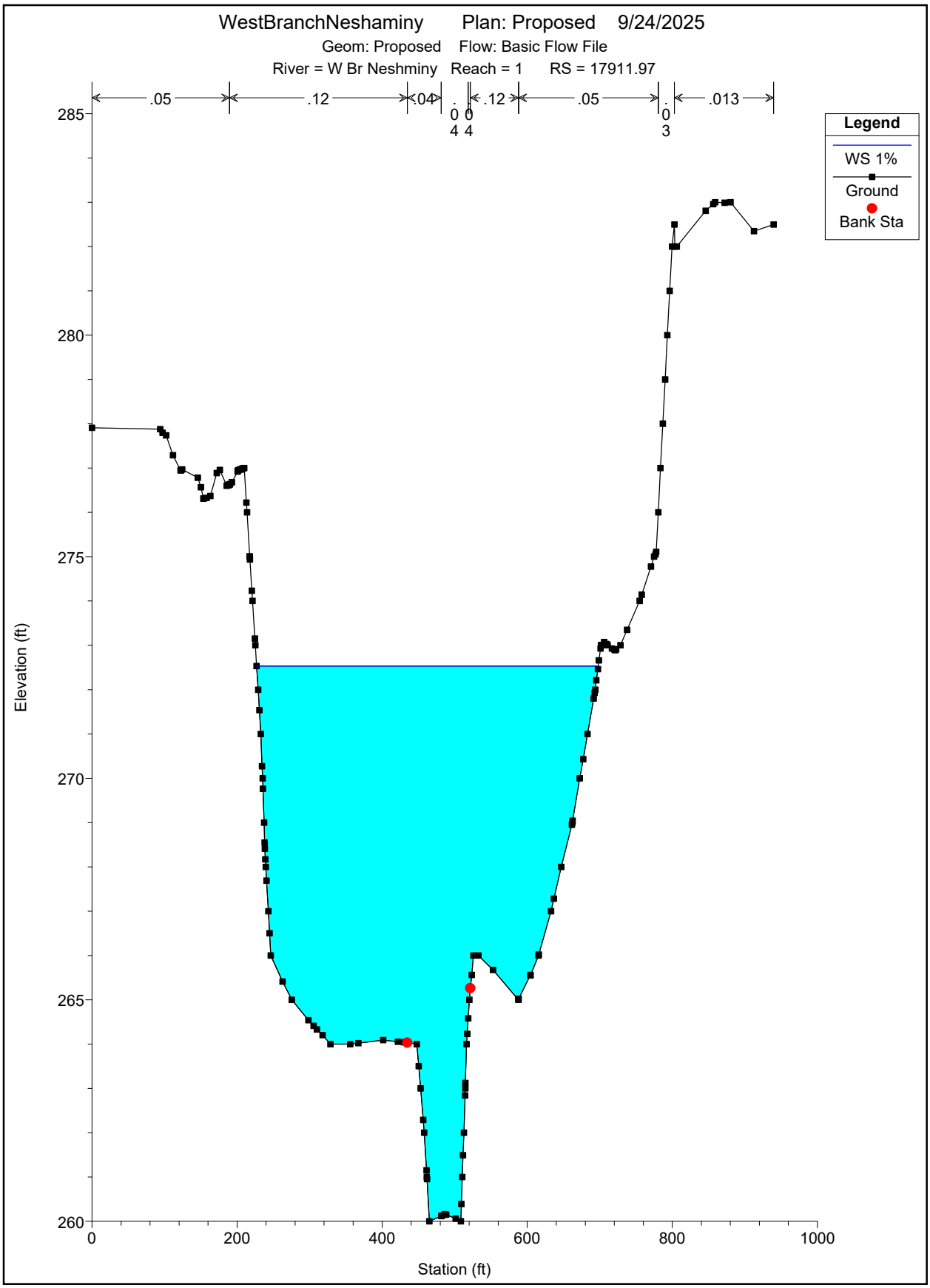
WestBranchNeshaminy Plan: Proposed 9/24/2025
Geom: Proposed Flow: Basic Flow File
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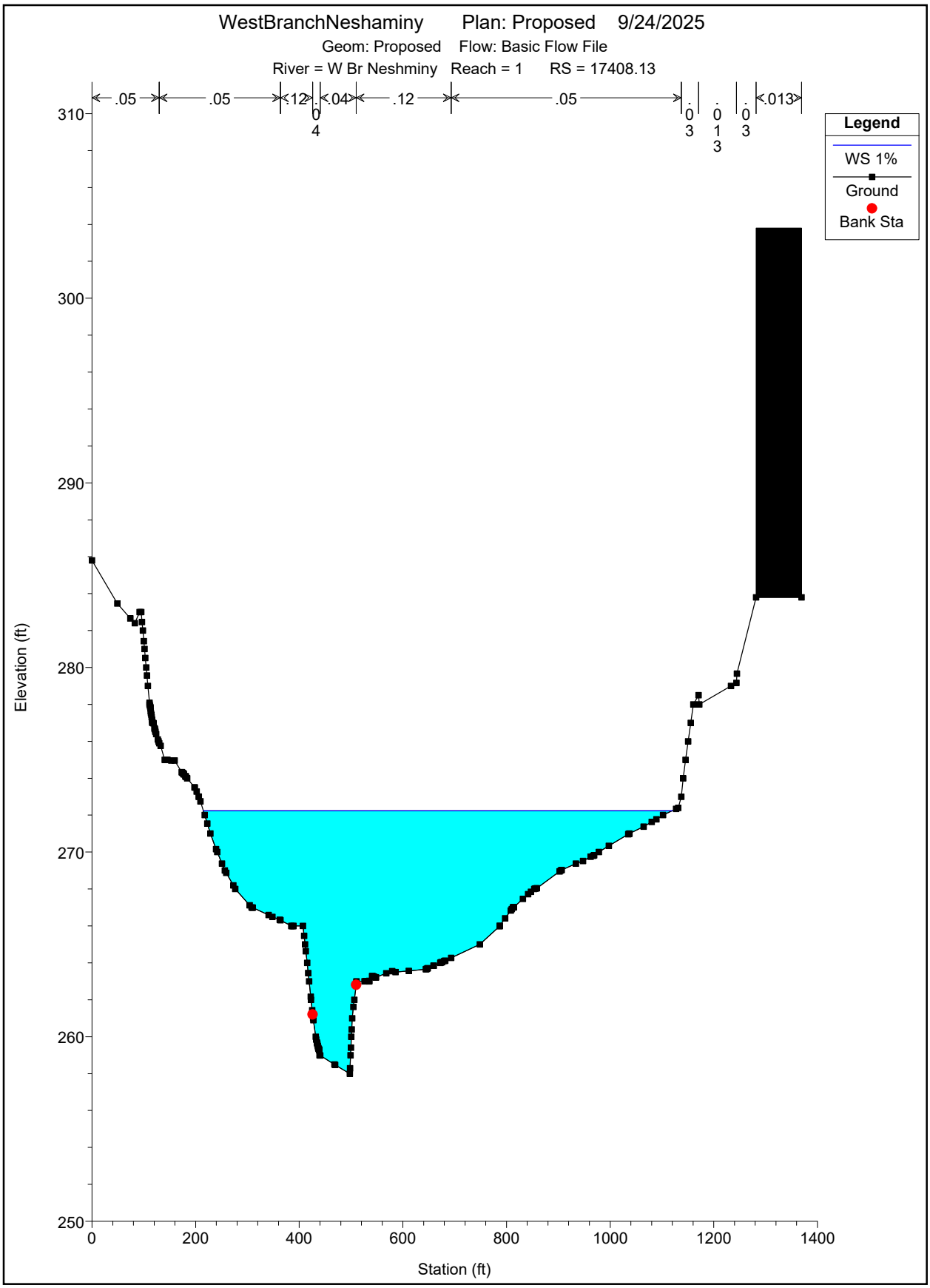
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Geom: Proposed Flow: Basic Flow File
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Legend
WS 1%
Ground
Bank Sta
Elevation (ft)
Station (ft)
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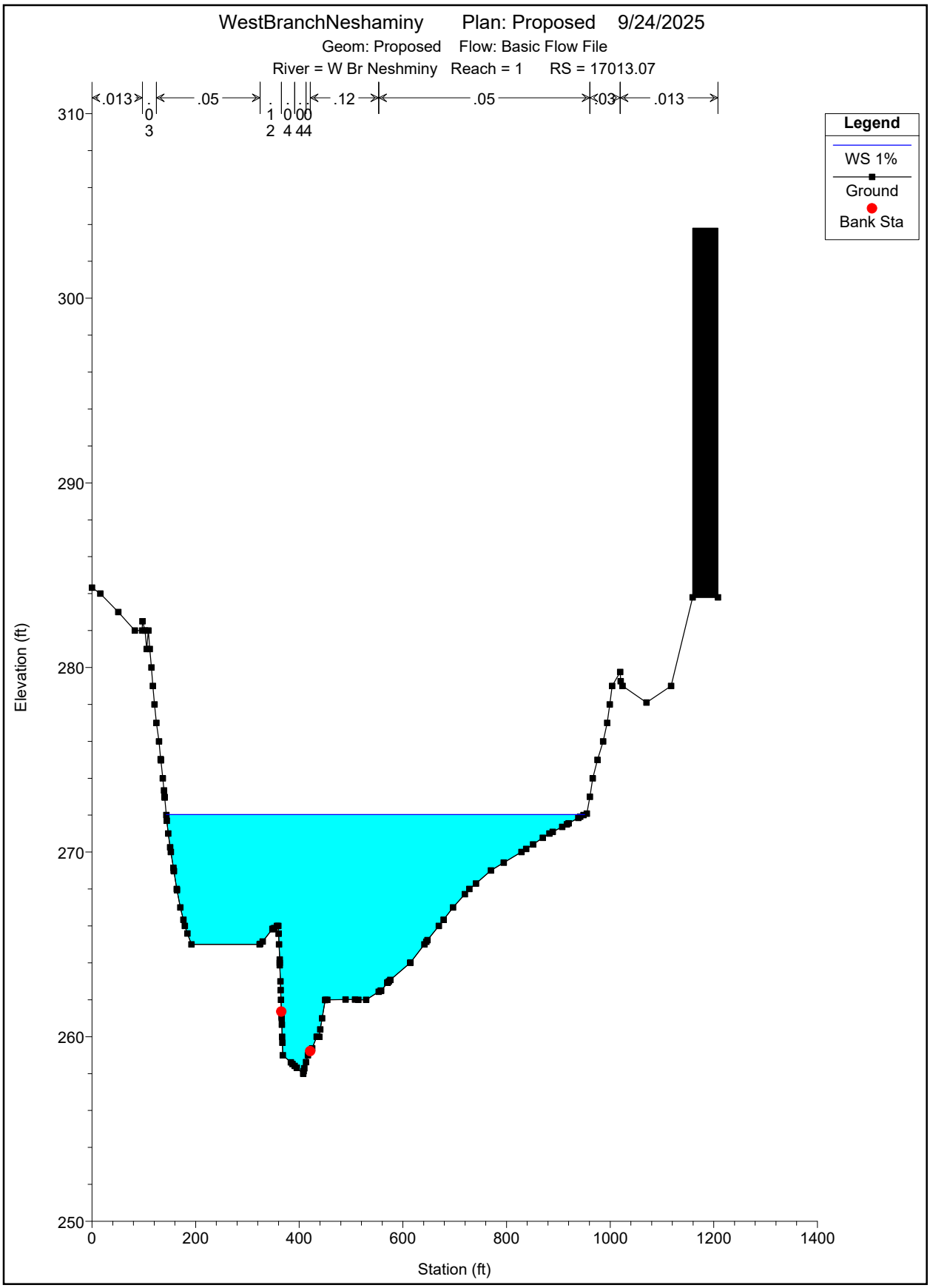
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Geom: Proposed Flow: Basic Flow File
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Legend
WS 1%
Ground
Bank Sta
Elevation (ft)
Station (ft)
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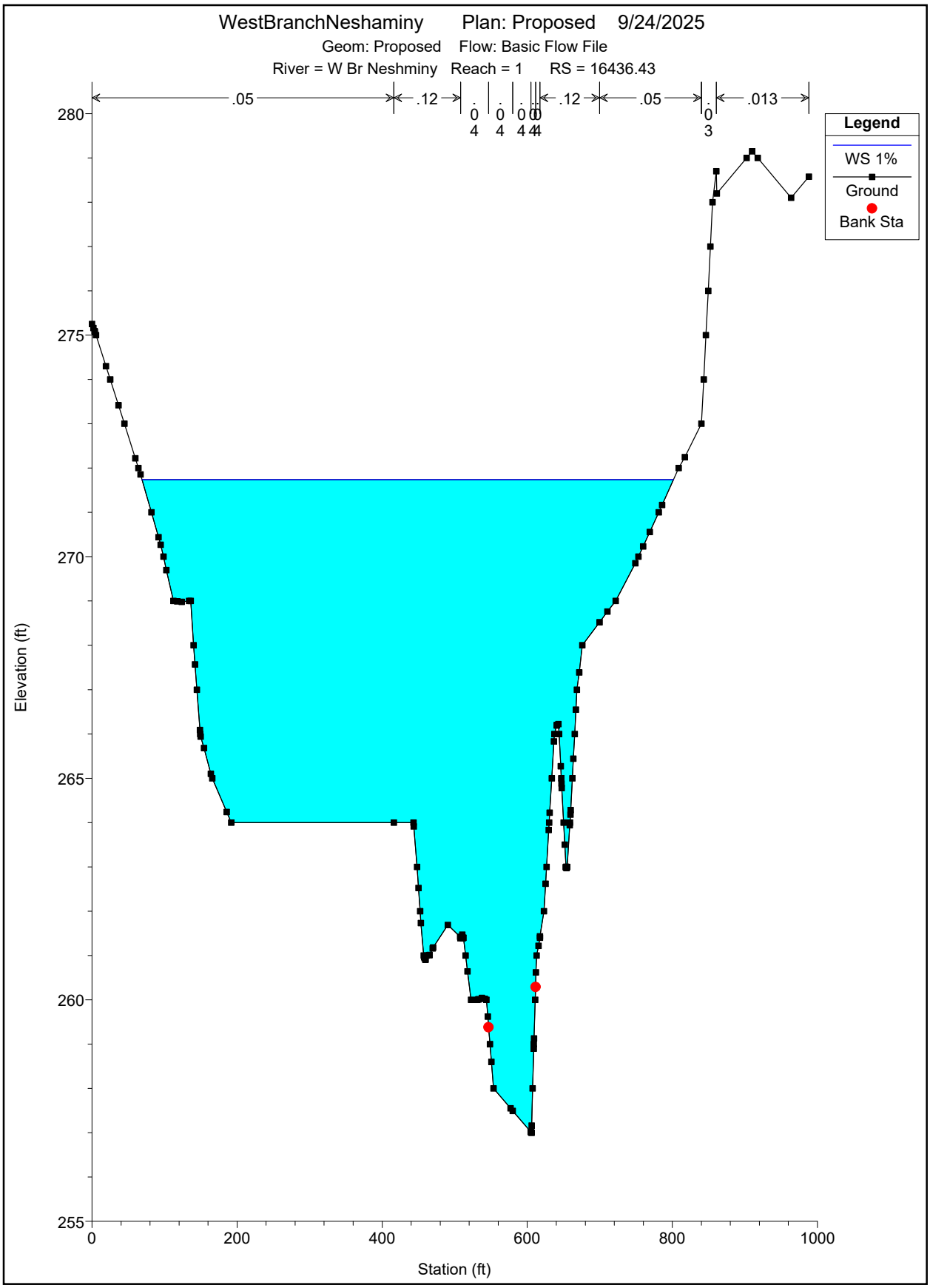
WestBranchNeshaminy Plan: Proposed 9/24/2025
Geom: Proposed Flow: Basic Flow File
River = W Br Neshminy Reach = 1 RS = 16436.43
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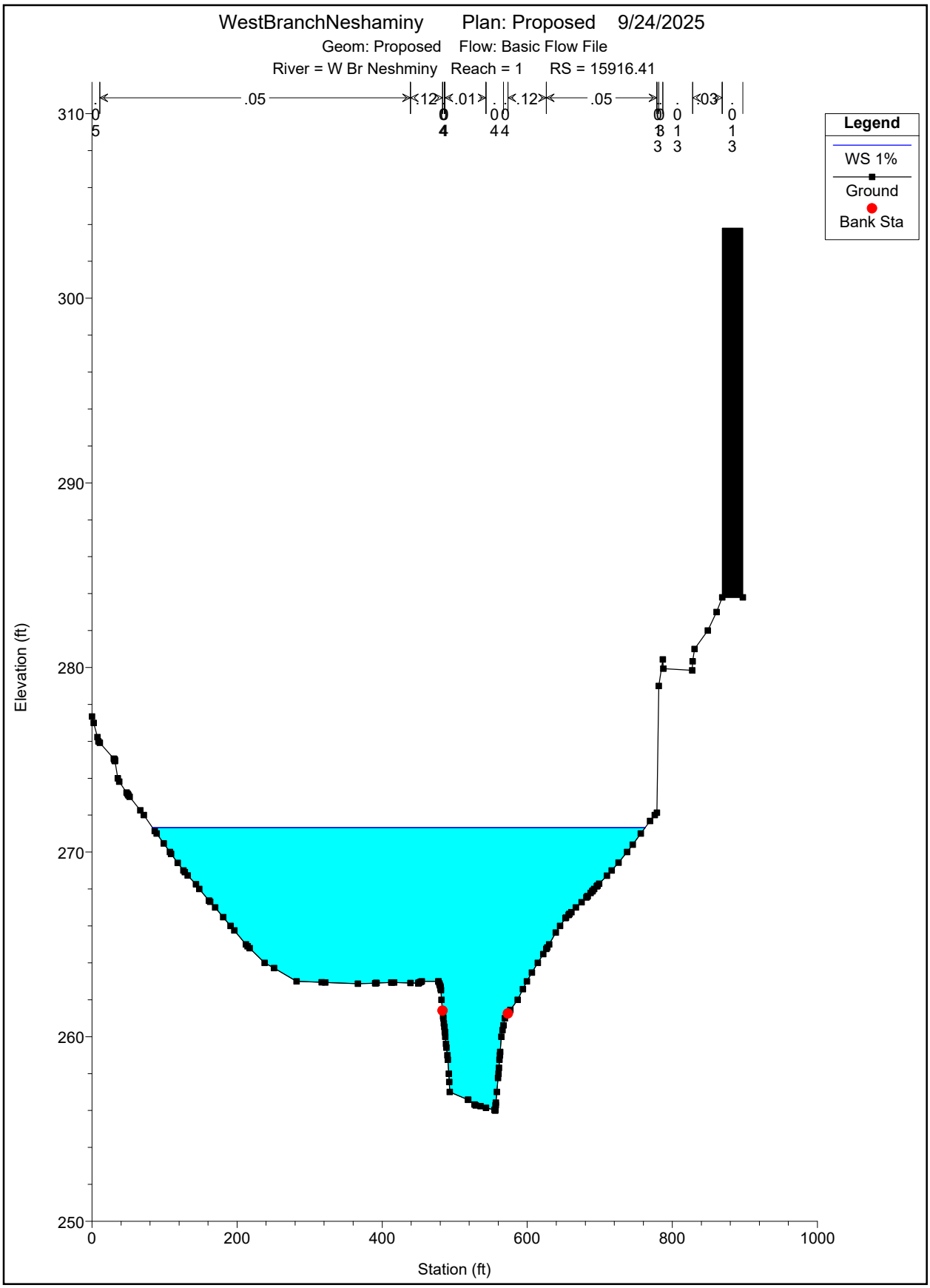
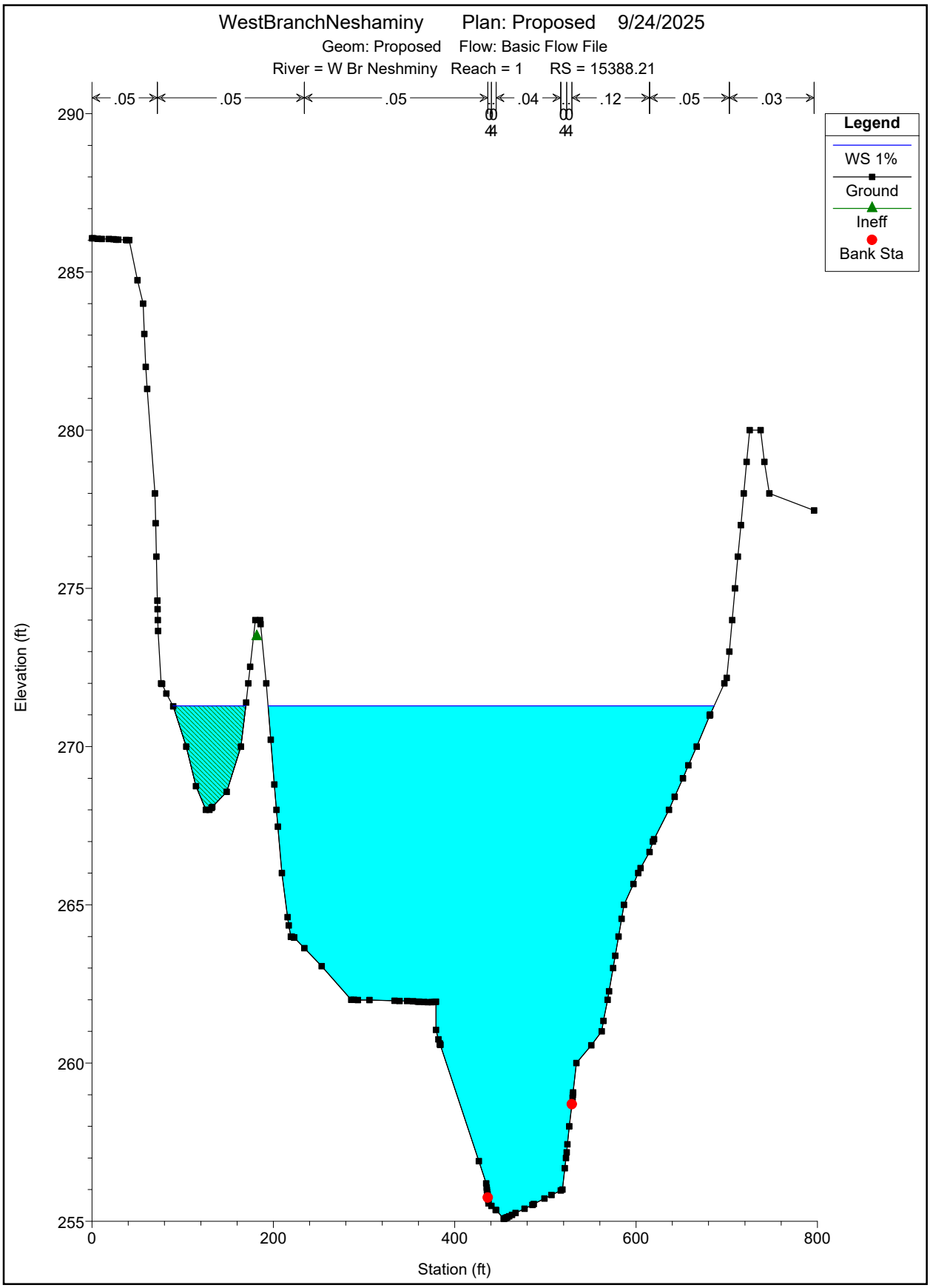
.03
.013
Legend
WS 1%
Ground
Bank Sta
Elevation (ft)
280
275
270
265
260
255
0
200
400
600
800
1000
Station (ft)


WestBranchNeshaminy Plan: Proposed 9/24/2025
Geom: Proposed Flow: Basic Flow File
River = W Br Neshminy Reach = 1 RS = 15916.41
.05
.12
.01
.12
.05
.03
Legend
WS 1%
Ground
Bank Sta
Elevation (ft)
Station (ft)
310
300
290
280
270
260
250
0
200
400
600
800
1000


WestBranchNeshaminy Plan: Proposed 9/24/2025
Geom: Proposed Flow: Basic Flow File
River = W Br Neshminy Reach = 1 RS = 15388.21
.05
.05
.05
.04
.12
.05
.03
Legend
WS 1%
Ground
Ineff
Bank Sta
Elevation (ft)
290
285
280
275
270
265
260
255
0
200
400
600
800
Station (ft)

Appendix A

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X      X   X     X  X    X
X     X  X        X           X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X           X  X     X    X        X
X     X  X        X    X      X   X    X    X        X
X     X  XXXXXX    XXXX       X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: WestBranchNeshaminy
Project File : WestBranchNeshaminy.prj
Run Date and Time: 9/19/2025 11:03:38 AM

Project in English units

Project Description:
Neshaminy Watershed - West Branch Neshaminy Creek. Detailed Study. Bucks Co, PA.
Units in feet, NAVD88
Date to ITR:

PLAN DATA

Plan Title: Existing
Plan File : r:\2025\PAC250095.00\Technical\Flood Study\Rev-0\WestBranchNeshaminy.p02

Geometry Title: Existing
Geometry File : r:\2025\PAC250095.00\Technical\Flood Study\Rev-0\WestBranchNeshaminy.g04

Flow Title : Basic Flow File
Flow File : r:\2025\PAC250095.00\Technical\Flood Study\Rev-0\WestBranchNeshaminy.f01

Plan Summary Information:
Number of: Cross Sections = 55 Multiple Openings = 0

```
            Culverts       =    0    Inline Structures  =    0
            Bridges        =    5    Lateral Structures =    0

Computational Information
    Water surface calculation tolerance  =  0.01
    Critical depth calculation tolerance =  0.01
    Maximum number of iterations         =  20
    Maximum difference tolerance         =  0.33
    Flow tolerance factor                =  0.001

Computation Options
    Critical depth computed at all cross sections
    Conveyance Calculation Method: At breaks in n values only
    Friction Slope Method:         Average Conveyance
    Computational Flow Regime:     Subcritical Flow




FLOW DATA

Flow Title: Basic Flow File
Flow File : r:\2025\PAC250095.00\Technical\Flood Study\Rev-0\WestBranchNeshaminy.f01

Flow Data (cfs)


  River           Reach           RS                    10%              2%
    1%             .2%
  W Br Neshminy   1               18937.81             2671           10810
 12761           19382
  W Br Neshminy   1               241.2043             2671           10810
 12761           19382



Boundary Conditions


  River           Reach           Profile                       Upstream
    Downstream


  W Br Neshminy   1               10%
 Known WS = 243.5
  W Br Neshminy   1               2%
 Known WS = 245.3
  W Br Neshminy   1               1%
 Known WS = 246.1
  W Br Neshminy   1               .2%
```

Known WS = 248.2

GEOMETRY DATA

Geometry Title: Existing
Geometry File : r:\2025\PAC250095.00\Technical\Flood Study\Rev-0\WestBranchNeshaminy.g04

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 18937.81

INPUT
Description:
Station Elevation Data num= 480

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	278	6.28	278.13	18.13	277.46	20.73	277.41	24.26	277.51
28.53	277.68	32.04	277.72	34.81	277.58	44.83	276.95	50.58	277.51
51.6	277.58	59.57	277.22	61.19	277.16	64.76	277.35	69.38	277.48
70.34	277.4	80.78	276.7	81.47	276.59	84.36	276.26	90.87	275.4
92.42	275.39	95.91	275.16	101.66	275.01	103.11	274.91	105.12	275.04
107.64	275.15	111.05	275.18	112.46	275.17	117.83	274.94	118.72	274.93
120.9	274.97	124.87	274.88	126.47	275.04	134.3	275.14	135.09	275.13
135.63	275.23	141.13	275.64	143.85	275.81	148.56	275.83	151.87	275.57
158	275.22	161.07	275.18	163.68	275.1	165.32	274.94	168.31	274.54
168.93	274.53	181.67	273.99	184.65	274.16	189.04	274.24	192.23	273.93
194.18	273.79	198.83	273.35	200.63	273.11	201.6	273.07	203.71	272.74
206.57	272.44	210.35	272.69	211.96	272.65	214.53	272.76	218.15	272.72
223.55	272.72	224.38	272.83	225.73	272.8	228.46	272.7	234.57	272.53
236.97	272.42	239.49	272.35	244.26	272.43	247.16	272.29	249.45	272.32
255.25	271.8	256.19	271.73	262.79	271.77	267.22	271.29	268.65	271.21
275.22	271.1	276.51	271.24	288.28	272	291.98	272.31	293.68	272.35
336.01	273.4	360.75	273.09	362.27	273.05	371.68	273.42	380.02	273.4
384.09	273.35	393.72	273.1	399.52	273.31	403.37	273.14	407.41	273.02
409.18	272.96	413.62	273.05	414.9	273.06	417.53	272.86	420.09	272.74
423.31	272.92	425.36	272.84	428.95	272.59	432.23	272.55	434.32	272.49
438.06	272.51	440.78	272.55	441.96	272.52	446.52	272.57	450.2	272.12
451.23	272.14	452.62	272.04	457.22	271.98	461.54	271.8	462.85	271.85
465.8	271.74	471.37	271.79	476.26	271.67	479.02	272.04	481.52	272.38
482.94	272.54	484.57	272.18	488	271.51	493.1	271.61	503.12	271.39
506.02	271.34	506.36	271.3	510.69	271.03	512.85	270.93	515.41	270.73
517.52	270.54	524.06	270.72	531.22	270.56	533.15	270.48	539.71	269.84
548.4	269.68	550.51	269.85	555.55	270.21	557.44	269.88	561	269.35
563.48	269.33	568.95	269.33	573.59	269.52	577.95	269.37	579.31	269.29

581.59	269.31	583.27	269.43	587.01	269.47	590.86	269.1	591.45	268.95
603.32	267.82	607.64	267.18	612.35	265.99	613.21	265.9	615.54	265.42
620.37	265.14	622.75	265.02	629.51	263.47	637.6	261.87	640.31	261.7
642.57	261.6	645.62	261.28	648.75	260.77	671	259.7	697.5	260.4
702.37	262.48	706.26	262.77	708.32	262.93	710.56	263.78	715.14	264.03
720.23	264.92	722.22	265.07	724.15	265.06	726.25	265.23	728.99	265.05
732.3	265.1	736.32	265.59	736.81	265.63	742.16	265.47	747.08	265.65
750.93	265.71	754.01	265.66	757.18	265.88	761.65	266.06	765.99	265.69
770.09	265.75	771.66	265.83	774.54	266.04	777.49	266.02	782.69	266.03
783.42	266.11	786.94	265.83	793.69	265.82	795.4	265.89	798.03	265.92
799.84	265.72	802.28	265.6	803.53	265.73	805.86	265.65	808.14	265.66
812.39	265.65	819.02	265.48	820.78	265.45	823.37	265.55	825.18	265.54
829.05	265.62	833.33	265.49	836.81	265.32	842.85	265.24	845.03	265.26
850.43	265.42	853.13	265.34	858.93	265.05	860.32	265.08	863.1	265.01
871.09	265.04	871.59	265	882.27	264.81	885.96	265.01	887.08	265
890.8	264.78	891.8	264.88	898.15	264.36	901.89	264.02	905.17	264.15
910.66	263.73	913.74	264.22	916.07	264.24	924.61	264.26	925.83	264.23
927.37	264.35	932.73	264.39	938.3	264.05	943.09	264.73	944.51	264.84
947.27	264.75	947.91	264.8	953.04	264.87	954.96	264.93	964.79	263.04
969.55	261.39	975	261.95	977.66	262.58	978.3	262.68	982.15	262.98
988.82	263.62	996.88	264.6	998.16	264.83	1000.43	265.14	1003.54	266.07
1004.73	266.35	1007.11	266.72	1008.14	266.8	1011.02	267.45	1014.7	267.5
1016.24	267.59	1019.38	268.21	1021.16	268.43	1024.82	268.69	1026.52	268.75
1028.28	268.55	1031.84	268.37	1035.08	268.33	1039.32	268.52	1041.01	268.71
1050.93	269.69	1053.33	269.76	1055.21	269.69	1058.2	269.74	1060.56	269.78
1062.78	269.63	1065.38	269.62	1068.38	269.93	1068.65	269.92	1074.57	269.39
1075.43	269.38	1078.37	269.28	1082.31	269.43	1085.68	269.37	1087.04	269.29
1089.08	269.29	1092.7	269.42	1095.98	269.5	1098.21	269.6	1099.23	269.6
1104.17	269.78	1106.17	269.84	1109.57	269.85	1112.29	269.84	1116.44	270.31
1116.86	270.3	1119.83	269.99	1122.57	270.1	1126.95	270.25	1130.3	270.29
1133.51	270.23	1137.37	270.3	1138.79	270.43	1140.68	270.5	1142.05	270.58
1146.39	270.66	1147.94	270.72	1149.51	270.65	1151.15	270.63	1152.5	270.7
1154.94	270.65	1158.31	270.62	1161.57	270.85	1167.96	270.78	1171.43	271
1172.09	271.13	1174.22	271.33	1175.43	271.44	1179.94	272.13	1182.27	272.59
1185.55	273.12	1189.5	273.8	1190.51	274.05	1192.56	274.46	1196.89	274.85
1199.82	275.2	1201.49	275.68	1202.81	275.78	1205.19	276.06	1210.1	276.52
1213.16	277.24	1215.49	277.45	1220.49	277.69	1223.61	278.12	1225.31	278.25
1227.56	278.27	1234.16	278.68	1239.3	278.79	1244.97	279.01	1250.56	279.11
1252.16	279.05	1257.07	279.21	1258.24	279.43	1262.54	279.23	1263.28	279.24
1265.62	279.43	1268.46	279.39	1273.03	279.19	1273.52	279.25	1276.05	279.39
1278.7	279.2	1281.3	279.11	1283	279.31	1286.6	279.23	1288.12	279.17
1290.71	279.13	1295.78	279.12	1298.14	279.14	1300.78	279.07	1303.47	279.09
1304.64	279	1307.51	279.4	1315.16	279.12	1318.06	279.57	1322.01	279.53
1325.64	279.32	1328.65	279.46	1332.2	279.49	1335.98	279.66	1339.06	279.48
1343.4	279.55	1346.58	279.53	1348.03	279.63	1351.03	279.66	1353.57	279.57
1355.62	279.46	1356.97	279.48	1361.46	279.62	1367.12	279.83	1370.21	279.83
1374.76	279.74	1379.11	280.02	1380.52	279.9	1384.71	279.65	1387.86	279.57
1389.54	279.62	1390.85	279.74	1395.3	279.75	1398.15	279.78	1399.68	279.66
1401.11	279.71	1403.47	279.85	1405.41	279.89	1408.3	279.91	1411.37	280.07
1413.33	280.05	1418.25	279.49	1418.9	279.44	1421.82	279.76	1425.82	279.85

1429.13	279.87	1430.4	279.82	1432.73	279.56	1437.18	279.29	1439.48	279.12
1442.02	279.01	1443.38	278.86	1447.92	278.27	1449.89	278.2	1452.82	278.23
1454.94	278.03	1459.22	277.45	1461.86	277.31	1463.19	277.18	1465.65	277.24
1470.47	277.01	1471.27	276.93	1477.25	276.67	1481.68	276.23	1484.02	275.83
1484.94	275.81	1486.67	275.63	1489.83	275.5	1493.04	275.2	1494.37	275.14
1496.69	275.08	1501.94	274.72	1504.58	274.59	1506	274.6	1512.04	274.5
1516.05	274.65	1519.43	274.8	1522.19	274.41	1524.39	274.45	1525.26	274.57
1529.93	274.47	1532.48	274.54	1535.74	274.7	1541.37	274.76	1542.68	274.75
1543.77	274.67	1547.3	274.54	1553.28	274.54	1555.87	274.81	1557.46	274.9
1563.22	275.09	1565.92	274.77	1570.87	275.16	1573.47	275.12	1576.39	275.18
1581.3	275.08	1583.79	274.87	1587.12	274.79	1590.72	275.18	1591.87	275.42
1594.03	275.38	1596.91	275.52	1599.14	275.47	1604.32	275.62	1607.23	275.37
1614.61	275.67	1614.84	275.69	1617.22	275.65	1617.42	275.62	1619.19	275.91
1626.62	276.95	1635.55	279.17	1637.51	279.17	1640.74	279.24	1644.89	279.35
1645.62	279.27	1647.7	279.17	1649.12	279.16	1650.31	279.19	1656.54	278.52
1664.41	277.3	1668.64	277.35	1674.69	277.1	1675.97	277.09	1680.42	277.29
1682.02	277.45	1686.21	277.66	1688.78	277.43	1691.99	277.47	1696.41	277.7
1699.06	277.67	1702.31	277.71	1706.55	277.72	1708.85	277.98	1709.57	278

Manning's n Values num= 10

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	407.41	.03	479.02	.05	622.75	.05	645.62	.038
706.26	.038	720.23	.038	1058.2	.05	1174.22	.05	1516.05	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

622.75	720.23	428.53	436.83	443.78	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	411.3	279.3	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
297.42	394.88	280

CROSS SECTION OUTPUT Profile #10%

E.G. Elev (ft)	268.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.050	0.040	0.038
W.S. Elev (ft)	268.12	Reach Len. (ft)	428.53	436.83	443.78
Crit W.S. (ft)	264.20	Flow Area (sq ft)	39.05	647.72	935.54
E.G. Slope (ft/ft)	0.000255	Area (sq ft)	39.05	647.72	935.54
Q Total (cfs)	2671.00	Flow (cfs)	26.44	1398.10	1246.47
Top Width (ft)	418.83	Top Width (ft)	22.63	97.48	298.72

Vel Total (ft/s)	1.65	Avg. Vel. (ft/s)	0.68	2.16	1.33
Max Chl Dpth (ft)	8.42	Hydr. Depth (ft)	1.73	6.64	3.13
Conv. Total (cfs)	167286.7	Conv. (cfs)	1655.8	87563.9	78067.0
Length Wtd. (ft)	438.28	Wetted Per. (ft)	22.91	98.60	300.10
Min Ch El (ft)	259.70	Shear (lb/sq ft)	0.03	0.10	0.05
Alpha	1.21	Stream Power (lb/ft s)	1709.57	0.00	0.00
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	159.07	235.10	94.67
C & E Loss (ft)	0.04	Cum SA (acres)	77.86	36.96	53.05

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	273.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.049	0.040	0.039
W.S. Elev (ft)	272.97	Reach Len. (ft)	428.53	436.83	443.78
Crit W.S. (ft)	267.33	Flow Area (sq ft)	519.21	1119.59	2885.98
E.G. Slope (ft/ft)	0.000280	Area (sq ft)	596.47	1119.59	2885.98
Q Total (cfs)	10810.00	Flow (cfs)	551.30	3558.64	6700.06
Top Width (ft)	864.04	Top Width (ft)	302.20	97.48	464.36
Vel Total (ft/s)	2.39	Avg. Vel. (ft/s)	1.06	3.18	2.32
Max Chl Dpth (ft)	13.27	Hydr. Depth (ft)	2.51	11.49	6.21
Conv. Total (cfs)	646594.8	Conv. (cfs)	32975.8	212858.0	400761.0
Length Wtd. (ft)	438.42	Wetted Per. (ft)	207.36	98.60	466.16

Min Ch El (ft)	259.70	Shear (lb/sq ft)	0.04	0.20	0.11
Alpha	1.18	Stream Power (lb/ft s)	1709.57	0.00	0.00
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	644.34	401.21	457.32
C & E Loss (ft)	0.01	Cum SA (acres)	133.92	36.67	100.16

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	273.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.048	0.040	0.039
W.S. Elev (ft)	273.74	Reach Len. (ft)	428.53	436.83	443.78
Crit W.S. (ft)	267.68	Flow Area (sq ft)	683.11	1195.29	3248.40
E.G. Slope (ft/ft)	0.000277	Area (sq ft)	847.12	1195.29	3248.40
Q Total (cfs)	12761.00	Flow (cfs)	840.24	3947.30	7973.46
Top Width (ft)	897.02	Top Width (ft)	330.60	97.48	468.93
Vel Total (ft/s)	2.49	Avg. Vel. (ft/s)	1.23	3.30	2.45
Max Chl Dpth (ft)	14.04	Hydr. Depth (ft)	3.23	12.26	6.93
Conv. Total (cfs)	766124.1	Conv. (cfs)	50444.8	236981.8	478697.6
Length Wtd. (ft)	438.38	Wetted Per. (ft)	212.20	98.60	470.79
Min Ch El (ft)	259.70	Shear (lb/sq ft)	0.06	0.21	0.12
Alpha	1.17	Stream Power (lb/ft s)	1709.57	0.00	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	751.79	429.18	536.40
C & E Loss (ft)	0.01	Cum SA (acres)	139.95	36.70	106.21

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	276.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.045	0.040	0.039
W.S. Elev (ft)	276.23	Reach Len. (ft)	428.53	436.83	443.78
Crit W.S. (ft)	268.77	Flow Area (sq ft)	1209.01	1437.73	4603.63
E.G. Slope (ft/ft)	0.000249	Area (sq ft)	1804.45	1437.73	4603.63
Q Total (cfs)	19382.00	Flow (cfs)	2060.23	5064.32	12257.45
Top Width (ft)	1164.73	Top Width (ft)	440.70	97.48	626.55
Vel Total (ft/s)	2.67	Avg. Vel. (ft/s)	1.70	3.52	2.66
Max Chl Dpth (ft)	16.53	Hydr. Depth (ft)	5.72	14.75	7.35
Conv. Total (cfs)	1228997.0	Conv. (cfs)	130637.5	321124.4	777234.6
Length Wtd. (ft)	438.31	Wetted Per. (ft)	212.20	98.60	628.94
Min Ch El (ft)	259.70	Shear (lb/sq ft)	0.09	0.23	0.11
Alpha	1.12	Stream Power (lb/ft s)	1709.57	0.00	0.00
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	1099.90	512.39	801.78
C & E Loss (ft)	0.01	Cum SA (acres)	157.51	36.95	124.59

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 18500.98

INPUT
Description:
Station Elevation Data num= 480

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	276.37	4.37	276.35	9.05	276.41	19.19	277.23	20.05	277.28
21.42	277.25	32.69	276.87	35.7	277.02	44.69	276.78	46.58	276.87
48.8	276.9	79.5	276.67	80.63	276.72	82.22	276.69	84.76	276.5
86.21	276.41	86.76	276.14	88.62	275.75	89.6	275.67	91.89	275.58
96.65	275.08	100.5	274.77	103.03	274.6	108.25	274.53	110.61	274.44
112.31	274.21	122.44	274.12	125.48	273.99	131.67	273.85	136.31	273.67
142.81	273.7	144.18	273.67	145.51	273.68	148.63	273.53	150.54	273.59
154.02	273.33	154.84	273.28	160.67	273.61	163.35	273.59	169.41	273.45
171.78	273.44	173.29	273.38	176.77	273.22	178.31	273.19	181.15	272.95
181.58	272.95	183.54	272.86	186.95	272.81	187.7	272.86	190.15	272.61
192.17	272.44	198.55	272.56	199.53	272.55	202.04	272.48	202.91	272.47
206.81	272.35	209.33	272.26	211.53	272.29	213.66	272.24	216.81	272.26
220.38	272.2	226.53	271.92	228.9	271.73	231.38	271.62	233.95	271.69
235.73	271.85	237.88	271.91	239.09	271.86	242.21	271.75	246.38	271.75
249.52	271.68	253.58	271.62	257.53	271.5	260.01	271.41	265.71	272.1
268.79	272.27	276.82	272.02	281.66	272.01	284.45	272.08	289.28	271.76
292.2	271.63	296.97	271.62	299.38	271.59	306.76	271.76	309.81	271.78
310.9	271.82	312.08	271.83	319.14	272.05	323.43	271.97	324.89	271.86
326.7	271.8	331.36	271.96	335.56	272.01	336.88	271.88	339.82	271.8
348.27	271.37	348.48	271.34	353.88	270.93	357.07	270.89	360.35	270.82
363.37	271.04	366.39	271.13	368.23	270.92	369.73	270.9	376.87	270.1
378.54	270.24	384.31	270.39	385.87	270.47	390.29	270.62	397.54	270.44
399	270.46	401.16	269.94	403.73	269.46	407.44	268.9	413.25	269.12
415.7	269.17	416.87	269.16	422.21	269.06	426.15	268.74	435.47	269.28
438.38	269.47	440.75	269.41	442.96	269.37	445.55	269.19	446.86	269.15
451.29	269.1	455.89	269.17	460.09	269.01	463.72	269.07	465.13	269.04
470.52	268.85	474.64	269.06	476.23	269.13	477.98	269.11	482.92	269.41
484.41	269.41	489.46	269.09	497.17	269.23	502.59	269.3	503.67	269.4
507.62	269.6	509.14	269.53	511.45	269.17	515.73	269.06	519.67	268.65
521.55	268.56	524.85	268.78	526.57	268.77	529.98	268.48	533.49	268.39
536.28	268.39	539.34	268.31	543.64	268.06	545.39	268.03	545.9	267.95
547.89	267.95	550.54	267.93	552.44	267.96	556.16	268.09	560.91	268.18
563.08	268.32	567.23	268.54	569.84	268.49	572.19	268.34	574.78	268.21
582.2	268.04	583.6	268	588.1	267.82	588.66	267.82	592.53	267.9
596.46	267.89	598.65	267.75	600.03	267.75	602.57	268.05	604.29	267.99
609.11	267.74	612.13	267.64	618.52	267.56	619.55	267.56	623.35	267.69
624.15	267.66	629.98	267.35	630.53	267.38	633.8	267.45	642.9	267.15
646.9	267.09	648.95	267.08	650.69	267.11	653.11	267.29	654.54	267.28
657.1	267.14	661.15	267.21	661.55	267.23	665.05	267.21	667.46	267.31
672.04	267.56	679.15	267.15	682.22	266.84	684.01	266.91	686.18	266.76
687.95	266.51	692.1	266.43	692.86	266.43	696.78	266.24	698.44	266.24
703.63	266.2	707.54	266.04	709.5	265.88	714.42	265.67	715.58	265.66
718.3	265.53	719.96	265.5	723.33	265.5	725.31	265.44	728.29	265.53
729.49	265.52	730.67	265.59	734.35	265.68	735.88	265.74	739.97	265.7
742.3	265.69	747.54	265.02	752.18	264.65	757.62	264.24	758.76	264.24

758.87	264.21	764	263.8	770.44	263.62	773.47	263.5	775.96	262.96
779.04	262.22	781.1	262.14	790.5	262	800.5	259.9	827	258.7
853.5	259.4	863.5	263.7	868.65	263.76	869.48	263.83	872.36	265.21
875.51	265.24	879.11	265.4	881.38	265.47	882.4	265.74	885.6	266.16
888.1	266.75	893.14	266.91	894.3	267.03	896.68	267.31	897.72	267.49
900.07	267.62	905.08	268.12	908.48	268.16	909.76	268.48	921.25	268.32
922.82	268.17	928.37	267.66	930.04	267.9	936.27	267.77	938.99	267.7
939.89	267.78	942.41	267.91	945.84	267.85	949.28	267.96	952.87	267.89
954.69	267.92	957.58	268.05	959.77	268.19	962.39	268.14	963.99	268.17
970.21	268.35	973.79	268.32	980.61	268.62	981.17	268.59	984.12	268.5
989.24	268.58	991.12	268.59	994.07	268.39	994.53	268.41	999.64	268.75
1001.56	268.73	1003.66	268.67	1005.11	268.7	1012.53	268.92	1015.42	268.96
1018.14	268.98	1022.38	268.8	1024.13	268.9	1025.72	269.02	1029.42	268.88
1032.79	268.9	1033.8	268.95	1036.12	269.15	1037.89	269.14	1041.12	269.03
1042.98	269.03	1045.95	269.18	1046.95	269.21	1053.28	269.04	1056.81	269.11
1057.31	269.13	1063.89	269.02	1067.38	269.22	1071.83	269.18	1074.34	269.27
1077.41	269.32	1077.75	269.34	1084	269.31	1084.72	269.3	1088	269.38
1091.39	269.49	1095.08	269.59	1098.55	269.52	1101.85	269.54	1105.4	269.41
1106.96	269.39	1108.9	269.52	1112.97	269.68	1115.81	269.69	1117.61	269.68
1119.17	269.58	1121.41	269.55	1125.75	269.69	1126.15	269.72	1130.62	269.7
1136.5	269.83	1137	269.85	1139.94	269.72	1141.11	269.74	1147.02	269.75
1147.34	269.76	1150.01	269.98	1150.3	269.96	1155.39	269.87	1157.33	269.96
1160.15	269.94	1166.09	270.28	1170.37	270.26	1171.08	270.28	1178.24	270.14
1180.47	270.37	1184.33	270.2	1188.6	270.16	1189.75	270.31	1195.18	270.23
1199.02	270.33	1200.18	270.28	1202.25	270.6	1203.04	270.61	1203.81	270.69
1208.22	270.79	1210.86	270.65	1213.19	270.56	1216.77	270.56	1218.75	270.61
1219.83	270.7	1223.05	270.89	1231.47	270.89	1232.75	270.93	1233.38	270.89
1237.56	270.87	1240.5	271.06	1242.37	271.2	1243.74	271.16	1247.76	271.15
1250.83	271.4	1252.6	271.43	1258.38	271.4	1261.24	271.33	1262.88	271.47
1264.4	271.42	1266.43	271.44	1270.1	271.57	1271.03	271.64	1272.52	271.7
1274.64	271.82	1276.28	271.85	1281.88	272.15	1282.28	272.13	1285.03	272.21
1286.43	272.28	1292.21	272.11	1294.98	272.24	1295.3	272.27	1300.31	272.47
1302.59	272.69	1304.97	272.62	1305.65	272.56	1311.52	272.66	1313.1	272.68
1315.95	273.19	1321.28	273.04	1323.34	272.99	1324.92	273.03	1326.31	273.14
1327.52	273.14	1328.43	273.17	1330.87	273.1	1333.6	273.14	1338.81	273.53
1343.94	273.68	1344.33	273.66	1347.57	273.67	1354.24	273.99	1356.42	274.28
1357.23	274.25	1362.86	274.16	1364.66	274.26	1367.5	274.55	1373.78	274.66
1375.04	274.69	1376.92	274.48	1377.97	274.47	1380.6	274.65	1385.43	274.77
1388.34	274.69	1390.67	274.83	1395.77	275.21	1396.37	275.18	1398.66	274.97
1400.54	275.03	1406.22	275.39	1409.41	275.45	1409.98	275.49	1413.82	275.66
1416.5	275.52	1418.76	275.53	1419.41	275.58	1425.29	275.88	1426.78	275.95
1429.12	276.14	1429.71	276.13	1437.26	275.88	1438.92	276.12	1439.93	276.29
1442.72	276.38	1447.58	276.48	1450.3	276.72	1452.69	276.7	1457.87	276.78
1458.49	276.77	1460.61	276.9	1463.23	277.02	1468.33	277.06	1468.81	277.14
1471.1	277.28	1476.48	277.16	1478.65	277.26	1481.15	277.72	1481.43	277.75
1488.21	277.55	1491.84	277.69	1494.18	277.77	1499.73	278.06	1502.13	278.22
1504.28	278.16	1508.19	278.09	1509.73	278.05	1512.63	278.09	1514.16	278.14
1521.14	278.44	1527.27	278.53	1530.45	278.66	1532.06	278.78	1533.1	278.82
1537.59	278.87	1540.57	279.02	1541.91	278.99	1543.34	279.13	1546.5	279.3
1550.87	279.11	1552.1	279.03	1553.71	279.16	1555.51	279.22	1558.02	279.6

```
  1559.6  279.85 1564.39  280.36 1569.25  280.66 1574.07   281.6 1576.23  282.23

Manning's n Values        num=      13
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  173.29     .03  239.09     .05  773.47    .038  779.04    .038
   800.5    .038   863.5     .05  875.51     .12  922.82     .05  962.39     .03
 1160.15     .05 1216.77     .03 1558.02     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        773.47   863.5           106.27  112.81  117.07             .3       .5
Ineffective Flow     num=       3
   Sta L   Sta R    Elev  Permanent
       0  238.77  278.55       F
     906 1576.23     269       F
  238.77     750  268.25       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   50.44   83.55275.4333

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           267.97    Element                  Left OB    Channel
Right OB
  Vel Head (ft)              0.19    Wt. n-Val.                0.050      0.038
  0.061
  W.S. Elev (ft)           267.79    Reach Len. (ft)           25.00      25.00
  25.00
  Crit W.S. (ft)           263.22    Flow Area (sq ft)         87.74     679.87
  75.69
  E.G. Slope (ft/ft)      0.000580   Area (sq ft)             249.40     679.87
  76.03
  Q Total (cfs)            2671.00   Flow (cfs)               151.04    2440.75
  79.21
  Top Width (ft)           302.72    Top Width (ft)           167.56      90.03
  45.13
  Vel Total (ft/s)           3.17    Avg. Vel. (ft/s)           1.72       3.59
   1.05
  Max Chl Dpth (ft)          9.09    Hydr. Depth (ft)           3.74       7.55
   1.98
  Conv. Total (cfs)       110925.9   Conv. (cfs)              6272.7   101363.5
 3289.7
  Length Wtd. (ft)          25.00    Wetted Per. (ft)          23.52      91.32
  38.75
  Min Ch El (ft)           258.70    Shear (lb/sq ft)           0.14       0.27
   0.07
  Alpha                      1.19    Stream Power (lb/ft s)  1576.23       0.00
   0.00
  Frctn Loss (ft)            0.02    Cum Volume (acre-ft)     157.65     228.44
  89.52
```

C & E Loss (ft)	0.02	Cum SA (acres)	76.92	36.02	51.30

Warning: Divided flow computed for this cross-section.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	272.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.050	0.038	0.042
W.S. Elev (ft)	272.76	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	268.49	Flow Area (sq ft)	2115.35	1127.12	1507.33
E.G. Slope (ft/ft)	0.000421	Area (sq ft)	2143.03	1127.12	1507.33
Q Total (cfs)	10810.00	Flow (cfs)	3225.78	4832.44	2751.78
Top Width (ft)	1124.80	Top Width (ft)	584.74	90.03	450.02
Vel Total (ft/s)	2.28	Avg. Vel. (ft/s)	1.52	4.29	1.83
Max Chl Dpth (ft)	14.06	Hydr. Depth (ft)	3.96	12.52	3.35
Conv. Total (cfs)	526560.2	Conv. (cfs)	157129.4	235390.5	134040.2
Length Wtd. (ft)	25.00	Wetted Per. (ft)	535.52	91.32	450.94
Min Ch El (ft)	258.70	Shear (lb/sq ft)	0.10	0.32	0.09
Alpha	1.88	Stream Power (lb/ft s)	1576.23	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	630.87	389.94	434.94
C & E Loss (ft)		Cum SA (acres)	129.56	35.73	95.50

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	273.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.050	0.038	0.041
W.S. Elev (ft)	273.57	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	269.49	Flow Area (sq ft)	2552.29	1200.69	1886.16
E.G. Slope (ft/ft)	0.000367	Area (sq ft)	2631.52	1200.69	1886.16
Q Total (cfs)	12761.00	Flow (cfs)	4118.25	5013.19	3629.57
Top Width (ft)	1187.62	Top Width (ft)	620.83	90.03	476.76
Vel Total (ft/s)	2.26	Avg. Vel. (ft/s)	1.61	4.18	1.92
Max Chl Dpth (ft)	14.87	Hydr. Depth (ft)	4.77	13.34	3.96
Conv. Total (cfs)	665775.4	Conv. (cfs)	214859.8	261551.3	189364.3
Length Wtd. (ft)	25.00	Wetted Per. (ft)	535.52	91.32	477.75
Min Ch El (ft)	258.70	Shear (lb/sq ft)	0.11	0.30	0.09
Alpha	1.71	Stream Power (lb/ft s)	1576.23	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	734.68	417.17	510.25
C & E Loss (ft)		Cum SA (acres)	135.27	35.76	101.40

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the

largest [smallest] entered value. The user may
         wish to examine this cross section and enter a single n value for the
entire channel.
Note: Multiple critical depths were found at this location. The critical depth
with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	276.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.050	0.038	0.039
W.S. Elev (ft)	276.13	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	270.88	Flow Area (sq ft)	3917.87	1430.62	3224.26
E.G. Slope (ft/ft)	0.000254	Area (sq ft)	4337.39	1430.62	3224.26
Q Total (cfs)	19382.00	Flow (cfs)	6990.45	5578.63	6812.92
Top Width (ft)	1351.27	Top Width (ft)	686.65	90.03	574.59
Vel Total (ft/s)	2.26	Avg. Vel. (ft/s)	1.78	3.90	2.11
Max Chl Dpth (ft)	17.43	Hydr. Depth (ft)	7.33	15.89	5.61
Conv. Total (cfs)	1216887.0	Conv. (cfs)	438891.1	350251.0	427745.0
Length Wtd. (ft)	25.00	Wetted Per. (ft)	535.52	91.32	575.74
Min Ch El (ft)	258.70	Shear (lb/sq ft)	0.12	0.25	0.09
Alpha	1.39	Stream Power (lb/ft s)	1576.23	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	1069.69	498.01	761.90
C & E Loss (ft)		Cum SA (acres)	151.97	36.01	118.47

Warning: When the Manning's n value for the channel was composited, the computed n
value was larger [smaller] than the
         largest [smallest] user entered n value. The n value has been set to the
largest [smallest] entered value. The user may
         wish to examine this cross section and enter a single n value for the
entire channel.
Note: Multiple critical depths were found at this location. The critical depth
with the lowest, valid, water surface was used.

BRIDGE

RIVER: W Br Neshminy
REACH: 1 RS: 18437.76

INPUT
Description: WBNES_05L - County Line Rd

Survey RDCL (274.4) does not tie
into LiDAR TOR. Elevations from LiDAR used for weir profile.
Distance from Upstream XS = 25
Deck/Roadway Width = 67.4
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 591

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	276.34		1.22	276.37		4.96	276.3	
6.02	276.18		9.73	276.08		11.96	276.14	
15.72	276.1		17.61	275.98		20.31	276.05	
21.59	275.98		24.16	276.04		25.26	276.01	
26.43	275.99		28.15	276.03		31.01	276.04	
32.6	275.98		33.92	275.98		37.77	275.81	
38.92	275.83		42.92	275.85		47.75	275.69	
48.71	275.68		52.21	275.47		52.57	275.45	
53.37	275.42		56.84	275.31		58.38	275.27	
62.83	275.09		62.89	275.09		68.56	274.69	
73.27	274.86		73.42	274.85		73.55	274.84	
74.43	274.81		79.65	274.55		81.09	274.6	
83.13	274.51		86.27	274.25		90.43	274.1	
92.43	273.99		94.9	273.89		99.56	273.55	
100.92	273.52		103.84	273.55		105.43	273.53	
107.53	273.6		111.04	273.43		111.39	273.39	
111.59	273.39		114.57	273.14		115.99	273.15	
118.9	273.13		122.25	273.12		124.46	273.06	
130.33	272.88		132.04	272.78		132.84	272.78	
135.65	272.6		137.25	272.61		139.29	272.63	
143.34	272.7		143.47	272.7		143.62	272.69	
149.01	272.36		154.19	272.21		154.46	272.2	
158.5	272.44		160.01	272.38		164.88	272.05	
166.52	272.08		169.31	272.01		170.32	271.94	
172.55	271.98		174.14	271.93		175.51	271.85	
180.46	271.48		186.21	271.75		186.54	271.77	
190.59	271.74		191.83	271.64		196.95	271.5	
198.3	271.48		201.41	271.43		201.79	271.45	
202.15	271.44		202.94	271.43		206.4	271.42	
207.62	271.4		211.34	271.42		212.01	271.43	
217.8	271.31		222.26	271.18		222.67	271.17	
222.71	271.17		226.53	271.13		228.91	271.15	

231.98	271.14	233.26	271.09	237.64	270.91
242.36	270.87	243.1	270.94	243.88	270.87
249.78	270.84	250.13	270.83	253.17	270.74
256.23	270.55	260.81	270.71	262.49	270.76
265.05	270.82	268.38	270.71	271.03	270.69
273.61	270.48	275.59	270.55	280.77	270.46
281.93	270.39	284.46	270.32	287.25	270.26
290.16	270.34	298.28	270.09	299.7	270.18
301.39	270.18	306.96	270.2	307.76	270.2
308.91	270.23	314.17	270.04	315.38	270.03
316.7	270.01	321.42	270.19	321.5	270.19
323.92	270.25	328.14	270.06	328.49	270.05
328.81	270.06	330.27	270.01	335.17	269.89
335.99	269.93	339.05	269.94	339.3	269.94
339.37	269.94	339.7	269.95	345.57	269.74
349.15	269.54	349.61	269.48	349.81	269.47
358.14	269.63	359.31	269.59	360.22	269.61
365.53	269.41	366.64	269.36	366.92	269.34
367.68	269.41	370.16	269.56	370.62	269.57
374.01	269.45	376.94	269.68	378.37	269.64
380.97	269.43	384.31	269.28	386.41	269.38
389.24	269.21	391.37	269.38	393.31	269.33
397.38	268.91	397.66	268.87	397.79	268.88
398.02	268.89	401.81	269.26	404.37	269.22
406.78	269.22	412.1	269.41	415.69	269.39
418.48	269.15	420.93	269.06	422.51	268.98
424.85	269	428.86	268.95	428.89	268.95
432.92	269.19	435.55	269.12	438.05	269.27
441.14	269.04	444.24	269.07	446.9	269.29
449.65	269.3	451.54	269.2	453.68	269.17
455.05	269.18	457.57	269.15	459.14	269.1
460.02	269.01	462.46	268.9	464.07	269.12
466.78	269.08	468.78	269.04	471.53	268.83
474.26	269.06	477.99	268.93	480.59	268.76
482.64	268.83	484.59	268.84	486.06	268.79
488.85	268.81	490.17	268.81	495.84	268.78
499.07	268.72	501.05	268.82	503.72	268.83
510.83	268.76	511.81	268.8	513.6	268.83
515.81	268.59	517.3	268.53	521.98	268.96
522.09	268.97	526.12	269.12	526.3	269.11
526.59	269.1	530.23	268.75	532.58	268.54
533.84	268.57	536.65	268.8	537.82	268.75
541.19	268.56	545.42	268.65	547.08	268.57
551.52	268.25	556.47	268.9	557.14	268.93
557.44	268.94	559.46	268.88	563.85	268.66
564.37	268.62	565.66	268.58	567.23	268.44
567.83	268.51	571.73	268.63	575.38	268.8
577.2	268.71	580.66	268.93	582.5	268.89
584.47	269.07	586.95	269.1	588.48	268.95
591.01	268.9	594.97	268.87	595.46	268.89

599	268.89		601.28	268.82		605.5	268.87
606.79	268.88		607.13	268.9		611.64	269.27
616.8	269.38		619.83	269.28		622.32	269.3
626.15	269.4		627.1	269.52		630.52	269.43
632.28	269.41		633.97	269.47		637.77	269.54
641.2	269.69		643.47	269.76		647.85	270.03
649.16	270.11		651.79	270.4		652.55	270.41
653.91	270.4		656.97	270.3		658.71	270.08
660.32	270.04		662.25	269.95		666.25	270.29
668.05	270.45		671.16	270.74		673.12	270.82
675.96	270.8		677.01	270.81		681.59	270.77
685.82	270.86		687.03	271.01		690.69	271.06
691.78	271.16		694.44	271.37		697.73	271.38
701.46	271.38		703.03	271.44		705.27	271.47
707.08	271.54		709.7	271.77		711.13	271.82
712.12	271.79		714.42	271.62		715.92	271.84
718.52	271.92		722.81	272.06		723.95	272.04
725.32	272.06		729.18	272		733.65	271.81
734.9	271.85		737.45	272.12		738.57	272.12
739.6	272.08		746.4	272		748.05	271.98
752.79	272.02		754.8	272.02		754.8	275.6
774.8	275.6	268.9	881.2	275.6	268.9	901.2	275.6
901.2	271.71		904.27	271.71		905.33	271.55
907.94	271.56		910.54	271.62		912.95	271.51
917.37	271.34		918.39	271.32		919.47	271.22
925.28	271.08		925.7	271.07		929.96	271.09
935.74	271.09		935.95	271.09		937.04	271.05
939.04	270.96		939.43	270.94		943.27	270.74
946.22	270.63		948.37	270.72		949.8	270.82
955.2	270.45		956.67	270.28		959.12	270.41
960.14	270.45		960.64	270.43		962.46	270.43
965.1	270.35		966.11	270.37		967.07	270.4
969.36	270.42		970.55	270.38		973.04	270.23
977.35	269.81		977.52	269.79		977.78	269.79
983.49	269.63		986.05	269.58		987.81	269.67
989.51	269.84		991.34	269.74		995.34	269.6
998.28	269.54		1000.09	269.49		1001.92	269.59
1003.74	269.47		1008.78	269.27		1008.97	269.27
1012.33	269.27		1014.45	269.15		1016.42	269.12
1020.56	269.13		1022.66	268.79		1024.1	268.79
1026.19	268.63		1028.21	268.56		1032.03	268.61
1034.16	268.65		1037.25	268.74		1039.23	268.78
1039.93	268.79		1041.41	268.78		1043.56	268.77
1044.79	268.74		1050.44	268.25		1051.14	268.17
1053.95	268.26		1057.94	268.46		1058.71	268.5
1060.72	268.53		1063.21	268.57		1064.24	268.61
1069.73	268.89		1071.05	268.83		1073.94	268.6
1074.63	268.68		1080.28	268.23		1081.63	268.2
1083.8	268.4		1085.05	268.39		1088.24	268.56
1091.92	268.52		1093.35	268.54		1095.45	268.54

1098.81	268.34	1102.35	268.19	1105.34	268.16
1107.83	268.55	1110.46	268.64	1112.2	268.57
1112.74	268.59	1114.41	268.58	1116.28	268.51
1117.85	268.47	1120.96	268.35	1121.54	268.39
1122.39	268.3	1123.22	268.27	1123.55	268.29
1123.87	268.3	1126.71	268.38	1127.56	268.38
1128	268.38	1133.6	268.6	1134.26	268.62
1136.04	268.68	1136.75	268.68	1137	268.68
1141.79	268.6	1146.75	268.94	1147.01	268.98
1147.36	268.96	1155.96	269.06	1156.96	269.07
1157.8	269.16	1163.68	269.02	1164.71	268.98
1167	269.16	1168.09	269.09	1171.48	268.98
1175.09	269.09	1176.58	269.13	1178.46	269.24
1181.78	269.33	1183.89	269.33	1186.34	269.2
1188.83	269.22	1192.66	269.23	1197.61	269.32
1200.89	269.3	1204.46	269.39	1205.6	269.41
1206.16	269.46	1207.35	269.52	1209.38	269.67
1210.77	269.64	1216.47	269.98	1216.91	270
1219.78	269.87	1221.15	269.96	1226.78	270.13
1229.76	270.05	1230.04	270.05	1235.17	270.15
1237.22	270.14	1239.78	270.34	1240.38	270.38
1246.57	270.44	1247.68	270.49	1249.99	270.61
1250.73	270.65	1256.68	270.82	1257.9	270.86
1258.94	270.87	1261.01	270.89	1262.66	270.87
1267.84	270.93	1268.08	270.93	1268.32	270.93
1271.19	270.99	1272.08	270.93	1273.44	270.95
1279.34	271.31	1281.57	271.35	1283.03	271.45
1283.58	271.45	1286.9	271.48	1288.76	271.62
1291.73	271.99	1291.87	272	1292.02	272
1297.8	272.3	1301.77	272.49	1302.06	272.5
1302.11	272.51	1303.18	272.49	1309.52	272.33
1310.3	272.32	1312.59	272.24	1316.57	272.37
1317.52	272.4	1319.93	272.49	1321.41	272.63
1322.99	272.66	1326.01	272.55	1328.68	272.81
1331.87	273.05	1333.43	273.06	1337.36	273.25
1340.91	273.4	1342.63	273.42	1345.39	273.41
1347.94	273.34	1350.09	273.27	1351.35	273.33
1353.54	273.59	1355.16	273.74	1361.73	273.89
1362.02	273.91	1364.85	274.04	1365.34	274.04
1372.28	274.18	1372.44	274.19	1372.71	274.19
1373.3	274.25	1378.67	274.74	1382.68	275.04
1384.03	275.1	1385.61	275.2	1388.79	275.38
1392.09	275.5	1394.68	275.51	1397.95	275.5
1400.94	275.44	1403.67	275.71	1404.78	275.93
1406.7	275.99	1411.73	276	1413.33	276.07
1414.09	276.13	1415.66	276.33	1417.06	276.56
1418	276.62	1424.43	277.14	1425.39	277.13
1426.85	276.94	1430.8	276.99	1434.52	277.31
1435.92	277.46	1437.22	277.44	1441.55	277.7
1445.34	277.98	1446.38	277.91	1448.46	278.08

1451.23	278.18	1455.88	278.34	1458.32	278.81
1458.63	278.84	1462.65	278.94	1464.38	278.98
1464.51	278.99	1465.2	278.98	1468.44	278.96
1468.75	278.98	1469.14	279.05	1474.93	279.6
1476.5	279.63	1478.47	279.83	1479.44	279.86
1481.89	279.83	1482.66	279.82	1485.72	280.06
1488.76	280.18	1489.84	280.38	1492.44	280.62
1494.51	280.58	1499	280.73	1504.51	281.23
1508.08	281.2	1510.6	281.75	1512.4	281.74
1517.93	281.6	1519.87	281.71	1522.57	281.88
1525.91	282.08	1528.34	282.32	1530.34	282.44
1531.48	282.37	1536.29	282.68	1538.89	282.96
1540.67	283.03	1545.34	283.11	1547.27	283.08
1547.78	283.12	1549.27	283.22	1551.65	283.45
1552.36	283.5	1557.21	283.66	1559.77	283.81

Upstream Bridge Cross Section Data
Station Elevation Data num= 480

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	276.37	4.37	276.35	9.05	276.41	19.19	277.23	20.05	277.28
21.42	277.25	32.69	276.87	35.7	277.02	44.69	276.78	46.58	276.87
48.8	276.9	79.5	276.67	80.63	276.72	82.22	276.69	84.76	276.5
86.21	276.41	86.76	276.14	88.62	275.75	89.6	275.67	91.89	275.58
96.65	275.08	100.5	274.77	103.03	274.6	108.25	274.53	110.61	274.44
112.31	274.21	122.44	274.12	125.48	273.99	131.67	273.85	136.31	273.67
142.81	273.7	144.18	273.67	145.51	273.68	148.63	273.53	150.54	273.59
154.02	273.33	154.84	273.28	160.67	273.61	163.35	273.59	169.41	273.45
171.78	273.44	173.29	273.38	176.77	273.22	178.31	273.19	181.15	272.95
181.58	272.95	183.54	272.86	186.95	272.81	187.7	272.86	190.15	272.61
192.17	272.44	198.55	272.56	199.53	272.55	202.04	272.48	202.91	272.47
206.81	272.35	209.33	272.26	211.53	272.29	213.66	272.24	216.81	272.26
220.38	272.2	226.53	271.92	228.9	271.73	231.38	271.62	233.95	271.69
235.73	271.85	237.88	271.91	239.09	271.86	242.21	271.75	246.38	271.75
249.52	271.68	253.58	271.62	257.53	271.5	260.01	271.41	265.71	272.1
268.79	272.27	276.82	272.02	281.66	272.01	284.45	272.08	289.28	271.76
292.2	271.63	296.97	271.62	299.38	271.59	306.76	271.76	309.81	271.78
310.9	271.82	312.08	271.83	319.14	272.05	323.43	271.97	324.89	271.86
326.7	271.8	331.36	271.96	335.56	272.01	336.88	271.88	339.82	271.8
348.27	271.37	348.48	271.34	353.88	270.93	357.07	270.89	360.35	270.82
363.37	271.04	366.39	271.13	368.23	270.92	369.73	270.9	376.87	270.1
378.54	270.24	384.31	270.39	385.87	270.47	390.29	270.62	397.54	270.44
399	270.46	401.16	269.94	403.73	269.46	407.44	268.9	413.25	269.12
415.7	269.17	416.87	269.16	422.21	269.06	426.15	268.74	435.47	269.28
438.38	269.47	440.75	269.41	442.96	269.37	445.55	269.19	446.86	269.15
451.29	269.1	455.89	269.17	460.09	269.01	463.72	269.07	465.13	269.04
470.52	268.85	474.64	269.06	476.23	269.13	477.98	269.11	482.92	269.41
484.41	269.41	489.46	269.09	497.17	269.23	502.59	269.3	503.67	269.4
507.62	269.6	509.14	269.53	511.45	269.17	515.73	269.06	519.67	268.65
521.55	268.56	524.85	268.78	526.57	268.77	529.98	268.48	533.49	268.39
536.28	268.39	539.34	268.31	543.64	268.06	545.39	268.03	545.9	267.95

547.89	267.95	550.54	267.93	552.44	267.96	556.16	268.09	560.91	268.18
563.08	268.32	567.23	268.54	569.84	268.49	572.19	268.34	574.78	268.21
582.2	268.04	583.6	268	588.1	267.82	588.66	267.82	592.53	267.9
596.46	267.89	598.65	267.75	600.03	267.75	602.57	268.05	604.29	267.99
609.11	267.74	612.13	267.64	618.52	267.56	619.55	267.56	623.35	267.69
624.15	267.66	629.98	267.35	630.53	267.38	633.8	267.45	642.9	267.15
646.9	267.09	648.95	267.08	650.69	267.11	653.11	267.29	654.54	267.28
657.1	267.14	661.15	267.21	661.55	267.23	665.05	267.21	667.46	267.31
672.04	267.56	679.15	267.15	682.22	266.84	684.01	266.91	686.18	266.76
687.95	266.51	692.1	266.43	692.86	266.43	696.78	266.24	698.44	266.24
703.63	266.2	707.54	266.04	709.5	265.88	714.42	265.67	715.58	265.66
718.3	265.53	719.96	265.5	723.33	265.5	725.31	265.44	728.29	265.53
729.49	265.52	730.67	265.59	734.35	265.68	735.88	265.74	739.97	265.7
742.3	265.69	747.54	265.02	752.18	264.65	757.62	264.24	758.76	264.24
758.87	264.21	764	263.8	770.44	263.62	773.47	263.5	775.96	262.96
779.04	262.22	781.1	262.14	790.5	262	800.5	259.9	827	259.8
853.5	259.8	863.5	263.7	868.65	263.76	869.48	263.83	872.36	265.21
875.51	265.24	879.11	265.4	881.38	265.47	882.4	265.74	885.6	266.16
888.1	266.75	893.14	266.91	894.3	267.03	896.68	267.31	897.72	267.49
900.07	267.62	905.08	268.12	908.48	268.16	909.76	268.48	921.25	268.32
922.82	268.17	928.37	267.66	930.04	267.9	936.27	267.77	938.99	267.7
939.89	267.78	942.41	267.91	945.84	267.85	949.28	267.96	952.87	267.89
954.69	267.92	957.58	268.05	959.77	268.19	962.39	268.14	963.99	268.17
970.21	268.35	973.79	268.32	980.61	268.62	981.17	268.59	984.12	268.5
989.24	268.58	991.12	268.59	994.07	268.39	994.53	268.41	999.64	268.75
1001.56	268.73	1003.66	268.67	1005.11	268.7	1012.53	268.92	1015.42	268.96
1018.14	268.98	1022.38	268.8	1024.13	268.9	1025.72	269.02	1029.42	268.88
1032.79	268.9	1033.8	268.95	1036.12	269.15	1037.89	269.14	1041.12	269.03
1042.98	269.03	1045.95	269.18	1046.95	269.21	1053.28	269.04	1056.81	269.11
1057.31	269.13	1063.89	269.02	1067.38	269.22	1071.83	269.18	1074.34	269.27
1077.41	269.32	1077.75	269.34	1084	269.31	1084.72	269.3	1088	269.38
1091.39	269.49	1095.08	269.59	1098.55	269.52	1101.85	269.54	1105.4	269.41
1106.96	269.39	1108.9	269.52	1112.97	269.68	1115.81	269.69	1117.61	269.68
1119.17	269.58	1121.41	269.55	1125.75	269.69	1126.15	269.72	1130.62	269.7
1136.5	269.83	1137	269.85	1139.94	269.72	1141.11	269.74	1147.02	269.75
1147.34	269.76	1150.01	269.98	1150.3	269.96	1155.39	269.87	1157.33	269.96
1160.15	269.94	1166.09	270.28	1170.37	270.26	1171.08	270.28	1178.24	270.14
1180.47	270.37	1184.33	270.2	1188.6	270.16	1189.75	270.31	1195.18	270.23
1199.02	270.33	1200.18	270.28	1202.25	270.6	1203.04	270.61	1203.81	270.69
1208.22	270.79	1210.86	270.65	1213.19	270.56	1216.77	270.56	1218.75	270.61
1219.83	270.7	1223.05	270.89	1231.47	270.89	1232.75	270.93	1233.38	270.89
1237.56	270.87	1240.5	271.06	1242.37	271.2	1243.74	271.16	1247.76	271.15
1250.83	271.4	1252.6	271.43	1258.38	271.4	1261.24	271.33	1262.88	271.47
1264.4	271.42	1266.43	271.44	1270.1	271.57	1271.03	271.64	1272.52	271.7
1274.64	271.82	1276.28	271.85	1281.88	272.15	1282.28	272.13	1285.03	272.21
1286.43	272.28	1292.21	272.11	1294.98	272.24	1295.3	272.27	1300.31	272.47
1302.59	272.69	1304.97	272.62	1305.65	272.56	1311.52	272.66	1313.1	272.68
1315.95	273.19	1321.28	273.04	1323.34	272.99	1324.92	273.03	1326.31	273.14
1327.52	273.14	1328.43	273.17	1330.87	273.1	1333.6	273.14	1338.81	273.53
1343.94	273.68	1344.33	273.66	1347.57	273.67	1354.24	273.99	1356.42	274.28

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 1357.23  274.25 1362.86  274.16 1364.66  274.26  1367.5  274.55 1373.78  274.66
 1375.04  274.69 1376.92  274.48 1377.97  274.47  1380.6  274.65 1385.43  274.77
 1388.34  274.69 1390.67  274.83 1395.77  275.21 1396.37  275.18 1398.66  274.97
 1400.54  275.03 1406.22  275.39 1409.41  275.45 1409.98  275.49 1413.82  275.66
  1416.5  275.52 1418.76  275.53 1419.41  275.58 1425.29  275.88 1426.78  275.95
 1429.12  276.14 1429.71  276.13 1437.26  275.88 1438.92  276.12 1439.93  276.29
 1442.72  276.38 1447.58  276.48  1450.3  276.72 1452.69   276.7 1457.87  276.78
 1458.49  276.77 1460.61   276.9 1463.23  277.02 1468.33  277.06 1468.81  277.14
  1471.1  277.28 1476.48  277.16 1478.65  277.26 1481.15  277.72 1481.43  277.75
 1488.21  277.55 1491.84  277.69 1494.18  277.77 1499.73  278.06 1502.13  278.22
 1504.28  278.16 1508.19  278.09 1509.73  278.05 1512.63  278.09 1514.16  278.14
 1521.14  278.44 1527.27  278.53 1530.45  278.66 1532.06  278.78  1533.1  278.82
 1537.59  278.87 1540.57  279.02 1541.91  278.99 1543.34  279.13  1546.5   279.3
 1550.87  279.11  1552.1  279.03 1553.71  279.16 1555.51  279.22 1558.02   279.6
  1559.6  279.85 1564.39  280.36 1569.25  280.66 1574.07   281.6 1576.23  282.23

Manning's n Values        num=      12
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  173.29     .03  239.09     .05  758.76    .038   800.5    .038
   863.5     .05  875.51     .12  922.82     .05  962.39     .03 1160.15     .05
 1216.77     .03 1558.02     .05

Bank Sta: Left   Right    Coeff Contr.   Expan.
        773.47   863.5             .3       .5
Ineffective Flow     num=       3
   Sta L   Sta R    Elev  Permanent
       0  238.77  278.55       F
     906 1576.23     269       F
  238.77     750  268.25       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   50.44   83.55275.4333

Downstream  Deck/Roadway Coordinates
    num=     591
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       0  276.34            1.22  276.37            4.96   276.3
    6.02  276.18            9.73  276.08           11.96  276.14
   15.72   276.1           17.61  275.98           20.31  276.05
   21.59  275.98           24.16  276.04           25.26  276.01
   26.43  275.99           28.15  276.03           31.01  276.04
    32.6  275.98           33.92  275.98           37.77  275.81
   38.92  275.83           42.92  275.85           47.75  275.69
   48.71  275.68           52.21  275.47           52.57  275.45
   53.37  275.42           56.84  275.31           58.38  275.27
   62.83  275.09           62.89  275.09           68.56  274.69
   73.27  274.86           73.42  274.85           73.55  274.84
   74.43  274.81           79.65  274.55           81.09   274.6
   83.13  274.51           86.27  274.25           90.43   274.1
   92.43  273.99            94.9  273.89           99.56  273.55
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100.92	273.52	103.84	273.55	105.43	273.53
107.53	273.6	111.04	273.43	111.39	273.39
111.59	273.39	114.57	273.14	115.99	273.15
118.9	273.13	122.25	273.12	124.46	273.06
130.33	272.88	132.04	272.78	132.84	272.78
135.65	272.6	137.25	272.61	139.29	272.63
143.34	272.7	143.47	272.7	143.62	272.69
149.01	272.36	154.19	272.21	154.46	272.2
158.5	272.44	160.01	272.38	164.88	272.05
166.52	272.08	169.31	272.01	170.32	271.94
172.55	271.98	174.14	271.93	175.51	271.85
180.46	271.48	186.21	271.75	186.54	271.77
190.59	271.74	191.83	271.64	196.95	271.5
198.3	271.48	201.41	271.43	201.79	271.45
202.15	271.44	202.94	271.43	206.4	271.42
207.62	271.4	211.34	271.42	212.01	271.43
217.8	271.31	222.26	271.18	222.67	271.17
222.71	271.17	226.53	271.13	228.91	271.15
231.98	271.14	233.26	271.09	237.64	270.91
242.36	270.87	243.1	270.94	243.88	270.87
249.78	270.84	250.13	270.83	253.17	270.74
256.23	270.55	260.81	270.71	262.49	270.76
265.05	270.82	268.38	270.71	271.03	270.69
273.61	270.48	275.59	270.55	280.77	270.46
281.93	270.39	284.46	270.32	287.25	270.26
290.16	270.34	298.28	270.09	299.7	270.18
301.39	270.18	306.96	270.2	307.76	270.2
308.91	270.23	314.17	270.04	315.38	270.03
316.7	270.01	321.42	270.19	321.5	270.19
323.92	270.25	328.14	270.06	328.49	270.05
328.81	270.06	330.27	270.01	335.17	269.89
335.99	269.93	339.05	269.94	339.3	269.94
339.37	269.94	339.7	269.95	345.57	269.74
349.15	269.54	349.61	269.48	349.81	269.47
358.14	269.63	359.31	269.59	360.22	269.61
365.53	269.41	366.64	269.36	366.92	269.34
367.68	269.41	370.16	269.56	370.62	269.57
374.01	269.45	376.94	269.68	378.37	269.64
380.97	269.43	384.31	269.28	386.41	269.38
389.24	269.21	391.37	269.38	393.31	269.33
397.38	268.91	397.66	268.87	397.79	268.88
398.02	268.89	401.81	269.26	404.37	269.22
406.78	269.22	412.1	269.41	415.69	269.39
418.48	269.15	420.93	269.06	422.51	268.98
424.85	269	428.86	268.95	428.89	268.95
432.92	269.19	435.55	269.12	438.05	269.27
441.14	269.04	444.24	269.07	446.9	269.29
449.65	269.3	451.54	269.2	453.68	269.17
455.05	269.18	457.57	269.15	459.14	269.1
460.02	269.01	462.46	268.9	464.07	269.12

466.78	269.08		468.78	269.04		471.53	268.83
474.26	269.06		477.99	268.93		480.59	268.76
482.64	268.83		484.59	268.84		486.06	268.79
488.85	268.81		490.17	268.81		495.84	268.78
499.07	268.72		501.05	268.82		503.72	268.83
510.83	268.76		511.81	268.8		513.6	268.83
515.81	268.59		517.3	268.53		521.98	268.96
522.09	268.97		526.12	269.12		526.3	269.11
526.59	269.1		530.23	268.75		532.58	268.54
533.84	268.57		536.65	268.8		537.82	268.75
541.19	268.56		545.42	268.65		547.08	268.57
551.52	268.25		556.47	268.9		557.14	268.93
557.44	268.94		559.46	268.88		563.85	268.66
564.37	268.62		565.66	268.58		567.23	268.44
567.83	268.51		571.73	268.63		575.38	268.8
577.2	268.71		580.66	268.93		582.5	268.89
584.47	269.07		586.95	269.1		588.48	268.95
591.01	268.9		594.97	268.87		595.46	268.89
599	268.89		601.28	268.82		605.5	268.87
606.79	268.88		607.13	268.9		611.64	269.27
616.8	269.38		619.83	269.28		622.32	269.3
626.15	269.4		627.1	269.52		630.52	269.43
632.28	269.41		633.97	269.47		637.77	269.54
641.2	269.69		643.47	269.76		647.85	270.03
649.16	270.11		651.79	270.4		652.55	270.41
653.91	270.4		656.97	270.3		658.71	270.08
660.32	270.04		662.25	269.95		666.25	270.29
668.05	270.45		671.16	270.74		673.12	270.82
675.96	270.8		677.01	270.81		681.59	270.77
685.82	270.86		687.03	271.01		690.69	271.06
691.78	271.16		694.44	271.37		697.73	271.38
701.46	271.38		703.03	271.44		705.27	271.47
707.08	271.54		709.7	271.77		711.13	271.82
712.12	271.79		714.42	271.62		715.92	271.84
718.52	271.92		722.81	272.06		723.95	272.04
725.32	272.06		729.18	272		733.65	271.81
734.9	271.85		737.45	272.12		738.57	272.12
739.6	272.08		746.4	272		748.05	271.98
752.79	272.02		754.8	272.02		754.8	275.6
774.8	275.6	268.9	881.2	275.6	268.9	901.2	275.6
901.2	271.71		904.27	271.71		905.33	271.55
907.94	271.56		910.54	271.62		912.95	271.51
917.37	271.34		918.39	271.32		919.47	271.22
925.28	271.08		925.7	271.07		929.96	271.09
935.74	271.09		935.95	271.09		937.04	271.05
939.04	270.96		939.43	270.94		943.27	270.74
946.22	270.63		948.37	270.72		949.8	270.82
955.2	270.45		956.67	270.28		959.12	270.41
960.14	270.45		960.64	270.43		962.46	270.43
965.1	270.35		966.11	270.37		967.07	270.4

969.36	270.42	970.55	270.38	973.04	270.23
977.35	269.81	977.52	269.79	977.78	269.79
983.49	269.63	986.05	269.58	987.81	269.67
989.51	269.84	991.34	269.74	995.34	269.6
998.28	269.54	1000.09	269.49	1001.92	269.59
1003.74	269.47	1008.78	269.27	1008.97	269.27
1012.33	269.27	1014.45	269.15	1016.42	269.12
1020.56	269.13	1022.66	268.79	1024.1	268.79
1026.19	268.63	1028.21	268.56	1032.03	268.61
1034.16	268.65	1037.25	268.74	1039.23	268.78
1039.93	268.79	1041.41	268.78	1043.56	268.77
1044.79	268.74	1050.44	268.25	1051.14	268.17
1053.95	268.26	1057.94	268.46	1058.71	268.5
1060.72	268.53	1063.21	268.57	1064.24	268.61
1069.73	268.89	1071.05	268.83	1073.94	268.6
1074.63	268.68	1080.28	268.23	1081.63	268.2
1083.8	268.4	1085.05	268.39	1088.24	268.56
1091.92	268.52	1093.35	268.54	1095.45	268.54
1098.81	268.34	1102.35	268.19	1105.34	268.16
1107.83	268.55	1110.46	268.64	1112.2	268.57
1112.74	268.59	1114.41	268.58	1116.28	268.51
1117.85	268.47	1120.96	268.35	1121.54	268.39
1122.39	268.3	1123.22	268.27	1123.55	268.29
1123.87	268.3	1126.71	268.38	1127.56	268.38
1128	268.38	1133.6	268.6	1134.26	268.62
1136.04	268.68	1136.75	268.68	1137	268.68
1141.79	268.6	1146.75	268.94	1147.01	268.98
1147.36	268.96	1155.96	269.06	1156.96	269.07
1157.8	269.16	1163.68	269.02	1164.71	268.98
1167	269.16	1168.09	269.09	1171.48	268.98
1175.09	269.09	1176.58	269.13	1178.46	269.24
1181.78	269.33	1183.89	269.33	1186.34	269.2
1188.83	269.22	1192.66	269.23	1197.61	269.32
1200.89	269.3	1204.46	269.39	1205.6	269.41
1206.16	269.46	1207.35	269.52	1209.38	269.67
1210.77	269.64	1216.47	269.98	1216.91	270
1219.78	269.87	1221.15	269.96	1226.78	270.13
1229.76	270.05	1230.04	270.05	1235.17	270.15
1237.22	270.14	1239.78	270.34	1240.38	270.38
1246.57	270.44	1247.68	270.49	1249.99	270.61
1250.73	270.65	1256.68	270.82	1257.9	270.86
1258.94	270.87	1261.01	270.89	1262.66	270.87
1267.84	270.93	1268.08	270.93	1268.32	270.93
1271.19	270.99	1272.08	270.93	1273.44	270.95
1279.34	271.31	1281.57	271.35	1283.03	271.45
1283.58	271.45	1286.9	271.48	1288.76	271.62
1291.73	271.99	1291.87	272	1292.02	272
1297.8	272.3	1301.77	272.49	1302.06	272.5
1302.11	272.51	1303.18	272.49	1309.52	272.33
1310.3	272.32	1312.59	272.24	1316.57	272.37

1317.52	272.4	1319.93	272.49	1321.41	272.63
1322.99	272.66	1326.01	272.55	1328.68	272.81
1331.87	273.05	1333.43	273.06	1337.36	273.25
1340.91	273.4	1342.63	273.42	1345.39	273.41
1347.94	273.34	1350.09	273.27	1351.35	273.33
1353.54	273.59	1355.16	273.74	1361.73	273.89
1362.02	273.91	1364.85	274.04	1365.34	274.04
1372.28	274.18	1372.44	274.19	1372.71	274.19
1373.3	274.25	1378.67	274.74	1382.68	275.04
1384.03	275.1	1385.61	275.2	1388.79	275.38
1392.09	275.5	1394.68	275.51	1397.95	275.5
1400.94	275.44	1403.67	275.71	1404.78	275.93
1406.7	275.99	1411.73	276	1413.33	276.07
1414.09	276.13	1415.66	276.33	1417.06	276.56
1418	276.62	1424.43	277.14	1425.39	277.13
1426.85	276.94	1430.8	276.99	1434.52	277.31
1435.92	277.46	1437.22	277.44	1441.55	277.7
1445.34	277.98	1446.38	277.91	1448.46	278.08
1451.23	278.18	1455.88	278.34	1458.32	278.81
1458.63	278.84	1462.65	278.94	1464.38	278.98
1464.51	278.99	1465.2	278.98	1468.44	278.96
1468.75	278.98	1469.14	279.05	1474.93	279.6
1476.5	279.63	1478.47	279.83	1479.44	279.86
1481.89	279.83	1482.66	279.82	1485.72	280.06
1488.76	280.18	1489.84	280.38	1492.44	280.62
1494.51	280.58	1499	280.73	1504.51	281.23
1508.08	281.2	1510.6	281.75	1512.4	281.74
1517.93	281.6	1519.87	281.71	1522.57	281.88
1525.91	282.08	1528.34	282.32	1530.34	282.44
1531.48	282.37	1536.29	282.68	1538.89	282.96
1540.67	283.03	1545.34	283.11	1547.27	283.08
1547.78	283.12	1549.27	283.22	1551.65	283.45
1552.36	283.5	1557.21	283.66	1559.77	283.81

Downstream Bridge Cross Section Data
Station Elevation Data num= 468

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	275.95	5.7	275.94	7.77	275.93	13.55	275.93	17.99	275.94
19.32	275.93	21.79	275.93	24.17	275.94	27.49	275.93	29.86	275.91
36.01	275.89	37.64	275.88	40.58	275.88	42.85	275.87	64.24	274.18
66.12	274	67.43	274	68.67	273.99	69.8	273.99	70.36	273.98
71.38	273.98	74.58	273.97	81.99	274	82.5	274	88.85	274.12
89.25	274.11	96.42	274	100.65	274	106.59	273.98	114.51	273.55
125.01	273.2	130.35	273.15	133.95	273.15	137.78	272.53	141.15	272.46
147.2	272	169.81	272	172.65	272.23	174.13	272.27	182.94	273.16
187.28	273.41	188.5	273.46	189.4	273.5	191.49	273.5	193.33	273.41
195.6	273.31	207.42	272	207.44	272	215.19	271.74	221.33	271.58
231.81	271.39	231.97	271.38	241.15	271.24	243.96	271.02	250.05	270.95
256.65	270.59	259.96	270.54	267.4	270	268.4	270	269.06	269.98
269.55	269.98	269.78	269.99	274.17	269.97	275.94	269.98	277.53	269.97

283.71	269.99	313.11	269.99	314.83	269.98	325.28	269.98	337.58	268.99
342.52	268.85	347.82	268.7	356.75	268	381.09	268	389.32	268.61
397.13	269.42	398.42	269.55	398.63	269.57	398.8	269.56	399.11	269.52
399.5	269.7	401.04	269.86	401.81	269.95	421.19	268.4	425.34	268.4
426.1	268.39	446.9	268.43	467.49	268.41	486.44	268.25	509.64	268.05
512.44	268.02	514.75	268	632.66	268	633.77	267.99	642.73	267.99
655.03	270.8	664.97	271.68	668.94	271.85	669.13	271.85	669.34	272.11
671.2	271.04	671.21	271.03	671.8	270.69	675.2	270.73	682.29	270.83
692.68	271	695.29	271.04	695.93	271.06	707.28	271.25	710.96	271.31
722.4	271.19	725	271.16	737.9	271.08	738.98	271.07	739.38	271.04
739.67	271	739.74	270.99	740.33	270.89	740.66	270.86	744.92	270.6
751.62	270.1	751.72	270.08	751.78	270.08	752.13	270.01	752.2	270.01
752.36	270	752.45	270	752.56	269.98	752.67	269.96	752.84	269.92
753.13	269.85	754.47	269.48	755	269.33	755.34	269.22	756.23	269
756.76	268.99	757.16	269	757.97	269.48	758.05	269	758.08	269.52
758.15	269.54	758.21	269.54	758.34	269.52	758.55	269.47	758.87	269.59
759.11	269.61	759.54	269.49	759.95	269.39	760.3	269.28	760.5	269.21
761.05	269	763.01	268.28	763.94	268	765.88	267.16	766.29	267
766.74	266.98	768.01	266.61	768.14	266.56	768.51	266.45	769.73	266.1
770.09	266	770.39	265.99	770.62	265.98	770.75	265.97	771.92	265.66
773.66	265.21	773.96	265.15	774.73	265.02	774.88	265	775.27	264.99
775.5	264.97	775.74	264.96	776.39	264.95	777.25	264.65	777.29	264.64
777.39	264.63	777.61	264.6	781.27	264.14	782.22	264.02	782.49	264
789.57	264.17	790.02	264.23	790.43	264.44	790.69	264.43	791.23	264.4
791.77	263.82	791.97	263.82	800.99	263.62	803.21	263.59	806.45	263.44
806.7	263.43	806.82	263.43	806.86	263.42	806.93	263.42	807.04	263.41
812.06	263	813.75	262.53	815.6	262	817.4	261.51	818.89	261
823.88	261	825.24	261	825.92	261	826.6	261	827.27	261
827.82	261	827.97	261	828.12	261	828.26	261	829	261
836.09	261	836.92	261	836.98	261	837.84	261	838.76	261
839.68	261	840.6	261	841.51	261	842.43	261	843.82	261
844.76	261	854.28	261	864.8	260.82	864.9	260.82	873.79	261
875.29	261.82	875.62	262	877.51	262.43	877.71	262.49	879.53	263
879.83	263	880.19	262.78	881.36	262	883.71	262	883.8	262.56
883.84	262.71	883.96	263	883.97	263.6	884.04	264	884.67	264.48
885.19	264.87	886.67	266	887.54	266.21	888.41	266.4	888.96	266.51
889.48	266.61	889.67	266.64	891.9	267	896.32	267.79	896.94	267.98
896.98	268	899.84	268.99	899.96	269	900.12	269	900.34	269.04
901.28	269.1	901.46	269.11	901.99	269.16	902.1	269.17	910.35	270
911.57	270.12	911.64	270.13	913.27	270.22	917.1	270.37	924.55	270.65
925.41	270.66	928.33	270.64	928.59	270.64	928.82	270.63	929.79	270.61
931.57	270.59	939.73	270.5	947.35	270.43	953.99	270.47	962.28	270.38
967.46	270.42	968.95	270.4	975.74	270.3	979.97	270.29	992.27	270.05
992.33	270.04	992.41	270.04	992.43	270.03	992.45	270.03	992.47	270.02
993.62	270	1006.26	269.61	1015.24	269.34	1019.55	269.17	1023.94	269
1031.34	268.7	1036.74	268.53	1039.81	268.46	1050.47	268.23	1053.8	268.18
1062.24	268	1067.64	267.96	1068.22	267.95	1068.43	267.94	1081.81	267.89
1082.15	267.89	1082.19	267.9	1082.22	267.9	1084.71	267.94	1084.77	267.94
1084.81	267.95	1087.06	268	1099.13	268.51	1099.2	268.52	1099.37	268.54
1099.74	268.57	1100.46	268.62	1104.52	268.8	1106.88	268.85	1110.87	269

```
 1118.64  269.01 1130.83  269.01 1142.45     269 1144.19     269 1154.82  268.92
 1155.77  268.96 1159.93  268.98 1159.98  268.98 1162.16     269 1173.67  269.03
 1174.62  269.03 1178.99  269.33 1179.07  269.33 1186.25  269.41 1186.31  269.42
 1186.48  269.43 1187.19  269.45 1187.57  269.47 1188.19  269.49 1188.92  269.51
 1189.46  269.54 1189.91  269.57 1190.29   269.6  1190.6  269.63 1201.68   269.8
 1202.08  269.82  1202.7  269.85 1203.56   269.9 1218.37     270 1218.96     270
 1219.16  270.01 1219.17  270.01 1233.16  270.26  1233.2  270.27 1233.31  270.28
 1233.57  270.29 1234.11  270.31 1234.63  270.33 1234.94  270.35  1235.1  270.36
 1235.16  270.37 1235.41   270.4 1235.61  270.42 1235.82  270.46  1245.4  270.66
 1246.03   270.7 1246.55  270.73 1246.97  270.75 1247.89  270.81 1248.05  270.83
 1248.91  270.89 1264.52     271 1264.62     271 1277.61   271.2 1279.31  271.22
 1279.45  271.23 1284.55  271.33 1293.95  271.76  1307.8  271.93 1309.53     272
 1310.95     272 1311.37  272.03 1312.03  272.08 1312.57  272.13 1314.62  272.16
 1315.79  272.22 1316.82  272.28 1317.73  272.34 1318.38  272.38 1318.88  272.43
 1319.27  272.47 1333.34  272.89 1334.81  272.89 1341.03  272.96 1341.15  272.95
 1342.21  272.95 1343.82  272.98 1345.23  272.98 1345.33  272.99 1345.78  272.99
 1346.02     273 1346.18     273 1346.35  273.02 1346.82  273.09 1348.52   273.1
 1350.44   273.2 1361.26  273.64 1364.67  273.75 1366.61  273.76 1368.65  273.79
 1377.48   273.9 1382.89  273.99 1384.26     274 1391.76  274.36 1397.28  274.47
 1397.44  274.48 1398.96  274.52 1401.72  274.62 1404.47  274.78 1411.48     275
 1414.04  275.28 1418.46  275.36  1419.2  275.39 1420.12  275.44 1421.41  275.52
 1426.64  275.89  1426.8   275.9 1428.12     276 1431.15  276.48 1432.56  276.68
 1434.55  276.99 1434.61     277 1442.33     277 1444.94  276.99 1452.71  276.99
 1457.22     277 1460.67     277 1464.58  277.16 1465.06  277.19 1465.36   277.2
  1466.4  277.26  1466.8  277.28  1467.5  277.32 1467.98  277.34 1468.44  277.37
 1468.99  277.39 1469.27  277.41 1469.39  277.42 1469.92  277.43 1470.03  277.44
 1470.23  277.46 1470.84  277.46 1471.15  277.49 1471.49  277.53 1484.01  277.92
 1490.83  277.91 1495.29  277.94 1497.49  277.93  1500.6  277.97 1501.23  277.98
 1501.42  277.98 1502.84     278 1509.07  278.25 1511.78  278.36 1516.02  278.53
 1527.74     279 1527.86     279 1528.03  279.01 1557.64     280 1557.99     280
 1559.94  280.13 1567.59  280.64 1578.04  280.93

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  401.04     .12  790.69     .04  884.67     .05  889.67     .12
  968.95     .05

Bank Sta: Left   Right    Coeff Contr.   Expan.
        790.69  884.67             .3       .5
Ineffective Flow     num=       3
   Sta L   Sta R    Elev  Permanent
       0  297.82280.3696       F
  297.82     762     269       F
     894 1578.04     269       F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
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Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =      .8
           Max Low Cord                =

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT  Profile #10%


  E.G. US. (ft)               267.97    Element                 Inside BR US
Inside BR DS
  W.S. US. (ft)               267.79    E.G. Elev (ft)              267.94
267.81
  Q Total (cfs)              2671.00    W.S. Elev (ft)              267.68
267.41
  Q Bridge (cfs)             2671.00    Crit W.S. (ft)              263.64
264.79
  Q Weir (cfs)                          Max Chl Dpth (ft)             7.88
 6.59
  Weir Sta Lft (ft)                     Vel Total (ft/s)              3.92
 4.77
  Weir Sta Rgt (ft)                     Flow Area (sq ft)           681.77
559.71
  Weir Submerg                          Froude # Chl                  0.26
 0.35
  Weir Max Depth (ft)                   Specif Force (cu ft)       2697.56
1990.52
  Min El Weir Flow (ft)       269.01    Hydr Depth (ft)               6.41
 5.26
  Min El Prs (ft)             268.90    W.P. Total (ft)             114.60
115.72
  Delta EG (ft)                 0.22    Conv. Total (cfs)          91303.8
58432.8
  Delta WS (ft)                 0.41    Top Width (ft)              106.44
```

106.45

BR Open Area (sq ft)	718.77	Frctn Loss (ft)	0.09
0.04			
BR Open Vel (ft/s)	4.77	C & E Loss (ft)	0.04
0.01			
Coef of Q		Shear Total (lb/sq ft)	0.32
0.63			
Br Sel Method	Energy only	Power Total (lb/ft s)	0.00
0.00			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

BRIDGE OUTPUT Profile #2%

E.G. US. (ft)	272.91	Element	Inside BR US
Inside BR DS			
W.S. US. (ft)	272.76	E.G. Elev (ft)	272.91
272.85			
Q Total (cfs)	10810.00	W.S. Elev (ft)	272.76
272.51			
Q Bridge (cfs)	2924.78	Crit W.S. (ft)	268.26
270.89			
Q Weir (cfs)	7885.22	Max Chl Dpth (ft)	12.96
11.69			
Weir Sta Lft (ft)	238.77	Vel Total (ft/s)	3.36
3.19			
Weir Sta Rgt (ft)	1314.37	Flow Area (sq ft)	3221.34
3391.93			
Weir Submerg	0.93	Froude # Chl	0.19
0.22			
Weir Max Depth (ft)	4.66	Specif Force (cu ft)	11038.63
10124.30			
Min El Weir Flow (ft)	269.01	Hydr Depth (ft)	3.47
3.87			
Min El Prs (ft)	268.90	W.P. Total (ft)	1154.83
1103.82			
Delta EG (ft)	0.06	Conv. Total (cfs)	
Delta WS (ft)	0.25	Top Width (ft)	978.40
1000.84			
BR Open Area (sq ft)	718.77	Frctn Loss (ft)	

BR Open Vel (ft/s)	4.07	C & E Loss (ft)	
Coef of Q		Shear Total (lb/sq ft)	
Br Sel Method	Press/Weir	Power Total (lb/ft s)	0.00 0.00

Note: The downstream water surface is above the minimum elevation required for orifice flow. The orifice flow equation was used for pressure flow.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: For the cross section inside the bridge at the downstream end, the water surface and energy have been projected from the downstream cross section. The selected bridge modeling method does not compute answers inside the bridge.

BRIDGE OUTPUT Profile #1%

E.G. US. (ft)	273.71	Element	Inside BR US Inside BR DS
W.S. US. (ft)	273.57	E.G. Elev (ft)	273.71 273.66
Q Total (cfs)	12761.00	W.S. Elev (ft)	273.57 273.35
Q Bridge (cfs)	2760.14	Crit W.S. (ft)	271.21 271.37
Q Weir (cfs)	10000.86	Max Chl Dpth (ft)	13.77 12.53
Weir Sta Lft (ft)	238.77	Vel Total (ft/s)	3.21 3.10
Weir Sta Rgt (ft)	1348.37	Flow Area (sq ft)	3980.40 4111.84
Weir Submerg	0.96	Froude # Chl	0.17 0.19
Weir Max Depth (ft)	5.46	Specif Force (cu ft)	13979.84 13096.01
Min El Weir Flow (ft)	269.01	Hydr Depth (ft)	4.17 4.57
Min El Prs (ft)	268.90	W.P. Total (ft)	1183.26

1129.36

Delta EG (ft)	0.06	Conv. Total (cfs)	
Delta WS (ft)	0.22	Top Width (ft)	1041.22
1068.84			
BR Open Area (sq ft)	718.77	Frctn Loss (ft)	
BR Open Vel (ft/s)	3.84	C & E Loss (ft)	
Coef of Q		Shear Total (lb/sq ft)	
Br Sel Method	Press/Weir	Power Total (lb/ft s)	0.00
0.00			

Note: The downstream water surface is above the minimum elevation required for orifice flow. The orifice flow equation was used for pressure flow.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Note: For the cross section inside the bridge at the downstream end, the water surface and energy have been projected from the downstream cross section. The selected bridge modeling method does not compute answers inside the bridge.

BRIDGE OUTPUT Profile #.2%

E.G. US. (ft)	276.24	Element	Inside BR US
Inside BR DS			
W.S. US. (ft)	276.13	E.G. Elev (ft)	276.24
276.18			
Q Total (cfs)	19382.00	W.S. Elev (ft)	276.13
275.95			
Q Bridge (cfs)	2462.37	Crit W.S. (ft)	272.01
272.21			
Q Weir (cfs)	16919.63	Max Chl Dpth (ft)	16.33
15.13			
Weir Sta Lft (ft)	238.77	Vel Total (ft/s)	2.94
2.94			
Weir Sta Rgt (ft)	1414.93	Flow Area (sq ft)	6592.83
6583.85			
Weir Submerg	0.98	Froude # Chl	0.14

0.15			
Weir Max Depth (ft)	7.99	Specif Force (cu ft)	27538.28
26563.81			
Min El Weir Flow (ft)	269.01	Hydr Depth (ft)	5.61
5.94			
Min El Prs (ft)	268.90	W.P. Total (ft)	1407.63
1342.00			
Delta EG (ft)	0.06	Conv. Total (cfs)	
Delta WS (ft)	0.17	Top Width (ft)	1327.22
1371.08			
BR Open Area (sq ft)	718.77	Frctn Loss (ft)	
BR Open Vel (ft/s)	3.43	C & E Loss (ft)	
Coef of Q		Shear Total (lb/sq ft)	
Br Sel Method	Press/Weir	Power Total (lb/ft s)	0.00
0.00			

Note: The downstream water surface is above the minimum elevation required for orifice flow. The orifice flow equation was used for pressure flow.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Note: For the cross section inside the bridge at the downstream end, the water surface and energy have been projected from the downstream cross section. The selected bridge modeling method does not compute answers inside the bridge.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 18388.17

INPUT
Description:
Station Elevation Data num= 468

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	275.95	5.7	275.94	7.77	275.93	13.55	275.93	17.99	275.94
19.32	275.93	21.79	275.93	24.17	275.94	27.49	275.93	29.86	275.91

36.01	275.89	37.64	275.88	40.58	275.88	42.85	275.87	64.24	274.18
66.12	274	67.43	274	68.67	273.99	69.8	273.99	70.36	273.98
71.38	273.98	74.58	273.97	81.99	274	82.5	274	88.85	274.12
89.25	274.11	96.42	274	100.65	274	106.59	273.98	114.51	273.55
125.01	273.2	130.35	273.15	133.95	273.15	137.78	272.53	141.15	272.46
147.2	272	169.81	272	172.65	272.23	174.13	272.27	182.94	273.16
187.28	273.41	188.5	273.46	189.4	273.5	191.49	273.5	193.33	273.41
195.6	273.31	207.42	272	207.44	272	215.19	271.74	221.33	271.58
231.81	271.39	231.97	271.38	241.15	271.24	243.96	271.02	250.05	270.95
256.65	270.59	259.96	270.54	267.4	270	268.4	270	269.06	269.98
269.55	269.98	269.78	269.99	274.17	269.97	275.94	269.98	277.53	269.97
283.71	269.99	313.11	269.99	314.83	269.98	325.28	269.98	337.58	268.99
342.52	268.85	347.82	268.7	356.75	268	381.09	268	389.32	268.61
397.13	269.42	398.42	269.55	398.63	269.57	398.8	269.56	399.11	269.52
399.5	269.7	401.04	269.86	401.81	269.95	421.19	268.4	425.34	268.4
426.1	268.39	446.9	268.43	467.49	268.41	486.44	268.25	509.64	268.05
512.44	268.02	514.75	268	632.66	268	633.77	267.99	642.73	267.99
655.03	270.8	664.97	271.68	668.94	271.85	669.13	271.85	669.34	272.11
671.2	271.04	671.21	271.03	671.8	270.69	675.2	270.73	682.29	270.83
692.68	271	695.29	271.04	695.93	271.06	707.28	271.25	710.96	271.31
722.4	271.19	725	271.16	737.9	271.08	738.98	271.07	739.38	271.04
739.67	271	739.74	270.99	740.33	270.89	740.66	270.86	744.92	270.6
751.62	270.1	751.72	270.08	751.78	270.08	752.13	270.01	752.2	270.01
752.36	270	752.45	270	752.56	269.98	752.67	269.96	752.84	269.92
753.13	269.85	754.47	269.48	755	269.33	755.34	269.22	756.23	269
756.76	268.99	757.16	269	757.97	269.48	758.05	269	758.08	269.52
758.15	269.54	758.21	269.54	758.34	269.52	758.55	269.47	758.87	269.59
759.11	269.61	759.54	269.49	759.95	269.39	760.3	269.28	760.5	269.21
761.05	269	763.01	268.28	763.94	268	765.88	267.16	766.29	267
766.74	266.98	768.01	266.61	768.14	266.56	768.51	266.45	769.73	266.1
770.09	266	770.39	265.99	770.62	265.98	770.75	265.97	771.92	265.66
773.66	265.21	773.96	265.15	774.73	265.02	774.88	265	775.27	264.99
775.5	264.97	775.74	264.96	776.39	264.95	777.25	264.65	777.29	264.64
777.39	264.63	777.61	264.6	781.27	264.14	782.22	264.02	782.49	264
789.57	264.17	790.02	264.23	790.43	264.44	790.69	264.43	791.23	264.4
791.77	263.82	791.97	263.82	800.99	263.62	803.21	263.59	806.45	263.44
806.7	263.43	806.82	263.43	806.86	263.42	806.93	263.42	807.04	263.41
812.06	263	813.75	262.53	815.6	262	817.4	261.51	818.89	261
823.88	261	825.24	261	825.92	261	826.6	261	827.27	261
827.82	261	827.97	261	828.12	261	828.26	261	829	261
836.09	261	836.92	261	836.98	261	837.84	261	838.76	261
839.68	261	840.6	261	841.51	261	842.43	261	843.82	261
844.76	261	854.28	261	864.8	260.82	864.9	260.82	873.79	261
875.29	261.82	875.62	262	877.51	262.43	877.71	262.49	879.53	263
879.83	263	880.19	262.78	881.36	262	883.71	262	883.8	262.56
883.84	262.71	883.96	263	883.97	263.6	884.04	264	884.67	264.48
885.19	264.87	886.67	266	887.54	266.21	888.41	266.4	888.96	266.51
889.48	266.61	889.67	266.64	891.9	267	896.32	267.79	896.94	267.98
896.98	268	899.84	268.99	899.96	269	900.12	269	900.34	269.04
901.28	269.1	901.46	269.11	901.99	269.16	902.1	269.17	910.35	270

911.57	270.12	911.64	270.13	913.27	270.22	917.1	270.37	924.55	270.65
925.41	270.66	928.33	270.64	928.59	270.64	928.82	270.63	929.79	270.61
931.57	270.59	939.73	270.5	947.35	270.43	953.99	270.47	962.28	270.38
967.46	270.42	968.95	270.4	975.74	270.3	979.97	270.29	992.27	270.05
992.33	270.04	992.41	270.04	992.43	270.03	992.45	270.03	992.47	270.02
993.62	270	1006.26	269.61	1015.24	269.34	1019.55	269.17	1023.94	269
1031.34	268.7	1036.74	268.53	1039.81	268.46	1050.47	268.23	1053.8	268.18
1062.24	268	1067.64	267.96	1068.22	267.95	1068.43	267.94	1081.81	267.89
1082.15	267.89	1082.19	267.9	1082.22	267.9	1084.71	267.94	1084.77	267.94
1084.81	267.95	1087.06	268	1099.13	268.51	1099.2	268.52	1099.37	268.54
1099.74	268.57	1100.46	268.62	1104.52	268.8	1106.88	268.85	1110.87	269
1118.64	269.01	1130.83	269.01	1142.45	269	1144.19	269	1154.82	268.92
1155.77	268.96	1159.93	268.98	1159.98	268.98	1162.16	269	1173.67	269.03
1174.62	269.03	1178.99	269.33	1179.07	269.33	1186.25	269.41	1186.31	269.42
1186.48	269.43	1187.19	269.45	1187.57	269.47	1188.19	269.49	1188.92	269.51
1189.46	269.54	1189.91	269.57	1190.29	269.6	1190.6	269.63	1201.68	269.8
1202.08	269.82	1202.7	269.85	1203.56	269.9	1218.37	270	1218.96	270
1219.16	270.01	1219.17	270.01	1233.16	270.26	1233.2	270.27	1233.31	270.28
1233.57	270.29	1234.11	270.31	1234.63	270.33	1234.94	270.35	1235.1	270.36
1235.16	270.37	1235.41	270.4	1235.61	270.42	1235.82	270.46	1245.4	270.66
1246.03	270.7	1246.55	270.73	1246.97	270.75	1247.89	270.81	1248.05	270.83
1248.91	270.89	1264.52	271	1264.62	271	1277.61	271.2	1279.31	271.22
1279.45	271.23	1284.55	271.33	1293.95	271.76	1307.8	271.93	1309.53	272
1310.95	272	1311.37	272.03	1312.03	272.08	1312.57	272.13	1314.62	272.16
1315.79	272.22	1316.82	272.28	1317.73	272.34	1318.38	272.38	1318.88	272.43
1319.27	272.47	1333.34	272.89	1334.81	272.89	1341.03	272.96	1341.15	272.95
1342.21	272.95	1343.82	272.98	1345.23	272.98	1345.33	272.99	1345.78	272.99
1346.02	273	1346.18	273	1346.35	273.02	1346.82	273.09	1348.52	273.1
1350.44	273.2	1361.26	273.64	1364.67	273.75	1366.61	273.76	1368.65	273.79
1377.48	273.9	1382.89	273.99	1384.26	274	1391.76	274.36	1397.28	274.47
1397.44	274.48	1398.96	274.52	1401.72	274.62	1404.47	274.78	1411.48	275
1414.04	275.28	1418.46	275.36	1419.2	275.39	1420.12	275.44	1421.41	275.52
1426.64	275.89	1426.8	275.9	1428.12	276	1431.15	276.48	1432.56	276.68
1434.55	276.99	1434.61	277	1442.33	277	1444.94	276.99	1452.71	276.99
1457.22	277	1460.67	277	1464.58	277.16	1465.06	277.19	1465.36	277.2
1466.4	277.26	1466.8	277.28	1467.5	277.32	1467.98	277.34	1468.44	277.37
1468.99	277.39	1469.27	277.41	1469.39	277.42	1469.92	277.43	1470.03	277.44
1470.23	277.46	1470.84	277.46	1471.15	277.49	1471.49	277.53	1484.01	277.92
1490.83	277.91	1495.29	277.94	1497.49	277.93	1500.6	277.97	1501.23	277.98
1501.42	277.98	1502.84	278	1509.07	278.25	1511.78	278.36	1516.02	278.53
1527.74	279	1527.86	279	1528.03	279.01	1557.64	280	1557.99	280
1559.94	280.13	1567.59	280.64	1578.04	280.93				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	401.04	.12	790.69	.04	884.67	.05	889.67	.12
968.95	.05								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
790.69	884.67	104.32	99.42	99.99	.3	.5

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
0	297.82	280.3696	F
297.82	762	269	F
894	1578.04	269	F

CROSS SECTION OUTPUT Profile #10%

E.G. Elev (ft)	267.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.120	0.040	0.053
W.S. Elev (ft)	267.38	Reach Len. (ft)	104.32	99.42	99.99
Crit W.S. (ft)	264.75	Flow Area (sq ft)	60.92	524.53	9.05
E.G. Slope (ft/ft)	0.001880	Area (sq ft)	60.92	524.53	9.05
Q Total (cfs)	2671.00	Flow (cfs)	58.01	2601.02	11.98
Top Width (ft)	128.65	Top Width (ft)	25.32	93.98	9.35
Vel Total (ft/s)	4.49	Avg. Vel. (ft/s)	0.95	4.96	1.32
Max Chl Dpth (ft)	6.56	Hydr. Depth (ft)	2.41	5.58	0.97
Conv. Total (cfs)	61602.0	Conv. (cfs)	1337.8	59987.9	276.2
Length Wtd. (ft)	99.67	Wetted Per. (ft)	25.80	97.11	9.97
Min Ch El (ft)	260.82	Shear (lb/sq ft)	0.28	0.63	0.11
Alpha	1.19	Stream Power (lb/ft s)	1578.04	0.00	0.00
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	157.52	226.94	89.43
C & E Loss (ft)	0.03	Cum SA (acres)	76.85	35.79	51.26

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	272.85	Element	Left OB	Channel	Right OB

Vel Head (ft)	0.34	Wt. n-Val.	0.094	0.040	0.055
W.S. Elev (ft)	272.51	Reach Len. (ft)	104.32	99.42	99.99
Crit W.S. (ft)	270.17	Flow Area (sq ft)	1817.72	1006.73	1234.62
E.G. Slope (ft/ft)	0.001190	Area (sq ft)	1990.61	1006.73	1234.62
Q Total (cfs)	10810.00	Flow (cfs)	2349.49	6133.31	2327.21
Top Width (ft)	1155.52	Top Width (ft)	625.61	93.98	435.93
Vel Total (ft/s)	2.66	Avg. Vel. (ft/s)	1.29	6.09	1.88
Max Chl Dpth (ft)	11.69	Hydr. Depth (ft)	3.69	10.71	2.83
Conv. Total (cfs)	313394.1	Conv. (cfs)	68114.2	177811.5	67468.4
Length Wtd. (ft)	100.56	Wetted Per. (ft)	496.12	97.11	437.02
Min Ch El (ft)	260.82	Shear (lb/sq ft)	0.27	0.77	0.21
Alpha	3.13	Stream Power (lb/ft s)	1578.04	0.00	0.00
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	626.91	387.95	432.01
C & E Loss (ft)	0.06	Cum SA (acres)	128.06	35.68	94.41

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	273.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.094	0.040	0.055
W.S. Elev (ft)	273.35	Reach Len. (ft)	104.32	99.42	99.99
Crit W.S. (ft)	270.78	Flow Area (sq ft)	2233.80	1086.07	1617.61
E.G. Slope (ft/ft)	0.001030	Area (sq ft)	2530.49	1086.07	1617.61
Q Total (cfs)	12761.00	Flow (cfs)	3090.73	6474.47	3195.81

Top Width (ft)	1225.53	Top Width (ft)	662.00	93.98	469.55
Vel Total (ft/s)	2.58	Avg. Vel. (ft/s)	1.38	5.96	1.98
Max Chl Dpth (ft)	12.53	Hydr. Depth (ft)	4.53	11.56	3.44
Conv. Total (cfs)	397692.6	Conv. (cfs)	96321.5	201774.8	99596.3
Length Wtd. (ft)	100.66	Wetted Per. (ft)	496.12	97.11	470.67
Min Ch El (ft)	260.82	Shear (lb/sq ft)	0.29	0.72	0.22
Alpha	2.92	Stream Power (lb/ft s)	1578.04	0.00	0.00
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	729.44	415.14	506.39
C & E Loss (ft)	0.04	Cum SA (acres)	133.67	35.71	100.24

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	276.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.094	0.040	0.056
W.S. Elev (ft)	275.95	Reach Len. (ft)	104.32	99.42	99.99
Crit W.S. (ft)	271.84	Flow Area (sq ft)	3515.67	1330.49	2951.50
E.G. Slope (ft/ft)	0.000698	Area (sq ft)	4408.55	1330.49	2951.50
Q Total (cfs)	19382.00	Flow (cfs)	5443.87	7475.35	6462.78
Top Width (ft)	1427.52	Top Width (ft)	790.69	93.98	542.85
Vel Total (ft/s)	2.49	Avg. Vel. (ft/s)	1.55	5.62	2.19
Max Chl Dpth (ft)	15.13	Hydr. Depth (ft)	7.13	14.16	5.44
Conv. Total (cfs)	733771.1	Conv. (cfs)	206095.9	283004.7	244670.4
Length Wtd. (ft)	100.84	Wetted Per. (ft)	496.12	97.11	544.03

Min Ch El (ft)	260.82	Shear (lb/sq ft)	0.31	0.60	0.24
Alpha	2.34	Stream Power (lb/ft s)	1578.04	0.00	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	1059.97	495.77	754.77
C & E Loss (ft)	0.01	Cum SA (acres)	150.09	35.77	117.07

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 18288.75

INPUT
Description:
Station Elevation Data num= 194

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	278.4	5.22	278.13	6.05	278.08	6.75	278.07	8.23	278.05
8.26	278.05	8.36	278	9.98	276.49	10.53	276	12.02	274.16
12.17	274	12.33	274	13.59	273.99	14.23	273.99	16.29	273.97
17.41	273.97	26.28	273.96	27.21	273.95	51.01	272.59	56.42	272.33
61.84	272.16	62.94	272.22	64.2	272.28	74.58	272.05	74.78	272.07
75.24	272.18	76.81	272	80.43	272	83.58	272.36	85.41	273.25
86.02	273.53	86.07	273.56	86.76	273.82	87.07	274	88.36	274.64
91.49	276	104.08	276	108.35	275.17	110.76	274.72	113.05	274.41
115.23	274	119.75	273.28	126.16	272	128.13	271.68	128.73	271.57
139.77	269.38	147.66	268	187.32	268	196.24	268.02	200.8	268.01
202.95	268.01	208.43	268.05	209.91	268.04	211.53	268.05	216.24	268.02
219.13	268	222.06	267.99	222.39	267.99	229.23	267.97	243.52	268.55
248.05	268.73	253.14	274.54	253.64	274.27	253.99	274.08	254.03	274.06
254.09	274.03	254.17	273.98	254.18	273.98	254.23	273.95	254.32	273.9
254.35	273.88	254.36	273.88	254.41	273.85	254.43	273.84	254.44	273.84
254.49	273.81	254.53	273.79	254.56	273.77	254.6	273.75	254.61	273.75
254.75	273.66	254.79	273.64	254.81	273.63	254.82	273.63	254.83	273.62
254.85	273.61	254.88	273.59	254.89	273.59	256.65	272.64	258.43	271.67
260.8	271.57	320.15	271.28	320.84	270.52	355.91	266.4	358.01	266.01
360.3	266.01	363.66	266	368.79	266	389.4	266.04	396.41	266.04
407.74	266.06	412.94	266.05	425.35	266.03	438.22	266	442.09	265.52
446.58	265	449.3	264.98	451.54	264.96	452.52	264.97	455.8	265
464.13	265	472.4	265.01	481.04	265.01	491.61	265	507.15	265
510	264.55	511.59	264.25	512.94	264	514.36	263.6	516.59	263

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  518.76  262.91  531.14   262.4  542.56     262  548.06  261.15  548.86     261
  553.29  260.21  554.64     260  562.78  260.21  571.52  260.43  572.25  260.45
  589.73  260.95  590.66  260.98  590.69  260.98  591.36     261  591.47  261.04
  593.72     262     596  262.98  596.24   263.1  597.99     264  598.47  264.24
  599.57     265  617.13  265.25  639.27  265.55  656.33  265.79  666.65  265.93
   671.9     266  672.64     266  688.48  266.13  708.13  266.28  712.61  266.31
  718.24  266.35  734.38  266.47  749.21  266.59  771.85  266.78  778.36  266.83
  797.07     267  807.66  267.22  820.59  267.48  833.17  267.74  846.81     268
  864.93  268.33  899.49     269  902.84  269.12  926.93     270  944.52  270.61
  956.34     271  975.46  271.53  988.96  271.89  993.04     272 1016.02  272.76
 1023.35     273 1040.92  273.83 1044.47     274 1048.35  274.19 1064.68     275
 1071.21  275.54 1076.96     276  1078.2  276.03 1080.07  276.06 1082.34  276.11
 1084.16  276.07 1087.63     276 1092.54  275.88 1093.75  275.86 1098.37  275.96
 1098.95  275.98 1099.72     276 1099.83     276 1104.48  276.12  1138.3     277
 1144.29  277.26 1159.66     278 1163.37  278.14 1180.68  278.74

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05   86.76     .12  511.59    .042  590.69     .12  666.65     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        511.59  590.69           348.88  376.78  384.56             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0   93.97  278.42       F

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           267.54    Element                 Left OB    Channel
Right OB
  Vel Head (ft)              0.31    Wt. n-Val.               0.120      0.042
  0.090
  W.S. Elev (ft)           267.22    Reach Len. (ft)         348.88     376.78
 384.56
  Crit W.S. (ft)           264.67    Flow Area (sq ft)       261.48     459.16
 258.40
  E.G. Slope (ft/ft)      0.001839   Area (sq ft)            261.48     459.16
 258.40
  Q Total (cfs)            2671.00   Flow (cfs)              190.34    2243.16
 237.50
  Top Width (ft)            458.92   Top Width (ft)          162.69      79.10
 217.14
  Vel Total (ft/s)           2.73    Avg. Vel. (ft/s)          0.73       4.89
   0.92
  Max Chl Dpth (ft)          7.22    Hydr. Depth (ft)          1.61       5.80
   1.19
  Conv. Total (cfs)        62288.9   Conv. (cfs)             4438.9    52311.5
 5538.5
  Length Wtd. (ft)          374.33   Wetted Per. (ft)        162.90      79.46
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218.09					
Min Ch El (ft)	260.00	Shear (lb/sq ft)	0.18	0.66	
0.14					
Alpha	2.71	Stream Power (lb/ft s)	1180.68	0.00	
0.00					
Frctn Loss (ft)	0.83	Cum Volume (acre-ft)	157.13	225.82	
89.13					
C & E Loss (ft)	0.01	Cum SA (acres)	76.63	35.59	
51.00					

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	272.69	Element	Left OB	Channel	
Right OB					
Vel Head (ft)	0.23	Wt. n-Val.	0.120	0.042	
0.063					
W.S. Elev (ft)	272.46	Reach Len. (ft)	348.88	376.78	
384.56					
Crit W.S. (ft)	268.94	Flow Area (sq ft)	1779.62	873.34	
1970.07					
E.G. Slope (ft/ft)	0.000961	Area (sq ft)	1787.94	873.34	
1970.07					
Q Total (cfs)	10810.00	Flow (cfs)	1909.71	4735.20	
4165.09					
Top Width (ft)	907.47	Top Width (ft)	412.13	79.10	
416.24					
Vel Total (ft/s)	2.34	Avg. Vel. (ft/s)	1.07	5.42	
2.11					
Max Chl Dpth (ft)	12.46	Hydr. Depth (ft)	4.66	11.04	
4.73					
Conv. Total (cfs)	348703.3	Conv. (cfs)	61602.5	152745.5	
134355.2					
Length Wtd. (ft)	373.11	Wetted Per. (ft)	385.13	79.46	
417.28					
Min Ch El (ft)	260.00	Shear (lb/sq ft)	0.28	0.66	
0.28					
Alpha	2.71	Stream Power (lb/ft s)	1180.68	0.00	
0.00					
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	622.39	385.81	
428.33					
C & E Loss (ft)	0.02	Cum SA (acres)	126.82	35.48	
93.44					

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	273.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.	0.120	0.042	0.062
W.S. Elev (ft)	273.30	Reach Len. (ft)	348.88	376.78	384.56
Crit W.S. (ft)	269.39	Flow Area (sq ft)	2101.92	939.51	2328.47
E.G. Slope (ft/ft)	0.000896	Area (sq ft)	2142.56	939.51	2328.47
Q Total (cfs)	12761.00	Flow (cfs)	2403.22	5164.46	5193.32
Top Width (ft)	953.44	Top Width (ft)	435.41	79.10	438.93
Vel Total (ft/s)	2.38	Avg. Vel. (ft/s)	1.14	5.50	2.23
Max Chl Dpth (ft)	13.30	Hydr. Depth (ft)	5.41	11.88	5.30
Conv. Total (cfs)	426273.4	Conv. (cfs)	80278.0	172515.8	173479.7
Length Wtd. (ft)	373.06	Wetted Per. (ft)	392.29	79.46	439.97
Min Ch El (ft)	260.00	Shear (lb/sq ft)	0.30	0.66	0.30
Alpha	2.57	Stream Power (lb/ft s)	1180.68	0.00	0.00
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	723.85	412.83	501.86
C & E Loss (ft)	0.03	Cum SA (acres)	132.35	35.52	99.20

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	276.10	Element	Left OB	Channel	Right OB

Vel Head (ft)	0.21	Wt. n-Val.	0.120	0.042	0.060
W.S. Elev (ft)	275.89	Reach Len. (ft)	348.88	376.78	384.56
Crit W.S. (ft)	270.48	Flow Area (sq ft)	3136.46	1144.64	3533.00
E.G. Slope (ft/ft)	0.000716	Area (sq ft)	3362.22	1144.64	3533.00
Q Total (cfs)	19382.00	Flow (cfs)	4024.04	6417.19	8940.77
Top Width (ft)	1054.49	Top Width (ft)	487.56	79.10	487.84
Vel Total (ft/s)	2.48	Avg. Vel. (ft/s)	1.28	5.61	2.53
Max Chl Dpth (ft)	15.89	Hydr. Depth (ft)	7.71	14.47	7.24
Conv. Total (cfs)	724152.6	Conv. (cfs)	150346.8	239759.9	334045.9
Length Wtd. (ft)	373.03	Wetted Per. (ft)	411.79	79.46	488.96
Min Ch El (ft)	260.00	Shear (lb/sq ft)	0.34	0.64	0.32
Alpha	2.23	Stream Power (lb/ft s)	1180.68	0.00	0.00
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	1050.66	492.94	747.33
C & E Loss (ft)	0.04	Cum SA (acres)	148.56	35.57	115.89

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 17911.97

INPUT
Description:
Station Elevation Data num= 158

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	277.91	94.11	277.88	97.14	277.8	102.05	277.74	111.52	277.29
122.2	276.95	122.79	276.95	124.47	276.97	145.77	276.78	150.16	276.57

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  153.75  276.31  153.83  276.31  158.04  276.33  163.07  276.37  172.02  276.89
  176.25  276.96  185.78   276.6  187.17  276.62  187.96  276.61  189.72  276.63
  190.25  276.64  192.82  276.68  200.73  276.92   201.4  276.95  201.69  276.95
   203.5  276.97  205.66  276.97  207.38  276.99  208.56  276.99  209.85     277
   212.8  276.22  213.65     276  217.35  275.01   217.4     275  217.62  274.94
  220.43  274.23  221.29     274  224.52  273.15  225.07     273  226.97  272.53
   229.1     272  230.71  271.54  232.54     271  234.49  270.27  235.22     270
  235.68  269.76  237.17     269  238.08  268.55  238.38  268.41  239.02  268.17
  239.55     268  240.51  267.69  243.02     267  244.68   266.5  246.38     266
   262.7  265.41   275.3     265  298.26  264.54  305.64  264.41  310.07  264.33
   317.8   264.2  328.57     264  355.92     264   367.2  264.02   401.5  264.09
  421.73  264.05  429.85  264.04  434.64  264.03  435.79  264.03  447.77     264
  450.43   263.5  453.11     263  456.74  262.29  457.86     262     461  261.15
  461.57     261  461.73  260.95  465.08     260  481.29  260.12   482.3  260.13
  485.91  260.15  486.58  260.16  488.29  260.15  501.24  260.06  508.43     260
  509.27  260.39  510.57     261  511.54  261.49  512.62     262  514.22  262.84
  514.55     263  514.77  263.12  516.34     264  517.31  264.23   518.6  264.58
  520.18     265   521.7  265.26   523.5  265.56  525.78     266  532.78     266
  552.92  265.67  587.64     265  587.79  265.01  587.97  265.02  604.32  265.56
  604.43  265.55  615.47     266  615.74  266.02  632.77     267  636.62  267.28
  646.83     268  661.51  268.95  662.23     269  662.69  269.04  672.41     270
  677.06  270.43  683.02     271  691.67   271.8  692.93  271.93  693.72     272
  695.31  272.21  697.35  272.46  698.85  272.66   701.1  272.93  701.69     273
  702.45  273.01  706.09  273.07  709.01  273.03  709.72  273.02  710.71     273
  716.83  272.93  720.34   272.9  721.21  272.89  722.55  272.91  728.44     273
  737.64  273.35   754.8     274  757.98  274.14   770.7  274.78  774.96     275
  776.78  275.05  816.59     276  818.04  276.05  818.68  276.08  844.89     277
  849.37  277.14  849.86  277.15  850.56  277.18  851.55  277.21  867.75  277.74
  878.11     278  880.77  278.03  887.56  278.22  894.88   278.4  906.33  278.69
     919     279  929.12  279.27  939.56   279.6

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  189.72     .12  434.64     .04  481.29     .04   518.6     .04
   521.7     .12  587.97     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        434.64   521.7           454.17  503.84  444.58             .1       .3

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           266.70    Element                 Left OB    Channel
Right OB
  Vel Head (ft)              0.39    Wt. n-Val.               0.120      0.040
  0.083
  W.S. Elev (ft)           266.30    Reach Len. (ft)         454.17     503.84
 444.58
  Crit W.S. (ft)           264.76    Flow Area (sq ft)       360.93     414.22
  71.69
```

E.G. Slope (ft/ft)	0.002752	Area (sq ft)	360.93	414.22	71.69
Q Total (cfs)	2671.00	Flow (cfs)	360.41	2256.19	54.40
Top Width (ft)	375.32	Top Width (ft)	189.29	87.06	98.97
Vel Total (ft/s)	3.15	Avg. Vel. (ft/s)	1.00	5.45	0.76
Max Chl Dpth (ft)	6.30	Hydr. Depth (ft)	1.91	4.76	0.72
Conv. Total (cfs)	50917.1	Conv. (cfs)	6870.5	43009.6	1036.9
Length Wtd. (ft)	496.38	Wetted Per. (ft)	189.36	88.64	99.07
Min Ch El (ft)	260.00	Shear (lb/sq ft)	0.33	0.80	0.12
Alpha	2.53	Stream Power (lb/ft s)	939.56	0.00	0.00
Frctn Loss (ft)	0.85	Cum Volume (acre-ft)	154.64	222.04	87.67
C & E Loss (ft)	0.04	Cum SA (acres)	75.22	34.87	49.61

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	272.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.47	Wt. n-Val.	0.120	0.040	0.075
W.S. Elev (ft)	271.73	Reach Len. (ft)	454.17	503.84	444.58
Crit W.S. (ft)	268.22	Flow Area (sq ft)	1431.14	886.69	818.19
E.G. Slope (ft/ft)	0.001663	Area (sq ft)	1431.14	886.69	818.19
Q Total (cfs)	10810.00	Flow (cfs)	2634.43	6236.64	1938.93
Top Width (ft)	460.88	Top Width (ft)	204.60	87.06	169.22
Vel Total (ft/s)	3.45	Avg. Vel. (ft/s)	1.84	7.03	2.37
Max Chl Dpth (ft)	11.73	Hydr. Depth (ft)	6.99	10.18	

```
   4.84
  Conv. Total (cfs)       265060.1    Conv. (cfs)             64595.9   152921.8
47542.4
  Length Wtd. (ft)          478.27    Wetted Per. (ft)         205.64      88.64
 169.54
  Min Ch El (ft)            260.00    Shear (lb/sq ft)           0.72       1.04
   0.50
  Alpha                       2.56    Stream Power (lb/ft s)   939.56       0.00
   0.00
  Frctn Loss (ft)             0.50    Cum Volume (acre-ft)     609.50     378.20
 416.03
  C & E Loss (ft)             0.07    Cum SA (acres)           124.35      34.76
  90.85



Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance)
is less than 0.7 or greater than 1.4.
          This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #1%


  E.G. Elev (ft)            273.05    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.52    Wt. n-Val.                0.120      0.040
  0.074
  W.S. Elev (ft)            272.53    Reach Len. (ft)          454.17     503.84
 444.58
  Crit W.S. (ft)            268.74    Flow Area (sq ft)       1595.85     956.27
 956.39
  E.G. Slope (ft/ft)      0.001684    Area (sq ft)            1595.85     956.27
 956.39
  Q Total (cfs)           12761.00    Flow (cfs)              3145.95    7116.78
2498.27
  Top Width (ft)            470.90    Top Width (ft)           207.67      87.06
 176.17
  Vel Total (ft/s)            3.64    Avg. Vel. (ft/s)           1.97       7.44
   2.61
  Max Chl Dpth (ft)          12.53    Hydr. Depth (ft)           7.68      10.98
   5.43
  Conv. Total (cfs)       310995.6    Conv. (cfs)             76669.3   173441.5
60884.8
  Length Wtd. (ft)          476.68    Wetted Per. (ft)         208.82      88.64
 176.54
  Min Ch El (ft)            260.00    Shear (lb/sq ft)           0.80       1.13
   0.57
  Alpha                       2.51    Stream Power (lb/ft s)   939.56       0.00
   0.00
```

Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	708.88	404.63	487.36
C & E Loss (ft)	0.09	Cum SA (acres)	129.78	34.80	96.48

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	275.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.	0.120	0.040	0.072
W.S. Elev (ft)	275.03	Reach Len. (ft)	454.17	503.84	444.58
Crit W.S. (ft)	270.18	Flow Area (sq ft)	2127.96	1174.25	1512.59
E.G. Slope (ft/ft)	0.001681	Area (sq ft)	2127.96	1174.25	1512.59
Q Total (cfs)	19382.00	Flow (cfs)	4921.25	10012.18	4448.57
Top Width (ft)	558.92	Top Width (ft)	217.38	87.06	254.48
Vel Total (ft/s)	4.03	Avg. Vel. (ft/s)	2.31	8.53	2.94
Max Chl Dpth (ft)	15.03	Hydr. Depth (ft)	9.79	13.49	5.94
Conv. Total (cfs)	472770.7	Conv. (cfs)	120040.4	244219.7	108510.7
Length Wtd. (ft)	472.96	Wetted Per. (ft)	218.85	88.64	254.93
Min Ch El (ft)	260.00	Shear (lb/sq ft)	1.02	1.39	0.62
Alpha	2.52	Stream Power (lb/ft s)	939.56	0.00	0.00
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	1028.68	482.92	725.06
C & E Loss (ft)	0.13	Cum SA (acres)	145.74	34.86	112.61

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 17408.13

INPUT
Description:
Station Elevation Data num= 228

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	285.8	49.01	283.46	73.91	282.66	82.8	282.4	91.96	283
94.83	283	96.49	282.47	98.04	282	99.93	281.43	101.34	281
102.97	280.51	104.62	280	106.1	279.57	107.89	279	110.85	278.09
111.14	278	112.13	277.92	112.48	277.86	112.64	277.83	112.91	277.78
113.47	277.63	113.93	277.52	114.48	277.43	115	277.31	115.51	277.19
115.85	277.12	116.25	277.04	116.44	277	117.49	277	118.03	276.99
118.64	276.99	120.59	276.72	121.03	276.67	121.26	276.66	121.86	276.59
122.68	276.51	123.83	276.4	127.11	276.1	128.45	276	129.96	275.9
132.35	275.75	140.28	275	144.12	274.99	145.62	274.99	153.01	274.96
159.48	274.96	173.19	274.33	173.59	274.31	174.99	274.29	175.32	274.28
175.68	274.26	175.97	274.26	176.82	274.22	177.1	274.21	177.37	274.21
180.39	274.11	180.52	274.1	180.77	274.09	181.07	274.08	183.58	274
197.9	273.51	198.12	273.5	201.85	273.28	206.09	273.01	206.22	273
209.09	272.75	217.41	272	222.61	271.55	228.49	271	239.52	270.16
241.53	270	250.77	269.38	256.35	269	258.92	268.88	272.86	268.19
276.64	268	304.12	267.12	307.97	267	309.15	266.99	310.07	266.99
340.84	266.59	348.22	266.49	362.35	266.33	363.78	266.31	384.62	266
385.4	265.99	388.22	265.99	388.76	266	407.02	266	409.32	265.46
411.27	265	412.52	264.63	415.17	264	417.29	263.45	418.83	263
422.1	262.17	422.76	262	425.06	261.43	426.05	261.2	426.92	261
427.42	260.89	431.91	260	432.88	259.84	433.85	259.69	434.35	259.65
435.02	259.59	435.86	259.49	436.41	259.42	436.99	259.37	437.44	259.34
438.17	259.31	438.37	259.29	438.54	259.27	438.62	259.26	439.19	259
440.58	258.98	467.84	258.49	469.11	258.47	497.58	258	498	258.29
499.08	259	499.68	259.4	500.55	260	501.25	260.39	502.23	261
504.52	261.61	506.2	262	509.75	262.81	510.38	262.95	510.6	263
525.8	263	528.09	263.01	530.01	263.01	534.56	263	534.83	263
535.26	263.02	540.71	263.28	541.15	263.28	541.56	263.27	541.8	263.27
544.13	263.25	544.31	263.25	547.27	263.21	547.94	263.21	548.07	263.22
567.91	263.44	579.24	263.55	585.64	263.5	611.15	263.56	644.44	263.65
645.3	263.67	645.44	263.67	647.68	263.7	647.98	263.7	659.4	263.84
659.5	263.84	672.12	264	673.25	264.02	674.1	264.03	675.98	264.04
679.96	264.1	681.86	264.12	693.17	264.27	748.37	265	786.6	265.99
786.97	266	786.98	266	797.45	266.41	808.24	266.83	810.22	266.91
812.63	267	812.96	267	813.53	267.01	814.41	267.01	831.46	267.47
841.82	267.72	847.09	267.85	853.41	268	855.69	268.03	855.74	268.03
858.75	268.04	902.27	268.95	904.81	269	906.75	269.03	934.11	269.37

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  947.56  269.52  962.44  269.75   967.5   269.8  969.28  269.82  978.34     270
  997.35  270.34 1034.88  270.97 1035.83  270.98 1036.37  270.99 1036.54  270.99
 1036.98     271 1064.44  271.38 1080.05  271.64 1089.33  271.77 1102.24     272
 1127.17  272.34 1131.42  272.39 1160.59   272.8 1167.29  272.89 1174.62     273
 1176.73     273 1186.08  273.14 1228.78  273.62 1241.34  273.75  1257.8  273.92
 1259.26  273.94 1265.21     274 1282.57  274.37 1291.33  274.51 1309.68  274.85
 1313.06  274.91 1314.65  274.93 1321.72     275 1322.15     275 1323.42  275.02
 1323.84  275.02 1341.66  275.25 1345.17  275.29    1346   275.3 1346.89  275.31
 1354.17  275.41 1366.84  275.57 1369.47  275.61

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  129.96     .05  363.78     .12  426.05     .04  440.58     .04
  509.75     .12  693.17     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        426.05  509.75            417.6  395.07  266.22             .1       .3

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           265.81    Element                 Left OB    Channel
Right OB
  Vel Head (ft)              0.26    Wt. n-Val.               0.120      0.040
  0.109
  W.S. Elev (ft)           265.55    Reach Len. (ft)         417.60     395.07
 266.22
  Crit W.S. (ft)           262.21    Flow Area (sq ft)        37.21     539.80
 424.49
  E.G. Slope (ft/ft)      0.001165   Area (sq ft)             37.21     539.80
 424.49
  Q Total (cfs)           2671.00    Flow (cfs)               25.86    2350.96
 294.18
  Top Width (ft)           360.50    Top Width (ft)           17.10      83.70
 259.70
  Vel Total (ft/s)           2.67    Avg. Vel. (ft/s)          0.70       4.36
   0.69
  Max Chl Dpth (ft)          7.55    Hydr. Depth (ft)          2.18       6.45
   1.63
  Conv. Total (cfs)       78250.9    Conv. (cfs)              757.7    68874.8
 8618.4
  Length Wtd. (ft)         371.44    Wetted Per. (ft)         17.64      85.04
 259.75
  Min Ch El (ft)           258.00    Shear (lb/sq ft)          0.15       0.46
   0.12
  Alpha                      2.36    Stream Power (lb/ft s)  1369.47       0.00
   0.00
  Frctn Loss (ft)            0.57    Cum Volume (acre-ft)     152.56     216.53
 85.14
  C & E Loss (ft)            0.01    Cum SA (acres)            74.14      33.88
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47.78

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	271.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.	0.072	0.040	0.082
W.S. Elev (ft)	271.40	Reach Len. (ft)	417.60	395.07	266.22
Crit W.S. (ft)	267.05	Flow Area (sq ft)	863.98	1029.41	2676.31
E.G. Slope (ft/ft)	0.000721	Area (sq ft)	863.98	1029.41	2676.31
Q Total (cfs)	10810.00	Flow (cfs)	1306.10	5417.27	4086.64
Top Width (ft)	841.11	Top Width (ft)	201.79	83.70	555.62
Vel Total (ft/s)	2.37	Avg. Vel. (ft/s)	1.51	5.26	1.53
Max Chl Dpth (ft)	13.40	Hydr. Depth (ft)	4.28	12.30	4.82
Conv. Total (cfs)	402516.1	Conv. (cfs)	48633.1	201714.9	152168.1
Length Wtd. (ft)	348.54	Wetted Per. (ft)	202.53	85.04	555.73
Min Ch El (ft)	258.00	Shear (lb/sq ft)	0.19	0.55	0.22
Alpha	2.69	Stream Power (lb/ft s)	1369.47	0.00	0.00
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	597.53	367.12	398.19
C & E Loss (ft)	0.01	Cum SA (acres)	122.23	33.78	87.15

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	272.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.	0.071	0.040	0.080
W.S. Elev (ft)	272.24	Reach Len. (ft)	417.60	395.07	266.22
Crit W.S. (ft)	267.65	Flow Area (sq ft)	1038.25	1100.04	

3167.38					
E.G. Slope (ft/ft)	0.000691	Area (sq ft)	1038.25	1100.04	
3167.38					
Q Total (cfs)	12761.00	Flow (cfs)	1715.69	5921.33	
5123.98					
Top Width (ft)	905.03	Top Width (ft)	211.29	83.70	
610.04					
Vel Total (ft/s)	2.41	Avg. Vel. (ft/s)	1.65	5.38	
1.62					
Max Chl Dpth (ft)	14.24	Hydr. Depth (ft)	4.91	13.14	
5.19					
Conv. Total (cfs)	485520.4	Conv. (cfs)	65277.1	225290.0	
194953.3					
Length Wtd. (ft)	346.56	Wetted Per. (ft)	212.07	85.04	
610.16					
Min Ch El (ft)	258.00	Shear (lb/sq ft)	0.21	0.56	
0.22					
Alpha	2.57	Stream Power (lb/ft s)	1369.47	0.00	
0.00					
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	695.15	392.73	
466.31					
C & E Loss (ft)	0.01	Cum SA (acres)	127.59	33.81	
92.47					

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	275.11	Element	Left OB	Channel	
Right OB					
Vel Head (ft)	0.21	Wt. n-Val.	0.068	0.040	
0.074					
W.S. Elev (ft)	274.91	Reach Len. (ft)	417.60	395.07	
266.22					
Crit W.S. (ft)	269.03	Flow Area (sq ft)	1662.79	1323.30	
5067.59					
E.G. Slope (ft/ft)	0.000561	Area (sq ft)	1662.79	1323.30	
5067.59					
Q Total (cfs)	19382.00	Flow (cfs)	3048.49	7259.25	
9074.27					
Top Width (ft)	1152.24	Top Width (ft)	265.41	83.70	
803.13					
Vel Total (ft/s)	2.41	Avg. Vel. (ft/s)	1.83	5.49	
1.79					
Max Chl Dpth (ft)	16.91	Hydr. Depth (ft)	6.26	15.81	
6.31					
Conv. Total (cfs)	818352.9	Conv. (cfs)	128714.2	306502.2	
383136.4					
Length Wtd. (ft)	339.65	Wetted Per. (ft)	266.26	85.04	

803.27

Min Ch El (ft)	258.00	Shear (lb/sq ft)	0.22	0.54	0.22
Alpha	2.30	Stream Power (lb/ft s)	1369.47	0.00	0.00
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	1008.91	468.47	691.48
C & E Loss (ft)	0.01	Cum SA (acres)	143.22	33.87	107.21

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 17013.07

INPUT
Description:
Station Elevation Data num= 160

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	284.94	35.64	284.03	38.08	284.03	42.66	284	45.27	283.89
47.78	283.78	48.31	283.76	52.13	283.59	53.11	283.55	53.93	283.51
54.35	283.49	54.55	283.48	70.46	283	73.14	282.9	76.32	282.72
78.31	282.62	79.66	282.54	80.77	282.47	81.66	282.41	87.4	282
95.21	281.26	97.79	281	106.28	280.07	106.86	280	108.73	279.66
112.45	279	114.03	278.73	118.23	278	122.35	277.38	124.48	277
127.29	276.43	128.97	276	132.72	275.04	132.87	275	132.96	274.97
136.43	274	138.75	273.34	139.96	273	140.13	272.95	143.53	272
144.59	271.7	147.11	271	150.67	270.26	152	270	157.01	269.14
157.82	269	158.05	268.96	163.8	268	164.16	267.94	170.59	267
176.23	266.33	178.9	266	184.34	265.59	191.92	265	323.69	265
324.52	265.02	329.31	265.16	348.25	265.83	348.69	265.84	349.09	265.84
351.75	265.88	356.72	266	359.59	266	360.27	265.58	360.91	265
362.13	264.18	362.36	264	362.49	263.87	363.52	263	364.09	262.52
364.7	262	365.47	261.36	365.8	261.09	365.9	261	366.32	260.65
367.12	260	367.53	259.67	368.35	259	383.67	258.61	387.21	258.52
391.07	258.42	395.4	258.31	407.74	258	408.64	258.13	409.91	258.29
413.02	258.62	416.53	259	421.3	259.21	425.12	259.37	433.51	259.99
435.66	259.99	438.53	260	440.65	260.39	444.3	261	450.23	261.98
450.36	262	454.35	262	489.44	262.01	507.77	262.01	514.2	262
529.12	262	553.43	262.43	557.29	262.5	557.58	262.49	558.02	262.49
570.42	262.92	570.43	262.92	570.45	262.93	570.82	262.93	572.82	263
575.54	263.07	614.14	264	614.45	264.01	641.35	265	645.24	265.14
647.67	265.23	669.19	266	678.38	266.34	696.75	267	719.59	267.72
728.12	268	741.27	268.3	769.77	269	794.46	269.43	829.02	270
837.86	270.17	851.12	270.42	870.2	270.78	882.65	271	889.14	271.1
907.56	271.37	916.7	271.51	919.85	271.56	938.43	271.85	942.11	271.91
948.4	272	954.75	272.08	974.23	272.36	1002.61	272.75	1012.3	272.89

```
 1020.09     273 1029.95  273.21 1045.58  273.55  1065.3     274 1075.57  274.19
  1087.2  274.38 1123.68     275  1133.9  275.26 1161.57     276 1170.77  276.32
 1170.85  276.32 1182.08  276.71 1185.65  276.78 1187.91  276.81 1187.92  276.82
 1188.16  276.82 1197.72  276.95 1198.39  276.96 1202.05     277 1208.26  277.21

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  324.52     .12  365.47     .04  391.07     .04  413.02     .04
   421.3     .12  553.43     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        365.47   421.3           561.56  574.74  500.62             .1       .3

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)            265.23    Element                   Left OB    Channel
Right OB
  Vel Head (ft)               0.38    Wt. n-Val.                 0.120      0.040
  0.103
  W.S. Elev (ft)            264.84    Reach Len. (ft)           561.56     574.74
 500.62
  Crit W.S. (ft)            261.88    Flow Area (sq ft)           7.28     346.39
 528.96
  E.G. Slope (ft/ft)      0.002103    Area (sq ft)                7.28     346.39
 528.96
  Q Total (cfs)             2671.00    Flow (cfs)                 4.94    1975.20
 690.86
  Top Width (ft)             275.99    Top Width (ft)             4.33      55.83
 215.84
  Vel Total (ft/s)            3.03    Avg. Vel. (ft/s)           0.68       5.70
   1.31
  Max Chl Dpth (ft)           6.84    Hydr. Depth (ft)           1.68       6.20
   2.45
  Conv. Total (cfs)         58249.7    Conv. (cfs)               107.7    43075.6
15066.4
  Length Wtd. (ft)           562.80    Wetted Per. (ft)           5.56      56.75
 216.07
  Min Ch El (ft)             258.00    Shear (lb/sq ft)           0.17       0.80
   0.32
  Alpha                       2.67    Stream Power (lb/ft s)  1208.26       0.00
   0.00
  Frctn Loss (ft)             1.07    Cum Volume (acre-ft)      152.35     212.51
  82.22
  C & E Loss (ft)             0.02    Cum SA (acres)             74.04      33.25
  46.33



Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and
```

previous cross section. This may indicate the
         need for additional cross sections.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	271.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.057	0.040	0.080
W.S. Elev (ft)	271.18	Reach Len. (ft)	561.56	574.74	500.62
Crit W.S. (ft)	266.85	Flow Area (sq ft)	1226.31	700.06	2573.25
E.G. Slope (ft/ft)	0.000709	Area (sq ft)	1226.31	700.06	2573.25
Q Total (cfs)	10810.00	Flow (cfs)	2690.12	3700.26	4419.61
Top Width (ft)	748.10	Top Width (ft)	219.01	55.83	473.26
Vel Total (ft/s)	2.40	Avg. Vel. (ft/s)	2.19	5.29	1.72
Max Chl Dpth (ft)	13.18	Hydr. Depth (ft)	5.60	12.54	5.44
Conv. Total (cfs)	405940.1	Conv. (cfs)	101020.2	138953.3	165966.5
Length Wtd. (ft)	551.90	Wetted Per. (ft)	221.11	56.75	473.59
Min Ch El (ft)	258.00	Shear (lb/sq ft)	0.25	0.55	0.24
Alpha	2.07	Stream Power (lb/ft s)	1208.26	0.00	0.00
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	587.51	359.27	382.15
C & E Loss (ft)	0.01	Cum SA (acres)	120.21	33.14	84.01

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	272.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.057	0.040	0.078
W.S. Elev (ft)	272.03	Reach Len. (ft)	561.56	574.74	500.62
Crit W.S. (ft)	267.30	Flow Area (sq ft)	1413.66	747.48	2999.10

E.G. Slope (ft/ft)	0.000688	Area (sq ft)	1413.66	747.48	2999.10
Q Total (cfs)	12761.00	Flow (cfs)	3328.27	4066.04	5366.70
Top Width (ft)	807.28	Top Width (ft)	222.04	55.83	529.40
Vel Total (ft/s)	2.47	Avg. Vel. (ft/s)	2.35	5.44	1.79
Max Chl Dpth (ft)	14.03	Hydr. Depth (ft)	6.37	13.39	5.67
Conv. Total (cfs)	486410.8	Conv. (cfs)	126863.5	154985.1	204562.3
Length Wtd. (ft)	551.01	Wetted Per. (ft)	224.27	56.75	529.73
Min Ch El (ft)	258.00	Shear (lb/sq ft)	0.27	0.57	0.24
Alpha	2.00	Stream Power (lb/ft s)	1208.26	0.00	0.00
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	683.39	384.36	447.47
C & E Loss (ft)	0.01	Cum SA (acres)	125.52	33.18	88.99

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	274.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.	0.056	0.040	0.072
W.S. Elev (ft)	274.73	Reach Len. (ft)	561.56	574.74	500.62
Crit W.S. (ft)	268.46	Flow Area (sq ft)	2027.43	898.53	4657.24
E.G. Slope (ft/ft)	0.000561	Area (sq ft)	2027.43	898.53	4657.24
Q Total (cfs)	19382.00	Flow (cfs)	5330.27	4988.65	9063.08
Top Width (ft)	974.26	Top Width (ft)	231.67	55.83	686.76
Vel Total (ft/s)	2.56	Avg. Vel. (ft/s)	2.63	5.55	1.95
Max Chl Dpth (ft)	16.73	Hydr. Depth (ft)	8.75	16.09	6.78
Conv. Total (cfs)	818201.9	Conv. (cfs)	225014.9	210593.6	382593.4
Length Wtd. (ft)	547.93	Wetted Per. (ft)	234.26	56.75	687.11

Min Ch El (ft)	258.00	Shear (lb/sq ft)	0.30	0.55	0.24
Alpha	1.78	Stream Power (lb/ft s)	1208.26	0.00	0.00
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	991.23	458.40	661.76
C & E Loss (ft)	0.00	Cum SA (acres)	140.84	33.24	102.66

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 16436.43

INPUT
Description:
Station Elevation Data num= 151

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	275.25	2.08	275.16	3.53	275.09	3.93	275.07	5.58	275
19.29	274.3	25	274	36.56	273.42	44.79	273	59.85	272.22
64.12	272	66.78	271.86	82.06	271	91.76	270.44	94.51	270.27
98.43	270	102.61	269.7	112.2	269	117.6	268.99	123.59	268.98
133.82	269	136.06	269	139.89	268	141.88	267.57	144.45	267
148.68	266.09	149.09	266	149.92	265.94	154.32	265.68	163.72	265.1
165.81	265	185.68	264.24	191.76	264	415.96	264	443.11	264
443.62	263.91	448.14	263	450.06	262.52	452.29	262	453.45	261.73
457.12	261	457.79	260.96	458.6	260.94	459.46	260.9	459.87	260.91
461.21	261	464.94	261.01	465.37	261.01	469.68	261.16	470.42	261.18
490.64	261.69	507.45	261.42	507.9	261.39	508.14	261.4	510.4	261.47
511.11	261.39	511.49	261.4	512.12	261.4	515.05	261	517.54	260.64
522.5	260	530.99	260	532.64	260.01	533.02	260.01	537.67	260.04
541.49	260.02	543.64	260	545.54	259.62	546.76	259.38	548.64	259
550.63	258.6	553.6	258	577.18	257.55	580.04	257.49	604.73	257.02
605.2	257.01	605.75	257	605.98	257	606.22	257.16	607.5	258
608.94	258.9	609.1	259	609.3	259.13	610.92	260	611.46	260.29
612.08	260.62	612.8	261	615.64	261.22	617.37	261.4	617.63	261.43
623.03	262	625.28	262.62	626.63	263	629.66	263.83	630.23	264
631.03	264.22	633.73	265	636.74	265.83	637.29	266	640.52	266.2
640.62	266.19	643.05	266.22	643.78	266	646.1	265.27	646.94	265
647.31	264.88	647.64	264.78	650.11	264	651.68	263.5	653.27	263
653.33	263	653.45	262.99	653.46	262.99	654.13	262.97	654.3	262.98
655.05	263	658.57	263.94	658.79	264	659.45	264.18	659.84	264.28
662.27	265	663.62	265.44	665.39	266	667.13	266.55	668.54	267
671.54	267.39	675.94	268	699.75	268.52	710.6	268.76	721.78	269
748.91	269.85	753.28	270	759.66	270.23	768.86	270.56	781.38	271
785.87	271.17	808.68	272	817.07	272.25	843.14	273	861.78	273.54
879.44	274	907.94	274.81	914.14	275	917.93	275.13	942.28	276

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  968.02  276.88  971.32     277  972.58  277.04  972.84  277.04  973.52  277.06
  988.27  277.48

Manning's n Values        num=       9
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  415.96     .12  508.14     .04  546.76     .04  580.04     .04
   605.2     .04  611.46     .04  617.37     .12  699.75     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        546.76  611.46           528.61  521.92  543.43             .1       .3

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)            264.14    Element                   Left OB    Channel
Right OB
  Vel Head (ft)               0.32    Wt. n-Val.                 0.057      0.040
  0.057
  W.S. Elev (ft)            263.82    Reach Len. (ft)           528.61     521.92
 543.43
  Crit W.S. (ft)            261.65    Flow Area (sq ft)         279.00     394.16
  38.07
  E.G. Slope (ft/ft)      0.001720    Area (sq ft)              279.00     394.16
  38.07
  Q Total (cfs)             2671.00   Flow (cfs)                605.98    2003.78
  61.25
  Top Width (ft)            192.99    Top Width (ft)            102.69      64.70
  25.60
  Vel Total (ft/s)            3.76    Avg. Vel. (ft/s)            2.17       5.08
   1.61
  Max Chl Dpth (ft)           6.82    Hydr. Depth (ft)            2.72       6.09
   1.49
  Conv. Total (cfs)         64400.9   Conv. (cfs)               14610.8    48313.3
 1476.7
  Length Wtd. (ft)          522.99    Wetted Per. (ft)          103.17      65.76
  26.31
  Min Ch El (ft)            257.00    Shear (lb/sq ft)            0.29       0.64
   0.16
  Alpha                       1.45    Stream Power (lb/ft s)    988.27       0.00
   0.00
  Frctn Loss (ft)             0.50    Cum Volume (acre-ft)      150.51     207.62
  78.97
  C & E Loss (ft)             0.01    Cum SA (acres)             73.35      32.46
  44.94



Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance)
is less than 0.7 or greater than 1.4.
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This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	271.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.057	0.040	0.084
W.S. Elev (ft)	270.89	Reach Len. (ft)	528.61	521.92	543.43
Crit W.S. (ft)	265.68	Flow Area (sq ft)	3116.75	851.84	584.79
E.G. Slope (ft/ft)	0.000467	Area (sq ft)	3116.75	851.84	584.79
Q Total (cfs)	10810.00	Flow (cfs)	6418.30	3770.15	621.56
Top Width (ft)	694.43	Top Width (ft)	462.85	64.70	166.88
Vel Total (ft/s)	2.37	Avg. Vel. (ft/s)	2.06	4.43	1.06
Max Chl Dpth (ft)	13.89	Hydr. Depth (ft)	6.73	13.17	3.50
Conv. Total (cfs)	500424.8	Conv. (cfs)	297120.7	174530.5	28773.7
Length Wtd. (ft)	526.21	Wetted Per. (ft)	463.81	65.76	168.86
Min Ch El (ft)	257.00	Shear (lb/sq ft)	0.20	0.38	0.10
Alpha	1.67	Stream Power (lb/ft s)	988.27	0.00	0.00
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	559.52	349.03	364.00
C & E Loss (ft)	0.02	Cum SA (acres)	115.82	32.35	80.33

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	271.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.057	0.040	0.083
W.S. Elev (ft)	271.74	Reach Len. (ft)	528.61	521.92	543.43

Crit W.S. (ft)	266.08	Flow Area (sq ft)	3515.64	906.71	736.17
E.G. Slope (ft/ft)	0.000471	Area (sq ft)	3515.64	906.71	736.17
Q Total (cfs)	12761.00	Flow (cfs)	7715.73	4203.48	841.80
Top Width (ft)	732.68	Top Width (ft)	477.87	64.70	190.11
Vel Total (ft/s)	2.47	Avg. Vel. (ft/s)	2.19	4.64	1.14
Max Chl Dpth (ft)	14.74	Hydr. Depth (ft)	7.36	14.01	3.87
Conv. Total (cfs)	587939.0	Conv. (cfs)	355487.6	193667.3	38784.2
Length Wtd. (ft)	526.49	Wetted Per. (ft)	478.85	65.76	192.10
Min Ch El (ft)	257.00	Shear (lb/sq ft)	0.22	0.41	0.11
Alpha	1.65	Stream Power (lb/ft s)	988.27	0.00	0.00
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	651.62	373.44	426.01
C & E Loss (ft)	0.02	Cum SA (acres)	121.01	32.38	84.85

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	274.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.057	0.040	0.077
W.S. Elev (ft)	274.47	Reach Len. (ft)	528.61	521.92	543.43
Crit W.S. (ft)	267.21	Flow Area (sq ft)	4891.07	1083.22	1379.65
E.G. Slope (ft/ft)	0.000438	Area (sq ft)	4891.07	1083.22	1379.65
Q Total (cfs)	19382.00	Flow (cfs)	12065.21	5451.90	1864.89
Top Width (ft)	879.99	Top Width (ft)	530.79	64.70	284.50
Vel Total (ft/s)	2.64	Avg. Vel. (ft/s)	2.47	5.03	1.35
Max Chl Dpth (ft)	17.47	Hydr. Depth (ft)	9.21	16.74	4.85

Conv. Total (cfs)	926096.8	Conv. (cfs)	576491.1	260498.8 89107.0
Length Wtd. (ft)	527.30	Wetted Per. (ft)	531.84	65.76 286.53
Min Ch El (ft)	257.00	Shear (lb/sq ft)	0.25	0.45 0.13
Alpha	1.60	Stream Power (lb/ft s)	988.27	0.00 0.00
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	946.63	445.32 627.07
C & E Loss (ft)	0.02	Cum SA (acres)	135.93	32.44 97.08

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 15916.41

INPUT
Description: not interpolated
Station Elevation Data num= 177

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	277.34	2.26	277	7.39	276.23	8.96	276	10.67	275.92
29.87	275.06	30.81	275.03	31.11	275.02	31.12	275.02	31.2	275
31.36	274.97	31.41	274.95	31.52	274.93	35.73	274	37.46	273.81
47.72	273.23	48.93	273.16	49.58	273.12	50.36	273.07	51.94	273
66.66	272.26	71.58	272	86.35	271.15	89.1	271	98.77	270.47
107.23	270	109.16	269.9	118.28	269.42	125.88	269	128	268.92
131.78	268.74	143.22	268.26	147.69	268	161.32	267.38	162.99	267.31
169.85	267	180.95	266.48	190.82	266	196.06	265.76	212.11	265
214.5	264.9	217.2	264.79	237.87	264	251.03	263.72	282.06	263
316.44	262.95	321.51	262.94	366.39	262.87	390.33	262.9	391.08	262.9
391.71	262.91	392.28	262.91	412.51	262.93	413.58	262.94	416.38	262.94
438.86	262.91	449.69	262.9	449.78	262.9	450.06	262.91	450.21	262.91
450.62	262.93	450.67	262.92	451.01	262.93	452.96	262.97	453.27	262.97
454.61	263	477.43	263	477.64	262.98	478.77	262.88	479.49	262.8
479.94	262.74	480.32	262.68	480.39	262.67	480.54	262.64	480.74	262.59
480.96	262.52	481.84	262	483.28	261.41	484.03	261.1	484.26	261
484.88	260.73	485.51	260.54	486.38	260.28	486.47	260.24	486.95	260
487.94	259.61	488.65	259.41	489.86	259	490.57	258.75	491.76	258
492.46	257.55	493.29	257	518.15	256.58	518.56	256.58	527.57	256.32
529.17	256.27	535.49	256.23	543.07	256.15	554.94	256.03	555.29	256.03
555.88	256.01	555.94	256	556.17	256.06	556.55	256.27	556.6	256.3
556.86	256.43	558.03	257	559.7	257.76	560.22	258	560.89	258.31
561.8	258.75	562.33	259	562.68	259.17	564.24	260	565.92	260.35

567.3	260.61	569.31	261	573.52	261.25	576.83	261.44	586.73	262
593.95	262.58	599.38	263	606.42	263.47	614.59	264	622.14	264.48
626.31	264.75	627.59	264.83	630.14	265	639.42	265.64	645.21	266
652.69	266.43	653.35	266.45	656.88	266.59	657.57	266.63	658.17	266.65
660.93	266.75	667.06	267	674.94	267.29	681.54	267.54	682.57	267.58
683.33	267.62	687.3	267.78	689.51	267.87	690.27	267.91	692.28	268
695.79	268.15	696.4	268.17	696.77	268.18	699.13	268.28	709.81	268.72
716.24	269	725.73	269.43	737.48	270	745.29	270.4	756.67	271
769.37	271.68	775.73	272	789.05	272.65	795.94	273	812.98	273.84
816.29	274	833.87	274.87	836.25	275	838.51	275.15	851.38	276
857.5	276.62	862.07	277	864.7	277.55	866.81	278	869.21	278.53
871.62	279	877.89	279	880.55	278.9	880.86	278.9	887.76	278.53
897.1	278.02	897.14	278.01						

Manning's n Values num= 10

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	10.67	.05	438.86	.12	483.28	.04	485.51	.04
486.47	.01	543.07	.04	567.3	.04	573.52	.12	626.31	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
483.28	573.52	491.14	528.2	507.1	.1	.3

CROSS SECTION OUTPUT Profile #10%

E.G. Elev (ft)	263.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.	0.058	0.024	0.120
W.S. Elev (ft)	263.25	Reach Len. (ft)	491.14	528.20	507.10
Crit W.S. (ft)	260.15	Flow Area (sq ft)	67.72	530.41	31.31
E.G. Slope (ft/ft)	0.000612	Area (sq ft)	67.72	530.41	31.31
Q Total (cfs)	2671.00	Flow (cfs)	20.00	2641.06	9.95
Top Width (ft)	331.77	Top Width (ft)	211.94	90.24	29.59
Vel Total (ft/s)	4.24	Avg. Vel. (ft/s)	0.30	4.98	0.32
Max Chl Dpth (ft)	7.25	Hydr. Depth (ft)	0.32	5.88	1.06
Conv. Total (cfs)	107968.9	Conv. (cfs)	808.3	106758.5	402.1
Length Wtd. (ft)	524.81	Wetted Per. (ft)	212.25	92.27	29.66
Min Ch El (ft)	256.00	Shear (lb/sq ft)	0.01	0.22	0.04
Alpha	1.36	Stream Power (lb/ft s)	897.14	0.00	

0.00					
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	148.40	202.08	78.53
C & E Loss (ft)	0.07	Cum SA (acres)	71.44	31.53	44.59

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	270.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.055	0.024	0.085
W.S. Elev (ft)	270.51	Reach Len. (ft)	491.14	528.20	507.10
Crit W.S. (ft)	265.43	Flow Area (sq ft)	2312.55	1185.43	729.18
E.G. Slope (ft/ft)	0.000275	Area (sq ft)	2312.55	1185.43	729.18
Q Total (cfs)	10810.00	Flow (cfs)	3408.01	6768.41	633.58
Top Width (ft)	649.24	Top Width (ft)	385.19	90.24	173.81
Vel Total (ft/s)	2.56	Avg. Vel. (ft/s)	1.47	5.71	0.87
Max Chl Dpth (ft)	14.51	Hydr. Depth (ft)	6.00	13.14	4.20
Conv. Total (cfs)	651413.1	Conv. (cfs)	205367.7	407866.0	38179.4
Length Wtd. (ft)	513.09	Wetted Per. (ft)	385.66	92.27	174.07
Min Ch El (ft)	256.00	Shear (lb/sq ft)	0.10	0.22	0.07
Alpha	3.23	Stream Power (lb/ft s)	897.14	0.00	0.00
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	526.58	336.83	355.81
C & E Loss (ft)	0.05	Cum SA (acres)	110.67	31.42	78.20

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	271.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.	0.055	0.024	0.081
W.S. Elev (ft)	271.33	Reach Len. (ft)	491.14	528.20	507.10
Crit W.S. (ft)	266.02	Flow Area (sq ft)	2634.18	1259.35	877.90
E.G. Slope (ft/ft)	0.000289	Area (sq ft)	2634.18	1259.35	877.90
Q Total (cfs)	12761.00	Flow (cfs)	4237.45	7663.20	860.36
Top Width (ft)	679.49	Top Width (ft)	400.00	90.24	189.25
Vel Total (ft/s)	2.67	Avg. Vel. (ft/s)	1.61	6.09	0.98
Max Chl Dpth (ft)	15.33	Hydr. Depth (ft)	6.59	13.96	4.64
Conv. Total (cfs)	751233.6	Conv. (cfs)	249456.3	451128.5	50648.7
Length Wtd. (ft)	512.43	Wetted Per. (ft)	400.49	92.27	189.53
Min Ch El (ft)	256.00	Shear (lb/sq ft)	0.12	0.25	0.08
Alpha	3.24	Stream Power (lb/ft s)	897.14	0.00	0.00
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	614.31	360.47	415.94
C & E Loss (ft)	0.05	Cum SA (acres)	115.68	31.45	82.49

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	274.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.	0.055	0.024	0.073
W.S. Elev (ft)	274.02	Reach Len. (ft)	491.14	528.20	507.10
Crit W.S. (ft)	267.72	Flow Area (sq ft)	3777.78	1502.35	1459.32
E.G. Slope (ft/ft)	0.000290	Area (sq ft)	3777.78	1502.35	1459.32
Q Total (cfs)	19382.00	Flow (cfs)	7239.72	10307.19	

1835.09

Top Width (ft)	781.04	Top Width (ft)	447.64	90.24	243.16
Vel Total (ft/s)	2.88	Avg. Vel. (ft/s)	1.92	6.86	1.26
Max Chl Dpth (ft)	18.02	Hydr. Depth (ft)	8.44	16.65	6.00
Conv. Total (cfs)	1138321.0	Conv. (cfs)	425194.8	605349.6	107776.6
Length Wtd. (ft)	510.44	Wetted Per. (ft)	448.21	92.27	243.51
Min Ch El (ft)	256.00	Shear (lb/sq ft)	0.15	0.29	0.11
Alpha	3.21	Stream Power (lb/ft s)	897.14	0.00	0.00
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	894.03	429.83	609.37
C & E Loss (ft)	0.06	Cum SA (acres)	129.99	31.51	93.79

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 15388.21

INPUT
Description: not interpolated
Station Elevation Data num= 159

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	286.06	1.55	286.06	6.34	286.05	10.59	286.04	18.55	286.04
23.7	286.03	26.72	286.02	29.04	286.02	37.63	286.01	38.62	286
40.94	286	50.2	284.74	56.48	284	57.71	283.04	59.34	282
60.87	281.3	69.45	278	70.23	277.06	71.02	276	72.05	274.61
72.25	274.34	72.5	274	72.88	273.65	76.18	272	76.5	271.98
77.24	271.98	82.06	271.68	89.54	271.27	104.02	270	114.65	268.75
125.6	268	129.4	268	131.97	268.06	132.59	268.09	148.59	268.57
164.28	270	170.06	271.39	172.32	272	174.5	272.52	180.23	274
185.32	274	185.84	273.87	192.23	272	197.15	270.22	201.14	268.8
203.34	268	204.86	267.47	209.4	266	215.67	264.61	217	264.35
219.42	264	219.64	263.99	220.57	263.99	222.88	263.97	222.93	263.97
234.27	263.63	253.35	263.06	285.95	262	288.73	262	293.34	261.99
306.05	261.99	333.56	261.97	339.19	261.96	347.53	261.96	353.96	261.95
359.26	261.94	360.9	261.94	366.04	261.93	370.2	261.92	374.7	261.92
376.91	261.93	378.54	261.93	379.3	261.94	379.42	261.05	382.04	260.75
383.49	260.62	383.86	260.59	383.93	260.59	383.95	260.58	383.96	260.58

426.56	256.9	434.65	256.2	435.27	256.06	435.58	255.99	435.88	255.92
436.19	255.85	436.48	255.78	436.61	255.75	436.78	255.71	437.07	255.64
437.36	255.57	440.37	255.49	445.22	255.36	445.58	255.35	453.96	255.08
454.26	255.08	454.98	255.09	455.79	255.1	456.72	255.11	457.97	255.13
460.12	255.16	463.06	255.2	467.21	255.26	476.94	255.4	485.71	255.52
487.28	255.55	499.05	255.72	506.71	255.83	516.87	255.97	518.82	256
521.45	256.68	522.69	257	523.37	257.18	524.35	257.43	526.5	258
529.23	258.7	530.04	258.91	530.39	259	530.65	259.07	534.1	260
550.75	260.56	562.13	261	564.09	261.33	568.58	262	570.15	262.27
574.75	263	577.04	263.39	580.64	264	584.13	264.56	586.67	265
597.05	265.66	602.43	266	605.04	266.16	614.78	266.67	618.65	267
619.96	267.07	636.36	268	642.57	268.41	651.63	269	657.83	269.41
666.77	270	681.28	270.98	681.58	271	681.79	271.01	697.41	272
700.04	272.17	713.91	273	723.56	273.53	732.27	274	741.29	274.44
752.83	275	759.21	275.32	773.33	276	773.73	276.02	774.33	276.04
786.71	276.58	795.78	276.88	796.26	276.89	796.35	276.9		

Manning's n Values num= 10

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	72.05	.05	234.27	.05	436.61	.04	440.37	.04
445.58	.04	516.87	.04	523.37	.04	529.23	.12	614.78	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
436.61	529.23	60.8	79.86	85.92	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	181.77	273.48	F

CROSS SECTION OUTPUT Profile #10%

E.G. Elev (ft)	263.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.050	0.040	0.120
W.S. Elev (ft)	263.13	Reach Len. (ft)	60.80	79.86	85.92
Crit W.S. (ft)	258.59	Flow Area (sq ft)	393.65	687.80	107.00
E.G. Slope (ft/ft)	0.000508	Area (sq ft)	393.65	687.80	107.00
Q Total (cfs)	2671.00	Flow (cfs)	433.46	2185.61	51.93
Top Width (ft)	324.56	Top Width (ft)	185.65	92.62	46.29
Vel Total (ft/s)	2.25	Avg. Vel. (ft/s)	1.10	3.18	0.49
Max Chl Dpth (ft)	8.05	Hydr. Depth (ft)	2.12	7.43	2.31
Conv. Total (cfs)	118527.8	Conv. (cfs)	19235.0	96988.3	

2304.6					
Length Wtd. (ft)	76.55	Wetted Per. (ft)	186.71	93.00	46.65
Min Ch El (ft)	255.08	Shear (lb/sq ft)	0.07	0.23	0.07
Alpha	1.68	Stream Power (lb/ft s)	796.35	0.00	0.00
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	145.80	194.70	77.73
C & E Loss (ft)	0.05	Cum SA (acres)	69.20	30.42	44.15

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	270.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.050	0.040	0.110
W.S. Elev (ft)	270.47	Reach Len. (ft)	60.80	79.86	85.92
Crit W.S. (ft)	263.23	Flow Area (sq ft)	2058.21	1367.60	760.60
E.G. Slope (ft/ft)	0.000323	Area (sq ft)	2164.54	1367.60	760.60
Q Total (cfs)	10810.00	Flow (cfs)	4680.10	5483.37	646.53
Top Width (ft)	544.87	Top Width (ft)	307.74	92.62	144.51
Vel Total (ft/s)	2.58	Avg. Vel. (ft/s)	2.27	4.01	0.85
Max Chl Dpth (ft)	15.39	Hydr. Depth (ft)	8.57	14.77	5.26
Conv. Total (cfs)	601163.4	Conv. (cfs)	260268.8	304940.1	35954.4
Length Wtd. (ft)	72.17	Wetted Per. (ft)	242.18	93.00	145.20
Min Ch El (ft)	255.08	Shear (lb/sq ft)	0.17	0.30	0.11
Alpha	1.57	Stream Power (lb/ft s)	796.35	0.00	0.00

Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	501.34	321.35	347.14
C & E Loss (ft)	0.04	Cum SA (acres)	106.76	30.31	76.35

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	271.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.050	0.040	0.107
W.S. Elev (ft)	271.28	Reach Len. (ft)	60.80	79.86	85.92
Crit W.S. (ft)	263.94	Flow Area (sq ft)	2254.36	1442.90	883.03
E.G. Slope (ft/ft)	0.000353	Area (sq ft)	2420.78	1442.90	883.03
Q Total (cfs)	12761.00	Flow (cfs)	5652.36	6261.25	847.39
Top Width (ft)	572.23	Top Width (ft)	322.73	92.62	156.88
Vel Total (ft/s)	2.79	Avg. Vel. (ft/s)	2.51	4.34	0.96
Max Chl Dpth (ft)	16.20	Hydr. Depth (ft)	9.30	15.58	5.63
Conv. Total (cfs)	679565.4	Conv. (cfs)	301006.8	333432.4	45126.3
Length Wtd. (ft)	71.89	Wetted Per. (ft)	244.57	93.00	157.60
Min Ch El (ft)	255.08	Shear (lb/sq ft)	0.20	0.34	0.12
Alpha	1.56	Stream Power (lb/ft s)	796.35	0.00	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	585.81	344.08	405.69
C & E Loss (ft)	0.03	Cum SA (acres)	111.60	30.35	80.47

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	274.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.050	0.040	0.097
W.S. Elev (ft)	273.98	Reach Len. (ft)	60.80	79.86	85.92
Crit W.S. (ft)	265.32	Flow Area (sq ft)	3352.57	1693.06	1366.50
E.G. Slope (ft/ft)	0.000370	Area (sq ft)	3352.57	1693.06	1366.50
Q Total (cfs)	19382.00	Flow (cfs)	9340.30	8367.15	1674.55
Top Width (ft)	654.26	Top Width (ft)	358.88	92.62	202.76
Vel Total (ft/s)	3.02	Avg. Vel. (ft/s)	2.79	4.94	1.23
Max Chl Dpth (ft)	18.90	Hydr. Depth (ft)	9.34	18.28	6.74
Conv. Total (cfs)	1008220.0	Conv. (cfs)	485867.1	435245.8	87107.3
Length Wtd. (ft)	71.10	Wetted Per. (ft)	362.73	93.00	203.55
Min Ch El (ft)	255.08	Shear (lb/sq ft)	0.21	0.42	0.15
Alpha	1.58	Stream Power (lb/ft s)	796.35	0.00	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	853.83	410.46	592.92
C & E Loss (ft)	0.02	Cum SA (acres)	125.44	30.40	91.19

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 15308.34

INPUT
Description:
Station Elevation Data num= 330

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	275.45	.2	275.43	4.46	275.57	8.73	275.26	10.15	275.24
13.5	274.81	14.89	274.63	16.51	274.53	19.92	274.4	23.94	274.28
29.45	274.17	31.19	274.14	32.43	274.09	36.23	273.97	38.59	273.9
41.27	273.79	43.26	273.72	45.27	273.65	46.72	273.63	51.23	273.45
52.4	273.42	57.53	273.5	58.84	273.5	59.69	273.46	63.83	273.36
67.93	273.47	68.77	273.46	70.06	273.47	72.8	273.37	76.35	273.4
76.69	273.39	77.02	273.4	81.83	273.26	84.06	273.33	89.15	273.2
89.2	273.2	89.85	273.2	91.66	273.22	94.79	273.25	95.15	273.25
100	273.13	103.27	272.85	105.15	272.7	107.91	272.62	109.51	272.62
111.58	272.62	112.99	272.65	114.08	272.69	119.22	272.48	126.65	272.32
126.67	272.32	131.49	272.13	132.78	272.15	137.05	272.19	138.98	272.01
142.95	271.78	147.58	271.6	148.85	271.56	151.7	271.38	154.76	271.32
156.05	271.22	159.32	271.23	164.08	271.04	164.48	271.02	168.06	270.78
170.65	270.66	172.64	270.57	173.62	270.52	174.71	270.42	178.87	270.13
182.97	269.68	185	269.56	189.33	269.38	190.8	269.31	191.08	269.33
191.9	269.28	197.08	268.95	200.61	268.81	203.07	268.6	204.89	268.43
208.44	268.08	209.06	268.04	209.84	268.06	215.93	268.14	220.62	268.04
222.33	267.99	223.06	268.02	225.33	267.9	226.89	267.82	227.59	267.84
232.97	267.84	238.89	267.8	239.2	267.79	239.49	267.79	244.67	267.56
246.33	267.61	249.03	267.66	250.34	267.68	253.85	267.54	255.96	267.42
258.33	267.53	260.6	267.65	263.95	267.68	264.26	267.67	264.95	267.66
271.1	267.49	277.02	267.48	277.65	267.47	278.91	267.44	280.96	267.33
281.91	267.29	284.1	267.22	287.93	267.06	289.29	266.97	293.49	266.81
297.62	266.63	299.57	266.69	303.03	266.66	304.79	266.7	306.08	266.69
309.74	266.59	314.7	266.83	314.71	266.83	314.72	266.83	318.7	266.52
321.55	266.67	323.45	266.68	325.87	266.68	330.01	266.56	332.08	266.51
334.09	266.47	335.49	266.44	340.28	266.31	341.38	266.25	342.32	266.2
346.83	265.76	352.21	265.27	352.27	265.26	356.1	264.7	358.97	264.14
359.28	264.09	359.93	264.02	361.8	264.01	368.34	264.16	371.14	264.15
373.88	264.21	378.33	264.01	380.37	263.98	382.91	264.27	385.77	264.33
386.69	264.3	389.14	264.28	395.25	264.54	397.04	264.71	399.68	265.02
401.73	265.12	405.03	265.33	407.98	265.22	410.12	265.27	413.45	265.45
414.56	265.52	416.9	265.64	417.63	265.64	418	265.61	421.68	265.43
425.31	265.38	425.76	265.33	427.74	265.31	429.41	265.23	434.47	264.53
436.06	263.96	444.47	259.51	446.62	259.22	449.55	259.25	451.97	259.23
454.22	259.16	457.03	259.54	461.13	259.68	461.21	259.68	466.67	259.6
502.5	258.6	507.5	254.9	525	254.3	542.5	254.7	547.5	258
570.55	259.81	570.69	259.82	571.55	259.9	572.28	259.97	577.72	260.98
578.87	261.33	581.36	261.88	589.03	263.38	590.11	263.59	593.61	264.01
595.2	264.3	595.82	264.27	610.13	265.41	620.56	267.25	624.17	266.89

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  625.54  267.05  629.79  266.91  634.62  267.16  638.52  267.36  639.22  267.39
  639.27  267.39  639.54   267.4   653.1  268.27  654.64  268.23  660.89  268.46
  664.87  268.64   668.5  268.59  670.92  268.66  673.81  268.56  675.29  268.62
  680.46  269.15  681.97  269.17  684.02  269.35  687.71  269.15  691.99  269.68
  694.12  269.82  696.53  269.94  699.09  270.16  703.19   270.6  703.24   270.6
  703.82  270.62  707.62  270.66  707.99  270.68  714.45  271.05  714.48  271.05
  714.59  271.06  719.22  271.29   719.9  271.34  721.99  271.51  724.12  271.71
  725.01  271.81  725.98  271.83  729.36  272.04  730.69  272.11  731.01  272.13
  731.61  272.15  735.34  272.28  737.35  272.44   739.5  272.61  742.13   272.9
  744.83   273.1  748.65  273.34  751.45  273.67  753.37  273.64  756.46  273.48
  760.17  273.52  760.73  273.54  761.92  273.57   763.9  273.69  764.42  273.67
  764.82  273.65  769.57  273.88  770.85  273.94  771.14  273.94  773.05  274.01
  774.91  274.08   775.2   274.1  777.84  274.17  781.06  274.29   781.8  274.29
  785.28  274.44  787.43  274.64  791.18   274.7  791.24   274.7  791.32   274.7
  792.84  274.77  795.25  274.88   798.4  274.99  801.43  275.09  801.55  275.09
  805.74   275.3  807.32  275.36  811.79  275.36  812.18  275.35  813.18  275.35
  815.29  275.34  816.12  275.37  820.65  275.69  822.14   275.8  822.49   275.8
  822.94  275.82  826.63  275.65  828.65  275.75  832.25  275.93  832.52  275.94
  833.02  275.96  836.96  276.18   838.7  276.24  842.88  276.35  843.09  276.36
   843.6  276.37  846.29  276.39  847.35  276.41   852.8  276.46  853.32  276.47
   853.5  276.47  853.68  276.47  858.82  276.67  863.54   276.6  864.32  276.63
  867.94  276.75  870.16  276.72  873.95  276.87  875.75  276.97  878.32  277.08
  883.79  277.25  884.27  277.27  884.39  277.27  888.64  277.41  889.79  277.38
  894.58  277.41   895.2  277.46   899.1  277.65  901.48  277.71  904.94  277.69
  905.59  277.71  907.83  277.94  909.01  278.05  909.35  278.06   913.2  278.13
  915.38  278.16  915.67  278.18   915.9  278.18  920.62  278.19  920.72  278.19

Manning's n Values        num=      10
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05   91.66     .05  249.03     .05  466.67     .04  489.54     .04
   502.5     .04   547.5     .04  571.55     .04  572.28     .12  638.52     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         502.5   547.5           106.89  107.35  102.82             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0     441  266.73       F
     609  920.72   268.3       F

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)            263.16    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.29    Wt. n-Val.                0.043      0.040
  0.043
  W.S. Elev (ft)            262.87    Reach Len. (ft)           25.00      25.00
  25.00
  Crit W.S. (ft)            260.30    Flow Area (sq ft)        220.21     354.60
 117.38
```

E.G. Slope (ft/ft)	0.001189	Area (sq ft)	222.42	354.60	117.38
Q Total (cfs)	2671.00	Flow (cfs)	611.66	1741.62	317.72
Top Width (ft)	148.33	Top Width (ft)	64.39	45.00	38.94
Vel Total (ft/s)	3.86	Avg. Vel. (ft/s)	2.78	4.91	2.71
Max Chl Dpth (ft)	8.57	Hydr. Depth (ft)	3.58	7.88	3.01
Conv. Total (cfs)	77462.8	Conv. (cfs)	17739.0	50509.4	9214.5
Length Wtd. (ft)	25.00	Wetted Per. (ft)	62.02	47.23	39.32
Min Ch El (ft)	254.30	Shear (lb/sq ft)	0.26	0.56	0.22
Alpha	1.23	Stream Power (lb/ft s)	920.72	0.00	0.00
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	145.37	193.74	77.51
C & E Loss (ft)	0.03	Cum SA (acres)	69.02	30.29	44.07

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	270.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.046	0.040	0.056
W.S. Elev (ft)	270.28	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	264.18	Flow Area (sq ft)	1662.74	687.82	741.14
E.G. Slope (ft/ft)	0.000719	Area (sq ft)	1662.74	687.82	741.14
Q Total (cfs)	10810.00	Flow (cfs)	4841.51	4086.96	1881.52
Top Width (ft)	523.47	Top Width (ft)	325.77	45.00	152.70
Vel Total (ft/s)	3.50	Avg. Vel. (ft/s)	2.91	5.94	2.54
Max Chl Dpth (ft)	15.98	Hydr. Depth (ft)	5.10	15.28	4.85
Conv. Total (cfs)	403056.8	Conv. (cfs)	180518.4	152384.7	

70153.7

Length Wtd. (ft)	25.00	Wetted Per. (ft)	327.49	47.23	153.59
Min Ch El (ft)	254.30	Shear (lb/sq ft)	0.23	0.65	0.22
Alpha	1.49	Stream Power (lb/ft s)	920.72	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	498.66	319.47	345.66
C & E Loss (ft)		Cum SA (acres)	106.32	30.18	76.06

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	271.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.046	0.040	0.058
W.S. Elev (ft)	271.10	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	264.87	Flow Area (sq ft)	1936.79	724.91	872.79
E.G. Slope (ft/ft)	0.000731	Area (sq ft)	1936.79	724.91	872.79
Q Total (cfs)	12761.00	Flow (cfs)	6003.02	4496.45	2261.53
Top Width (ft)	552.98	Top Width (ft)	340.01	45.00	167.97
Vel Total (ft/s)	3.61	Avg. Vel. (ft/s)	3.10	6.20	2.59
Max Chl Dpth (ft)	16.80	Hydr. Depth (ft)	5.70	16.11	5.20
Conv. Total (cfs)	472034.1	Conv. (cfs)	222053.9	166325.2	83655.0
Length Wtd. (ft)	25.00	Wetted Per. (ft)	341.76	47.23	168.89
Min Ch El (ft)	254.30	Shear (lb/sq ft)	0.26	0.70	0.24
Alpha	1.48	Stream Power (lb/ft s)	920.72	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	582.77	342.10	403.96
C & E Loss (ft)		Cum SA (acres)	111.14	30.22	80.15

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	274.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.047	0.040	0.060
W.S. Elev (ft)	273.85	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	267.44	Flow Area (sq ft)	3004.36	848.30	1393.49
E.G. Slope (ft/ft)	0.000661	Area (sq ft)	3004.36	848.30	1393.49
Q Total (cfs)	19382.00	Flow (cfs)	10164.70	5556.32	3660.99
Top Width (ft)	728.95	Top Width (ft)	462.59	45.00	221.36
Vel Total (ft/s)	3.69	Avg. Vel. (ft/s)	3.38	6.55	2.63
Max Chl Dpth (ft)	19.55	Hydr. Depth (ft)	6.49	18.85	6.30
Conv. Total (cfs)	753956.6	Conv. (cfs)	395405.0	216139.8	142411.8
Length Wtd. (ft)	25.00	Wetted Per. (ft)	464.42	47.23	222.40
Min Ch El (ft)	254.30	Shear (lb/sq ft)	0.27	0.74	0.26
Alpha	1.44	Stream Power (lb/ft s)	920.72	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	849.40	408.13	590.20
C & E Loss (ft)		Cum SA (acres)	124.87	30.28	90.77

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

BRIDGE

RIVER: W Br Neshminy
REACH: 1 RS: 15257.58

INPUT
Description: WBNES-04L Schoolhouse Rd
Distance from Upstream XS = 25
Deck/Roadway Width = 41.7
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 289

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	274.12		2.6	274.13		3.01	274.13	
3.07	274.12		3.11	274.12		7.87	273.83	
10.85	273.78		12.72	273.79		15.72	273.75	
17.36	273.63		18.43	273.64		21.8	273.49	
21.99	273.48		25.55	273.14		27.46	273.18	
32.33	273.23		33.18	273.25		34.21	273.15	
38.82	272.93		40.25	272.92		44.2	272.57	
47.01	272.52		49.45	272.49		52.83	272.24	
54.09	272.12		55.75	272.17		57.6	272.03	
61.51	271.49		64.64	271.51		67.46	271.67	
69.11	271.74		71.37	271.61		74.91	271.65	
78.9	271.19		83.3	271.09		90.01	271.04	
90.69	271.02		93.88	270.72		96.08	270.69	
98.89	270.61		102.4	270.39		105.87	270.26	
108.6	270.07		111.22	270.01		113.39	269.88	
117.47	269.7		121.22	269.64		122.27	269.56	
127.31	269.57		128.4	269.54		132.26	269.34	
133.48	269.28		133.82	269.29		139.34	269.44	
144.34	268.91		145.16	268.86		150.47	268.84	
152.35	268.84		152.81	268.85		153.46	268.82	
159.96	268.63		164.58	268.68		166.09	268.82	
168.87	268.64		170.41	268.51		171.28	268.53	
176.39	268.46		181.8	268		182.61	267.96	
186.12	268.1		187.31	268.07		190.01	268.05	
192.7	267.92		194.71	267.99		199.15	267.69	
202.63	267.38		203.19	267.35		203.92	267.33	
211.36	267.7		215.22	267.81		218.11	267.84	
220.33	267.69		223.68	267.36		225.29	267.29	
228.95	267.47		230.7	267.44		232.87	267.14	
234.48	267.22		238.91	266.94		240.39	266.97	
243.14	267.15		245.45	267.2		247.2	267.2	
247.83	267.17		249.1	267.16		254.53	266.8	
256.4	266.7		256.77	266.7		257.3	266.69	
262.47	266.72		264.81	266.63		267.49	266.92	
271.76	266.98		274.01	266.99		278.69	267.15	
280.06	267.16		282.76	267.1		285.7	267.01	
288.05	267.18		290.81	267.3		294.37	267.18	
295.51	267.12		296.89	267.06		299.26	266.87	
304.27	266.67		307.85	266.78		311.98	266.79	
312.33	266.8		316.27	267.08		319.89	266.95	
322.39	266.81		323.66	266.9		327.35	267.01	

328.62	267.04		331.78	266.63		334.42	266.72
334.74	266.71		334.85	266.71		335.3	266.71
340.52	266.82		341.7	266.84		343.14	266.87
343.93	266.87		346.15	266.86		346.83	266.84
346.89	266.84		347.85	266.9		353.41	266.83
357.84	267.09		359.4	266.96		362.4	266.73
364.23	266.56		365.15	266.58		371.94	266.77
374.37	266.73		376.87	266.91		378.64	267.01
381.32	266.99		385.78	267.02		389.41	267.04
392.96	266.86		395	266.77		400.04	267.05
400.12	267.06		400.29	267.06		403.22	267.08
404.59	267.35		408.94	267.59		411.69	267.45
414.59	267.39		417.38	267.34		419.77	267.38
423.41	267.61		425.68	267.68		428	267.62
432.42	267.66		433.34	267.64		437	267.62
439.15	267.7		456.3	268.3		456.3	270.7
466.3	270.7	265.3	583.7	270.7	265.3	593.7	270.7
593.7	268.3		613.85	269.86		619.72	270.14
620.32	270.15		620.66	270.14		624.44	269.94
625.39	269.97		631.05	270.22		632.03	270.28
636.43	270.2		640.35	270.14		641.81	270.11
647.16	270.44		647.98	270.42		648.24	270.44
652.19	270.12		655.08	270.41		656.38	270.49
658.66	270.57		662.45	270.46		666.51	270.5
668.02	270.51		671.13	270.62		673.07	270.53
677.22	270.21		677.58	270.17		678.09	270.17
678.64	270.22		684.31	270.74		686.52	270.46
689.54	270.42		692.03	270.92		694.22	271.03
697.27	270.93		700.93	270.8		704.39	270.84
705.54	270.88		708.89	271.17		712.22	271.17
712.92	271.14		713.92	271.17		718.41	271.09
723.43	271.3		723.54	271.31		723.59	271.31
723.66	271.31		729.05	271.34		734.05	271.34
734.95	271.38		737.3	271.56		738.26	271.61
743.79	271.66		744.41	271.66		744.55	271.67
744.74	271.67		746.55	271.73		748.48	271.79
748.62	271.78		754.17	271.68		754.81	271.68
757.27	271.68		765.06	271.74		765.3	271.74
765.45	271.75		769.57	272.03		775.46	272.28
775.62	272.29		776.04	272.26		780.73	272.04
785.82	272.59		786.12	272.6		790.17	272.41
792.05	272.48		796.25	272.61		797.31	272.56
800.58	272.52		806.23	272.8		806.61	272.81
807.83	272.75		811.56	272.61		816.5	273.21
816.81	273.26		816.85	273.26		816.89	273.26
816.97	273.26		821.33	273.37		823.37	273.36
827.27	273.5		827.63	273.52		828.8	273.58
830.92	273.62		831.6	273.72		837.49	273.76
837.74	273.75		839.35	273.94		842.26	274.23
843.42	274.18		846.4	273.93		847.13	274.01

847.98	273.98	850.71	274.27	852.4	274.15
854.45	273.95	858.34	274.55	858.35	274.55
858.35	274.55	862.45	274.31	862.86	274.38
868.68	274.81	868.83	274.82	869.34	274.84
873.25	274.96	873.95	275	875.29	275.02
877.39	274.92				

Upstream Bridge Cross Section Data

Station Elevation Data num= 330

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	275.45	.2	275.43	4.46	275.57	8.73	275.26	10.15	275.24
13.5	274.81	14.89	274.63	16.51	274.53	19.92	274.4	23.94	274.28
29.45	274.17	31.19	274.14	32.43	274.09	36.23	273.97	38.59	273.9
41.27	273.79	43.26	273.72	45.27	273.65	46.72	273.63	51.23	273.45
52.4	273.42	57.53	273.5	58.84	273.5	59.69	273.46	63.83	273.36
67.93	273.47	68.77	273.46	70.06	273.47	72.8	273.37	76.35	273.4
76.69	273.39	77.02	273.4	81.83	273.26	84.06	273.33	89.15	273.2
89.2	273.2	89.85	273.2	91.66	273.22	94.79	273.25	95.15	273.25
100	273.13	103.27	272.85	105.15	272.7	107.91	272.62	109.51	272.62
111.58	272.62	112.99	272.65	114.08	272.69	119.22	272.48	126.65	272.32
126.67	272.32	131.49	272.13	132.78	272.15	137.05	272.19	138.98	272.01
142.95	271.78	147.58	271.6	148.85	271.56	151.7	271.38	154.76	271.32
156.05	271.22	159.32	271.23	164.08	271.04	164.48	271.02	168.06	270.78
170.65	270.66	172.64	270.57	173.62	270.52	174.71	270.42	178.87	270.13
182.97	269.68	185	269.56	189.33	269.38	190.8	269.31	191.08	269.33
191.9	269.28	197.08	268.95	200.61	268.81	203.07	268.6	204.89	268.43
208.44	268.08	209.06	268.04	209.84	268.06	215.93	268.14	220.62	268.04
222.33	267.99	223.06	268.02	225.33	267.9	226.89	267.82	227.59	267.84
232.97	267.84	238.89	267.8	239.2	267.79	239.49	267.79	244.67	267.56
246.33	267.61	249.03	267.66	250.34	267.68	253.85	267.54	255.96	267.42
258.33	267.53	260.6	267.65	263.95	267.68	264.26	267.67	264.95	267.66
271.1	267.49	277.02	267.48	277.65	267.47	278.91	267.44	280.96	267.33
281.91	267.29	284.1	267.22	287.93	267.06	289.29	266.97	293.49	266.81
297.62	266.63	299.57	266.69	303.03	266.66	304.79	266.7	306.08	266.69
309.74	266.59	314.7	266.83	314.71	266.83	314.72	266.83	318.7	266.52
321.55	266.67	323.45	266.68	325.87	266.68	330.01	266.56	332.08	266.51
334.09	266.47	335.49	266.44	340.28	266.31	341.38	266.25	342.32	266.2
346.83	265.76	352.21	265.27	352.27	265.26	356.1	264.7	358.97	264.14
359.28	264.09	359.93	264.02	361.8	264.01	368.34	264.16	371.14	264.15
373.88	264.21	378.33	264.01	380.37	263.98	382.91	264.27	385.77	264.33
386.69	264.3	389.14	264.28	395.25	264.54	397.04	264.71	399.68	265.02
401.73	265.12	405.03	265.33	407.98	265.22	410.12	265.27	413.45	265.45
414.56	265.52	416.9	265.64	417.63	265.64	418	265.61	421.68	265.43
425.31	265.38	425.76	265.33	427.74	265.31	429.41	265.23	434.47	264.53
436.06	263.96	444.47	259.51	446.62	259.22	449.55	259.25	451.97	259.23
454.22	259.16	457.03	259.54	461.13	259.68	461.21	259.68	466.67	259.6
502.5	258.6	507.5	254.9	525	254.3	542.5	254.7	547.5	258
570.55	259.81	570.69	259.82	571.55	259.9	572.28	259.97	577.72	260.98
578.87	261.33	581.36	261.88	589.03	263.38	590.11	263.59	593.61	264.01
595.2	264.3	595.82	264.27	610.13	265.41	620.56	267.25	624.17	266.89

625.54	267.05	629.79	266.91	634.62	267.16	638.52	267.36	639.22	267.39
639.27	267.39	639.54	267.4	653.1	268.27	654.64	268.23	660.89	268.46
664.87	268.64	668.5	268.59	670.92	268.66	673.81	268.56	675.29	268.62
680.46	269.15	681.97	269.17	684.02	269.35	687.71	269.15	691.99	269.68
694.12	269.82	696.53	269.94	699.09	270.16	703.19	270.6	703.24	270.6
703.82	270.62	707.62	270.66	707.99	270.68	714.45	271.05	714.48	271.05
714.59	271.06	719.22	271.29	719.9	271.34	721.99	271.51	724.12	271.71
725.01	271.81	725.98	271.83	729.36	272.04	730.69	272.11	731.01	272.13
731.61	272.15	735.34	272.28	737.35	272.44	739.5	272.61	742.13	272.9
744.83	273.1	748.65	273.34	751.45	273.67	753.37	273.64	756.46	273.48
760.17	273.52	760.73	273.54	761.92	273.57	763.9	273.69	764.42	273.67
764.82	273.65	769.57	273.88	770.85	273.94	771.14	273.94	773.05	274.01
774.91	274.08	775.2	274.1	777.84	274.17	781.06	274.29	781.8	274.29
785.28	274.44	787.43	274.64	791.18	274.7	791.24	274.7	791.32	274.7
792.84	274.77	795.25	274.88	798.4	274.99	801.43	275.09	801.55	275.09
805.74	275.3	807.32	275.36	811.79	275.36	812.18	275.35	813.18	275.35
815.29	275.34	816.12	275.37	820.65	275.69	822.14	275.8	822.49	275.8
822.94	275.82	826.63	275.65	828.65	275.75	832.25	275.93	832.52	275.94
833.02	275.96	836.96	276.18	838.7	276.24	842.88	276.35	843.09	276.36
843.6	276.37	846.29	276.39	847.35	276.41	852.8	276.46	853.32	276.47
853.5	276.47	853.68	276.47	858.82	276.67	863.54	276.6	864.32	276.63
867.94	276.75	870.16	276.72	873.95	276.87	875.75	276.97	878.32	277.08
883.79	277.25	884.27	277.27	884.39	277.27	888.64	277.41	889.79	277.38
894.58	277.41	895.2	277.46	899.1	277.65	901.48	277.71	904.94	277.69
905.59	277.71	907.83	277.94	909.01	278.05	909.35	278.06	913.2	278.13
915.38	278.16	915.67	278.18	915.9	278.18	920.62	278.19	920.72	278.19

Manning's n Values num= 10

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	91.66	.05	249.03	.05	466.67	.04	489.54	.04
502.5	.04	547.5	.04	571.55	.04	572.28	.12	638.52	.05

Bank Sta: Left Right Coeff Contr. Expan.

502.5	547.5	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	441	266.73	F
609	920.72	268.3	F

Downstream Deck/Roadway Coordinates

num= 289

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	274.12		2.6	274.13		3.01	274.13	
3.07	274.12		3.11	274.12		7.87	273.83	
10.85	273.78		12.72	273.79		15.72	273.75	
17.36	273.63		18.43	273.64		21.8	273.49	
21.99	273.48		25.55	273.14		27.46	273.18	
32.33	273.23		33.18	273.25		34.21	273.15	
38.82	272.93		40.25	272.92		44.2	272.57	
47.01	272.52		49.45	272.49		52.83	272.24	

54.09	272.12		55.75	272.17		57.6	272.03
61.51	271.49		64.64	271.51		67.46	271.67
69.11	271.74		71.37	271.61		74.91	271.65
78.9	271.19		83.3	271.09		90.01	271.04
90.69	271.02		93.88	270.72		96.08	270.69
98.89	270.61		102.4	270.39		105.87	270.26
108.6	270.07		111.22	270.01		113.39	269.88
117.47	269.7		121.22	269.64		122.27	269.56
127.31	269.57		128.4	269.54		132.26	269.34
133.48	269.28		133.82	269.29		139.34	269.44
144.34	268.91		145.16	268.86		150.47	268.84
152.35	268.84		152.81	268.85		153.46	268.82
159.96	268.63		164.58	268.68		166.09	268.82
168.87	268.64		170.41	268.51		171.28	268.53
176.39	268.46		181.8	268		182.61	267.96
186.12	268.1		187.31	268.07		190.01	268.05
192.7	267.92		194.71	267.99		199.15	267.69
202.63	267.38		203.19	267.35		203.92	267.33
211.36	267.7		215.22	267.81		218.11	267.84
220.33	267.69		223.68	267.36		225.29	267.29
228.95	267.47		230.7	267.44		232.87	267.14
234.48	267.22		238.91	266.94		240.39	266.97
243.14	267.15		245.45	267.2		247.2	267.2
247.83	267.17		249.1	267.16		254.53	266.8
256.4	266.7		256.77	266.7		257.3	266.69
262.47	266.72		264.81	266.63		267.49	266.92
271.76	266.98		274.01	266.99		278.69	267.15
280.06	267.16		282.76	267.1		285.7	267.01
288.05	267.18		290.81	267.3		294.37	267.18
295.51	267.12		296.89	267.06		299.26	266.87
304.27	266.67		307.85	266.78		311.98	266.79
312.33	266.8		316.27	267.08		319.89	266.95
322.39	266.81		323.66	266.9		327.35	267.01
328.62	267.04		331.78	266.63		334.42	266.72
334.74	266.71		334.85	266.71		335.3	266.71
340.52	266.82		341.7	266.84		343.14	266.87
343.93	266.87		346.15	266.86		346.83	266.84
346.89	266.84		347.85	266.9		353.41	266.83
357.84	267.09		359.4	266.96		362.4	266.73
364.23	266.56		365.15	266.58		371.94	266.77
374.37	266.73		376.87	266.91		378.64	267.01
381.32	266.99		385.78	267.02		389.41	267.04
392.96	266.86		395	266.77		400.04	267.05
400.12	267.06		400.29	267.06		403.22	267.08
404.59	267.35		408.94	267.59		411.69	267.45
414.59	267.39		417.38	267.34		419.77	267.38
423.41	267.61		425.68	267.68		428	267.62
432.42	267.66		433.34	267.64		437	267.62
439.15	267.7		456.3	268.3		456.3	270.7
466.3	270.7	265.3	583.7	270.7	265.3	593.7	270.7

593.7	268.3	613.85	269.86	619.72	270.14
620.32	270.15	620.66	270.14	624.44	269.94
625.39	269.97	631.05	270.22	632.03	270.28
636.43	270.2	640.35	270.14	641.81	270.11
647.16	270.44	647.98	270.42	648.24	270.44
652.19	270.12	655.08	270.41	656.38	270.49
658.66	270.57	662.45	270.46	666.51	270.5
668.02	270.51	671.13	270.62	673.07	270.53
677.22	270.21	677.58	270.17	678.09	270.17
678.64	270.22	684.31	270.74	686.52	270.46
689.54	270.42	692.03	270.92	694.22	271.03
697.27	270.93	700.93	270.8	704.39	270.84
705.54	270.88	708.89	271.17	712.22	271.17
712.92	271.14	713.92	271.17	718.41	271.09
723.43	271.3	723.54	271.31	723.59	271.31
723.66	271.31	729.05	271.34	734.05	271.34
734.95	271.38	737.3	271.56	738.26	271.61
743.79	271.66	744.41	271.66	744.55	271.67
744.74	271.67	746.55	271.73	748.48	271.79
748.62	271.78	754.17	271.68	754.81	271.68
757.27	271.68	765.06	271.74	765.3	271.74
765.45	271.75	769.57	272.03	775.46	272.28
775.62	272.29	776.04	272.26	780.73	272.04
785.82	272.59	786.12	272.6	790.17	272.41
792.05	272.48	796.25	272.61	797.31	272.56
800.58	272.52	806.23	272.8	806.61	272.81
807.83	272.75	811.56	272.61	816.5	273.21
816.81	273.26	816.85	273.26	816.89	273.26
816.97	273.26	821.33	273.37	823.37	273.36
827.27	273.5	827.63	273.52	828.8	273.58
830.92	273.62	831.6	273.72	837.49	273.76
837.74	273.75	839.35	273.94	842.26	274.23
843.42	274.18	846.4	273.93	847.13	274.01
847.98	273.98	850.71	274.27	852.4	274.15
854.45	273.95	858.34	274.55	858.35	274.55
858.35	274.55	862.45	274.31	862.86	274.38
868.68	274.81	868.83	274.82	869.34	274.84
873.25	274.96	873.95	275	875.29	275.02
877.39	274.92				

Downstream Bridge Cross Section Data

Station Elevation Data num= 279

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	277.4	3.69	277.18	6.55	276.97	15.59	276.49	16.87	276.45
17.2	276.45	18.3	276.38	22.88	276.31	23.63	276.3	23.85	276.28
24.23	276.26	31.23	275.65	35.12	275.65	36.91	275.62	40.26	275.01
40.76	274.92	48.05	274.75	52.08	274.63	53.58	274.54	55.85	274.46
57.14	274.41	57.77	274.35	62.34	273.93	66.24	273.94	67.52	274.07
68.96	273.89	70.13	273.83	80.49	273.31	81.8	273.4	83.69	273.17
86.31	273.13	91.15	273.13	92.17	273.14	93.19	273.06	98.14	272.56

102.4	272.29	103.54	272.23	108.02	272.07	109.76	271.98	111.12	271.91
114.11	271.59	116.48	271.35	118.42	271.23	125.13	270.78	128.03	270.6
129.83	270.33	136.04	270.33	136.65	270.37	140.27	270.8	141.6	270.96
141.83	270.98	146.82	270.56	153.52	270.36	160.95	268.98	166.32	267.53
166.7	267.47	168.11	267.35	171.8	267.27	176.07	267.13	182.65	266.81
190.5	267.08	199.55	267.08	201.28	267.04	202.08	267	205.3	266.87
212.16	266.24	218.35	266.08	220.3	265.85	225.15	265.14	225.34	265.1
226.49	265.18	232.89	265.22	235.1	265.3	236.08	265.26	237.07	265.19
241.53	264.85	243.3	264.74	246.75	264.49	249.72	264.35	251.7	264.27
253.94	264.19	256.22	264.15	259.97	264.15	260.57	264.13	261.37	264.11
266.56	263.94	270.44	263.91	272.41	263.8	276.5	263.83	278.11	263.93
280.05	263.84	283.81	263.69	286.94	263.55	290.08	263.5	293.2	263.55
297.55	263.57	303.57	263.4	304.47	263.37	305.17	263.35	307.03	263.36
308.98	263.41	309.67	263.4	314.76	263.56	320.19	263.48	320.69	263.47
326.44	263.52	326.55	263.52	326.58	263.52	326.67	263.52	332.96	263.85
336.15	264.41	336.41	264.47	336.69	264.52	340.53	265.45	345.02	266.43
348.35	266.84	349.94	266.79	353.08	266.83	353.46	266.82	354.17	266.91
357.52	267.16	358.94	267.2	361.64	267.1	363	267.05	368.58	266.84
369.01	266.82	369.32	266.83	372.05	266.95	375.68	267.13	375.84	267.12
376.01	267.12	376.54	267.11	380.03	266.97	382.71	266.62	383.08	266.57
386.51	266.48	386.71	266.48	387.18	266.47	387.53	266.49	387.7	266.49
389.62	266.38	393.91	266.22	394.94	266.17	395.37	266.16	395.74	266.16
399.66	266.12	400.16	266.09	403.5	265.86	404.67	265.8	406.77	265.54
408.52	265.31	411.44	264.97	411.74	264.94	412.11	264.83	416	263.51
419.14	263.1	420.17	262.88	423.82	262.32	423.92	262.31	424.03	262.31
430.53	262.13	432.39	261.85	435.84	261.76	439.15	261.61	443.03	261.34
446.15	261.39	448.51	261.3	451.92	261.36	455.11	261	456.22	260.87
459.73	260.66	460.75	260.64	467.04	260.31	467.12	260.29	471.98	259.17
474.6	258.98	502.5	258.6	507.5	254.9	525	254	542.5	254.7
547.5	258	563.62	259.48	566.28	260.34	569.92	261.5	574.77	262.8
580.18	263.86	581.89	264.24	585.49	264.45	585.87	264.5	586.83	264.61
595.6	265.65	597.35	265.73	601.28	265.99	601.97	266.05	602.23	266.04
602.34	266.05	602.66	266.07	610.32	266.47	613.73	266.79	613.97	266.81
614.05	266.81	616.2	266.84	621.15	266.9	621.45	266.93	625.78	267.29
627.13	267.37	629.09	267.54	631.35	267.74	632.89	267.73	635.25	267.95
637.49	267.79	640.44	267.85	644.87	267.88	646.75	267.66	649.74	267.51
652.13	267.41	657.04	267.6	657.89	267.58	660.46	267.41	667.02	267.64
668.19	267.68	669.15	267.72	672.06	267.71	673.93	267.83	677.07	268.21
681.15	268.49	683.3	268.54	686.07	268.85	688.96	269.16	693.18	269.31
694.35	269.41	698.1	269.68	700.35	269.81	703.31	269.94	707.04	270.29
710.09	270.45	714.64	270.64	716.35	270.68	729.16	271.42	730.78	271.48
732.02	271.48	737.82	271.81	739.86	271.89	740.3	271.93	741.14	271.97
745.46	272.21	749.24	272.34	750.88	272.43	753.12	272.55	757.61	273.06
758.15	273.08	762.49	272.97	765.2	272.93	766.63	272.91	769.63	273.27
769.96	273.3	770.13	273.29	777.08	273.28	777.39	273.3	781.82	273.21
782.34	273.21	782.83	273.2	786.87	273.33	799.09	273.65	802.94	273.76
803.57	273.76	807.29	273.8	807.5	273.81	818.9	273.75	829.85	273.96
830.17	273.96	830.7	273.97	830.96	273.98	833.91	274.21	838.74	274.55
843.45	274.18	844.61	274.26	848.74	274.61	849.5	274.64		

```
Manning's n Values        num=       8
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  361.64     .12  455.11     .12   502.5     .04   524.1     .04
   547.5     .05  559.23     .05  569.92     .05

Bank Sta: Left   Right    Coeff Contr.   Expan.
         502.5   547.5             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0     431   266.5       F
     619   849.5   266.5       F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  1

Pier Data
Pier Station     Upstream=     525    Downstream=     525
Upstream     num=       2
    Width   Elev    Width   Elev
       3   254.3       3   265.3
Downstream     num=       2
    Width   Elev    Width   Elev
       3     254       3   265.3

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum               Cd   =    1.33
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =      .8
           Max Low Cord                =

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line
```

BRIDGE OUTPUT Profile #10%

E.G. US. (ft)	263.16	Element	Inside BR US
Inside BR DS			
W.S. US. (ft)	262.87	E.G. Elev (ft)	263.09
262.87			
Q Total (cfs)	2671.00	W.S. Elev (ft)	262.72
262.17			
Q Bridge (cfs)	2671.00	Crit W.S. (ft)	260.42
260.23			
Q Weir (cfs)		Max Chl Dpth (ft)	8.39
8.11			
Weir Sta Lft (ft)		Vel Total (ft/s)	4.73
5.49			
Weir Sta Rgt (ft)		Flow Area (sq ft)	564.85
486.10			
Weir Submerg		Froude # Chl	0.30
0.42			
Weir Max Depth (ft)		Specif Force (cu ft)	2095.01
1954.87			
Min El Weir Flow (ft)	266.74	Hydr Depth (ft)	4.94
4.71			
Min El Prs (ft)	265.30	W.P. Total (ft)	137.29
124.03			
Delta EG (ft)	0.44	Conv. Total (cfs)	56422.0
40221.2			
Delta WS (ft)	0.85	Top Width (ft)	114.44
103.14			
BR Open Area (sq ft)	830.31	Frctn Loss (ft)	0.13
0.14			
BR Open Vel (ft/s)	5.49	C & E Loss (ft)	0.10
0.00			
Coef of Q		Shear Total (lb/sq ft)	0.58
1.08			
Br Sel Method	Energy only	Power Total (lb/ft s)	0.00
0.00			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

BRIDGE OUTPUT Profile #2%

E.G. US. (ft)	270.56	Element	Inside BR US
Inside BR DS			
W.S. US. (ft)	270.28	E.G. Elev (ft)	270.56
270.56			
Q Total (cfs)	10810.00	W.S. Elev (ft)	270.28
269.27			
Q Bridge (cfs)	6740.88	Crit W.S. (ft)	264.46
269.27			
Q Weir (cfs)	4069.12	Max Chl Dpth (ft)	15.95
15.21			
Weir Sta Lft (ft)	172.78	Vel Total (ft/s)	6.15
5.85			
Weir Sta Rgt (ft)	690.25	Flow Area (sq ft)	1757.96
1846.74			
Weir Submerg	0.48	Froude # Chl	0.30
0.46			
Weir Max Depth (ft)	4.00	Specif Force (cu ft)	11233.48
10529.90			
Min El Weir Flow (ft)	266.74	Hydr Depth (ft)	5.22
5.97			
Min El Prs (ft)	265.30	W.P. Total (ft)	603.30
572.26			
Delta EG (ft)	1.00	Conv. Total (cfs)	
Delta WS (ft)	1.32	Top Width (ft)	336.90
309.53			
BR Open Area (sq ft)	830.31	Frctn Loss (ft)	
BR Open Vel (ft/s)	8.12	C & E Loss (ft)	
Coef of Q		Shear Total (lb/sq ft)	
Br Sel Method	Press/Weir	Power Total (lb/ft s)	0.00
0.00			

Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum
answer has been disregarded.
Note: The downstream water surface is above the minimum elevation required for orifice flow. The orifice flow equation was
used for pressure flow.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from

the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: For the cross section inside the bridge at the downstream end, the water surface is based on critical depth over the
weir. The energy has been projected.

BRIDGE OUTPUT Profile #1%

E.G. US. (ft)	271.40	Element	Inside BR US Inside BR DS
W.S. US. (ft)	271.10	E.G. Elev (ft)	271.40 271.40
Q Total (cfs)	12761.00	W.S. Elev (ft)	271.10 269.93
Q Bridge (cfs)	6466.88	Crit W.S. (ft)	265.20 269.77
Q Weir (cfs)	6294.12	Max Chl Dpth (ft)	16.77 15.87
Weir Sta Lft (ft)	151.34	Vel Total (ft/s)	5.82 5.51
Weir Sta Rgt (ft)	720.67	Flow Area (sq ft)	2192.60 2315.98
Weir Submerg	0.57	Froude # Chl	0.28 0.43
Weir Max Depth (ft)	4.84	Specif Force (cu ft)	13040.34 11995.11
Min El Weir Flow (ft)	266.74	Hydr Depth (ft)	4.02 7.19
Min El Prs (ft)	265.30	W.P. Total (ft)	813.04 586.27
Delta EG (ft)	0.92	Conv. Total (cfs)	
Delta WS (ft)	1.17	Top Width (ft)	545.64 322.14
BR Open Area (sq ft)	830.31	Frctn Loss (ft)	
BR Open Vel (ft/s)	7.79	C & E Loss (ft)	
Coef of Q		Shear Total (lb/sq ft)	
Br Sel Method	Press/Weir	Power Total (lb/ft s)	0.00 0.00

Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum

answer has been disregarded.
Note: The downstream water surface is above the minimum elevation required for orifice flow. The orifice flow equation was used for pressure flow.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: For the cross section inside the bridge at the downstream end, the water surface and energy have been projected from the downstream cross section. The selected bridge modeling method does not compute answers inside the bridge.

BRIDGE OUTPUT Profile #.2%

E.G. US. (ft)	274.15	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	273.85	E.G. Elev (ft)	274.15	273.98
Q Total (cfs)	19382.00	W.S. Elev (ft)	273.85	273.59
Q Bridge (cfs)	3997.54	Crit W.S. (ft)	270.77	270.98
Q Weir (cfs)	15384.46	Max Chl Dpth (ft)	19.51	19.53
Weir Sta Lft (ft)	30.61	Vel Total (ft/s)	4.89	4.65
Weir Sta Rgt (ft)	777.09	Flow Area (sq ft)	3960.77	4171.28
Weir Submerg	0.90	Froude # Chl	0.22	0.21
Weir Max Depth (ft)	7.59	Specif Force (cu ft)	21506.56	20964.34
Min El Weir Flow (ft)	266.74	Hydr Depth (ft)	5.43	5.78
Min El Prs (ft)	265.30	W.P. Total (ft)	996.55	987.96
Delta EG (ft)	0.17	Conv. Total (cfs)		
Delta WS (ft)	0.26	Top Width (ft)	728.95	721.75
BR Open Area (sq ft)	830.31	Frctn Loss (ft)		
BR Open Vel (ft/s)	4.81	C & E Loss (ft)		

Coef of Q		Shear Total (lb/sq ft)	
Br Sel Method	Press/Weir	Power Total (lb/ft s)	0.00
0.00			

Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Note: The downstream water surface is above the minimum elevation required for orifice flow. The orifice flow equation was used for pressure flow.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: For the cross section inside the bridge at the downstream end, the water surface and energy have been projected from the downstream cross section. The selected bridge modeling method does not compute answers inside the bridge.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 15200.99

INPUT
Description:
Station Elevation Data num= 279

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	277.4	3.69	277.18	6.55	276.97	15.59	276.49	16.87	276.45
17.2	276.45	18.3	276.38	22.88	276.31	23.63	276.3	23.85	276.28
24.23	276.26	31.23	275.65	35.12	275.65	36.91	275.62	40.26	275.01
40.76	274.92	48.05	274.75	52.08	274.63	53.58	274.54	55.85	274.46
57.14	274.41	57.77	274.35	62.34	273.93	66.24	273.94	67.52	274.07
68.96	273.89	70.13	273.83	80.49	273.31	81.8	273.4	83.69	273.17
86.31	273.13	91.15	273.13	92.17	273.14	93.19	273.06	98.14	272.56
102.4	272.29	103.54	272.23	108.02	272.07	109.76	271.98	111.12	271.91
114.11	271.59	116.48	271.35	118.42	271.23	125.13	270.78	128.03	270.6
129.83	270.33	136.04	270.33	136.65	270.37	140.27	270.8	141.6	270.96
141.83	270.98	146.82	270.56	153.52	270.36	160.95	268.98	166.32	267.53
166.7	267.47	168.11	267.35	171.8	267.27	176.07	267.13	182.65	266.81
190.5	267.08	199.55	267.08	201.28	267.04	202.08	267	205.3	266.87
212.16	266.24	218.35	266.08	220.3	265.85	225.15	265.14	225.34	265.1

226.49	265.18	232.89	265.22	235.1	265.3	236.08	265.26	237.07	265.19
241.53	264.85	243.3	264.74	246.75	264.49	249.72	264.35	251.7	264.27
253.94	264.19	256.22	264.15	259.97	264.15	260.57	264.13	261.37	264.11
266.56	263.94	270.44	263.91	272.41	263.8	276.5	263.83	278.11	263.93
280.05	263.84	283.81	263.69	286.94	263.55	290.08	263.5	293.2	263.55
297.55	263.57	303.57	263.4	304.47	263.37	305.17	263.35	307.03	263.36
308.98	263.41	309.67	263.4	314.76	263.56	320.19	263.48	320.69	263.47
326.44	263.52	326.55	263.52	326.58	263.52	326.67	263.52	332.96	263.85
336.15	264.41	336.41	264.47	336.69	264.52	340.53	265.45	345.02	266.43
348.35	266.84	349.94	266.79	353.08	266.83	353.46	266.82	354.17	266.91
357.52	267.16	358.94	267.2	361.64	267.1	363	267.05	368.58	266.84
369.01	266.82	369.32	266.83	372.05	266.95	375.68	267.13	375.84	267.12
376.01	267.12	376.54	267.11	380.03	266.97	382.71	266.62	383.08	266.57
386.51	266.48	386.71	266.48	387.18	266.47	387.53	266.49	387.7	266.49
389.62	266.38	393.91	266.22	394.94	266.17	395.37	266.16	395.74	266.16
399.66	266.12	400.16	266.09	403.5	265.86	404.67	265.8	406.77	265.54
408.52	265.31	411.44	264.97	411.74	264.94	412.11	264.83	416	263.51
419.14	263.1	420.17	262.88	423.82	262.32	423.92	262.31	424.03	262.31
430.53	262.13	432.39	261.85	435.84	261.76	439.15	261.61	443.03	261.34
446.15	261.39	448.51	261.3	451.92	261.36	455.11	261	456.22	260.87
459.73	260.66	460.75	260.64	467.04	260.31	467.12	260.29	471.98	259.17
474.6	258.98	502.5	258.6	507.5	254.9	525	254	542.5	254.7
547.5	258	563.62	259.48	566.28	260.34	569.92	261.5	574.77	262.8
580.18	263.86	581.89	264.24	585.49	264.45	585.87	264.5	586.83	264.61
595.6	265.65	597.35	265.73	601.28	265.99	601.97	266.05	602.23	266.04
602.34	266.05	602.66	266.07	610.32	266.47	613.73	266.79	613.97	266.81
614.05	266.81	616.2	266.84	621.15	266.9	621.45	266.93	625.78	267.29
627.13	267.37	629.09	267.54	631.35	267.74	632.89	267.73	635.25	267.95
637.49	267.79	640.44	267.85	644.87	267.88	646.75	267.66	649.74	267.51
652.13	267.41	657.04	267.6	657.89	267.58	660.46	267.41	667.02	267.64
668.19	267.68	669.15	267.72	672.06	267.71	673.93	267.83	677.07	268.21
681.15	268.49	683.3	268.54	686.07	268.85	688.96	269.16	693.18	269.31
694.35	269.41	698.1	269.68	700.35	269.81	703.31	269.94	707.04	270.29
710.09	270.45	714.64	270.64	716.35	270.68	729.16	271.42	730.78	271.48
732.02	271.48	737.82	271.81	739.86	271.89	740.3	271.93	741.14	271.97
745.46	272.21	749.24	272.34	750.88	272.43	753.12	272.55	757.61	273.06
758.15	273.08	762.49	272.97	765.2	272.93	766.63	272.91	769.63	273.27
769.96	273.3	770.13	273.29	777.08	273.28	777.39	273.3	781.82	273.21
782.34	273.21	782.83	273.2	786.87	273.33	799.09	273.65	802.94	273.76
803.57	273.76	807.29	273.8	807.5	273.81	818.9	273.75	829.85	273.96
830.17	273.96	830.7	273.97	830.96	273.98	833.91	274.21	838.74	274.55
843.45	274.18	844.61	274.26	848.74	274.61	849.5	274.64		

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	361.64	.12	455.11	.12	502.5	.04	524.1	.04
547.5	.05	559.23	.05	569.92	.05				

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
502.5	547.5	332.95	285.36	267.29	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	431	266.5	F
619	849.5	266.5	F

CROSS SECTION OUTPUT Profile #10%

E.G. Elev (ft)	262.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.70	Wt. n-Val.	0.120	0.040	0.050
W.S. Elev (ft)	262.03	Reach Len. (ft)	332.95	285.36	267.29
Crit W.S. (ft)	259.94	Flow Area (sq ft)	138.97	321.66	63.14
E.G. Slope (ft/ft)	0.002873	Area (sq ft)	138.97	321.66	63.14
Q Total (cfs)	2671.00	Flow (cfs)	166.02	2300.85	204.13
Top Width (ft)	140.66	Top Width (ft)	71.28	45.00	24.38
Vel Total (ft/s)	5.10	Avg. Vel. (ft/s)	1.19	7.15	3.23
Max Chl Dpth (ft)	8.03	Hydr. Depth (ft)	1.95	7.15	2.59
Conv. Total (cfs)	49827.6	Conv. (cfs)	3097.0	42922.5	3808.1
Length Wtd. (ft)	286.44	Wetted Per. (ft)	71.49	47.25	24.83
Min Ch El (ft)	254.00	Shear (lb/sq ft)	0.35	1.22	0.46
Alpha	1.73	Stream Power (lb/ft s)	849.50	0.00	0.00
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)	145.03	192.96	77.30
C & E Loss (ft)	0.23	Cum SA (acres)	68.91	30.19	43.99

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.

Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	269.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.60	Wt. n-Val.	0.080	0.040	0.050
W.S. Elev (ft)	268.96	Reach Len. (ft)	332.95	285.36	267.29
Crit W.S. (ft)	265.47	Flow Area (sq ft)	1628.28	633.88	491.90
E.G. Slope (ft/ft)	0.001605	Area (sq ft)	1628.28	633.88	491.90
Q Total (cfs)	10810.00	Flow (cfs)	3735.99	5326.50	1747.51
Top Width (ft)	526.12	Top Width (ft)	341.49	45.00	139.63
Vel Total (ft/s)	3.93	Avg. Vel. (ft/s)	2.29	8.40	3.55
Max Chl Dpth (ft)	14.96	Hydr. Depth (ft)	4.77	14.09	3.52
Conv. Total (cfs)	269817.1	Conv. (cfs)	93250.2	132949.2	43617.7
Length Wtd. (ft)	297.00	Wetted Per. (ft)	342.87	47.25	140.60
Min Ch El (ft)	254.00	Shear (lb/sq ft)	0.48	1.34	0.35
Alpha	2.51	Stream Power (lb/ft s)	849.50	0.00	0.00
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	495.91	318.23	344.87
C & E Loss (ft)	0.19	Cum SA (acres)	105.57	30.15	75.89

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	270.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.	0.077	0.040	0.050
W.S. Elev (ft)	269.93	Reach Len. (ft)	332.95	285.36	267.29
Crit W.S. (ft)	266.70	Flow Area (sq ft)	1961.44	677.45	634.35
E.G. Slope (ft/ft)	0.001458	Area (sq ft)	1961.44	677.45	634.35
Q Total (cfs)	12761.00	Flow (cfs)	4856.65	5672.16	2232.19
Top Width (ft)	547.31	Top Width (ft)	346.68	45.00	155.63
Vel Total (ft/s)	3.90	Avg. Vel. (ft/s)	2.48	8.37	3.52
Max Chl Dpth (ft)	15.93	Hydr. Depth (ft)	5.66	15.05	4.08
Conv. Total (cfs)	334151.1	Conv. (cfs)	127173.0	148527.4	58450.7
Length Wtd. (ft)	298.32	Wetted Per. (ft)	348.14	47.25	156.63
Min Ch El (ft)	254.00	Shear (lb/sq ft)	0.51	1.31	0.37
Alpha	2.35	Stream Power (lb/ft s)	849.50	0.00	0.00
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	579.39	340.82	402.99
C & E Loss (ft)	0.16	Cum SA (acres)	110.34	30.15	79.89

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	273.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.	0.073	0.040	0.050
W.S. Elev (ft)	273.59	Reach Len. (ft)	332.95	285.36	267.29
Crit W.S. (ft)	268.75	Flow Area (sq ft)	3382.95	841.95	1334.09
E.G. Slope (ft/ft)	0.000927	Area (sq ft)	3382.95	841.95	1334.09
Q Total (cfs)	19382.00	Flow (cfs)	8701.76	6497.64	4182.60
Top Width (ft)	721.75	Top Width (ft)	427.54	45.00	249.21
Vel Total (ft/s)	3.49	Avg. Vel. (ft/s)	2.57	7.72	3.14
Max Chl Dpth (ft)	19.59	Hydr. Depth (ft)	7.91	18.71	5.35
Conv. Total (cfs)	636497.3	Conv. (cfs)	285762.4	213380.0	137354.9
Length Wtd. (ft)	300.96	Wetted Per. (ft)	429.25	47.25	250.35
Min Ch El (ft)	254.00	Shear (lb/sq ft)	0.46	1.03	0.31
Alpha	2.06	Stream Power (lb/ft s)	849.50	0.00	0.00
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	842.93	406.52	587.77
C & E Loss (ft)	0.11	Cum SA (acres)	123.78	30.17	90.19

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 14915.63

INPUT
Description:
Station Elevation Data num= 343

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	276.63	.13	276.62	3.34	276.54	5.58	276.46	10.5	276.22
11.04	276.21	12.79	276.08	17.33	275.94	19.03	275.9	21.18	275.74
23.86	275.55	24.85	275.51	32.17	275.19	33.12	275.23	36.35	275.02
42.16	274.9	42.65	274.89	43.93	274.84	47.27	274.85	50.52	274.6
51.46	274.59	52.41	274.59	56.87	274.54	58.36	274.39	62.54	274.03
66.03	274.09	68.32	274.06	73.71	273.56	74.03	273.53	74.98	273.51
80.3	273.44	83.14	273.22	85.89	272.99	86.67	273	90.91	273.07
93.09	272.97	96.98	272.55	99.47	272.46	104.46	272.41	105.46	272.41
105.83	272.41	105.99	272.42	109.82	272.32	112.58	272.12	116.81	272.06
118.83	272.11	120.14	272	122.51	272.02	126.41	271.77	128.41	271.68
131.62	271.64	135.73	271.33	138.49	271.15	138.92	271.14	139.51	271.13
145.36	271	147.67	270.87	154.31	270.62	157.26	270.71	162.84	270.47
164.18	270.49	164.98	270.46	167.19	270.33	169.41	270.19	171.2	270.13
173.31	270.04	175.88	270.11	178.02	270.07	178.89	270.07	184.32	269.75
187.87	269.84	190.68	269.87	196.74	269.62	196.94	269.63	197.41	269.63
202.04	269.76	207.01	269.38	207.11	269.37	207.2	269.37	213.1	269.13
215.45	269.08	217.85	269.14	219.78	269.03	224.89	268.89	225.37	268.84
228.48	268.68	231.26	268.54	235.83	268.52	237	268.52	237.71	268.48
242.33	268.26	243.74	268.12	247.66	268	250.88	268.17	252.99	268.2
257.9	267.72	258.31	267.69	259.58	267.67	264.84	267.74	266.43	267.73
268.53	267.68	271.02	267.57	271.8	267.59	276.22	267.43	277.51	267.39
281.11	267.54	285.27	267.29	293.42	267.4	294.94	267.44	296.03	267.27
296.48	267.21	298.69	266.52	302.99	266.4	309.24	266.43	311.73	266.62
313.21	266.57	315.58	266.56	317.71	266.41	319.69	266.42	321.15	266.5
325.92	266.34	333.41	266.17	334.88	266.21	335.93	266.08	337.01	265.92
339.65	265.58	346.28	265.52	348.62	265.51	348.71	265.5	353.16	265.25
355.4	265.32	358.57	265.05	361.7	264.83	362.16	264.79	365.25	264.87
366.83	264.89	369.75	264.82	371.93	264.67	373.15	264.66	377.48	264.38
379.71	264.33	383.14	264.21	388.21	264	388.78	263.99	389.79	263.97
392.89	263.85	395.87	264.02	396.81	264.02	402.24	263.47	406.15	263.32
409.45	263.1	414.73	262.75	415.78	262.63	417.78	262.68	421.26	262.65
423.21	262.7	430.56	262.75	436.58	262.86	440.31	262.76	443.43	262.53
445.96	262.45	459.45	261.3	460.85	261.22	464.5	261.29	467.98	261.43
469.4	261.45	477.1	261.61	478.96	261.96	480.76	262.35	482.47	262.62
483.91	262.77	488.33	262.86	488.64	262.88	489.31	262.91	494.81	262.42
495.43	262.24	497.15	261.97	501.06	261.96	502.16	261.82	503.72	261.49
518.38	261.38	527.69	261.88	529.84	261.95	532.48	261.78	537.91	261.76
552.68	260.64	558.15	260.27	562.54	260.15	563.13	260.25	564.99	259.74
569.33	259.05	571.95	259.61	589.42	259.14	591.28	259.14	592.41	258.68
599.75	258.33	600.51	258.33	602.14	258.14	606.79	257.4	608.33	256.32
610.66	254.86	613.18	254.86	628.37	254.14	639.27	253.53	645.4	253.22
659.26	253.78	678.88	254.86	681.61	254.86	685.97	257.92	687.06	258.93
691.73	258.67	693.42	258.57	694.09	258.63	701.75	259.71	703.36	259.83

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  705.06  259.62  710.15  259.59  710.34  259.62  710.68  259.65  711.78  259.75
  715.16  260.05  717.98  260.54  719.65  260.83  719.76  260.85   720.2  260.91
  721.22   260.9  726.74  261.39  728.69  261.56  729.85  261.53  734.46  261.49
  734.84  261.49  735.88  261.63  740.19  262.18  742.12  262.23  744.68  262.39
     745  262.39  751.29  262.39  755.05   262.2  756.45  262.14  758.51  262.29
  763.79  262.82  765.74  262.88  771.51  262.79  775.56  263.04   779.5  263.06
  780.67  263.05  782.83  263.14  787.21  263.28  792.03  263.16  794.95  263.28
  796.03  263.31  798.99  263.35  802.93   263.5  807.24  263.71  809.34  263.83
   810.3  263.89  812.17   264.1   814.8  264.28  818.31  264.37  820.92  264.52
  824.41  264.86  827.48  265.21  830.55  265.63  833.93  266.15  840.26   267.5
  841.23   267.7  844.63  268.23  846.43  268.53  849.76  268.68   851.1  268.87
  863.13  269.21  863.14  269.21  863.16  269.21  863.17  269.21  870.03   269.4
  872.13  269.34  879.46  269.65  879.91  269.65  881.39  269.44  892.07  268.02
  898.13   268.1  900.82   268.3  904.79  269.85  908.04  269.97  909.66  270.04
  912.97  269.83  922.81  268.83  924.32  268.67  927.71   268.8  930.53  268.97
  930.62  268.97  931.91     269  934.09  269.18  935.89   269.2  939.72     269
     942  269.09  943.42   269.2  945.74  269.21  947.64  269.27  948.41  269.31
   951.6  269.51  954.55  269.74  954.85  269.75  956.47  269.79  959.54  270.05
  962.36  270.28  962.97  270.32   963.6  270.33  968.45  270.55  970.03  270.66
  970.37  270.68  973.44  270.82  977.85  270.98  980.76  271.15  981.86  271.16
  985.38  271.09   986.9  271.22  992.77  271.54  992.91  271.55  992.97  271.55
  993.23  271.56  998.61  271.66 1000.85  271.76 1004.31     272 1008.82  272.09
 1009.97  272.14 1012.74  272.21 1016.61  272.32 1020.87  272.47 1024.04  272.58
 1026.93  272.78 1031.19  273.05 1033.53   273.1 1038.16  273.02 1044.45  273.45
 1045.19  273.53 1047.37  273.61 1048.56  273.63 1050.82  273.66  1064.6  274.48
 1066.36   274.5 1068.52  274.89 1074.35  275.13

Manning's n Values        num=       9
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05   111.9     .05  523.45     .12  602.14     .04  656.86     .04
  685.97     .05  727.23     .12  762.48     .05   996.9     .12

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        602.14  685.97           363.66  337.37  261.75             .1       .3

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           262.09    Element                  Left OB    Channel
Right OB
  Vel Head (ft)              0.23    Wt. n-Val.                0.113      0.040
  0.050
  W.S. Elev (ft)           261.85    Reach Len. (ft)          363.66     337.37
 261.75
  Crit W.S. (ft)           257.60    Flow Area (sq ft)        149.94     616.53
  89.89
  E.G. Slope (ft/ft)      0.000837   Area (sq ft)             149.94     616.53
  89.89
  Q Total (cfs)           2671.00    Flow (cfs)                79.17    2470.06
 121.77
```

Top Width (ft)	257.08	Top Width (ft)	121.58	83.83	51.67
Vel Total (ft/s)	3.12	Avg. Vel. (ft/s)	0.53	4.01	1.35
Max Chl Dpth (ft)	8.63	Hydr. Depth (ft)	1.23	7.35	1.74
Conv. Total (cfs)	92318.7	Conv. (cfs)	2736.5	85373.4	4208.7
Length Wtd. (ft)	331.69	Wetted Per. (ft)	122.05	85.70	52.32
Min Ch El (ft)	253.22	Shear (lb/sq ft)	0.06	0.38	0.09
Alpha	1.54	Stream Power (lb/ft s)	1074.35	0.00	0.00
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	143.93	189.88	76.83
C & E Loss (ft)	0.00	Cum SA (acres)	68.17	29.76	43.76

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	269.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.069	0.040	0.058
W.S. Elev (ft)	268.91	Reach Len. (ft)	363.66	337.37	261.75
Crit W.S. (ft)	263.19	Flow Area (sq ft)	1951.34	1208.27	1020.79
E.G. Slope (ft/ft)	0.000494	Area (sq ft)	1951.34	1208.27	1020.79
Q Total (cfs)	10810.00	Flow (cfs)	2977.66	5823.22	2009.12
Top Width (ft)	653.19	Top Width (ft)	378.09	83.83	191.28
Vel Total (ft/s)	2.59	Avg. Vel. (ft/s)	1.53	4.82	1.97
Max Chl Dpth (ft)	15.69	Hydr. Depth (ft)	5.16	14.41	5.34
Conv. Total (cfs)	486340.7	Conv. (cfs)	133964.5	261986.2	90390.0
Length Wtd. (ft)	327.47	Wetted Per. (ft)	379.14	85.70	192.60
Min Ch El (ft)	253.22	Shear (lb/sq ft)	0.16	0.43	0.16

Alpha	2.07	Stream Power (lb/ft s)	1074.35	0.00	0.00
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	482.22	312.20	340.23
C & E Loss (ft)	0.01	Cum SA (acres)	102.82	29.73	74.88

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	270.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.	0.067	0.040	0.059
W.S. Elev (ft)	269.86	Reach Len. (ft)	363.66	337.37	261.75
Crit W.S. (ft)	263.84	Flow Area (sq ft)	2325.23	1287.63	1242.84
E.G. Slope (ft/ft)	0.000497	Area (sq ft)	2325.23	1287.63	1242.84
Q Total (cfs)	12761.00	Flow (cfs)	3855.01	6495.17	2410.82
Top Width (ft)	766.17	Top Width (ft)	418.46	83.83	263.87
Vel Total (ft/s)	2.63	Avg. Vel. (ft/s)	1.66	5.04	1.94
Max Chl Dpth (ft)	16.64	Hydr. Depth (ft)	5.56	15.36	4.71
Conv. Total (cfs)	572291.1	Conv. (cfs)	172885.1	291288.0	108118.0
Length Wtd. (ft)	328.01	Wetted Per. (ft)	419.55	85.70	265.52
Min Ch El (ft)	253.22	Shear (lb/sq ft)	0.17	0.47	0.15
Alpha	2.10	Stream Power (lb/ft s)	1074.35	0.00	0.00
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	563.01	334.38	397.23
C & E Loss (ft)	0.01	Cum SA (acres)	107.41	29.73	78.60

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	273.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.063	0.040	0.057
W.S. Elev (ft)	273.55	Reach Len. (ft)	363.66	337.37	261.75
Crit W.S. (ft)	265.50	Flow Area (sq ft)	4078.43	1596.73	2397.03
E.G. Slope (ft/ft)	0.000322	Area (sq ft)	4078.43	1596.73	2397.03
Q Total (cfs)	19382.00	Flow (cfs)	7330.20	7480.00	4571.80
Top Width (ft)	971.80	Top Width (ft)	528.29	83.83	359.68
Vel Total (ft/s)	2.40	Avg. Vel. (ft/s)	1.80	4.68	1.91
Max Chl Dpth (ft)	20.33	Hydr. Depth (ft)	7.72	19.05	6.66
Conv. Total (cfs)	1080303.0	Conv. (cfs)	408566.4	416915.9	254820.6
Length Wtd. (ft)	326.34	Wetted Per. (ft)	529.50	85.70	361.45
Min Ch El (ft)	253.22	Shear (lb/sq ft)	0.15	0.37	0.13
Alpha	1.83	Stream Power (lb/ft s)	1074.35	0.00	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	814.41	398.53	576.32
C & E Loss (ft)	0.01	Cum SA (acres)	120.12	29.74	88.32

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 14578.26

INPUT
Description:
Station Elevation Data num= 329

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	277.73	.21	277.67	5.97	277.11	11.11	276.38	16.29	275.81
16.8	275.7	25.4	275.19	25.85	275.16	26.03	275.15	45.55	273.5
45.67	273.49	46.41	273.45	48.59	273.03	53.93	272.22	55.85	272.68
61.66	272.27	64.23	272.12	69.72	271.77	73.47	271.3	82.62	270.93
84.4	270.82	100.27	269.14	114.06	268.22	117.88	267.87	120.12	267.79

127.75	266.95	130.17	266.73	131.18	266.81	132.83	266.86	133.78	266.77
138.73	266.52	142.84	266.23	145.22	266.04	148.04	265.97	150.37	265.96
153.84	265.7	155.33	265.72	158.54	266.15	163.83	265.91	165.21	265.98
167.79	266.05	172.23	265.94	173.06	265.84	173.8	265.77	177.91	265.64
180.32	265.5	183.13	265.36	187.8	264.84	188.13	264.8	188.72	264.77
191.97	264.65	196.04	264.67	197.44	264.86	198.32	264.84	201.94	264.89
202.35	264.95	202.77	265.03	207.21	264.72	208.41	264.74	213.14	264.78
213.55	264.74	214.15	264.7	217.02	264.18	219.64	263.96	221.23	263.67
222.26	263.5	223.44	263.44	226.37	263.3	228.49	263	232.76	262.81
234.49	262.68	236	262.68	239.21	262.59	241.33	262.55	244.76	262.47
248.23	262.33	252.35	262.4	255.73	262.37	258.02	262.32	258.73	262.34
262.1	262.39	264.78	262.46	266.26	262.57	270.8	262.81	272.83	262.83
276.53	262.84	278.36	262.51	283.18	261.85	289.09	262.19	291.58	262.1
293.91	262.01	299.17	261.7	300.89	261.65	301.82	261.62	303.85	261.62
313.02	261.72	316.73	261.59	321.5	261.42	327.52	261.09	328.96	260.98
330.37	261.01	334.64	260.89	335.84	260.9	341.11	260.82	341.93	260.74
346.08	260.67	352.71	260.67	354.29	260.66	354.78	260.63	364.12	260.21
367.11	260.03	367.81	260.01	369.61	259.97	370.93	259.84	376.56	259.68
377.48	259.74	380.85	259.78	383.21	259.83	383.71	259.82	389.37	260.09
390.54	260.26	391.35	260.24	396.04	260.36	402.64	259.68	405.97	259.36
409.53	258.04	414.96	255.68	417.14	254.74	418.26	254.74	427.58	254.1
430.58	253.7	445.2	252.76	469.78	254.74	471.78	254.74	473.67	255.44
475.58	256.28	476.54	256.46	481.26	257.08	487.83	258.88	488.94	259.21
489.91	259.38	490.76	259.59	490.9	259.62	496.75	260.31	500.8	260.37
502.88	260.28	509.24	260.01	509.41	260.01	509.98	259.99	514.8	259.81
517.11	259.8	520.08	259.86	524.89	259.72	525.34	259.69	529.7	259.29
533.22	259.01	536.43	258.47	537.59	258.12	541	257.68	543.15	257.57
546.19	257.63	549.87	257.52	553.84	257.33	556.68	258.06	558.04	258.21
562.87	258.42	567.78	258.15	568.51	258.09	568.83	258.14	569.41	258.2
576.99	259.58	580.76	259.84	582.88	260.19	586.41	260.03	589.84	259.88
595.62	259.76	596.79	259.72	600.48	259.76	602.98	259.83	604.05	259.75
608.05	259.44	611.45	259.3	613.12	259.13	616.83	258.92	618.61	258.82
618.75	258.81	619.13	258.77	625.94	258.2	629.46	258.38	632.26	258.51
633.44	258.67	640.38	258.83	640.72	258.82	640.79	258.82	641.61	258.79
645.48	258.64	648.09	258.52	651.38	258.7	654.53	258.48	655.35	258.28
656.22	258.26	661.82	258.79	662.67	258.87	662.78	258.89	662.91	258.92
669.43	260.71	671.36	261.11	674.51	261.67	678.65	262.05	691.69	263.79
694.74	263.83	699.17	263.62	702.83	263.3	705.31	263.56	706.87	263.7
707.36	263.76	711.1	264.22	713.2	264.07	717.09	264.28	717.49	264.3
717.79	264.32	720.34	264.52	722.85	264.72	723.59	264.8	724.43	264.83
733.63	265.31	738.74	264.88	739.04	264.88	739.35	264.89	741.56	265.04
746.21	265.36	747.25	265.39	749.52	265.44	752.02	265.59	761.71	266.35
764.33	266.52	768.27	266.5	768.5	266.48	771.56	266.68	776.69	266.93
778.84	267.06	781.74	266.99	783.12	267.05	786.57	267.26	789.74	267.27
792.68	267.37	795.9	267.73	798.25	267.9	803.2	268.14	804.97	268.15
807.07	268.15	808.27	268.08	811.98	268.2	814.37	268.3	821.68	268.88
822.04	268.85	822.66	268.91	824.68	268.73	826.9	268.62	828.08	268.6
833.54	269.05	835.26	269.11	835.9	269.12	838.19	269.17	845.34	268.97
849.17	269.29	852.53	269.35	853.59	269.41	855.44	269.38	860.58	269.49
866.89	269.69	868.14	269.59	870.08	269.44	874.19	269.7	877.35	269.88

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  880.13  269.73  881.68  269.84  884.66  270.19  888.16  270.06  889.38  270.17
  892.37  270.27  897.47  270.27  898.91  270.29  901.68   270.4  903.24  270.48
   906.4  270.72  908.56  270.63  909.88  270.82  911.67  271.07  915.85  271.61
  918.54  271.72  919.39  271.79  920.96  271.69  923.47  271.56  927.61  271.34
  929.84  271.36  932.34  271.42  937.38  271.64  939.68  271.59  943.51   271.9
   944.8  272.02  947.77  272.07  958.25  272.43  958.46  272.43   958.7  272.47
  964.95   272.5  967.71   272.7  968.66  272.77  968.86  272.77   973.7     273
  975.05   273.1  979.16  273.05  979.84  273.13  984.63  273.76  988.97  273.53
  989.85  273.55   990.8  273.56  995.42  274.11  998.83  274.19 1000.37  274.35
 1001.83  274.44 1004.93  274.79 1008.15   274.9 1010.44  274.93    1012  275.01
 1018.25  275.46 1019.25  275.54 1022.94  275.74 1023.56  275.76

Manning's n Values        num=       9
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  202.35     .12  405.97     .04  409.53     .04  414.96     .04
  469.78     .04  481.26     .04  488.94     .12  907.82     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        405.97  488.94           431.74   374.5  152.77             .3       .5

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)            261.77    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.24    Wt. n-Val.                0.120      0.040
  0.120
  W.S. Elev (ft)            261.54    Reach Len. (ft)          431.74     374.50
 152.77
  Crit W.S. (ft)            257.95    Flow Area (sq ft)         99.32     549.26
 446.21
  E.G. Slope (ft/ft)      0.001056    Area (sq ft)              99.32     549.26
 446.21
  Q Total (cfs)             2671.00    Flow (cfs)               43.36    2305.73
 321.92
  Top Width (ft)            355.56    Top Width (ft)            87.77      82.97
 184.83
  Vel Total (ft/s)            2.44    Avg. Vel. (ft/s)           0.44       4.20
   0.72
  Max Chl Dpth (ft)           8.78    Hydr. Depth (ft)           1.13       6.62
   2.41
  Conv. Total (cfs)         82195.0    Conv. (cfs)              1334.2    70954.5
 9906.4
  Length Wtd. (ft)          318.56    Wetted Per. (ft)          87.89      84.70
 185.86
  Min Ch El (ft)            252.76    Shear (lb/sq ft)           0.07       0.43
   0.16
  Alpha                       2.57    Stream Power (lb/ft s)  1023.56       0.00
   0.00
  Frctn Loss (ft)             0.26    Cum Volume (acre-ft)      142.89     185.37
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75.22					
C & E Loss (ft)	0.07	Cum SA (acres)	67.30	29.12	
43.05					

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	268.93	Element	Left OB	Channel	
Right OB					
Vel Head (ft)	0.28	Wt. n-Val.	0.109	0.040	
0.120					
W.S. Elev (ft)	268.65	Reach Len. (ft)	431.74	374.50	
152.77					
Crit W.S. (ft)	262.72	Flow Area (sq ft)	1643.54	1139.39	
2213.55					
E.G. Slope (ft/ft)	0.000686	Area (sq ft)	1643.54	1139.39	
2213.55					
Q Total (cfs)	10810.00	Flow (cfs)	1989.88	6272.65	
2547.47					
Top Width (ft)	713.57	Top Width (ft)	298.36	82.97	
332.24					
Vel Total (ft/s)	2.16	Avg. Vel. (ft/s)	1.21	5.51	
1.15					
Max Chl Dpth (ft)	15.89	Hydr. Depth (ft)	5.51	13.73	
6.66					
Conv. Total (cfs)	412583.4	Conv. (cfs)	75947.3	239407.1	
97229.0					
Length Wtd. (ft)	314.79	Wetted Per. (ft)	298.99	84.70	
333.70					
Min Ch El (ft)	252.76	Shear (lb/sq ft)	0.24	0.58	
0.28					
Alpha	3.88	Stream Power (lb/ft s)	1023.56	0.00	
0.00					
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	467.22	303.11	
330.51					
C & E Loss (ft)	0.01	Cum SA (acres)	100.00	29.08	
73.31					

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	269.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.	0.106	0.040	0.120
W.S. Elev (ft)	269.57	Reach Len. (ft)	431.74	374.50	152.77
Crit W.S. (ft)	263.38	Flow Area (sq ft)	1924.89	1216.00	2539.69
E.G. Slope (ft/ft)	0.000714	Area (sq ft)	1924.89	1216.00	2539.69
Q Total (cfs)	12761.00	Flow (cfs)	2631.07	7127.64	3002.29
Top Width (ft)	770.88	Top Width (ft)	309.79	82.97	378.11
Vel Total (ft/s)	2.25	Avg. Vel. (ft/s)	1.37	5.86	1.18
Max Chl Dpth (ft)	16.81	Hydr. Depth (ft)	6.21	14.66	6.72
Conv. Total (cfs)	477724.4	Conv. (cfs)	98497.4	266832.4	112394.6
Length Wtd. (ft)	315.73	Wetted Per. (ft)	310.47	84.70	379.64
Min Ch El (ft)	252.76	Shear (lb/sq ft)	0.28	0.64	0.30
Alpha	3.94	Stream Power (lb/ft s)	1023.56	0.00	0.00
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	545.27	324.68	385.86
C & E Loss (ft)	0.00	Cum SA (acres)	104.37	29.08	76.67

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	273.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.	0.097	0.040	0.118
W.S. Elev (ft)	273.31	Reach Len. (ft)	431.74	374.50	152.77
Crit W.S. (ft)	264.75	Flow Area (sq ft)	3169.97	1525.80	4177.20
E.G. Slope (ft/ft)	0.000524	Area (sq ft)	3169.97	1525.80	4177.20
Q Total (cfs)	19382.00	Flow (cfs)	5073.63	8915.27	

5393.10					
Top Width (ft)	934.04	Top Width (ft)	358.82	82.97	492.25
Vel Total (ft/s)	2.18	Avg. Vel. (ft/s)	1.60	5.84	1.29
Max Chl Dpth (ft)	20.55	Hydr. Depth (ft)	8.83	18.39	8.49
Conv. Total (cfs)	846793.4	Conv. (cfs)	221665.3	389505.3	235622.8
Length Wtd. (ft)	293.94	Wetted Per. (ft)	359.77	84.70	494.00
Min Ch El (ft)	252.76	Shear (lb/sq ft)	0.29	0.59	0.28
Alpha	3.53	Stream Power (lb/ft s)	1023.56	0.00	0.00
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	784.15	386.44	556.57
C & E Loss (ft)	0.08	Cum SA (acres)	116.42	29.10	85.76

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 14203.75

INPUT
Description:
Station Elevation Data num= 357

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	284.49	.38	284.45	3.37	284.35	5.35	284.34	8.41	284.41
13.01	284.25	13.37	284.23	15.49	284.1	17.61	283.97	17.96	283.97
22.24	283.96	24.88	283.95	26.95	283.94	30.28	283.97	31.82	283.91
35.2	283.72	37.16	283.73	37.62	283.72	42.16	283.6	48.22	283.49
48.83	283.49	51.41	283.23	52.43	283.14	52.76	283.17	59.52	283.51
62.1	283.39	63.52	283.31	66.63	282.9	67.65	282.89	70.13	282.82
73.69	282.78	77.98	282.7	80.8	282.66	81.24	282.68	82.6	282.64
84.68	282.59	87.66	282.45	87.74	282.45	87.8	282.45	92.86	282.47
96.64	282.73	98.16	282.78	100.26	282.62	104.1	282.34	107.65	282.39
108.66	282.34	110.79	282.21	115.43	282.08	117.45	281.93	126.6	281.93
129.28	282.04	135.12	281.6	135.22	281.59	135.48	281.58	138.44	281.37
140.47	281.24	142.49	281.23	144.32	281.22	148.47	281.18	153	281.16
154.35	281.13	154.94	281.13	157.29	281.19	157.87	281.2	158.03	281.2
164.55	281.27	170.35	280.74	171.3	280.71	175.77	280.37	177.5	280.19
179.75	280.15	184.4	280.15	187.99	280.06	190.93	280.02	193	280.19
193.21	280.2	193.32	280.2	200.17	280.09	202.5	279.87	203.81	279.82

207.15	279.94	208.53	279.9	210.82	279.79	213.08	279.72	214.59	279.82
218.05	280.12	222.63	279.43	222.8	279.41	223.05	279.4	226.99	279.05
228.21	278.95	228.3	278.94	228.39	278.92	231.53	278.61	234.4	278.2
236.07	277.59	238.06	276.68	242.09	275.65	243.51	275.31	245.16	274.91
247.89	274.15	250.05	273.53	252.79	272.68	256.32	271.99	258.26	271.54
262.36	270.18	262.91	270.02	265.59	269.28	269.4	268.32	270.65	267.91
272.67	267.18	277.17	265.68	278	265.44	283.72	263.79	291.24	261.89
294.82	261.53	296.71	261.55	298.08	261.45	303.19	260.98	306.78	260.58
309.44	260.64	310.86	260.66	313.57	260.75	317.17	260.74	318.71	260.76
319.93	260.79	322.73	260.82	325.41	260.78	327.77	260.92	330.24	261.08
333.76	261.16	335.31	261.01	337.77	260.7	338.69	260.71	341.84	260.75
346.95	260.8	348.69	260.87	350.41	260.77	355.91	260.59	361.66	260.32
364.81	260.25	366.29	260.22	367.99	260.27	374.28	260.78	375.88	260.58
378.63	260.9	386.54	260.98	392.53	260.95	394.94	260.67	396.07	260.79
398.8	260.53	400.47	260.5	415.71	260.48	424.71	260.6	431.07	260.3
432.59	260.16	434.81	259.86	445.36	259.45	447.5	259.36	448.11	259.14
448.93	258.85	456.85	256.35	457.21	256.24	462.5	255.6	467.5	253.2
485	252	502.5	252.8	507.5	258.1	533.7	258.15	541.29	259.29
542.46	259.48	542.6	259.48	543.22	259.5	547.19	259.32	549.09	259.4
551.03	259.15	553.17	259.08	556.12	258.91	566.1	257.29	567.91	257.01
568.35	256.9	569.41	256.7	573.72	256.09	578.29	256.26	584.32	256.5
584.9	256.44	594.75	255.87	595.76	255.29	598.65	255.02	600.35	255
607.04	253.97	607.64	253.97	607.77	253.97	628.51	253.94	633.72	253.95
644.57	253.94	648.4	253.94	655.49	253.94	663.02	253.94	666.82	253.94
674.95	253.94	679.06	253.93	691.18	253.93	692.53	254.21	692.96	254.23
696.77	255.56	701.39	257.29	705.91	257.53	707.6	257.58	711.08	257.32
717.11	257.73	720.53	257.76	723.31	257.49	724.19	257.49	727.05	257.4
736.78	257.79	736.95	257.8	737.01	257.8	737.18	257.81	742.71	258.09
744.07	258.04	746.26	258.03	747.5	258.09	748.19	258.13	750.77	258.17
755.66	258.78	762.25	259.4	763.7	259.32	767.02	259.34	771.75	259.25
774.01	259.12	777.26	259.55	777.33	259.55	777.92	259.61	783.37	260.17
785.79	260.21	789.27	260.34	792.01	260.61	793.72	260.67	798.29	261.37
803.35	261.84	804.92	261.79	807.07	261.84	808.5	261.7	818.83	261.81
825.26	261.57	832.4	262.27	834.13	262.38	841.44	262.68	844.79	262.64
845.9	262.56	849.11	262.31	859.03	262.32	862.81	262.5	865.01	262.57
866.27	262.67	879.46	262.92	880.54	262.9	881.71	262.94	882.75	262.99
887.45	263.18	890.47	263.29	898.07	263.87	899.76	264.04	902.59	264.17
907.33	264.12	911.08	264.21	923.83	265.19	925.09	265.19	926.49	265.17
937.79	265.58	939.28	265.75	940.36	265.72	949.54	265.55	949.55	265.55
957.34	265.62	958.63	265.54	960.98	265.79	963.16	265.83	967.64	266.05
970.11	265.94	973.34	266.05	974.02	266.05	974.93	266.15	979.97	266.89
981.74	266.87	992.93	267.9	1001.96	268.1	1004.6	268.15	1009.22	268.54
1012.91	268.75	1025.32	269.55	1031.53	269.5	1038.35	268.93	1041.1	268.82
1042.49	268.89	1047.04	269.15	1050.96	269.38	1055.76	269.43	1058.21	269.7
1061.82	269.88	1066.07	270.14	1067.06	270.15	1074.06	269.9	1074.67	269.9
1075.27	269.95	1086.79	270.9	1093.05	270.64	1097.52	270.44	1101.49	270.57
1101.59	270.57	1101.62	270.57	1104.58	270.44	1105.37	270.35	1109.31	270.35
1114.12	270.7	1114.48	270.74	1114.6	270.75	1114.95	270.73	1118.66	270.76
1121.68	270.95	1124.4	271.16	1126.25	271.18	1127.96	271.23	1129.99	271.24
1132.52	271.24	1136.06	271.37	1139.73	271.66	1141	271.8	1141.67	271.82

```
 1143.59   271.8 1146.95  271.76 1149.65  271.91 1150.71  271.97 1152.22  272.05
 1156.01  272.26 1156.96  272.28 1159.99  272.81 1160.82  272.86 1165.15  272.82
  1165.9  272.84 1169.11  272.97 1170.83  273.06 1174.37  273.29 1174.72   273.3
 1176.84  273.38 1178.07  273.44 1178.28  273.44 1179.54  273.43  1183.6  273.48
 1184.31   273.5 1185.24  273.57 1186.91  273.71 1193.67   274.4 1196.77  274.32
    1199  274.33 1199.14  274.33

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .12  445.36     .04  456.85     .04   507.5     .04  541.29     .12
  543.22     .12   845.9     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        445.36  541.29            94.32  103.83  103.09             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0     395  270.87       F
     710 1199.14   272.8       F

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           261.44    Element                  Left OB    Channel
Right OB
  Vel Head (ft)              0.09    Wt. n-Val.                0.120      0.040
  0.120
  W.S. Elev (ft)           261.35    Reach Len. (ft)           40.00      40.00
  40.00
  Crit W.S. (ft)           256.84    Flow Area (sq ft)         52.70     546.24
1004.38
  E.G. Slope (ft/ft)      0.000651    Area (sq ft)            109.49     546.24
1232.71
  Q Total (cfs)            2671.00    Flow (cfs)               17.16    1612.41
1041.43
  Top Width (ft)            499.02    Top Width (ft)          146.21      95.93
 256.88
  Vel Total (ft/s)            1.67    Avg. Vel. (ft/s)          0.33       2.95
   1.04
  Max Chl Dpth (ft)           9.35    Hydr. Depth (ft)          1.05       5.69
   5.95
  Conv. Total (cfs)       104650.1    Conv. (cfs)              672.2    63174.4
40803.5
  Length Wtd. (ft)           40.00    Wetted Per. (ft)          50.42      99.44
 169.84
  Min Ch El (ft)            252.00    Shear (lb/sq ft)          0.04       0.22
   0.24
  Alpha                       2.05    Stream Power (lb/ft s)  1199.14       0.00
   0.00
  Frctn Loss (ft)             0.06    Cum Volume (acre-ft)     141.85     180.66
  72.27
```

C & E Loss (ft)	0.19	Cum SA (acres)	66.14	28.35	42.28

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	268.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.	0.120	0.040	0.120
W.S. Elev (ft)	268.44	Reach Len. (ft)	40.00	40.00	40.00
Crit W.S. (ft)	260.12	Flow Area (sq ft)	409.89	1226.63	2200.97
E.G. Slope (ft/ft)	0.000681	Area (sq ft)	1278.47	1226.63	3934.04
Q Total (cfs)	10810.00	Flow (cfs)	535.47	6348.20	3926.33
Top Width (ft)	739.18	Top Width (ft)	176.45	95.93	466.80
Vel Total (ft/s)	2.82	Avg. Vel. (ft/s)	1.31	5.18	1.78
Max Chl Dpth (ft)	16.44	Hydr. Depth (ft)	8.14	12.79	13.05
Conv. Total (cfs)	414253.5	Conv. (cfs)	20520.0	243271.4	150462.2
Length Wtd. (ft)	40.00	Wetted Per. (ft)	50.42	99.44	169.84
Min Ch El (ft)	252.00	Shear (lb/sq ft)	0.35	0.52	0.55
Alpha	2.14	Stream Power (lb/ft s)	1199.14	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	452.74	292.94	

319.73					
C & E Loss (ft)		Cum SA (acres)	97.65	28.31	
71.90					

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	269.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.	0.120	0.040	0.120
W.S. Elev (ft)	269.33	Reach Len. (ft)	40.00	40.00	40.00
Crit W.S. (ft)	260.73	Flow Area (sq ft)	454.42	1311.47	2350.17
E.G. Slope (ft/ft)	0.000756	Area (sq ft)	1436.08	1311.47	4357.47
Q Total (cfs)	12761.00	Flow (cfs)	669.98	7476.88	4614.14
Top Width (ft)	772.98	Top Width (ft)	179.95	95.93	497.10
Vel Total (ft/s)	3.10	Avg. Vel. (ft/s)	1.47	5.70	1.96
Max Chl Dpth (ft)	17.33	Hydr. Depth (ft)	9.02	13.67	13.93
Conv. Total (cfs)	464155.8	Conv. (cfs)	24369.2	271956.4	167830.2
Length Wtd. (ft)	40.00	Wetted Per. (ft)	50.42	99.44	169.84
Min Ch El (ft)	252.00	Shear (lb/sq ft)	0.43	0.62	0.65
Alpha	2.14	Stream Power (lb/ft s)	1199.14	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	528.61	313.82	373.77
C & E Loss (ft)		Cum SA (acres)	101.95	28.31	75.14

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	273.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.120	0.040	0.082
W.S. Elev (ft)	273.28	Reach Len. (ft)	40.00	40.00	40.00
Crit W.S. (ft)	262.45	Flow Area (sq ft)	2174.67	1690.53	6646.55
E.G. Slope (ft/ft)	0.000258	Area (sq ft)	2174.67	1690.53	6646.55
Q Total (cfs)	19382.00	Flow (cfs)	2150.79	6674.92	10556.29
Top Width (ft)	923.36	Top Width (ft)	194.50	95.93	632.93
Vel Total (ft/s)	1.84	Avg. Vel. (ft/s)	0.99	3.95	1.59
Max Chl Dpth (ft)	21.28	Hydr. Depth (ft)	11.18	17.62	10.50
Conv. Total (cfs)	1205662.0	Conv. (cfs)	133790.1	415215.2	656656.3
Length Wtd. (ft)	40.00	Wetted Per. (ft)	196.37	99.44	634.96
Min Ch El (ft)	252.00	Shear (lb/sq ft)	0.18	0.27	0.17
Alpha	2.02	Stream Power (lb/ft s)	1199.14	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	757.67	372.62	537.59
C & E Loss (ft)		Cum SA (acres)	113.68	28.33	83.79

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may

wish to examine this cross section and enter a single n value for the entire channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

BRIDGE

RIVER: W Br Neshminy
REACH: 1 RS: 14145.82

INPUT
Description: WBNES_03L - SE of Railroad Ave
Distance from Upstream XS = 40
Deck/Roadway Width = 13.3
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 302

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	271.1		1.55	271.08		2.49	271.1	
5.86	271.07		10.98	271.22		12.66	271.19	
15.04	271.16		16.58	270.92		17.57	270.98	
21.47	270.96		22.59	271.08		25.81	271.02	
27.46	270.93		35.96	271.18		36.53	271.2	
36.58	271.2		42.18	271.32		42.27	271.33	
42.67	271.34		48.07	271.47		51.47	271.49	
52.61	271.49		58.5	271.52		60.39	271.52	
65.86	271.54		67.46	271.51		68.88	271.52	
73.1	271.55		75.18	271.55		78.89	271.54	
84.62	271.53		89.07	271.52		92.81	271.54	
93.62	271.54		98.13	271.5		102.04	271.59	
104.7	271.61		106.4	271.62		113.47	271.81	
114.81	271.82		115.83	271.74		118.24	271.73	
120.14	271.79		128.99	271.76		130.06	271.74	
139.61	271.71		139.83	271.71		139.83	271.71	
139.84	271.71		147.18	271.66		147.75	271.65	
157.82	271.58		159.23	271.69		163.56	271.69	
165.65	271.5		168.72	271.5		169.31	271.66	
170.97	271.44		178.32	271.42		179.83	272.04	
185.64	272		186.67	271.75		188.36	271.36	
194.55	271.27		195.68	271.23		196.92	271.21	
201.57	271.34		202.33	271.33		204.62	271.56	
208.05	271.57		210.27	271.37		215.42	271.37	
219.27	271.78		221.67	271.22		228.24	271.21	
229.71	271.32		232.06	271.34		235.03	271.5	
235.63	271.5		239.27	271.54		243.09	271.43	
244.09	271.26		248.53	271.3		250.4	271.43	
252.09	271.36		253.26	271.32		257.79	271.34	
264.2	271.4		267.13	271.07		268.48	271.01	
275	271.01		277.65	271.24		278.32	271.24	

282.82	271.24		285.62	271.5		289.93	271.5	
292.88	271.17		296.61	271.14		300.73	271.05	
302.52	271.34		304.33	271.32		308.05	271.14	
314.32	271.08		317.28	270.74		319.27	270.87	
360.9	271.08		364.46	271.36		366.1	271.21	
372.65	271.24		373.19	271.26		373.96	271.26	
377.28	271.46		381.6	271.46		383.25	271.31	
384.62	271.41		389.85	271.43		392.16	271.47	
392.94	271.34		394.17	271.44		401.96	271.61	
404.75	271.67		406.02	271.71		414.21	271.88	
414.67	271.85		418.03	271.84		418.43	271.85	
418.85	271.88		422.63	271.86		435	272.8	267
579.9	272.8	267	601.73	272.78		604.55	272.78	
613.72	272.83		620.05	272.87		623.07	272.86	
624.56	272.91		628.74	272.89		629.78	272.84	
631.53	272.87		636.24	272.84		639.6	272.83	
641.54	272.85		645.95	272.83		648.33	272.87	
654.29	273.02		655.55	273		656.79	272.98	
661.24	273		662.49	273.08		665.64	273.1	
667.13	273.06		669.15	273.09		670.94	273.12	
680	273.18		681.69	273.21		686.86	273.3	
688.2	273.31		689.04	273.32		695.48	273.43	
696.29	273.44		700.01	273.51		701.45	273.52	
702.2	273.53		702.98	273.55		705.2	273.59	
705.97	273.6		706.6	273.6		711.63	273.55	
712.65	273.56		713.57	273.57		720.35	273.51	
721.22	273.52		722.33	273.53		730.48	273.44	
731.51	273.45		735.01	273.28		735.7	273.29	
737.37	273.53		772.3	273.66		773.42	273.64	
780	274.16		780.47	274.13		781.33	274.13	
781.61	274.15		783.72	274.18		789.18	274.24	
789.66	274.23		790.27	274.24		790.85	274.31	
794.52	274.35		795.23	274.32		800.28	274.38	
800.98	274.37		801.27	274.39		805.47	274.44	
806.25	274.43		812.38	274.45		812.85	274.46	
822.97	274.5		823.33	274.5		823.56	274.5	
830.99	274.53		831.16	274.53		834.36	274.45	
834.47	274.45		840.98	274.62		841.15	274.62	
848.07	274.8		848.4	274.81		859.17	275.09	
859.48	275.09		863.2	274.99		863.53	275	
874.88	274.69		884.12	274.45		884.49	274.45	
884.6	274.48		886.23	274.53		891.13	274.68	
891.29	274.66		891.48	274.66		900.54	274.95	
900.72	274.95		909.3	275.22		909.4	275.22	
909.5	275.22		911.71	275.24		918.34	275.31	
918.51	275.32		924.14	275.37		924.41	275.36	
924.51	275.36		934.39	275.45		934.45	275.45	
934.51	275.45		938.15	275.48		938.19	275.48	
938.24	275.49		944.45	275.54		944.58	275.53	
944.64	275.53		953.27	275.6		953.33	275.6	

953.38	275.62	959.35	275.66	959.52	275.65
959.74	275.68	968.03	275.92	968.05	275.91
975.35	276.13	975.42	276.13	975.48	276.13
984.48	276.4	984.53	276.4	987.56	276.38
987.61	276.38	994.28	276.33	994.34	276.33
1002.15	276.27	1002.22	276.27	1002.28	276.27
1002.32	276.27	1009.52	276.22	1009.54	276.22
1013.69	276.39	1014.84	276.44	1014.85	276.44
1021.4	276.72	1023.29	276.73	1023.34	276.74
1030.95	276.77	1031.06	276.76	1031.13	276.77
1031.26	276.77	1039.43	276.81	1046.08	276.84
1046.48	276.85	1048.6	276.87	1048.75	276.87
1056.42	276.93	1056.61	276.95	1064.99	277.02
1065.53	276.97	1065.92	277.04	1071.1	277.08
1071.47	277.01	1072.83	277.03	1073.19	277.05
1078.7	277.12	1079.2	277.11	1089.87	277.24
1090.11	277.3	1090.66	277.34	1096.23	277.41
1096.58	277.29	1104.22	277.41	1104.48	277.45
1105.31	277.56	1110.88	277.66	1111.67	277.57
1115.24	277.63	1199	277.63		

Upstream Bridge Cross Section Data

Station Elevation Data num= 347

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	284.49	.38	284.45	3.37	284.35	5.35	284.34	8.41	284.41
13.01	284.25	13.37	284.23	15.49	284.1	17.61	283.97	17.96	283.97
22.24	283.96	24.88	283.95	26.95	283.94	30.28	283.97	31.82	283.91
35.2	283.72	37.16	283.73	37.62	283.72	42.16	283.6	48.22	283.49
48.83	283.49	51.41	283.23	52.43	283.14	52.76	283.17	59.52	283.51
62.1	283.39	63.52	283.31	66.63	282.9	67.65	282.89	70.13	282.82
73.69	282.78	77.98	282.7	80.8	282.66	81.24	282.68	82.6	282.64
84.68	282.59	87.66	282.45	87.74	282.45	87.8	282.45	92.86	282.47
96.64	282.73	98.16	282.78	100.26	282.62	104.1	282.34	107.65	282.39
108.66	282.34	110.79	282.21	115.43	282.08	117.45	281.93	126.6	281.93
129.28	282.04	135.12	281.6	135.22	281.59	135.48	281.58	138.44	281.37
140.47	281.24	142.49	281.23	144.32	281.22	148.47	281.18	153	281.16
154.35	281.13	154.94	281.13	157.29	281.19	157.87	281.2	158.03	281.2
164.55	281.27	170.35	280.74	171.3	280.71	175.77	280.37	177.5	280.19
179.75	280.15	184.4	280.15	187.99	280.06	190.93	280.02	193	280.19
193.21	280.2	193.32	280.2	200.17	280.09	202.5	279.87	203.81	279.82
207.15	279.94	208.53	279.9	210.82	279.79	213.08	279.72	214.59	279.82
218.05	280.12	222.63	279.43	222.8	279.41	223.05	279.4	226.99	279.05
228.21	278.95	228.3	278.94	228.39	278.92	231.53	278.61	234.4	278.2
236.07	277.59	238.06	276.68	242.09	275.65	243.51	275.31	245.16	274.91
247.89	274.15	250.05	273.53	252.79	272.68	256.32	271.99	258.26	271.54
262.36	270.18	262.91	270.02	265.59	269.28	269.4	268.32	270.65	267.91
272.67	267.18	277.17	265.68	278	265.44	283.72	263.79	291.24	261.89
294.82	261.53	296.71	261.55	298.08	261.45	303.19	260.98	306.78	260.58
309.44	260.64	310.86	260.66	313.57	260.75	317.17	260.74	318.71	260.76
319.93	260.79	322.73	260.82	325.41	260.78	327.77	260.92	330.24	261.08

333.76	261.16	335.31	261.01	337.77	260.7	338.69	260.71	341.84	260.75
346.95	260.8	348.69	260.87	350.41	260.77	355.91	260.59	361.66	260.32
364.81	260.25	366.29	260.22	367.99	260.27	374.28	260.78	375.88	260.58
378.63	260.9	386.54	260.98	392.53	260.95	394.94	260.67	396.07	260.79
398.8	260.53	400.47	260.5	415.71	260.48	424.71	260.6	431.07	260.3
432.59	260.16	434.81	259.86	445.36	259.45	447.5	259.36	448.11	259.14
448.93	258.85	456.85	256.35	457.21	256.24	462.5	255.6	467.5	253.2
485	252.7	502.5	252.8	507.5	258.1	533.7	258.15	541.29	259.29
542.46	259.48	542.6	259.48	543.22	259.5	547.19	259.32	549.09	259.4
551.03	259.15	553.17	259.08	556.12	258.91	566.1	257.29	567.91	257.01
568.35	256.9	569.41	256.7	573.72	256.09	578.29	256.26	584.32	256.5
584.9	256.44	594.75	255.87	595.76	255.29	598.65	255.02	600.35	255
607.04	253.97	607.64	253.97	607.77	253.97	628.51	253.94	633.72	253.95
644.57	253.94	648.4	253.94	655.49	253.94	663.02	253.94	666.82	253.94
674.95	253.94	679.06	253.93	691.18	253.93	692.53	254.21	692.96	254.23
696.77	255.56	701.39	257.29	705.91	257.53	707.6	257.58	711.08	257.32
717.11	257.73	720.53	257.76	723.31	257.49	724.19	257.49	727.05	257.4
736.78	257.79	736.95	257.8	737.01	257.8	737.18	257.81	771.75	259.25
774.01	259.12	777.26	259.55	777.33	259.55	777.92	259.61	783.37	260.17
785.79	260.21	789.27	260.34	792.01	260.61	793.72	260.67	798.29	261.37
803.35	261.84	804.92	261.79	807.07	261.84	808.5	261.7	818.83	261.81
825.26	261.57	832.4	262.27	834.13	262.38	841.44	262.68	844.79	262.64
845.9	262.56	849.11	262.31	859.03	262.32	862.81	262.5	865.01	262.57
866.27	262.67	879.46	262.92	880.54	262.9	881.71	262.94	882.75	262.99
887.45	263.18	890.47	263.29	898.07	263.87	899.76	264.04	902.59	264.17
907.33	264.12	911.08	264.21	923.83	265.19	925.09	265.19	926.49	265.17
937.79	265.58	939.28	265.75	940.36	265.72	949.54	265.55	949.55	265.55
957.34	265.62	958.63	265.54	960.98	265.79	963.16	265.83	967.64	266.05
970.11	265.94	973.34	266.05	974.02	266.05	974.93	266.15	979.97	266.89
981.74	266.87	992.93	267.9	1001.96	268.1	1004.6	268.15	1009.22	268.54
1012.91	268.75	1025.32	269.55	1031.53	269.5	1038.35	268.93	1041.1	268.82
1042.49	268.89	1047.04	269.15	1050.96	269.38	1055.76	269.43	1058.21	269.7
1061.82	269.88	1066.07	270.14	1067.06	270.15	1074.06	269.9	1074.67	269.9
1075.27	269.95	1086.79	270.9	1093.05	270.64	1097.52	270.44	1101.49	270.57
1101.59	270.57	1101.62	270.57	1104.58	270.44	1105.37	270.35	1109.31	270.35
1114.12	270.7	1114.48	270.74	1114.6	270.75	1114.95	270.73	1118.66	270.76
1121.68	270.95	1124.4	271.16	1126.25	271.18	1127.96	271.23	1129.99	271.24
1132.52	271.24	1136.06	271.37	1139.73	271.66	1141	271.8	1141.67	271.82
1143.59	271.8	1146.95	271.76	1149.65	271.91	1150.71	271.97	1152.22	272.05
1156.01	272.26	1156.96	272.28	1159.99	272.81	1160.82	272.86	1165.15	272.82
1165.9	272.84	1169.11	272.97	1170.83	273.06	1174.37	273.29	1174.72	273.3
1176.84	273.38	1178.07	273.44	1178.28	273.44	1179.54	273.43	1183.6	273.48
1184.31	273.5	1185.24	273.57	1186.91	273.71	1193.67	274.4	1196.77	274.32
1199	274.33	1199.14	274.33						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.12	445.36	.04	456.85	.04	507.5	.04	541.29	.04
543.22	.12	845.9	.03						

Bank Sta: Left Right Coeff Contr. Expan.
445.36 541.29 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	395	270.87	F
710	1199.14	272.8	F

Downstream Deck/Roadway Coordinates
num= 302

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	271.1		1.55	271.08		2.49	271.1	
5.86	271.07		10.98	271.22		12.66	271.19	
15.04	271.16		16.58	270.92		17.57	270.98	
21.47	270.96		22.59	271.08		25.81	271.02	
27.46	270.93		35.96	271.18		36.53	271.2	
36.58	271.2		42.18	271.32		42.27	271.33	
42.67	271.34		48.07	271.47		51.47	271.49	
52.61	271.49		58.5	271.52		60.39	271.52	
65.86	271.54		67.46	271.51		68.88	271.52	
73.1	271.55		75.18	271.55		78.89	271.54	
84.62	271.53		89.07	271.52		92.81	271.54	
93.62	271.54		98.13	271.5		102.04	271.59	
104.7	271.61		106.4	271.62		113.47	271.81	
114.81	271.82		115.83	271.74		118.24	271.73	
120.14	271.79		128.99	271.76		130.06	271.74	
139.61	271.71		139.83	271.71		139.83	271.71	
139.84	271.71		147.18	271.66		147.75	271.65	
157.82	271.58		159.23	271.69		163.56	271.69	
165.65	271.5		168.72	271.5		169.31	271.66	
170.97	271.44		178.32	271.42		179.83	272.04	
185.64	272		186.67	271.75		188.36	271.36	
194.55	271.27		195.68	271.23		196.92	271.21	
201.57	271.34		202.33	271.33		204.62	271.56	
208.05	271.57		210.27	271.37		215.42	271.37	
219.27	271.78		221.67	271.22		228.24	271.21	
229.71	271.32		232.06	271.34		235.03	271.5	
235.63	271.5		239.27	271.54		243.09	271.43	
244.09	271.26		248.53	271.3		250.4	271.43	
252.09	271.36		253.26	271.32		257.79	271.34	
264.2	271.4		267.13	271.07		268.48	271.01	
275	271.01		277.65	271.24		278.32	271.24	
282.82	271.24		285.62	271.5		289.93	271.5	
292.88	271.17		296.61	271.14		300.73	271.05	
302.52	271.34		304.33	271.32		308.05	271.14	
314.32	271.08		317.28	270.74		319.27	270.87	
360.9	271.08		364.46	271.36		366.1	271.21	
372.65	271.24		373.19	271.26		373.96	271.26	
377.28	271.46		381.6	271.46		383.25	271.31	
384.62	271.41		389.85	271.43		392.16	271.47	
392.94	271.34		394.17	271.44		401.96	271.61	

404.75	271.67		406.02	271.71		414.21	271.88	
414.67	271.85		418.03	271.84		418.43	271.85	
418.85	271.88		422.63	271.86		435	272.8	267
579.9	272.8	267	601.73	272.78		604.55	272.78	
613.72	272.83		620.05	272.87		623.07	272.86	
624.56	272.91		628.74	272.89		629.78	272.84	
631.53	272.87		636.24	272.84		639.6	272.83	
641.54	272.85		645.95	272.83		648.33	272.87	
654.29	273.02		655.55	273		656.79	272.98	
661.24	273		662.49	273.08		665.64	273.1	
667.13	273.06		669.15	273.09		670.94	273.12	
680	273.18		681.69	273.21		686.86	273.3	
688.2	273.31		689.04	273.32		695.48	273.43	
696.29	273.44		700.01	273.51		701.45	273.52	
702.2	273.53		702.98	273.55		705.2	273.59	
705.97	273.6		706.6	273.6		711.63	273.55	
712.65	273.56		713.57	273.57		720.35	273.51	
721.22	273.52		722.33	273.53		730.48	273.44	
731.51	273.45		735.01	273.28		735.7	273.29	
737.37	273.53		772.3	273.66		773.42	273.64	
780	274.16		780.47	274.13		781.33	274.13	
781.61	274.15		783.72	274.18		789.18	274.24	
789.66	274.23		790.27	274.24		790.85	274.31	
794.52	274.35		795.23	274.32		800.28	274.38	
800.98	274.37		801.27	274.39		805.47	274.44	
806.25	274.43		812.38	274.45		812.85	274.46	
822.97	274.5		823.33	274.5		823.56	274.5	
830.99	274.53		831.16	274.53		834.36	274.45	
834.47	274.45		840.98	274.62		841.15	274.62	
848.07	274.8		848.4	274.81		859.17	275.09	
859.48	275.09		863.2	274.99		863.53	275	
874.88	274.69		884.12	274.45		884.49	274.45	
884.6	274.48		886.23	274.53		891.13	274.68	
891.29	274.66		891.48	274.66		900.54	274.95	
900.72	274.95		909.3	275.22		909.4	275.22	
909.5	275.22		911.71	275.24		918.34	275.31	
918.51	275.32		924.14	275.37		924.41	275.36	
924.51	275.36		934.39	275.45		934.45	275.45	
934.51	275.45		938.15	275.48		938.19	275.48	
938.24	275.49		944.45	275.54		944.58	275.53	
944.64	275.53		953.27	275.6		953.33	275.6	
953.38	275.62		959.35	275.66		959.52	275.65	
959.74	275.68		968.03	275.92		968.05	275.91	
975.35	276.13		975.42	276.13		975.48	276.13	
984.48	276.4		984.53	276.4		987.56	276.38	
987.61	276.38		994.28	276.33		994.34	276.33	
1002.15	276.27		1002.22	276.27		1002.28	276.27	
1002.32	276.27		1009.52	276.22		1009.54	276.22	
1013.69	276.39		1014.84	276.44		1014.85	276.44	
1021.4	276.72		1023.29	276.73		1023.34	276.74	

1030.95	276.77	1031.06	276.76	1031.13	276.77
1031.26	276.77	1039.43	276.81	1046.08	276.84
1046.48	276.85	1048.6	276.87	1048.75	276.87
1056.42	276.93	1056.61	276.95	1064.99	277.02
1065.53	276.97	1065.92	277.04	1071.1	277.08
1071.47	277.01	1072.83	277.03	1073.19	277.05
1078.7	277.12	1079.2	277.11	1089.87	277.24
1090.11	277.3	1090.66	277.34	1096.23	277.41
1096.58	277.29	1104.22	277.41	1104.48	277.45
1105.31	277.56	1110.88	277.66	1111.67	277.57
1115.24	277.63	1199	277.63		

Downstream Bridge Cross Section Data
Station Elevation Data num= 285

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	275.29	4.5	275.01	10.68	274.97	12.21	274.98	12.76	274.98
16.23	275.43	21.73	275.58	27.97	275.74	34.56	275.52	36.71	275.59
40.39	275.66	47.4	275.71	51.38	275.79	59.95	276.26	61.85	276.02
65.61	276.18	77.56	276.17	82.09	276.62	84.03	276.59	90.85	276.45
91.32	276.46	91.47	276.46	97.44	276.22	101.66	276.13	102.31	276.21
105.03	276.21	106.63	276.31	107.88	276.26	109.62	276.26	110.85	276.27
116.36	276.45	116.37	276.45	121.57	276.48	124.76	276.46	126.86	276.59
130.38	276.57	131.48	276.49	133.16	276.46	135.26	276.57	138.77	276.59
140.15	276.69	141.56	276.72	143.86	276.79	147.23	276.7	148.1	276.71
150.03	276.91	151.61	277.06	155.64	277.17	156.06	277.17	161.92	277.39
164.14	277.54	166.65	277.44	166.76	277.44	167.17	277.45	172.47	277.63
172.89	277.65	173.71	277.63	180.81	277.67	181.67	277.56	183.56	277.26
188.68	277.29	189.22	277.31	189.43	277.32	191.94	277.25	196.42	277.17
197.55	277.02	200.08	276.92	205.27	276.67	205.75	276.62	212.45	275.63
213.17	275.44	213.96	275.3	216.1	274.64	220.86	273.19	222.18	272.81
222.51	272.68	225.45	271.77	228.24	270.73	229.67	270.14	230.05	270
230.43	269.8	232.7	268.47	236.08	267.65	238.14	267	240.04	265.88
240.7	265.57	244.55	263.62	246.08	263.13	251.53	261.37	252.87	260.95
254.33	260.71	255.9	260.29	258.87	259.83	261.14	259.79	267.15	259.67
268.45	259.71	271.02	259.65	273.21	259.43	273.85	259.38	277.59	259.73
279.52	259.73	280.77	259.58	282.23	259.44	284.68	259.45	287.91	259.67
289.61	259.58	290.67	259.63	294.2	259.95	299.06	259.89	299.16	259.9
299.43	259.88	305.86	259.91	307.53	259.95	308.45	260.02	317.5	260.93
329.3	261.89	332.52	261.97	342.51	260.61	347	260.39	348.84	259.84
350.59	259.85	357.13	259.75	358.4	259.77	362.97	259.92	370.19	259.71
371.44	259.69	373.11	259.67	381.03	259.6	381.76	259.6	387.65	259.71
389.13	259.74	389.55	259.72	389.71	259.72	397.34	259.55	401.42	259.39
405.01	259.62	407.46	259.72	410.19	260.04	412.49	259.83	415.61	259.63
416.08	259.61	417.31	259.53	418.97	259.43	423.94	259.23	424.6	259.19
425.09	259.08	426.76	258.69	427.31	258.64	431.85	258.01	432.68	257.8
434.66	257.08	436.24	256.44	437.16	256.25	438.01	255.88	462.5	255.6
467.5	253.2	485	253.2	502.5	253.2	504.67	255.71	507.5	258.1
584.75	258.83	586.1	259	593.7	259.95	596.68	259.99	597.19	260.09
599.4	260.15	601.99	260.24	602.46	260.26	607.56	260.5	611.91	260.66
614.57	260.71	618.04	261.13	627.12	261.47	629.87	261.54	631.64	261.58

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  635.17  261.59  638.54  262.11  641.59  262.08  643.72  261.83  647.99  261.74
  650.59  261.73  652.19   261.7  663.93  261.43  664.33  261.44  669.86  261.29
  675.31  261.24  675.81  261.21  695.83   261.5   705.7   261.4  717.16  261.98
  731.33  263.16  733.01  263.22  734.18  263.29  737.93  263.33   748.3   263.7
  751.94  263.35  777.09  262.11   777.9  262.09  789.08  262.23  790.17  262.18
  791.27  262.23  797.06  262.52  799.39  262.67  799.61  262.64  805.98  262.76
  813.07   262.5  813.69  262.48  816.96  262.59  824.59  262.75  826.93  262.91
  830.46  263.14  833.65  263.26  834.71  263.31  839.69  263.51  839.83  263.52
  847.35  263.96  848.95  264.02  857.59  264.12  857.71  264.13  858.02  264.15
  862.56  264.58  874.74     265  875.89  265.05  892.61  265.02  894.92  265.31
  902.05  265.53  906.41  266.15   907.9  266.15  914.38  265.87   917.2  266.37
  919.32  266.81  923.57  268.91  926.79  269.56  935.42   268.8  938.01  269.11
  939.88  269.48  949.55  268.77   951.9  268.64  957.79   269.3  960.51  269.66
   968.9  268.59  973.23  269.12  982.89  268.06  984.16  268.01  986.89  268.18
  990.24  268.24   993.3  268.28  994.27  268.42 1000.67   268.5 1005.56  269.02
 1010.91  271.05 1013.91  270.99 1025.21  272.44 1027.75  272.85 1028.17  272.83
 1029.23  272.85 1043.22  272.52 1053.52  270.59 1056.29  270.52 1063.15  270.74
 1068.46  270.91  1069.1  270.92 1069.68  270.97  1077.2  271.35 1077.38  271.38
 1085.65  271.99 1086.15  271.98  1086.3     272 1088.89  271.97  1096.3  272.17
 1097.24  272.31  1100.6  272.01 1104.61  272.37 1116.06  273.19 1117.04  273.23
 1118.56  273.34 1119.61  273.33  1126.4  274.11 1131.41  274.28 1134.43  274.57
 1138.64  274.55 1142.11  274.81 1145.69  275.11 1147.58  275.15 1151.37  275.03

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  109.62     .12   424.6     .12  431.85     .04  432.68     .04
   507.5    .045  584.75     .03

Bank Sta: Left   Right    Coeff Contr.   Expan.
        432.68   507.5             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0     400  267.76       F
     615 1151.37  267.76       F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  3

Pier Data
Pier Station     Upstream=     467    Downstream=     467
Upstream     num=       2
    Width   Elev    Width   Elev
       7   252.7       7     267
```

```
Downstream     num=       2
    Width   Elev    Width   Elev
       7   253.2       7     267

Pier Data
Pier Station     Upstream=   501.9    Downstream=   501.9
Upstream     num=       2
    Width   Elev    Width   Elev
       7   252.7       7     267
Downstream     num=       2
    Width   Elev    Width   Elev
       7   253.2       7     267

Pier Data
Pier Station     Upstream=   547.9    Downstream=   547.9
Upstream     num=       2
    Width   Elev    Width   Elev
       7   252.7       7     267
Downstream     num=       2
    Width   Elev    Width   Elev
       7   253.2       7     267

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum               Cd   =    1.33
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =      .8
           Max Low Cord                =

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT  Profile #10%


  E.G. US. (ft)               261.44    Element                 Inside BR US
Inside BR DS
  W.S. US. (ft)               261.35    E.G. Elev (ft)               261.19
261.03
  Q Total (cfs)              2671.00    W.S. Elev (ft)               260.47
```

260.47			
Q Bridge (cfs)	2671.00	Crit W.S. (ft)	259.28
259.12			
Q Weir (cfs)		Max Chl Dpth (ft)	7.77
7.27			
Weir Sta Lft (ft)		Vel Total (ft/s)	5.93
5.61			
Weir Sta Rgt (ft)		Flow Area (sq ft)	450.51
475.73			
Weir Submerg		Froude # Chl	0.43
0.39			
Weir Max Depth (ft)		Specif Force (cu ft)	1726.59
1687.15			
Min El Weir Flow (ft)	270.88	Hydr Depth (ft)	3.63
3.83			
Min El Prs (ft)	267.00	W.P. Total (ft)	158.18
158.26			
Delta EG (ft)	0.66	Conv. Total (cfs)	30864.9
38472.6			
Delta WS (ft)	0.94	Top Width (ft)	124.08
124.08			
BR Open Area (sq ft)	1260.70	Frctn Loss (ft)	0.08
0.15			
BR Open Vel (ft/s)	5.93	C & E Loss (ft)	0.08
0.10			
Coef of Q		Shear Total (lb/sq ft)	1.33
0.90			
Br Sel Method	Energy only	Power Total (lb/ft s)	0.00
0.00			

Warning: For the final momentum answer at the bridge, the upstream energy was computed lower than the downstream energy.
This is not physically possible, the momentum answer has been disregarded.
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum
answer has been disregarded.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

BRIDGE OUTPUT Profile #2%

E.G. US. (ft)	268.71	Element	Inside BR US Inside BR DS
W.S. US. (ft)	268.44	E.G. Elev (ft)	268.71 266.32
Q Total (cfs)	10810.00	W.S. Elev (ft)	267.00 265.59
Q Bridge (cfs)	10810.00	Crit W.S. (ft)	263.68 263.06
Q Weir (cfs)		Max Chl Dpth (ft)	14.30 12.39
Weir Sta Lft (ft)		Vel Total (ft/s)	8.57 9.73
Weir Sta Rgt (ft)		Flow Area (sq ft)	1260.70 1110.87
Weir Submerg		Froude # Chl	0.47 0.49
Weir Max Depth (ft)		Specif Force (cu ft)	10083.79 8542.11
Min El Weir Flow (ft)	270.88	Hydr Depth (ft)	635546.10 8.96
Min El Prs (ft)	267.00	W.P. Total (ft)	334.30 199.23
Delta EG (ft)	2.39	Conv. Total (cfs)	95670.4 124339.7
Delta WS (ft)	2.86	Top Width (ft)	123.94
BR Open Area (sq ft)	1260.70	Frctn Loss (ft)	
BR Open Vel (ft/s)	8.57	C & E Loss (ft)	
Coef of Q		Shear Total (lb/sq ft)	3.01 2.63
Br Sel Method	Press Only	Power Total (lb/ft s)	0.00 0.00

Warning: For the final momentum answer at the bridge, the upstream energy was computed lower than the downstream energy.
This is not physically possible, the momentum answer has been disregarded.
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum
answer has been disregarded.
Note: The downstream water surface is below the minimum elevation for pressure

flow. The sluice gate equations were used
for pressure flow.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

BRIDGE OUTPUT Profile #1%

E.G. US. (ft)	269.65	Element	Inside BR US
Inside BR DS			
W.S. US. (ft)	269.33	E.G. Elev (ft)	269.65
267.28			
Q Total (cfs)	12761.00	W.S. Elev (ft)	267.00
266.45			
Q Bridge (cfs)	12761.00	Crit W.S. (ft)	264.48
263.75			
Q Weir (cfs)		Max Chl Dpth (ft)	14.30
13.25			
Weir Sta Lft (ft)		Vel Total (ft/s)	10.12
10.48			
Weir Sta Rgt (ft)		Flow Area (sq ft)	1260.70
1217.65			
Weir Submerg		Froude # Chl	0.56
0.51			
Weir Max Depth (ft)		Specif Force (cu ft)	11390.73
10428.17			
Min El Weir Flow (ft)	270.88	Hydr Depth (ft)	635546.10
9.83			
Min El Prs (ft)	267.00	W.P. Total (ft)	334.30
206.12			
Delta EG (ft)	2.37	Conv. Total (cfs)	95670.4
141401.1			
Delta WS (ft)	2.88	Top Width (ft)	
123.91			
BR Open Area (sq ft)	1260.70	Frctn Loss (ft)	
BR Open Vel (ft/s)	10.12	C & E Loss (ft)	
Coef of Q		Shear Total (lb/sq ft)	4.19
3.00			
Br Sel Method	Press Only	Power Total (lb/ft s)	0.00
0.00			

Warning: For the final momentum answer at the bridge, the upstream energy was computed lower than the downstream energy.
This is not physically possible, the momentum answer has been disregarded.

Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum
answer has been disregarded.
Note: The downstream water surface is below the minimum elevation for pressure flow. The sluice gate equations were used
for pressure flow.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

BRIDGE OUTPUT Profile #.2%

E.G. US. (ft)	273.39	Element	Inside BR US Inside BR DS
W.S. US. (ft)	273.28	E.G. Elev (ft)	273.39 273.20
Q Total (cfs)	19382.00	W.S. Elev (ft)	273.28 272.58
Q Bridge (cfs)	17709.46	Crit W.S. (ft)	274.31 265.88
Q Weir (cfs)	1672.55	Max Chl Dpth (ft)	20.58 19.38
Weir Sta Lft (ft)	250.51	Vel Total (ft/s)	10.97 10.45
Weir Sta Rgt (ft)	736.37	Flow Area (sq ft)	1766.56 1854.19
Weir Submerg	0.00	Froude # Chl	0.59 0.58
Weir Max Depth (ft)	2.65	Specif Force (cu ft)	23810.04 22919.01
Min El Weir Flow (ft)	270.88	Hydr Depth (ft)	4.06 8.86
Min El Prs (ft)	267.00	W.P. Total (ft)	769.68 544.18
Delta EG (ft)	4.49	Conv. Total (cfs)	
Delta WS (ft)	4.68	Top Width (ft)	434.87 209.30
BR Open Area (sq ft)	1260.70	Frctn Loss (ft)	
BR Open Vel (ft/s)	14.05	C & E Loss (ft)	
Coef of Q		Shear Total (lb/sq ft)	
Br Sel Method	Press/Weir	Power Total (lb/ft s)	0.00 0.00

Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Note: The downstream water surface is above the minimum elevation required for orifice flow. The orifice flow equation was used for pressure flow.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: For the cross section inside the bridge at the downstream end, the water surface and energy are based on critical depth over the weir.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 14099.93

INPUT
Description:
Station Elevation Data num= 285

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	275.29	4.5	275.01	10.68	274.97	12.21	274.98	12.76	274.98
16.23	275.43	21.73	275.58	27.97	275.74	34.56	275.52	36.71	275.59
40.39	275.66	47.4	275.71	51.38	275.79	59.95	276.26	61.85	276.02
65.61	276.18	77.56	276.17	82.09	276.62	84.03	276.59	90.85	276.45
91.32	276.46	91.47	276.46	97.44	276.22	101.66	276.13	102.31	276.21
105.03	276.21	106.63	276.31	107.88	276.26	109.62	276.26	110.85	276.27
116.36	276.45	116.37	276.45	121.57	276.48	124.76	276.46	126.86	276.59
130.38	276.57	131.48	276.49	133.16	276.46	135.26	276.57	138.77	276.59
140.15	276.69	141.56	276.72	143.86	276.79	147.23	276.7	148.1	276.71
150.03	276.91	151.61	277.06	155.64	277.17	156.06	277.17	161.92	277.39
164.14	277.54	166.65	277.44	166.76	277.44	167.17	277.45	172.47	277.63
172.89	277.65	173.71	277.63	180.81	277.67	181.67	277.56	183.56	277.26
188.68	277.29	189.22	277.31	189.43	277.32	191.94	277.25	196.42	277.17
197.55	277.02	200.08	276.92	205.27	276.67	205.75	276.62	212.45	275.63
213.17	275.44	213.96	275.3	216.1	274.64	220.86	273.19	222.18	272.81
222.51	272.68	225.45	271.77	228.24	270.73	229.67	270.14	230.05	270
230.43	269.8	232.7	268.47	236.08	267.65	238.14	267	240.04	265.88
240.7	265.57	244.55	263.62	246.08	263.13	251.53	261.37	252.87	260.95
254.33	260.71	255.9	260.29	258.87	259.83	261.14	259.79	267.15	259.67
268.45	259.71	271.02	259.65	273.21	259.43	273.85	259.38	277.59	259.73
279.52	259.73	280.77	259.58	282.23	259.44	284.68	259.45	287.91	259.67

```
  289.61  259.58  290.67  259.63   294.2  259.95  299.06  259.89  299.16   259.9
  299.43  259.88  305.86  259.91  307.53  259.95  308.45  260.02   317.5  260.93
   329.3  261.89  332.52  261.97  342.51  260.61     347  260.39  348.84  259.84
  350.59  259.85  357.13  259.75   358.4  259.77  362.97  259.92  370.19  259.71
  371.44  259.69  373.11  259.67  381.03   259.6  381.76   259.6  387.65  259.71
  389.13  259.74  389.55  259.72  389.71  259.72  397.34  259.55  401.42  259.39
  405.01  259.62  407.46  259.72  410.19  260.04  412.49  259.83  415.61  259.63
  416.08  259.61  417.31  259.53  418.97  259.43  423.94  259.23   424.6  259.19
  425.09  259.08  426.76  258.69  427.31  258.64  431.85  258.01  432.68   257.8
  434.66  257.08  436.24  256.44  437.16  256.25  438.01  255.88   462.5   255.6
   467.5   253.2     485   253.2   502.5   253.2  504.67  255.71   507.5   258.1
  584.75  258.83   586.1     259   593.7  259.95  596.68  259.99  597.19  260.09
   599.4  260.15  601.99  260.24  602.46  260.26  607.56   260.5  611.91  260.66
  614.57  260.71  618.04  261.13  627.12  261.47  629.87  261.54  631.64  261.58
  635.17  261.59  638.54  262.11  641.59  262.08  643.72  261.83  647.99  261.74
  650.59  261.73  652.19   261.7  663.93  261.43  664.33  261.44  669.86  261.29
  675.31  261.24  675.81  261.21  695.83   261.5   705.7   261.4  717.16  261.98
  731.33  263.16  733.01  263.22  734.18  263.29  737.93  263.33   748.3   263.7
  751.94  263.35  777.09  262.11   777.9  262.09  789.08  262.23  790.17  262.18
  791.27  262.23  797.06  262.52  799.39  262.67  799.61  262.64  805.98  262.76
  813.07   262.5  813.69  262.48  816.96  262.59  824.59  262.75  826.93  262.91
  830.46  263.14  833.65  263.26  834.71  263.31  839.69  263.51  839.83  263.52
  847.35  263.96  848.95  264.02  857.59  264.12  857.71  264.13  858.02  264.15
  862.56  264.58  874.74     265  875.89  265.05  892.61  265.02  894.92  265.31
  902.05  265.53  906.41  266.15   907.9  266.15  914.38  265.87   917.2  266.37
  919.32  266.81  923.57  268.91  926.79  269.56  935.42   268.8  938.01  269.11
  939.88  269.48  949.55  268.77   951.9  268.64  957.79   269.3  960.51  269.66
   968.9  268.59  973.23  269.12  982.89  268.06  984.16  268.01  986.89  268.18
  990.24  268.24   993.3  268.28  994.27  268.42 1000.67   268.5 1005.56  269.02
 1010.91  271.05 1013.91  270.99 1025.21  272.44 1027.75  272.85 1028.17  272.83
 1029.23  272.85 1043.22  272.52 1053.52  270.59 1056.29  270.52 1063.15  270.74
 1068.46  270.91  1069.1  270.92 1069.68  270.97  1077.2  271.35 1077.38  271.38
 1085.65  271.99 1086.15  271.98  1086.3     272 1088.89  271.97  1096.3  272.17
 1097.24  272.31  1100.6  272.01 1104.61  272.37 1116.06  273.19 1117.04  273.23
 1118.56  273.34 1119.61  273.33  1126.4  274.11 1131.41  274.28 1134.43  274.57
 1138.64  274.55 1142.11  274.81 1145.69  275.11 1147.58  275.15 1151.37  275.03

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  109.62     .12   424.6     .12  431.85     .04  432.68     .04
   507.5    .045  584.75     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        432.68   507.5            93.64  102.28  123.71             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0     400  267.76       F
     615 1151.37  267.76       F

CROSS SECTION OUTPUT  Profile #10%
```

E.G. Elev (ft)	260.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.102	0.040	0.044
W.S. Elev (ft)	260.42	Reach Len. (ft)	93.64	102.28	123.71
Crit W.S. (ft)	257.95	Flow Area (sq ft)	36.08	439.06	162.88
E.G. Slope (ft/ft)	0.001947	Area (sq ft)	108.85	439.06	162.88
Q Total (cfs)	2671.00	Flow (cfs)	27.21	2282.60	361.19
Top Width (ft)	316.21	Top Width (ft)	143.13	74.82	98.25
Vel Total (ft/s)	4.19	Avg. Vel. (ft/s)	0.75	5.20	2.22
Max Chl Dpth (ft)	7.21	Hydr. Depth (ft)	1.10	5.87	1.66
Conv. Total (cfs)	60529.8	Conv. (cfs)	616.7	51727.8	8185.3
Length Wtd. (ft)	103.68	Wetted Per. (ft)	32.87	77.74	98.34
Min Ch El (ft)	253.20	Shear (lb/sq ft)	0.13	0.69	0.20
Alpha	1.36	Stream Power (lb/ft s)	1151.37	0.00	0.00
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	141.73	179.69	71.46
C & E Loss (ft)	0.04	Cum SA (acres)	65.98	28.17	42.03

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	266.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.73	Wt. n-Val.	0.112	0.040	0.041
W.S. Elev (ft)	265.59	Reach Len. (ft)	93.64	102.28	123.71
Crit W.S. (ft)	262.29	Flow Area (sq ft)	205.12	826.08	717.28

E.G. Slope (ft/ft)	0.001861	Area (sq ft)	1042.43	826.08	1535.90
Q Total (cfs)	10810.00	Flow (cfs)	398.40	6397.79	4013.81
Top Width (ft)	661.79	Top Width (ft)	192.02	74.82	394.96
Vel Total (ft/s)	6.18	Avg. Vel. (ft/s)	1.94	7.74	5.60
Max Chl Dpth (ft)	12.39	Hydr. Depth (ft)	6.28	11.04	6.67
Conv. Total (cfs)	250616.9	Conv. (cfs)	9236.5	148325.0	93055.4
Length Wtd. (ft)	106.46	Wetted Per. (ft)	32.87	77.74	107.60
Min Ch El (ft)	253.20	Shear (lb/sq ft)	0.72	1.23	0.77
Alpha	1.24	Stream Power (lb/ft s)	1151.37	0.00	0.00
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	451.50	290.88	316.51
C & E Loss (ft)	0.07	Cum SA (acres)	97.46	28.18	71.41

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	267.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.83	Wt. n-Val.	0.112	0.040	0.041
W.S. Elev (ft)	266.45	Reach Len. (ft)	93.64	102.28	123.71
Crit W.S. (ft)	262.83	Flow Area (sq ft)	233.28	890.55	809.91
E.G. Slope (ft/ft)	0.001887	Area (sq ft)	1208.61	890.55	1882.75
Q Total (cfs)	12761.00	Flow (cfs)	495.72	7303.63	4961.65
Top Width (ft)	678.51	Top Width (ft)	193.61	74.82	410.08
Vel Total (ft/s)	6.60	Avg. Vel. (ft/s)	2.13	8.20	6.13
Max Chl Dpth (ft)	13.25	Hydr. Depth (ft)	7.14	11.90	7.53
Conv. Total (cfs)	293733.9	Conv. (cfs)	11410.5	168115.6	

114207.8					
Length Wtd. (ft)	106.71	Wetted Per. (ft)	32.87	77.74	107.60
Min Ch El (ft)	253.20	Shear (lb/sq ft)	0.84	1.35	0.89
Alpha	1.22	Stream Power (lb/ft s)	1151.37	0.00	0.00
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	527.21	311.65	370.11
C & E Loss (ft)	0.08	Cum SA (acres)	101.75	28.18	74.62

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	268.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.118	0.040	0.034
W.S. Elev (ft)	268.60	Reach Len. (ft)	93.64	102.28	123.71
Crit W.S. (ft)	264.44	Flow Area (sq ft)	1631.16	1051.44	2778.22
E.G. Slope (ft/ft)	0.000676	Area (sq ft)	1631.16	1051.44	2778.22
Q Total (cfs)	19382.00	Flow (cfs)	2141.13	5764.66	11476.22
Top Width (ft)	714.25	Top Width (ft)	200.20	74.82	439.23
Vel Total (ft/s)	3.55	Avg. Vel. (ft/s)	1.31	5.48	4.13
Max Chl Dpth (ft)	15.40	Hydr. Depth (ft)	8.15	14.05	6.33
Conv. Total (cfs)	745501.1	Conv. (cfs)	82355.3	221729.4	441416.3
Length Wtd. (ft)	113.64	Wetted Per. (ft)	202.34	77.74	440.27
Min Ch El (ft)	253.20	Shear (lb/sq ft)	0.34	0.57	0.27
Alpha	1.53	Stream Power (lb/ft s)	1151.37	0.00	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	755.27	370.13	532.30
C & E Loss (ft)	0.03	Cum SA (acres)	113.20	28.18	83.16

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 13997.64

INPUT
Description: not interpolated
Station Elevation Data num= 417

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	273.71	1.21	273.75	3	273.86	5.19	273.84	11.42	273.42
15.87	273.23	18.62	273.06	21.63	273.21	25.11	273.37	29.48	273.32
30.44	273.31	37.37	273.43	39.8	273.37	42.36	273.3	43.25	273.2
45.28	272.98	47.26	272.82	48.11	272.78	49.05	272.79	51	272.79
54.19	272.8	56.89	273.06	58.86	273.24	60.03	273.26	63.8	273.74
66.04	273.88	68.92	273.86	69.03	273.87	73.22	274.51	75.08	274.64
76.87	274.68	78.03	274.76	79.96	274.74	83.79	274.72	84.94	274.71
86.85	274.65	88.48	274.66	92.68	274.57	93.98	274.5	95.63	274.52
100.91	274.38	101.45	274.38	101.54	274.37	103.02	274.27	104.24	274.19
104.31	274.17	107.96	273.9	109.98	273.75	110.02	273.74	112.3	273.46
112.92	273.38	112.96	273.37	117.4	272.49	118.51	272.24	120.1	271.85
121.42	271.47	122.23	271.31	123.94	270.84	126.05	270.31	127.02	270.04
131.69	268.85	135.41	267.75	137.39	267	138.36	266.67	141.66	265.94
143.89	265.16	146.45	265.06	146.73	264.97	147.17	264.9	147.36	264.83
151.57	263.3	154.05	262.68	157.5	261.88	160.72	261.36	161.58	261.15
163.73	260.97	168.14	260.17	169.34	260	169.92	259.98	172.28	259.79
175.87	259.75	178	259.66	180.16	259.41	180.97	259.35	185.27	259.53
188.86	259.65	189.61	259.64	189.88	259.67	190.46	259.71	193.75	259.92
195.61	259.76	197.6	259.8	202.09	259.91	209.03	259.74	214.98	259.53
221.32	259.75	224.38	259.8	225.74	259.84	227.44	259.91	232.17	260.01
233.68	260	236.51	259.56	240.59	259.62	241.29	259.68	241.99	259.66
245.32	259.5	247.76	259.7	248.81	259.77	250.71	259.79	253.68	260.04
256.86	260.39	266.06	260.46	267.93	260.46	268.38	260.48	273.49	260.81
274.34	260.84	274.59	260.82	282.91	259.66	285.72	259.5	288.85	259.12
291.33	258.91	293.28	258.48	294.52	258.59	298.49	258.66	301.71	258.92
302.84	258.96	306.87	259.05	307.68	259.04	308.8	258.89	310.25	258.78
311.96	258.54	314.59	258.54	317.6	258.63	319.46	258.71	325.18	258.42
328.1	258.24	329.6	258.27	332.07	258.21	335.13	257.61	338.19	257.55
338.58	257.53	343.81	256.98	344.24	256.91	344.84	256.7	349.76	254.53
352.58	253.58	360.38	253.59	368.38	253.6	378.18	253.61	380.91	253.61
392	253.62	402.43	253.63	423.7	253.64	425.15	253.64	429.97	253.64
431.78	253.65	433.92	256.26	434.34	256.46	436.42	256.85	440.17	257.75
442.8	258.44	443.63	258.59	446.4	258.75	450.4	258.7	453.2	258.85

454.18	258.82	457.39	258.98	463.02	259.63	464.19	259.75	464.53	259.83
469.98	261.43	470.34	261.51	470.77	261.5	476.39	261.48	478.14	261.44
478.48	261.43	479.44	261.41	479.98	261.46	480	261.46	485.22	261.35
487.74	261.29	488.89	261.26	492.76	261.4	493	261.41	496.69	261.06
507.81	260.61	510.32	260.46	511.23	260.49	512.05	260.51	513.28	260.55
515.17	260.64	518.15	260.74	520.37	260.86	522.74	260.71	526.5	260.55
527.79	260.58	530.47	260.5	532.56	260.39	536.72	260.6	537.43	260.6
540.54	260.4	543.48	260.41	546.71	260.43	548.58	260.51	550.64	260.42
553.15	260.37	556.86	260.42	559.01	260.37	560.79	260.43	563.55	260.51
567.05	260.65	568.51	260.59	571.06	260.44	575.79	260.46	577.09	260.49
579.94	260.51	581.14	260.52	584.41	260.55	587.33	260.61	589.61	260.59
591.21	260.52	594.13	260.48	597.36	260.52	599.83	260.6	601.32	260.65
605.72	260.68	609.83	260.63	610.62	260.62	611.3	260.62	615.28	260.62
617.32	260.63	621.08	260.66	621.74	260.68	627.39	260.88	628.35	260.83
631.17	260.74	631.25	260.74	631.28	260.74	633.44	260.76	637.37	260.81
637.47	260.81	641.42	260.77	643.4	260.87	647.6	261.02	650.68	260.94
652.88	260.9	657.59	260.84	659.18	260.77	661.52	260.65	662.98	260.64
664.57	260.65	668.21	260.78	671.57	260.91	673.1	260.99	677.12	260.85
677.43	260.84	677.54	260.84	677.94	260.84	681.61	260.85	683.21	260.86
687.61	260.79	688.83	260.78	691.71	260.97	692.87	260.99	697.61	260.88
698.14	260.89	701.63	260.85	704.59	260.74	707.59	260.85	709.59	260.97
711.7	260.76	714.49	260.74	717.76	260.83	721.01	260.95	721.95	260.95
725.36	261.01	727.88	261.06	730.96	261.3	732.11	261.33	735.17	261.24
738.17	261.11	738.62	261.11	739.82	261.21	741.74	261.4	742.44	261.35
746.62	261.49	748.45	261.51	752.17	261.47	752.64	261.5	756.27	261.7
758.6	261.73	759.97	261.73	762.26	261.74	768.79	261.84	769.79	261.89
773.02	262.01	773.67	262.01	778.85	261.89	779.1	261.9	783.25	261.91
783.67	261.88	784.5	261.9	787.51	261.99	789.04	262.01	792.22	262.14
793.48	262.18	794.65	262.24	799.35	262.48	800.67	262.58	803.73	262.75
804.75	262.76	809.53	263.07	810.44	263.11	813.93	263.18	818.75	263.73
819.51	263.83	819.92	263.92	820.8	264.05	824.38	264.68	827.16	265.22
830.31	265.76	832.29	266.06	834.74	266.64	836.73	267.12	840.79	268.05
843.08	268.37	845.16	268.6	848.77	268.95	851.05	269.21	852.82	269.44
854.85	269.7	855.51	269.76	864.1	271.56	865.03	271.78	865.53	271.79
867.98	272.18	871.84	272.82	872.86	272.96	874.65	273.16	879.47	274.04
885.73	275	886.6	275.09	887.07	275.14	896.04	275.1	896.62	275.16
899.09	274.79	903	274.87	906.5	274.8	908.23	274.75	908.62	274.78
915.67	274.68	917.53	274.41	924.23	274.42	927.24	274.44	928.63	274.32
931.84	274.36	934.3	274.52	938.92	274.49	939.74	274.58	944.4	274.54
946.85	274.45	949.59	274.4	953.64	274.74	954.48	274.75	957.94	274.49
962.05	274.6	963.63	274.7	966.52	274.67	967.96	274.62	970.66	274.71
973.63	274.76	975.36	274.77	978.06	274.68	979.93	274.59	983.75	274.67
984.62	274.67	988.21	274.68	991.75	274.62	993.81	274.57	996.82	274.81
998.38	274.88	1001.98	274.69	1003.97	274.71	1007.79	275	1008.63	275.05
1012.16	274.82	1014.2	274.76	1018.21	274.97	1018.77	274.97	1020.06	274.98
1024.44	275	1025.34	274.98	1028.83	274.72	1029.08	274.71	1030.18	274.72
1033.74	274.82	1034.54	274.77	1037.19	274.82	1038.99	274.85	1039.46	274.86
1040.56	274.92	1043.42	275.02	1044.61	275.05	1046.79	274.98	1049.03	274.76
1051.21	274.76	1054.65	274.84	1056.77	274.77	1059.16	274.87	1060.96	274.86
1064.69	274.85	1065.79	274.91	1069.27	275.01	1073.6	274.99	1074.72	274.98

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  1077.9   274.8 1079.02  274.86

Manning's n Values        num=       9
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05   29.48     .12  343.81     .04  344.84     .04  360.38     .04
  425.15     .04  429.97     .04  436.42     .12  492.76     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        343.81  436.42           378.67  405.44  424.26             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  248.01  268.29       F
  505.26 1079.02  267.31       F

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)            260.59    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.28    Wt. n-Val.                0.120      0.040
  0.120
  W.S. Elev (ft)            260.30    Reach Len. (ft)          378.67     405.44
 424.26
  Crit W.S. (ft)            256.84    Flow Area (sq ft)        113.25     594.43
  46.52
  E.G. Slope (ft/ft)      0.001175    Area (sq ft)             159.31     594.43
  46.52
  Q Total (cfs)             2671.00   Flow (cfs)                66.73    2577.86
  26.41
  Top Width (ft)            276.52    Top Width (ft)           154.19      92.61
  29.72
  Vel Total (ft/s)            3.54    Avg. Vel. (ft/s)           0.59       4.34
   0.57
  Max Chl Dpth (ft)           6.72    Hydr. Depth (ft)           1.54       6.42
   1.57
  Conv. Total (cfs)         77919.4   Conv. (cfs)              1946.6    75202.2
  770.5
  Length Wtd. (ft)          405.45    Wetted Per. (ft)          73.89      94.58
  30.07
  Min Ch El (ft)            253.58    Shear (lb/sq ft)           0.11       0.46
   0.11
  Alpha                       1.45    Stream Power (lb/ft s)  1079.02       0.00
   0.00
  Frctn Loss (ft)             0.54    Cum Volume (acre-ft)     141.45     178.47
  71.16
  C & E Loss (ft)             0.00    Cum SA (acres)            65.66      27.97
  41.85
```

Warning: Divided flow computed for this cross-section.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	266.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.97	Wt. n-Val.	0.120	0.040	0.086
W.S. Elev (ft)	265.06	Reach Len. (ft)	378.67	405.44	424.26
Crit W.S. (ft)	261.81	Flow Area (sq ft)	564.58	1035.36	338.30
E.G. Slope (ft/ft)	0.002223	Area (sq ft)	1052.74	1035.36	1596.14
Q Total (cfs)	10810.00	Flow (cfs)	1072.78	8940.85	796.37
Top Width (ft)	680.03	Top Width (ft)	197.48	92.61	389.94
Vel Total (ft/s)	5.58	Avg. Vel. (ft/s)	1.90	8.64	2.35
Max Chl Dpth (ft)	11.48	Hydr. Depth (ft)	5.89	11.18	4.91
Conv. Total (cfs)	229262.6	Conv. (cfs)	22751.9	189621.0	16889.8
Length Wtd. (ft)	405.66	Wetted Per. (ft)	96.16	94.58	69.39
Min Ch El (ft)	253.58	Shear (lb/sq ft)	0.81	1.52	0.68
Alpha	2.01	Stream Power (lb/ft s)	1079.02	0.00	0.00
Frctn Loss (ft)	1.08	Cum Volume (acre-ft)	449.25	288.69	312.06
C & E Loss (ft)	0.03	Cum SA (acres)	97.04	27.99	70.30

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the
need for additional cross sections.

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	266.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.11	Wt. n-Val.	0.120	0.040	0.085
W.S. Elev (ft)	265.86	Reach Len. (ft)	378.67	405.44	424.26
Crit W.S. (ft)	262.53	Flow Area (sq ft)	640.77	1109.01	393.05
E.G. Slope (ft/ft)	0.002360	Area (sq ft)	1212.32	1109.01	1908.03
Q Total (cfs)	12761.00	Flow (cfs)	1364.79	10328.80	1067.41
Top Width (ft)	689.08	Top Width (ft)	201.92	92.61	394.55
Vel Total (ft/s)	5.96	Avg. Vel. (ft/s)	2.13	9.31	2.72
Max Chl Dpth (ft)	12.28	Hydr. Depth (ft)	6.69	11.98	5.71
Conv. Total (cfs)	262701.5	Conv. (cfs)	28096.0	212631.5	21974.0
Length Wtd. (ft)	405.71	Wetted Per. (ft)	96.16	94.58	69.39
Min Ch El (ft)	253.58	Shear (lb/sq ft)	0.98	1.73	0.83
Alpha	2.01	Stream Power (lb/ft s)	1079.02	0.00	0.00
Frctn Loss (ft)	1.18	Cum Volume (acre-ft)	524.60	309.30	364.73
C & E Loss (ft)	0.04	Cum SA (acres)	101.33	27.99	73.48

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the
need for additional cross sections.
Warning: When the Manning's n value for the channel was composited, the computed n

value was larger [smaller] than the
         largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
         wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	268.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.	0.120	0.040	0.035
W.S. Elev (ft)	268.56	Reach Len. (ft)	378.67	405.44	424.26
Crit W.S. (ft)	264.52	Flow Area (sq ft)	1771.52	1359.42	2992.03
E.G. Slope (ft/ft)	0.000493	Area (sq ft)	1771.52	1359.42	2992.03
Q Total (cfs)	19382.00	Flow (cfs)	2001.09	6629.63	10751.28
Top Width (ft)	712.18	Top Width (ft)	211.15	92.61	408.41
Vel Total (ft/s)	3.17	Avg. Vel. (ft/s)	1.13	4.88	3.59
Max Chl Dpth (ft)	14.98	Hydr. Depth (ft)	8.39	14.68	7.33
Conv. Total (cfs)	872770.1	Conv. (cfs)	90108.9	298531.9	484129.3
Length Wtd. (ft)	410.21	Wetted Per. (ft)	212.78	94.58	409.66
Min Ch El (ft)	253.58	Shear (lb/sq ft)	0.26	0.44	0.22
Alpha	1.54	Stream Power (lb/ft s)	1079.02	0.00	0.00
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)	751.61	367.30	524.11
C & E Loss (ft)	0.23	Cum SA (acres)	112.76	27.99	81.95

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
          This may indicate the need for additional cross sections.

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 13592.2

INPUT
Description: not interpolated
Station Elevation Data num= 480

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	269.32	2.36	269.31	2.7	269.33	5.14	269.21	7.49	268.95
11.72	268.91	14.22	268.98	18.34	268.68	22.14	268.91	22.69	268.89
28.69	268.65	29.34	268.66	35.45	268.91	36.83	268.91	43.73	268.96
48.79	268.64	49.63	268.64	55.52	268.77	56.25	268.73	57.28	268.75
63.1	268.85	68.73	268.41	69.77	268.38	75.53	268.38	76.64	268.33
82.13	268.19	83.34	268.18	88.92	268.08	90.21	268.13	95.72	268.45
97.61	268.45	98.35	268.39	103.79	268.03	109.13	268.02	110.62	268.01
116.01	268.27	117.55	268.35	122.86	268.19	124.46	268.14	129.65	268.24
133	268.13	138.21	268.11	143.13	267.57	145	267.58	145.74	267.47
148.65	267.63	162.58	267.81	164.4	267.83	165.8	267.8	170.52	267.59
172.64	267.49	177.28	267.25	178.89	267.22	184.29	267.17	186.5	267.12
190.91	266.86	194.2	266.93	199.65	267.19	204.88	266.76	207.42	266.62
211.73	266.8	214.43	266.88	214.67	266.88	218.62	266.88	221.39	266.8
225.49	266.6	228.41	266.63	232.55	266.88	235.45	266.73	238.45	266.85
244.76	266.75	246.46	266.68	249.55	266.69	253.37	266.46	256.55	266.39
260.33	266.57	262.31	266.47	267.18	266.21	270.65	266.1	274.25	266.12
276.3	266.02	277.74	266.2	281.36	266.36	283.47	266.45	284.93	266.53
291.47	266.5	301.11	266.29	303.62	266.04	306.07	266.13	308.12	265.99
309.39	266.09	311.64	266.05	313.29	266.23	319.71	266.4	325.91	266.28
328.38	266.21	332.92	265.94	334.77	265.89	336.64	265.69	342.52	265.04
343.53	265.03	344.47	264.98	346.9	264.88	348.95	264.8	351.53	264.77
354.02	264.95	356.19	264.8	358.69	264.69	361.09	264.6	365.79	264.56
368.26	264.66	370.57	264.54	372.92	264.55	375.44	264.55	377.78	264.47
379.26	264.41	382.02	264.41	383.94	264.45	385.51	264.42	387.9	264.46
389.82	264.47	393.93	264.4	394.2	264.39	396.68	264.52	402.08	264.53
404.32	264.59	406.44	264.6	409.43	264.59	414.24	264.48	416	264.56
418.09	264.65	419.79	264.59	422.62	264.48	424.34	264.48	426.79	264.57
428.13	264.63	432.3	264.71	434.32	264.8	436.96	264.78	438.16	264.72
441.36	264.82	444.41	264.98	447.38	265.04	454.49	264.75	457.38	264.68
458.34	264.63	461.57	264.36	464.16	264.24	466.31	264.22	467.71	264.25

474.53	263.55	475.35	263.32	478.5	262.67	481.88	262.18	484.48	261.78
486.63	261.25	488.33	260.76	490.95	260.2	494.21	259.35	497.55	258.49
501.08	257.61	504.07	256.83	504.82	256.65	506.83	256.65	509.4	256.46
512.59	256.26	513.16	256.3	519.37	254.47	523.59	254.02	525.15	253.04
526.3	253.04	547.93	253.04	579.5	253.03	584.44	253.03	588.24	253.03
588.31	253.03	590.5	254.6	592.52	256.19	595.36	256.44	598.01	256.68
599.65	256.89	604.08	257.34	605.69	257.5	611.38	258.45	617.21	258.97
619.26	258.66	620.28	258.64	623.28	258.74	630.27	258.98	630.58	258.98
632.07	258.88	635.74	258.63	636.63	258.5	642.39	258.1	646.61	258.25
649.89	258.29	650.87	258.26	654.85	258.41	656.93	258.47	657.19	258.49
661.04	258.61	662.52	258.62	665.8	258.62	667.08	258.64	670.24	259.05
671.2	259.15	672.07	259.16	677	258.89	680.89	259.1	681.26	259.14
683	259.18	687.07	259.26	687.48	259.3	691.22	259.13	696.82	259.03
698.08	259.05	702.87	259.19	707.1	259.24	708.76	259.32	711.45	259.4
712.87	259.32	713.99	259.31	718.22	259.18	719.04	259.23	722.53	259.38
726.11	259.47	726.8	259.49	727.58	259.48	731.32	259.4	734.29	259.44
737.1	259.57	739.27	259.6	741.35	259.48	744.98	259.42	747.7	259.33
751.31	259.31	754.25	259.32	757.19	259.39	759.36	259.48	761.36	259.5
763.5	259.51	765.19	259.49	769.05	259.48	771.33	259.54	773.45	259.61
777.01	259.6	778.48	259.59	781.21	259.62	785.54	259.79	787.08	259.81
788.12	259.85	791.28	259.75	795.62	259.59	799.86	259.8	801.34	259.83
804.84	259.84	807.03	259.83	809.97	259.95	811.35	260.01	814.63	259.96
817.1	259.94	817.66	259.93	820.11	259.97	821.25	259.98	821.51	259.99
827.22	259.94	831.12	259.66	831.61	259.67	835.65	260	837.41	260
841.38	259.94	841.9	259.92	847.52	259.89	848.18	259.92	851.59	259.96
851.87	259.95	857.64	259.78	861.88	259.69	866.31	259.73	867.76	259.76
872.05	259.76	873.53	259.74	877.79	259.63	879.36	259.67	882.17	259.68
883.17	259.66	887.8	259.6	892.38	259.67	893.14	259.66	894.98	259.7
897.1	259.73	897.97	259.69	900.46	259.67	902.42	259.75	904.77	259.65
907.96	259.57	911.98	259.66	914.7	259.61	918.12	259.6	919.67	259.57
922.73	259.59	926.9	259.63	928.35	259.64	930.15	259.61	934.65	259.61
936.94	259.69	940.61	259.88	945.23	259.77	948.71	259.9	949.51	259.9
953.27	259.81	957.68	259.9	958.97	259.9	962.18	259.84	963.52	259.73
966.62	259.56	970.05	259.66	971.76	259.67	973.79	259.76	978.71	259.59
980.02	259.58	982.99	259.64	984.09	259.63	987.91	259.76	993.11	259.94
995.97	259.78	997.95	259.65	1000.2	259.81	1004.11	259.67	1005.16	259.61
1008.04	259.75	1010.78	259.87	1011.91	259.87	1013.22	259.74	1015.54	259.6
1020.48	259.8	1021.26	259.82	1025	259.8	1026.17	259.84	1029.09	259.92
1031.84	260.02	1034.04	260	1036.85	260.01	1041.31	260.07	1043.11	259.93
1045.21	259.85	1047.25	259.87	1050.29	260.05	1053.07	259.95	1055.56	259.82
1057.94	259.95	1060.53	260.08	1063.68	259.96	1064.61	259.93	1066.65	260.21
1068.65	260.32	1074.25	260.07	1074.42	260.07	1078.2	260.16	1079.37	260.22
1083.16	260.13	1085.05	260.06	1088.7	260.14	1104.96	260.38	1106.43	260.41
1111.48	260.24	1115.43	260.34	1117.24	260.46	1120.8	260.63	1122.26	260.63
1125.49	260.8	1127.89	260.87	1128.6	260.9	1130.75	260.83	1132.76	260.76
1137.45	260.71	1142.31	261.61	1142.92	261.76	1145.72	262.92	1149.46	263.91
1153.47	264.62	1157.01	265.64	1160.38	266.63	1161.18	266.88	1162.05	267.14
1166.73	267.87	1170.07	268.43	1171.26	268.49	1175.45	268.52	1176.3	268.59
1178.02	268.68	1181.82	268.91	1184.4	268.95	1186.83	269.01	1190.7	269.13
1192.92	269.17	1195.62	269.41	1197.2	269.5	1197.5	269.5	1203.15	269.87

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  1207.6  269.43 1208.27  269.45 1211.64  269.69 1213.66  269.74 1215.29  269.94
 1218.69  270.03 1218.83  270.03 1229.14  270.47 1233.38  270.54 1234.86  270.54
 1239.83  270.59  1241.7  270.56 1246.39  270.47  1250.1  270.89 1251.92  271.14
 1255.88   271.7 1256.07  271.73 1260.84     271 1261.12  270.97  1261.4  270.89
 1264.04  270.24 1266.07  270.23 1270.79  270.75 1271.29  270.79 1276.58  270.89
 1277.77  270.92 1280.52  271.12 1281.85  271.25 1282.19  271.27  1286.1  271.23
 1287.26  271.27  1292.4   271.4 1296.26  271.61 1297.75  271.52  1302.6  271.41
 1303.73  271.24 1308.34  271.87 1309.54  271.97 1313.58  273.31 1314.06  273.45
  1314.4  273.48 1318.94  273.64 1323.42  273.99 1324.09   273.8 1327.11   273.4
 1329.34   273.6  1330.7  273.44 1333.71  273.46 1334.33  273.49 1334.63  273.55
 1339.57   274.6 1344.68   274.9 1345.12  274.92 1348.83  275.12 1350.43  275.14
 1355.27  275.02 1355.65  275.04  1359.4  275.35 1361.03  275.31 1363.38   275.6
 1366.41   275.8 1367.86  275.83 1369.38  275.93 1373.41  276.15 1377.08  276.47
 1378.35  276.57 1381.31  276.64 1382.18  276.68 1382.55  276.73 1384.32  276.91
 1387.96   277.3  1389.4  277.49 1393.45  278.12 1395.46   278.3 1398.76  278.43
 1399.96  278.55 1404.11  278.75    1405  278.81 1410.74  279.48 1413.71  279.81

Manning's n Values        num=       8
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  214.67     .12  497.55     .04  611.38     .12  632.07     .03
 1178.02     .03  1241.7     .03 1282.19     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        497.55  611.38            260.8  593.93  588.98             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  651.09 1413.71  269.21       F

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           260.04    Element                  Left OB    Channel
Right OB
  Vel Head (ft)              0.28    Wt. n-Val.                0.120      0.040
  0.042
  W.S. Elev (ft)           259.76    Reach Len. (ft)          260.80     593.93
 588.98
  Crit W.S. (ft)           256.79    Flow Area (sq ft)          3.13     598.66
  46.69
  E.G. Slope (ft/ft)      0.001526   Area (sq ft)               3.13     598.66
 130.14
  Q Total (cfs)            2671.00   Flow (cfs)                 1.10    2596.38
  73.52
  Top Width (ft)            419.68   Top Width (ft)             4.91     113.83
 300.94
  Vel Total (ft/s)           4.12    Avg. Vel. (ft/s)           0.35       4.34
   1.57
  Max Chl Dpth (ft)          6.73    Hydr. Depth (ft)           0.64       5.26
   1.18
  Conv. Total (cfs)        68384.6   Conv. (cfs)                28.0    66474.2
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1882.4					
Length Wtd. (ft)	589.01	Wetted Per. (ft)	5.07	115.84	39.80
Min Ch El (ft)	253.03	Shear (lb/sq ft)	0.06	0.49	0.11
Alpha	1.08	Stream Power (lb/ft s)	1413.71	0.00	0.00
Frctn Loss (ft)	0.85	Cum Volume (acre-ft)	140.74	172.92	70.30
C & E Loss (ft)	0.02	Cum SA (acres)	64.97	27.01	40.24

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	264.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.22	Wt. n-Val.	0.120	0.040	0.047
W.S. Elev (ft)	263.70	Reach Len. (ft)	260.80	593.93	588.98
Crit W.S. (ft)	261.07	Flow Area (sq ft)	57.91	1047.64	203.31
E.G. Slope (ft/ft)	0.003266	Area (sq ft)	57.91	1047.64	2159.21
Q Total (cfs)	10810.00	Flow (cfs)	71.54	9653.71	1084.75
Top Width (ft)	675.65	Top Width (ft)	24.52	113.83	537.30
Vel Total (ft/s)	8.26	Avg. Vel. (ft/s)	1.24	9.21	5.34
Max Chl Dpth (ft)	10.67	Hydr. Depth (ft)	2.36	9.20	5.12
Conv. Total (cfs)	189163.6	Conv. (cfs)	1251.8	168929.8	18982.0
Length Wtd. (ft)	572.85	Wetted Per. (ft)	25.10	115.84	39.80
Min Ch El (ft)	253.03	Shear (lb/sq ft)	0.47	1.84	1.04
Alpha	1.15	Stream Power (lb/ft s)	1413.71	0.00	0.00
Frctn Loss (ft)	1.61	Cum Volume (acre-ft)	444.42	279.00	293.78
C & E Loss (ft)	0.16	Cum SA (acres)	96.07	27.03	

65.78

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	265.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.49	Wt. n-Val.	0.120	0.040	0.047
W.S. Elev (ft)	264.26	Reach Len. (ft)	260.80	593.93	588.98
Crit W.S. (ft)	261.73	Flow Area (sq ft)	73.27	1111.32	225.53
E.G. Slope (ft/ft)	0.003680	Area (sq ft)	73.27	1111.32	2460.49
Q Total (cfs)	12761.00	Flow (cfs)	90.91	11306.99	1363.10
Top Width (ft)	687.81	Top Width (ft)	33.90	113.83	540.08
Vel Total (ft/s)	9.05	Avg. Vel. (ft/s)	1.24	10.17	6.04
Max Chl Dpth (ft)	11.23	Hydr. Depth (ft)	2.16	9.76	5.68
Conv. Total (cfs)	210355.8	Conv. (cfs)	1498.6	186387.5	22469.7
Length Wtd. (ft)	568.68	Wetted Per. (ft)	34.51	115.84	39.80
Min Ch El (ft)	253.03	Shear (lb/sq ft)	0.49	2.20	1.30
Alpha	1.17	Stream Power (lb/ft s)	1413.71	0.00	0.00
Frctn Loss (ft)	1.66	Cum Volume (acre-ft)	519.02	298.97	343.45
C & E Loss (ft)	0.24	Cum SA (acres)	100.30	27.03	68.93

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the
need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	268.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.52	Wt. n-Val.	0.120	0.040	0.048
W.S. Elev (ft)	265.58	Reach Len. (ft)	260.80	593.93	588.98
Crit W.S. (ft)	263.71	Flow Area (sq ft)	233.81	1261.58	277.95
E.G. Slope (ft/ft)	0.005326	Area (sq ft)	233.81	1261.58	3177.32
Q Total (cfs)	19382.00	Flow (cfs)	271.33	16804.12	2306.55
Top Width (ft)	819.21	Top Width (ft)	159.95	113.83	545.43
Vel Total (ft/s)	10.93	Avg. Vel. (ft/s)	1.16	13.32	8.30
Max Chl Dpth (ft)	12.55	Hydr. Depth (ft)	1.46	11.08	7.00
Conv. Total (cfs)	265578.2	Conv. (cfs)	3717.8	230255.3	31605.1
Length Wtd. (ft)	549.40	Wetted Per. (ft)	160.67	115.84	39.80
Min Ch El (ft)	253.03	Shear (lb/sq ft)	0.48	3.62	2.32
Alpha	1.36	Stream Power (lb/ft s)	1413.71	0.00	0.00
Frctn Loss (ft)	1.59	Cum Volume (acre-ft)	742.89	355.10	494.07
C & E Loss (ft)	0.58	Cum SA (acres)	111.15	27.03	77.31

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
 This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the
need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 12998.26

INPUT
Description: not interpolated
Station Elevation Data num= 480

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	267.1	1.55	267.07	2.81	267	9.8	266.67	13.48	266.36
16.21	266.24	17.58	266.21	20.44	266.12	23.39	265.97	30.77	265.61
31.63	265.58	36.84	265.57	37.92	265.55	38.49	265.59	44.52	265.58
47.64	265.58	51.45	265.22	53.2	265.15	57.44	265.15	63.73	264.99
64.78	264.95	69.67	264.69	71.64	264.79	75.62	265.04	78.62	264.85
81.55	264.8	85.56	265.09	87.48	265.15	92.46	265.16	93.38	265.15
98.76	265.32	99.35	265.33	106.01	265.09	106.87	265.07	110.4	265.08
114.52	265.29	116.01	265.33	120.26	265.26	121.83	265.23	122.13	265.25
128.44	265.6	132.92	265.24	136.58	265.11	141.32	265.03	143.77	265.04
145.1	265.11	147.7	265.06	149.6	265.07	154.05	264.97	157.4	264.88
163.18	264.69	167.07	264.53	169.45	264.49	173.69	264.47	179.05	264.26
180.3	264.18	181.18	264.03	191.57	263.6	194.23	263.51	198.87	263.57
201.47	263.59	205.05	263.74	208.73	263.98	213.74	263.7	214.8	263.66
215.69	263.69	216.09	263.67	218.39	263.67	225.54	264.22	228.97	264.36
229.88	264.32	230.29	264.34	230.75	264.33	233.1	264.13	237.59	263.98
238.68	264.19	246.11	264.02	250.88	264.4	254.67	264.47	256.75	264.12
257.87	263.95	259.28	263.92	261.11	263.9	265.42	263.72	269.26	263.47
272.18	263.29	279.02	263.25	285.49	263.02	287.38	263.05	291.9	263.16
292.76	263.14	293.45	263.16	296.77	263.09	299.29	263	313.92	263.26
321.41	263.33	323.12	263.58	325.83	263.62	329.69	263.16	333.49	262.99
335.09	263.02	335.73	263.13	336.23	263.21	341.35	263.11	342.16	263
342.78	263	347.86	263.09	349.32	263.1	354.84	263.16	356.43	263.31
360.28	263.27	363.59	262.98	369.83	263.03	370.66	263.01	372.43	263.06
377.83	263.14	379.03	263.11	384.95	262.87	387.67	262.9	392.14	262.82
396.38	262.9	399.27	263	405.09	262.99	406.37	263	412.3	262.79
413.31	262.75	413.68	262.75	419.57	262.67	420.57	262.62	422.36	262.72
425.88	262.8	427.8	262.75	431.25	262.75	432.27	262.73	434.96	262.62
438.67	262.51	439.38	262.46	442.11	262.36	445.24	262.32	447.23	262.38
447.77	262.36	450.07	262.31	451.7	262.26	454.98	262.15	458.2	262.22
462.8	262.15	464.66	262.06	470.61	262.18	471.15	262.17	473.86	262.02
477.84	261.81	479.3	261.81	484.6	261.88	488.66	261.83	491.41	261.74
498.26	261.74	505.59	262.02	510.58	261.84	512.83	261.7	516.77	261.59
520.21	261.6	525.29	261.59	527.56	261.59	534.44	261.68	534.89	261.68
536.71	261.71	541.26	261.72	542.8	261.81	547.44	261.68	550.92	261.45
553.63	261.45	559.24	261.6	559.86	261.6	566.59	261.29	567.6	261.31
571.69	261.37	573.58	261.33	576.08	261.22	580.5	261.22	584.48	261.1
587.39	261.08	592.89	261.21	594.25	261.18	598.37	261.25	601.36	261.29

606.14	261.38	608.2	261.49	611.25	261.56	615.19	261.62	620.82	261.44
622.19	261.42	625.63	261.72	628.98	262.06	629.72	262.03	635.36	261.96
637.41	262.04	640.46	261.89	643.36	261.74	644.88	261.79	647.48	261.64
653.04	261.86	654.43	261.88	660.42	261.88	660.83	261.87	667.36	261.44
674.08	261.63	675.76	261.71	678.88	261.74	683.5	261.64	684.9	261.64
690.5	261.54	697.05	261.49	698.5	261.52	700.66	261.5	705.87	261.48
709.89	261.43	713.26	261.26	719.11	261.12	720.62	261.13	727.81	261.07
728	261.07	734.44	260.47	735.56	260.37	736.83	260.38	740.99	260.33
743.13	260.26	745.42	259.95	747.55	259.77	750.61	259.85	754.07	259.59
758.12	259.65	761.14	259.55	762.67	259.51	768.08	258.96	770.97	258.59
773.26	258.45	774.97	258.34	779.34	257.97	780.8	257.73	782.11	257.73
787.05	257.63	789.08	257.84	793.2	258.21	795.74	258.36	796.87	258.41
802.84	258.74	806.7	258.77	810.01	258.89	817.15	258.8	821.9	259
825.73	258.79	831.23	258.32	832.18	258.3	835.82	257.93	839.97	257.54
842.72	257.56	843.3	257.54	847.44	257.44	853.22	258.11	854.92	258.26
858.36	258.28	861.31	258.17	862.74	258.31	866.54	258.37	870.1	258.5
870.78	258.53	872.56	258.5	878.42	258.6	878.78	258.58	879.34	258.58
884.87	258.68	886.18	258.64	888.34	258.43	890.6	258.17	897.44	257.81
897.77	257.81	901.07	257.98	903.97	257.99	906.59	257.98	908.54	257.99
910.01	257.88	915.79	257.24	915.91	257.22	923.44	257.49	924.93	257.49
928.07	257.33	931.84	257.36	932.66	257.22	938.54	257.75	939.79	257.87
940.5	257.82	946.76	257.47	951.78	257.37	953.82	257.26	957.38	257.46
961.02	257.57	962.89	257.45	968.81	256.95	971.18	256.78	976.03	256.34
978.76	256.28	982.25	256.26	983.71	256.14	987.58	255.67	991.45	255.25
993	255.26	996.6	255.07	998.78	254.98	999.71	254.97	1005.4	254.67
1006.86	254.49	1011.63	254.27	1012.65	253.78	1019.68	252.03	1020.45	252.03
1031.01	252.01	1035.45	252.01	1042.06	252	1068.04	251.98	1070.44	251.97
1071.61	251.97	1071.83	252.29	1073.4	252.91	1075.29	253.69	1077.74	254.71
1081.82	256.44	1085.56	258.02	1088.13	257.98	1092.6	257.92	1099.26	258.08
1099.82	258.09	1100.85	258.04	1105.59	257.73	1107.69	257.73	1111.15	257.57
1115.61	257.34	1119.11	257.15	1122.74	256.93	1124.67	256.89	1131.52	256.65
1133.83	256.76	1135.76	256.78	1139.48	256.92	1142.47	257.41	1143.54	257.42
1147.35	257.26	1149.21	257.37	1153.94	257.49	1156.01	257.56	1159.78	257.36
1163	257.22	1164.9	257.24	1170.58	257.22	1173.18	257.17	1178.23	257.08
1184.36	257.3	1186.79	257.39	1189.14	257.33	1193.42	257.34	1201.16	257.53
1207.94	257.48	1211.8	257.6	1214.75	257.7	1221.57	258.52	1222.34	258.59
1227.07	258.52	1231.48	258.44	1234.65	258.29	1238.19	258.31	1241.25	258.28
1246.18	258.22	1251.01	258.31	1252.04	258.27	1253.38	258.13	1256.16	258.35
1259.39	258.51	1259.77	258.59	1263.84	258.79	1266.34	258.69	1266.6	258.74
1267.16	258.75	1268.24	258.79	1274.48	258.9	1281.16	259.45	1285.3	260.04
1291.24	260.15	1294.41	260.36	1301.86	260.59	1302.94	260.68	1307.94	261.18
1309.68	261.27	1316.83	261.47	1317.09	261.47	1325.15	261.7	1325.39	261.7
1332.08	261.59	1332.92	261.52	1334.96	261.45	1338	261.33	1339.6	261.41
1341.08	261.31	1343.55	261.51	1355.18	261.39	1363.42	261.59	1367.09	261.43
1370.06	260.79	1374.17	260.92	1376.99	260.91	1379.14	260.74	1380.8	260.7
1382.04	260.7	1385.1	261.03	1388.5	261.43	1395.42	261.48	1400.25	261.64
1402.28	261.76	1406.83	262.31	1409.52	262.62	1410.16	262.68	1411.3	262.68
1417.4	262.84	1419.99	262.91	1425.36	263.16	1426.41	263.18	1431.35	263.31
1433.18	263.34	1437.11	263.55	1440.97	263.9	1442.86	263.86	1448.12	264.07
1448.68	264.07	1455.01	264.32	1456.41	264.43	1458.5	264.4	1461.45	264.43

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 1464.14  264.59 1467.79  264.73 1468.01  264.73  1471.8  264.47 1474.31  264.61
    1475  264.63 1476.66  264.64 1482.07  264.74  1486.7  264.56 1487.09  264.54
 1487.34  264.56 1488.87  264.64 1493.18   264.9 1494.95  264.97 1498.79  264.94
 1503.09  265.24 1504.53  265.31 1507.85  265.36 1510.73  265.38 1512.08  265.45
  1517.8  265.69 1519.94  265.79  1522.4   265.9 1524.88  265.96 1530.27  266.12
 1532.04  266.18  1535.1  266.43  1537.9   266.5 1546.82  266.64 1549.05  266.73
 1553.61  266.96 1555.25  266.99 1559.64  267.11 1561.52  266.91 1563.56  267.13
 1565.78  267.16 1568.66  267.06 1572.93  266.85 1575.89  266.77 1577.94  266.94
 1579.38  267.15 1581.03  267.16 1583.97  267.19 1587.02  267.25 1588.25  267.26

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  335.73     .12  961.02     .04 1085.56     .12 1519.94     .05
 1583.97     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        961.02 1085.56           137.16  280.93  307.93             .1       .3

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           259.17    Element                  Left OB    Channel
Right OB
  Vel Head (ft)              0.23    Wt. n-Val.                0.120      0.040
  0.120
  W.S. Elev (ft)           258.95    Reach Len. (ft)          137.16     280.93
 307.93
  Crit W.S. (ft)           255.99    Flow Area (sq ft)        170.13     620.70
 232.84
  E.G. Slope (ft/ft)      0.001378   Area (sq ft)             170.13     620.70
 232.84
  Q Total (cfs)           2671.00    Flow (cfs)                74.89    2473.44
 122.67
  Top Width (ft)           504.58    Top Width (ft)           190.56     124.54
 189.48
  Vel Total (ft/s)           2.61    Avg. Vel. (ft/s)           0.44       3.98
   0.53
  Max Chl Dpth (ft)          6.98    Hydr. Depth (ft)           0.89       4.98
   1.23
  Conv. Total (cfs)       71965.4    Conv. (cfs)              2017.8    66642.5
 3305.2
  Length Wtd. (ft)         268.19    Wetted Per. (ft)         190.95     126.32
 189.70
  Min Ch El (ft)           251.97    Shear (lb/sq ft)           0.08       0.42
   0.11
  Alpha                      2.16    Stream Power (lb/ft s)  1588.25       0.00
   0.00
  Frctn Loss (ft)            0.42    Cum Volume (acre-ft)     140.22     164.61
 67.85
  C & E Loss (ft)            0.01    Cum SA (acres)            64.39      25.39
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36.93

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	263.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.68	Wt. n-Val.	0.120	0.040	0.120
W.S. Elev (ft)	262.47	Reach Len. (ft)	137.16	280.93	307.93
Crit W.S. (ft)	260.07	Flow Area (sq ft)	1186.44	1059.84	1084.78
E.G. Slope (ft/ft)	0.002458	Area (sq ft)	1186.44	1059.84	1084.78
Q Total (cfs)	10810.00	Flow (cfs)	1258.29	8058.92	1492.79
Top Width (ft)	969.03	Top Width (ft)	521.81	124.54	322.68
Vel Total (ft/s)	3.25	Avg. Vel. (ft/s)	1.06	7.60	1.38
Max Chl Dpth (ft)	10.50	Hydr. Depth (ft)	2.27	8.51	3.36
Conv. Total (cfs)	218054.4	Conv. (cfs)	25381.7	162560.9	30111.8
Length Wtd. (ft)	234.08	Wetted Per. (ft)	522.47	126.32	323.20
Min Ch El (ft)	251.97	Shear (lb/sq ft)	0.35	1.29	0.51
Alpha	4.13	Stream Power (lb/ft s)	1588.25	0.00	0.00
Frctn Loss (ft)	0.38	Cum Volume (acre-ft)	440.70	264.63	271.84
C & E Loss (ft)	0.14	Cum SA (acres)	94.44	25.40	59.97

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	263.85	Element	Left OB	Channel	

Right OB					
Vel Head (ft)	0.69	Wt. n-Val.	0.120	0.040	0.120
W.S. Elev (ft)	263.16	Reach Len. (ft)	137.16	280.93	307.93
Crit W.S. (ft)	260.66	Flow Area (sq ft)	1570.74	1145.45	1312.11
E.G. Slope (ft/ft)	0.002376	Area (sq ft)	1570.74	1145.45	1312.11
Q Total (cfs)	12761.00	Flow (cfs)	1794.45	9019.31	1947.24
Top Width (ft)	1112.61	Top Width (ft)	648.28	124.54	339.79
Vel Total (ft/s)	3.17	Avg. Vel. (ft/s)	1.14	7.87	1.48
Max Chl Dpth (ft)	11.19	Hydr. Depth (ft)	2.42	9.20	3.86
Conv. Total (cfs)	261792.0	Conv. (cfs)	36813.1	185031.2	39947.7
Length Wtd. (ft)	230.32	Wetted Per. (ft)	649.00	126.32	340.33
Min Ch El (ft)	251.97	Shear (lb/sq ft)	0.36	1.35	0.57
Alpha	4.42	Stream Power (lb/ft s)	1588.25	0.00	0.00
Frctn Loss (ft)	0.35	Cum Volume (acre-ft)	514.09	283.58	317.95
C & E Loss (ft)	0.14	Cum SA (acres)	98.26	25.40	62.98

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	265.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.58	Wt. n-Val.	0.113	0.040	0.120
W.S. Elev (ft)	265.35	Reach Len. (ft)	137.16	280.93	307.93
Crit W.S. (ft)	261.55	Flow Area (sq ft)	3253.55	1418.55	2137.73
E.G. Slope (ft/ft)	0.001808	Area (sq ft)	3253.55	1418.55	2137.73

Q Total (cfs)	19382.00	Flow (cfs)	4826.32	11237.57	3318.11
Top Width (ft)	1449.74	Top Width (ft)	903.42	124.54	421.78
Vel Total (ft/s)	2.85	Avg. Vel. (ft/s)	1.48	7.92	1.55
Max Chl Dpth (ft)	13.38	Hydr. Depth (ft)	3.60	11.39	5.07
Conv. Total (cfs)	455774.4	Conv. (cfs)	113492.6	264255.4	78026.4
Length Wtd. (ft)	218.29	Wetted Per. (ft)	904.48	126.32	422.42
Min Ch El (ft)	251.97	Shear (lb/sq ft)	0.41	1.27	0.57
Alpha	4.61	Stream Power (lb/ft s)	1588.25	0.00	0.00
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	732.45	336.83	458.13
C & E Loss (ft)	0.12	Cum SA (acres)	107.96	25.40	70.77

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 12717.34

INPUT
Description: not interpolated
Station Elevation Data num= 480

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	265.87	.76	265.92	2.38	265.77	8.18	265.69	9.64	265.66
10.26	265.68	12.16	265.61	14.57	265.61	16.73	265.59	18.35	265.62
24.79	265.57	29.55	265.72	35.97	265.68	36.69	265.65	39.54	265.43
42.19	265.27	47.74	265.18	53.37	265.05	60.01	265.31	63.27	265.8
63.53	265.82	64.67	265.75	70.52	264.93	77.68	263.91	79.3	263.84
84.06	263.75	88.35	263.5	93.85	263.49	95.74	263.56	98.02	263.46
100.48	263.26	102.66	263.2	105.71	262.99	114.3	262.82	117.24	262.74
122.83	262.91	123.62	262.89	127.19	262.68	131.78	262.19	135.25	262.23
138.14	262.21	144.22	262.02	150.51	262.1	152.11	261.95	155.14	261.54
158.27	261.46	160.38	261.38	166.56	261.59	168.61	261.45	172.39	261.35
177.97	261.42	178.85	261.45	182.42	261.22	184.55	261.14	185.86	261.11
190.44	261.19	192.55	261.12	196.25	261.05	201.15	261.13	202.09	261.16

209.09	261.14	211.12	261.01	213.25	261.12	216.65	261.06	218.6	260.98
222.97	260.65	226.04	260.47	231.97	260.53	236.14	260.44	240.51	259.96
240.94	259.9	244.4	259.69	246.88	259.76	249.79	259.93	251.68	260.09
252.92	260.16	258.82	259.57	264.5	259.48	268.31	259.5	272.66	259.5
276.84	259.44	280.09	259.46	287.43	259.36	299.64	259.74	301.19	259.75
302.91	259.69	309.27	259.15	314.16	259.02	315.92	259.1	318.33	259.15
321.23	259.31	323.4	259.18	326.71	258.86	328.14	258.88	332.19	259.11
336.1	259.17	336.81	259.12	342.8	258.98	344.15	258.99	347.4	259.07
351.37	258.91	357.73	258.78	366.97	258.62	368.73	258.57	372.3	258.55
374.01	258.47	375.8	258.42	384.06	258.26	387.94	258.41	394.58	258.23
396.22	258.24	401.23	258.33	407.28	258.03	412.89	258.29	416.13	258.13
419.13	258.09	427.76	258.23	430.51	258.15	439.09	258.47	441.77	258.52
442.92	258.5	447.05	258.39	450.23	258.24	453.37	258.06	456.93	257.98
460.43	257.97	464.39	258.07	466.34	258.18	469.98	258.3	474.52	257.86
477.61	257.83	482.86	258.02	487.56	258.18	490.61	258.09	492.69	257.83
495.8	257.86	504.54	257.91	506.46	257.91	515.9	257.64	521.13	257.82
522.1	257.85	526.05	257.83	527.7	257.79	532.1	257.88	534.61	257.87
538.35	257.68	543.06	257.48	546.94	257.49	548.88	257.59	549.89	257.74
556.49	257.65	557.79	257.68	566.02	257.53	572.12	257.8	577.35	257.76
579.65	257.87	582.44	257.93	586.03	257.93	590.67	257.71	592.77	257.72
599.16	258.02	602.5	257.99	608.73	258.05	611.15	258.26	614.37	258.01
617.66	257.93	622.88	258.16	624.59	258.22	625.64	258.28	632.73	258.44
637	258.47	641.54	258.43	643.77	258.44	645.66	258.22	648.75	258.14
650.77	258.22	653.31	258.39	656.83	258.46	659.74	258.37	663.47	258.07
665.6	258.08	669.16	258.18	671.2	258.2	671.8	258.16	675.78	257.83
680.9	257.39	687.33	256.87	691.25	256.75	692.93	256.79	697.19	256.64
700.05	256.62	704.37	256.56	706.8	256.61	711.65	256.9	715.05	256.94
717.72	256.89	722.98	256.97	728.48	257.35	730.04	257.38	734.26	257.37
737.76	257.2	740.79	257.28	745.49	257.34	746.65	257.29	749.85	257.44
753.24	257.32	758.75	257.55	760.83	257.53	764.72	257.59	770.92	257.71
775.63	257.76	776.69	257.75	778.56	257.69	789.94	257.64	790.66	257.61
791.98	257.67	798.67	258.08	806.31	258.18	811.61	258.61	813.89	258.78
817.54	258.75	823.59	258.78	827.79	258.83	829.12	258.82	829.84	258.87
833.01	258.87	836.57	258.85	842.05	258.28	845.09	257.89	851.08	257
856.03	257.16	858.41	257.17	861.14	257.11	864.41	256.99	869.72	257.28
874.73	257.17	876.22	257.09	877.28	257.14	882.19	257.26	884.8	257.02
893.24	256.2	895.16	255.96	901.3	256.06	901.78	256.08	904.16	256.31
906.86	256.21	911.98	256.12	913.19	256.16	916.71	256.03	919.68	256.05
925.19	256.44	928.01	256.67	933.12	256.76	935.3	256.9	942.88	257.04
943.21	257.03	954.1	256.85	956.27	256.91	962.59	257.11	965.7	257.33
974.14	257.22	977.18	257.12	981.69	256.99	985.93	257.03	990.14	257.25
992.38	257.4	998.6	257.28	999.76	257.21	1004.06	256.91	1006.92	256.99
1009	257.01	1012.12	256.92	1014.8	256.74	1016.99	256.76	1022.1	256.64
1024	256.67	1030.17	256.95	1033.22	257.01	1035.33	256.92	1037.26	256.65
1041.63	256.29	1042.07	256.29	1048.12	256.55	1052.15	256.62	1053.66	256.69
1056.08	256.69	1060.31	256.71	1065.81	256.54	1067.37	256.52	1068.61	256.47
1079.2	256.7	1082.56	256.91	1088.27	257	1089.78	256.91	1094.29	256.74
1096.56	256.52	1100.72	256.04	1102.08	256.01	1105.7	255.87	1109.25	255.45
1116.3	254.03	1120.43	253.52	1122.19	253.07	1125.28	252.27	1126.18	252.04
1127.23	251.72	1172.12	251.72	1172.8	251.96	1175.04	253.02	1177.86	254.32

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 1181.56  255.83 1185.67  257.54  1186.6  257.92 1192.14   257.9 1192.91  257.86
 1195.52   257.9  1199.3  258.03 1202.92  258.03 1205.87     258 1209.18  257.63
 1211.89  257.28 1213.49  257.34  1217.3  257.57 1219.43  257.31  1221.3  257.39
 1230.14  258.42 1232.98  258.59 1237.51  258.63 1240.79  258.94 1245.76  259.29
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 1280.35  262.03 1284.68  262.98 1289.24  263.28 1297.15  262.14 1300.73  262.07
  1302.2  262.16 1305.72  261.87 1309.01  262.04 1310.22  262.07 1311.67  262.15
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 1340.66  261.02 1347.39   261.1 1354.91  261.23 1360.49  261.52 1371.95  262.41
 1377.23  262.31 1380.92  262.47 1385.54  262.63 1389.77  262.73 1394.41  262.72
 1406.45  263.58  1409.4  263.76 1410.65  263.71 1417.14  263.16 1418.85  263.05
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 1436.49  263.53 1441.38  263.61 1442.39  263.56 1456.81  263.46 1458.59  263.55
 1464.41  263.91 1467.16  263.98 1472.05  264.43 1477.76  264.18 1479.34  264.07
 1483.86  263.87 1484.11  263.87 1489.76  264.13 1492.38  264.35 1497.97  264.79
 1501.54  264.94 1502.17  264.93 1505.03  265.08 1509.34  265.05 1510.39  265.06
 1511.22  265.11 1515.65  265.43  1518.4  265.29 1524.34  265.53 1526.42  265.68
 1528.38  265.71 1535.28   265.6 1541.39  266.06 1541.85  266.08  1549.1  266.17
 1549.77  266.17 1558.06  266.66 1562.75  266.73 1564.22  266.88 1571.25  267.32
 1575.94   267.6 1581.93  267.07 1593.83  267.49  1595.2  267.39 1600.85  266.78
 1601.51  266.82  1616.2  266.84  1616.9  266.85 1624.52  267.11 1627.84   267.1
 1632.13  267.07  1639.6  267.31 1641.23  267.31 1647.18  267.61 1648.04  267.75
 1654.67  268.31 1655.84  268.34 1661.82  268.44 1662.75  268.44 1667.62  268.33
 1672.49  268.95  1676.1  269.14 1679.04  269.13 1683.11  269.16 1684.72  269.19
 1687.21  269.18 1690.24  269.24 1692.24  269.26 1695.34  269.45  1697.3  269.49
 1699.71  269.42 1703.53  269.61 1704.41  269.67 1707.26  269.91 1711.44  270.06
 1714.72  270.16 1718.57  270.47 1725.46  271.28 1729.12  271.58 1736.91  272.31
 1738.54  272.58 1746.91  274.57 1748.17  274.87 1751.84  275.23  1753.7  275.87
 1755.49  276.46 1757.86  276.99 1759.19  277.16 1760.74  277.43 1767.01  278.45
 1780.07  280.35 1781.78  280.54 1784.71  280.72 1787.22  281.21 1789.65  281.52
 1792.71  281.74 1796.83  282.08 1807.25  282.09 1826.39   282.2 1849.86  282.87
 1854.21  282.44 1861.06  282.07 1864.93  281.67 1866.64  281.66 1877.85  280.57

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  521.13     .12  1105.7     .04 1109.25     .04 1125.28     .04
 1181.56     .12 1746.91     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        1105.7 1181.56           124.15  369.78  428.59             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1803.31 1856.19281.1416

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           258.74    Element                 Left OB    Channel
```

Right OB					
Vel Head (ft)	0.34	Wt. n-Val.	0.116	0.040	0.120
W.S. Elev (ft)	258.40	Reach Len. (ft)	124.15	369.78	428.59
Crit W.S. (ft)	256.00	Flow Area (sq ft)	670.04	437.24	34.65
E.G. Slope (ft/ft)	0.001806	Area (sq ft)	670.04	437.24	34.65
Q Total (cfs)	2671.00	Flow (cfs)	424.17	2232.36	14.47
Top Width (ft)	794.16	Top Width (ft)	669.86	75.86	48.44
Vel Total (ft/s)	2.34	Avg. Vel. (ft/s)	0.63	5.11	0.42
Max Chl Dpth (ft)	6.68	Hydr. Depth (ft)	1.00	5.76	0.72
Conv. Total (cfs)	62858.2	Conv. (cfs)	9982.2	52535.3	340.6
Length Wtd. (ft)	322.80	Wetted Per. (ft)	670.60	77.15	48.98
Min Ch El (ft)	251.72	Shear (lb/sq ft)	0.11	0.64	0.08
Alpha	3.99	Stream Power (lb/ft s)	1877.85	0.00	0.00
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	138.90	161.20	66.90
C & E Loss (ft)	0.03	Cum SA (acres)	63.03	24.74	36.09

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	262.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.092	0.040	0.120
W.S. Elev (ft)	262.41	Reach Len. (ft)	124.15	369.78	428.59
Crit W.S. (ft)	260.13	Flow Area (sq ft)	4126.29	740.84	428.84
E.G. Slope (ft/ft)	0.001166	Area (sq ft)	4126.29	740.84	428.84
Q Total (cfs)	10810.00	Flow (cfs)	6142.02	4270.03	397.95
Top Width (ft)	1236.11	Top Width (ft)	975.94	75.86	

```
 184.31
  Vel Total (ft/s)            2.04    Avg. Vel. (ft/s)            1.49       5.76
   0.93
  Max Chl Dpth (ft)          10.69    Hydr. Depth (ft)            4.23       9.77
   2.33
  Conv. Total (cfs)       316637.7    Conv. (cfs)             179907.0   125074.3
11656.3
  Length Wtd. (ft)          226.56    Wetted Per. (ft)          976.98      77.15
 185.52
  Min Ch El (ft)            251.72    Shear (lb/sq ft)            0.31       0.70
   0.17
  Alpha                       3.46    Stream Power (lb/ft s)   1877.85       0.00
   0.00
  Frctn Loss (ft)             0.21    Cum Volume (acre-ft)      432.33     258.83
 266.49
  C & E Loss (ft)             0.02    Cum SA (acres)             92.08      24.76
  58.18
```

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #1%

```
  E.G. Elev (ft)            263.35    Element                   Left OB    Channel
Right OB
  Vel Head (ft)               0.21    Wt. n-Val.                 0.090      0.040
  0.120
  W.S. Elev (ft)            263.15    Reach Len. (ft)           124.15     369.78
 428.59
  Crit W.S. (ft)            260.40    Flow Area (sq ft)        4858.41     797.11
 582.50
  E.G. Slope (ft/ft)      0.001050    Area (sq ft)             4858.41     797.11
 582.50
  Q Total (cfs)           12761.00    Flow (cfs)               7655.18    4574.93
 530.89
  Top Width (ft)           1307.17    Top Width (ft)           1002.27      75.86
 229.04
  Vel Total (ft/s)            2.05    Avg. Vel. (ft/s)            1.58       5.74
   0.91
  Max Chl Dpth (ft)          11.43    Hydr. Depth (ft)            4.85      10.51
   2.54
  Conv. Total (cfs)       393824.8    Conv. (cfs)             236251.1   141189.7
16384.0
  Length Wtd. (ft)          219.94    Wetted Per. (ft)          1003.35      77.15
 230.45
  Min Ch El (ft)            251.72    Shear (lb/sq ft)            0.32       0.68
   0.17
  Alpha                       3.19    Stream Power (lb/ft s)   1877.85       0.00
```

0.00					
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	503.97	277.32	311.25
C & E Loss (ft)	0.02	Cum SA (acres)	95.66	24.76	60.97

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	265.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.086	0.040	0.120
W.S. Elev (ft)	265.39	Reach Len. (ft)	124.15	369.78	428.59
Crit W.S. (ft)	261.31	Flow Area (sq ft)	7161.70	966.99	1243.44
E.G. Slope (ft/ft)	0.000789	Area (sq ft)	7161.70	966.99	1243.44
Q Total (cfs)	19382.00	Flow (cfs)	12882.11	5463.51	1036.38
Top Width (ft)	1472.33	Top Width (ft)	1058.70	75.86	337.77
Vel Total (ft/s)	2.07	Avg. Vel. (ft/s)	1.80	5.65	0.83
Max Chl Dpth (ft)	13.67	Hydr. Depth (ft)	6.76	12.75	3.68
Conv. Total (cfs)	689998.8	Conv. (cfs)	458602.9	194500.9	36895.0
Length Wtd. (ft)	206.84	Wetted Per. (ft)	1059.92	77.15	339.37
Min Ch El (ft)	251.72	Shear (lb/sq ft)	0.33	0.62	0.18
Alpha	2.62	Stream Power (lb/ft s)	1877.85	0.00	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	716.06	329.13	446.18
C & E Loss (ft)	0.01	Cum SA (acres)	104.87	24.76	68.08

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 12347.56

INPUT
Description: not interpolated
Station Elevation Data num= 480

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	267.95	1.62	267.99	3.12	267.97	6.41	267.57	8.51	267.66
12.51	267.45	16.79	267.11	19.91	267.14	20.95	267.16	22.89	267.15
27.62	267	29.77	266.63	32.23	266.29	36.12	266.11	36.57	266.08
37.16	266.06	37.86	266.02	44.2	265.75	48.26	265.74	50.7	265.69
52.72	265.46	56.23	265.07	57.56	265.07	61.32	265.11	61.91	265.12
64.32	264.92	67.77	264.93	70.47	264.98	72.09	265.02	75.94	264.76
77.3	264.45	80.32	264.32	85.46	264.23	86.08	264.22	89.3	264.2
89.86	264.22	90.38	264.23	94.4	264.3	97.15	264.05	99.83	263.74
103.7	263.8	105.53	263.8	109.65	263.57	111.21	263.52	112.13	263.5
116.25	263.42	120.05	263.15	121.19	263.1	126.89	263.06	129.79	263
134.32	262.9	135.82	262.87	137.95	262.64	146.53	262.48	147.02	262.45
149.39	262.23	152.96	262.17	157.08	262.23	158.29	262.19	163.9	262.08
164.56	262.05	166.51	261.93	170.34	261.55	173.05	261.55	177.2	261.46
178.97	261.36	181.49	261.28	184.32	261.27	186.25	261.09	189.07	261
190.31	260.91	194.94	260.61	200.38	260.74	200.87	260.75	205.32	260.63
206.86	260.59	207.04	260.58	211.94	260.24	214.99	260.32	216.97	260.38
220.06	260.09	221.26	259.98	222.81	259.92	228.36	260.07	229.65	260.08
233.32	260.13	237.73	260.26	238.26	260.27	241.54	259.88	242.48	259.83
246.26	259.74	258.24	259.71	262.23	259.81	265.4	259.61	265.71	259.6
266.01	259.6	277.2	259.46	282.85	259.24	283.97	259.21	290.14	259.04
295.67	258.88	299.91	258.89	308.84	258.97	310.37	258.91	313.33	258.77
315.94	258.47	317.22	258.45	319.95	258.37	325.2	258.37	328.77	258.34
332.91	258.29	333.59	258.28	336.33	258.51	341.54	258.2	342.59	258.13
343.42	258.21	348.05	258.35	353.28	258.13	353.62	258.14	353.7	258.14
363.74	257.85	365.22	257.92	366	257.82	369.91	257.86	371.26	257.91
373.05	257.86	375.52	257.74	378.29	257.73	379.33	257.7	380.29	257.65
385.2	257.59	390.99	257.83	391.75	257.85	395.58	257.66	396.62	257.69
399.49	257.65	403.1	257.65	404.38	257.58	408.99	257.46	414.41	257.45
415.25	257.28	416.63	257.37	421.52	257.44	425.16	257.44	429.07	257.7
430.65	257.61	434.34	257.41	438.3	257.25	439.49	257.23	440.76	257.17
445.81	257.26	450.28	257.24	451.95	257.24	457.51	257.4	457.79	257.41
457.93	257.4	462.88	257.55	466.46	257.49	472.19	257.16	475.05	257.09
476.03	257.06	476.97	257.06	480.56	257.13	482.98	257.19	488.74	257.15
489.78	257.15	491.05	257.18	493.78	257.22	496.06	257.23	499	257.13
502.66	257.2	505.6	257.23	507.94	257.15	512.6	257.04	516.82	257.01
518.14	257.04	522.02	257.12	526.95	257.2	527.13	257.2	527.4	257.18
531.5	256.92	534.35	257.06	536.75	257.18	539.66	257.05	543.24	256.92
545.62	256.91	548.02	257.02	551.66	257.19	557.01	257.25	559.96	257.39
562.7	257.33	566.04	257.49	567.05	257.59	577.92	258.06	582.48	257.93
589.19	257.69	593.17	257.55	595.73	257.48	600.53	257.31	605.83	257.16
616.14	257.28	618.96	257.22	625.59	256.97	633.39	257.27	634.14	257.27
643.22	257.09	644	257.1	645.18	257.09	656.21	257.24	661.53	256.88

663.6	256.61	666.57	256.68	669.5	256.67	673.71	256.55	677.1	256.58
680.71	256.7	685.04	256.68	688.5	256.75	689.62	256.73	691.01	256.81
691.24	256.82	695.68	256.91	700.53	256.97	702.47	256.85	703.3	256.9
708.86	256.77	712.34	256.72	714.59	256.71	720.03	257.12	720.56	257.2
721.02	257.21	721.35	257.19	727.8	257.34	727.92	257.34	732.84	257.12
736.57	256.96	737.87	256.92	746.21	256.99	749.53	256.96	752.28	257.1
753.56	257.35	759.09	257.31	759.78	257.3	761.71	257.17	765.42	256.8
766.8	256.8	770.57	256.56	773.04	256.58	780.82	255.91	781.59	255.93
782.55	255.63	784.44	255.41	784.94	255.37	791.45	255.56	793.86	255.43
796.9	255.46	801.59	255.76	803.49	255.46	806.08	255.18	809.25	255.59
812.4	255.73	814.37	255.88	815.33	255.8	818	255.75	821.62	255.73
824.84	255.68	828.45	255.82	832.54	255.65	837.14	255.6	837.32	255.6
841.63	255.37	845.76	255.13	846.24	255.11	847.23	255.08	853.82	254.76
854.91	254.74	857.5	254.56	860.33	254.48	861.87	254.67	863.75	254.98
865.62	255.49	870.37	255.9	873.29	255.88	874.75	255.94	880.36	255.91
882.84	255.96	884.86	256.11	886.89	256.38	890.03	256.32	892.89	256.18
894.36	256.26	898.44	256.25	898.9	256.27	899.15	256.25	901.96	256.19
905.26	256.19	908.16	256.13	910.34	255.85	912.66	255.74	916.99	255.51
921.33	255.82	921.56	255.81	927.6	255.41	929.98	255.56	932.17	255.37
934.44	255.2	936.52	255.14	938.05	255.37	942.49	255.46	943.43	255.56
944.02	255.58	944.42	255.58	947.07	255.75	950.01	255.6	951.5	255.51
953.62	255.75	954.64	255.88	957.14	255.67	959.07	255.59	960.09	255.63
962.11	255.9	963.61	255.99	968.46	255.91	972.26	255.92	974.02	255.89
976.18	256.07	979.4	256.42	983.7	256.72	987.62	256.86	989.03	256.8
990.22	256.79	992.06	256.8	993.82	256.54	996.45	256.48	998.19	256.13
1001.16	255.29	1003.03	254.85	1011.87	253.38	1012.71	252.95	1013.95	252.3
1016.37	251.6	1023.93	251.6	1065.62	251.6	1074.66	251.6	1077.98	256.21
1079.44	257.5	1079.77	257.78	1079.99	257.8	1080.94	257.86	1087.37	258.27
1089.87	258.22	1092.69	258.29	1095.69	258.42	1098.26	258.61	1099.03	258.66
1105.95	258.5	1107.47	258.28	1111.16	258.17	1113.51	257.96	1117.68	258.51
1117.8	258.51	1118.16	258.5	1123.22	258.08	1125.27	258.03	1126.63	258.09
1128.39	257.98	1130.73	258.09	1133.96	257.99	1136	258.02	1139.56	258.07
1140.78	258.03	1143.54	257.98	1146.04	258.13	1147.91	258.09	1152.29	257.89
1155.5	257.78	1156.81	257.72	1158.69	257.93	1160.11	258.02	1161.52	258.09
1166.12	258.26	1168.72	258.63	1172.1	258.88	1187.88	259.31	1189.99	259.25
1192.79	259.54	1196.95	259.6	1200.56	259.5	1205.03	259.77	1207.08	259.87
1207.69	259.97	1208.87	260.18	1212.84	260.99	1218.19	262.44	1219.87	263.06
1222.16	263.37	1224.34	263.9	1230.81	265.83	1239.52	268.21	1239.62	268.24
1239.7	268.26	1241.44	268.68	1245.94	269.7	1246.68	269.9	1259.38	273.7
1261.25	274.23	1261.52	274.31	1262.2	274.48	1265.07	275.13	1268.76	275.95
1282.71	278.89	1282.99	278.94	1283.11	278.99	1283.33	279.03	1286.97	279.8
1288.39	280.05	1290.83	280.51	1295.59	281.16	1296.43	281.27	1297.49	281.49
1298.77	281.55	1303.23	282.03	1306.69	282.56	1307.26	282.74	1309.58	283.55
1312.16	284.15	1314.12	284.44	1327.79	287.95	1328.1	288.02	1328.22	288.04
1328.25	288.04	1331.98	287.81	1332.52	287.77	1341.41	287.22	1345.97	287.37
1364.33	288.34	1366.23	288.44	1379.88	289.73	1385.52	289.77	1386.75	289.88
1387.18	289.93	1388.29	290.08	1390.2	290.73	1397.84	291.51	1403.92	291.84
1405.19	291.88	1405.99	292	1430.53	293.2	1441.1	293.67	1441.34	293.69
1442.37	293.68	1449.05	293.5	1452.08	293.37	1453.22	293.28	1456.06	293.03
1458.95	293.19	1461.21	293.39	1462.28	293.34	1464.26	293.31	1467.63	293.13

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 1470.28  293.24 1473.69  293.25 1474.46  293.23 1474.88  293.25 1476.95  293.26
  1479.1  293.32 1479.52  293.33 1482.41  293.57 1483.47  293.51 1488.55  293.61
 1488.72  293.61 1488.77  293.61 1494.08  293.66 1497.56  293.82 1499.44  293.76
 1501.23  293.94 1508.49  294.12 1509.66   294.1 1513.75  293.78 1514.16  293.79

Manning's n Values        num=       9
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  691.24     .12  998.19     .04 1012.71     .04 1023.93     .04
 1065.62     .04 1077.98     .05 1079.99     .12 1265.07     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        998.19 1077.98             207   577.5  465.88             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 1350.32  1385.5291.8564 1408.33 1436.19294.6162

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           258.17    Element                  Left OB    Channel
Right OB
  Vel Head (ft)              0.25    Wt. n-Val.                0.098      0.040
  0.054
  W.S. Elev (ft)           257.92    Reach Len. (ft)          207.00     577.50
 465.88
  Crit W.S. (ft)           255.55    Flow Area (sq ft)        770.47     452.16
   2.46
  E.G. Slope (ft/ft)      0.001576   Area (sq ft)             770.47     452.16
   2.46
  Q Total (cfs)            2671.00   Flow (cfs)               601.36    2068.09
   1.55
  Top Width (ft)            719.26   Top Width (ft)           628.66      79.79
  10.81
  Vel Total (ft/s)            2.18   Avg. Vel. (ft/s)           0.78       4.57
   0.63
  Max Chl Dpth (ft)           6.32   Hydr. Depth (ft)           1.23       5.67
   0.23
  Conv. Total (cfs)        67271.9   Conv. (cfs)              15145.9    52087.0
   39.0
  Length Wtd. (ft)          529.76   Wetted Per. (ft)         629.60      82.80
  11.42
  Min Ch El (ft)            251.60   Shear (lb/sq ft)           0.12       0.54
   0.02
  Alpha                       3.44   Stream Power (lb/ft s)  1514.16       0.00
   0.00
  Frctn Loss (ft)             0.66   Cum Volume (acre-ft)     136.85     157.42
  66.72
  C & E Loss (ft)             0.01   Cum SA (acres)            61.18      24.08
  35.79
```

Warning: Divided flow computed for this cross-section.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	262.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.073	0.040	0.116
W.S. Elev (ft)	262.25	Reach Len. (ft)	207.00	577.50	465.88
Crit W.S. (ft)	259.25	Flow Area (sq ft)	4044.26	797.56	499.53
E.G. Slope (ft/ft)	0.000777	Area (sq ft)	4044.26	797.56	499.53
Q Total (cfs)	10810.00	Flow (cfs)	6658.11	3737.85	414.04
Top Width (ft)	1068.28	Top Width (ft)	848.99	79.79	139.50
Vel Total (ft/s)	2.02	Avg. Vel. (ft/s)	1.65	4.69	0.83
Max Chl Dpth (ft)	10.65	Hydr. Depth (ft)	4.76	10.00	3.58
Conv. Total (cfs)	387894.8	Conv. (cfs)	238912.6	134125.1	14857.1
Length Wtd. (ft)	406.86	Wetted Per. (ft)	850.14	82.80	140.59
Min Ch El (ft)	251.60	Shear (lb/sq ft)	0.23	0.47	0.17
Alpha	2.27	Stream Power (lb/ft s)	1514.16	0.00	0.00
Frctn Loss (ft)	0.35	Cum Volume (acre-ft)	420.69	252.30	261.93
C & E Loss (ft)	0.01	Cum SA (acres)	89.48	24.09	56.58

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the

largest [smallest] entered value. The user may
         wish to examine this cross section and enter a single n value for the
entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	263.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.072	0.040	0.117
W.S. Elev (ft)	263.01	Reach Len. (ft)	207.00	577.50	465.88
Crit W.S. (ft)	259.48	Flow Area (sq ft)	4693.72	857.99	606.08
E.G. Slope (ft/ft)	0.000715	Area (sq ft)	4693.72	857.99	606.08
Q Total (cfs)	12761.00	Flow (cfs)	8170.66	4049.59	540.75
Top Width (ft)	1090.17	Top Width (ft)	868.64	79.79	141.74
Vel Total (ft/s)	2.07	Avg. Vel. (ft/s)	1.74	4.72	0.89
Max Chl Dpth (ft)	11.40	Hydr. Depth (ft)	5.40	10.75	4.28
Conv. Total (cfs)	477362.0	Conv. (cfs)	305647.2	151486.6	20228.2
Length Wtd. (ft)	396.42	Wetted Per. (ft)	869.81	82.80	142.96
Min Ch El (ft)	251.60	Shear (lb/sq ft)	0.24	0.46	0.19
Alpha	2.11	Stream Power (lb/ft s)	1514.16	0.00	0.00
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	490.36	270.30	305.40
C & E Loss (ft)	0.01	Cum SA (acres)	92.99	24.09	59.15

Warning: When the Manning's n value for the channel was composited, the computed n
value was larger [smaller] than the
         largest [smallest] user entered n value. The n value has been set to the
largest [smallest] entered value. The user may
         wish to examine this cross section and enter a single n value for the
entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	265.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.070	0.040	0.117
W.S. Elev (ft)	265.27	Reach Len. (ft)	207.00	577.50	465.88
Crit W.S. (ft)	260.34	Flow Area (sq ft)	6745.51	1038.61	938.67
E.G. Slope (ft/ft)	0.000597	Area (sq ft)	6745.51	1038.61	938.67
Q Total (cfs)	19382.00	Flow (cfs)	13314.90	5089.24	977.85
Top Width (ft)	1174.49	Top Width (ft)	943.75	79.79	150.95
Vel Total (ft/s)	2.22	Avg. Vel. (ft/s)	1.97	4.90	1.04
Max Chl Dpth (ft)	13.67	Hydr. Depth (ft)	7.15	13.02	6.22
Conv. Total (cfs)	793232.8	Conv. (cfs)	544929.1	208283.7	40019.9
Length Wtd. (ft)	375.02	Wetted Per. (ft)	945.04	82.80	152.46
Min Ch El (ft)	251.60	Shear (lb/sq ft)	0.27	0.47	0.23
Alpha	1.83	Stream Power (lb/ft s)	1514.16	0.00	0.00
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	696.24	320.62	435.45
C & E Loss (ft)	0.01	Cum SA (acres)	102.02	24.09	65.68

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 11770.05

INPUT

Description: not interplated
Station Elevation Data num= 423

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	267.82	5.92	267.57	14.48	267.22	19.61	267.33	21	267.32
26.15	267.01	30.83	266.61	33.22	266.41	34.65	266.3	36.62	266.15
39.61	266.09	43.8	266	47.7	265.9	48.93	265.92	52	265.98
52.65	265.95	53.32	265.85	57.96	265.21	65.46	265.19	68.63	265.2
70.16	265.12	73.45	265.08	77.33	264.74	77.96	264.71	79.37	264.59
81.12	264.42	86.16	264.38	88.99	264.32	91.83	264.17	96.72	264.06
97.56	264.01	101.04	264.07	108.58	263.69	109.63	263.58	111.64	263.39
114.73	263.2	115.65	263.07	118.12	262.94	123.3	262.66	126.59	262.66
127.21	262.64	128.14	262.6	132.3	262.36	133.31	262.41	136.69	262.14
138.95	262.01	141.54	261.94	144.12	261.93	145.66	261.86	149.36	261.72
152.85	261.48	154.23	261.48	156.31	261.43	159.43	261.23	162.18	261.07
164.13	261	166.52	261.04	168.4	261	170.08	261.09	172.95	260.82
176.67	260.61	177.67	260.43	181.28	260.38	183.47	260.39	187.49	260.3
192.23	260.25	193.29	260.21	194.74	260.19	196.95	259.88	202.14	260.11
204.33	259.97	207.98	259.7	212.06	259.47	214.85	259.32	218.39	259.08
220.42	259.19	223.51	259.23	228.84	259.27	232.91	259.23	238.79	259.44
239.78	259.53	242.18	259.54	243.59	259.33	251.67	258.65	256.36	258.82
258.25	258.71	262.39	258.55	264.6	258.76	281.4	258.17	283.5	258.12
284.25	258.1	288.82	258.13	291.25	258.11	293.88	258.03	298.97	257.82
298.98	257.82	305.01	258.15	305.31	258.1	306.12	258.12	313.79	257.68
313.95	257.67	319.12	257.49	320.7	257.38	329.15	257.62	329.67	257.62
330.19	257.59	334.37	257.33	334.98	257.35	337.91	257.5	339.68	257.49
343.33	257.49	345.3	257.47	348.67	257.38	350.99	257.28	353.27	257.54
355.66	257.68	358.1	257.62	359.6	257.55	361.88	257.69	363.27	257.71
369.34	257.27	372.9	257.14	375.14	257.18	376.66	257.05	379.87	257.3
382.12	257.3	383.88	257.17	384.25	257.15	385.64	257.11	386.69	257.24
388.13	257.42	388.36	257.41	394.83	256.97	396.09	256.94	399.74	256.7
399.86	256.69	399.9	256.69	402.34	256.59	406.07	256.32	407.03	256.3
407.3	256.29	409.48	256.53	413.51	256.67	414.19	256.7	414.9	256.66
418.79	256.57	421.37	256.47	422.7	256.45	425.73	256.5	429.54	256.5
431.05	256.38	433.61	256.27	436.64	256.3	439.5	256.19	442.93	256.14
444.43	256.07	445.33	256.09	446.76	256.07	450.19	256.18	451.27	256.2
452.57	256.25	454.45	256.17	457.44	256.05	459.3	256.24	460.53	256.26
460.9	256.26	464.67	256.26	465.71	256.33	466.98	256.61	469.83	256.47
475.74	256.68	479.11	256.61	479.51	256.66	485.3	256.33	486.94	256.24
488.73	256.16	492.27	255.83	493.65	255.7	500.19	253.49	501.13	253.17
506.99	250.79	508.19	250.4	508.83	249.85	515.96	249.85	516	249.85
520.28	249.85	520.33	249.85	526.05	249.85	542.87	249.86	552.74	249.86
562.86	249.87	570.19	249.87	571.35	249.87	572.79	250.38	576.37	251.57
579.5	253.13	583.74	253.21	586.57	253.28	588.04	253.29	591.87	253.76
595.28	254.29	595.95	254.46	597.21	254.64	600.63	255.15	602.21	255.1
607.24	255.51	609.03	255.62	612.16	255.71	614.66	255.78	615.26	255.78
616.35	255.95	623.6	257.14	624.09	257.17	627.42	257	629.17	256.94
634.9	257.2	636.59	257.31	639.08	257.61	642.93	257.46	643.81	257.71
645.25	258.22	649.89	258.37	649.99	258.37	650.11	258.36	653.63	258.31
659.36	258.2	659.55	258.19	659.61	258.2	660.46	258.1	664.29	257.7
670.51	257.94	671.18	257.98	671.39	257.98	671.47	257.97	673.87	257.82

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  677.87  257.51   678.6   257.5  680.87  257.55  681.13  257.54  681.65  257.51
  683.95  257.39   686.7  257.35  688.99  257.58  690.41  257.72  694.37  257.64
  698.29  257.45  700.05   257.6   701.3  257.62  705.16  257.39  710.35  257.28
  711.39  257.23  711.93  257.24  712.47  257.27  719.36  257.53  719.47  257.54
  722.93  257.42  723.47  257.45  729.68  257.41  730.76  257.31  732.83  257.14
  738.07  257.06  743.14   256.9  745.74  257.08  746.87  257.07  752.81  256.82
  754.44  256.84  756.58  257.03  759.19  257.05  763.83  256.95  763.87  256.95
  764.05  256.95     767  256.97  773.61  256.69  774.17   256.7   774.9  256.69
  781.34  256.42  784.09  256.64  787.13  256.38  789.14  256.07  791.54  255.85
   796.2  255.55  797.95  255.48  801.32   255.4  804.04  255.45  808.09  255.63
  810.91   255.7  814.08  256.11  817.76  256.12  819.59  256.03  820.93  256.02
  827.65  256.42  828.66  256.47  828.84  256.49  832.06  256.24  832.57   256.2
  837.27  256.71   843.4  256.28  844.59   256.1  846.65  255.93  849.17  255.64
  850.56  255.65  852.51  255.71   854.2  255.71  857.25  255.57  861.33  255.58
   863.1  255.55  868.98   255.7  872.56  255.63  873.44  255.68  874.93   255.7
     879  255.81  882.72  256.01  883.54  256.04  885.56   256.1  893.47  256.34
  893.71  256.35  896.92  256.78  896.95  256.78  902.77  256.67  905.66  256.71
  907.69  256.76  908.46  256.73  909.88  256.64  912.81  256.51  914.71  256.57
   916.7  256.51  918.43  256.53   921.5  256.56  925.25  256.57  927.76   256.7
  929.06  256.65  933.12  256.79  935.96  256.95  937.27  257.02  939.63  257.07
  940.38  257.04   940.8  257.03  942.51  257.05  948.39  257.03  951.03  257.03
  953.28  256.89  957.11  257.19  959.56  257.33  960.89  257.36  964.23  257.39
  968.96  257.36  970.76  257.41  975.86  257.42  978.26  257.45  978.85   257.5
  979.37  257.52  983.25  257.85  986.32  258.09  987.51  258.19  988.02  258.21
  988.73  258.24  991.19  258.23  992.43  258.24  997.41  258.34  999.29  258.39
 1001.73  258.44 1002.95  258.51 1007.17  258.73 1009.67   258.9 1012.81  259.28
 1015.72  259.43 1017.86  259.52 1020.02  259.92 1021.61  260.41 1022.24   260.5
 1023.84  260.73 1024.76  260.86  1026.1  261.17 1028.73  261.77 1030.45  262.22
 1032.82  262.65 1035.36  263.33 1037.62  263.73 1040.71  264.42 1043.73  265.14
 1044.63  265.36 1048.85  266.42 1050.42  266.74 1054.82  267.39 1056.93  267.63
 1058.78  267.67 1062.87  268.11    1064  268.16 1067.66  268.39 1071.82   268.8
 1074.17  268.94 1075.12  269.02 1075.98  269.08  1078.7  269.03 1079.93  269.17
 1084.72  269.57 1085.94  269.62 1086.38  269.68 1090.59  270.19 1093.03  270.47
 1093.42  270.53  1093.7  270.59 1098.36  271.35 1101.69  271.59 1102.87  271.77
 1104.01  272.02 1109.65  273.35 1112.77  273.95 1115.95  274.82 1116.65  274.97
 1116.96  275.03 1119.33  275.51 1121.52  275.92 1148.77  281.73 1151.38  281.79
 1153.53  281.54 1155.49  281.32 1159.05  281.11 1162.26  281.01 1163.82  281.01
 1164.55  281.01  1165.3  281.01 1167.33  281.02

Manning's n Values        num=       9
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  460.53     .12  492.27     .04  493.65     .04  515.96     .04
  570.19     .04  591.87     .04  597.21     .12 1022.24     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        492.27  597.21           327.44  303.61  203.08             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1127.76 1139.65281.9486
```

CROSS SECTION OUTPUT Profile #10%

E.G. Elev (ft)	257.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.062	0.040	0.120
W.S. Elev (ft)	257.28	Reach Len. (ft)	327.44	303.61	203.08
Crit W.S. (ft)	253.59	Flow Area (sq ft)	87.82	644.86	243.25
E.G. Slope (ft/ft)	0.001008	Area (sq ft)	87.82	644.86	243.25
Q Total (cfs)	2671.00	Flow (cfs)	59.24	2521.47	90.29
Top Width (ft)	490.72	Top Width (ft)	116.99	104.94	268.80
Vel Total (ft/s)	2.74	Avg. Vel. (ft/s)	0.67	3.91	0.37
Max Chl Dpth (ft)	7.43	Hydr. Depth (ft)	0.75	6.15	0.90
Conv. Total (cfs)	84118.6	Conv. (cfs)	1865.7	79409.5	2843.5
Length Wtd. (ft)	293.69	Wetted Per. (ft)	117.17	106.85	269.33
Min Ch El (ft)	249.85	Shear (lb/sq ft)	0.05	0.38	0.06
Alpha	1.93	Stream Power (lb/ft s)	1167.33	0.00	0.00
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	134.81	150.15	65.41
C & E Loss (ft)	0.01	Cum SA (acres)	59.41	22.86	34.30

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	262.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.056	0.040	0.120
W.S. Elev (ft)	261.75	Reach Len. (ft)	327.44	303.61	

203.08					
Crit W.S. (ft)	258.70	Flow Area (sq ft)	1263.53	1114.25	2050.80
E.G. Slope (ft/ft)	0.000948	Area (sq ft)	1263.53	1114.25	2050.80
Q Total (cfs)	10810.00	Flow (cfs)	2504.62	6081.69	2223.69
Top Width (ft)	880.14	Top Width (ft)	343.76	104.94	431.44
Vel Total (ft/s)	2.44	Avg. Vel. (ft/s)	1.98	5.46	1.08
Max Chl Dpth (ft)	11.90	Hydr. Depth (ft)	3.68	10.62	4.75
Conv. Total (cfs)	351184.6	Conv. (cfs)	81367.6	197576.0	72240.9
Length Wtd. (ft)	275.36	Wetted Per. (ft)	344.27	106.85	432.55
Min Ch El (ft)	249.85	Shear (lb/sq ft)	0.22	0.62	0.28
Alpha	3.01	Stream Power (lb/ft s)	1167.33	0.00	0.00
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)	408.08	239.62	248.29
C & E Loss (ft)	0.01	Cum SA (acres)	86.64	22.87	53.53

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	262.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.	0.055	0.040	0.120
W.S. Elev (ft)	262.54	Reach Len. (ft)	327.44	303.61	203.08
Crit W.S. (ft)	259.16	Flow Area (sq ft)	1543.01	1196.97	2392.18
E.G. Slope (ft/ft)	0.000898	Area (sq ft)	1543.01	1196.97	2392.18
Q Total (cfs)	12761.00	Flow (cfs)	3298.73	6669.68	2792.60
Top Width (ft)	903.05	Top Width (ft)	363.10	104.94	435.01
Vel Total (ft/s)	2.49	Avg. Vel. (ft/s)	2.14	5.57	1.17
Max Chl Dpth (ft)	12.69	Hydr. Depth (ft)	4.25	11.41	

```
   5.50
  Conv. Total (cfs)       425942.7    Conv. (cfs)             110106.4   222623.6
93212.7
  Length Wtd. (ft)          274.26    Wetted Per. (ft)          363.63     106.85
 436.20
  Min Ch El (ft)            249.85    Shear (lb/sq ft)            0.24       0.63
   0.31
  Alpha                       2.86    Stream Power (lb/ft s)   1167.33       0.00
   0.00
  Frctn Loss (ft)             0.31    Cum Volume (acre-ft)      475.54     256.67
 289.37
  C & E Loss (ft)             0.01    Cum SA (acres)             90.07      22.87
  56.06
```

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #.2%

```
  E.G. Elev (ft)            265.14    Element                   Left OB    Channel
Right OB
  Vel Head (ft)               0.28    Wt. n-Val.                 0.054      0.040
  0.119
  W.S. Elev (ft)            264.86    Reach Len. (ft)           327.44     303.61
 203.08
  Crit W.S. (ft)            260.35    Flow Area (sq ft)        2446.26    1440.66
3414.30
  E.G. Slope (ft/ft)      0.000788    Area (sq ft)             2446.26    1440.66
3414.30
  Q Total (cfs)           19382.00    Flow (cfs)               6155.44    8513.24
4713.32
  Top Width (ft)            966.64    Top Width (ft)            416.34     104.94
 445.36
  Vel Total (ft/s)            2.65    Avg. Vel. (ft/s)            2.52       5.91
   1.38
  Max Chl Dpth (ft)          15.01    Hydr. Depth (ft)            5.88      13.73
   7.67
  Conv. Total (cfs)       690241.4    Conv. (cfs)              219210.5   303177.8
167853.1
  Length Wtd. (ft)          272.66    Wetted Per. (ft)          416.96     106.85
 446.81
  Min Ch El (ft)            249.85    Shear (lb/sq ft)            0.29       0.66
   0.38
  Alpha                       2.53    Stream Power (lb/ft s)   1167.33       0.00
   0.00
  Frctn Loss (ft)             0.27    Cum Volume (acre-ft)      674.40     304.19
 412.17
  C & E Loss (ft)             0.01    Cum SA (acres)             98.79      22.87
```

62.49

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 11466.44

INPUT
Description: not interpolated
Station Elevation Data num= 426

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	269.63	.72	269.6	4.68	269.48	5.5	269.44	6.28	269.42
7.09	269.38	10.68	268.61	12.5	268.16	13.15	268.19	15.33	267.98
24.95	267.09	26.62	266.96	27.46	266.79	30.04	266.81	34.13	266.6
39.42	266.34	41.99	266.15	43.02	266.14	46.23	265.48	52.08	264.66
53.81	264.59	54.75	264.53	65.21	263.58	65.47	263.52	67.57	263.17
67.68	263.17	68.37	263.11	73.17	262.74	74.9	262.74	75.45	262.73
79.66	262.37	80.78	262.27	81.22	262.24	93.48	261.95	98.49	261.3
101.32	261.17	103.03	261.14	109.94	261.06	114.17	261.25	116.72	261.06
125.1	260.05	128.33	259.87	130.43	259.82	132.12	259.83	135.95	260.27
137.89	260.26	140.69	259.91	146.59	259.48	148.56	259.16	150.83	259.04
153.48	258.86	160.1	258.65	166.13	258.18	169.36	257.94	170.15	257.95
179.42	257.67	182.06	257.59	182.99	257.46	185.73	257.36	189.1	257.29
192.14	257.08	195.32	257.06	197.31	257.03	202.45	256.93	203.74	257.02
205.72	256.93	207.36	256.97	210.9	256.85	213.28	256.85	221.6	256.92
223.91	256.86	228.82	256.4	230.67	256.46	231.83	256.5	233.08	256.39
236.84	256.3	238.56	256.25	242.57	256.42	243.32	256.52	244.38	256.49
247.34	256.35	252.02	256.23	252.47	256.21	254.21	256.3	255.85	256.29
259.85	256.4	261.33	256.28	261.97	256.25	263.02	256.2	267.63	256.39
269.07	256.39	272.53	256.68	274.57	256.76	275.85	256.73	277.63	256.74
281.66	254.44	286.4	253.06	287.79	252.65	289.78	249.7	294.35	249.7
303.72	249.7	317.6	249.7	324.51	249.7	329.35	249.7	329.99	250.02
331.94	251.01	332.47	251.29	333.78	251.37	335.44	251.52	337.94	251.73
339.29	252.48	341.11	252.94	345.42	253.21	347.56	253.67	347.59	253.67
347.63	253.67	358.56	254.39	360.68	254.01	363.02	253.77	365.64	253.74
370.67	253.2	375.4	253.13	378.4	253	383	253.28	383.88	253.29
384.28	253.35	386.09	253.57	390.81	253.69	394.94	253.78	399.11	254.14
399.41	254.14	401.36	254.31	405.29	254.51	406.71	254.61	407.78	254.45
410.76	254.29	414.43	254.84	417.09	254.78	420.3	254.44	422.19	254.8
423.63	254.94	428.08	254.93	429.75	254.98	430.37	255	432.1	255.01
435.93	255.44	437.48	255.55	441.89	255.37	445.24	255.37	447.69	255.26
450.49	255.28	455.37	255.22	459.94	255.36	462.16	255.42	462.96	255.58
467.11	255.66	468.37	255.74	469.01	255.71	470.51	255.75	474.44	255.69
475.13	255.82	477.37	255.75	478.64	255.64	480.13	255.79	483.88	256.06
484.37	255.99	486.35	255.89	488.92	255.91	491.68	255.89	492.99	255.7

494.14	255.7	496.03	255.7	499.57	256.07	505.42	256.06	506.8	256.04
507.54	256.06	509.64	256.18	509.97	256.2	511.13	256.14	515.56	256.11
517.87	255.96	517.92	255.96	518.06	255.94	521.47	255.47	523.54	255.21
525.11	255.06	528.26	254.93	531.5	254.56	532.77	254.51	537.02	254.23
538.54	254.09	538.9	254.17	539.48	254.18	542.6	254.35	545.9	254.4
549.64	254.21	554.55	254.65	555.05	254.7	555.37	254.68	558.05	254.45
559.25	254.37	562.32	254.94	563.7	255.11	570.94	254.77	570.96	254.77
570.99	254.77	575.46	254.24	578.64	253.37	583.82	252.73	588.1	252.66
589.15	253.06	591.43	253.64	593.62	254.3	594.34	254.42	595.69	254.55
599.07	255.1	601.15	254.82	606.86	254.92	609.2	255.02	610.36	255.03
612.77	255.04	616.05	254.99	620.31	255.23	623.81	255.3	625.05	255.44
628.65	255.85	629.43	255.81	633.94	255.95	639.27	255.83	639.46	255.83
639.61	255.84	639.97	255.84	643.84	255.9	645.22	255.92	645.53	255.94
646.55	255.97	654.14	256.24	654.54	256.25	657.38	256.26	658.5	256.27
662.97	256.29	668.48	256.46	669.21	256.51	672.97	256.35	673.06	256.35
673.22	256.35	679.1	256.34	682.89	256.34	683.91	256.34	685.78	256.29
686.73	256.27	687.26	256.28	692.97	256.47	697.08	256.74	698.24	256.85
700.49	256.75	701.2	256.71	701.58	256.71	707.06	256.88	711.64	256.71
712.92	256.67	716.07	256.69	717.86	256.62	720.03	256.59	721.99	256.47
723.47	256.49	726.06	256.63	729.42	256.75	730.46	256.74	734.17	256.65
737.07	256.33	738.52	256.17	740.34	256.21	742.65	256.3	744.87	256.38
747.8	256.37	753.1	256.24	754.23	256.2	756.37	256.36	759.21	256.6
760.73	256.67	769.67	256.35	769.98	256.34	770.66	256.51	772.86	256.76
773.57	256.76	778.77	256.55	783.34	256.38	784.77	256.39	787.94	256.51
789.61	256.53	791.21	256.5	797.69	256.85	799.93	256.69	805.16	256.42
808.35	256.69	810.15	256.77	811.81	256.71	814.21	256.48	816.41	256.59
818.79	256.65	821.5	256.54	823.49	256.51	824.11	256.47	826.09	256.57
830.55	256.75	836.04	257.05	839.29	257.03	839.75	257.01	840.26	257.01
841.29	256.97	846.36	256.78	847.56	256.97	848.65	256.85	852.96	257.1
858.9	257.09	858.94	257.09	862.58	257.41	864.66	257.34	868.42	257.37
870.25	257.44	873.2	257.61	875.98	257.72	876.91	257.83	879.83	258.02
883.27	258.3	887.45	258.52	894.63	258.72	896.9	258.43	900.36	258.18
901.94	258.26	906.47	258.52	911.12	258.54	911.16	258.53	911.21	258.54
911.27	258.54	914.3	258.75	915.95	259	918.98	259.28	925.5	259.52
925.68	259.53	925.84	259.54	926.68	259.51	929.07	259.38	929.57	259.4
930.35	259.42	935.2	259.7	939.64	260.07	941.06	260.22	944.51	260.5
946.77	260.62	948.95	260.6	951.04	260.61	951.27	260.61	953.53	261.18
955.18	261.56	957.96	261.77	961.61	261.55	962.89	261.8	965.1	262.34
970.69	262.83	971.72	262.96	974.53	263.49	976.9	263.95	981.48	264.65
981.84	264.69	982.43	264.78	984.92	265.29	986.38	265.52	988.69	266.02
990.84	266.35	993.02	266.72	995.36	267	997.03	267.26	1000.27	267.78
1001.08	267.87	1003.15	268.19	1007.13	268.8	1009.3	269.05	1013.67	269.34
1014.34	269.37	1023.9	269.92	1026.02	270.05	1027.04	270.11	1028.88	270.18
1032.76	270.18	1037.77	270.97	1039.07	271.12	1040.37	271.36	1043.37	271.71
1043.68	271.8	1044.56	271.88	1049.39	272.47	1052.91	273.3	1054.71	273.49
1056.82	273.75	1059.87	274.25	1064.89	274.63	1065.12	274.65	1065.24	274.66
1065.45	274.67	1068.58	275.1	1070.81	275.19	1073.59	275.39	1076.58	275.76
1079.7	275.89	1080.84	275.93	1081.74	275.98	1085.29	276.15	1085.56	276.14
1086.02	276.17	1090.83	276.64	1094.63	277.26	1096.26	277.2	1098.38	277.22
1101.43	277.43	1102.62	277.46	1103.13	277.42	1103.49	277.39	1103.84	277.37

```
 1107.56  277.53 1113.19  277.76 1113.21  277.76 1113.23  277.76  1113.3  277.76
 1114.32  277.76

Manning's n Values        num=       9
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03   34.13     .05  179.42     .12  277.63     .12  281.66     .04
   286.4     .04  329.99     .04  358.56     .12  951.04     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        281.66  358.56           368.75  335.64   110.7             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1050.99 1051.32278.9616

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)            257.07    Element                   Left OB    Channel
Right OB
  Vel Head (ft)               0.35    Wt. n-Val.                 0.120      0.040
  0.120
  W.S. Elev (ft)            256.72    Reach Len. (ft)           368.75     335.64
 110.70
  Crit W.S. (ft)            254.65    Flow Area (sq ft)          20.94     422.06
 581.21
  E.G. Slope (ft/ft)      0.002146    Area (sq ft)               20.94     422.06
 581.21
  Q Total (cfs)             2671.00    Flow (cfs)                 7.18    2211.36
 452.46
  Top Width (ft)             574.76    Top Width (ft)            52.10      76.90
 445.75
  Vel Total (ft/s)            2.61    Avg. Vel. (ft/s)           0.34       5.24
   0.78
  Max Chl Dpth (ft)           7.02    Hydr. Depth (ft)           0.40       5.49
   1.30
  Conv. Total (cfs)        57653.3    Conv. (cfs)                154.9    47732.1
 9766.3
  Length Wtd. (ft)           285.71    Wetted Per. (ft)          52.78      79.46
 447.12
  Min Ch El (ft)             249.70    Shear (lb/sq ft)           0.05       0.71
   0.17
  Alpha                       3.36    Stream Power (lb/ft s)   1114.32       0.00
   0.00
  Frctn Loss (ft)             0.52    Cum Volume (acre-ft)      134.40     146.43
  63.48
  C & E Loss (ft)             0.03    Cum SA (acres)             58.77      22.22
  32.63
```

Warning: Divided flow computed for this cross-section.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	261.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.102	0.040	0.120
W.S. Elev (ft)	261.32	Reach Len. (ft)	368.75	335.64	110.70
Crit W.S. (ft)	258.53	Flow Area (sq ft)	610.46	775.82	3110.75
E.G. Slope (ft/ft)	0.001606	Area (sq ft)	610.46	775.82	3110.75
Q Total (cfs)	10810.00	Flow (cfs)	879.99	5276.92	4653.10
Top Width (ft)	855.79	Top Width (ft)	183.32	76.90	595.57
Vel Total (ft/s)	2.40	Avg. Vel. (ft/s)	1.44	6.80	1.50
Max Chl Dpth (ft)	11.62	Hydr. Depth (ft)	3.33	10.09	5.22
Conv. Total (cfs)	269705.7	Conv. (cfs)	21955.3	131657.3	116093.1
Length Wtd. (ft)	232.19	Wetted Per. (ft)	184.25	79.46	597.29
Min Ch El (ft)	249.70	Shear (lb/sq ft)	0.33	0.98	0.52
Alpha	4.10	Stream Power (lb/ft s)	1114.32	0.00	0.00
Frctn Loss (ft)	0.38	Cum Volume (acre-ft)	401.03	233.04	236.26
C & E Loss (ft)	0.01	Cum SA (acres)	84.66	22.24	51.14

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the

entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	262.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.	0.097	0.040	0.120
W.S. Elev (ft)	262.13	Reach Len. (ft)	368.75	335.64	110.70
Crit W.S. (ft)	259.03	Flow Area (sq ft)	762.71	838.37	3599.78
E.G. Slope (ft/ft)	0.001503	Area (sq ft)	762.71	838.37	3599.78
Q Total (cfs)	12761.00	Flow (cfs)	1222.71	5809.10	5729.19
Top Width (ft)	878.49	Top Width (ft)	195.90	76.90	605.69
Vel Total (ft/s)	2.45	Avg. Vel. (ft/s)	1.60	6.93	1.59
Max Chl Dpth (ft)	12.43	Hydr. Depth (ft)	3.89	10.90	5.94
Conv. Total (cfs)	329115.9	Conv. (cfs)	31534.6	149821.2	147760.1
Length Wtd. (ft)	228.35	Wetted Per. (ft)	196.87	79.46	607.52
Min Ch El (ft)	249.70	Shear (lb/sq ft)	0.36	0.99	0.56
Alpha	3.86	Stream Power (lb/ft s)	1114.32	0.00	0.00
Frctn Loss (ft)	0.36	Cum Volume (acre-ft)	466.88	249.58	275.40
C & E Loss (ft)	0.01	Cum SA (acres)	87.97	22.24	53.63

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
        largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
        wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	264.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.088	0.040	0.119
W.S. Elev (ft)	264.51	Reach Len. (ft)	368.75	335.64	110.70
Crit W.S. (ft)	260.24	Flow Area (sq ft)	1269.83	1020.84	5057.74
E.G. Slope (ft/ft)	0.001291	Area (sq ft)	1269.83	1020.84	5057.74
Q Total (cfs)	19382.00	Flow (cfs)	2608.85	7474.20	9298.95
Top Width (ft)	925.51	Top Width (ft)	226.64	76.90	621.97
Vel Total (ft/s)	2.64	Avg. Vel. (ft/s)	2.05	7.32	1.84
Max Chl Dpth (ft)	14.81	Hydr. Depth (ft)	5.60	13.27	8.13
Conv. Total (cfs)	539437.4	Conv. (cfs)	72609.2	208021.0	258807.2
Length Wtd. (ft)	221.02	Wetted Per. (ft)	227.73	79.46	623.99
Min Ch El (ft)	249.70	Shear (lb/sq ft)	0.45	1.04	0.65
Alpha	3.29	Stream Power (lb/ft s)	1114.32	0.00	0.00
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	660.43	295.61	392.42
C & E Loss (ft)	0.02	Cum SA (acres)	96.37	22.24	60.00

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 11130.8

INPUT
Description: not interpolated
Station Elevation Data num= 377

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	256.74	4.51	256.41	5.05	256.42	5.79	256.41	9.25	256.44
11.88	256.48	17.86	256.65	21.29	256.55	21.71	256.57	23.08	256.56
30.86	256.14	31.08	256.12	33	256.05	33.12	256.04	35.2	255.95
38.05	256.66	39.46	256.98	40.62	257.62	42.06	258.34	42.8	258.61
46.09	260.38	53.91	264.28	54.85	264.79	56.9	265.86	57.26	265.83
60.47	266.85	62.74	267.55	63.31	267.54	65.33	267.46	66.39	267.31
69.84	267.41	70.18	267.41	70.21	267.4	71.99	267.04	73.41	266.29
76.28	264.88	78.28	263.74	79.09	263.38	80.97	261.9	82.43	260.62
85.09	259.43	85.87	259.08	87.56	258.56	87.97	258.36	91.39	257.68
99.95	253.14	105.12	250.47	106.93	249.52	107.4	249.3	107.5	249.27
107.59	249.21	107.99	249.21	116.07	249.21	136.09	249.21	143.09	249.21
143.68	249.21	148.73	250.96	148.98	251.02	149.35	251.05	154.21	251.48
157.03	252	157.81	252.14	159.59	252.47	161.95	252.68	163.38	252.81
165.67	253.13	165.98	253.16	166.19	253.16	170.97	253.15	173	253.17
176.02	253.21	177.52	253.23	179.31	253.19	182.02	253.3	183.67	253.3
186.55	253.26	188.28	252.94	191.41	252.46	194.75	251.97	196.65	251.89
198.93	252.16	201.11	252.34	201.88	252.45	202.23	252.56	206.15	253.71
210.16	254.15	210.99	254.23	213.05	254.32	214.68	254.37	217.38	254.32
217.86	254.33	218.2	254.33	223.1	254.43	227.06	254.26	228.29	254.22
230.04	254.33	231.73	254.32	233.49	254.61	234.91	254.46	238.85	254.2
241.3	254.11	244.52	254.09	247.93	254.2	248.91	254.28	254.44	254.8
255.82	254.87	259.67	254.98	261.79	255.01	264.06	255.01	266.19	255.04
268.62	254.96	270.24	254.94	271.44	254.84	275.83	254.89	281.45	254.5
284.02	254.12	287.88	253.89	290.94	253.91	294.63	254.22	298.86	254.28
302.42	254.54	302.96	254.58	303.21	254.57	308.79	254.11	314.51	254.58
315.2	254.59	315.9	254.56	319.48	254.67	321.72	254.14	324.98	254.69
328.77	255.47	329.71	255.5	332.58	255.73	335.28	255.89	337.19	255.85
340.8	255.85	342.4	255.8	346.07	255.56	348.99	255.17	349.28	255.13
349.87	254.9	353.88	253.28	354.96	253.14	360.38	252.92	362.83	252.94
366.44	252.69	368.68	252.62	371.74	252.5	373.57	252.42	376.06	252.46
378.49	252.51	381.8	252.5	383.96	252.56	387.56	252.39	388.17	252.36
394.23	252.26	396.39	252.05	400.33	251.88	401.23	251.9	404.42	252.09
405.67	252.27	409.62	252.45	413.3	252.56	415.48	252.49	417.95	252.47
421.9	252.39	425.36	252.49	427.21	252.18	430.18	251.78	434.86	251.43
434.96	251.43	435.03	251.42	435.11	251.43	440.43	251.98	442.18	252.25
443.04	252.3	446.48	252.6	450.78	253.26	455.25	254.34	455.52	254.37
458.36	254.47	463.48	255.01	465.25	255.22	465.86	255.27	467.75	255.19
469.6	255.17	472.35	255.13	472.84	255.12	473.51	255.14	479.83	255.44
484.34	255.54	486.71	255.57	489.57	255.34	489.92	255.32	494.97	255.12
499.62	254.75	500.37	254.69	501.31	254.67	504.93	254.6	507.31	254.65
510.19	255.04	513.82	255.29	514.82	255.26	515.74	255.34	517.79	255.24
519.66	255.17	522.66	254.83	523	254.81	523.34	254.81	529.03	255.15
531.74	255.51	534.23	255.5	539.16	255.11	539.7	255.06	539.93	255.06
540.7	255.08	548.03	255.23	550.64	255.41	553.23	255.45	555.91	255.21
556.04	255.21	556.36	255.2	563.47	255.23	565.1	255.09	567.7	255.16
569.82	255.29	570.74	255.3	573.01	255.31	573.56	255.31	579.09	255.37
584.22	255.7	585.03	255.7	589.25	255.56	590.96	255.61	595.38	255.64
600.02	255.77	600.2	255.78	600.48	255.8	601.09	255.81	606.99	256.19
608.26	256.3	610.52	256.43	614.13	256.84	617.43	257.12	619.61	257.27

```
  622.72     257  624.89  257.09  627.03  257.11  630.69  257.34  634.19  257.65
  636.63  257.98  639.04  258.23  641.77  258.42  649.38   259.1  650.68  259.21
  650.87  259.23  650.88  259.23     651  259.26  653.38   259.7  655.61  259.94
  659.18  260.27  661.12  260.19  663.92  260.39  665.65  260.39  667.09  260.39
  670.96   260.3  672.72  260.48  676.26  260.69  679.33  260.63   681.2  260.76
  683.44  260.94  687.23  261.22  688.67  261.19  692.43  261.08  695.11  261.18
  697.24   261.4  700.14  261.48  701.71  261.51  703.02  261.57  705.94  261.62
  706.65  261.72  710.45   262.4  711.76  262.42  716.49  262.89  717.57  262.95
  721.87  263.07  723.31  263.12  724.38  263.19  728.12  263.26  732.79  263.63
  732.92  263.63  733.09  263.64  736.28  263.51  738.57   263.5  740.71  263.55
  744.02  263.64  747.61  263.77  749.85  263.82  753.14  263.94  755.26  264.07
  758.18  264.24  760.49  264.31  764.57   264.4  767.79  264.62  769.76  264.75
  771.28  264.84  772.31  264.84  775.55  264.83  777.85  264.92  780.15  265.02
  783.29  265.13  784.42  265.18  786.57  265.16  788.06  265.15  788.84  265.21
     794  265.42  799.87  266.25  800.69  266.44   801.9  266.81  803.69   267.4
  804.36  267.48  808.69  268.48  810.27  268.94  812.19  269.25  823.82  270.51
  828.84  270.87  830.56  270.95  831.98  271.01  833.83   270.9  837.92  270.62
  839.61  270.62  845.06  270.25  845.39  270.24  846.71  270.29  850.77  270.49
  851.99  270.47  853.02  270.52  856.09  270.36  858.79  270.03   860.9  269.94
  865.56  269.67   867.5  269.43  868.05   269.4  868.78  269.31  872.22  269.09
  876.44  268.42  878.88  268.23  880.02  268.19  882.04  268.16  884.53  268.16
  885.76  268.23  886.34   268.2  889.21  268.25  891.84   268.5  899.03  269.66
  906.96  271.08  909.72  271.42  911.62   271.6  918.99  272.63  922.21   272.5
  925.25   272.5  931.69  273.44  932.11   273.5  932.35  273.51  932.43  273.53
  949.64  276.13  950.84  276.31  951.87  276.38  952.09  276.43   960.7  276.97
  965.64  277.31  966.26  277.47  975.78  277.94  976.23  277.98  978.01  278.14
  979.06  278.23  985.46  278.78

Manning's n Values        num=       8
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .12   33.12     .03   91.39    .045   99.95     .04  105.12     .04
  143.09     .04  165.98     .12  649.38     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         99.95  165.98           561.91  505.91  229.13             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0   64.18  269.02       F
Blocked Obstructions     num=       4
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  816.65  827.22276.5667  900.54  912.04278.5699   940.5  974.21280.1292
  981.13  985.46280.4264

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)            256.52    Element                 Left OB    Channel
Right OB
  Vel Head (ft)               0.26    Wt. n-Val.               0.045      0.040
  0.120
```

W.S. Elev (ft)	256.26	Reach Len. (ft)	561.91	505.91	229.13
Crit W.S. (ft)	253.94	Flow Area (sq ft)	9.17	397.22	918.30
E.G. Slope (ft/ft)	0.001591	Area (sq ft)	10.42	397.22	918.30
Q Total (cfs)	2671.00	Flow (cfs)	14.94	1919.44	736.62
Top Width (ft)	521.47	Top Width (ft)	13.64	66.03	441.80
Vel Total (ft/s)	2.02	Avg. Vel. (ft/s)	1.63	4.83	0.80
Max Chl Dpth (ft)	7.05	Hydr. Depth (ft)	1.56	6.02	2.08
Conv. Total (cfs)	66972.2	Conv. (cfs)	374.7	48127.7	18469.8
Length Wtd. (ft)	453.02	Wetted Per. (ft)	6.65	67.44	443.60
Min Ch El (ft)	249.21	Shear (lb/sq ft)	0.14	0.58	0.21
Alpha	4.17	Stream Power (lb/ft s)	985.46	0.00	0.00
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	134.27	143.28	61.58
C & E Loss (ft)	0.02	Cum SA (acres)	58.50	21.67	31.51

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	261.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.042	0.040	0.120
W.S. Elev (ft)	260.88	Reach Len. (ft)	561.91	505.91	229.13
Crit W.S. (ft)	257.66	Flow Area (sq ft)	64.66	702.42	3120.38
E.G. Slope (ft/ft)	0.001693	Area (sq ft)	254.97	702.42	3120.38
Q Total (cfs)	10810.00	Flow (cfs)	235.75	5120.28	5453.97
Top Width (ft)	647.66	Top Width (ft)	64.91	66.03	

516.72					
Vel Total (ft/s)	2.78	Avg. Vel. (ft/s)	3.65	7.29	1.75
Max Chl Dpth (ft)	11.67	Hydr. Depth (ft)	3.63	10.64	6.04
Conv. Total (cfs)	262746.7	Conv. (cfs)	5730.2	124453.0	132563.5
Length Wtd. (ft)	408.63	Wetted Per. (ft)	19.56	67.44	518.79
Min Ch El (ft)	249.21	Shear (lb/sq ft)	0.35	1.10	0.64
Alpha	3.49	Stream Power (lb/ft s)	985.46	0.00	0.00
Frctn Loss (ft)	0.62	Cum Volume (acre-ft)	397.37	227.34	228.34
C & E Loss (ft)	0.00	Cum SA (acres)	83.61	21.69	49.72

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	262.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.45	Wt. n-Val.	0.041	0.040	0.119
W.S. Elev (ft)	261.68	Reach Len. (ft)	561.91	505.91	229.13
Crit W.S. (ft)	258.12	Flow Area (sq ft)	79.20	754.94	3540.58
E.G. Slope (ft/ft)	0.001691	Area (sq ft)	307.60	754.94	3540.58
Q Total (cfs)	12761.00	Flow (cfs)	318.80	5771.55	6670.65
Top Width (ft)	673.80	Top Width (ft)	67.41	66.03	540.36
Vel Total (ft/s)	2.92	Avg. Vel. (ft/s)	4.03	7.65	1.88
Max Chl Dpth (ft)	12.47	Hydr. Depth (ft)	4.23	11.43	6.55
Conv. Total (cfs)	310305.5	Conv. (cfs)	7752.2	140345.0	162208.3

Length Wtd. (ft)	404.24	Wetted Per. (ft)	20.77	67.44	542.46
Min Ch El (ft)	249.21	Shear (lb/sq ft)	0.40	1.18	0.69
Alpha	3.37	Stream Power (lb/ft s)	985.46	0.00	0.00
Frctn Loss (ft)	0.61	Cum Volume (acre-ft)	462.35	243.44	266.33
C & E Loss (ft)	0.00	Cum SA (acres)	86.85	21.69	52.18

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	264.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.	0.039	0.040	0.117
W.S. Elev (ft)	264.00	Reach Len. (ft)	561.91	505.91	229.13
Crit W.S. (ft)	259.48	Flow Area (sq ft)	126.20	908.25	4831.63
E.G. Slope (ft/ft)	0.001678	Area (sq ft)	473.05	908.25	4831.63
Q Total (cfs)	19382.00	Flow (cfs)	628.53	7823.63	10929.83
Top Width (ft)	729.59	Top Width (ft)	75.47	66.03	588.10
Vel Total (ft/s)	3.30	Avg. Vel. (ft/s)	4.98	8.61	2.26
Max Chl Dpth (ft)	14.79	Hydr. Depth (ft)	5.70	13.76	8.22
Conv. Total (cfs)	473159.8	Conv. (cfs)	15343.9	190993.1	266822.8
Length Wtd. (ft)	392.88	Wetted Per. (ft)	24.91	67.44	590.32
Min Ch El (ft)	249.21	Shear (lb/sq ft)	0.53	1.41	0.86
Alpha	3.08	Stream Power (lb/ft s)	985.46	0.00	0.00
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	653.05	288.18	

379.85
C & E Loss (ft) 0.00 Cum SA (acres) 95.09 21.69
58.46

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 10624.89

INPUT
Description: not interpolated
Station Elevation Data num= 363

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	275.91	2.22	275.79	9.3	275.7	11.75	275.52	14.39	275.41
15.95	275.2	18.34	275.17	22.17	275.13	22.62	275.13	23.2	275.09
23.93	275.08	35.22	274.23	36.11	274.16	46.59	273.21	49.38	272.9
50.78	272.76	51.83	272.78	57.6	272.17	58.39	272.12	69.59	270.66
69.68	270.64	70.14	270.53	75.63	269.22	76.3	268.98	79.01	268.02
81.63	267.01	85.94	265.37	87.87	264.6	88.16	264.53	90.39	263.91
94.46	262.86	97.15	262.12	100.24	261.36	102.58	260.64	106.48	259.36
109.7	258.52	112.51	257.94	116.66	257.24	118.42	256.87	123.73	255.44
124.56	255.24	125.95	255.09	130.73	254.33	132.09	254.2	133.17	254.17
136.57	254.09	141.42	253.97	143.54	254.27	143.76	254.29	144.15	254.28
149.71	254.29	153.76	254.15	155.69	254.06	158.31	254.18	161.05	254.25
163.01	254.13	163.92	254.21	167.14	254.3	172.41	254.12	173.39	254.13
174.1	254.13	178.43	254.27	179.14	254.29	179.23	254.29	179.8	254.26
184.62	254.12	185.26	254.09	187.61	254.03	193.85	253.96	195.57	253.83
197.64	253.98	201.23	253.81	202.62	253.79	205.76	254.08	212.45	254.64
215.18	254.74	215.84	254.77	217.95	254.86	222.35	254.58	227.38	254.63
227.68	254.64	227.89	254.65	232.31	255.04	236.03	254.6	237.31	254.53
238.93	254.78	242.19	255.4	242.8	255.41	247.62	255.06	249.11	255.02
250.97	254.96	253.59	254.99	256.61	255.12	258.17	255.19	261.33	255.27
263.43	255.24	267.65	254.71	268.26	254.66	273.82	253.77	274.58	253.67
276.66	253.56	277.57	252.56	281.32	248.77	286.07	248.77	288.1	248.77
297.03	248.77	317.62	248.76	319.32	249.21	320.68	249.57	322.98	249.28
323.7	249.38	327.39	249.56	328.39	249.63	335.76	250.21	339.33	250.03
339.95	250.08	340.94	250.09	343.87	250.05	345.44	250.15	348.62	250.24
351.35	250.13	355.43	250.29	356.8	250.36	358.33	250.42	365.02	250.86
368.7	251.9	369.32	252.02	370.37	252.14	380.48	253.15	385	253.71
385.71	253.8	386.12	253.8	388.7	253.92	389.27	253.92	390.58	253.94

392.87	253.98	393.34	253.94	395.32	253.94	395.74	253.94	398.4	253.89
401.43	253.79	401.72	253.78	402.19	253.74	402.7	253.69	407.3	253.36
412.71	253.48	413.14	253.48	413.16	253.48	413.18	253.48	413.56	253.49
416.05	253.31	416.88	253.25	420.23	253.32	422.86	253.41	425.11	253.47
427.97	253.58	429.33	253.6	431.23	253.36	432.95	253.25	433.99	253.14
437.1	253.01	441.04	253.36	441.51	253.37	442.25	253.38	444.1	253.31
446.84	253.38	449.74	253.3	452.57	253.21	456.71	253.39	458.69	253.42
460.78	253.6	464.6	253.28	467.49	253.4	468.81	253.49	470.8	253.36
472.11	253.26	474.43	253.24	474.85	253.23	475.37	253.21	480.34	252.96
484.97	252.77	486.52	252.7	488.61	252.56	491.83	252.27	494.78	252.24
496.73	252.29	499.14	252.39	501.04	252.56	502.98	252.7	506.76	252.73
509.7	252.53	512.39	252.53	515.64	252.77	520.3	252.91	520.47	252.92
525.53	252.86	526.29	252.92	528.03	252.79	532.22	252.62	533.96	252.58
538.28	252.47	539.92	252.37	543.35	252.33	549.6	253.9	551.02	254.13
553.59	254.66	563.56	255.42	564.1	255.37	567.27	255.4	580.67	255.67
589.1	255.77	589.71	255.73	593.35	255.79	600.78	255.58	606.6	255.57
606.76	255.56	607.02	255.57	613.14	255.62	613.24	255.62	613.39	255.61
619.4	255.53	619.53	255.54	625.25	255.87	625.81	255.9	625.83	255.9
632.06	256.02	632.19	256.02	638.01	256.48	638.47	256.54	638.59	256.53
644.78	257.18	644.91	257.2	651.1	257.99	651.61	258.02	657.55	257.8
658.31	257.9	662.72	258.15	664.84	258.24	668.87	258.4	670.53	258.41
671.34	258.52	675.08	258.71	676.47	258.66	677.01	258.65	677.8	258.64
681.31	258.53	683.07	258.55	683.66	258.57	686.31	258.87	689.45	259.23
690.91	259.26	693.27	259.31	694.98	259.35	695.76	259.43	696.54	259.45
697.51	259.52	698.64	259.54	700.12	259.58	704.06	259.65	704.67	259.68
706.39	259.89	708.81	260.31	714.2	260.7	717.4	260.52	719.04	260.51
723.95	260.76	725.3	260.79	730.52	260.77	731.66	260.78	734.85	260.88
736.58	260.92	740.98	260.98	743.74	261.09	747.1	261.25	752.68	261.35
754.32	261.31	757.24	261.41	757.34	261.41	760.85	261.47	763.76	261.52
763.84	261.52	767.43	261.8	770.37	262.19	770.65	262.21	774.14	262.29
776.98	262.31	777.36	262.33	783.59	262.73	784.14	262.76	787.38	263.06
790.22	263.43	791	263.56	794.07	264.08	796.86	264.56	797.93	264.79
800.88	265.27	803.61	265.8	804.95	266.03	807.75	266.47	810.31	266.82
811.91	267.03	814.52	267.43	817.07	267.69	818.85	267.82	824.5	268.71
828.08	269.23	830.45	269.45	832.67	269.52	834.8	269.81	837.11	270.04
839.59	270.31	841.57	270.44	843.73	270.56	846.39	270.83	848.34	270.89
850.4	271.06	853.25	271.18	855.09	271.09	857.09	271.17	859.98	271.15
861.76	271.17	863.75	271.13	866.77	271.22	868.39	271.18	870.36	271.11
873.43	270.92	875.04	270.97	876.96	270.89	880.18	270.92	881.97	271.04
889.48	271.16	892.04	271.06	892.96	271.03	899.58	271.16	903.51	271.11
908.28	271.12	909.5	271.05	911.21	271	914.12	270.76	917.04	270.7
920.47	270.59	924.58	270.78	927.34	270.85	931.41	271.02	934.75	271.25
935.82	271.3	939.95	271.32	945	271.38	948.88	271.27	955.19	271.17
958.07	271.24	960.17	271.3	962.27	271.34	963.04	271.34	964.28	271.31
969.13	271.34	971.05	271.58	976.14	272.03	976.82	272.18	977.86	272.25
983.16	272.58	984.66	272.62	986.83	272.81				

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	18.34	.12	273.82	.04	286.07	.04	319.32	.04

```
  385.71     .12  690.91     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        273.82  385.71           292.64   415.6  285.68             .1       .3

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)            255.92    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.18    Wt. n-Val.                0.120      0.040
  0.120
  W.S. Elev (ft)            255.74    Reach Len. (ft)          292.64     415.60
 285.68
  Crit W.S. (ft)            252.66    Flow Area (sq ft)        190.90     616.93
 451.17
  E.G. Slope (ft/ft)      0.001043    Area (sq ft)             190.90     616.93
 451.17
  Q Total (cfs)             2671.00    Flow (cfs)               88.99    2276.80
 305.20
  Top Width (ft)             492.30    Top Width (ft)           151.20     111.89
 229.21
  Vel Total (ft/s)            2.12    Avg. Vel. (ft/s)           0.47       3.69
   0.68
  Max Chl Dpth (ft)           6.98    Hydr. Depth (ft)           1.26       5.51
   1.97
  Conv. Total (cfs)         82692.8    Conv. (cfs)              2755.2    70488.7
 9448.9
  Length Wtd. (ft)           394.27    Wetted Per. (ft)         151.70     114.37
 229.72
  Min Ch El (ft)             248.76    Shear (lb/sq ft)           0.08       0.35
   0.13
  Alpha                       2.59    Stream Power (lb/ft s)   986.83       0.00
   0.00
  Frctn Loss (ft)             0.52    Cum Volume (acre-ft)     132.97     137.39
  57.98
  C & E Loss (ft)             0.02    Cum SA (acres)            57.43      20.64
  29.74


Warning: Divided flow computed for this cross-section.
Warning: When the Manning's n value for the channel was composited, the computed n
value was larger [smaller] than the
         largest [smallest] user entered n value.  The n value has been set to the
largest [smallest] entered value.  The user may
         wish to examine this cross section and enter a single n value for the
entire channel.
Note:    Manning's n values were composited to a single value in the main channel.
```

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	260.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.	0.120	0.040	0.120
W.S. Elev (ft)	260.27	Reach Len. (ft)	292.64	415.60	285.68
Crit W.S. (ft)	256.59	Flow Area (sq ft)	920.16	1123.56	1714.57
E.G. Slope (ft/ft)	0.001362	Area (sq ft)	920.16	1123.56	1714.57
Q Total (cfs)	10810.00	Flow (cfs)	1290.49	7065.77	2453.74
Top Width (ft)	604.84	Top Width (ft)	170.10	111.89	322.85
Vel Total (ft/s)	2.88	Avg. Vel. (ft/s)	1.40	6.29	1.43
Max Chl Dpth (ft)	11.51	Hydr. Depth (ft)	5.41	10.04	5.31
Conv. Total (cfs)	292897.6	Conv. (cfs)	34965.8	191447.5	66484.3
Length Wtd. (ft)	360.11	Wetted Per. (ft)	171.16	114.37	323.61
Min Ch El (ft)	248.76	Shear (lb/sq ft)	0.46	0.84	0.45
Alpha	3.21	Stream Power (lb/ft s)	986.83	0.00	0.00
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)	389.79	216.74	215.62
C & E Loss (ft)	0.01	Cum SA (acres)	82.10	20.65	47.52

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	261.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.45	Wt. n-Val.	0.120	0.040	

```
  0.119
  W.S. Elev (ft)           261.06    Reach Len. (ft)          292.64     415.60
 285.68
  Crit W.S. (ft)           257.07    Flow Area (sq ft)       1056.32    1212.48
1982.54
  E.G. Slope (ft/ft)      0.001372   Area (sq ft)            1056.32    1212.48
1982.54
  Q Total (cfs)           12761.00   Flow (cfs)              1613.76    8051.99
3095.25
  Top Width (ft)           641.81    Top Width (ft)           172.61     111.89
 357.31
  Vel Total (ft/s)           3.00    Avg. Vel. (ft/s)           1.53       6.64
   1.56
  Max Chl Dpth (ft)         12.30    Hydr. Depth (ft)           6.12      10.84
   5.55
  Conv. Total (cfs)       344478.5   Conv. (cfs)             43562.9   217360.4
83555.2
  Length Wtd. (ft)         356.96    Wetted Per. (ft)         173.79     114.37
 358.11
  Min Ch El (ft)           248.76    Shear (lb/sq ft)           0.52       0.91
   0.47
  Alpha                      3.19    Stream Power (lb/ft s)   986.83       0.00
   0.00
  Frctn Loss (ft)            0.50    Cum Volume (acre-ft)     453.55     232.02
 251.80
  C & E Loss (ft)            0.01    Cum SA (acres)            85.30      20.65
  49.82


Warning: When the Manning's n value for the channel was composited, the computed n
value was larger [smaller] than the
         largest [smallest] user entered n value.  The n value has been set to the
largest [smallest] entered value.  The user may
         wish to examine this cross section and enter a single n value for the
entire channel.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #.2%


  E.G. Elev (ft)           263.93    Element                  Left OB    Channel
Right OB
  Vel Head (ft)              0.53    Wt. n-Val.                0.120      0.040
  0.115
  W.S. Elev (ft)           263.40    Reach Len. (ft)          292.64     415.60
 285.68
  Crit W.S. (ft)           258.26    Flow Area (sq ft)       1469.56    1473.72
2885.68
  E.G. Slope (ft/ft)      0.001364   Area (sq ft)            1469.56    1473.72
```

2885.68

Q Total (cfs)	19382.00	Flow (cfs)	2695.94	11113.52	5572.55
Top Width (ft)	697.58	Top Width (ft)	181.44	111.89	404.25
Vel Total (ft/s)	3.33	Avg. Vel. (ft/s)	1.83	7.54	1.93
Max Chl Dpth (ft)	14.64	Hydr. Depth (ft)	8.10	13.17	7.14
Conv. Total (cfs)	524762.6	Conv. (cfs)	72991.8	300895.5	150875.2
Length Wtd. (ft)	349.95	Wetted Per. (ft)	182.93	114.37	405.14
Min Ch El (ft)	248.76	Shear (lb/sq ft)	0.68	1.10	0.61
Alpha	3.09	Stream Power (lb/ft s)	986.83	0.00	0.00
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)	640.52	274.34	359.56
C & E Loss (ft)	0.02	Cum SA (acres)	93.44	20.65	55.85

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 10209.28

INPUT
Description: not interpolated
Station Elevation Data num= 277

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	274.92	1.88	274.82	6.59	275	7.06	274.97	7.39	274.93
12.61	274.81	12.86	274.83	18.53	273.84	19.37	273.61	23.93	272.11
37.77	267.9	37.84	267.88	37.87	267.88	38.1	267.78	40.97	266.74
44.19	265.56	44.32	265.51	49.08	264.11	55.94	262.25	65.51	259.26
68.08	258.69	71.94	257.95	72.67	257.78	76.8	257.4	80.26	256.81
84.45	256.12	86.29	255.74	87.09	255.56	92.31	254.07	94.22	253.88
98.58	253.84	100.48	253.78	104.26	253.56	108.7	253.81	109.81	253.91
114.2	253.95	115.32	254.01	119.66	254.22	120.74	254.22	125.14	254.22

126.2	254.27	130.59	254.34	131.65	254.28	136.18	254.19	137.23	254.2
141.63	254.13	142.68	254.13	147.02	254.05	148.09	254.02	152.41	254.19
153.41	254.29	156.39	254.4	159.4	254.47	162.02	254.44	164.24	254.21
167.89	254.5	168.58	254.57	170.37	254.5	172.67	254.36	174.82	254.51
177.62	254.69	179.11	254.69	183.17	254.6	187.72	254.74	188.76	254.77
190.64	254.69	192.52	254.51	195.09	254.4	195.56	254.39	195.69	254.39
200.24	254.57	201.82	254.67	202.63	254.65	205.1	254.67	209.58	254.68
209.86	254.69	210.77	254.7	214.4	254.94	215.39	255.01	219.35	255.04
221.33	255.19	224.47	255.02	228.76	254.75	229.48	254.74	230.97	254.77
235.57	254.7	235.61	254.7	240.59	254.56	243.63	254.41	251.59	255
252.01	255.03	252.24	255.05	252.8	254.97	255.31	254.78	256.27	254.78
259.63	254.82	261.05	254.93	264.5	254.81	268.76	254.81	271.62	254.62
273.27	254.47	276.3	254.58	278.4	254.69	279.63	254.69	286.34	254.63
290.1	254.48	291.9	254.54	295.05	254.51	296.63	254.64	300.27	255.04
302.28	255.02	305.77	254.98	310.9	255.05	311.31	255.05	312.04	255.03
315.02	254.78	316.9	254.8	319.2	254.79	320.37	254.76	324.24	254.75
327.94	254.68	329.19	254.59	331.64	254.36	334.12	254.33	337.01	254.43
339.45	254.38	341.22	254.32	345.5	254.22	348.13	254.09	350.53	254.04
353.83	253.8	356.91	253.63	360.32	253.28	361.23	253.14	365.49	252.65
367.64	252.52	370.89	252.37	373.2	252.29	373.83	252.3	376.75	252.16
381.01	252.25	382.5	252.12	384.03	252.23	386.76	252.01	392.3	251.89
394.73	251.63	398.69	251.31	399.41	251.19	402.43	250.73	406.03	250.64
411.28	250.49	412.58	250.38	413.06	250.38	418.73	250.01	426.8	249.7
427.79	249.69	429.48	249.72	432.68	249.76	435.14	250.01	437.4	250.22
438.51	250.38	442.13	250.6	445.48	250.82	446.87	250.93	449.75	251.2
451.01	251.32	452.34	251.33	457.89	250.9	458.18	250.91	459.35	250.72
464.57	250.41	469.01	248.74	469.11	248.72	469.5	248.62	471.09	248.24
472.04	247.74	488.51	247.73	510.43	247.71	511	247.71	511.21	247.89
511.63	248.16	512.83	248.84	514.84	250.07	519.57	252.95	521.69	252.93
525.15	252.93	530.66	252.77	531.12	252.77	531.83	252.76	534.87	252.82
536.84	252.78	539.31	252.74	540.77	252.74	544.59	252.81	549.39	253.46
550.07	253.51	551.21	253.57	554.92	253.67	557.48	253.77	559.66	253.88
560.79	253.91	564.42	254	568.13	254.28	569.33	254.42	571.52	254.4
575.29	254.33	578.2	254.41	581.4	254.62	583.38	254.67	586.28	254.75
591.89	254.54	592	254.53	592.21	254.54	596.31	254.68	598.52	254.7
601.06	254.78	602.67	254.85	606.57	255.05	611.58	255.13	611.99	255.14
612.67	255.23	617.17	255.27	619.18	255.42	622.07	255.98	623.37	256.01
625.32	256.09	629.98	256.06	635.02	256.33	636.65	256.47	639.95	256.7
643.02	256.86	645.31	257.15	649.25	257.48	654.62	257.94	655.25	257.94
656.87	257.99	659.79	258.11	660.93	258.21	664.65	258.73	666.58	259.24
669.75	260.14	674.18	260.95	674.75	261.03	675.88	261.18	678.4	261.47
680.95	261.86	683.24	262.12	687.29	262.46	691.57	262.98	694.19	263.38
697.07	263.84	701.84	264.55	703.05	264.7	704.07	264.8	708.43	265.46
709.45	265.54	712.34	265.72	719.91	266.46	723.21	266.32	724.37	266.27
726.8	266.77	730.53	266.63	733.18	266.7	734.4	266.72	739.1	267.06
739.58	267.08	742.84	267.01	745.31	266.95	745.67	266.96	752.19	267.17
758.99	267.48	759.2	267.49	759.27	267.49	765.76	267.2	766.07	267.22
773.69	267.96	774.55	267.89						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.12	452.34	.04	469.11	.04	514.84	.04	519.57	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
452.34	519.57	353.32	335.77	320.32	.1	.3

CROSS SECTION OUTPUT Profile #10%

E.G. Elev (ft)	255.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.120	0.040	0.050
W.S. Elev (ft)	255.05	Reach Len. (ft)	353.32	335.77	320.32
Crit W.S. (ft)	252.30	Flow Area (sq ft)	514.10	421.86	104.70
E.G. Slope (ft/ft)	0.001713	Area (sq ft)	514.10	421.86	104.70
Q Total (cfs)	2671.00	Flow (cfs)	361.69	2163.85	145.47
Top Width (ft)	513.45	Top Width (ft)	359.10	67.23	87.12
Vel Total (ft/s)	2.57	Avg. Vel. (ft/s)	0.70	5.13	1.39
Max Chl Dpth (ft)	7.34	Hydr. Depth (ft)	1.43	6.27	1.20
Conv. Total (cfs)	64530.6	Conv. (cfs)	8738.3	52278.0	3514.4
Length Wtd. (ft)	337.09	Wetted Per. (ft)	359.78	69.24	87.22
Min Ch El (ft)	247.71	Shear (lb/sq ft)	0.15	0.65	0.13
Alpha	3.26	Stream Power (lb/ft s)	774.55	0.00	0.00
Frctn Loss (ft)	0.47	Cum Volume (acre-ft)	130.60	132.43	56.15
C & E Loss (ft)	0.03	Cum SA (acres)	55.72	19.78	28.70

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	260.17	Element	Left OB	Channel	Right OB

Vel Head (ft)	0.38	Wt. n-Val.	0.120	0.040	0.050
W.S. Elev (ft)	259.78	Reach Len. (ft)	353.32	335.77	320.32
Crit W.S. (ft)	256.77	Flow Area (sq ft)	2292.75	739.79	703.69
E.G. Slope (ft/ft)	0.001443	Area (sq ft)	2292.75	739.79	703.69
Q Total (cfs)	10810.00	Flow (cfs)	3514.25	5063.46	2232.29
Top Width (ft)	604.64	Top Width (ft)	388.50	67.23	148.92
Vel Total (ft/s)	2.89	Avg. Vel. (ft/s)	1.53	6.84	3.17
Max Chl Dpth (ft)	12.07	Hydr. Depth (ft)	5.90	11.00	4.73
Conv. Total (cfs)	284619.7	Conv. (cfs)	92527.6	133317.4	58774.6
Length Wtd. (ft)	338.75	Wetted Per. (ft)	389.68	69.24	149.35
Min Ch El (ft)	247.71	Shear (lb/sq ft)	0.53	0.96	0.42
Alpha	2.96	Stream Power (lb/ft s)	774.55	0.00	0.00
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	379.00	207.85	207.69
C & E Loss (ft)	0.00	Cum SA (acres)	80.22	19.80	45.97

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	261.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.40	Wt. n-Val.	0.120	0.040	0.050
W.S. Elev (ft)	260.60	Reach Len. (ft)	353.32	335.77	320.32
Crit W.S. (ft)	257.24	Flow Area (sq ft)	2611.14	794.70	826.70
E.G. Slope (ft/ft)	0.001407	Area (sq ft)	2611.14	794.70	826.70
Q Total (cfs)	12761.00	Flow (cfs)	4290.82	5634.93	2835.25
Top Width (ft)	611.02	Top Width (ft)	391.11	67.23	152.68

Vel Total (ft/s)	3.01	Avg. Vel. (ft/s)	1.64	7.09	3.43
Max Chl Dpth (ft)	12.89	Hydr. Depth (ft)	6.68	11.82	5.41
Conv. Total (cfs)	340181.8	Conv. (cfs)	114384.5	150215.6	75581.8
Length Wtd. (ft)	338.83	Wetted Per. (ft)	392.41	69.24	153.21
Min Ch El (ft)	247.71	Shear (lb/sq ft)	0.58	1.01	0.47
Alpha	2.83	Stream Power (lb/ft s)	774.55	0.00	0.00
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	441.23	222.44	242.59
C & E Loss (ft)	0.00	Cum SA (acres)	83.41	19.80	48.15

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	263.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.46	Wt. n-Val.	0.120	0.040	0.050
W.S. Elev (ft)	262.96	Reach Len. (ft)	353.32	335.77	320.32
Crit W.S. (ft)	258.47	Flow Area (sq ft)	3545.61	953.77	1208.85
E.G. Slope (ft/ft)	0.001374	Area (sq ft)	3545.61	953.77	1208.85
Q Total (cfs)	19382.00	Flow (cfs)	6961.29	7545.81	4874.91
Top Width (ft)	638.13	Top Width (ft)	399.03	67.23	171.87
Vel Total (ft/s)	3.40	Avg. Vel. (ft/s)	1.96	7.91	4.03
Max Chl Dpth (ft)	15.25	Hydr. Depth (ft)	8.89	14.19	7.03
Conv. Total (cfs)	522968.1	Conv. (cfs)	187830.5	203602.1	131535.5
Length Wtd. (ft)	338.92	Wetted Per. (ft)	400.68	69.24	172.55
Min Ch El (ft)	247.71	Shear (lb/sq ft)	0.76	1.18	0.60
Alpha	2.59	Stream Power (lb/ft s)	774.55	0.00	0.00

Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	623.68	262.76 346.13
C & E Loss (ft)	0.00	Cum SA (acres)	91.49	19.80 53.97

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 9873.511

INPUT
Description: not interpolated
Station Elevation Data num= 263

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	269.85	1.13	269.82	3.41	269.51	7.67	268.77	11.35	267.97
12.67	267.58	14.44	267.76	14.96	267.74	15.21	267.81	15.8	267.77
19.1	267.63	20.46	267.39	23.79	266.45	26.05	265.92	29.06	265.08
31.4	264.48	32.48	264.29	40.22	262.26	44.4	261.48	51.23	259.11
51.9	258.93	55.17	258.48	57.74	257.86	63.26	256.73	64.95	256.29
65.72	256.27	67.08	255.97	72.88	255.07	76.06	254.47	79.73	254
81.43	253.89	83.52	253.82	86.41	253.59	86.76	253.6	88.09	253.46
91.87	253.1	101.15	253.21	102.49	253.27	103.7	253.3	108.37	253.82
111.55	253.69	118.98	253.39	120.39	253.34	121.02	253.35	122.68	253.4
127.07	253.54	128.73	253.6	132.89	253.3	135.08	253.3	136.6	253.29
138.85	253.36	140.54	253.35	144.72	253.38	153.23	253.9	153.98	253.92
154.33	253.94	159.7	253.78	161.79	253.72	165.58	253.41	167.9	253.24
172.1	253.49	172.61	253.52	172.84	253.51	173.55	253.53	180.3	253.45
181.49	253.47	186.2	254	188.48	254.09	189.79	253.81	191.82	253.49
192.91	253.45	196.49	253.23	200.14	253.28	201.29	253.32	203.46	253.36
206.62	253.45	208.05	253.49	211.32	253.51	212.63	253.65	217.57	253.77
219.47	253.83	220.14	253.83	224.97	254.01	226.13	254.04	230.94	253.91
235.15	253.88	236.99	253.85	239.16	253.85	240.95	253.84	243.42	253.59
243.62	253.57	243.77	253.58	248.63	254.07	250.38	253.97	251.88	253.96
253.85	253.81	257	253.5	258.66	253.37	261.77	253.16	263.07	253.01
263.6	253.01	266.44	253	271.04	253.07	272.3	252.97	276.44	252.73
278.34	252.74	282.86	252.83	286.65	253.27	288.39	253.34	295.53	253.89
295.94	253.97	296.33	254	297.27	253.97	303.19	253.68	305.61	253.8
306.68	253.77	310.19	253.39	312.14	253.26	315.26	253.13	316.97	253.05
318.82	252.95	323.38	252.67	327.61	252.3	328.65	252.18	329.97	251.95
332.86	252	336.71	252.31	339.39	252.38	341.9	252.41	342.86	252.51
343.16	252.52	345.22	252.66	346.9	252.9	349.86	252.91	350.19	252.92
354.02	253.02	358.6	253.41	360.05	253.52	362.81	253.28	365.43	253.17
368.08	253.25	371.28	253.18	374.13	253.28	382.13	253.09	383.29	253.05
385.24	252.92	387.72	252.82	388.31	252.74	389.67	252.7	393.62	252.64
397.39	252.69	400.15	252.78	402.54	252.6	404.14	252.56	405.21	252.61

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   409.1  252.71  413.52  252.74  414.11   252.8  414.94  252.76  419.75  252.62
  420.04  252.61   426.4  252.71  428.47  252.58   433.8   252.1  435.76  251.99
  437.38  251.84  441.32   251.6  444.51  251.54  449.32   251.7   449.4  251.69
   454.7  251.34  454.79  251.34  454.85  251.34  459.23   250.6  462.03  248.37
  462.42  248.08  462.89  247.85  463.04   247.6  466.61   247.6  467.53   247.6
  486.61   247.6  524.91  247.59  526.36  248.84  526.41  248.88  527.67  249.39
   530.8  250.66   532.5  251.83  535.88  252.18  539.53  252.59  541.65  252.58
  546.56  252.53  549.93  252.42  553.59  252.42  556.04  252.31  558.99  252.52
  560.29  252.56  561.35  252.55   565.6   252.6   570.9  252.95  570.99  252.96
  572.95  252.97   576.3     253  576.44  253.01  582.09  253.35  586.74  253.61
  589.46  253.85  591.56  253.92  593.89  254.03  595.77  254.16  597.56  254.18
  600.91  254.37  605.67  255.51  607.15  255.97  612.18  256.83  612.28  256.85
  614.59  257.42  620.48  258.95  623.74   259.5  627.56  259.91  629.92  260.26
  636.05  261.13  637.05  261.21  649.61  262.39   650.1  262.46  655.27  262.64
  659.43  262.72   661.3  262.63  664.75  262.67  666.18  262.62  667.25  262.65
   671.1  262.89  675.81  263.07  675.92  263.08  676.35  263.14  681.98  263.85
  682.38  263.88  688.02  264.64   689.5  264.69  696.46  265.34  699.08  265.49
  701.24  265.63  703.34  265.56  704.48  265.41     707  265.49  708.45  265.49
  708.97  265.47  712.41  265.04  714.04  264.91   716.8  264.84   718.3  264.87
  719.45  264.92  723.22  265.26  728.02  265.32  728.06  265.32   728.1  265.32
  729.05  265.35  733.91   265.5  734.15  265.49   734.3  265.49  741.56  265.83
  742.63  265.92  746.55  266.08  747.97  266.16

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .12  449.32     .04  466.61     .04  526.36     .04  539.53     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        449.32  539.53            329.3  398.49  409.07             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  639.16  657.18  265.89

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           254.87    Element                 Left OB    Channel
Right OB
  Vel Head (ft)              0.22    Wt. n-Val.               0.120      0.040
  0.050
  W.S. Elev (ft)           254.65    Reach Len. (ft)         329.30     398.49
 409.07
  Crit W.S. (ft)           251.39    Flow Area (sq ft)       535.99     544.98
  98.05
  E.G. Slope (ft/ft)      0.001162   Area (sq ft)            535.99     544.98
  98.05
  Q Total (cfs)            2671.00   Flow (cfs)              287.13    2249.97
 133.90
  Top Width (ft)           526.97    Top Width (ft)          374.21      90.21
  62.55
```

Vel Total (ft/s)	2.27	Avg. Vel. (ft/s)	0.54	4.13	1.37
Max Chl Dpth (ft)	7.06	Hydr. Depth (ft)	1.43	6.04	1.57
Conv. Total (cfs)	78351.1	Conv. (cfs)	8422.7	66000.6	3927.8
Length Wtd. (ft)	388.29	Wetted Per. (ft)	374.92	92.58	62.65
Min Ch El (ft)	247.59	Shear (lb/sq ft)	0.10	0.43	0.11
Alpha	2.82	Stream Power (lb/ft s)	747.97	0.00	0.00
Frctn Loss (ft)	0.73	Cum Volume (acre-ft)	126.34	128.70	55.41
C & E Loss (ft)	0.03	Cum SA (acres)	52.74	19.18	28.15

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	259.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.120	0.040	0.050
W.S. Elev (ft)	259.33	Reach Len. (ft)	329.30	398.49	409.07
Crit W.S. (ft)	255.82	Flow Area (sq ft)	2349.54	967.66	439.02
E.G. Slope (ft/ft)	0.001249	Area (sq ft)	2349.54	967.66	439.02
Q Total (cfs)	10810.00	Flow (cfs)	3347.50	6072.52	1389.98
Top Width (ft)	572.18	Top Width (ft)	398.74	90.21	83.23
Vel Total (ft/s)	2.88	Avg. Vel. (ft/s)	1.42	6.28	3.17
Max Chl Dpth (ft)	11.74	Hydr. Depth (ft)	5.89	10.73	

5.27					
Conv. Total (cfs)	305892.4	Conv. (cfs)	94724.9	171835.2	39332.4
Length Wtd. (ft)	371.88	Wetted Per. (ft)	399.93	92.58	83.88
Min Ch El (ft)	247.59	Shear (lb/sq ft)	0.46	0.81	0.41
Alpha	2.90	Stream Power (lb/ft s)	747.97	0.00	0.00
Frctn Loss (ft)	0.61	Cum Volume (acre-ft)	360.17	201.27	203.49
C & E Loss (ft)	0.01	Cum SA (acres)	77.03	19.19	45.12

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	260.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.40	Wt. n-Val.	0.120	0.040	0.050
W.S. Elev (ft)	260.14	Reach Len. (ft)	329.30	398.49	409.07
Crit W.S. (ft)	256.24	Flow Area (sq ft)	2671.39	1040.26	508.56
E.G. Slope (ft/ft)	0.001267	Area (sq ft)	2671.39	1040.26	508.56
Q Total (cfs)	12761.00	Flow (cfs)	4158.61	6899.41	1702.98
Top Width (ft)	580.85	Top Width (ft)	401.06	90.21	89.58
Vel Total (ft/s)	3.02	Avg. Vel. (ft/s)	1.56	6.63	3.35
Max Chl Dpth (ft)	12.55	Hydr. Depth (ft)	6.66	11.53	5.68
Conv. Total (cfs)	358553.2	Conv. (cfs)	116846.9	193856.6	47849.6
Length Wtd. (ft)	370.68	Wetted Per. (ft)	402.38	92.58	90.28
Min Ch El (ft)	247.59	Shear (lb/sq ft)	0.52	0.89	

0.45					
Alpha	2.85	Stream Power (lb/ft s)	747.97	0.00	0.00
Frctn Loss (ft)	0.60	Cum Volume (acre-ft)	419.81	215.37	237.68
C & E Loss (ft)	0.01	Cum SA (acres)	80.20	19.19	47.25

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	262.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.50	Wt. n-Val.	0.120	0.040	0.050
W.S. Elev (ft)	262.47	Reach Len. (ft)	329.30	398.49	409.07
Crit W.S. (ft)	257.54	Flow Area (sq ft)	3613.08	1250.06	733.31
E.G. Slope (ft/ft)	0.001312	Area (sq ft)	3613.08	1250.06	733.31
Q Total (cfs)	19382.00	Flow (cfs)	6895.71	9536.00	2950.29
Top Width (ft)	599.72	Top Width (ft)	409.88	90.21	99.63
Vel Total (ft/s)	3.46	Avg. Vel. (ft/s)	1.91	7.63	4.02
Max Chl Dpth (ft)	14.88	Hydr. Depth (ft)	8.81	13.86	7.36
Conv. Total (cfs)	535171.1	Conv. (cfs)	190402.6	263305.7	81462.7
Length Wtd. (ft)	368.41	Wetted Per. (ft)	411.53	92.58	101.47
Min Ch El (ft)	247.59	Shear (lb/sq ft)	0.72	1.11	0.59
Alpha	2.70	Stream Power (lb/ft s)	747.97	0.00	0.00
Frctn Loss (ft)	0.61	Cum Volume (acre-ft)	594.65	254.27	338.99
C & E Loss (ft)	0.01	Cum SA (acres)	88.21	19.19	

52.97

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 9475.018

INPUT
Description: not interpolated
Station Elevation Data num= 243

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	265.14	.53	265.1	3.65	264.87	12.12	263.26	12.59	263.19
13.06	263.09	14.77	262.81	17.96	262.29	22.25	261.7	23.05	261.61
23.17	261.58	23.55	261.55	29.17	260.97	29.97	260.85	37.1	260.65
44.02	259.71	45.82	259.2	51.33	258.61	57.28	257.93	57.91	257.87
62.02	257.62	65.25	257.12	69.14	256.67	77.19	256.29	81.49	256.01
83.31	255.89	84.3	255.8	85.17	255.72	86.79	255.54	94.17	254.78
94.22	254.77	97.04	254.6	99.69	254.46	100.68	254.35	103.91	254.14
105.8	254.09	110.49	254.07	111.04	254.07	120.69	253.37	121.03	253.34
121.72	253.32	126.59	253.19	128.08	253.16	130.25	253.23	132.87	253
136.74	252.72	138.26	252.67	146	252.52	149.09	252.5	149.9	252.45
152.09	252.51	155.33	252.62	156.16	252.65	156.37	252.67	162.15	252.7
168.15	252.54	173.52	252.48	178.11	252.58	180.08	252.64	183.41	252.95
185.95	252.96	187.22	252.91	189.22	252.9	191.91	252.93	192.72	252.92
197.59	253	200.12	252.94	203.24	252.77	207.51	252.73	209.78	252.81
213.49	252.94	214.49	252.95	214.93	253	220.59	253.23	224.32	252.96
224.57	252.92	225	252.92	230.75	252.91	233.38	252.8	236.97	252.59
239.04	252.44	247.05	252.44	249.15	252.44	249.37	252.43	249.72	252.45
250.1	252.46	253.53	252.62	255.63	252.71	256.92	252.69	261.2	252.59
262.07	252.66	263.27	252.67	267.83	252.76	271.71	252.76	274.04	252.81
280.08	252.6	280.21	252.61	282.3	252.83	283.68	252.69	290.72	252.73
294.81	252.7	296.03	252.78	300.27	253.04	303.06	253.03	305.59	252.89
312.08	252.49	314.36	252.39	323.94	251.31	325.85	251.12	326.95	250.93
328.46	250.66	331.22	250.45	339.3	249.72	340.05	249.61	341.42	249.58
346.27	249.96	346.82	249.99	347.58	250.04	353.04	250.06	357.13	250.57
359.44	250.71	360.33	250.75	365.81	250.87	369.27	251.06	372.18	251.21
377.06	252	380.17	252.47	383.63	252.24	386.08	251.95	387.96	251.9
392.83	251.97	397.85	251.7	400.03	251.7	401.23	251.56	408.64	252
412.1	252.39	413.89	252.28	414.63	252.3	419.33	252.52	424.68	253.38

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  424.92  253.41  425.05  253.41  425.14   253.4  431.83   252.7  435.45  252.28
  439.17  251.93  440.42  251.98  445.67  252.35   445.9  252.36  446.21  252.37
  452.15  252.21  456.55  251.91  458.21  251.77  458.91  251.76  464.36  251.72
  465.21  251.57  469.53  251.41  489.38  250.42   492.2   250.3  496.41  250.47
  499.51  250.02  504.34  248.47  504.87   248.3  508.46  247.44   511.3  247.44
  541.65  247.45  544.49  247.45  545.57  247.45  547.14  248.03  554.04   250.8
  558.48  252.59  561.95  252.78  564.44  252.55     568  252.22  569.94  252.28
  573.35  252.76  577.27  253.24  580.02  252.84  582.45  253.03  585.61  253.73
  589.33   254.2  591.68   254.6  596.83  255.82  599.26  256.16  602.53  256.75
  606.83  257.39  608.19  257.48   612.3  258.01  614.25  258.26  617.12  258.69
  621.35  259.28  624.21  259.46  627.43  259.59  628.52  259.72  632.88  260.12
  635.77  260.38  638.33  260.65  642.44     261  648.76   261.8  650.13  261.97
  653.15  262.36  657.51  262.79  659.38  263.04  662.83  263.28  666.33  263.81
  671.82  264.34  676.09  264.52   676.9  264.54  680.23  264.57  682.72  264.59
  684.45  264.62  687.74   264.8  692.77  265.54   692.9  265.55  692.97  265.56
  699.98  265.86  701.23  265.94  704.77  266.04  707.09  266.33  710.97  266.65
  713.62  267.11  716.28  267.28  721.33  267.95  722.36  268.02  722.43  268.03
  726.37  268.55  727.98  268.76  728.55  268.86   733.7  269.52  736.21  269.72
  739.33  270.04   743.9  270.41  745.02  270.56  748.16  270.87  751.46  271.22
  754.91  271.62  758.84  271.99   760.6  272.02  765.39  272.01  767.54  272.17
  771.35  272.53  773.29  272.61  776.32  272.82

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05   94.22     .12  496.41     .04   511.3     .04  554.04     .04
  561.95     .12  722.43     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        496.41  561.95           373.05  509.85  541.29             .1       .3

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           254.12    Element                 Left OB    Channel
Right OB
  Vel Head (ft)              0.51    Wt. n-Val.               0.120      0.040
  0.120
  W.S. Elev (ft)           253.61    Reach Len. (ft)         373.05     509.85
 541.29
  Crit W.S. (ft)           252.19    Flow Area (sq ft)       554.23     333.29
  19.34
  E.G. Slope (ft/ft)      0.003501   Area (sq ft)            554.23     333.29
  19.34
  Q Total (cfs)           2671.00    Flow (cfs)              522.41    2136.07
  12.52
  Top Width (ft)           467.62    Top Width (ft)          378.98      65.54
  23.10
  Vel Total (ft/s)           2.95    Avg. Vel. (ft/s)          0.94       6.41
   0.65
  Max Chl Dpth (ft)          6.17    Hydr. Depth (ft)          1.46       5.09
```

0.84				
Conv. Total (cfs)	45143.6	Conv. (cfs)	8829.5	36102.5
211.6				
Length Wtd. (ft)	489.88	Wetted Per. (ft)	379.78	66.93
23.29				
Min Ch El (ft)	247.44	Shear (lb/sq ft)	0.32	1.09
0.18				
Alpha	3.81	Stream Power (lb/ft s)	776.32	0.00
0.00				
Frctn Loss (ft)	1.11	Cum Volume (acre-ft)	122.22	124.69
54.86				
C & E Loss (ft)	0.06	Cum SA (acres)	49.90	18.46
27.75				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the
need for additional cross sections.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	259.09	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.52	Wt. n-Val.	0.118	0.040
0.120				
W.S. Elev (ft)	258.56	Reach Len. (ft)	373.05	509.85
541.29				
Crit W.S. (ft)	255.78	Flow Area (sq ft)	2617.82	658.21
206.38				
E.G. Slope (ft/ft)	0.002225	Area (sq ft)	2617.82	658.21
206.38				
Q Total (cfs)	10810.00	Flow (cfs)	5225.40	5293.32
291.28				
Top Width (ft)	564.54	Top Width (ft)	444.67	65.54
54.33				
Vel Total (ft/s)	3.10	Avg. Vel. (ft/s)	2.00	8.04
1.41				
Max Chl Dpth (ft)	11.12	Hydr. Depth (ft)	5.89	10.04

3.80					
Conv. Total (cfs)	229193.6	Conv. (cfs)	110788.9	112228.9	6175.7
Length Wtd. (ft)	460.52	Wetted Per. (ft)	445.71	66.93	54.93
Min Ch El (ft)	247.44	Shear (lb/sq ft)	0.82	1.37	0.52
Alpha	3.49	Stream Power (lb/ft s)	776.32	0.00	0.00
Frctn Loss (ft)	0.99	Cum Volume (acre-ft)	341.40	193.83	200.46
C & E Loss (ft)	0.02	Cum SA (acres)	73.84	18.48	44.47

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	259.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.	0.117	0.040	0.120
W.S. Elev (ft)	259.38	Reach Len. (ft)	373.05	509.85	541.29
Crit W.S. (ft)	256.26	Flow Area (sq ft)	2982.64	711.54	252.95
E.G. Slope (ft/ft)	0.002181	Area (sq ft)	2982.64	711.54	252.95
Q Total (cfs)	12761.00	Flow (cfs)	6418.29	5967.66	375.05
Top Width (ft)	577.70	Top Width (ft)	451.22	65.54	60.95
Vel Total (ft/s)	3.23	Avg. Vel. (ft/s)	2.15	8.39	1.48
Max Chl Dpth (ft)	11.94	Hydr. Depth (ft)	6.61	10.86	4.15
Conv. Total (cfs)	273261.3	Conv. (cfs)	137439.8	127790.3	8031.3

Length Wtd. (ft)	457.86	Wetted Per. (ft)	452.31	66.93	61.61
Min Ch El (ft)	247.44	Shear (lb/sq ft)	0.90	1.45	0.56
Alpha	3.38	Stream Power (lb/ft s)	776.32	0.00	0.00
Frctn Loss (ft)	0.99	Cum Volume (acre-ft)	398.43	207.36	234.11
C & E Loss (ft)	0.02	Cum SA (acres)	76.98	18.48	46.55

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	262.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.	0.115	0.040	0.120
W.S. Elev (ft)	261.71	Reach Len. (ft)	373.05	509.85	541.29
Crit W.S. (ft)	257.61	Flow Area (sq ft)	4057.14	864.24	427.88
E.G. Slope (ft/ft)	0.002131	Area (sq ft)	4057.14	864.24	427.88
Q Total (cfs)	19382.00	Flow (cfs)	10516.64	8157.19	708.17
Top Width (ft)	625.83	Top Width (ft)	474.21	65.54	86.08
Vel Total (ft/s)	3.62	Avg. Vel. (ft/s)	2.59	9.44	1.66
Max Chl Dpth (ft)	14.27	Hydr. Depth (ft)	8.56	13.19	4.97
Conv. Total (cfs)	419840.1	Conv. (cfs)	227804.5	176695.7	15340.0
Length Wtd. (ft)	451.64	Wetted Per. (ft)	475.47	66.93	86.86
Min Ch El (ft)	247.44	Shear (lb/sq ft)	1.14	1.72	

0.66					
Alpha	3.14	Stream Power (lb/ft s)	776.32	0.00	0.00
Frctn Loss (ft)	0.97	Cum Volume (acre-ft)	565.65	244.60	333.54
C & E Loss (ft)	0.03	Cum SA (acres)	84.86	18.48	52.09

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 8965.166

INPUT
Description: not interpolated
Station Elevation Data num= 268

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	268.09	3.86	267.76	3.87	267.76	3.88	267.76	6.95	267.43
9.02	267.33	12.12	267.28	15.22	267.79	15.26	267.79	15.52	267.79
24.79	267.67	26.51	267.4	29.69	266.91	32.31	266.85	34.21	266.7
38.15	266.49	40.55	266.58	42.42	266.65	44.52	266.48	46.52	266.23
51.45	266.04	54.87	266.37	57.04	266.13	65.64	265.44	65.7	265.43
65.72	265.43	65.93	265.43	74.65	265.39	75.55	265.39	76.02	265.35
81.48	264.7	82.59	264.71	96.07	263.4	101.09	262.96	103.25	262.55
109.67	261.87	112.11	261.39	120.55	260.84	122.26	260.75	127.56	260.27
129.97	259.89	131.22	259.96	134.48	260.13	136.74	259.77	144.16	258.74
145.26	258.68	146.48	258.58	147.69	258.51	149.32	258.41	151.43	258.28
155.01	258.24	156.6	258.14	169.84	257.47	170.94	257.39	171.64	257.36
172.07	257.33	174.79	256.98	176.94	256.68	177.63	256.64	179.05	256.59
183.89	256.39	186.4	256.29	187.5	256.27	194.67	255.99	195.88	255.9
196.85	255.79	198.7	255.51	200.55	255.51	203.3	255.36	204.51	255.3
208.55	255.06	211.55	254.78	214.89	254.49	219.37	254.42	220.56	254.4
224.21	254.87	225.4	255.02	231.42	254.3	237.06	253.88	238.89	253.81
239.34	253.81	244.56	254.12	245	254.14	245.27	254.15	245.65	254.14
245.98	254.1	257.95	253.26	260.83	253.41	262.95	253.41	263.62	253.41
268.94	253.28	269.18	253.27	269.87	253.19	273.91	252.91	277.18	252.71

```
  278.77  252.52  279.37  252.49  281.57  252.66  285.68  252.92  289.34     253
  294.26  252.79  294.37  252.76  295.15   252.7   297.8  252.25  300.39  252.07
  305.04  251.89   306.1  251.87  309.79  251.79  312.77  251.71  317.09  251.84
  319.44  251.89  324.45  251.41  325.58  251.44  328.78  251.72  329.53  251.68
  334.44  251.44  337.84  251.65  340.16   251.6  345.04  252.12  346.06  252.15
  351.44  251.39  352.88  251.37   356.4  251.02  358.06   250.9  362.03  250.95
   362.5  250.98  364.51  250.82  366.78   250.5  378.02  249.09  379.85  248.81
  384.26   248.5  386.61  248.56  391.39  248.19  393.43  248.17  393.64  248.19
  399.67  249.41  403.84  249.59   406.1  249.69  417.75  249.38     419  249.35
   419.2  249.36  425.17  249.45  425.91  249.44  427.18  249.45     434  249.25
  435.27  249.06  439.54   249.3  440.84  249.19  442.78  248.78  444.71  248.71
  448.41  248.41  454.54  246.52  455.29  246.24  455.95  245.99  459.25     246
  460.55     246  460.75     246  462.81  246.01  464.77  247.08  465.59  247.49
  468.06  246.87  471.26  246.01  492.85  246.02  502.49  246.01  502.74  246.01
  507.73  246.01  515.76     246  517.93  247.97   525.2   250.7  525.46  250.74
  526.23  250.79  531.26  250.87  533.88  251.11  535.26  251.22  537.07  251.17
  540.68  250.88  546.78  250.92  547.63  250.92  550.67  251.17  554.28  251.57
  554.92  251.53  558.78  251.75  562.21  251.66  563.88  251.65  567.77  251.78
  568.89  251.84  570.68  251.83  573.63   251.9  575.49  252.02  579.12  252.37
  581.08  252.41  585.05  252.52   590.3  252.73  591.04  252.73  592.34  253.03
  596.73  253.99  600.27  255.45   607.5  258.87  611.95  261.14  612.72  261.48
  614.47  262.27  619.24  264.01  623.85  265.96  625.42  266.79  627.48  267.44
  633.42  269.78   634.8  270.25  636.34  270.81  640.63  272.21  643.08  273.24
   646.8  275.29  649.54  276.64   653.5  278.25   657.8  280.61     660  281.77
  664.85  284.16  666.96  285.09  668.21  285.69   669.4  286.26  672.79  287.64
   675.2  288.86   676.6  289.73  679.54  291.53  682.03  292.96  682.94  293.28
  685.04  293.66     686  293.84  686.57  294.09  691.92  296.22  694.71  297.97
  699.26  300.48  702.87  302.54  708.87  303.38  710.38  303.36  714.02     304
   749.8  310.45  753.82  311.31  758.68  311.21  759.74   311.3  761.13  311.23
  762.58   311.1  766.13  310.85  771.96  311.04  772.39  311.06   773.5  311.09
  778.21  311.19  779.45  311.13  782.59  311.41  786.59  311.88  788.99     312
  793.51  312.23  794.33  312.29  795.94  312.36  798.84  312.47  801.97  312.65
  803.12  312.64  804.23  312.61  808.92  312.47  810.39  312.25   812.9  312.03
  814.53     312  820.39  311.99  821.45  312.03  823.67  312.08  826.46  312.19
  827.05   312.2  828.87  312.16  832.18  312.05

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  262.95     .12  439.54     .04  455.29     .04  507.73     .04
   525.2     .12  668.21     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        439.54   525.2           472.78  510.43   528.6             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  720.82  755.78  309.24

CROSS SECTION OUTPUT  Profile #10%
```

E.G. Elev (ft)	252.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.	0.120	0.040	0.120
W.S. Elev (ft)	252.64	Reach Len. (ft)	472.78	510.43	528.60
Crit W.S. (ft)	249.96	Flow Area (sq ft)	321.02	501.37	69.34
E.G. Slope (ft/ft)	0.001584	Area (sq ft)	321.02	501.37	69.34
Q Total (cfs)	2671.00	Flow (cfs)	268.85	2365.72	36.43
Top Width (ft)	296.15	Top Width (ft)	147.61	85.66	62.88
Vel Total (ft/s)	3.00	Avg. Vel. (ft/s)	0.84	4.72	0.53
Max Chl Dpth (ft)	6.65	Hydr. Depth (ft)	2.17	5.85	1.10
Conv. Total (cfs)	67121.7	Conv. (cfs)	6756.2	59450.1	915.5
Length Wtd. (ft)	507.44	Wetted Per. (ft)	148.15	87.92	62.98
Min Ch El (ft)	245.99	Shear (lb/sq ft)	0.21	0.56	0.11
Alpha	2.21	Stream Power (lb/ft s)	832.18	0.00	0.00
Frctn Loss (ft)	0.76	Cum Volume (acre-ft)	118.47	119.80	54.31
C & E Loss (ft)	0.00	Cum SA (acres)	47.64	17.58	27.22

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	258.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.70	Wt. n-Val.	0.106	0.040	0.120
W.S. Elev (ft)	257.38	Reach Len. (ft)	472.78	510.43	528.60
Crit W.S. (ft)	254.37	Flow Area (sq ft)	1369.94	907.07	417.16
E.G. Slope (ft/ft)	0.002089	Area (sq ft)	1369.94	907.07	417.16
Q Total (cfs)	10810.00	Flow (cfs)	2801.25	7299.40	

709.35					
Top Width (ft)	433.11	Top Width (ft)	268.30	85.66	
79.14					
Vel Total (ft/s)	4.01	Avg. Vel. (ft/s)	2.04	8.05	
1.70					
Max Chl Dpth (ft)	11.39	Hydr. Depth (ft)	5.11	10.59	
5.27					
Conv. Total (cfs)	236494.8	Conv. (cfs)	61284.0	159692.0	
15518.8					
Length Wtd. (ft)	502.35	Wetted Per. (ft)	269.17	87.92	
80.11					
Min Ch El (ft)	245.99	Shear (lb/sq ft)	0.66	1.35	
0.68					
Alpha	2.80	Stream Power (lb/ft s)	832.18	0.00	
0.00					
Frctn Loss (ft)	1.23	Cum Volume (acre-ft)	324.32	184.67	
196.59					
C & E Loss (ft)	0.03	Cum SA (acres)	70.79	17.59	
43.64					

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	258.92	Element	Left OB	Channel	
Right OB					
Vel Head (ft)	0.76	Wt. n-Val.	0.104	0.040	
0.120					
W.S. Elev (ft)	258.16	Reach Len. (ft)	472.78	510.43	
528.60					
Crit W.S. (ft)	255.00	Flow Area (sq ft)	1585.21	973.98	
479.62					
E.G. Slope (ft/ft)	0.002131	Area (sq ft)	1585.21	973.98	
479.62					
Q Total (cfs)	12761.00	Flow (cfs)	3571.26	8299.36	
890.37					
Top Width (ft)	449.69	Top Width (ft)	283.23	85.66	
80.80					
Vel Total (ft/s)	4.20	Avg. Vel. (ft/s)	2.25	8.52	
1.86					
Max Chl Dpth (ft)	12.17	Hydr. Depth (ft)	5.60	11.37	
5.94					
Conv. Total (cfs)	276462.1	Conv. (cfs)	77370.0	179802.5	
19289.6					

Length Wtd. (ft)	501.77	Wetted Per. (ft)	284.11	87.92
81.94				
Min Ch El (ft)	245.99	Shear (lb/sq ft)	0.74	1.47
0.78				
Alpha	2.77	Stream Power (lb/ft s)	832.18	0.00
0.00				
Frctn Loss (ft)	1.29	Cum Volume (acre-ft)	378.87	197.49
229.56				
C & E Loss (ft)	0.04	Cum SA (acres)	73.83	17.59
45.67				

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	261.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.92	Wt. n-Val.	0.097	0.040	0.120
W.S. Elev (ft)	260.43	Reach Len. (ft)	472.78	510.43	528.60
Crit W.S. (ft)	256.77	Flow Area (sq ft)	2265.80	1168.53	668.39
E.G. Slope (ft/ft)	0.002187	Area (sq ft)	2265.80	1168.53	668.39
Q Total (cfs)	19382.00	Flow (cfs)	6485.64	11389.83	1506.53
Top Width (ft)	484.76	Top Width (ft)	313.74	85.66	85.36
Vel Total (ft/s)	4.72	Avg. Vel. (ft/s)	2.86	9.75	2.25
Max Chl Dpth (ft)	14.44	Hydr. Depth (ft)	7.22	13.64	7.83
Conv. Total (cfs)	414473.1	Conv. (cfs)	138691.6	243565.2	32216.3
Length Wtd. (ft)	500.30	Wetted Per. (ft)	314.79	87.92	87.03
Min Ch El (ft)	245.99	Shear (lb/sq ft)	0.98	1.81	1.05
Alpha	2.64	Stream Power (lb/ft s)	832.18	0.00	0.00
Frctn Loss (ft)	1.45	Cum Volume (acre-ft)	538.58	232.70	326.73
C & E Loss (ft)	0.08	Cum SA (acres)	81.49	17.59	

51.03

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 8454.733

INPUT
Description: not interpolated
Station Elevation Data num= 304

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	260.47	.94	260.44	2.76	260.41	3.53	260.32	4.88	260.27
6.44	260.21	11.09	260.08	11.17	260.07	13.2	260.16	14.39	260.17
19.5	260.3	21.38	260.27	21.68	260.26	25.46	260.32	27.98	260.32
29.25	260.23	30.22	260.11	33.51	260.11	36.44	260.06	37.39	260.05
38.53	260.1	42.25	259.98	43.65	259.95	51.3	260	53.37	260.01
55.1	259.89	55.39	259.84	61.47	259.63	61.77	259.62	61.81	259.62
63.85	259.62	66.64	259.76	70.26	259.53	70.69	259.5	71.74	259.52
75.03	259.39	76.78	259.28	79.49	259.23	80.6	259.29	83.98	258.95
86.84	258.79	88.4	258.86	89.04	258.92	89.8	258.87	91.23	258.84
93.82	258.69	95.21	258.67	96.52	258.49	97.17	258.46	98.01	258.35
101.48	258.39	103.05	258.39	103.44	258.38	105.22	258.31	105.54	258.3
105.62	258.3	106.67	258.27	111.45	258.11	111.91	258.11	117.46	258.07
120.07	258.05	120.15	258.05	122.19	258.05	123.2	258	128.45	257.71
128.63	257.7	130.28	257.79	130.65	257.81	130.7	257.81	132.32	257.8
137.1	257.77	137.44	257.76	139.15	257.84	142.17	257.88	145.54	257.98
146.83	257.98	148.2	257.85	148.53	257.83	149.7	257.74	151.3	257.7
154.31	257.61	155.86	257.28	158.21	257.08	162.19	256.71	164.06	256.15
164.15	256.13	168.91	255.75	171.05	255.46	172.34	255.23	177.99	254.73
178.92	254.61	180.58	254.24	182.39	254.04	186.81	253.2	187.29	253.06
188.89	252.66	190.09	252.46	195.06	251.79	195.61	251.65	198.3	251.47
203.46	251.06	205.09	251.04	205.72	251.05	209.16	250.73	212	250.62
212.75	250.6	214.04	250.47	217.28	250.58	220.42	250.83	221.33	250.8
224.93	250.58	228.11	250.54	229.68	250.39	230.84	250.38	236.23	250.27
238.3	250.35	239.15	250.34	242.81	250.53	247.58	250.72	248.7	250.66
251.62	250.39	253.3	250.18	253.95	250.2	255.43	250.38	256.13	250.42
258.06	250.32	261.55	250.12	262.3	250.1	262.56	250.08	264.18	250.06
266.5	250.13	269.11	250.11	270.59	250.2	272.47	250.13	273.24	250.15
274.21	250.11	277.21	249.84	280.96	250.05	284.17	250.19	291.23	250.71
294.39	250.36	296.25	250.22	298.43	250.42	299.1	250.45	302.97	250.25

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  306.95  250.55  308.11  250.58  309.26   250.6  310.99  250.67  313.01  250.69
  313.58  250.65  317.43  250.34  318.46  250.31  322.94  250.48  323.86  250.52
  324.53  250.57   325.1  250.57  329.75  250.73  330.91  250.76   332.6  250.86
  340.54  251.28   344.8  251.32  348.79  251.15  350.94  251.07  351.51  251.05
  351.87  251.04  352.69  251.01  357.68   250.9  360.83  251.09  362.42  251.33
  363.77  251.22  366.84  251.11  369.22  250.87  376.43  250.39  376.54  250.38
  378.15  249.93  383.05  249.57   385.6  249.37  386.75  249.44  387.71  249.44
  392.95  249.59  399.01   249.6  399.31  249.59  399.32  249.59  399.41  249.59
  406.22  249.62  408.25  249.46   409.3  249.34  410.93  247.98  417.61  245.14
  418.42  245.14  421.29  245.14  431.79  245.14  440.09  245.14  480.51  245.14
  487.18  245.14  488.42  246.07   489.5  247.41  491.19  248.39  491.97  249.01
  493.27  249.43  493.51  249.48  499.52  250.71   500.7  250.96  502.51   251.2
  509.23  252.09  511.46  252.14  514.33  252.14  514.51  252.16   518.9  252.53
  523.18  252.32  523.34   252.3   523.5  252.32  525.98  252.54  526.72  252.68
  530.82  252.98  535.66  253.26  536.35  253.47  538.79  254.32  541.17  254.66
  543.68   255.1  547.38  255.73  552.15  256.52  553.79  256.68  559.05  257.53
  559.78  257.69  562.54  258.06  562.89  258.11  563.69  258.21  568.91  258.91
  571.19  259.17  574.19     260   574.4  260.07   578.9  260.88  582.94  261.54
  583.26  261.61  584.17  261.81  585.66  262.11  588.73   262.4  592.58  262.75
  593.75  262.95  596.14   263.5  599.86  264.42  603.47  264.82  607.47  264.94
  610.16  265.43  612.16  265.62  614.42  266.05  616.83  266.45  618.94   266.7
  620.33  266.81  622.98  267.28  626.94  268.05  628.57  268.12  633.27  269.07
  634.15  269.25  637.16  269.98  640.94  270.76  648.25  272.38  650.41  272.67
  653.08  273.49  660.65  275.44  668.29   277.3  676.56  278.55  677.17  278.68
  677.41  278.71  677.68  278.74  678.09  278.82  680.13  279.21  681.42  279.34
  685.22  280.09  687.58  280.64  692.43  281.27  693.19  281.41  693.51  281.48
  697.82  282.35  702.01  282.83  704.04  283.05  712.02  284.34  718.98  284.45
  720.32  284.73  721.25  284.72  730.59  285.28  731.86  285.31  735.09  285.33
  738.13  285.33  739.72  285.39  740.36  285.42  742.95  285.77  744.29   285.8
  753.67  285.89  753.87  285.89  756.13  285.98  762.27  286.55   763.7  286.76
  765.76  287.06     770  287.47  770.11  287.48  770.14  287.48  770.28  287.49
  774.57  287.71  776.19  287.84  776.99  287.78  777.16  287.79

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05   151.3     .12  406.22     .04  421.29     .04  493.51     .04
  499.52     .12  588.73     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        406.22  499.52            376.1   499.4   534.3             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  718.73  727.95285.3401

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)            252.19    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.29    Wt. n-Val.                0.120      0.040
```

0.120					
W.S. Elev (ft)	251.89	Reach Len. (ft)	376.10	499.40	534.30
Crit W.S. (ft)	248.59	Flow Area (sq ft)	297.98	555.67	4.54
E.G. Slope (ft/ft)	0.001407	Area (sq ft)	297.98	555.67	4.54
Q Total (cfs)	2671.00	Flow (cfs)	173.48	2496.11	1.41
Top Width (ft)	313.46	Top Width (ft)	211.93	93.30	8.23
Vel Total (ft/s)	3.11	Avg. Vel. (ft/s)	0.58	4.49	0.31
Max Chl Dpth (ft)	6.75	Hydr. Depth (ft)	1.41	5.96	0.55
Conv. Total (cfs)	71202.5	Conv. (cfs)	4624.5	66540.4	37.6
Length Wtd. (ft)	483.82	Wetted Per. (ft)	212.38	96.01	8.32
Min Ch El (ft)	245.14	Shear (lb/sq ft)	0.12	0.51	0.05
Alpha	1.95	Stream Power (lb/ft s)	777.16	0.00	0.00
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	115.11	113.61	53.86
C & E Loss (ft)	0.02	Cum SA (acres)	45.69	16.53	26.79

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	256.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.99	Wt. n-Val.	0.120	0.040	0.120
W.S. Elev (ft)	255.83	Reach Len. (ft)	376.10	499.40	534.30
Crit W.S. (ft)	253.42	Flow Area (sq ft)	1179.26	922.75	142.87
E.G. Slope (ft/ft)	0.002896	Area (sq ft)	1179.26	922.75	

142.87

Q Total (cfs)	10810.00	Flow (cfs)	2277.04	8338.44
194.52				
Top Width (ft)	380.05	Top Width (ft)	238.29	93.30
48.45				
Vel Total (ft/s)	4.82	Avg. Vel. (ft/s)	1.93	9.04
1.36				
Max Chl Dpth (ft)	10.69	Hydr. Depth (ft)	4.95	9.89
2.95				
Conv. Total (cfs)	200877.8	Conv. (cfs)	42313.4	154949.8
3614.6				
Length Wtd. (ft)	471.89	Wetted Per. (ft)	239.07	96.01
48.92				
Min Ch El (ft)	245.14	Shear (lb/sq ft)	0.89	1.74
0.53				
Alpha	2.75	Stream Power (lb/ft s)	777.16	0.00
0.00				
Frctn Loss (ft)	1.24	Cum Volume (acre-ft)	310.49	173.95
193.19				
C & E Loss (ft)	0.15	Cum SA (acres)	68.04	16.55
42.87				

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may wish to examine this cross section and enter a single n value for the entire channel.

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	257.59	Element	Left OB	Channel
Right OB				
Vel Head (ft)	1.15	Wt. n-Val.	0.120	0.040
0.120				
W.S. Elev (ft)	256.43	Reach Len. (ft)	376.10	499.40
534.30				
Crit W.S. (ft)	254.00	Flow Area (sq ft)	1325.33	979.20
173.30				
E.G. Slope (ft/ft)	0.003173	Area (sq ft)	1325.33	979.20
173.30				
Q Total (cfs)	12761.00	Flow (cfs)	2856.98	9636.46
267.56				

Top Width (ft)	388.52	Top Width (ft)	243.11	93.30	52.11
Vel Total (ft/s)	5.15	Avg. Vel. (ft/s)	2.16	9.84	1.54
Max Chl Dpth (ft)	11.29	Hydr. Depth (ft)	5.45	10.50	3.33
Conv. Total (cfs)	226538.9	Conv. (cfs)	50718.4	171070.7	4749.9
Length Wtd. (ft)	470.37	Wetted Per. (ft)	243.94	96.01	52.62
Min Ch El (ft)	245.14	Shear (lb/sq ft)	1.08	2.02	0.65
Alpha	2.80	Stream Power (lb/ft s)	777.16	0.00	0.00
Frctn Loss (ft)	1.31	Cum Volume (acre-ft)	363.08	186.05	225.59
C & E Loss (ft)	0.18	Cum SA (acres)	70.98	16.55	44.86

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	259.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.69	Wt. n-Val.	0.120	0.040	0.120
W.S. Elev (ft)	258.13	Reach Len. (ft)	376.10	499.40	534.30
Crit W.S. (ft)	255.73	Flow Area (sq ft)	1757.61	1137.42	271.52
E.G. Slope (ft/ft)	0.004000	Area (sq ft)	1757.61	1137.42	271.52
Q Total (cfs)	19382.00	Flow (cfs)	4938.22	13887.50	556.28
Top Width (ft)	452.18	Top Width (ft)	295.35	93.30	

63.53					
Vel Total (ft/s)	6.12	Avg. Vel. (ft/s)	2.81	12.21	2.05
Max Chl Dpth (ft)	12.99	Hydr. Depth (ft)	5.95	12.19	4.27
Conv. Total (cfs)	306451.9	Conv. (cfs)	78079.1	219577.5	8795.4
Length Wtd. (ft)	466.42	Wetted Per. (ft)	296.31	96.01	64.17
Min Ch El (ft)	245.14	Shear (lb/sq ft)	1.48	2.96	1.06
Alpha	2.91	Stream Power (lb/ft s)	777.16	0.00	0.00
Frctn Loss (ft)	1.45	Cum Volume (acre-ft)	516.74	219.19	321.02
C & E Loss (ft)	0.32	Cum SA (acres)	78.19	16.55	50.13

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 7955.335

INPUT
Description: not interpolated
Station Elevation Data num= 476

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	260.88	.27	260.86	1.47	260.66	4.32	260.56	6.27	260.47
7.78	260.58	8.24	260.57	10.2	260.41	13.08	260.12	13.44	260.09
15.08	260.1	16.52	260.01	19.94	259.51	20.97	259.5	22	259.57
23.9	259.58	26.84	259.52	28.64	259.46	29.14	259.42	33.72	259.25
34.73	259.23	37.82	258.95	40.57	258.9	42.37	258.61	42.68	258.63
47.43	258.87	48.35	258.73	49.38	258.6	54.11	258.44	55.72	258.49
56.17	258.43	57.48	258.29	61.09	257.73	62.87	257.7	63	257.7

66.4	257.59	68.27	257.5	70.3	257.44	71.92	257.35	76.19	257.48
76.56	257.45	77.58	257.37	80.29	257.06	82.77	256.74	83.32	256.73
85.75	256.68	88.17	256.65	89.97	256.76	90.12	256.76	90.47	256.78
94.9	256.6	95.45	256.54	96.9	256.47	101.48	256.71	101.75	256.72
101.95	256.68	103.85	256.36	107.76	256.49	108.77	256.52	108.96	256.51
110.76	256.26	115.34	256.46	115.64	256.47	115.95	256.45	117.54	256.25
119.82	256.29	122.45	256.32	123.8	256.31	126.24	256.36	129.31	256.38
130	256.33	131.31	256.17	134.17	256.23	136.11	256.23	137.73	256.15
138.1	256.12	138.38	256.12	144.31	256.05	148	255.88	149.69	255.89
150.91	255.75	153.21	255.64	156.51	255.56	158	255.83	158.66	255.87
161.11	255.77	164.48	255.57	165.59	255.53	168.72	255.34	170.39	255.28
171.82	255.31	172.45	255.29	173.51	255.28	177.24	255.09	178.28	254.92
179.26	254.74	185.98	254.57	186.11	254.56	186.36	254.55	191.56	254.22
192.83	254.16	195.92	254.19	198.19	254.21	199.72	254.04	203.64	253.99
204.55	254.01	205.58	253.96	206.49	253.97	209.67	254.06	211.37	254.09
211.57	254.11	214.02	254.01	217.67	253.86	218.65	253.84	220.17	253.84
224.95	253.7	224.99	253.7	225.36	253.68	231.34	253.35	231.82	253.3
235.7	253.27	238.22	253.24	238.48	253.22	240.4	253.51	245.28	253.38
245.39	253.38	248.17	253.12	252.16	253.46	253.64	253.35	254.01	253.32
254.71	253.28	258.92	252.96	259.39	253.02	260.88	253.17	263.87	252.98
265.91	253.04	267.66	252.82	267.9	252.81	272.75	252.97	274.11	252.87
276.61	252.79	279.26	252.74	279.54	252.73	281.28	252.58	281.53	252.57
283.21	252.56	287.68	252.69	288.38	252.51	290.2	252.2	293.3	251.74
294.46	251.69	296.77	251.72	300.03	251.63	301.17	251.61	304.31	251.54
306.83	251.39	307.44	251.45	308.71	251.27	312.29	250.92	313.59	250.68
314	250.61	315.57	250.74	320.08	250.91	320.42	250.93	324.08	250.99
326.77	251.01	327.38	251.04	334.16	249.91	334.17	249.91	334.18	249.91
336.03	248.94	339.96	247.78	340.9	247.5	341.99	247.48	345.99	247.35
347.85	247.4	349.28	247.17	349.63	247.09	354.57	246.97	354.71	246.98
354.83	246.98	356.65	246.96	360.21	247.37	361.68	247.5	367.35	247.61
367.86	247.68	368.57	247.67	368.95	247.62	370.45	247.56	373.71	247.7
377.13	247.97	377.5	247.98	381.4	248.08	382.42	248.11	382.48	248.12
384.34	247.9	388.55	247.92	391.2	248.06	392.71	248.2	396.16	248.5
397.73	248.6	399.05	248.6	403.16	248.49	404.16	248.49	405.07	248.56
407.89	248.76	410.45	248.7	411.69	248.7	412.26	248.7	413.17	248.69
417.69	248.56	418.73	248.6	422.15	248.62	423.59	248.65	425.11	248.61
425.52	248.58	426.63	248.63	430.47	248.87	431.27	248.94	432.35	248.94
435.69	249.04	439.06	249.2	439.29	249.22	439.65	249.2	443.98	249.04
445.38	248.94	446.02	248.91	448.42	248.86	450.78	248.82	457.35	249.32
457.71	249.31	458.51	249.22	459.71	249.02	463.5	248.88	464.49	248.83
464.64	248.81	466.43	248.59	469.94	248.88	473.28	248.77	473.37	248.77
473.44	248.77	478.5	248.99	479.37	249.07	482.73	248.96	485.34	248.78
486.66	248.62	487.25	248.67	490.26	248.52	494.23	248.56	496.2	248.41
506.09	247.15	511.49	246.41	512.88	246.43	514.05	246.28	516.67	246.4
519.82	246.44	521.67	246.62	521.79	246.65	522.15	246.66	526.84	246.86
531.09	247.04	531.23	247.05	540.04	246.19	540.24	246.17	541.26	246
546.28	245.98	547.77	245.83	549.1	245.62	550.37	245.47	553.72	245.09
555.22	244.84	555.71	244.77	564.79	244.77	573.85	244.77	577.76	244.77
581.08	244.77	585.33	244.77	590.1	246.36	591.49	246.82	598.58	248.35
599.84	248.88	601.37	248.94	605.11	249.23	605.94	249.15	612.93	249.39

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  614.03  249.45  614.17  249.46  614.52  249.48  621.36   250.1  626.48  250.22
  626.59  250.22  626.65  250.23  628.39  249.88  632.86  249.94  633.75  249.96
  633.82  249.97  635.56  249.83  639.16  249.81  640.79  249.84  641.19  249.82
  642.74  249.67  644.76  249.84   648.7  249.92  654.55  249.64  654.65  249.63
  654.83  249.63  654.92  249.63  656.82  249.59  660.53  249.01  661.85  248.86
  662.03  248.82  662.99  248.78   668.9   248.6  670.22  248.41   670.8   248.4
  672.47  248.39     676   248.5  677.26  248.24  678.63  247.91  682.98  247.12
  687.69  247.12  688.51  247.11  690.05  246.95  691.15  247.01  693.56   247.1
  697.17  247.19   698.5  247.54   699.2  247.67  700.95   247.8  704.43  247.91
  705.52  247.91  706.39   247.9  710.27  247.85  711.58  247.79  712.86  247.95
  713.58  248.02  715.68  248.28  718.85   248.6  719.17  248.71  720.88  248.79
   725.1  248.95  726.03  248.93  727.86  248.62  727.97  248.62  728.28  248.63
  730.37  248.93   733.3  249.35   733.6  249.38  735.26  249.41  739.53  249.83
  740.53  249.92  742.35  249.69  742.48  249.68  742.72   249.7  747.71  250.08
  748.05  250.06  749.66  249.94  752.92  250.12  754.96  250.34  756.62  250.46
  756.93  250.49   757.9  250.56  763.04  250.85  764.28  250.95  767.24  251.14
   769.6  251.42  775.85  251.78  777.37   251.8  778.47  251.87  781.45  252.34
  784.13  252.62  785.69  252.79  786.83  253.03  791.47  254.14  791.87  254.19
  793.34  254.31  797.79  254.85  798.77  254.96   798.9     255  800.64  255.25
  804.83  255.79  806.08  255.96  807.42  256.09  808.07  256.15  808.59  256.21
  812.27  256.54  818.29  257.05  819.35  257.18  820.32  257.27  832.57  260.64
  837.77   261.4  839.99  261.55  841.55  261.57  854.05  262.77  864.68  263.02
   867.9  262.99  869.21  263.05  873.77  262.73  878.13  262.56  880.32  262.43
   887.2  262.02  888.24  261.97  889.46  261.83  893.69  261.62  894.77   261.5
  895.38   261.4  896.85  261.31  900.84  261.11  901.97  261.24  902.67  261.09
  904.83  260.97  908.08  260.58  908.97  260.47  912.09  260.44  915.39  260.39
  916.35  260.27   917.2  260.36  919.08  260.27  922.66  260.13  923.64   260.1
  924.77  259.96  927.08  260.04  928.87  260.06  929.95  260.09  931.37  260.07
  931.86  260.07  932.51  260.11  937.25  260.25  937.61  260.25  939.11  260.28
  943.74   260.2  944.49  260.21  946.41  260.45  946.42  260.45  946.44  260.45
  951.74  260.58  952.32  260.68  954.69   261.1  957.22  261.41  958.37   261.5
  959.92  261.49  960.23  261.51  965.53  261.79   966.9  261.96   968.3     262
  972.09  262.43   973.7  262.51  975.38  262.65  975.64  262.65  975.72  262.66
  976.04  262.69  981.06  262.95  981.95  262.93  982.96  262.99  985.87  263.33
  988.26  263.44  990.18  263.57  990.24  263.58  990.29  263.58  995.26  264.05
  996.66   264.1  997.51  264.17 1001.19  264.31 1002.45  264.36 1003.04  264.36
  1004.6   264.4 1004.86  264.41 1009.77  264.23 1009.98  264.24 1010.52  264.26
 1011.89  264.41 1017.03  265.17 1017.26   265.2 1017.32  265.21 1017.57  265.23
  1019.4  265.43

Manning's n Values        num=       8
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  279.26     .12  531.23     .04  550.37     .04   590.1     .04
  591.49     .04  598.58     .12  730.37     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        531.23  598.58           259.83  305.85  157.89             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  843.27  853.38260.8018
```

CROSS SECTION OUTPUT Profile #10%

E.G. Elev (ft)	251.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.120	0.040	0.109
W.S. Elev (ft)	251.23	Reach Len. (ft)	259.83	305.85	157.89
Crit W.S. (ft)	249.30	Flow Area (sq ft)	620.62	379.11	363.59
E.G. Slope (ft/ft)	0.001542	Area (sq ft)	620.62	379.11	363.59
Q Total (cfs)	2671.00	Flow (cfs)	596.69	1739.04	335.27
Top Width (ft)	458.97	Top Width (ft)	222.16	67.35	169.46
Vel Total (ft/s)	1.96	Avg. Vel. (ft/s)	0.96	4.59	0.92
Max Chl Dpth (ft)	6.46	Hydr. Depth (ft)	2.79	5.63	2.15
Conv. Total (cfs)	68021.9	Conv. (cfs)	15195.9	44287.8	8538.3
Length Wtd. (ft)	278.73	Wetted Per. (ft)	223.20	67.98	170.23
Min Ch El (ft)	244.77	Shear (lb/sq ft)	0.27	0.54	0.21
Alpha	3.65	Stream Power (lb/ft s)	1019.40	0.00	0.00
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)	111.15	108.25	51.60
C & E Loss (ft)	0.01	Cum SA (acres)	43.82	15.61	25.70

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	255.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.50	Wt. n-Val.	0.115	0.040	0.096
W.S. Elev (ft)	254.93	Reach Len. (ft)	259.83	305.85	157.89
Crit W.S. (ft)	252.39	Flow Area (sq ft)	1659.61	627.91	1054.07

E.G. Slope (ft/ft)	0.002401	Area (sq ft)	1659.61	627.91	1054.07
Q Total (cfs)	10810.00	Flow (cfs)	3302.25	5031.17	2476.58
Top Width (ft)	620.27	Top Width (ft)	353.00	67.35	199.91
Vel Total (ft/s)	3.23	Avg. Vel. (ft/s)	1.99	8.01	2.35
Max Chl Dpth (ft)	10.16	Hydr. Depth (ft)	4.70	9.32	5.27
Conv. Total (cfs)	220628.0	Conv. (cfs)	67397.7	102684.3	50546.0
Length Wtd. (ft)	253.08	Wetted Per. (ft)	354.34	67.98	200.97
Min Ch El (ft)	244.77	Shear (lb/sq ft)	0.70	1.38	0.79
Alpha	3.09	Stream Power (lb/ft s)	1019.40	0.00	0.00
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	298.23	165.06	185.85
C & E Loss (ft)	0.02	Cum SA (acres)	65.48	15.62	41.34

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	256.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.54	Wt. n-Val.	0.113	0.040	0.095
W.S. Elev (ft)	255.56	Reach Len. (ft)	259.83	305.85	157.89
Crit W.S. (ft)	252.89	Flow Area (sq ft)	1884.63	670.17	1180.85
E.G. Slope (ft/ft)	0.002450	Area (sq ft)	1884.63	670.17	1180.85
Q Total (cfs)	12761.00	Flow (cfs)	4080.22	5665.82	3014.96
Top Width (ft)	638.16	Top Width (ft)	366.37	67.35	204.44
Vel Total (ft/s)	3.42	Avg. Vel. (ft/s)	2.16	8.45	2.55
Max Chl Dpth (ft)	10.79	Hydr. Depth (ft)	5.14	9.95	5.78
Conv. Total (cfs)	257789.6	Conv. (cfs)	82426.0	114457.3	60906.3

Length Wtd. (ft)	250.85	Wetted Per. (ft)	367.73	67.98	205.54
Min Ch El (ft)	244.77	Shear (lb/sq ft)	0.78	1.51	0.88
Alpha	2.98	Stream Power (lb/ft s)	1019.40	0.00	0.00
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	349.22	176.59	217.29
C & E Loss (ft)	0.03	Cum SA (acres)	68.34	15.62	43.29

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	258.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.63	Wt. n-Val.	0.106	0.040	0.093
W.S. Elev (ft)	257.42	Reach Len. (ft)	259.83	305.85	157.89
Crit W.S. (ft)	254.20	Flow Area (sq ft)	2665.84	795.73	1578.60
E.G. Slope (ft/ft)	0.002490	Area (sq ft)	2665.84	795.73	1578.60
Q Total (cfs)	19382.00	Flow (cfs)	6954.01	7604.51	4823.49
Top Width (ft)	747.52	Top Width (ft)	457.88	67.35	222.29
Vel Total (ft/s)	3.85	Avg. Vel. (ft/s)	2.61	9.56	3.06
Max Chl Dpth (ft)	12.65	Hydr. Depth (ft)	5.82	11.81	7.10
Conv. Total (cfs)	388392.2	Conv. (cfs)	139350.0	152385.3	96656.9
Length Wtd. (ft)	246.08	Wetted Per. (ft)	459.44	67.98	223.50
Min Ch El (ft)	244.77	Shear (lb/sq ft)	0.90	1.82	1.10
Alpha	2.75	Stream Power (lb/ft s)	1019.40	0.00	0.00
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	497.65	208.11	309.68
C & E Loss (ft)	0.03	Cum SA (acres)	74.93	15.62	48.37

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 7649.488

INPUT
Description: not interpolated
Station Elevation Data num= 450

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	259.79	.34	259.8	.87	259.76	1.53	259.76	1.89	259.75
4.13	259.76	8.58	259.78	15.07	259.77	15.12	259.77	15.15	259.77
15.19	259.77	17.92	259.71	20.28	259.64	23.53	259.38	26.18	259.33
26.23	259.32	26.29	259.32	26.4	259.32	30.14	259.23	31.98	259.32
33.83	259.3	38.39	259.05	39.36	258.93	40.47	258.9	41.48	258.88
43.17	258.84	44.62	258.85	48.82	258.81	49.16	258.81	50.75	258.63
51.4	258.57	51.53	258.55	52.8	258.58	57.34	258.66	58.07	258.63
60.35	258.48	63.06	258.36	65.82	258.21	67.01	258.18	72.05	258.33
73.33	258.34	74.13	258.34	76.71	258.6	81.73	258.64	85	258.76
90.95	258.53	93.83	258.39	98.55	258.73	99.45	258.66	105.84	258.12
107.21	258.04	110.53	257.94	112.6	257.82	113.32	257.79	119.05	257.57
125.44	257.49	129.15	257.42	135.41	257.03	144.22	256.84	144.3	256.84
144.62	256.81	144.84	256.78	153.14	255.71	156.25	255.43	158.31	255.22
160	255.25	160.93	255.25	161.81	255.16	162.17	255.14	164.53	255.07
168.62	255.06	172.77	255.14	177.02	255.2	180.18	255.25	183.42	254.98
184.14	254.96	185.04	254.96	188.96	254.97	193.39	254.91	197.79	254.65
202.76	254.4	205.2	254.33	208.29	254.14	209.08	254.16	210.54	254.09
214.38	253.99	218.11	253.98	218.84	253.97	219.66	253.87	224.54	253.45
225.77	253.36	230	253.39	234.11	253.36	238.95	253.01	244.97	252.74
252.65	252.4	253.42	252.45	255.35	252.2	282.33	251.39	283.13	251.38
283.77	251.38	284.89	251.36	290.87	251.35	291.73	251.6	305.16	252.97
305.63	253.02	305.65	253.02	305.72	253.02	305.88	253.02	324.41	252.02
326.64	251.66	328.16	251.68	329.39	251.85	331.19	251.69	337.59	251.44
342.54	251.02	347.53	250.79	351.19	250.3	353.55	250.35	355.05	250.44
356.66	250.67	357.09	250.71	362.01	251.18	367.31	251.3	380.41	250.54
382.9	250.39	386.11	250.35	390.28	250.31	391.85	250.32	392.11	250.29
393.75	250.32	397.91	250.41	399.23	250.35	400.85	250.21	402.55	250.2
403.54	250.23	406.97	250.48	408.34	250.46	412.83	250.04	413.62	250.09
414.16	250.15	416.1	250.15	419.18	250.17	423.25	249.99	423.39	249.99
423.44	249.99	427.72	250.13	434.17	250.08	435	250.13	435.9	250.11
437.74	250.3	440.55	250.28	442.11	250.27	444.11	250.4	447.87	250.32
449.83	250.31	450.27	250.32	451.57	250.27	459.41	250.03	462.68	250.13
465.26	250.17	466.62	250.23	473.97	250.28	474	250.28	474.01	250.28
474.03	250.28	478.96	250.33	480.29	250.36	481.38	250.4	482.46	250.38
483.72	250.27	487.18	249.99	492.29	250.35	494.43	250.49	495.97	250.41
499.47	250.26	500.93	250.26	503	250.08	503.21	250.07	503.43	249.99

513.44	244.27	518.97	244.27	534.35	244.27	560.03	244.27	561.48	244.65
563.19	245.11	566.58	245.86	567.67	246.13	568.07	246.18	569.39	246.33
573.06	246.71	575.21	247.08	575.38	247.13	580.25	247.84	581.29	247.81
582.71	247.78	583.27	247.84	587.45	248.4	587.91	248.36	589.89	248.37
592.26	248.24	594.66	248.45	596.28	248.44	600.66	248.39	602.11	248.39
604.32	248.08	605.23	248.18	609.18	248.64	609.82	248.72	611.5	248.6
615.07	248.88	617.21	248.94	619.75	249.12	622.61	249.09	623.98	249.22
624.49	249.22	629.04	249.24	631.25	249.23	633.45	249.37	638.66	249.24
638.94	249.21	639.55	249.27	641.81	249.47	643.91	249.65	644.48	249.67
644.89	249.64	646.98	249.6	648.36	249.38	650.56	249.35	654.13	249.32
658.17	249.31	659.5	249.28	661.77	249.57	665.72	249.3	668.22	249.54
671.84	249.7	675.29	249.75	676.15	249.68	681.55	249.6	682.22	249.59
682.57	249.59	684.85	249.7	684.93	249.7	690.24	250.18	693.03	250.17
694.66	250.27	696.74	250.58	697.22	250.65	702.47	250.75	706.52	250.57
707.38	250.43	710.06	250.37	712.59	250.28	714.66	250.18	715.1	250.18
720.11	250.38	721.63	250.41	722.38	250.44	723.26	250.46	727.56	250.4
727.64	250.4	728.72	250.36	729.96	250.44	734.29	250.43	735.75	250.35
737.39	249.74	747.6	248.98	758.63	248.81	767	248.69	769.58	249.37
772.69	250	774.32	250.41	775.02	250.52	779.67	250.91	782.5	251.18
783.45	251.2	787.91	251.16	789.14	251.16	790.06	251.11	792.01	251.15
795.37	251.37	800.49	251.53	801.88	251.53	802.86	251.55	804.88	251.62
805	251.63	805.42	251.62	810.24	251.53	811.37	251.43	812.49	251.33
816.44	251.29	818.71	251.49	820.82	251.66	822.8	251.6	827.39	251.55
833.88	251.53	834.43	251.54	834.89	251.56	835.41	251.56	840.17	251.79
840.29	251.79	842.37	251.7	843.78	251.71	849.83	251.49	851.15	251.58
855.14	252.11	855.53	252.04	857.4	251.72	864.75	252.1	865.11	252.1
870.21	251.46	872.24	250.85	872.44	250.83	872.79	250.76	875.64	250.54
877.45	250.39	877.67	250.33	877.94	250.26	879.93	249.57	882.71	249.33
885.11	249.3	885.85	249.28	888.94	249.48	894.24	249.55	895	249.46
895.83	249.43	901.31	249.14	905.66	249.24	908.86	249.3	910.06	249.04
913.04	248.78	917.61	248.5	921.6	247.98	922.4	247.84	925.18	247.7
944.4	246.98	945.72	246.96	946.88	247.1	947.92	247.22	952.79	247.42
953.35	247.43	953.86	247.48	955.51	247.74	959.7	248.19	961.05	248.13
962.22	248.13	963.09	248.12	963.16	248.14	963.55	248.14	970.91	248.37
974.74	248.66	977.04	248.73	978.49	248.66	982.7	248.83	985.28	249.07
986.15	249.06	989.29	249.22	991.61	249.28	992.89	249.3	993.77	249.31
997.84	249.38	999.3	249.54	1001.26	250.11	1001.57	250.16	1007.05	250.69
1007.87	250.92	1009.27	251.26	1013.24	251.95	1014.87	252.21	1015.46	252.33
1017.02	252.45	1019.6	253.01	1022.61	253.54	1024.08	253.73	1029.54	254.4
1030.34	254.51	1030.41	254.52	1031.01	254.66	1032.32	254.95	1032.46	254.96
1033.27	255.01	1038.08	255.39	1039.94	255.44	1040.2	255.46	1044.69	256.01
1049.84	257.34	1055.05	258.67	1055.88	258.81	1061.31	259.62	1062.05	259.69
1070.37	260.23	1073.12	260.42	1076.92	260.17	1077.86	260.15	1079	260.14
1080	260.14	1084.65	260.1	1086.14	260.57	1086.75	260.68	1088.95	260.71
1092.41	260.82	1094.05	260.94	1094.53	260.98	1095.49	260.99	1100.13	261.18
1100.32	261.2	1102.3	261.35	1106.54	261.73	1107.91	261.84	1111.12	261.89
1113.85	261.95	1115.55	262.02	1116.06	262.03	1120.92	262.47	1123.2	262.47
1125.1	262.44	1130.32	261.9	1130.84	261.86	1132.25	261.87	1132.76	261.87
1132.88	261.87	1138.49	262.13	1139.75	262.13	1140.59	262.21	1142.03	262.35
1146.18	262.62	1146.76	262.54	1148.3	262.52	1151.24	262.66	1153.91	262.86

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 1155.15  263.05 1156.02  262.94 1159.83  263.07 1161.47  263.03  1162.4  263.14
 1163.63  263.25  1168.6  263.56 1169.21  263.58 1171.13  263.38 1171.27  263.36
 1171.32  263.36 1176.79  263.68 1178.47  263.59  1178.8  263.58 1181.09  263.65
 1184.35   263.8 1184.96  263.83 1186.46  263.99 1188.92  264.15 1189.64  264.17

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  440.55     .12  503.43     .04  518.97     .04  561.48     .04
  587.45     .12  962.22     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        503.43  587.45           322.31  271.74  189.84             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0   338.9  257.25       F

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)            250.94    Element                 Left OB    Channel
Right OB
  Vel Head (ft)               0.32    Wt. n-Val.               0.070      0.040
  0.100
  W.S. Elev (ft)            250.62    Reach Len. (ft)         322.31     271.74
 189.84
  Crit W.S. (ft)            248.62    Flow Area (sq ft)        47.92     437.42
 477.14
  E.G. Slope (ft/ft)      0.002086    Area (sq ft)             47.92     437.42
 477.14
  Q Total (cfs)             2671.00    Flow (cfs)              23.75    2196.32
 450.94
  Top Width (ft)             528.07    Top Width (ft)          131.92      84.02
 312.13
  Vel Total (ft/s)            2.78    Avg. Vel. (ft/s)          0.50       5.02
   0.95
  Max Chl Dpth (ft)           6.35    Hydr. Depth (ft)          0.36       5.21
   1.53
  Conv. Total (cfs)        58477.5    Conv. (cfs)              519.9    48085.0
 9872.7
  Length Wtd. (ft)           258.50    Wetted Per. (ft)        132.10      85.93
 313.27
  Min Ch El (ft)             244.27    Shear (lb/sq ft)          0.05       0.66
   0.20
  Alpha                       2.71    Stream Power (lb/ft s)  1189.64       0.00
   0.00
  Frctn Loss (ft)             0.47    Cum Volume (acre-ft)     109.15     105.38
  50.08
  C & E Loss (ft)             0.03    Cum SA (acres)            42.76      15.08
  24.82
```

Warning: Divided flow computed for this cross-section.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	254.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.44	Wt. n-Val.	0.066	0.040	0.102
W.S. Elev (ft)	254.42	Reach Len. (ft)	322.31	271.74	189.84
Crit W.S. (ft)	252.39	Flow Area (sq ft)	659.82	756.25	2020.78
E.G. Slope (ft/ft)	0.002053	Area (sq ft)	917.64	756.25	2020.78
Q Total (cfs)	10810.00	Flow (cfs)	1708.95	5425.83	3675.22
Top Width (ft)	827.19	Top Width (ft)	300.97	84.02	442.20
Vel Total (ft/s)	3.15	Avg. Vel. (ft/s)	2.59	7.17	1.82
Max Chl Dpth (ft)	10.15	Hydr. Depth (ft)	4.01	9.00	4.57
Conv. Total (cfs)	238589.3	Conv. (cfs)	37718.6	119754.3	81116.4
Length Wtd. (ft)	252.67	Wetted Per. (ft)	164.79	85.93	443.98
Min Ch El (ft)	244.27	Shear (lb/sq ft)	0.51	1.13	0.58
Alpha	2.83	Stream Power (lb/ft s)	1189.64	0.00	0.00
Frctn Loss (ft)	0.47	Cum Volume (acre-ft)	290.54	160.20	180.28
C & E Loss (ft)	0.02	Cum SA (acres)	63.53	15.09	40.18

Warning: When the Manning's n value for the channel was composited, the computed n

value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	255.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.45	Wt. n-Val.	0.065	0.040	0.102
W.S. Elev (ft)	255.06	Reach Len. (ft)	322.31	271.74	189.84
Crit W.S. (ft)	252.80	Flow Area (sq ft)	765.67	810.30	2306.43
E.G. Slope (ft/ft)	0.002030	Area (sq ft)	1116.03	810.30	2306.43
Q Total (cfs)	12761.00	Flow (cfs)	2183.04	6053.20	4524.76
Top Width (ft)	851.40	Top Width (ft)	320.95	84.02	446.43
Vel Total (ft/s)	3.29	Avg. Vel. (ft/s)	2.85	7.47	1.96
Max Chl Dpth (ft)	10.79	Hydr. Depth (ft)	4.65	9.64	5.17
Conv. Total (cfs)	283245.3	Conv. (cfs)	48455.2	134357.8	100432.3
Length Wtd. (ft)	252.10	Wetted Per. (ft)	164.79	85.93	448.28
Min Ch El (ft)	244.27	Shear (lb/sq ft)	0.59	1.19	0.65
Alpha	2.71	Stream Power (lb/ft s)	1189.64	0.00	0.00
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	340.27	171.40	210.97
C & E Loss (ft)	0.03	Cum SA (acres)	66.29	15.09	42.11

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the

entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	257.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.	0.065	0.040	0.102
W.S. Elev (ft)	256.95	Reach Len. (ft)	322.31	271.74	189.84
Crit W.S. (ft)	253.82	Flow Area (sq ft)	1077.26	969.42	3169.57
E.G. Slope (ft/ft)	0.001985	Area (sq ft)	1781.35	969.42	3169.57
Q Total (cfs)	19382.00	Flow (cfs)	3831.06	8070.71	7480.24
Top Width (ft)	909.32	Top Width (ft)	364.41	84.02	460.89
Vel Total (ft/s)	3.72	Avg. Vel. (ft/s)	3.56	8.33	2.36
Max Chl Dpth (ft)	12.68	Hydr. Depth (ft)	6.55	11.54	6.88
Conv. Total (cfs)	435034.9	Conv. (cfs)	85989.2	181149.5	167896.2
Length Wtd. (ft)	250.89	Wetted Per. (ft)	164.79	85.93	462.90
Min Ch El (ft)	244.27	Shear (lb/sq ft)	0.81	1.40	0.85
Alpha	2.43	Stream Power (lb/ft s)	1189.64	0.00	0.00
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	484.38	201.92	301.07
C & E Loss (ft)	0.03	Cum SA (acres)	72.48	15.09	47.14

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
        largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
        wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 7377.751

INPUT
Description: not interpolated
Station Elevation Data num= 480

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	263.13	.45	263.11	2.04	262.9	3.09	262.94	8.45	263.04
11.9	262.52	15.11	260.89	16.9	260.37	19.34	260.07	25.02	258.62
29.16	258.65	31.85	258.62	32.72	258.55	36.92	258.05	44.39	259.82
45.19	260.04	46.53	260.46	50.31	261.67	51.13	261.99	53.63	261.67
55.12	261.68	59.74	261.13	62.34	260.96	65.91	260.73	66.66	260.69
69.63	260.46	72.25	260.45	75.83	260.34	82.51	260.71	85.83	260.58
87.7	260.45	90.08	260.47	93.06	259.84	98.4	259.67	101.61	259.33
106.4	259.07	110.88	258.89	115.95	258.81	116.95	258.75	119.66	258.56
122.32	258.39	124.55	258.29	126.85	258.14	130.34	258.09	133.63	258.07
138.38	257.93	141.73	257.85	142.71	257.86	145.58	257.85	146.26	257.78
148.01	257.47	150.16	257.15	150.76	257.21	154.87	256.83	157.05	256.65
159.67	256.55	162.26	256.63	163.61	256.45	169.19	256.28	170.94	256.03
173.43	256.02	178.02	255.64	180.19	255.66	186.88	255.49	191.97	255.23
194.3	255.5	203.73	254.47	206.44	254.06	208.36	253.97	208.92	253.87
210.04	253.64	212.93	252.86	215.37	252.26	220.37	251.01	221.65	250.67
222.64	250.52	228.35	248.67	233.38	248.34	237.32	248.53	244.47	248.47
246.55	248.38	251.28	248.59	256.82	248.73	260.44	248.94	264.65	249.15
266.93	249.05	268.81	248.88	271.15	248.82	272.12	248.88	273.21	248.92
284.83	248.93	288.02	248.73	288.96	248.64	291.09	248.51	294.53	248.19
297.5	248.43	298.78	248.35	310.83	248.62	318.08	248.8	325	249.23
330.21	249.04	332.94	248.88	334.01	248.79	338.25	248.42	341.51	248.59
347.15	248.47	354.2	248.26	356.82	248.17	358.11	248.17	363.73	248.14
366.15	247.99	369.35	247.86	372.4	247.5	374.51	247.53	381.05	247.07
392.19	245.35	396.35	244.92	403.25	245.1	403.9	245.12	404.24	245.11
413.48	245.09	418.97	244.91	432.2	249.38	434.4	250.18	436.79	250.06
438.29	250.22	448.64	250.13	450.19	250.05	452.88	250.11	454.75	250.13
457.75	250.12	458.6	250.1	460.93	250.15	464.2	250.27	465.98	250.27
473	249.97	476.91	249.98	489.07	249.84	489.47	249.82	490.02	249.85
495.01	250.01	497.31	250.19	499.7	250.33	503.63	250.2	504.73	250.17
506.55	250.02	508.93	250.13	511.12	249.92	513.86	250.02	518.81	250.08
520.92	250.07	522.03	250.18	524.48	250.16	525.08	250.16	527.98	250.12
530.11	250.13	530.45	250.09	532.09	250.19	536.51	250.39	538.3	250.23
540.63	249.99	543.81	250.13	546.75	250.24	549.37	250.14	550.21	250.19
554.68	250.51	556.94	250.5	560.88	250.58	562.21	250.59	562.97	250.56
565.5	250.38	571.39	250.27	572.77	250.31	578.05	250.55	580.96	250.34
581.87	250.3	587.14	250.21	587.98	250.21	588.31	250.19	593.84	250.21
596.13	250.42	597.15	250.52	600.89	250.61	604.57	250.57	607.11	250.51
612.27	250.24	612.51	250.24	615.36	249.88	615.73	249.85	619.34	250.05
620.89	249.91	623.76	249.83	624.85	249.75	630.81	249.74	632.12	249.72

633.45	249.64	637.37	249.53	639.17	249.52	640.02	249.65	642.88	249.44
646.57	249.67	649.13	249.59	651.79	249.54	658.71	249.76	661.67	249.71
662.1	249.74	663.92	249.83	665.86	250	668.4	250.35	671.24	250.29
675.77	249.77	678.82	249.51	681.4	249.51	681.7	249.53	686.71	249.5
688.7	249.22	689.75	249.15	693.56	249.36	695.15	249.08	697.29	248.67
702.92	248.34	703.11	248.32	705.29	248.44	706.38	248.44	707.8	248.58
711.88	248.88	713.64	248.84	714.83	248.87	718.62	248.75	720.33	248.84
722.07	249.16	723.34	249.23	725.78	249.46	729.18	249.38	734.46	249.25
736.99	249.45	738.18	249.44	741.48	249.36	743.49	249.26	745.33	249.09
747.06	248.92	748.22	248.86	753.29	248.63	753.82	248.6	754.54	248.3
763.06	245.22	763.95	243.99	770.79	243.97	773.28	243.97	787.29	243.96
788.9	243.96	810.07	243.95	813.24	244	814.04	244.09	814.14	244.1
818.14	244.98	819.48	245.3	820.06	245.49	828.69	245.47	829.81	245.51
830.01	245.53	831.33	245.77	832.76	246.02	834.14	246.01	839.14	247.06
840.01	247.41	849.65	247.72	850.29	247.75	851.14	247.89	858.5	248.8
859.33	248.82	864.04	248.77	866.62	248.78	867	248.75	870.97	249.15
873.76	249.09	880.87	249.11	881.11	249.12	883.71	249.34	887.99	249.39
892.39	249.43	893.76	249.29	896.93	248.75	897.89	248.68	900.31	248.3
902.07	248.36	906.17	248.47	906.66	248.44	908.97	248.19	910.33	248.2
914.52	248.03	917.41	248.24	921.4	248.61	923.01	248.87	925.27	249.29
930.86	250.25	931.25	250.29	931.82	250.42	934.46	250.96	937.53	251.27
940.14	251.24	941.76	251.07	945.08	251.08	946.92	251	948.51	251.06
950.27	250.97	951.3	250.98	957	251.31	959.83	251.37	962.18	251.4
965.48	251.19	966.88	251.41	968.38	251.56	971.52	251.23	974	251.18
975.33	251.23	981.37	251.48	982.56	251.48	983.16	251.39	985.43	250.98
987.16	250.95	990.99	250.87	991.91	250.95	994.7	250.88	999.57	250.93
1002.32	250.55	1003.35	250.53	1006.16	250.49	1007.5	250.48	1008	250.49
1009.7	250.49	1011.46	250.45	1016.44	250.06	1018.8	250.02	1019.26	249.98
1020.5	249.94	1024.98	249.86	1027.22	249.73	1028.54	249.72	1031.32	249.82
1033.32	249.88	1033.67	249.87	1036.14	249.76	1038.26	249.75	1042.24	249.77
1044.03	249.98	1045.03	250.09	1046.65	250.07	1050.78	250.05	1053.22	249.91
1053.61	249.91	1058.24	250.2	1059.42	250.35	1061.51	250.66	1062.17	250.67
1068.33	250.55	1070.38	250.28	1071.1	250.25	1073.89	250.39	1077.41	250.51
1077.97	250.55	1080.19	250.63	1082.33	250.77	1086.51	250.96	1087.36	250.78
1089.37	250.44	1091.82	250.43	1095.6	250.48	1096.4	250.45	1097.65	250.55
1100.77	250.44	1103.34	250.02	1112.92	245.99	1115.4	245.55	1119.14	245.7
1122.2	245.83	1123.1	245.96	1124.89	245.95	1128.57	246.59	1132.9	247.18
1135.95	248	1137.69	248.1	1141.75	247.91	1143.38	247.86	1145.23	247.72
1152.34	246.8	1153.27	246.52	1158.54	245.79	1158.62	245.76	1159.29	245.66
1161	245.38	1161.21	245.38	1164.74	245.23	1167.58	245.15	1167.96	245.09
1170.3	244.94	1175.57	247.1	1177.02	247.65	1183.8	249.36	1186.57	250.02
1189.24	250.56	1189.55	250.58	1195.8	250.59	1198.28	250.58	1201.49	250.38
1202.53	250.29	1207.4	250.16	1209.78	250.18	1213.88	250.23	1214.97	250.13
1216.55	249.93	1218.18	249.96	1221.8	249.83	1224.95	249.91	1225.67	249.8
1229.22	249.96	1233.31	249.85	1234.93	249.85	1236.79	249.85	1237.85	249.93
1241.37	249.84	1242.14	249.75	1244.07	249.47	1249.47	249.6	1250.52	249.66
1253.12	249.39	1254.62	249.37	1259.71	249.05	1261.85	248.5	1262.18	248.43
1266.25	248.18	1277.55	248.17	1281.92	248.32	1283.74	248.27	1288.83	249.11
1290.2	249.5	1291.31	250.15	1294.43	252.13	1296.45	253.14	1300.22	255.46
1306.46	259.94	1308.05	260.91	1309.04	261.42	1309.32	261.53	1309.68	261.55

```
 1310.27  261.67  1321.6  263.31    1325  263.41 1327.82  263.75 1329.73  263.93
 1336.49  264.77 1337.33  264.86 1344.72  265.56 1349.52  265.76 1352.35  265.84
 1355.01  266.05 1357.81  266.52 1359.58  266.91 1361.46  266.85 1368.73  266.69
 1369.12  266.69 1370.56  266.63 1372.56  266.44 1373.08  266.45  1378.4  266.38
 1379.61  266.37 1380.28  266.21 1382.11     266 1384.41  265.99 1386.79  265.83
 1391.25  265.86 1396.57  266.07 1397.34  266.13 1399.51  265.94 1400.33  265.94
 1407.07  266.29 1408.02  266.22 1409.13  266.17 1413.19  266.51 1415.26  266.95

Manning's n Values        num=       9
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03   62.34     .12  754.54     .04  763.06     .04  770.79     .04
  814.04     .04  849.65     .04  851.14     .12 1234.93     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        754.54  851.14           434.15  459.29  437.92             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0  434.83  258.38       F

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           250.45    Element                 Left OB    Channel
Right OB
  Vel Head (ft)              0.24    Wt. n-Val.               0.120      0.040
  0.105
  W.S. Elev (ft)           250.21    Reach Len. (ft)         434.15     459.29
 437.92
  Crit W.S. (ft)           247.81    Flow Area (sq ft)       131.25     495.58
 477.69
  E.G. Slope (ft/ft)      0.001576   Area (sq ft)            616.88     495.58
 477.69
  Q Total (cfs)            2671.00   Flow (cfs)               57.53    2150.94
 462.53
  Top Width (ft)            843.20   Top Width (ft)          453.26      96.60
 293.33
  Vel Total (ft/s)           2.42    Avg. Vel. (ft/s)          0.44       4.34
   0.97
  Max Chl Dpth (ft)          6.26    Hydr. Depth (ft)          0.54       5.13
   1.63
  Conv. Total (cfs)        67271.5   Conv. (cfs)             1449.0    54173.4
11649.1
  Length Wtd. (ft)          455.30   Wetted Per. (ft)        242.51      98.18
 296.37
  Min Ch El (ft)            243.95   Shear (lb/sq ft)          0.05       0.50
   0.16
  Alpha                      2.62    Stream Power (lb/ft s)  1415.26       0.00
   0.00
  Frctn Loss (ft)            0.42    Cum Volume (acre-ft)     106.69     102.47
  48.00
```

C & E Loss (ft)	0.03	Cum SA (acres)	40.60	14.52	23.50

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	254.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.120	0.040	0.100
W.S. Elev (ft)	254.00	Reach Len. (ft)	434.15	459.29	437.92
Crit W.S. (ft)	251.78	Flow Area (sq ft)	1329.69	861.65	2071.55
E.G. Slope (ft/ft)	0.001678	Area (sq ft)	2644.59	861.65	2071.55
Q Total (cfs)	10810.00	Flow (cfs)	1741.99	5578.24	3489.77
Top Width (ft)	1090.21	Top Width (ft)	546.90	96.60	446.71
Vel Total (ft/s)	2.54	Avg. Vel. (ft/s)	1.31	6.47	1.68
Max Chl Dpth (ft)	10.05	Hydr. Depth (ft)	4.16	8.92	4.64
Conv. Total (cfs)	263924.2	Conv. (cfs)	42530.3	136191.8	85202.1
Length Wtd. (ft)	449.91	Wetted Per. (ft)	320.30	98.18	451.24
Min Ch El (ft)	243.95	Shear (lb/sq ft)	0.43	0.92	0.48
Alpha	3.55	Stream Power (lb/ft s)	1415.26	0.00	0.00
Frctn Loss (ft)	0.73	Cum Volume (acre-ft)	277.37	155.16	171.36

C & E Loss (ft)	0.01	Cum SA (acres)	60.40	14.53	38.24

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	255.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.120	0.040	0.100
W.S. Elev (ft)	254.66	Reach Len. (ft)	434.15	459.29	437.92
Crit W.S. (ft)	252.12	Flow Area (sq ft)	1538.14	924.64	2363.15
E.G. Slope (ft/ft)	0.001661	Area (sq ft)	3003.13	924.64	2363.15
Q Total (cfs)	12761.00	Flow (cfs)	2209.76	6243.84	4307.40
Top Width (ft)	1096.88	Top Width (ft)	552.51	96.60	447.77
Vel Total (ft/s)	2.64	Avg. Vel. (ft/s)	1.44	6.75	1.82
Max Chl Dpth (ft)	10.71	Hydr. Depth (ft)	4.81	9.57	5.28
Conv. Total (cfs)	313074.3	Conv. (cfs)	54213.5	153184.4	105676.5
Length Wtd. (ft)	449.38	Wetted Per. (ft)	320.30	98.18	452.48
Min Ch El (ft)	243.95	Shear (lb/sq ft)	0.50	0.98	0.54
Alpha	3.40	Stream Power (lb/ft s)	1415.26	0.00	0.00
Frctn Loss (ft)	0.76	Cum Volume (acre-ft)	325.03	165.99	200.79
C & E Loss (ft)	0.02	Cum SA (acres)	63.06	14.53	40.16

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	256.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.43	Wt. n-Val.	0.120	0.040	0.100
W.S. Elev (ft)	256.57	Reach Len. (ft)	434.15	459.29	437.92
Crit W.S. (ft)	253.12	Flow Area (sq ft)	2148.74	1109.13	3221.15
E.G. Slope (ft/ft)	0.001646	Area (sq ft)	4094.01	1109.13	3221.15
Q Total (cfs)	19382.00	Flow (cfs)	3840.31	8417.42	7124.27
Top Width (ft)	1139.93	Top Width (ft)	592.71	96.60	450.62
Vel Total (ft/s)	2.99	Avg. Vel. (ft/s)	1.79	7.59	2.21
Max Chl Dpth (ft)	12.62	Hydr. Depth (ft)	6.72	11.48	7.15
Conv. Total (cfs)	477659.8	Conv. (cfs)	94642.5	207443.2	175574.2
Length Wtd. (ft)	448.18	Wetted Per. (ft)	320.30	98.18	455.91
Min Ch El (ft)	243.95	Shear (lb/sq ft)	0.69	1.16	0.73
Alpha	3.07	Stream Power (lb/ft s)	1415.26	0.00	0.00
Frctn Loss (ft)	0.82	Cum Volume (acre-ft)	462.65	195.43	287.15
C & E Loss (ft)	0.03	Cum SA (acres)	68.94	14.53	45.15

Warning: Divided flow computed for this cross-section.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the

largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 6919.301

INPUT
Description: not interpolated
Station Elevation Data num= 477

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	256.41	.33	256.43	6.39	257.49	7.49	257.61	10.34	257.41
11.38	257.35	14.3	257.11	16.54	256.9	22.52	255.58	25.54	254.96
25.61	254.95	29.02	254.64	31.21	254.66	34.86	254.59	36.74	254.24
40.42	253.83	40.86	253.78	44.33	253.36	45.25	253.29	46.04	253.29
47.32	253.14	52.93	252.6	61.29	251.56	62.38	251.39	63.52	251.28
64.16	251.23	65.57	251.1	69.07	250.92	79.75	250.38	79.95	250.36
88.53	249.97	89.77	249.95	92.95	249.73	95.33	249.51	97.97	249.52
103.8	247.65	112.55	245.98	119.98	244.02	124.22	243.73	131.93	244.22
135.32	244.31	138.94	245.02	143.24	245.36	145.93	245.83	154.55	247.38
156.83	247.84	162.2	248.1	165.42	248.01	170.3	247.43	171.18	247.41
176.86	247.91	181.05	248.27	182.39	248.19	186.12	247.92	189.62	248.15
190.92	248.07	193.47	247.94	194.06	247.96	198.01	248.23	200.32	248.15
205.38	248.22	209.52	248.36	212.3	248.41	213.33	248.6	216.16	248.29
217.71	248.21	218.72	248.3	221.17	248.43	223.6	248.43	227.24	248.85
229.05	248.92	236.1	248.07	236.77	247.98	237.27	247.98	240.55	247.95
242.46	247.89	245.44	247.96	248.97	248.21	250	248.01	252.27	248.18
254.3	248.3	256.67	248.33	258.36	248.38	264.04	248.21	266.37	248.12
272.03	248.49	275.64	248.58	277.78	248.59	280.12	248.78	282.65	248.84
283.61	248.89	286.98	249.03	287.94	249.06	288.29	249.01	298.51	248.62
301.83	248.44	303.76	248.18	305.14	248.03	308.28	247.73	309.98	247.64
313.18	247.51	317.87	247.5	318.96	247.5	319.59	247.48	321.96	247.45
324.37	247.54	327.42	247.51	330.98	247.48	334.71	247.74	337.94	247.69
338.86	247.7	346.34	247.95	346.73	247.95	350.77	247.71	351.38	247.68
353.95	247.99	355.01	248.06	359.3	247.85	360.34	247.78	362.58	247.69
363.17	247.72	364.51	247.62	370.59	247.5	372.54	247.63	375.36	247.69
376.58	247.56	378.67	247.62	381.95	247.66	383.37	247.63	386.22	247.82
393.08	248.01	398.35	248.09	399.25	248.09	401.01	248.51	402.1	248.53
403.77	248.5	410.81	248.32	411.18	248.3	418.7	248.3	419.36	248.33
420.7	248.32	424.74	248.31	426.54	248.38	435.53	248.5	437.94	248.35
443.71	248.48	445.61	248.5	446.82	248.49	451.81	248.31	455.18	248.26
456.51	248.27	458.32	248.19	459.89	248.15	463.62	247.99	464.61	247.96
465.4	247.96	467.97	248.07	475.53	247.95	475.98	247.91	479.65	247.71

480.84	247.69	483.94	247.71	484.13	247.73	484.3	247.69	488.84	247.37
490.75	247.49	495.82	247.75	497.91	247.62	501.61	247.42	504.96	247.5
511.07	247.76	512.29	247.76	513.05	247.74	513.53	247.7	517.3	247.86
521.07	247.72	522.16	248	523.81	248.21	525.56	248.24	530.35	247.48
533.96	247.19	536.37	246.89	540.32	246.74	544.77	246.33	548.39	246.88
549	246.85	553.03	245.88	553.88	245.86	556.37	245.53	557.52	245.57
562.94	245.59	568.39	245.33	570.09	245.35	572.54	245.32	575.76	245.42
577.5	245.39	578.7	245.43	580.96	245.65	582.84	245.56	585.7	245.65
587.17	245.48	589.3	245.53	592.02	245.44	593.86	245.37	596.28	245.3
600.34	245.12	602.04	244.76	606.73	242.73	608.88	242.73	615.72	242.73
626.46	242.73	671.06	242.75	684.25	242.75	684.84	242.92	701.62	247.71
711.05	249.46	711.76	249.5	712.27	249.45	714.17	249.54	717.94	249.75
723.56	249.67	725.62	249.69	726.84	249.64	732.25	249.34	733.3	249.24
733.79	249.27	736.23	249.35	736.98	249.44	739.69	249.47	741.98	249.38
743.56	249.34	747.01	249.48	752.36	249.53	753.42	249.62	758.48	249.87
758.59	249.87	765.19	249.97	774.53	249.87	775.29	249.84	778.21	249.79
783.43	250.03	786.03	249.82	786.49	249.77	786.86	249.8	791.68	250.13
791.73	250.13	801.12	250.49	807.43	251.17	808.24	251.26	808.91	251.28
811.64	251.3	813.43	251.29	817.72	250.99	822.07	251.25	825.13	251.42
826.53	251.36	830	251.44	833.48	252.18	834.26	252.17	836.6	251.85
840.24	251.99	841.7	252	842.41	252.07	844.81	252.23	849	252.4
850.09	252.43	851.02	252.39	853.08	252.32	856.66	252.31	858.27	252.38
860.54	252.52	861.35	252.5	864.44	252.67	866.57	252.71	866.95	252.75
868.34	252.75	872.66	252.7	874.91	252.76	877.71	252.67	881.9	252.64
883.1	252.64	886.23	253.07	886.29	253.07	891.37	253.26	893.79	253.15
894.45	253.17	895.37	253.18	896.46	253.25	903.16	253.53	907.69	253.54
908.6	253.37	910.87	253.48	913.75	253.65	916.99	253.63	919.1	253.58
920.99	253.66	924.17	253.93	925.3	253.85	930.57	253.59	933.42	253.63
935.46	253.72	939.03	253.66	941.61	253.87	943.72	254.19	947.7	254.37
948.97	254.39	951.79	254.34	952.02	254.37	953.4	254.37	957.28	254.39
958.38	254.35	960.29	254.31	963.95	254.74	968.32	254.16	968.51	254.14
973.69	254.23	976.52	254.25	977.38	254.29	982.05	254.52	985.18	254.52
985.67	254.53	989.48	254.65	990.34	254.65	992.09	254.7	994.31	254.77
998.59	254.81	1003.86	254.83	1005.26	254.89	1006.96	254.89	1009.84	255.18
1011	255.24	1015.09	255.23	1015.52	255.19	1018.06	255.32	1019.96	255.32
1023.38	255.42	1025.09	255.62	1026.36	255.55	1031.4	255.65	1031.96	255.63
1037.03	255.6	1039.98	255.73	1041.34	255.75	1042.82	255.75	1047.93	255.63
1048.34	255.65	1051.07	256.05	1053.92	256.27	1056.53	256.41	1058.05	256.27
1059.31	256.17	1064.64	256.27	1066.85	256.43	1067.64	256.42	1070.38	256.49
1073.18	256.59	1075.99	256.62	1080.19	256.93	1081.4	257.04	1083.95	256.98
1086.8	257.1	1089.76	257.27	1090.8	257.32	1092.48	257.33	1096.19	257.47
1097.97	257.52	1100.57	257.56	1100.9	257.56	1106.05	257.87	1106.36	257.88
1107.63	258	1109.24	258.14	1109.82	258.17	1114.67	258.2	1117.47	258.1
1117.71	258.11	1122.15	258.37	1122.87	258.36	1124.43	258.42	1125.78	258.43
1127.1	258.5	1131.29	258.78	1134.16	259.11	1136.38	259.07	1139.58	259.03
1140.62	259.06	1142.52	259.27	1144.47	259.27	1145.83	259.28	1150.9	259.57
1153.98	259.58	1157.51	259.64	1159.05	259.62	1161.04	259.79	1164.57	259.63
1166.02	259.52	1167.36	259.52	1171.36	260	1172.87	260.06	1175.14	259.82
1175.68	259.79	1179.23	259.77	1181.16	259.78	1182.16	259.77	1184.05	259.84
1185.83	259.92	1189.63	260.19	1191.04	260.02	1192.46	259.99	1197.02	260.51

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 1197.93  260.57 1200.26  260.45 1200.76  260.47 1204.88  260.46 1206.45  260.49
 1208.04  260.56 1209.16  260.63 1213.22  260.94 1214.78  261.02 1217.02  261.17
 1217.71  261.11 1223.07  260.98 1226.06  261.23 1232.35  261.56 1234.34  261.01
 1236.33  261.12  1239.4  261.39 1242.73  261.55 1243.21  261.57 1248.23  261.84
 1250.62   261.8 1251.15  261.75 1255.17  261.53 1256.61  261.68 1258.72  262.02
 1259.47  262.11 1260.07  262.15 1265.02  261.82 1265.11  261.81 1267.84  261.63
  1268.3  261.65 1273.35  261.93 1276.12  261.85 1276.44  261.88 1278.75  262.21
 1281.37  262.56 1281.73   262.6 1283.16  262.68 1284.58  262.71 1285.13  262.73
 1290.09  262.56 1293.03  262.76 1301.28  262.91 1302.41  262.97 1302.97  262.98
  1309.6  263.29 1310.99   263.4 1316.57  263.79 1323.46  264.16  1327.7  264.19
 1331.97  264.59 1333.67  264.77 1337.86     265 1340.47  265.14  1341.8  265.06
 1343.26     265 1344.81  265.12 1350.55  265.41 1354.58  265.68 1357.13  265.79
 1358.63  265.76  1359.9  265.86 1361.58  266.09 1367.63  266.43 1370.11  266.36
 1372.15  266.42 1374.79  266.55

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03   40.42     .12   585.7     .04  615.72     .04  684.84     .04
  701.62     .12

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         585.7  701.62           239.23  489.81  272.12             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0   212.4  259.72       F

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           250.00    Element                 Left OB    Channel
Right OB
  Vel Head (ft)              0.13    Wt. n-Val.               0.120      0.040
  0.120
  W.S. Elev (ft)           249.88    Reach Len. (ft)         239.23     489.81
 272.12
  Crit W.S. (ft)           246.01    Flow Area (sq ft)       789.65     736.98
  28.66
  E.G. Slope (ft/ft)      0.000594   Area (sq ft)           1138.75     736.98
  28.66
  Q Total (cfs)            2671.00   Flow (cfs)              391.96    2273.73
   5.31
  Top Width (ft)           677.17    Top Width (ft)          494.88     115.92
  66.37
  Vel Total (ft/s)           1.72    Avg. Vel. (ft/s)          0.50       3.09
   0.19
  Max Chl Dpth (ft)          7.15    Hydr. Depth (ft)          2.12       6.36
   0.43
  Conv. Total (cfs)       109634.3   Conv. (cfs)            16088.5    93327.9
  217.9
  Length Wtd. (ft)         450.01    Wetted Per. (ft)        374.14     117.09
```

66.60					
Min Ch El (ft)	242.73	Shear (lb/sq ft)	0.08	0.23	
0.02					
Alpha	2.76	Stream Power (lb/ft s)	1374.79	0.00	
0.00					
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	97.94	95.98	
45.45					
C & E Loss (ft)	0.02	Cum SA (acres)	35.87	13.39	
21.70					

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	253.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.48	Wt. n-Val.	0.120	0.040	0.120
W.S. Elev (ft)	253.14	Reach Len. (ft)	239.23	489.81	272.12
Crit W.S. (ft)	250.10	Flow Area (sq ft)	2005.98	1114.68	444.99
E.G. Slope (ft/ft)	0.001580	Area (sq ft)	2836.74	1114.68	444.99
Q Total (cfs)	10810.00	Flow (cfs)	3025.05	7394.36	390.59
Top Width (ft)	840.68	Top Width (ft)	538.33	115.92	186.42
Vel Total (ft/s)	3.03	Avg. Vel. (ft/s)	1.51	6.63	0.88
Max Chl Dpth (ft)	10.41	Hydr. Depth (ft)	5.37	9.62	2.39
Conv. Total (cfs)	271914.1	Conv. (cfs)	76092.0	185997.3	9824.8
Length Wtd. (ft)	390.52	Wetted Per. (ft)	374.14	117.09	186.90
Min Ch El (ft)	242.73	Shear (lb/sq ft)	0.53	0.94	0.23
Alpha	3.35	Stream Power (lb/ft s)	1374.79	0.00	0.00
Frctn Loss (ft)	0.75	Cum Volume (acre-ft)	250.05	144.74	

158.71				
C & E Loss (ft)	0.01	Cum SA (acres)	54.99	13.41
35.06				

Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	254.25	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.55	Wt. n-Val.	0.120	0.040
0.120				
W.S. Elev (ft)	253.70	Reach Len. (ft)	239.23	489.81
272.12				
Crit W.S. (ft)	250.61	Flow Area (sq ft)	2215.28	1179.68
558.69				
E.G. Slope (ft/ft)	0.001727	Area (sq ft)	3140.33	1179.68
558.69				
Q Total (cfs)	12761.00	Flow (cfs)	3731.23	8495.79
533.98				
Top Width (ft)	888.97	Top Width (ft)	544.15	115.92
228.90				
Vel Total (ft/s)	3.23	Avg. Vel. (ft/s)	1.68	7.20
0.96				
Max Chl Dpth (ft)	10.97	Hydr. Depth (ft)	5.93	10.18
2.44				
Conv. Total (cfs)	307047.3	Conv. (cfs)	89778.6	204420.4
12848.2				
Length Wtd. (ft)	384.65	Wetted Per. (ft)	374.14	117.09
229.43				
Min Ch El (ft)	242.73	Shear (lb/sq ft)	0.64	1.09
0.26				
Alpha	3.40	Stream Power (lb/ft s)	1374.79	0.00
0.00				
Frctn Loss (ft)	0.76	Cum Volume (acre-ft)	294.42	154.89
186.11				
C & E Loss (ft)	0.04	Cum SA (acres)	57.60	13.41
36.76				

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	256.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.75	Wt. n-Val.	0.120	0.040	0.120
W.S. Elev (ft)	255.39	Reach Len. (ft)	239.23	489.81	272.12
Crit W.S. (ft)	252.00	Flow Area (sq ft)	2847.70	1376.06	1026.26
E.G. Slope (ft/ft)	0.002049	Area (sq ft)	4077.78	1376.06	1026.26
Q Total (cfs)	19382.00	Flow (cfs)	6175.54	11959.35	1247.12
Top Width (ft)	998.92	Top Width (ft)	562.26	115.92	320.75
Vel Total (ft/s)	3.69	Avg. Vel. (ft/s)	2.17	8.69	1.22
Max Chl Dpth (ft)	12.66	Hydr. Depth (ft)	7.63	11.87	3.20
Conv. Total (cfs)	428226.5	Conv. (cfs)	136442.5	264230.2	27553.9
Length Wtd. (ft)	371.49	Wetted Per. (ft)	374.14	117.09	321.43
Min Ch El (ft)	242.73	Shear (lb/sq ft)	0.97	1.50	0.41
Alpha	3.54	Stream Power (lb/ft s)	1374.79	0.00	0.00
Frctn Loss (ft)	0.77	Cum Volume (acre-ft)	421.93	182.33	265.80
C & E Loss (ft)	0.10	Cum SA (acres)	63.18	13.41	41.27

Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 6428.657

INPUT
Description: not interpolated
Station Elevation Data num= 480

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	258.96	8.98	257.79	11.09	257.57	14.28	257.31	17.48	256.97
18.42	256.88	19.39	256.78	25.35	256.05	27.44	255.56	29.57	255.64
32.78	255.72	36.5	255.75	37.03	255.74	43.91	255.41	45.01	255.32
46.51	255.1	49.34	254.71	51.5	254.43	53.11	254.48	54.4	254.37
57.36	254	59.48	253.78	61.69	253.53	62.92	253.45	66.48	253.26
71.9	254.23	78.49	255.58	83.48	256.83	86.67	257.2	90.21	257.27
91.57	257.28	94.04	257	95.41	256.77	97.04	256.37	100.45	255.22
102.47	254.49	104.08	254.06	107.63	252.6	109.76	251.8	114.54	250.17
114.86	250.08	115.22	250.06	122.48	249.82	124.05	249.74	125.98	249.65
127.38	249.71	129.99	249.72	136.94	249.26	137.46	249.23	143.6	249.09
145.52	249.2	152.17	249.69	153.14	249.72	154.7	249.54	157.61	248.98
160.14	248.98	161.87	249.01	163.75	249	168.57	248.81	170.29	248.72
174.18	248.78	175.61	248.82	177.07	248.77	178.91	248.72	183.12	249.08
186.07	248.79	186.91	248.73	190.66	248.57	192.85	248.43	199.29	247.96
202.78	247.79	211.36	244.34	213.7	243.44	217.74	242.84	218.17	242.78
218.53	242.73	220.13	242.19	251.08	242.19	258.08	242.19	258.31	242.35
259.62	243.29	263.86	245.39	266.17	245.69	269.14	245.95	270.68	245.99
273.95	246.34	276.34	246.2	278.7	246.09	279.95	246.13	282.39	245.79
284.3	245.82	287.52	245.76	291.05	245.86	292.31	245.87	295.57	245.92
298.58	245.59	300.07	245.4	300.69	245.27	301.45	245.19	313.61	243.13
316.03	243.51	319.69	243.32	323.7	244.07	324.1	244.19	324.33	244.21
327.74	245.04	329.9	245.28	332.24	245.48	334.55	246.01	340.27	246.39
340.97	246.44	343.94	246.97	345.65	247.29	348.35	247.64	349.87	247.61
359.84	248.1	361.93	248.26	362.83	248.25	364.28	248.29	373.6	248.49
375.43	248.54	376.59	248.49	383.5	247.96	383.95	247.98	389.31	248.28
391.47	248.39	395.99	248.48	398.02	248.28	399.49	248.12	401.54	248.21
405.03	248.65	407.55	248.64	409.71	248.64	411.93	248.47	414.15	248.41
415.59	248.58	418.42	248.44	419.99	248.3	421.85	248.17	425.92	248.05
427.44	247.96	427.98	247.96	431.05	248	433.44	247.97	437.07	247.81
443.76	247.56	444.98	247.47	451.97	246.9	452.83	246.92	455.59	247.18
457.03	247.25	458.84	247.44	460.95	247.45	463.67	248.03	465.79	248.47
471.98	249.32	487.32	249.49	487.73	249.54	488.18	249.52	492.61	249.56
497.99	249.45	499.21	249.5	500.73	249.43	502.19	249.33	504.28	249.39
505.63	249.35	508.82	249.47	509.73	249.38	512.84	249.44	515.6	249.43
516.94	249.44	517.78	249.41	520.41	249.51	523.65	249.48	525.5	249.38
528.56	249.19	532.16	249.54	533.2	249.57	535.28	249.57	537.54	249.59
545.3	249.6	548.57	249.62	549.33	249.61	553.87	249.48	556.47	249.49
560.9	249.52	565.1	249.45	566.59	249.45	573.66	249.49	576	249.47
577.14	249.51	582.76	249.32	585.23	249.3	592.8	249.7	593.6	249.68
594.66	249.67	604.64	249.36	608.01	249.35	609.56	249.24	613.26	249.19
615.37	249.22	617.75	249.22	620.69	249.13	622.51	249.18	624.78	249.43
625.88	249.47	629.16	249.36	630.62	249.28	632.56	249.33	634.03	249.33
634.69	249.31	638.75	249.29	642.14	249.41	642.35	249.41	646.97	248.88
650.36	248.89	652.08	248.87	656.98	248.82	658.66	248.82	660.41	248.68
662.7	248.58	665.21	248.22	666.82	248.31	669.78	248.14	673.47	248.07
674.99	248.29	676.85	248.45	679.74	248.4	681.11	248.35	685.79	248.23
687.36	248.16	687.82	248.18	690.79	248.2	692.92	248.06	696.04	247.92
696.82	247.86	699.4	248.04	699.84	248.08	701.72	248.16	704.17	248.22
705.52	248.39	708.59	248.63	712.35	248.26	714.78	248.41	718.08	248.18

720.56	248.15	722.55	248.26	723.95	248.16	726.06	248.29	728.66	248.39
730.3	248.25	735.68	248.05	736.31	248.03	736.75	248.04	739.42	248.3
740.17	248.25	742.87	248.21	744.88	248.48	747.15	248.52	750.94	248.5
752.12	248.46	756.34	248.61	756.74	248.61	763.33	248.7	764.52	248.61
765.55	248.62	769.14	248.52	772.58	248.43	774.6	248.5	777.22	248.41
778.97	248.44	780.66	248.56	785.31	248.4	788.78	248.74	791.91	248.56
796.44	248.72	796.93	248.76	799.68	248.74	805.12	248.67	808.69	248.36
809.79	248.43	813.84	248.76	818.02	248.85	821.46	248.97	823.84	249.01
826.26	248.99	827.91	248.75	829.57	248.53	834.22	248.9	834.59	248.9
837.74	248.7	840.86	248.64	845.64	248.4	852.47	248.4	858.73	248.41
861.36	248.42	862.02	248.45	864.71	248.61	869.93	248.95	876.7	248.69
882.94	249.07	883.78	249.14	884.3	249.16	884.83	249.15	885.47	249.17
896.7	249.25	903.79	248.41	904.38	248.36	907.14	248.32	908.46	248.37
913.65	248.47	915.78	248.54	919.75	248.75	922.92	248.85	925.06	248.83
926.54	248.87	932.44	249.05	933.7	249.06	939.66	249.01	941.32	249.13
944.5	249.09	947.53	248.86	950.84	249.37	951.54	249.44	955.36	249.09
955.92	249.07	956.6	249.13	962.2	249.24	968.92	249	973.1	248.73
975.68	248.93	979.08	249.09	982.74	249.51	986.83	249.3	987.6	249.24
988.22	249.26	997.69	249.34	1002.99	248.98	1004.31	248.93	1005.6	248.93
1011.69	249.29	1013.44	249.21	1015.18	249.25	1019.46	249.27	1023.77	249.08
1024.64	249.06	1026.63	249.09	1027.15	249.14	1028.01	249.11	1029.57	249.07
1038.19	248.91	1040.32	248.9	1041.65	248.86	1043.49	248.71	1045.98	248.49
1050.68	248.39	1053.2	248.47	1055.91	248.45	1059.84	248.35	1060.71	248.32
1062.94	248.21	1063.76	248.19	1068.97	248.37	1071.87	248.45	1072.15	248.43
1074.64	248.15	1081.83	248.35	1083.62	248.36	1087.09	248.32	1093.2	248.5
1097.09	248.45	1099.95	248.27	1100.23	248.27	1103.96	248.36	1112.39	248.55
1117.09	248.6	1118.16	248.47	1119.92	248.55	1122.34	248.67	1124.36	248.49
1126.86	248.46	1132.01	248.41	1132.45	248.39	1134	248.44	1135.92	248.56
1143.7	248.44	1144.24	248.41	1148.41	248.21	1148.71	248.22	1153.66	248.51
1155.01	248.37	1160.81	248.45	1162.01	248.43	1168.48	248.77	1169.79	248.78
1171.83	248.67	1179.32	249.15	1180	249.21	1180.62	249.3	1185.12	249.85
1188.55	250.12	1189.87	250.2	1192.88	250.75	1196.48	251.42	1197.51	251.53
1201.08	251.98	1205.12	252.84	1205.89	252.95	1210.8	253.55	1212.21	253.58
1213.64	253.55	1217.69	253.95	1219.56	254.3	1222.16	254.41	1226.37	254.86
1230.75	255.36	1234.26	255.59	1236.48	255.69	1239.56	255.89	1241.02	255.99
1242.11	256.09	1245.98	256.18	1248.83	256.3	1250.77	256.06	1254.24	256.38
1257.39	256.56	1258.59	256.64	1262.23	257.02	1265.08	257.07	1270.74	257.32
1273.84	257.62	1276.64	257.92	1278.61	258.02	1280.71	258.02	1282.85	258.06
1285.7	258.27	1290.79	258.39	1292.84	258.45	1295.07	258.56	1297.92	258.62
1301.49	258.73	1302.24	258.76	1305.97	259.04	1306.75	259.13	1312.14	259.59
1315.08	259.57	1316.52	259.63	1319.24	259.77	1320.47	259.82	1324.38	259.79
1326.63	259.82	1326.94	259.83	1335.81	259.99	1337.4	260.03	1339.48	260.23
1341.98	260.29	1343.51	260.34	1348.06	260.71	1352.1	260.8	1355.24	261.07
1355.71	261.09	1361.18	261.29	1366.74	261.9	1367.95	261.96	1372.23	261.88
1375.9	262.41	1376.78	262.48	1380.01	262.2	1381.58	262.26	1388.09	262.75
1392.2	263.38	1395.1	263.43	1400.37	263.8	1401.82	264.03	1404.37	264.01
1407.01	264.12	1410.37	264.32	1413.86	264.61	1415.53	264.88	1418.03	265.2

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val

```
       0     .05   18.42     .03  124.05     .12  202.78     .04  218.17     .04
  251.08     .04  273.95     .12

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        202.78  273.95           515.23  476.49  147.78             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0   92.43  258.29       F

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)            249.53    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.35    Wt. n-Val.                0.120      0.040
  0.120
  W.S. Elev (ft)            249.18    Reach Len. (ft)          515.23     476.49
 147.78
  Crit W.S. (ft)            246.83    Flow Area (sq ft)         23.88     408.38
 712.28
  E.G. Slope (ft/ft)      0.002028    Area (sq ft)              23.88     408.38
 712.28
  Q Total (cfs)             2671.00   Flow (cfs)                 8.42    2152.13
 510.44
  Top Width (ft)             807.93   Top Width (ft)            51.88      71.17
 684.88
  Vel Total (ft/s)            2.33    Avg. Vel. (ft/s)           0.35       5.27
   0.72
  Max Chl Dpth (ft)           6.99    Hydr. Depth (ft)           0.46       5.74
   1.04
  Conv. Total (cfs)        59312.2    Conv. (cfs)               187.0    47790.2
11334.9
  Length Wtd. (ft)           422.12   Wetted Per. (ft)          51.98      73.04
 686.59
  Min Ch El (ft)             242.19   Shear (lb/sq ft)           0.06       0.71
   0.13
  Alpha                       4.13    Stream Power (lb/ft s)  1418.03       0.00
   0.00
  Frctn Loss (ft)             0.94    Cum Volume (acre-ft)      94.75      89.54
  43.14
  C & E Loss (ft)             0.00    Cum SA (acres)            34.37      12.34
  19.35



Warning: Divided flow computed for this cross-section.
Note:    Manning's n values were composited to a single value in the main channel.
Note:    Multiple critical depths were found at this location.  The critical depth
with the lowest, valid, energy was used.
```

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	252.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.43	Wt. n-Val.	0.099	0.040	0.120
W.S. Elev (ft)	252.42	Reach Len. (ft)	515.23	476.49	147.78
Crit W.S. (ft)	250.99	Flow Area (sq ft)	301.38	638.87	3639.30
E.G. Slope (ft/ft)	0.002360	Area (sq ft)	301.38	638.87	3639.30
Q Total (cfs)	10810.00	Flow (cfs)	484.40	4894.47	5431.13
Top Width (ft)	1095.04	Top Width (ft)	94.67	71.17	929.20
Vel Total (ft/s)	2.36	Avg. Vel. (ft/s)	1.61	7.66	1.49
Max Chl Dpth (ft)	10.23	Hydr. Depth (ft)	3.18	8.98	3.92
Conv. Total (cfs)	222519.1	Conv. (cfs)	9971.2	100750.5	111797.4
Length Wtd. (ft)	312.07	Wetted Per. (ft)	95.25	73.04	931.36
Min Ch El (ft)	242.19	Shear (lb/sq ft)	0.47	1.29	0.58
Alpha	4.99	Stream Power (lb/ft s)	1418.03	0.00	0.00
Frctn Loss (ft)	0.70	Cum Volume (acre-ft)	241.43	134.88	145.95
C & E Loss (ft)	0.02	Cum SA (acres)	53.25	12.36	31.57

Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	253.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.43	Wt. n-Val.	0.096	0.040	0.120
W.S. Elev (ft)	253.02	Reach Len. (ft)	515.23	476.49	147.78
Crit W.S. (ft)	251.31	Flow Area (sq ft)	358.84	681.72	

4199.69					
E.G. Slope (ft/ft)	0.002278	Area (sq ft)	358.84	681.72	
4199.69					
Q Total (cfs)	12761.00	Flow (cfs)	644.35	5358.37	
6758.29					
Top Width (ft)	1099.89	Top Width (ft)	96.18	71.17	
932.54					
Vel Total (ft/s)	2.44	Avg. Vel. (ft/s)	1.80	7.86	
1.61					
Max Chl Dpth (ft)	10.83	Hydr. Depth (ft)	3.73	9.58	
4.50					
Conv. Total (cfs)	267357.8	Conv. (cfs)	13499.9	112264.0	
141593.9					
Length Wtd. (ft)	303.08	Wetted Per. (ft)	96.87	73.04	
934.75					
Min Ch El (ft)	242.19	Shear (lb/sq ft)	0.53	1.33	
0.64					
Alpha	4.63	Stream Power (lb/ft s)	1418.03	0.00	
0.00					
Frctn Loss (ft)	0.66	Cum Volume (acre-ft)	284.81	144.43	
171.24					
C & E Loss (ft)	0.01	Cum SA (acres)	55.84	12.36	
33.13					

Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	255.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.43	Wt. n-Val.	0.092	0.040	0.120
W.S. Elev (ft)	254.85	Reach Len. (ft)	515.23	476.49	147.78
Crit W.S. (ft)	252.21	Flow Area (sq ft)	538.49	811.42	5917.39
E.G. Slope (ft/ft)	0.002086	Area (sq ft)	560.80	811.42	5917.39
Q Total (cfs)	19382.00	Flow (cfs)	1234.45	6854.41	11293.14
Top Width (ft)	1151.29	Top Width (ft)	127.84	71.17	952.28
Vel Total (ft/s)	2.67	Avg. Vel. (ft/s)	2.29	8.45	1.91
Max Chl Dpth (ft)	12.66	Hydr. Depth (ft)	5.32	11.40	

6.21					
Conv. Total (cfs)	424357.5	Conv. (cfs)	27027.6	150073.2	247256.8
Length Wtd. (ft)	285.41	Wetted Per. (ft)	102.31	73.04	954.61
Min Ch El (ft)	242.19	Shear (lb/sq ft)	0.69	1.45	0.81
Alpha	3.89	Stream Power (lb/ft s)	1418.03	0.00	0.00
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	409.19	170.03	244.11
C & E Loss (ft)	0.00	Cum SA (acres)	61.29	12.36	37.30

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 5952.17

INPUT
Description: not interpolated
Station Elevation Data num= 480

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	255.04	3.67	254.88	10.67	254.66	12.12	254.52	13.31	254.5
19.4	254.04	22.16	253.83	24.06	253.67	31.41	253.06	32.39	252.96
32.58	252.95	32.96	252.89	36.79	252.59	39.85	252.3	40.81	252.19
42.29	251.97	44.71	251.84	46.27	251.63	50.17	251.17	50.35	251.15
53.06	251.26	56.86	251.34	60.06	250.8	60.95	250.76	64.28	251.13
66.47	251.14	70.12	251.29	75.04	251.44	77.97	251.52	79.83	251.65
82.89	252.05	86.52	252.11	87.31	252.08	87.93	252.11	89.15	252.14
90.97	252.16	91.96	252.17	98.47	252.27	99.21	252.28	99.76	252.31
104.76	252.76	105.43	252.73	107.92	252.71	111.31	252.65	113.65	252.75
116.91	252.72	120.76	252.56	121.19	252.52	125.95	252.01	127.13	251.74
131.3	250.87	135.16	249.96	136.99	249.59	141.2	248.47	143.82	247.76
146.4	247.58	148.65	247.45	150.77	247.43	155.9	247.62	157.98	247.8
159.89	248.46	165.38	250.61	168.61	253	169.89	253.66	174.95	255.27
179.35	256.21	183.18	256.58	185.53	256.54	186.21	256.49	188.52	256.46
188.87	256.44	190.4	255.82	191.1	255.71	195.42	255.1	201.38	253.05
201.86	252.88	206.07	250.37	207.49	249.51	207.65	249.44	208.01	249.22
215.02	245.19	217.52	243.1	217.93	242.34	218.24	242.07	219.48	242.07
227.1	242.07	255.94	242.06	267.4	242.06	271.41	242.06	275.19	242.06
275.91	242.46	288.43	246.36	288.91	246.52	295.61	246.7	296.6	246.75

297.7	246.86	301.01	247.26	302.53	247.31	308.08	247.26	310.47	247.47
316.52	247.29	320.7	246.93	322.57	246.86	326.47	246.62	330.54	246.43
332.76	246.35	336.01	246.41	338.74	246.56	343.14	246.31	343.37	246.31
343.6	246.26	347.37	245.72	348.02	245.81	348.63	245.79	353.7	246.58
356.87	246.56	358.52	246.44	361.06	246.47	365.08	246.37	366.71	246.44
370.25	246.3	370.94	246.31	371.32	246.27	376.67	246.47	380.38	246.35
381.78	246.38	383.61	246.43	390.09	246.38	392.74	246.49	397.65	246.44
400.19	246.5	405.85	246.83	409.46	246.84	414.63	247.01	418.62	246.83
419.41	246.83	424.06	246.68	424.93	246.68	426.76	246.71	428.16	246.81
430.44	246.83	433.01	246.58	441.53	246.87	442.78	246.88	443.88	246.85
447.61	246.43	450.89	246.66	452.21	246.73	453.26	246.72	456.46	246.8
457.1	246.82	462.14	246.73	462.94	246.68	464.46	246.62	467.21	246.45
470.69	246.59	471.06	246.58	471.58	246.61	475.34	246.56	478.09	246.8
480.6	246.96	484.24	246.97	486.32	246.94	487.09	246.88	489.48	247.18
493.35	247.56	495.07	247.35	499.47	246.96	504.51	247.26	507.12	247.34
508.62	247.39	509.09	247.42	509.8	247.43	511.29	247.43	513.75	247.56
517.29	247.63	518.17	247.68	518.77	247.66	523.37	248.07	525.9	247.87
528.4	248.19	535.32	248.27	536.18	248.21	537.21	248.13	538.65	248.09
543.49	247.65	544.72	247.55	553.38	247.48	555.19	247.63	559.44	247.72
561.28	247.8	565.59	248.3	568.58	248.44	571.57	248.38	578.56	248.81
579.29	248.84	579.7	248.82	587.55	248.33	592.45	248.46	593.22	248.51
594.54	248.55	598.02	248.57	600.02	248.46	605.13	248.03	608.21	247.92
613.58	247.87	617.57	248.06	619.42	248.13	621.5	248.13	624.11	248.17
626.77	247.9	630.43	247.76	632.9	248.06	635.91	248.02	640.43	248.1
641.22	248.08	642.86	248.16	645.17	248.28	646.24	248.13	651.41	248.01
653.9	248.22	658.34	248.34	659.79	248.3	662.86	248.17	667.39	248.26
670.82	248.22	672.63	248.17	673.16	248.22	679.51	248.47	680.83	248.47
686.09	248.08	686.71	248.05	690.84	248.23	694.49	248.43	695.66	248.4
696.4	248.35	699.78	248.19	705.04	247.84	708.01	247.87	710.66	247.95
713.89	247.84	715.5	247.85	721.37	248.03	723.23	248.08	728.96	248.18
731.3	248.06	733.46	247.98	735.07	248.06	738.52	248.02	746.86	248.16
749.18	248.24	749.55	248.23	749.99	248.31	752.9	248.41	754.2	248.45
758.89	248.25	763.71	248.33	766.05	248.16	767.63	248.14	771.72	248.33
775.63	248.32	776.7	248.37	779.77	248.41	780.86	248.42	781.23	248.43
786.41	248.3	789.11	248.23	798.31	248.48	803.1	248.21	803.41	248.22
808.49	248.43	809.95	248.36	810.5	248.28	811.57	248.36	817.33	248.26
829.75	248.12	830.71	248.11	833.2	247.97	835.21	247.94	846.63	248.03
848.75	248.01	852.5	247.92	856.79	248.01	857.49	247.99	858.88	247.89
861.19	247.8	862.35	247.82	867.32	248.03	870.63	247.81	873.18	247.79
876.03	247.69	878.86	247.71	883.85	248	883.99	248.01	887.58	247.51
888.37	247.52	889.47	247.55	893.54	247.61	895.1	247.56	902.2	247.84
902.93	247.85	903.16	247.84	910.13	247.77	911.5	247.83	916.73	247.92
918.4	247.88	927.43	248.26	929.09	248.26	929.54	248.33	933.69	248.15
936.88	248	941.01	248.07	942.22	248.1	943.6	247.96	946.45	247.7
947.74	247.7	948.32	247.71	948.7	247.7	951.13	247.69	951.9	247.69
957.58	247.53	959.38	247.51	960.43	247.52	965.13	247.95	968.46	247.93
970.75	247.9	973.42	247.75	975.83	247.6	976.9	247.67	979.95	247.69
983.85	247.83	987.85	247.91	990.02	247.85	991.29	247.95	997.3	247.87
998.77	247.86	999.65	247.84	1005.67	247.62	1007.27	247.65	1011.14	247.66
1014.01	247.72	1016.25	247.6	1019.05	247.28	1025.01	247.44	1025.65	247.48

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 1025.99  247.47  1026.9   247.4 1032.38  247.17 1038.69   247.2 1039.23   247.2
 1042.29  247.34 1045.21   247.5 1045.54  247.49 1046.15  247.51  1050.6  247.57
 1053.59  247.42 1055.44  247.39 1059.43  247.58 1065.58  246.94 1066.26  246.86
 1066.85  246.89 1071.88   247.1 1077.45  247.22 1077.77  247.22 1081.53  247.29
 1085.14  247.02 1085.67  246.99 1086.58  246.98 1093.22  246.86 1097.15  246.85
 1100.41  246.86 1104.55  246.86 1106.43  246.82 1111.41  246.78 1116.04  247.04
 1116.78  247.06 1121.14  246.86 1124.01  246.79 1126.52  246.86 1128.13   246.8
 1133.56  246.93 1138.14  246.99 1139.95  247.21 1141.91  247.36  1147.5  247.59
 1154.74   247.5 1155.25   247.5 1155.48  247.52 1155.92  247.51 1160.68  247.68
 1163.19  247.71 1166.15  247.69 1168.54  247.84 1171.75  248.07 1173.76  248.11
 1179.35  248.64 1180.58  248.79 1181.43  248.91 1183.01  249.17 1186.75  249.72
 1189.92  249.95  1192.8   250.1 1196.19  250.55 1199.64   251.1 1201.72   251.5
 1203.66  251.79 1205.95  252.12 1206.88  252.29 1208.43  252.66  1211.9  253.36
  1214.6  253.88 1215.35  254.07  1216.7  254.29 1220.57  254.83 1223.73  255.24
 1226.04  255.52  1231.5  255.52 1236.67  256.45 1236.86   256.5 1237.12  256.49
 1239.48  256.33  1240.5  256.33 1245.47  256.65 1250.66  257.01 1252.66  257.16
 1256.68  257.42 1258.22  257.59 1263.54  257.89 1264.38  257.94 1264.94  257.95
 1269.44  258.17 1273.26   258.4 1274.44  258.52 1276.29  258.62 1279.47  258.75
 1283.27  258.83 1284.79  258.88 1286.31  258.96 1291.18  259.18  1296.2  259.54
 1296.92   259.6 1297.69  259.65 1303.75  260.35 1303.98   260.4  1304.4   260.4
 1305.57  260.33 1310.57  260.15 1317.58  260.19 1322.01   260.3 1322.64  260.33
 1328.45  260.84 1333.32  260.87  1334.5  260.83 1335.55  260.94 1340.07  261.35
 1342.58  261.65 1347.34  262.15 1352.46  262.65 1356.01  262.94 1359.51  263.41
 1362.51  263.38 1362.94  263.39 1363.97  263.46 1370.63  263.86 1372.55  264.08
 1376.09  264.11 1377.35  264.13  1381.1  264.51 1382.02  264.64 1384.99  264.96
 1387.95   264.9 1392.63  265.16 1398.87  265.59 1400.48  265.62 1401.26   265.6
 1402.52  265.49 1405.52  265.38 1407.13  265.53 1410.25  265.86 1413.46  265.78

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05   50.17     .05   90.97     .03  208.01     .04  219.48     .04
  271.41     .04  302.53     .12

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        208.01  302.53           369.19  347.25   42.15             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0  184.85  258.36       F

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)            248.59    Element                   Left OB    Channel
Right OB
  Vel Head (ft)               0.35    Wt. n-Val.                            0.040
  0.120
  W.S. Elev (ft)            248.23    Reach Len. (ft)           369.19     347.25
  42.15
  Crit W.S. (ft)            245.99    Flow Area (sq ft)                    446.09
 591.31
```

E.G. Slope (ft/ft)	0.002467	Area (sq ft)	10.17	446.09	591.31
Q Total (cfs)	2671.00	Flow (cfs)		2296.81	374.19
Top Width (ft)	841.55	Top Width (ft)	17.16	92.80	731.58
Vel Total (ft/s)	2.57	Avg. Vel. (ft/s)		5.15	0.63
Max Chl Dpth (ft)	6.17	Hydr. Depth (ft)		4.81	0.81
Conv. Total (cfs)	53779.0	Conv. (cfs)		46244.9	7534.1
Length Wtd. (ft)	305.34	Wetted Per. (ft)		95.69	732.52
Min Ch El (ft)	242.06	Shear (lb/sq ft)		0.72	0.12
Alpha	3.45	Stream Power (lb/ft s)	1413.46	0.00	0.00
Frctn Loss (ft)	0.89	Cum Volume (acre-ft)	94.55	84.86	40.92
C & E Loss (ft)	0.01	Cum SA (acres)	33.96	11.45	16.95

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	252.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.	0.030	0.040	0.120
W.S. Elev (ft)	251.75	Reach Len. (ft)	369.19	347.25	42.15
Crit W.S. (ft)	249.93	Flow Area (sq ft)	5.41	777.72	3694.39
E.G. Slope (ft/ft)	0.002160	Area (sq ft)	133.10	777.72	3694.39
Q Total (cfs)	10810.00	Flow (cfs)	13.20	5354.69	5442.11
Top Width (ft)	1074.73	Top Width (ft)	79.34	94.52	900.87
Vel Total (ft/s)	2.41	Avg. Vel. (ft/s)	2.44	6.89	1.47
Max Chl Dpth (ft)	9.69	Hydr. Depth (ft)	1.27	8.23	

4.10					
Conv. Total (cfs)	232580.1	Conv. (cfs)	284.0	115207.7	117088.4
Length Wtd. (ft)	196.83	Wetted Per. (ft)	4.95	97.67	902.21
Min Ch El (ft)	242.06	Shear (lb/sq ft)	0.15	1.07	0.55
Alpha	4.22	Stream Power (lb/ft s)	1413.46	0.00	0.00
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	238.86	127.13	133.51
C & E Loss (ft)	0.00	Cum SA (acres)	52.22	11.45	28.47

Warning: Divided flow computed for this cross-section.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	252.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.	0.030	0.040	0.120
W.S. Elev (ft)	252.39	Reach Len. (ft)	369.19	347.25	42.15
Crit W.S. (ft)	250.27	Flow Area (sq ft)	8.48	838.23	4272.39
E.G. Slope (ft/ft)	0.002080	Area (sq ft)	192.93	838.23	4272.39
Q Total (cfs)	12761.00	Flow (cfs)	23.58	5953.17	6784.25
Top Width (ft)	1111.81	Top Width (ft)	112.51	94.52	904.78
Vel Total (ft/s)	2.49	Avg. Vel. (ft/s)	2.78	7.10	1.59
Max Chl Dpth (ft)	10.33	Hydr. Depth (ft)	1.59	8.87	4.72
Conv. Total (cfs)	279798.0	Conv. (cfs)	517.0	130529.4	148751.6

Length Wtd. (ft)	188.25	Wetted Per. (ft)	6.20	97.67	906.16
Min Ch El (ft)	242.06	Shear (lb/sq ft)	0.18	1.11	0.61
Alpha	4.00	Stream Power (lb/ft s)	1413.46	0.00	0.00
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	281.55	136.11	156.87
C & E Loss (ft)	0.00	Cum SA (acres)	54.61	11.45	30.01

Warning: Divided flow computed for this cross-section.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	254.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.030	0.040	0.120
W.S. Elev (ft)	254.28	Reach Len. (ft)	369.19	347.25	42.15
Crit W.S. (ft)	251.20	Flow Area (sq ft)	22.75	1016.94	5991.67
E.G. Slope (ft/ft)	0.001928	Area (sq ft)	469.11	1016.94	5991.67
Q Total (cfs)	19382.00	Flow (cfs)	78.13	7908.61	11395.26
Top Width (ft)	1174.51	Top Width (ft)	165.87	94.52	914.12
Vel Total (ft/s)	2.76	Avg. Vel. (ft/s)	3.44	7.78	1.90
Max Chl Dpth (ft)	12.22	Hydr. Depth (ft)	2.23	10.76	6.55
Conv. Total (cfs)	441467.6	Conv. (cfs)	1779.6	180135.9	259552.1
Length Wtd. (ft)	171.30	Wetted Per. (ft)	11.46	97.67	915.70
Min Ch El (ft)	242.06	Shear (lb/sq ft)	0.24	1.25	

0.79					
Alpha	3.53	Stream Power (lb/ft s)	1413.46	0.00	0.00
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)	403.10	160.03	223.91
C & E Loss (ft)	0.00	Cum SA (acres)	59.55	11.45	34.13

Warning: Divided flow computed for this cross-section.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 5604.917

INPUT
Description: not interpolated
Station Elevation Data num= 480

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	267.75	5.05	266.98	7.09	267	8.66	267.15	12.84	267.41
14.32	267.46	15.25	267.59	16.12	267.79	20.44	268.67	23.96	268.78
29.4	268.63	31.31	268.6	50.85	268.54	54.56	268.65	57.5	268.77
72.96	268.62	78.31	268.67	82.07	268.16	83.74	267.98	88.11	267.78
89.34	267.74	95.43	267.07	96.76	266.9	98.13	266.78	102.61	266.18
105.96	266.02	110.23	265.95	111.71	265.87	113.54	266.04	116.53	266.35
125.93	266.36	126.82	266.38	132.92	266.16	134.25	266.16	140.49	266.15
141.77	266.11	148	266.14	149.28	266.15	155.52	265.87	156.81	265.81
158.11	265.79	162.76	265.78	166.17	265.77	170.65	265.43	171.93	265.39
179.35	265.33	185.54	264.9	186.84	264.83	188.16	264.8	192.73	264.82
196.12	264.72	200.63	264.6	208.22	264.37	209.52	264.35	215.82	264.24
217.11	264.21	223.32	264.14	224.48	264.06	225.85	264.03	228.85	263.86
232.09	263.68	238.34	263.55	239.65	263.5	245.9	263.47	247.22	263.47
253.54	263.17	254.86	263.13	256.18	263.07	262.39	262.96	268.54	262.66
269.86	262.67	271.19	262.6	277.4	262.39	283.64	262.28	284.99	262.24
291.13	261.74	292.51	261.68	293.91	261.63	300.16	261.66	301.53	261.65
307.75	261.53	309.07	261.6	315.3	261.76	316.58	261.72	322.81	261.55
324.1	261.5	330.37	261.25	331.68	261.23	337.97	261.42	339.2	261.43
345.59	261.08	346.84	260.97	348.05	260.87	353.13	260.47	359.13	259.61

360.6	259.35	362.19	259.28	367.54	259.08	368.01	259.09	368.92	259.14
369.69	259.16	375.75	259.53	380.94	259.25	384.53	258.98	387.55	258.61
392.11	257.98	396.55	256.16	398.49	255.35	400.47	255.85	406.07	256.78
407.83	257.03	411.8	257.73	415.5	257.98	416.47	257.97	420.08	257.4
421.4	257.21	421.96	257	422.45	256.83	428.84	255.03	430.8	255.28
436.21	255.57	437.43	255.69	440.05	255.54	445.87	255.38	451.18	255.24
453.14	254.91	462.23	253.46	464.96	253.24	466.7	252.84	467.88	252.5
471.63	251.49	475.78	250.48	485.6	248.46	487.9	247.88	490.1	247.61
493.77	247.31	496.99	247.19	500.21	247.02	504.58	246.98	507.88	246.8
512.28	246.31	515.66	245.85	519.83	245.25	521.8	244.61	523.96	243.77
528.62	241.97	529.75	241.46	537.35	241.46	558.38	241.46	568.68	241.45
577.88	241.45	578.14	241.69	579.32	242.5	581.41	243.91	583.37	244.07
588.19	244.39	593.53	244.86	594.91	244.95	595.77	244.99	597.07	245.03
597.95	245.18	603.53	245.61	605.32	245.49	608.91	245.19	610.6	244.98
616.1	245.41	618.1	245.49	619.28	245.69	625.24	245.83	626.42	245.87
627.31	245.89	633.9	246.1	641.06	246.14	642.01	246.14	649.25	245.92
649.5	245.92	656.92	245.63	656.97	245.63	659.28	245.51	664.34	245.27
664.44	245.27	671.83	245.03	672.1	245	679.25	245.01	679.58	245
679.86	245.02	687.18	245.08	687.58	245.06	694.8	245.41	695.15	245.44
701.57	245.29	702.77	245.27	709	245.15	710.4	245.16	716.38	244.86
717.93	244.76	723.81	244.72	725.59	244.6	731.33	244.32	733.22	244.2
736.54	243.71	742.6	244.16	746.97	243.97	753.7	246.12	755.23	246.48
756.11	246.6	760.51	246.9	763.72	247.12	767.83	247.43	771.36	247.42
775.25	247.35	778.95	247.29	781.08	247.37	785.37	247.47	786.61	247.5
788.48	247.57	790.02	247.61	794.19	247.94	798.64	248.26	803.31	248.43
804.59	248.29	807.93	248.05	812.81	248.13	815.5	247.97	816.86	247.82
819.46	247.75	824.49	247.69	826.93	247.6	830.7	247.5	835.27	247.5
839.66	247.44	841.68	247.55	845.09	247.85	848.92	248.09	853.16	248.34
854.68	248.42	855.51	248.47	856.19	248.39	862.33	248.23	863.05	248.24
869.88	248.05	870.52	248.06	871.04	248.16	877.42	248.23	878.34	248.2
884.89	248.17	885.27	248.13	892.38	248.52	892.89	248.52	899.94	247.99
900.33	247.97	907.75	247.96	915.07	247.66	915.13	247.66	922.65	247.99
929.64	247.72	929.91	247.73	930.2	247.71	936.53	247.77	939.56	247.66
943.58	247.63	943.88	247.62	944.77	247.62	951.67	247.68	955.68	247.66
958.31	247.78	959.46	247.84	964.97	247.8	966.54	247.72	967.13	247.78
972.23	247.67	973.55	247.59	977.37	247.73	978.24	247.72	979.66	247.67
982	247.63	983.29	247.55	985.61	247.58	989	247.61	990.28	247.63
992.99	247.65	994.29	247.64	997.62	247.71	1000.11	247.73	1002.57	247.92
1006	248.06	1007.38	248.11	1011.16	247.79	1013.66	247.51	1018.67	247.37
1020.05	247.34	1020.76	247.35	1025.5	247.54	1028.61	247.79	1030.8	247.92
1034.01	247.6	1036.27	247.36	1037.07	247.38	1038.6	247.33	1040.65	247.33
1043.54	247.46	1047.23	247.66	1050.74	247.75	1053.05	247.75	1056.91	247.68
1059.3	247.5	1061.67	247.4	1063.96	247.3	1066.37	247.47	1069.74	247.72
1073.63	247.44	1076.9	247.27	1079.81	247.59	1083.28	247.88	1084.55	247.99
1088.83	247.77	1089.24	247.75	1092.85	247.55	1095.38	247.54	1098.99	247.61
1102.94	247.72	1106.21	247.53	1109.23	247.67	1110.54	247.74	1112.08	247.62
1116.66	247.47	1121.89	247.47	1123.78	247.52	1129.29	247.47	1131.05	247.46
1132.68	247.52	1134.9	247.62	1138.66	247.76	1142.39	247.68	1147	247.49
1147.56	247.45	1148.48	247.47	1153.45	247.6	1155.23	247.57	1158.2	247.45
1158.58	247.42	1164.95	247.13	1171.24	247.27	1171.66	247.29	1172.93	247.33

```
 1178.51   247.5 1180.34  247.54 1185.91  247.47 1192.83  247.67 1193.58  247.68
  1193.8  247.69 1194.13  247.66 1195.26  247.66 1199.96  247.45 1203.18  247.45
 1205.86  247.37 1207.75  247.39 1211.53  247.35 1216.96   247.3 1217.26   247.3
 1219.48  247.35 1225.97  247.43 1233.07  247.39 1239.75  247.28 1240.26  247.28
 1242.69  247.22 1247.59  247.15 1248.67  247.18 1252.93  247.42 1255.28  247.37
 1257.92  247.34 1262.77  247.67 1263.46  247.68  1267.6   247.5 1271.03   247.6
 1273.57  247.66 1278.93  247.58 1280.66  247.67 1285.65  247.51 1286.86  247.53
 1290.54  247.69 1294.54  247.57 1294.97  247.55 1302.27   247.7 1308.27  247.34
 1309.44   247.3 1311.73  247.32 1315.25  247.37 1317.03  247.33 1320.92  247.28
 1323.47  247.19 1326.53  247.22 1331.18  246.93 1332.02  246.89 1333.17  246.87
 1336.91  246.88  1339.6  246.67 1342.27  246.61 1344.16  246.63 1348.25  246.87
 1354.37  246.81 1358.63  246.56 1362.14   246.7 1367.74   246.8 1370.24  246.81
 1377.22  246.87 1378.14  246.85 1383.36  246.68 1385.44  246.75 1389.01  246.94
  1391.2  247.07 1394.57  247.29 1400.05  247.14 1400.13  247.14 1403.21  247.08
 1408.45  247.31 1409.51  247.38 1410.26   247.4 1415.65  247.58 1420.72  247.95
 1421.61  248.05 1423.52  248.31 1428.41  248.93 1431.97  249.39  1434.4  249.72
 1435.66  249.91 1439.51   250.4 1443.44  250.84 1447.07  251.55 1450.37  252.31
 1451.21  252.47 1454.42  252.83 1455.31  252.95 1455.88   253.1 1461.37  254.38
 1465.08  254.99 1466.79  255.12 1467.92  255.32 1471.35  255.72 1474.18  255.99
 1475.33  256.08 1481.42  256.49 1485.33  256.82 1487.88  256.96 1494.66  257.39
  1498.7  257.61 1502.97  258.21 1505.69  258.62 1507.37  258.64 1511.66  258.62
 1517.26  258.78 1517.67  258.78 1518.32   258.8 1521.98  258.83 1525.81  258.97
 1526.15  258.98  1532.9  259.32 1535.56  259.58  1540.1  259.76 1545.84  259.95
 1546.69  260.07 1548.11  259.96 1553.73  259.62 1554.38  259.63 1557.64  259.87
 1561.57  260.25 1562.61  260.39 1564.93  260.65 1568.64  261.08 1572.75  260.98
 1572.96     261 1575.65   261.3 1580.21   261.6 1582.65  261.86 1583.82  261.98
 1588.47  262.25 1589.13  262.31 1589.79  262.36 1591.26  262.61 1598.08  263.03

Manning's n Values        num=       9
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  228.85     .05  348.05     .03  445.87     .12  512.28     .04
  523.96     .04  568.68     .04  603.53     .12  785.37     .12

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        512.28  603.53           444.43  427.14  137.84             .1       .3

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           247.68    Element                 Left OB    Channel
Right OB
  Vel Head (ft)              0.46    Wt. n-Val.               0.120      0.040
  0.120
  W.S. Elev (ft)           247.23    Reach Len. (ft)         444.43     427.14
 137.84
  Crit W.S. (ft)           245.90    Flow Area (sq ft)         5.47     396.92
 337.55
  E.G. Slope (ft/ft)      0.003537   Area (sq ft)              5.47     396.92
 337.55
  Q Total (cfs)            2671.00   Flow (cfs)                1.94    2309.29
```

359.76					
Top Width (ft)	363.56	Top Width (ft)	16.28	91.25	
256.03					
Vel Total (ft/s)	3.61	Avg. Vel. (ft/s)	0.36	5.82	
1.07					
Max Chl Dpth (ft)	5.78	Hydr. Depth (ft)	0.34	4.35	
1.32					
Conv. Total (cfs)	44911.9	Conv. (cfs)	32.7	38829.9	
6049.3					
Length Wtd. (ft)	402.74	Wetted Per. (ft)	16.32	92.88	
256.70					
Min Ch El (ft)	241.45	Shear (lb/sq ft)	0.07	0.94	
0.29					
Alpha	2.26	Stream Power (lb/ft s)	1598.08	0.00	
0.00					
Frctn Loss (ft)	0.75	Cum Volume (acre-ft)	94.48	81.50	
40.48					
C & E Loss (ft)	0.06	Cum SA (acres)	33.82	10.71	
16.47					

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	251.71	Element	Left OB	Channel	
Right OB					
Vel Head (ft)	0.40	Wt. n-Val.	0.120	0.040	
0.120					
W.S. Elev (ft)	251.30	Reach Len. (ft)	444.43	427.14	
137.84					
Crit W.S. (ft)	249.40	Flow Area (sq ft)	129.34	768.82	
3468.53					
E.G. Slope (ft/ft)	0.002150	Area (sq ft)	129.34	768.82	
3468.53					
Q Total (cfs)	10810.00	Flow (cfs)	161.50	5418.91	
5229.58					
Top Width (ft)	973.40	Top Width (ft)	39.88	91.25	

842.27					
Vel Total (ft/s)	2.48	Avg. Vel. (ft/s)	1.25	7.05	1.51
Max Chl Dpth (ft)	9.85	Hydr. Depth (ft)	3.24	8.43	4.12
Conv. Total (cfs)	233144.4	Conv. (cfs)	3483.2	116872.3	112788.9
Length Wtd. (ft)	324.02	Wetted Per. (ft)	40.32	92.88	843.70
Min Ch El (ft)	241.45	Shear (lb/sq ft)	0.43	1.11	0.55
Alpha	4.25	Stream Power (lb/ft s)	1598.08	0.00	0.00
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)	237.75	120.97	130.05
C & E Loss (ft)	0.03	Cum SA (acres)	51.72	10.71	27.63

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	252.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.	0.120	0.040	0.120
W.S. Elev (ft)	251.98	Reach Len. (ft)	444.43	427.14	137.84
Crit W.S. (ft)	249.73	Flow Area (sq ft)	157.33	830.82	4041.86
E.G. Slope (ft/ft)	0.002048	Area (sq ft)	157.33	830.82	4041.86
Q Total (cfs)	12761.00	Flow (cfs)	209.31	6018.59	6533.09
Top Width (ft)	979.14	Top Width (ft)	42.48	91.25	845.42
Vel Total (ft/s)	2.54	Avg. Vel. (ft/s)	1.33	7.24	1.62
Max Chl Dpth (ft)	10.53	Hydr. Depth (ft)	3.70	9.10	4.78
Conv. Total (cfs)	281989.2	Conv. (cfs)	4625.3	132997.3	

144366.6

Length Wtd. (ft)	317.47	Wetted Per. (ft)	43.01	92.88	846.91
Min Ch El (ft)	241.45	Shear (lb/sq ft)	0.47	1.14	0.61
Alpha	4.06	Stream Power (lb/ft s)	1598.08	0.00	0.00
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	280.06	129.46	152.85
C & E Loss (ft)	0.03	Cum SA (acres)	53.95	10.71	29.17

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	254.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.44	Wt. n-Val.	0.120	0.040	0.120
W.S. Elev (ft)	253.93	Reach Len. (ft)	444.43	427.14	137.84
Crit W.S. (ft)	250.75	Flow Area (sq ft)	248.61	1008.53	5699.20
E.G. Slope (ft/ft)	0.001904	Area (sq ft)	248.61	1008.53	5699.20
Q Total (cfs)	19382.00	Flow (cfs)	373.02	8017.22	10991.76
Top Width (ft)	1000.15	Top Width (ft)	52.99	91.25	855.91
Vel Total (ft/s)	2.79	Avg. Vel. (ft/s)	1.50	7.95	1.93
Max Chl Dpth (ft)	12.48	Hydr. Depth (ft)	4.69	11.05	6.66
Conv. Total (cfs)	444143.1	Conv. (cfs)	8547.8	183716.5	251878.7
Length Wtd. (ft)	304.94	Wetted Per. (ft)	53.73	92.88	857.60
Min Ch El (ft)	241.45	Shear (lb/sq ft)	0.55	1.29	0.79
Alpha	3.64	Stream Power (lb/ft s)	1598.08	0.00	

0.00					
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	400.06	151.96	218.25
C & E Loss (ft)	0.04	Cum SA (acres)	58.63	10.71	33.27

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 5177.776

INPUT
Description: not interpolated
Station Elevation Data num= 413

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	258.84	1.77	258.67	4.37	258.23	7.16	258.24	8.94	258.21
12.99	258.73	15.19	258.9	23.26	257.97	24.77	257.95	25.88	258.08
36.65	259.64	40.92	260.14	42.63	259.92	44.19	259.72	46.17	259.46
46.88	259.4	49.76	258.95	52.08	258.65	58.35	257.63	60.55	257.78
62.05	257.63	65.98	257.61	68.02	257.47	82.84	256.45	85.36	256.26
86.18	256.18	87.24	256.14	88.9	256.21	91.05	256.26	91.87	256.21
93.59	256.14	97.35	255.86	98.25	255.8	99.78	255.72	103.01	255.38
106.46	255.18	111.55	254.87	113.57	254.78	116.38	254.71	118.91	254.62
120.74	254.52	125.52	254.24	127.33	254.06	133.43	253.73	137.52	253.43
141.02	253.23	142.82	253.01	147.67	252.37	148.89	252.25	155.82	252.16
156.6	252.16	156.67	252.16	156.71	252.15	156.79	252.14	161.12	251.52
165.11	251.1	165.46	251.06	165.83	251.02	173.34	250.54	175.9	250.23
177.38	250.13	182.05	249.91	184.01	249.87	188.69	249.83	193.38	249.56
195	249.41	197.17	249.19	200.05	248.89	202.23	248.66	204.79	248.61
207.15	248.29	209.28	248.22	211.57	248.2	215.19	248.2	220.23	248
222.15	247.84	223	247.85	225.44	247.68	228.07	247.56	231.48	247.63
233.77	247.5	238.21	247.42	239.77	247.37	245.79	247.12	247.18	247.07
247.54	247.06	251.98	247.27	256.11	247.12	256.71	247.06	257.31	247.06
261.46	246.95	265.59	246.99	266.42	246.97	270.27	246.8	273.45	246.66
274.12	246.7	280.03	247.18	283.46	247.09	285.79	246.98	288.93	246.82
290.74	246.71	292.05	246.72	298.15	246.98	301.46	247.06	306.55	247.23
309.79	247.25	312.6	247.12	315.34	247.27	317.25	247.31	319.23	247.19
323.23	246.98	325.19	247.05	332.36	246.99	336.78	247.13	336.91	247.13
337.11	247.13	343.48	247.2	347.43	247.33	349.02	247.43	355.21	247.17

356.89	247.08	358.91	247.1	365.65	247.24	368.59	247.12	372.98	247.1
376.61	247.19	379.04	247.1	381.69	247.44	381.96	247.42	382.1	247.43
382.41	247.45	398.38	247.3	401.4	247.05	402.58	247.01	411.92	246.72
420.33	246.35	421.56	246.19	424.35	245.98	426.35	245.76	430.56	245.62
438.22	245.36	438.88	245.21	441.46	245.19	447.11	244.91	449.83	244.73
454.08	244.56	454.86	244.49	455.73	244.54	459.97	244.76	463.77	244.22
465.45	243.93	466.27	243.78	470.39	242.59	471.73	242.21	471.95	242.16
472.12	242.17	477.56	242.17	482.13	242.41	484.48	242.38	490.14	241.92
493.77	241.03	495.73	240.71	498.59	240.5	501.08	240.32	503.79	240.32
528.1	240.29	546.83	240.26	566.92	240.23	567.84	240.22	570.7	240.22
574.95	240.21	575.43	240.56	576.32	240.88	578.92	242.31	582.73	242.86
586.11	242.87	591.5	242.87	594.05	242.88	597.3	242.8	600.18	242.71
602.66	242.74	604.94	243.05	607.48	243.61	610.99	244.66	614.73	245.7
617.6	246.31	620.24	246.59	623.14	246.96	627.33	247.42	628.63	247.41
631.97	247.15	634.99	246.94	640.76	246.86	641.72	246.84	642.22	246.86
646.24	247.2	649.82	247.08	650.78	247.02	651.66	247.02	655.7	246.98
659.95	246.85	660.94	246.87	667.65	246.66	668.23	246.59	668.46	246.59
668.93	246.6	673.85	246.75	676.35	246.65	679.41	246.64	682.94	246.55
684.31	246.5	684.68	246.5	685.41	246.53	691.53	246.68	695.61	246.54
697.49	246.58	700.06	246.7	701.82	246.8	704.98	246.8	710.34	247.4
711.44	247.49	713.41	247.39	717.53	246.96	721.05	247.08	723.71	247.06
724.26	247.14	728.92	246.95	732.5	247.09	735.38	247.28	739.01	247.08
740.59	247.03	744.15	247.1	747.91	247.13	749.54	247.15	752.94	247.17
754.74	246.98	757.81	247	761.41	246.89	764.85	246.86	767.43	246.84
768.01	246.83	771.09	247.07	774.01	247.24	774.57	247.23	781.12	246.77
785.37	246.85	787.09	246.84	789.8	246.67	791.49	246.59	792.55	246.67
798.14	246.97	800.18	246.89	806.13	246.88	808.31	246.77	810.41	246.78
812.84	246.77	814.13	246.76	818.57	246.76	822.4	246.73	823.88	246.87
826.09	247.05	830.88	247.09	836.86	246.97	837.62	246.96	838.07	246.97
841.98	246.94	847.4	246.97	848.34	246.87	852.04	247.04	856.66	246.75
856.76	246.74	856.87	246.75	860.52	247.17	863.03	247.08	864.65	247.08
865.74	247.07	871.96	247.3	873.2	247.32	877.53	247.23	879.89	247.25
882.2	247.29	892.24	247.37	893.87	247.37	895.74	247.3	901.17	247.28
903.25	247.38	908.48	247.3	910.79	247.28	915.86	247.14	920.54	247.27
921.7	247.24	921.87	247.23	923.22	247.19	925.93	247.28	929.07	247.29
930.81	247.3	934.73	247.4	937.67	247.41	940.88	247.28	944.97	247.05
948.5	246.9	952.27	246.87	956.1	246.76	959.64	246.81	963.5	247.11
966.84	247.01	971.07	246.68	974.07	246.54	978.66	246.24	981.35	246.19
986.02	246.53	988.53	246.58	993.44	246.7	995.78	246.74	1000.93	246.63
1003	246.7	1008.5	246.4	1010.3	246.33	1015.86	246.39	1017.4	246.38
1023.22	246.58	1024.58	246.56	1030.69	246.37	1031.75	246.39	1038.07	246.56
1038.95	246.56	1045.54	246.4	1046.16	246.37	1052.84	246.66	1053.26	246.69
1060.21	246.42	1060.36	246.41	1060.5	246.41	1068.17	246.21	1074.43	246.26
1074.64	246.26	1081.54	246.4	1081.87	246.42	1088.53	246.33	1088.86	246.29
1089.17	246.3	1089.52	246.3	1096.15	246.33	1102.46	246.23	1103.21	246.25
1109.44	246.36	1110.31	246.32	1116.42	246.33	1117.41	246.37	1123.46	246.4
1124.59	246.36	1130.42	246.62	1131.61	246.7	1132.8	246.8	1139.32	247.14
1144.27	247.05	1145.69	247.03	1151.15	247.1	1152.16	247.11	1153.12	247.25
1158.96	248.73	1159.45	248.73	1160.84	248.97	1167.19	249.79	1171.89	250.42
1173.25	250.78	1178.78	252.22	1180.04	252.38	1185.57	253.06	1186.81	253.3

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 1192.41  254.06 1193.66  254.22 1199.23  254.81 1200.53  254.92 1201.84  255.02
 1208.24  255.98 1212.96  256.41 1214.27  256.48 1218.79   256.5 1220.89  256.78
 1223.31  256.99 1227.46  257.16 1227.97  257.28 1233.35  257.54 1234.87  257.57
 1240.17  257.99 1241.14  258.02 1242.18  258.12 1248.04  258.39 1248.66  258.46
  1253.8  259.04 1255.42  259.21 1260.57  259.31  1262.3  259.37 1267.33  259.81
 1269.13   259.8 1274.05   259.9 1275.94     260 1280.81  260.27 1282.77  260.41
 1287.63  260.47 1289.64  260.59 1294.33  261.23 1296.37  261.34 1301.05  261.42
  1302.3  261.47 1305.18  261.56 1312.22   261.8 1315.71  262.04 1316.65  262.13
 1321.08  262.46 1323.38   262.6 1323.78  262.63

Manning's n Values        num=       8
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03   68.02     .05  402.58     .12  484.48     .04  498.59     .04
  566.92     .04  582.73     .12  764.85     .12

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        484.48  582.73           310.89  335.22  338.41             .1       .3

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           246.87    Element                  Left OB    Channel
Right OB
  Vel Head (ft)              0.25    Wt. n-Val.                0.120      0.040
  0.120
  W.S. Elev (ft)           246.62    Reach Len. (ft)          310.89     335.22
 338.41
  Crit W.S. (ft)           243.45    Flow Area (sq ft)        145.52     593.60
 141.48
  E.G. Slope (ft/ft)      0.001147   Area (sq ft)             145.52     593.60
 141.48
  Q Total (cfs)            2671.00   Flow (cfs)                98.75    2475.48
  96.77
  Top Width (ft)           363.86    Top Width (ft)            70.31      98.25
 195.30
  Vel Total (ft/s)           3.03    Avg. Vel. (ft/s)           0.68       4.17
   0.68
  Max Chl Dpth (ft)          6.41    Hydr. Depth (ft)           2.07       6.04
   0.72
  Conv. Total (cfs)        78855.5   Conv. (cfs)              2915.4    73083.2
 2856.9
  Length Wtd. (ft)         334.81    Wetted Per. (ft)          70.71      98.99
 195.85
  Min Ch El (ft)           240.21    Shear (lb/sq ft)           0.15       0.43
   0.05
  Alpha                      1.76    Stream Power (lb/ft s)  1323.78       0.00
   0.00
  Frctn Loss (ft)            0.33    Cum Volume (acre-ft)       93.71      76.65
  39.72
  C & E Loss (ft)            0.02    Cum SA (acres)             33.38       9.78
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15.75

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	251.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.070	0.040	0.120
W.S. Elev (ft)	250.89	Reach Len. (ft)	310.89	335.22	338.41
Crit W.S. (ft)	248.44	Flow Area (sq ft)	1253.35	1013.20	2466.35
E.G. Slope (ft/ft)	0.001096	Area (sq ft)	1253.35	1013.20	2466.35
Q Total (cfs)	10810.00	Flow (cfs)	2302.93	5883.34	2623.73
Top Width (ft)	1005.84	Top Width (ft)	316.64	98.25	590.95
Vel Total (ft/s)	2.28	Avg. Vel. (ft/s)	1.84	5.81	1.06
Max Chl Dpth (ft)	10.68	Hydr. Depth (ft)	3.96	10.31	4.17
Conv. Total (cfs)	326548.4	Conv. (cfs)	69566.9	177723.9	79257.6
Length Wtd. (ft)	330.73	Wetted Per. (ft)	317.33	98.99	592.27
Min Ch El (ft)	240.21	Shear (lb/sq ft)	0.27	0.70	0.28
Alpha	3.71	Stream Power (lb/ft s)	1323.78	0.00	0.00
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	230.70	112.23	120.66
C & E Loss (ft)	0.04	Cum SA (acres)	49.90	9.78	25.36

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	251.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.068	0.040	0.120
W.S. Elev (ft)	251.60	Reach Len. (ft)	310.89	335.22	

338.41					
Crit W.S. (ft)	248.81	Flow Area (sq ft)	1481.90	1083.22	2888.46
E.G. Slope (ft/ft)	0.001052	Area (sq ft)	1481.90	1083.22	2888.46
Q Total (cfs)	12761.00	Flow (cfs)	2986.22	6442.19	3332.59
Top Width (ft)	1015.89	Top Width (ft)	323.95	98.25	593.69
Vel Total (ft/s)	2.34	Avg. Vel. (ft/s)	2.02	5.95	1.15
Max Chl Dpth (ft)	11.39	Hydr. Depth (ft)	4.57	11.03	4.87
Conv. Total (cfs)	393451.5	Conv. (cfs)	92072.2	198627.7	102751.6
Length Wtd. (ft)	330.23	Wetted Per. (ft)	324.67	98.99	595.10
Min Ch El (ft)	240.21	Shear (lb/sq ft)	0.30	0.72	0.32
Alpha	3.50	Stream Power (lb/ft s)	1323.78	0.00	0.00
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	271.70	120.08	141.88
C & E Loss (ft)	0.04	Cum SA (acres)	52.08	9.78	26.89

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	253.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.	0.066	0.040	0.120
W.S. Elev (ft)	253.60	Reach Len. (ft)	310.89	335.22	338.41
Crit W.S. (ft)	249.77	Flow Area (sq ft)	2155.54	1279.75	4087.43
E.G. Slope (ft/ft)	0.001004	Area (sq ft)	2155.54	1279.75	4087.43
Q Total (cfs)	19382.00	Flow (cfs)	5349.88	8308.20	5723.92
Top Width (ft)	1053.92	Top Width (ft)	349.34	98.25	606.32
Vel Total (ft/s)	2.58	Avg. Vel. (ft/s)	2.48	6.49	1.40
Max Chl Dpth (ft)	13.39	Hydr. Depth (ft)	6.17	13.03	6.74
Conv. Total (cfs)	611595.6	Conv. (cfs)	168814.5	262163.9	

180617.2

Length Wtd. (ft)	329.23	Wetted Per. (ft)	350.18	98.99	607.91
Min Ch El (ft)	240.21	Shear (lb/sq ft)	0.39	0.81	0.42
Alpha	3.06	Stream Power (lb/ft s)	1323.78	0.00	0.00
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	387.79	140.74	202.77
C & E Loss (ft)	0.03	Cum SA (acres)	56.57	9.78	30.96

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 4842.552

INPUT
Description: not interpolated
Station Elevation Data num= 449

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	268.8	2.73	268.47	3.89	268.41	5.3	268.33	8.87	268.32
12.14	268.36	13.87	268.36	15.74	268.36	20.39	268.16	26.04	268.93
27.48	269.19	29.43	269.61	33.14	270.24	36	270.6	39.17	270.83
40.59	270.78	44.03	270.27	51.06	269.22	58.05	266.72	58.41	266.59
58.69	266.51	63.38	265.48	67.63	264.91	68.28	264.84	69.07	264.75
74.18	263.88	77.2	263.64	78.5	263.54	85.06	263.02	85.81	262.98
88.69	263.08	90.51	263.07	90.98	263.06	95.93	262.94	97.77	262.9
100.45	262.86	103.49	262.96	106.65	263.12	108.3	263.15	109.13	263.2
111.29	263.16	114.39	263.19	117.19	262.94	120.08	263.02	122.71	263.28
125.17	263.23	126.02	263.23	132.26	263.55	132.77	263.6	136.76	263.67
139.19	262.78	146.99	260.99	149.22	261.32	153.08	261.23	156.82	261.27
157.72	261.1	160.75	261.3	161.85	261.49	166.57	260.61	168.53	260.41
170.65	260.51	175.22	261.94	177.57	261.62	177.87	261.58	181.04	261.54
185.22	261.28	187.56	260.97	189.98	260.77	192.4	260.54	195.09	260.52
197.34	260.46	199.51	260.33	202.56	260.17	205.77	259.96	208.25	259.75
212.43	259.62	214.67	259.53	216.02	259.42	220.77	259.07	222.46	258.84
226.7	258.29	226.91	258.27	230.72	258.34	232.64	258.2	237.15	258.04
238.18	257.99	238.98	257.96	242.92	257.79	247.43	257.85	247.62	257.86
247.87	257.87	254.83	257.98	257.79	257.87	260.91	257.79	263.6	257.7
266	257.76	268.76	257.71	271.51	257.78	272.95	257.69	278.08	257.56
282.38	258.02	284.35	258.22	289.27	258.27	290.95	258.28	291.52	258.21
293.49	257.95	300.57	256.68	302.36	256.66	303.54	256.58	309.87	256.33
310.01	256.34	310.12	256.33	315.67	256.08	318.71	255.77	321.57	255.41
328.07	254.19	330.68	253.92	334.18	253.45	336.72	253.26	341.67	252.79
342.74	252.67	343.35	252.61	348.51	252.03	351.75	251.44	355.62	251.01
356.49	250.88	357.87	250.74	365.02	250.13	366.06	250.06	367.83	249.92

375.43	249.53	377.83	249.25	381.61	248.75	382.86	248.72	388.9	248.89
395.23	248.92	395.55	248.92	395.85	248.88	397.38	248.41	404.96	248.17
405.22	248.18	405.43	248.15	410.29	247.91	414.5	247.95	415.29	247.96
416.27	247.98	422.17	248.07	425.89	247.95	428.86	247.91	429.81	247.82
432.25	247.83	434.94	247.82	437.83	247.7	440.63	247.58	442.45	247.56
445.29	247.48	445.95	247.47	446.25	247.47	451.02	247.57	453.12	247.63
458.19	247.83	458.91	247.88	459.61	247.81	463.7	247.56	467.88	247.47
468.55	247.48	469.13	247.51	473.93	247.72	479.29	247.48	479.56	247.49
485.83	247.46	488.95	247.29	492.03	247.25	493.24	247.25	495.31	247.43
498.08	247.54	500.74	247.4	504.07	247.14	510.02	246.93	510.11	246.93
514.92	246.88	518.55	246.85	521.67	246.83	526.1	246.72	527.97	246.59
531.07	246.61	533.09	246.6	534.69	246.57	538.2	246.43	541.58	246.26
547.47	246.14	549.11	246.1	549.64	246.1	552.66	245.99	555.92	245.95
558.87	246.12	561.79	246.05	565.78	245.71	568.08	245.65	573.1	245.9
574.12	245.95	575.88	245.93	581.39	245.82	584.62	245.79	588.95	245.77
594.01	245.82	595.95	245.8	597.76	245.8	601.63	245.92	605.76	245.9
607.57	245.95	613.29	245.98	614.23	246	614.53	245.99	620.76	246.07
626.56	245.94	627.02	245.94	627.61	245.95	632.08	246.31	635.57	246.34
637.94	246.44	641.86	246.52	645.44	246.55	647.63	246.49	650.61	246.29
653.22	246.38	654.88	246.4	656.72	246.45	659.96	246.43	661.17	246.5
662.68	246.4	665.55	246.33	668.81	246.26	671.39	246.17	676.16	246.3
677.13	246.32	677.37	246.32	677.99	246.3	683.78	246.32	690.08	246.12
690.19	246.11	690.35	246.12	695.52	246.32	699.19	246.45	700.66	246.53
701.29	246.53	701.85	246.49	707.25	246.49	709.97	246.5	712.82	246.59
715.88	246.68	717.86	246.66	718.8	246.7	720.22	246.63	723.99	246.57
727.11	246.92	729.45	247.15	732.79	246.92	739.78	245.57	740.38	245.51
740.62	245.48	741.6	245.15	753.05	241.6	755.21	240.5	757.15	239.55
765.56	239.55	773.7	239.55	799.85	239.55	805.63	239.55	810.21	239.55
840.5	239.55	854.52	239.56	857.06	241.92	859.24	243.94	859.64	244.99
864.33	245.67	868.47	246.05	871.76	245.77	872.67	245.79	874.9	245.77
880.94	246.04	881.06	246.03	885.18	245.78	889.01	245.74	889.69	245.72
890.21	245.74	895.2	245.86	899.88	246.07	900.61	246.1	908.64	245.87
914.83	245.95	921.36	246	922.3	245.99	924.71	245.97	927.54	246.05
929.08	246.09	930.37	246.12	933.98	246.18	936.38	246.28	939.03	246.38
941.22	246.45	942.23	246.48	943.95	246.53	945.22	246.6	948.82	246.41
951.28	246.29	958.08	246.15	959.96	246.15	964.29	245.8	964.32	245.8
967.79	246.05	969.41	245.95	972.64	245.65	977.87	246.09	981.62	246.42
985.34	246.05	987.43	245.79	990.11	245.86	992.02	245.94	993.42	246.12
998.53	246.5	1002.83	246.15	1010.33	246.03	1021.19	245.81	1026.05	245.78
1028.42	245.76	1032.03	245.89	1033.64	245.79	1038.06	245.5	1041.92	245.51
1043.54	245.41	1049.61	245.35	1049.94	245.36	1050.41	245.33	1054.62	245.27
1057.55	245.29	1059.4	245.34	1060.46	245.31	1064.4	245.15	1068.19	245.05
1071.29	245.04	1075.69	245.21	1077.42	245.27	1081.25	245.06	1085.42	245.07
1087.96	245.06	1092.57	245.15	1093.6	245.16	1095.84	245.24	1098.44	245.3
1100.47	245.37	1105.51	245.38	1110.56	245.48	1112.33	245.5	1114.09	245.44
1117.52	245.36	1121.97	245.43	1122.22	245.43	1122.37	245.42	1127.19	245.24
1130.64	245.38	1133.48	245.41	1137.61	245.55	1143.23	246.14	1143.91	246.23
1144.46	246.27	1149.77	246.97	1154.84	248.2	1155.47	248.36	1156.26	248.52
1160.42	249.11	1163.77	249.71	1165.88	250.15	1168.29	250.67	1172.9	251.5
1176.88	252.48	1178.47	252.74	1180.08	252.93	1182.23	253.14	1184.33	253.4

```
 1186.69  253.84 1188.28  254.19 1192.05  255.01 1197.38  255.91 1197.47  255.94
 1203.33  257.59 1203.71  257.62 1203.74  257.62  1204.2  257.63  1204.9   257.8
 1209.32  258.44 1212.09  258.47    1215  258.36 1219.74  258.47  1220.5  258.49
 1220.78  258.48  1221.1  258.49 1236.74  258.39 1248.19  258.48 1254.08  258.43
 1255.31  258.49 1257.44  258.55 1259.69  258.45 1274.79  257.85 1277.57   257.9
  1280.4  257.95 1282.89  257.87 1284.04  258.06 1288.37  258.18  1291.1  258.32
 1293.62  258.03 1297.46  257.99 1298.11  257.94 1298.46  257.95 1301.84  257.91
  1304.4  257.97 1309.28  258.06 1311.25  258.15 1319.41  258.49 1319.91  258.51
  1325.9  258.21  1331.9  258.49 1332.42  258.48 1335.89  258.66 1338.22  258.59
 1341.34  258.36 1342.81  258.16 1343.87  258.18 1348.62  258.39 1351.97  258.45
  1354.8  258.52 1358.88  258.55 1360.42  258.58 1362.62  258.59 1364.97  258.68
  1366.6  258.75 1370.08  258.89 1371.99  258.98  1375.5  258.98 1380.35  258.83
 1380.92  258.83 1381.96  258.89 1387.67  259.11 1388.63  259.14 1389.66  259.19
 1393.69  259.42 1396.02  259.63 1399.29  259.82 1404.68  260.16

Manning's n Values        num=       9
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05   90.51     .03  177.57     .05  712.82     .12  729.45     .04
  765.56     .04  857.06     .04  868.47     .12   922.3     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        729.45  868.47           383.76  532.05  503.01             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1231.07 1256.82256.4643

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           246.52    Element                  Left OB    Channel
Right OB
  Vel Head (ft)              0.17    Wt. n-Val.                0.050      0.040
  0.053
  W.S. Elev (ft)           246.35    Reach Len. (ft)          383.76     532.05
 503.01
  Crit W.S. (ft)           242.36    Flow Area (sq ft)         40.05     752.28
 166.67
  E.G. Slope (ft/ft)      0.000850   Area (sq ft)              40.05     752.28
 166.67
  Q Total (cfs)            2671.00   Flow (cfs)                17.53    2543.42
 110.05
  Top Width (ft)            522.23   Top Width (ft)           130.16     132.72
 259.34
  Vel Total (ft/s)            2.79   Avg. Vel. (ft/s)           0.44       3.38
   0.66
  Max Chl Dpth (ft)           6.80   Hydr. Depth (ft)           0.31       5.67
   0.64
  Conv. Total (cfs)        91615.1   Conv. (cfs)               601.3    87238.9
 3774.8
  Length Wtd. (ft)          521.03   Wetted Per. (ft)         130.24     136.39
```

```
 259.62
  Min Ch El (ft)            239.55    Shear (lb/sq ft)            0.02       0.29
   0.03
  Alpha                       1.41    Stream Power (lb/ft s)   1404.68       0.00
   0.00
  Frctn Loss (ft)             0.47    Cum Volume (acre-ft)       93.05      71.47
  38.52
  C & E Loss (ft)             0.00    Cum SA (acres)             32.66       8.89
  13.99
```

Warning: Divided flow computed for this cross-section.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #2%

```
  E.G. Elev (ft)            250.88    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.17    Wt. n-Val.                0.052      0.040
  0.056
  W.S. Elev (ft)            250.71    Reach Len. (ft)           383.76     532.05
 503.01
  Crit W.S. (ft)            247.38    Flow Area (sq ft)        1367.71    1355.29
1423.72
  E.G. Slope (ft/ft)      0.000643    Area (sq ft)             1367.71    1355.29
1423.72
  Q Total (cfs)           10810.00    Flow (cfs)               2384.04    5724.59
2701.37
  Top Width (ft)            810.28    Top Width (ft)            371.22     139.02
 300.04
  Vel Total (ft/s)            2.61    Avg. Vel. (ft/s)            1.74       4.22
   1.90
  Max Chl Dpth (ft)          11.16    Hydr. Depth (ft)            3.68       9.75
   4.75
  Conv. Total (cfs)       426275.9    Conv. (cfs)              94010.8   225740.6
106524.5
  Length Wtd. (ft)          478.54    Wetted Per. (ft)          371.62     142.75
 300.77
  Min Ch El (ft)            239.55    Shear (lb/sq ft)            0.15       0.38
   0.19
  Alpha                       1.62    Stream Power (lb/ft s)   1404.68       0.00
   0.00
```

Frctn Loss (ft)	0.34	Cum Volume (acre-ft)	221.34	103.12	105.55
C & E Loss (ft)	0.00	Cum SA (acres)	47.44	8.87	21.90

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	251.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.	0.052	0.040	0.056
W.S. Elev (ft)	251.43	Reach Len. (ft)	383.76	532.05	503.01
Crit W.S. (ft)	247.69	Flow Area (sq ft)	1636.83	1455.21	1640.80
E.G. Slope (ft/ft)	0.000618	Area (sq ft)	1636.83	1455.21	1640.80
Q Total (cfs)	12761.00	Flow (cfs)	3118.53	6318.86	3323.61
Top Width (ft)	820.64	Top Width (ft)	377.59	139.02	304.03
Vel Total (ft/s)	2.70	Avg. Vel. (ft/s)	1.91	4.34	2.03
Max Chl Dpth (ft)	11.88	Hydr. Depth (ft)	4.33	10.47	5.40
Conv. Total (cfs)	513267.7	Conv. (cfs)	125432.3	254154.7	133680.7
Length Wtd. (ft)	474.06	Wetted Per. (ft)	378.03	142.75	304.83
Min Ch El (ft)	239.55	Shear (lb/sq ft)	0.17	0.39	0.21
Alpha	1.55	Stream Power (lb/ft s)	1404.68	0.00	0.00
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	260.57	110.31	124.29
C & E Loss (ft)	0.00	Cum SA (acres)	49.58	8.87	23.40

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	253.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.051	0.040	0.056
W.S. Elev (ft)	253.43	Reach Len. (ft)	383.76	532.05	503.01
Crit W.S. (ft)	248.80	Flow Area (sq ft)	2409.03	1734.02	2260.56
E.G. Slope (ft/ft)	0.000595	Area (sq ft)	2409.03	1734.02	2260.56
Q Total (cfs)	19382.00	Flow (cfs)	5658.86	8306.19	5416.95
Top Width (ft)	850.11	Top Width (ft)	395.05	139.02	316.04
Vel Total (ft/s)	3.03	Avg. Vel. (ft/s)	2.35	4.79	2.40
Max Chl Dpth (ft)	13.88	Hydr. Depth (ft)	6.10	12.47	7.15
Conv. Total (cfs)	794283.8	Conv. (cfs)	231902.7	340391.8	221989.2
Length Wtd. (ft)	465.59	Wetted Per. (ft)	395.62	142.75	317.02
Min Ch El (ft)	239.55	Shear (lb/sq ft)	0.23	0.45	0.27
Alpha	1.42	Stream Power (lb/ft s)	1404.68	0.00	0.00
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	371.50	129.14	178.11
C & E Loss (ft)	0.00	Cum SA (acres)	53.92	8.87	27.38

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the

entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 4310.577

INPUT
Description:
Station Elevation Data num= 466

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	264	2.5	263.74	4.29	263.41	8.89	262.06	12.38	261.46
13.56	261.59	15.21	261.56	18.93	261.78	23.85	261.44	24.05	261.43
24.3	261.36	27.17	260.51	28.91	261.22	35.92	262.26	39.38	263.61
42.79	264.94	43.92	265.23	44.5	265.1	45.93	264.87	51.38	263.82
53.48	263.14	54.8	262.72	57.46	262.63	66.39	262.2	69.32	262.03
73.25	261.84	74.52	261.81	77.84	261.67	82.25	261.55	83.29	261.51
84.95	261.46	91.28	261.33	95.3	261.31	98.7	261.28	104.12	260.82
105.64	260.68	106.58	260.62	111.08	260.43	114.12	260.14	116.31	260.08
119.05	260.35	123.66	260.14	125.65	260.13	126.89	260.13	132.35	259.98
133.75	259.86	138.19	259.66	139.04	259.62	143.24	259.61	145.9	259.56
153.65	259.13	154.24	259.1	155.72	259.05	159.66	258.85	162.15	258.72
164.63	258.51	168.66	258.42	169.99	258.38	170.23	258.35	175.73	258.15
178.42	258.09	182.96	257.78	184.06	257.81	188.95	257.81	196.76	257.4
199.26	257.21	202.23	257.11	203.24	257.08	204.47	257	209.93	256.64
212.21	256.56	216.92	256.21	217.34	256.19	217.44	256.18	217.5	256.17
217.73	256.14	224.5	255.43	228.82	255.17	230.89	255.03	231.61	255.02
239.16	254.05	240.7	253.83	241.1	253.8	241.38	253.77	241.93	253.69
247.15	253.24	249.06	252.84	252.69	252.83	252.93	252.83	253.14	252.81
259.96	252.33	264.43	252.09	265	252.05	265.27	252.04	266.19	251.92
270.32	251.42	273.61	251.1	275.09	251.01	277.04	251.17	281.8	251.09
285.03	250.47	289.48	250.16	294.67	250.09	297.01	250.01	300.28	249.65
303.09	249.39	305.5	249.25	310.59	249.36	312.01	249.29	314.47	249.19
319.4	248.86	324.6	248.69	326.73	248.64	328.25	248.67	331.79	248.52
336.73	248.45	340.61	248.33	341.67	248.28	342.7	248.32	347.27	248.35
349.25	248.21	354.12	247.96	356.87	247.86	359.53	248	360.71	248
364.4	247.78	367.45	247.57	368.04	247.55	371.91	247.46	374.14	247.56
377.02	247.5	379.48	247.35	380.85	247.36	383.32	247.45	388.27	247.19
391.11	247.1	394.53	247.12	395.09	247.12	401.59	247.11	402.16	247.13
403.57	247.08	407.26	247.23	411.02	247.1	414.56	247.07	415.69	247.12
421.7	246.97	422.69	246.9	426.48	246.92	429.35	246.89	430.26	246.91
434.33	246.88	439.52	246.89	441.68	246.83	446.59	246.67	447.95	246.66
452.2	246.64	454.17	246.64	454.6	246.65	460.36	246.67	462.17	246.61
466.6	246.68	469.81	246.79	472.89	246.62	477.46	246.55	479.14	246.56
485.16	246.41	485.48	246.41	486.87	246.46	492.53	246.6	494.89	246.53
499.78	246.34	505.19	246.46	507.06	246.42	511.49	246.45	514.2	246.43
514.44	246.42	514.86	246.42	521.1	246.36	521.95	246.37	523.38	246.4
527.96	246.48	529.52	246.5	531.94	246.41	534.8	246.36	537.02	246.41

540.49	246.24	541.71	246.27	544.47	246.44	548.41	246.18	548.97	246.18
551.92	246.33	554.68	246.47	557.58	246.53	559.39	246.49	561.05	246.56
566.24	246.41	566.87	246.35	567.42	246.37	570.73	246.41	574.2	246.45
575.11	246.49	582.5	246.47	587.1	246.52	588.46	246.64	592.97	246.47
595.57	246.39	601.83	246.49	602.67	246.51	605.9	246.64	609	246.77
610.08	246.78	611.31	246.66	617.84	246.65	623.08	246.7	625.79	246.83
626.67	246.82	629.45	246.57	632.88	246.25	633.55	246.24	639.11	246.47
641.1	246.57	643.56	246.52	647.72	246.42	651.16	246.34	656.01	245.87
657.19	245.82	663.67	245.75	663.99	245.73	664.2	245.73	670.95	245.46
675.73	245.31	677.61	245.26	679.19	245.15	682.61	244.99	683.92	244.93
685.6	244.85	685.72	244.84	685.88	244.83	690.34	244.51	691.53	244.42
693.07	244.33	693.27	244.3	693.66	244.3	699.93	244.44	700.65	244.41
702.09	244.34	706.79	243.99	708.02	243.9	710.37	243.99	713.51	244.15
715.29	244.14	715.94	244.17	718.62	244.3	720.23	244.27	722.59	244.05
726.87	244.2	726.99	244.2	729.91	243.95	733.23	244.01	735.25	244.09
739.17	244.37	743.6	244.53	744.37	244.5	745.17	244.63	749.12	244.91
751.56	245.09	752.04	245.08	758.39	245.25	760.61	245.1	765.57	244.13
766.25	244.03	768.51	243.78	773.57	243.17	777.73	243.44	779.49	243.55
786.13	243.7	786.25	243.7	786.31	243.7	787.08	243.74	792.14	244
793.92	244.07	797.91	244.38	801.21	244.47	806.2	244.81	809.29	245.08
809.33	245.08	812.86	244.79	816.21	244.22	821.94	243.63	824.22	243.52
828.11	243.38	831.55	243.4	834.25	243.3	838.92	243	839.72	243.14
841.58	242.86	851.89	242.32	859.13	242.27	860.73	242.27	863.12	242.96
867.78	244.19	868.81	244.14	874.22	244.53	875.1	244.57	880.87	244.37
883.12	244.34	887.41	244.46	889.38	244.56	892.06	244.31	896.8	243.96
899.2	243.95	900.5	244.04	906.56	244.26	906.89	244.25	908.75	243.95
913.78	243.17	914.35	243.17	920.41	243.93	924.58	243.74	926.26	243.7
930.41	243.26	933.03	243.02	933.56	242.99	940.12	242.42	942.14	242.2
945.06	241.92	947.91	241.78	950.82	241.66	953.69	240.81	954.11	240.28
955.15	239.52	955.66	239.52	985.59	238.69	988.35	238.69	991.1	238.69
1023.25	239.52	1023.76	239.52	1024.41	239.52	1024.82	239.52	1025.01	239.62
1025.07	239.66	1031.49	243.05	1032.66	243.23	1034.69	243.52	1038.36	243.92
1039.27	243.91	1043.91	243.66	1045.82	243.72	1050.77	243.95	1052.07	243.95
1052.76	243.93	1056.69	244.06	1060.11	244.14	1062.7	244.04	1067.53	243.89
1068.76	243.86	1074.18	243.85	1074.83	243.86	1075.22	243.86	1080.94	244.2
1085.08	244.47	1086.71	244.52	1090.42	244.57	1093.24	244.54	1093.92	244.57
1099.54	244.55	1101.75	244.62	1103.31	244.79	1105.67	244.9	1110.18	245.65
1111.62	245.89	1116.81	246.51	1117.59	246.65	1120.69	247.09	1123.1	247.52
1124.35	247.7	1128.04	248.54	1129.83	249.01	1131.35	249.26	1136.01	250.03
1138.35	250.2	1139.08	250.29	1144.19	250.76	1146.28	250.81	1150.11	250.87
1153.51	251.11	1155.98	251.28	1160.67	251.57	1161.78	251.67	1166.66	252.1
1167.58	252.15	1168.24	252.19	1174.12	252.29	1179.38	252.44	1180.57	252.49
1180.82	252.49	1181.23	252.49	1182.46	252.61	1186.53	252.83	1187.44	252.87
1192.33	252.85	1194.45	252.92	1198.02	253.11	1201.36	253.32	1203.74	253.41
1208.24	253.52	1209.38	253.57	1214.67	253.84	1215.04	253.85	1215.1	253.86
1221.18	254.19	1222.16	254.26	1225.39	254.38	1227.28	254.43	1230.07	254.6
1233.46	254.79	1234.3	254.82	1239.63	255.12	1241.94	255.21	1245.81	255.41
1249.5	255.63	1251.86	255.66	1257.05	255.89	1257.99	255.96	1261.84	256.26
1263.64	256.44	1264.55	256.45	1268.85	256.56	1272.17	256.72	1273.94	256.8
1277.5	257.15	1279.13	257.29	1279.42	257.31	1279.98	257.32	1286.05	257.16

```
 1290.09  257.24  1292.6  257.24 1295.51  257.46 1299.05  257.64 1300.88  257.74
 1305.54  258.11 1306.28  258.17 1309.96  258.39 1311.85  258.53 1313.12  258.55
 1317.89  258.73 1323.13  259.11 1323.89  259.17 1325.03  259.18 1329.71  259.29
  1330.7   259.3 1335.44  259.52 1337.02  259.58 1341.35  259.74 1344.49  260.03
 1345.01  260.17  1350.6   260.3 1351.53  260.35 1357.65  260.88 1357.99  260.91
 1358.23  260.92 1361.94  261.11 1363.96  261.25 1364.13  261.26 1380.11  261.71
 1385.82     262

Manning's n Values        num=       8
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03   39.38     .05  715.94     .12  940.12     .04  942.14     .04
  955.66     .04 1025.07     .04 1031.49     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        940.12 1031.49           279.48  327.09  326.13             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  1317.7 1320.07266.2577

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)            246.05    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.19    Wt. n-Val.                0.108      0.040
  0.050
  W.S. Elev (ft)            245.86    Reach Len. (ft)          279.48     327.09
 326.13
  Crit W.S. (ft)            242.64    Flow Area (sq ft)        504.50     565.64
 133.18
  E.G. Slope (ft/ft)      0.000964    Area (sq ft)             504.50     565.64
 133.18
  Q Total (cfs)             2671.00    Flow (cfs)               324.24    2174.37
 172.39
  Top Width (ft)             455.08    Top Width (ft)           283.79      91.37
  79.93
  Vel Total (ft/s)            2.22    Avg. Vel. (ft/s)           0.64       3.84
   1.29
  Max Chl Dpth (ft)           7.17    Hydr. Depth (ft)           1.78       6.19
   1.67
  Conv. Total (cfs)        86048.4    Conv. (cfs)              10445.5    70049.2
 5553.7
  Length Wtd. (ft)          319.76    Wetted Per. (ft)         284.81      92.93
  80.12
  Min Ch El (ft)            238.69    Shear (lb/sq ft)           0.11       0.37
   0.10
  Alpha                       2.47    Stream Power (lb/ft s)  1385.82       0.00
   0.00
  Frctn Loss (ft)             0.38    Cum Volume (acre-ft)       90.65      63.42
  36.79
```

C & E Loss (ft)	0.01	Cum SA (acres)	30.84	7.53	12.03

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	250.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.076	0.040	0.050
W.S. Elev (ft)	250.34	Reach Len. (ft)	279.48	327.09	326.13
Crit W.S. (ft)	246.80	Flow Area (sq ft)	2964.42	975.66	555.43
E.G. Slope (ft/ft)	0.000772	Area (sq ft)	2964.42	975.66	555.43
Q Total (cfs)	10810.00	Flow (cfs)	4622.29	4827.73	1359.98
Top Width (ft)	852.82	Top Width (ft)	653.28	91.37	108.17
Vel Total (ft/s)	2.40	Avg. Vel. (ft/s)	1.56	4.95	2.45
Max Chl Dpth (ft)	11.65	Hydr. Depth (ft)	4.54	10.68	5.13
Conv. Total (cfs)	389120.5	Conv. (cfs)	166385.5	173780.6	48954.3
Length Wtd. (ft)	305.57	Wetted Per. (ft)	654.58	92.93	108.75
Min Ch El (ft)	238.69	Shear (lb/sq ft)	0.22	0.51	0.25
Alpha	2.20	Stream Power (lb/ft s)	1385.82	0.00	0.00
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	202.26	88.88	94.12
C & E Loss (ft)	0.02	Cum SA (acres)	42.93	7.46	19.54

Warning: When the Manning's n value for the channel was composited, the computed n

value was larger [smaller] than the
         largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
         wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	251.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.074	0.040	0.050
W.S. Elev (ft)	251.08	Reach Len. (ft)	279.48	327.09	326.13
Crit W.S. (ft)	247.54	Flow Area (sq ft)	3449.14	1043.14	639.59
E.G. Slope (ft/ft)	0.000743	Area (sq ft)	3449.14	1043.14	639.59
Q Total (cfs)	12761.00	Flow (cfs)	5905.00	5294.64	1561.36
Top Width (ft)	873.34	Top Width (ft)	660.35	91.37	121.63
Vel Total (ft/s)	2.49	Avg. Vel. (ft/s)	1.71	5.08	2.44
Max Chl Dpth (ft)	12.39	Hydr. Depth (ft)	5.22	11.42	5.26
Conv. Total (cfs)	468225.4	Conv. (cfs)	216665.7	194270.3	57289.3
Length Wtd. (ft)	304.10	Wetted Per. (ft)	661.72	92.93	122.23
Min Ch El (ft)	238.69	Shear (lb/sq ft)	0.24	0.52	0.24
Alpha	2.07	Stream Power (lb/ft s)	1385.82	0.00	0.00
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	238.17	95.05	111.12
C & E Loss (ft)	0.02	Cum SA (acres)	45.00	7.46	20.95

Warning: Divided flow computed for this cross-section.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
         largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
         wish to examine this cross section and enter a single n value for the entire channel.

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	253.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.071	0.040	0.050
W.S. Elev (ft)	253.11	Reach Len. (ft)	279.48	327.09	326.13
Crit W.S. (ft)	248.58	Flow Area (sq ft)	4822.50	1228.30	923.36
E.G. Slope (ft/ft)	0.000726	Area (sq ft)	4822.50	1228.30	923.36
Q Total (cfs)	19382.00	Flow (cfs)	10201.22	6871.14	2309.64
Top Width (ft)	950.22	Top Width (ft)	692.34	91.37	166.51
Vel Total (ft/s)	2.78	Avg. Vel. (ft/s)	2.12	5.59	2.50
Max Chl Dpth (ft)	14.42	Hydr. Depth (ft)	6.97	13.44	5.55
Conv. Total (cfs)	719530.2	Conv. (cfs)	378706.2	255081.7	85742.3
Length Wtd. (ft)	301.15	Wetted Per. (ft)	693.82	92.93	167.18
Min Ch El (ft)	238.69	Shear (lb/sq ft)	0.31	0.60	0.25
Alpha	1.84	Stream Power (lb/ft s)	1385.82	0.00	0.00
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	339.65	111.05	159.72
C & E Loss (ft)	0.02	Cum SA (acres)	49.13	7.46	24.59

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
        largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
        wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy

REACH: 1 RS: 3983.411

INPUT
Description:
Station Elevation Data num= 465

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	263.98	1.03	263.95	2.02	263.92	8.48	263.68	9.85	263.68
13.55	263.83	15.48	263.7	17.55	263.3	24.73	261.46	30.34	261.64
30.72	261.66	31.21	261.58	35.52	260.9	35.71	260.85	38.64	260.11
40.51	260.33	45.12	261.17	47.46	261.86	50.89	262.1	52.15	262.18
55.05	262.25	57.83	261.92	62.56	260.82	66.89	260.52	68.07	260.41
71.75	260.48	77.18	260.5	80.41	260.13	82.42	259.82	83.95	259.75
90.09	259.56	90.95	259.53	96.15	259.24	98.43	259.19	103.95	259.22
105.82	259.21	111.79	258.95	113.56	258.88	120.36	258.8	120.75	258.75
127.53	258.48	128.23	258.49	128.44	258.47	135.59	258.41	135.72	258.39
143.15	257.95	143.22	257.95	144.63	257.92	150.44	257.77	150.76	257.76
157.65	257.84	158.43	257.83	164.92	257.42	166.07	257.37	172.27	257.1
173.83	257.01	179.55	256.73	181.47	256.68	186.83	256.34	189.13	256.21
194.09	256.04	196.76	255.83	201.34	255.42	204.37	255.36	208.55	255.39
212.05	255.16	215.86	254.9	219.77	254.7	220.91	254.57	223.27	254.4
227.52	254.29	230.54	254.19	235.18	254.04	237.78	253.86	242.75	253.27
245.08	253.13	250.44	252.92	251.06	252.86	252.35	252.82	258.14	252.6
259.61	252.52	265.87	252.01	266.25	251.98	266.74	251.97	273.78	252.3
274.15	252.25	279.9	251.57	284.12	251.5	288.65	251.26	288.78	251.25
288.93	251.26	294.94	251.58	298.79	251.34	303.06	250.93	303.9	250.88
310.19	250.87	311.41	250.79	317.44	250.38	318.92	250.39	324.6	250.36
326.43	250.23	331.71	250.01	333.84	250.02	338.69	250.44	341.26	250.46
345.93	249.97	348.83	249.78	353.19	249.58	356.35	249.56	360.34	249.41
363.82	249.2	367.58	249.06	371.21	248.9	375.38	248.9	378.69	248.94
383.16	248.92	386.12	248.8	390.96	248.49	393.57	248.45	398.85	248.52
401.07	248.45	406.65	248.29	408.5	248.31	414.42	248.05	415.93	247.99
422.13	247.94	423.29	247.9	429.89	247.98	430.65	248.01	437.64	247.65
437.97	247.61	438.07	247.62	438.45	247.63	446.76	247.68	452.49	247.87
452.91	247.87	453.39	247.84	460.39	247.21	466.47	247.26	467.69	247.28
469.08	247.3	475.02	247.34	476.96	247.2	482.71	246.77	487.47	246.59
489.24	246.48	490.3	246.48	492.73	246.44	497.33	246.43	501.35	246.34
504.67	246.36	508.17	246.37	511.99	246.39	515.1	246.26	518.15	246.03
519.24	246	524.3	245.99	526.83	246	532.2	245.85	534.36	245.8
535.98	245.86	539.86	245.99	542.25	245.88	548	245.75	548.93	245.7
549.73	245.7	556.31	245.35	556.73	245.33	562.96	245.23	563.66	245.22
563.7	245.22	570.82	245.28	571.2	245.29	577.97	245.25	578.41	245.24
578.84	245.26	579.42	245.22	586.62	244.98	592.19	244.97	593.49	244.98
599.27	245.04	600.9	245.05	602.7	244.92	608.76	244.73	613.59	244.5
615.81	244.43	616.8	244.45	618.65	244.51	619.05	244.52	620.69	244.57
622.31	244.71	623.94	244.62	629.59	244.36	630.56	244.29	634.8	244.23
636.86	244.31	638.85	244.23	644.15	244.11	645.28	244.15	648.95	243.96
652.65	244.01	659.11	243.89	663.46	243.9	665.46	243.61	667.13	243.41
672.05	243.09	675.31	242.91	676.31	242.9	677.96	242.87	683.12	243
684.75	243.22	689.43	243.26	691.34	243.09	696.78	243.01	699.84	243.08
709.6	242.77	711.38	242.75	712.37	242.87	718.56	243.57	719.17	243.6

725.65	244.24	725.79	244.25	732.18	243.99	732.89	243.96	732.93	243.96
739.95	243.94	740.14	243.93	747.13	243.49	747.34	243.48	748.09	243.47
754.11	243.67	755.61	243.63	761.13	243.3	761.78	243.31	768.09	243.19
768.6	243.23	769.26	243.23	773.39	243.14	779.78	243.15	781.32	243.04
782.3	242.87	785.71	242.94	789.24	243.17	793.16	242.86	796.28	242.65
800.65	242.69	803.21	242.69	808.12	242.72	810.16	242.72	815.62	243.03
817.03	243.18	818.26	243.21	825.2	243.55	830.77	243.56	831.01	243.56
833.45	243.71	837.76	243.98	837.89	243.98	837.99	243.97	844.7	243.78
844.99	243.77	845.2	243.77	847.3	243.59	851.24	243.67	854.37	243.4
858.73	243.06	859.31	243.09	860.83	242.95	870.78	242.51	872.26	242.43
875.67	242.95	879.3	243.02	881.64	242.94	887.45	242.97	888.31	242.79
893.08	242.51	895.43	242.62	899.83	242.81	901.48	242.94	902.55	242.91
903.72	242.94	906.33	243.03	910.75	242.84	913.42	243.2	917.65	243.29
920.25	242.91	924.71	242.16	925.79	241.71	929.54	240.89	932.63	239.43
934.87	239.43	940.91	239.21	958.65	238.18	960.91	238.18	963.16	238.18
980.91	238.93	990.23	239.43	991.01	239.43	991.84	240.31	992.24	240.52
994.2	241.57	994.59	241.64	1000.52	242.59	1001.71	242.69	1007.05	242.65
1009.22	242.76	1012.29	242.99	1018.71	244.18	1024.62	245.23	1027.28	245.71
1030.25	246.05	1041.72	246.59	1047.23	246.71	1048.88	246.97	1053.35	246.87
1057.99	246.91	1060.33	247.06	1065.81	247.03	1067.36	247.1	1072.38	247.55
1074.33	247.62	1079.68	248.08	1083.16	248.34	1085.56	248.53	1087.96	248.45
1090.54	248.54	1094.86	248.65	1096.99	248.77	1101.68	249.46	1102.78	249.58
1104.12	249.66	1110.49	250.16	1114.66	250.42	1119.15	250.32	1121.39	250.72
1134.55	250.99	1135.14	250.97	1135.58	250.94	1141.6	251.04	1143.17	251.3
1144.74	251.49	1150.59	251.21	1151.5	251.26	1152.63	251.21	1157.28	251.1
1157.99	251.1	1158.74	251.09	1164.33	250.91	1164.89	250.92	1168.32	251.1
1170.99	251.26	1171.17	251.27	1173.46	251.64	1177.34	251.83	1182.44	251.74
1186.23	251.68	1189.19	251.97	1190.68	251.94	1191.09	251.9	1195.49	251.55
1197.32	251.61	1201.6	251.62	1203.83	251.57	1207.66	251.93	1210.26	252.12
1213.24	252.14	1216.71	252.07	1220.17	251.97	1223.23	251.87	1227.05	251.97
1228.18	252.01	1229.83	252.08	1231.81	252.13	1233.94	252.16	1236.93	252.13
1237.89	252.21	1241.36	252.39	1245.28	252.18	1245.66	252.13	1246.5	252.07
1248.39	251.93	1249.23	251.87	1253.1	252.04	1258.61	252	1258.66	252
1259.72	252.11	1262.36	252.4	1262.48	252.4	1268.48	252.85	1271.67	253.15
1274.49	253.38	1275.62	253.54	1280.14	253.99	1284.75	254.2	1285.5	254.12
1286.27	254.2	1290.04	254.27	1291.66	254.36	1292.65	254.35	1293.68	254.41
1295.19	254.44	1296.67	254.37	1298.22	254.36	1299.76	254.45	1302.04	254.5
1303.67	254.6	1305	254.64	1307.86	254.76	1311.35	254.98	1311.8	255.01
1312.92	255.04	1314.64	255.08	1315.33	255.1	1318.99	255.18	1322.79	255.43
1323.74	255.48	1324.64	255.53	1328.15	255.58	1328.53	255.57	1333.88	255.74
1337.78	255.92	1338.74	255.95	1341.58	256.44	1341.63	256.45	1341.67	256.45
1342.45	256.5	1349.92	256.92	1350.37	256.94	1350.49	256.95	1352.43	257.02
1354.79	257.08	1355.94	257.08	1357.88	257.22	1361.93	257.4	1364.27	257.57
1367.25	257.81	1369.81	258.06	1377.44	259.08	1378.29	259.21	1379.33	259.25
1379.73	259.27	1431.04	261.3	1431.12	261.33	1431.3	261.3	1438.79	261.3
1440.32	261.18	1443.39	260.82	1445.66	260.79	1447.9	261.39	1449.95	261.74
1454.2	261.99	1456.4	262.08	1457.44	262.19	1458.65	262.29	1461.07	262.57
1463.33	262.74	1464.98	262.9	1468.1	263.21	1470.24	263.39	1471.61	263.4
1473.16	263.55	1482.31	263.9	1482.83	263.95	1483.73	263.98	1485.79	264.11

Manning's n Values num= 9

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.03	50.89	.05	619.05	.12	924.71	.04	940.91	.04
990.23	.04	992.24	.04	1000.52	.12	1191.09	.05		

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
924.71	1000.52	329.01	485.13	520.5	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
1383.66	1422.88	265.9426

CROSS SECTION OUTPUT Profile #10%

E.G. Elev (ft)	245.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.118	0.040	0.120
W.S. Elev (ft)	245.38	Reach Len. (ft)	329.01	485.13	520.50
Crit W.S. (ft)	242.80	Flow Area (sq ft)	646.02	455.54	46.78
E.G. Slope (ft/ft)	0.001503	Area (sq ft)	646.02	455.54	46.78
Q Total (cfs)	2671.00	Flow (cfs)	493.78	2143.25	33.96
Top Width (ft)	469.69	Top Width (ft)	368.95	75.81	24.93
Vel Total (ft/s)	2.33	Avg. Vel. (ft/s)	0.76	4.70	0.73
Max Chl Dpth (ft)	7.20	Hydr. Depth (ft)	1.75	6.01	1.88
Conv. Total (cfs)	68892.5	Conv. (cfs)	12736.0	55280.4	876.0
Length Wtd. (ft)	451.36	Wetted Per. (ft)	369.54	77.16	25.16
Min Ch El (ft)	238.18	Shear (lb/sq ft)	0.16	0.55	0.17
Alpha	3.30	Stream Power (lb/ft s)	1485.79	0.00	0.00
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	86.96	59.59	36.12
C & E Loss (ft)	0.02	Cum SA (acres)	28.75	6.90	11.64

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the

largest [smallest] entered value. The user may
         wish to examine this cross section and enter a single n value for the
entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	250.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.095	0.040	0.120
W.S. Elev (ft)	249.84	Reach Len. (ft)	329.01	485.13	520.50
Crit W.S. (ft)	246.93	Flow Area (sq ft)	2779.84	793.47	348.67
E.G. Slope (ft/ft)	0.001462	Area (sq ft)	2779.84	793.47	348.67
Q Total (cfs)	10810.00	Flow (cfs)	5115.89	5329.70	364.41
Top Width (ft)	758.41	Top Width (ft)	576.75	75.81	105.85
Vel Total (ft/s)	2.76	Avg. Vel. (ft/s)	1.84	6.72	1.05
Max Chl Dpth (ft)	11.66	Hydr. Depth (ft)	4.82	10.47	3.29
Conv. Total (cfs)	282722.0	Conv. (cfs)	133799.7	139391.5	9530.7
Length Wtd. (ft)	421.31	Wetted Per. (ft)	577.49	77.16	106.31
Min Ch El (ft)	238.18	Shear (lb/sq ft)	0.44	0.94	0.30
Alpha	3.14	Stream Power (lb/ft s)	1485.79	0.00	0.00
Frctn Loss (ft)	0.63	Cum Volume (acre-ft)	183.83	82.24	90.73
C & E Loss (ft)	0.01	Cum SA (acres)	38.98	6.83	18.74

Warning: When the Manning's n value for the channel was composited, the computed n
value was larger [smaller] than the
         largest [smallest] user entered n value. The n value has been set to the
largest [smallest] entered value. The user may
         wish to examine this cross section and enter a single n value for the
entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	250.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.	0.092	0.040	0.120
W.S. Elev (ft)	250.58	Reach Len. (ft)	329.01	485.13	520.50
Crit W.S. (ft)	247.31	Flow Area (sq ft)	3218.65	849.70	431.91
E.G. Slope (ft/ft)	0.001430	Area (sq ft)	3218.65	849.70	431.91
Q Total (cfs)	12761.00	Flow (cfs)	6379.04	5908.49	473.47
Top Width (ft)	806.08	Top Width (ft)	610.19	75.81	120.08
Vel Total (ft/s)	2.84	Avg. Vel. (ft/s)	1.98	6.95	1.10
Max Chl Dpth (ft)	12.40	Hydr. Depth (ft)	5.27	11.21	3.60
Conv. Total (cfs)	337450.4	Conv. (cfs)	168686.7	156243.3	12520.4
Length Wtd. (ft)	417.83	Wetted Per. (ft)	611.00	77.16	120.58
Min Ch El (ft)	238.18	Shear (lb/sq ft)	0.47	0.98	0.32
Alpha	3.03	Stream Power (lb/ft s)	1485.79	0.00	0.00
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	216.78	87.95	107.11
C & E Loss (ft)	0.00	Cum SA (acres)	40.93	6.83	20.04

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	253.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.40	Wt. n-Val.	0.087	0.040	0.117

W.S. Elev (ft)	252.62	Reach Len. (ft)	329.01	485.13	520.50
Crit W.S. (ft)	248.76	Flow Area (sq ft)	4524.46	1004.52	819.69
E.G. Slope (ft/ft)	0.001354	Area (sq ft)	4524.46	1004.52	819.69
Q Total (cfs)	19382.00	Flow (cfs)	10852.21	7598.03	931.76
Top Width (ft)	1007.83	Top Width (ft)	667.11	75.81	264.90
Vel Total (ft/s)	3.05	Avg. Vel. (ft/s)	2.40	7.56	1.14
Max Chl Dpth (ft)	14.44	Hydr. Depth (ft)	6.78	13.25	3.09
Conv. Total (cfs)	526801.8	Conv. (cfs)	294962.6	206514.1	25325.2
Length Wtd. (ft)	411.31	Wetted Per. (ft)	668.05	77.16	265.63
Min Ch El (ft)	238.18	Shear (lb/sq ft)	0.57	1.10	0.26
Alpha	2.76	Stream Power (lb/ft s)	1485.79	0.00	0.00
Frctn Loss (ft)	0.52	Cum Volume (acre-ft)	309.66	102.67	153.20
C & E Loss (ft)	0.01	Cum SA (acres)	44.77	6.83	22.98

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 3498.278

INPUT
Description:
Station Elevation Data num= 477

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	265.76	.42	265.76	2.64	265.65	7.02	265.68	10.83	265.66
13.74	266.13	18.24	266.33	19.94	265.96	26.23	265.05	30.85	263.77
31.08	263.7	31.27	263.66	37.19	261.03	43.75	260.78	45.47	260.88

49.04	261.1	49.22	261.11	49.68	261.07	54.46	260.62	55.2	260.51
55.75	260.38	57.55	260.05	58.79	259.77	62.9	259.53	65.34	259.41
70.99	259.72	71.1	259.73	72.51	259.73	73.38	259.9	77.68	260.54
82.13	260.43	83.85	260.47	84.65	260.47	87.19	260.49	88.42	260.53
91.79	260.32	94.04	260.07	97.8	260.15	99.81	260.18	100.49	260.18
100.99	260.15	108.26	260.11	109.55	259.92	111.56	259.7	114.22	259.25
116.71	259.11	119.3	259	122.18	258.77	124.52	258.66	125.45	258.54
127.73	258.38	129.91	258.24	132.99	258.15	135.39	258.09	139.48	257.94
140.49	257.9	140.97	257.88	150.35	257.74	150.78	257.71	150.98	257.71
151.2	257.7	153.46	257.45	165.15	256.3	171.16	256.06	171.68	256.03
172.16	255.97	176.72	255.63	181.75	255.2	181.76	255.2	181.83	255.2
186.94	254.89	190.01	254.85	193.71	254.54	198.12	254.36	199.9	254.44
203.67	253.96	205.31	253.89	207.17	253.87	208.61	253.78	211.37	253.5
214.56	253.22	221.26	252.82	222.11	252.78	222.53	252.75	229.01	252.49
231.7	252.28	234.77	252.04	237.36	251.9	239.84	251.87	242.87	251.89
244.94	251.89	247.43	251.72	249.97	251.56	254.27	251.45	255.82	251.22
258.32	251.11	270.03	250.6	270.29	250.64	271.16	250.58	272.36	250.53
275.68	250.44	278.14	250.34	280.45	250.21	283.64	250.12	285.63	250.09
286.54	250.04	289.31	249.92	291.52	249.83	295.17	249.62	297.67	249.62
303.53	249.42	303.74	249.41	303.84	249.4	304.1	249.41	308.59	249.34
312.82	248.88	313.45	248.86	314.51	248.82	320.48	248.69	324.12	248.64
327.22	248.59	332.77	248.44	333.39	248.42	333.93	248.39	338.64	248.42
343.62	248.36	343.86	248.35	344.12	248.33	348.75	248.1	352.95	248.13
353.83	248.12	354.95	248.12	360.26	248.14	361.02	248.24	364.19	247.99
373.33	247.98	375.46	247.92	376.72	247.85	381.38	247.65	383.87	247.51
384.88	247.52	390.71	247.33	393.41	247.22	396.49	247.11	399	247.02
401.62	246.96	404.81	246.72	406.51	246.7	407.9	246.64	410.16	246.6
416.64	246.72	422.89	246.7	424.37	246.67	424.67	246.68	431.68	246.75
432.62	246.71	433.62	246.74	437.37	246.62	438.8	246.74	440.41	246.64
442.18	246.62	445.18	246.56	447.84	246.5	448.87	246.51	452.45	246.74
453.11	246.77	457.35	246.59	464.02	246.53	468.58	246.4	471.7	246.51
473.77	246.64	479.44	246.68	485.64	246.85	486.81	246.92	487.16	246.89
497.01	246.65	500.24	246.68	502.24	246.67	502.95	246.67	503.76	246.64
511.58	246.44	515.01	246.35	515.68	246.38	520.62	246.47	521.43	246.43
534.18	246.37	534.3	246.37	534.34	246.37	534.37	246.37	539	246.22
540.9	246.3	544.16	246.15	548.73	246.09	549.75	246.1	553.46	246.21
554.08	246.22	559.28	246.19	564.17	246.18	564.99	246.16	565.34	246.16
569.24	245.9	569.76	245.87	570.73	245.81	572.81	245.79	576.2	245.6
577.6	245.65	582.89	245.84	587.34	245.93	588.43	245.92	591.25	246.06
594.12	246.17	595.96	246.21	596.45	246.16	602.56	245.14	606.63	244.01
608.57	243.29	609.27	243.03	613.59	242.36	619.17	242.04	623.36	241.79
627.09	241.76	629.67	241.6	631.63	241.14	636.79	240.13	639.55	240.31
644.16	240.56	645.4	240.6	650.51	240.82	651.56	240.8	656.09	240.72
657.38	240.61	659.68	240.63	661.55	240.64	664.24	241.01	666.62	241.05
670.95	241.41	671.24	241.45	671.36	241.45	671.6	241.47	677.69	241.63
680.44	241.76	684.09	241.82	687.59	241.21	692.09	240.77	695.88	240.85
698.93	241.34	701.06	241.38	703.91	241.07	706.09	241.31	707.15	241.36
709.83	241.26	710.62	241.24	710.85	241.21	714.48	241.03	716.51	240.98
720.8	240.96	721.75	240.98	722.35	241.04	722.76	241	725.85	241.03
731.5	241.02	735.52	240.87	737.92	241.08	744.09	241.59	745.04	241.61

745.36	241.61	748.78	241.44	750.85	241.31	751.38	241.35	756.19	241.54
757.51	241.52	760.82	241.22	764.35	241.04	766.48	240.78	770.93	240.98
771.08	240.98	771.12	240.97	777.96	240.01	781.45	240.34	783.8	240.06
790.6	241.34	791.09	241.41	791.34	241.39	797.55	241.4	803.95	241.28
804.87	241.21	807.29	240.59	811.68	239.58	814.87	238.53	817.49	237.77
818.02	237.62	818.05	237.62	839.64	236.85	841.18	236.85	842.71	236.85
861.18	237.52	867.54	237.65	867.92	237.65	870.13	241.44	871.1	241.9
875.39	242.88	879.68	243.88	880.75	243.96	882.31	244.05	884.89	244.14
886.52	244.3	892.63	244.4	896.65	244.54	898.74	244.53	901.42	244.2
903.79	244.16	904.74	244.2	907.07	244.09	908.05	244.05	908.35	244.06
912	244.28	913.93	244.4	917.88	244.41	919.22	244.39	919.76	244.45
921.66	244.46	928.31	244.49	928.47	244.49	928.68	244.5	930.83	244.6
967.59	246.25	970.19	246.51	973.17	246.73	976.18	246.85	977.97	246.92
979.07	247	982.79	247.33	984.19	247.49	985.9	247.49	987.99	247.62
992.11	248.03	996.77	248.23	998.96	248.29	1003.23	248.38	1005.35	248.43
1009.74	248.48	1010.71	248.52	1011.26	248.53	1015.56	248.7	1017.5	248.8
1018.85	248.86	1020.48	248.87	1023.37	248.82	1025.16	248.76	1026.41	248.75
1028.73	248.75	1029.49	248.77	1029.89	248.78	1035.31	249.05	1039.56	249.14
1040.87	249.15	1041.33	249.14	1043.6	249.28	1047.36	249.57	1050.05	249.74
1053.93	249.79	1058.37	249.69	1061.11	249.58	1063.51	249.68	1067.39	249.7
1069.66	249.65	1072.74	249.74	1074.62	249.85	1077.8	250.13	1082.81	250.11
1082.96	250.12	1083.21	250.12	1086.76	250.33	1089.83	250.63	1091.13	250.67
1092.55	250.62	1098.11	250.44	1103.19	250.67	1104.52	250.75	1109.68	250.95
1109.71	250.95	1109.72	250.95	1114.36	251.04	1116.89	251.15	1119.04	251.21
1123.01	251.17	1123.85	251.16	1124.25	251.17	1127.41	251.19	1128.83	251.22
1129.17	251.23	1134.26	251.62	1137.75	251.63	1139.78	251.68	1142.7	251.56
1144.32	251.57	1146.1	251.67	1147.69	251.79	1149.12	251.76	1152.76	251.75
1155.86	251.9	1159.01	252.05	1162.82	252.2	1164.93	252.14	1169.08	252.26
1170.31	252.35	1171.12	252.37	1175.77	252.55	1180.2	252.53	1181.22	252.5
1182.75	252.49	1185.36	252.56	1188.76	252.46	1189.12	252.46	1189.37	252.47
1194.88	252.9	1199.17	253.01	1200.66	253.07	1202.83	253.18	1206.49	253.29
1208.63	253.42	1211.76	253.65	1213.48	253.76	1214.33	253.75	1215.37	253.78
1216.63	253.91	1221.29	254.11	1242.87	255.38	1242.98	255.38	1243.24	255.37
1247.41	255.45	1248.14	255.49	1250.62	255.46	1252.27	255.45	1254.31	255.4
1256.89	255.13	1261.19	255.11	1261.47	255.12	1265.2	255.2	1269.66	255.6
1271.51	255.84	1275.59	255.97	1281.98	255.93	1284.34	256.23	1287.65	256.5
1287.71	256.5	1287.75	256.5	1293.89	256.79	1295.28	256.78	1300.2	256.69
1305	256.93	1305.99	257.02	1307.6	257.17	1312.26	257.52	1317.97	257.9
1318.67	257.95	1319.8	258.13	1322.53	258.71	1324.05	259.04	1327.53	259.28
1327.92	259.29	1328.03	259.29	1328.06	259.3	1332.46	259.46	1337.24	259.64
1348.06	259.74	1373.93	259.31	1375.91	259.23	1380.68	259.37	1382.15	259.47
1387.42	259.21	1393.47	259.21	1394.24	259.16	1394.8	259.2	1396.23	259.2
1397.53	259.15	1398.37	259.13						

Manning's n Values num= 9

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.03	70.99	.05	569.76	.12	804.87	.04	817.49	.04
867.54	.04	870.13	.05	1017.5	.03	1250.62	.05		

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.

```
        804.87  870.13           473.48  474.45  417.37             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1338.23 1398.37266.6335

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           245.09    Element                  Left OB    Channel
Right OB
  Vel Head (ft)              0.21    Wt. n-Val.                0.120      0.040
  0.050
  W.S. Elev (ft)           244.88    Reach Len. (ft)          473.48     474.45
 417.37
  Crit W.S. (ft)           241.85    Flow Area (sq ft)        735.29     463.94
  49.67
  E.G. Slope (ft/ft)      0.000994   Area (sq ft)             735.29     463.94
  49.67
  Q Total (cfs)           2671.00    Flow (cfs)               678.08    1954.97
  37.96
  Top Width (ft)           333.67    Top Width (ft)           201.39      65.26
  67.02
  Vel Total (ft/s)           2.14    Avg. Vel. (ft/s)           0.92       4.21
   0.76
  Max Chl Dpth (ft)          8.03    Hydr. Depth (ft)           3.65       7.11
   0.74
  Conv. Total (cfs)       84740.3    Conv. (cfs)              21512.7    62023.3
 1204.2
  Length Wtd. (ft)         470.76    Wetted Per. (ft)         202.46      67.95
  67.42
  Min Ch El (ft)           236.85    Shear (lb/sq ft)           0.23       0.42
   0.05
  Alpha                      2.89    Stream Power (lb/ft s)  1398.37       0.00
   0.00
  Frctn Loss (ft)            0.37    Cum Volume (acre-ft)       81.75      54.47
  35.54
  C & E Loss (ft)            0.01    Cum SA (acres)             26.59       6.11
  11.09


Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #2%


  E.G. Elev (ft)           249.57    Element                  Left OB    Channel
Right OB
  Vel Head (ft)              0.43    Wt. n-Val.                0.103      0.040
  0.050
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W.S. Elev (ft)	249.14	Reach Len. (ft)	473.48	474.45	417.37
Crit W.S. (ft)	245.77	Flow Area (sq ft)	2243.01	741.84	517.75
E.G. Slope (ft/ft)	0.001541	Area (sq ft)	2243.01	741.84	517.75
Q Total (cfs)	10810.00	Flow (cfs)	4114.81	5323.36	1371.84
Top Width (ft)	729.56	Top Width (ft)	494.46	65.26	169.84
Vel Total (ft/s)	3.09	Avg. Vel. (ft/s)	1.83	7.18	2.65
Max Chl Dpth (ft)	12.29	Hydr. Depth (ft)	4.54	11.37	3.05
Conv. Total (cfs)	275386.6	Conv. (cfs)	104825.3	135613.5	34947.8
Length Wtd. (ft)	461.25	Wetted Per. (ft)	495.82	67.95	170.37
Min Ch El (ft)	236.85	Shear (lb/sq ft)	0.44	1.05	0.29
Alpha	2.89	Stream Power (lb/ft s)	1398.37	0.00	0.00
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	164.86	73.69	85.56
C & E Loss (ft)	0.03	Cum SA (acres)	34.94	6.05	17.09

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	250.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.40	Wt. n-Val.	0.098	0.040	0.049
W.S. Elev (ft)	249.97	Reach Len. (ft)	473.48	474.45	417.37
Crit W.S. (ft)	246.02	Flow Area (sq ft)	2660.53	795.76	670.35
E.G. Slope (ft/ft)	0.001395	Area (sq ft)	2660.53	795.76	670.35
Q Total (cfs)	12761.00	Flow (cfs)	5162.71	5692.72	1905.57
Top Width (ft)	787.77	Top Width (ft)	516.68	65.26	205.84
Vel Total (ft/s)	3.09	Avg. Vel. (ft/s)	1.94	7.15	

2.84					
Max Chl Dpth (ft)	13.12	Hydr. Depth (ft)	5.15	12.19	
3.26					
Conv. Total (cfs)	341713.3	Conv. (cfs)	138246.8	152439.2	
51027.3					
Length Wtd. (ft)	459.71	Wetted Per. (ft)	518.06	67.95	
206.40					
Min Ch El (ft)	236.85	Shear (lb/sq ft)	0.45	1.02	
0.28					
Alpha	2.67	Stream Power (lb/ft s)	1398.37	0.00	
0.00					
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)	194.57	78.78	
100.53					
C & E Loss (ft)	0.03	Cum SA (acres)	36.67	6.05	
18.09					

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	252.49	Element	Left OB	Channel	
Right OB					
Vel Head (ft)	0.36	Wt. n-Val.	0.089	0.040	
0.047					
W.S. Elev (ft)	252.13	Reach Len. (ft)	473.48	474.45	
417.37					
Crit W.S. (ft)	248.17	Flow Area (sq ft)	3837.93	937.01	
1205.21					
E.G. Slope (ft/ft)	0.001164	Area (sq ft)	3837.93	937.01	
1205.21					
Q Total (cfs)	19382.00	Flow (cfs)	8586.20	6829.48	
3966.32					
Top Width (ft)	927.53	Top Width (ft)	571.29	65.26	
290.98					
Vel Total (ft/s)	3.24	Avg. Vel. (ft/s)	2.24	7.29	
3.29					
Max Chl Dpth (ft)	15.28	Hydr. Depth (ft)	6.72	14.36	
4.14					
Conv. Total (cfs)	568034.0	Conv. (cfs)	251638.4	200153.5	
116242.1					
Length Wtd. (ft)	456.58	Wetted Per. (ft)	572.73	67.95	
291.63					
Min Ch El (ft)	236.85	Shear (lb/sq ft)	0.49	1.00	
0.30					
Alpha	2.20	Stream Power (lb/ft s)	1398.37	0.00	
0.00					
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	278.08	91.86	

141.10
C & E Loss (ft) 0.01 Cum SA (acres) 40.09 6.05
19.65

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 3023.827

INPUT
Description: not interpolated
Station Elevation Data num= 457

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	269.34	.76	269.27	4.41	268.65	12.08	267.32	13.52	267.11
14.42	266.81	17.39	266.25	19.79	265.78	22.07	265.59	25.78	264.94
26.57	264.79	27.78	264.57	29.68	264.21	31.57	263.95	33.72	263.69
37.18	262.66	37.33	262.61	37.4	262.58	37.44	262.56	43.12	260.2
48.19	257.61	48.83	257.49	49.7	257.33	50.67	257.12	50.9	257.11
55.3	257.4	57.96	257.4	60.36	257.38	61.24	257.49	66.31	257.21
67.49	257.18	68.17	257.16	69.72	257.19	71.02	257.16	76.64	257.28
78.05	257.24	81.22	257.27	83.62	257.56	84.38	257.57	87.55	257.62
91.81	257.62	94.46	257.46	95.24	257.44	96.93	257.28	109.44	256.24
113.97	255.98	123.15	255.33	126.89	254.92	133.55	254.11	138.6	253.35
140.09	252.97	141.34	252.79	147.33	252.23	153.97	253.4	154.38	253.46
154.52	253.52	155.22	253.81	159.93	255.59	162.27	256.87	164	257.46
168.23	257.94	170.33	257.79	170.56	257.79	173.23	257.78	174.45	257.36
179.15	255.59	184.63	253.16	185.84	252.63	186.26	252.45	186.7	252.23
194.07	248.72	199.18	248.07	203.36	247.66	205.99	247.67	215.66	246.99
217.36	246.71	218.28	246.66	220.55	246.77	232.13	247.77	236.65	247.42
240.2	247.58	243.3	247.46	246.96	247.47	251.14	247.5	253.42	247.53
255.51	247.51	259.41	247.41	260.2	247.34	261.64	247.31	267.12	247
270.24	247.31	270.59	247.33	271.09	247.3	272.7	247.17	277.16	246.7
278.36	246.63	279.63	246.63	282	246.48	285.1	246.32	288.05	246.06
290.08	246	293.96	245.87	301.79	244.91	301.81	244.91	301.84	244.91
309.2	244.49	314.52	244.72	316.07	244.73	316.46	244.77	317.04	244.75
323.26	244.34	325.91	244.21	330.03	244.08	334.8	243.88	336.85	243.78
338.11	243.8	340.25	243.81	343.63	243.79	343.65	243.79	347.57	243.8
349.79	243.53	350.81	243.51	353.21	243.55	354.86	243.63	355.84	243.6
357.9	243.54	361.77	243.7	362.6	243.67	364.95	243.49	367.06	243.53
371.7	243.59	373.01	243.55	379.46	243.35	384.77	243.4	387.04	243.4
389.83	243.39	393.78	243.38	397.97	243.48	400.13	243.51	402.11	243.5
406.03	243.43	406.89	243.38	408.01	243.5	411.7	243.65	413.69	243.51
416.56	243.58	416.92	243.57	417.46	243.59	420.63	243.42	422.95	243.34
424.42	243.4	425.97	243.51	427.54	243.57	428.36	243.55	431.97	243.31
434.23	243.5	435.41	243.5	441.38	243.36	446.45	243.33	446.98	243.32

447.17	243.3	448.38	243.32	452.24	243.27	454.56	243.33	461.79	243.4
462.36	243.4	463.87	243.34	469.91	243.16	477.43	243.12	477.47	243.12
477.49	243.12	477.52	243.12	483.42	243.6	485.06	243.53	489.03	243.49
489.36	243.47	492.8	243.18	495.58	243.04	496.62	243.02	498.91	242.99
500.51	243.03	501.77	243.15	503.86	243.44	507.87	243	508.17	242.99
508.48	243.06	511.03	243.57	513.26	243.72	515.55	243.67	517.99	243.39
518.29	243.34	518.54	243.34	522.94	243.2	524.78	243.22	527.86	243.51
530.22	243.74	531.1	243.88	535.75	243.91	538.82	243.87	542	243.64
544.77	243.45	546.4	243.52	552.47	243.78	553.63	243.69	567.28	240.39
568.44	240.05	569.79	239.14	573.62	236.11	573.92	236.11	584.07	236.11
589.23	236.11	603.31	236.11	609.27	236.11	618.68	236.11	626.63	236.11
627.59	236.12	628.31	236.12	628.46	236.19	629.74	236.42	630.31	236.56
632.1	236.98	640.52	239.17	641.21	239.08	642.5	239.34	644.22	239.67
650.48	239.96	651.6	240.14	652.33	240.16	656.97	240.42	664.6	241.82
666.02	241.99	667.87	242.18	667.95	242.18	668.05	242.18	674.83	242.01
678.65	242.19	681.69	242.25	687.09	242.32	688.57	242.34	690.44	242.43
695.22	242.64	698.86	242.59	702.07	242.55	704.04	242.6	709.32	242.87
715.57	243.01	716.61	243.04	718.35	243.04	722.6	242.91	724.27	243.06
726.61	243.02	728.2	243	732.07	243.01	734.53	242.83	737.11	242.69
739.95	242.73	741.25	242.61	747.25	242.93	747.88	242.98	749.19	243.1
753.85	243.52	754.52	243.58	760.87	243.65	761.06	243.65	761.2	243.66
768.19	243.89	772.3	243.65	775.32	243.42	780.48	243.59	782.14	243.62
783.98	243.62	788.28	243.61	792.17	243.75	794.39	243.88	794.75	243.85
795.34	243.87	800.32	244.13	801.64	244.2	803.78	244.33	806.26	244.38
808.48	244.36	812.26	244.71	812.29	244.71	812.35	244.71	815.34	244.56
817.48	244.67	819.29	244.69	821.71	244.54	822.26	244.51	822.67	244.54
823.87	244.53	828.81	244.63	830.56	244.71	833.13	245.01	834.56	244.95
839.05	245.24	840.58	245.31	845.66	245.28	847.65	245.34	850.26	245.39
853.81	245.43	855.68	245.51	859.78	245.68	861.33	245.68	865.47	245.62
869.17	245.97	871.12	246.05	876.34	246.12	876.83	246.1	877.41	246.12
882.68	246.18	887.03	245.94	888.46	245.92	889.03	245.91	894.26	245.95
897.18	245.93	898.59	245.92	900.23	245.94	905.35	246.1	906.08	246.16
907.98	246.17	910.85	246.2	912.82	246.11	915.17	246.08	918.63	246.25
919.81	246.3	920.32	246.31	926.06	246.24	929.4	246.27	932.37	246.3
938.43	246.53	938.67	246.54	939.21	246.54	944.91	246.58	949.62	246.46
951	246.42	951.5	246.44	956.48	246.76	957.62	246.73	958.94	246.65
962.07	246.52	964.17	246.5	966.59	246.46	967.69	246.44	970.72	246.49
976.27	246.69	977.22	246.7	978.07	246.74	980.92	246.81	983.21	246.89
987.9	247.02	1000.54	247.59	1003.08	247.41	1006.04	246.92	1007.99	246.62
1009.65	246.58	1014.96	246.48	1018.55	246.46	1021.78	246.55	1022.55	246.35
1024.51	246.12	1028.15	246.15	1031.86	246.49	1035.01	246.72	1036.8	246.78
1040.5	246.81	1043.71	246.92	1046.14	246.97	1047.02	246.96	1051.9	246.87
1055	246.67	1057.71	246.7	1062.87	246.79	1063.5	246.78	1065.24	246.74
1068.48	246.69	1071.07	246.87	1073.05	247.04	1075.5	247.03	1077.63	247.04
1077.84	247.02	1078.12	247.04	1079.01	247.05	1080.11	247.05	1086.73	246.86
1089.67	247.13	1096.25	247.08	1096.44	247.07	1096.5	247.08	1101.94	247.14
1102.98	247.12	1104.57	247.29	1107.58	247.74	1108.76	247.89	1108.94	247.9
1109.1	247.95	1109.82	247.92	1132.43	249.26	1133.78	249.34	1159.27	249.82
1201.67	250.6	1330.8	252.64	1335.64	252.08	1339.49	253.13	1340.12	253.2
1341.67	253.51	1344.91	253.88	1350.43	254.34	1351.64	254.43	1352.31	254.54

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 1356.67  254.66 1358.51  254.75 1364.58  254.47 1364.77  254.46 1364.95  254.45
 1365.05  254.45 1366.02  254.49 1371.06  254.68 1371.86  254.67 1375.29  254.84
 1376.72  254.87 1378.18   254.8 1381.18  254.63 1384.14   254.7 1385.93  254.73
 1386.22  254.73 1391.01   254.9 1392.62  255.01 1393.66  255.04 1395.09  255.03
 1396.66  255.07 1397.42  255.11 1399.01   255.2 1401.39  255.25 1405.59  255.07
 1406.93  255.11 1413.05  255.56 1413.51  255.57 1415.61  255.81 1418.56  256.08
 1419.36   256.1 1420.44  256.16 1424.39  256.34 1424.89  256.38 1431.86  256.56
 1449.28   257.3 1458.68  257.81 1462.94   257.7 1470.26  257.71 1472.25  257.67
 1473.66  257.68 1474.22  257.76 1477.35   257.4 1479.36  257.47 1485.94  256.86
 1487.45  256.81 1487.81  256.83

Manning's n Values        num=      11
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05   48.83     .03  184.63     .12  567.28     .04  573.62     .04
  573.92     .04  618.68     .04  644.22     .04   651.6     .05  753.85     .05
 1397.42     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        567.28   651.6           348.54   326.6  206.58             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  994.09 1487.81  254.35       F
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   94.93  124.41261.7551 1115.96 1333.68262.1241 1429.92 1476.77269.1498

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           244.71    Element                 Left OB    Channel
Right OB
  Vel Head (ft)              0.17    Wt. n-Val.               0.120      0.040
  0.050
  W.S. Elev (ft)           244.53    Reach Len. (ft)         348.54     326.60
 206.58
  Crit W.S. (ft)           240.11    Flow Area (sq ft)       273.73     637.26
 257.62
  E.G. Slope (ft/ft)      0.000646   Area (sq ft)            273.73     637.26
 257.62
  Q Total (cfs)            2671.00   Flow (cfs)               92.08    2284.38
 294.54
  Top Width (ft)           493.15    Top Width (ft)          248.73      84.32
 160.11
  Vel Total (ft/s)           2.29    Avg. Vel. (ft/s)          0.34       3.58
   1.14
  Max Chl Dpth (ft)          8.42    Hydr. Depth (ft)          1.10       7.56
   1.61
  Conv. Total (cfs)       105069.7   Conv. (cfs)             3622.1    89861.2
11586.4
  Length Wtd. (ft)         310.13    Wetted Per. (ft)        249.47      86.17
```

160.40					
Min Ch El (ft)	236.11	Shear (lb/sq ft)	0.04	0.30	0.06
Alpha	2.13	Stream Power (lb/ft s)	1487.81	0.00	0.00
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	76.26	48.47	34.07
C & E Loss (ft)	0.01	Cum SA (acres)	24.15	5.30	10.00

Warning: Divided flow computed for this cross-section.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	248.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.	0.120	0.040	0.050
W.S. Elev (ft)	248.67	Reach Len. (ft)	348.54	326.60	206.58
Crit W.S. (ft)	245.36	Flow Area (sq ft)	1538.85	985.73	1408.16
E.G. Slope (ft/ft)	0.000960	Area (sq ft)	1538.85	985.73	1617.80
Q Total (cfs)	10810.00	Flow (cfs)	1516.64	5761.44	3531.93
Top Width (ft)	921.47	Top Width (ft)	372.79	84.32	464.36
Vel Total (ft/s)	2.75	Avg. Vel. (ft/s)	0.99	5.84	2.51
Max Chl Dpth (ft)	12.56	Hydr. Depth (ft)	4.13	11.69	4.11
Conv. Total (cfs)	348821.9	Conv. (cfs)	48939.5	185912.6	113969.9
Length Wtd. (ft)	290.36	Wetted Per. (ft)	373.87	86.17	342.93
Min Ch El (ft)	236.11	Shear (lb/sq ft)	0.25	0.69	0.25

Alpha	2.70	Stream Power (lb/ft s)	1487.81	0.00	0.00
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	144.31	64.28	75.33
C & E Loss (ft)	0.02	Cum SA (acres)	30.23	5.23	14.06

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	249.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.120	0.040	0.050
W.S. Elev (ft)	249.53	Reach Len. (ft)	348.54	326.60	206.58
Crit W.S. (ft)	245.68	Flow Area (sq ft)	1862.59	1058.72	1704.63
E.G. Slope (ft/ft)	0.000880	Area (sq ft)	1862.59	1058.72	2019.77
Q Total (cfs)	12761.00	Flow (cfs)	1987.25	6211.43	4562.32
Top Width (ft)	923.59	Top Width (ft)	374.91	84.32	464.36
Vel Total (ft/s)	2.76	Avg. Vel. (ft/s)	1.07	5.87	2.68
Max Chl Dpth (ft)	13.42	Hydr. Depth (ft)	4.97	12.56	4.98
Conv. Total (cfs)	430236.3	Conv. (cfs)	67000.1	209417.9	153818.3
Length Wtd. (ft)	287.53	Wetted Per. (ft)	376.18	86.17	342.93
Min Ch El (ft)	236.11	Shear (lb/sq ft)	0.27	0.67	0.27
Alpha	2.56	Stream Power (lb/ft s)	1487.81	0.00	0.00
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	169.99	68.68	87.64

C & E Loss (ft)	0.02	Cum SA (acres)	31.83	5.23	14.88

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	252.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.120	0.040	0.050
W.S. Elev (ft)	251.71	Reach Len. (ft)	348.54	326.60	206.58
Crit W.S. (ft)	247.26	Flow Area (sq ft)	2683.50	1242.23	2450.00
E.G. Slope (ft/ft)	0.000834	Area (sq ft)	2683.50	1242.23	3030.36
Q Total (cfs)	19382.00	Flow (cfs)	3524.97	7895.07	7961.96
Top Width (ft)	928.16	Top Width (ft)	379.48	84.32	464.36
Vel Total (ft/s)	3.04	Avg. Vel. (ft/s)	1.31	6.36	3.25
Max Chl Dpth (ft)	15.60	Hydr. Depth (ft)	7.07	14.73	7.15
Conv. Total (cfs)	671051.0	Conv. (cfs)	122042.8	273346.3	275661.9
Length Wtd. (ft)	282.45	Wetted Per. (ft)	381.25	86.17	342.93
Min Ch El (ft)	236.11	Shear (lb/sq ft)	0.37	0.75	0.37
Alpha	2.28	Stream Power (lb/ft s)	1487.81	0.00	0.00
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	242.64	79.99	120.81
C & E Loss (ft)	0.01	Cum SA (acres)	34.92	5.23	16.04

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 2697.228

INPUT
Description: not interpolated
Station Elevation Data num= 324

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	276	.15	275.99	.6	275.97	8.65	275.83	12.75	275.99
17.39	275.46	25.75	273.89	25.77	273.89	32.02	272.52	33.27	272.26
34.47	272.01	40.86	270.39	46.12	263.98	51.96	258.52	53.08	258.5
54.07	258.49	56.32	258.46	57.69	258.13	58.5	258.1	59.07	258.12
62.52	258.44	65.47	258.78	66.85	258.71	72.46	258.56	76.8	258.53
79.45	258.46	81.74	258.26	84.37	258.01	85	258	86.55	257.67
86.64	257.67	93.17	257.04	94.26	256.93	95.27	256.78	99.86	256.43
103.84	255.82	104.88	255.46	108.32	255.37	109.42	255.31	134.83	254.63
139.63	254.42	140.96	254.35	142.66	254.56	144.83	254.27	147.39	254.39
152.02	254.48	152.84	254.48	152.99	254.48	153.12	254.48	154.37	254.44
157.99	254.35	159.62	254.19	161.69	253.93	168.01	253.16	168.84	253.05
168.96	253.02	170.83	252.13	176.07	249.63	176.74	249.26	179.69	248.67
187.46	246.27	194.47	245.14	199.96	245.4	201.21	245.2	206.27	244.71
209.18	244.47	212.65	244	217.09	243.93	218.88	243.91	224.97	243.85
225.07	243.85	225.46	243.82	232.14	243.52	235.33	243.5	239.34	243.61
245.98	243.57	246.41	243.57	247.45	243.54	253.13	243.4	254.77	243.34
259.75	243.25	264.09	243.6	272.94	244.13	276.09	243.83	281.85	243.61
282.87	243.51	286.11	243.58	291.8	243.73	292.54	243.8	298.47	243.52
299.32	243.49	299.38	243.49	305.83	243.77	306.94	243.74	308.42	243.67
311.99	243.59	317.87	243.07	320.5	243.09	326.01	243.66	329.41	243.31
333.47	243.44	335.6	243.31	339.55	242.94	343.98	242.57	345.61	242.53
349.89	242.28	351.54	242.2	351.93	242.19	352.62	242.21	359.45	242.36
363.32	242.69	366.65	242.85	380.6	242.63	381.54	242.63	386.56	241.69
388.53	241.28	389.83	241.43	395.24	242.41	397.74	242.42	402.08	242.54
405.6	242.68	409.76	242.92	412.6	242.84	416.36	242.63	420.99	242.84
422.93	242.89	431.09	243	434.12	242.88	436.14	242.96	439.11	242.88
442.79	242.79	444.7	242.72	449.57	241.44	451.1	241.38	456.15	241.23
457.75	241.14	468.97	241.4	475.04	240.77	479.05	240.61	481.97	241.18
492.28	241.43	494.72	241.45	500.98	241.95	501.07	241.96	501.58	241.99

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  508.46  242.28  510.74  242.46  514.68  242.63  517.37   242.5  523.32  243.03
  524.85  243.07  529.77   243.1  534.55  243.17  537.66  242.95  538.32  242.93
  544.03  242.87  545.45  242.86  545.64  242.86  550.96  242.91  551.01  242.91
  551.27  242.91  553.41  242.72  557.16  242.72   561.2  242.55  564.04  239.57
   566.5  236.99  567.15  236.75  567.94  236.65  568.35  236.02  573.42  236.02
  605.91  236.02  620.94  236.02  622.88  237.07  623.28  237.29  624.39  237.91
  629.34  238.16  631.13  238.27  637.73  238.27  637.89  238.27  637.95  238.27
  643.45  238.56  645.81  238.57  649.09  238.69  653.75  238.84  654.74  238.86
  657.03  239.11  660.53   239.4  661.18   239.5  661.91  239.64  667.17  240.92
   672.9   241.2  676.25  241.39  678.37  241.44  683.78  241.44  684.44  241.46
  687.35  241.38  690.83  241.31  692.71  241.37  697.55  241.46  703.13  241.57
  704.25  241.63  705.64  241.71  706.91  241.77  711.13  242.08  716.68  242.61
  729.02  243.56  733.91  243.94   734.2  243.97  734.74  243.97  735.23     244
  753.52  244.69  753.71  244.69  755.59  244.65   759.6  244.59  760.57  244.59
  761.78   244.6  767.36  244.61  770.49  244.74  772.47  244.85  776.52   244.9
  778.54  244.78  782.01  244.71  787.67   245.2   787.7   245.2  787.74  245.19
  796.15  244.26  800.53  244.43  802.14  244.54  809.56  244.13  810.01  244.18
  810.57  244.18  817.52  244.71  822.39  245.34  830.01  245.06  831.19  245.06
  831.85  244.97  832.42  244.94  838.23  244.02  838.46  244.02  839.51  244.01
  843.63  244.01  845.32  243.92  848.61  243.99  852.29  244.15  853.57  244.16
  856.64  244.23  858.93  244.24  859.47  244.24  865.14  244.43   867.1  244.48
  871.38  244.35  874.76  244.16  877.69  244.02  882.28  244.37  883.69  244.46
  889.75  244.52  889.81  244.52  890.07  244.54  895.61  245.01  898.76  245.24
  901.41  245.44  905.88   245.9  907.42  246.04  907.84  246.08  914.16  246.73
  916.39  247.05  919.23  247.42  921.61   247.7   926.5  248.46  927.45  248.54
  928.85  248.79  933.14  248.52  941.35  249.45  942.72  249.44  962.16  249.21
  986.34  249.22 1123.06  249.01 1125.96  249.18 1129.04  249.07 1150.99  249.38
  1245.9  250.45 1308.24  252.47 1327.69  252.79 1328.48  252.69 1329.26  252.91
 1330.68     253 1333.92  253.12 1338.04  252.97 1340.05  253.03 1342.58  253.08
 1347.17  253.16  1348.5  253.17 1348.75   253.2  1351.5  253.42 1355.29  253.52
 1358.47  253.72 1360.31  253.66 1362.22  253.76 1364.07  253.82 1365.46  253.86
 1366.72  253.75 1368.66  253.98 1372.14  253.92 1376.82  253.92 1378.05  253.89
 1383.76  253.94 1383.92  253.94 1384.03  253.94 1384.95  254.02 1389.31  254.36
  1390.7   254.5 1392.96  254.62 1394.17  254.67  1394.7  254.69 1397.41  254.49
 1397.58   254.5 1402.46  254.82 1403.42  254.89 1404.72  254.99  1408.1  255.25
 1410.86  255.61 1412.36  255.67 1414.86     256 1417.31     256

Manning's n Values        num=      11
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05   54.07     .03  170.83     .12  564.04     .04  568.35     .04
  573.42     .04  623.28     .04  637.73     .04  637.95     .05  729.02     .05
 1394.17     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        564.04  637.95           212.34  216.58  214.85             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  930.42 1417.31  252.24       F
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
```

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       0   13.93274.8376  107.77  143.59 259.144  939.52 1327.65262.6258

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           244.51    Element                 Left OB    Channel
Right OB
  Vel Head (ft)              0.14    Wt. n-Val.               0.120      0.040
  0.050
  W.S. Elev (ft)           244.38    Reach Len. (ft)         212.34     216.58
 214.85
  Crit W.S. (ft)           240.03    Flow Area (sq ft)       568.82     578.28
 327.59
  E.G. Slope (ft/ft)      0.000549   Area (sq ft)            568.82     578.28
 327.59
  Q Total (cfs)            2671.00   Flow (cfs)              225.45    1949.07
 496.49
  Top Width (ft)           586.66    Top Width (ft)          354.16      73.91
 158.59
  Vel Total (ft/s)           1.81    Avg. Vel. (ft/s)          0.40       3.37
   1.52
  Max Chl Dpth (ft)          8.36    Hydr. Depth (ft)          1.61       7.82
   2.07
  Conv. Total (cfs)       113985.3   Conv. (cfs)             9620.9    83176.6
21187.7
  Length Wtd. (ft)         215.65    Wetted Per. (ft)        356.31      75.90
 159.00
  Min Ch El (ft)           236.02    Shear (lb/sq ft)          0.05       0.26
   0.07
  Alpha                      2.66    Stream Power (lb/ft s)  1417.31       0.00
   0.00
  Frctn Loss (ft)            0.08    Cum Volume (acre-ft)      72.89      43.91
  32.68
  C & E Loss (ft)            0.04    Cum SA (acres)            21.73       4.71
   9.24


Warning: Divided flow computed for this cross-section.
Warning: When the Manning's n value for the channel was composited, the computed n
value was larger [smaller] than the
         largest [smallest] user entered n value.  The n value has been set to the
largest [smallest] entered value.  The user may
         wish to examine this cross section and enter a single n value for the
entire channel.
Note:    Manning's n values were composited to a single value in the main channel.
Note:    Multiple critical depths were found at this location.  The critical depth
with the lowest, valid, energy was used.

CROSS SECTION OUTPUT  Profile #2%
```

E.G. Elev (ft)	248.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.	0.120	0.040	0.050
W.S. Elev (ft)	248.46	Reach Len. (ft)	212.34	216.58	214.85
Crit W.S. (ft)	244.93	Flow Area (sq ft)	2094.36	879.90	1405.39
E.G. Slope (ft/ft)	0.000827	Area (sq ft)	2094.36	879.90	1405.39
Q Total (cfs)	10810.00	Flow (cfs)	2301.28	4813.97	3694.75
Top Width (ft)	746.09	Top Width (ft)	383.66	73.91	288.53
Vel Total (ft/s)	2.47	Avg. Vel. (ft/s)	1.10	5.47	2.63
Max Chl Dpth (ft)	12.44	Hydr. Depth (ft)	5.46	11.90	4.87
Conv. Total (cfs)	375968.1	Conv. (cfs)	80037.7	167428.3	128502.0
Length Wtd. (ft)	215.04	Wetted Per. (ft)	386.29	75.90	289.38
Min Ch El (ft)	236.02	Shear (lb/sq ft)	0.28	0.60	0.25
Alpha	2.62	Stream Power (lb/ft s)	1417.31	0.00	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	129.78	57.29	68.16
C & E Loss (ft)	0.04	Cum SA (acres)	27.20	4.64	12.27

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	249.58	Element	Left OB	Channel	Right OB

Vel Head (ft)	0.25	Wt. n-Val.	0.120	0.040	0.050
W.S. Elev (ft)	249.33	Reach Len. (ft)	212.34	216.58	214.85
Crit W.S. (ft)	245.42	Flow Area (sq ft)	2431.53	944.54	1660.41
E.G. Slope (ft/ft)	0.000784	Area (sq ft)	2431.53	944.54	1665.25
Q Total (cfs)	12761.00	Flow (cfs)	2854.68	5275.37	4630.95
Top Width (ft)	762.91	Top Width (ft)	387.43	73.91	301.57
Vel Total (ft/s)	2.53	Avg. Vel. (ft/s)	1.17	5.59	2.79
Max Chl Dpth (ft)	13.31	Hydr. Depth (ft)	6.28	12.78	5.68
Conv. Total (cfs)	455801.3	Conv. (cfs)	101964.4	188427.1	165409.8
Length Wtd. (ft)	214.98	Wetted Per. (ft)	390.17	75.90	293.35
Min Ch El (ft)	236.02	Shear (lb/sq ft)	0.30	0.61	0.28
Alpha	2.50	Stream Power (lb/ft s)	1417.31	0.00	0.00
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	152.81	61.17	78.90
C & E Loss (ft)	0.04	Cum SA (acres)	28.78	4.64	13.07

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	251.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.120	0.040	0.050
W.S. Elev (ft)	251.50	Reach Len. (ft)	212.34	216.58	214.85

Crit W.S. (ft)	246.60	Flow Area (sq ft)	3277.09	1104.94	2295.12
E.G. Slope (ft/ft)	0.000794	Area (sq ft)	3277.09	1104.94	2319.71
Q Total (cfs)	19382.00	Flow (cfs)	4686.42	6897.84	7797.75
Top Width (ft)	767.37	Top Width (ft)	391.89	73.91	301.57
Vel Total (ft/s)	2.90	Avg. Vel. (ft/s)	1.43	6.24	3.40
Max Chl Dpth (ft)	15.48	Hydr. Depth (ft)	8.36	14.95	7.85
Conv. Total (cfs)	687635.8	Conv. (cfs)	166264.9	244721.9	276648.9
Length Wtd. (ft)	214.87	Wetted Per. (ft)	395.13	75.90	293.35
Min Ch El (ft)	236.02	Shear (lb/sq ft)	0.41	0.72	0.39
Alpha	2.26	Stream Power (lb/ft s)	1417.31	0.00	0.00
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	218.79	71.19	108.12
C & E Loss (ft)	0.02	Cum SA (acres)	31.84	4.64	14.22

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 2480.647

INPUT
Description:
Station Elevation Data num= 412

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	252.08	.11	252.07	1.36	251.85	6.29	251.59	6.46	251.58
6.59	251.61	12.14	252.15	15.66	254.8	19.1	257.29	23.53	258.68
24.54	259.21	26.55	260.25	31.33	261.03	33.38	261.24	39.19	260.95

40.39	260.84	40.81	260.86	46.05	261.02	48.59	260.8	51.88	260.1
56.5	258.42	62.58	257.14	64.03	256.89	64.37	256.86	64.96	256.87
71.89	256.81	75.3	256.94	79.48	257.06	80.8	257.16	90.24	257.61
97.71	257.44	105.54	257.36	116.12	258.25	119.46	258.08	121.75	257.88
122.9	258.02	126.57	257.7	129.48	257.36	134.9	257.65	135.83	257.69
139.26	257.35	142.42	257.08	143.82	257.12	148.88	257.36	153.5	257.36
155.49	257.37	159.54	257.47	162.16	257.51	162.39	257.54	168.39	257.81
169.81	257.85	172.16	258	174.2	258.06	175.81	258.15	181.35	258.35
182.63	258.38	186.53	258.49	189.06	258.56	190.17	258.62	194.96	258.79
199.72	257	205.72	254.11	207.47	253.02	220.17	245.88	222.34	244.62
223.46	244.29	226.27	243.71	229.36	242.97	230.97	242.59	236.03	242.59
238.34	242.66	245.28	242.31	245.63	242.29	245.76	242.3	250.98	242.31
253.23	242.32	256.4	242.42	260.78	242.39	261.83	242.38	264.37	242.43
267.77	242.41	268.29	242.44	268.77	242.43	274.38	242.18	275.9	242.2
277.3	242.2	280.95	242.16	283.44	242.17	285.75	242.08	287.53	242.1
291.04	242.16	294.06	242.02	294.15	242.02	294.32	242.03	298.64	242.19
300.54	242	304.17	241.92	306.22	241.99	307.1	242.01	312.69	241.85
313.62	241.82	313.9	241.85	320.7	242.04	325.13	241.62	327.22	241.66
331.58	241.84	332.82	241.88	334.05	241.86	340.51	241.76	340.7	241.76
341.88	241.78	346.71	241.84	348.93	241.72	350.75	241.59	352.7	241.6
357.65	241.77	358.41	241.8	360.6	241.76	364.56	241.7	365.56	241.69
370.47	241.73	379.59	241.95	380.61	241.98	381.37	241.99	382.47	242.01
387.89	242.44	388.33	242.45	388.39	242.44	395.97	242.18	395.98	242.18
395.99	242.18	402.28	242.15	405.5	242.08	408.7	241.96	411.1	241.88
415.77	241.67	417.68	241.72	422.06	241.68	424.39	241.5	428.68	241.43
433.51	241.3	434.6	241.25	439.06	241.22	441.46	241.08	446.42	241.11
447.48	241.2	452.41	241.15	454.03	241.11	456.85	241.09	460.86	241.02
462.02	241.04	467.68	241.23	470.87	241.36	474.43	241.44	479.6	240.94
481.32	240.75	500	240.1	520	236.5	540	235.5	560	236
580	239.6	584.64	240.26	586.44	240.32	587.71	240.34	590.03	240.35
591.79	240.36	592.52	240.4	595.07	240.65	598.71	240.64	599.36	240.6
605.24	240.51	605.89	240.67	607.64	240.68	612.89	240.86	616	240.7
618.18	240.72	624.26	240.82	624.45	240.81	624.63	240.82	625.88	240.97
630.04	241.41	630.93	241.55	631.82	241.51	637.59	240.92	640.82	241.2
640.86	241.2	640.9	241.2	641.06	241.2	646.82	241.03	648.14	241.12
652.66	241.28	655.45	241.26	658.63	241.22	662.77	241.23	664.5	241.24
669.92	241.16	670.3	241.16	671.93	241.15	676.7	241.14	680.4	241.24
683.28	241.33	686.94	241.35	689.81	241.34	690.56	241.39	696.2	241.27
697.08	241.19	698.67	241.25	702.52	241.36	703.92	241.44	706.94	241.55
710.76	241.56	714.56	241.13	715.15	241.13	717.39	241.12	720.82	241.15
722.73	241.23	726.19	241.44	731.21	241.49	731.44	241.5	731.65	241.49
732.44	241.46	737.26	241.27	738.91	241.26	739.24	241.25	745.8	241.2
748.08	241.28	752.69	241.48	757.41	241.25	758.41	241.21	759.08	241.2
763.42	241.21	765.33	241.22	765.74	241.25	770.07	241.12	773.61	240.92
775.28	240.89	778.13	240.85	780.43	240.85	784.38	241.09	786.45	241.01
788.31	241.1	792.19	241.21	795.38	241.25	797.99	241.3	802.43	241.5
803.69	241.55	809.45	241.28	809.53	241.28	809.59	241.29	815.5	241.49
819.94	241.23	821.61	241.28	823.88	241.33	827.87	241.53	828.97	241.59
835	242.03	839.22	241.85	841.02	241.75	845.57	241.97	846.56	242.06
848.79	242.11	854.04	242.21	857.31	242.22	857.86	242.16	860.01	242.21

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  869.11  242.73  870.91  242.83  871.09  242.83   871.4  242.85  877.44   242.8
  878.12  242.82  879.04  242.88  884.87  242.94  887.45  243.02  891.31  243.49
  894.31  243.45  898.17  243.57  902.97  243.52  904.66  243.47  910.68  243.61
  910.97  243.65  912.07  243.72  914.29  244.01  917.03  244.34  917.66  244.36
  925.98  244.36  931.06  244.43   933.6  244.35  939.56  244.43  944.31  244.42
  945.62  244.59  949.37   244.5  957.11  244.27  957.63  244.28  957.83  244.28
  957.96  244.28  958.74  244.31  976.23  244.61  979.59  244.66  980.83  244.64
  981.97  244.64   985.1   244.8  989.56  244.79  990.33  244.79  992.17  244.63
  996.68  243.89  999.59  244.06 1000.01  244.09 1000.06  244.09 1002.55  244.12
 1004.46  244.14 1008.63  244.36 1008.84  244.36 1009.06  244.36 1009.46  244.36
 1012.76  244.31 1014.86  244.35 1017.57  244.43 1019.99  244.49 1021.83   244.6
 1024.23  244.96 1025.52   245.1 1028.46  245.06  1031.2  245.16 1032.79  245.18
 1034.49  245.17 1037.93  245.22 1038.33  245.21 1038.56  245.22 1038.86  245.23
 1043.71  245.31 1047.44  245.36 1048.56   245.3 1051.13   245.3  1053.3   245.4
 1057.59  245.57 1059.29  245.62 1060.15  245.66 1063.42  245.37 1063.88  245.38
 1070.19   245.8 1072.86  245.93 1075.78   246.1 1077.05  246.26 1077.59  246.33
  1081.4  247.04  1083.1   247.2 1085.64  247.22  1092.3  247.41 1097.09  247.97
 1097.98  248.08 1101.49  248.09 1102.13  248.12 1108.03  247.93 1111.51  248.05
 1115.06  248.53 1115.12  248.54 1115.14  248.54 1120.41  248.66 1124.45  248.72
  1125.7  248.72 1128.31  248.57 1131.16  248.47 1134.89  248.37 1136.39  248.38
  1137.6  248.31 1140.18  248.44 1141.42   248.5 1144.15  248.44 1146.61  248.39
 1150.63  248.37 1151.86  248.42 1153.32  248.52 1157.35  249.09 1161.17  249.47
 1202.03  250.02  1243.8   250.4 1244.64  250.35 1245.39   250.4 1250.15  250.35
 1254.84  250.51 1255.45  250.53 1257.99   250.6 1258.44  250.61 1258.54  250.61
 1263.02  250.87 1267.56  251.04 1267.64  251.04 1267.77  251.04 1268.07  251.04
 1271.38  251.01  1272.7  251.05 1274.58  250.97 1278.24     251 1280.79  251.18
 1282.46  251.47 1284.15   251.4  1286.1  251.32 1287.67  251.42  1293.9  251.66
 1294.59  251.71 1296.23   251.8 1296.89  251.88 1300.43  251.98 1302.65  252.23
 1306.33  252.67 1309.33  253.02  1310.3  253.16 1313.69  253.49  1317.1  253.67
 1320.28  253.49 1321.35  253.56

Manning's n Values        num=       9
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .03   24.54     .05  229.36     .12   408.7     .05  474.43     .05
     500     .04     520     .04     580     .05 1002.55     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           500     580            40.41   41.04   41.32             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  350.45  254.07       F
  845.47 1321.35     252       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   81.11  117.73         1120.75 1241.09264.3616

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)            244.39    Element                 Left OB    Channel
```

Right OB					
Vel Head (ft)	0.05	Wt. n-Val.	0.060	0.040	0.050
W.S. Elev (ft)	244.33	Reach Len. (ft)	20.00	20.00	20.00
Crit W.S. (ft)	240.25	Flow Area (sq ft)	430.03	589.69	839.34
E.G. Slope (ft/ft)	0.000283	Area (sq ft)	701.29	589.69	940.40
Q Total (cfs)	2671.00	Flow (cfs)	369.70	1397.78	903.52
Top Width (ft)	715.77	Top Width (ft)	276.69	80.00	359.08
Vel Total (ft/s)	1.44	Avg. Vel. (ft/s)	0.86	2.37	1.08
Max Chl Dpth (ft)	8.83	Hydr. Depth (ft)	2.88	7.37	3.16
Conv. Total (cfs)	158712.9	Conv. (cfs)	21967.8	83057.2	53687.9
Length Wtd. (ft)	20.00	Wetted Per. (ft)	149.66	80.67	265.81
Min Ch El (ft)	235.50	Shear (lb/sq ft)	0.05	0.13	0.06
Alpha	1.66	Stream Power (lb/ft s)	1321.35	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	69.80	41.01	29.55
C & E Loss (ft)	0.01	Cum SA (acres)	20.20	4.32	7.97

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	248.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.062	0.040	0.050
W.S. Elev (ft)	248.36	Reach Len. (ft)	20.00	20.00	20.00
Crit W.S. (ft)	243.71	Flow Area (sq ft)	1032.12	911.77	1908.12
E.G. Slope (ft/ft)	0.000526	Area (sq ft)	1831.23	911.77	2898.11
Q Total (cfs)	10810.00	Flow (cfs)	2045.48	3924.09	

4840.44					
Top Width (ft)	898.04	Top Width (ft)	284.24	80.00	
533.80					
Vel Total (ft/s)	2.81	Avg. Vel. (ft/s)	1.98	4.30	
2.54					
Max Chl Dpth (ft)	12.86	Hydr. Depth (ft)	6.90	11.40	
7.19					
Conv. Total (cfs)	471268.4	Conv. (cfs)	89173.9	171072.8	
211021.6					
Length Wtd. (ft)	20.00	Wetted Per. (ft)	149.66	80.67	
265.81					
Min Ch El (ft)	235.50	Shear (lb/sq ft)	0.23	0.37	
0.24					
Alpha	1.31	Stream Power (lb/ft s)	1321.35	0.00	
0.00					
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	120.21	52.83	
57.54					
C & E Loss (ft)	0.00	Cum SA (acres)	25.57	4.26	
10.24					

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	249.41	Element	Left OB	Channel	
Right OB					
Vel Head (ft)	0.18	Wt. n-Val.	0.063	0.040	
0.050					
W.S. Elev (ft)	249.23	Reach Len. (ft)	20.00	20.00	
20.00					
Crit W.S. (ft)	244.05	Flow Area (sq ft)	1162.33	981.42	
2139.25					
E.G. Slope (ft/ft)	0.000525	Area (sq ft)	2079.38	981.42	
3367.42					
Q Total (cfs)	12761.00	Flow (cfs)	2479.99	4430.25	
5850.76					
Top Width (ft)	906.54	Top Width (ft)	285.79	80.00	
540.75					
Vel Total (ft/s)	2.98	Avg. Vel. (ft/s)	2.13	4.51	
2.73					
Max Chl Dpth (ft)	13.73	Hydr. Depth (ft)	7.77	12.27	
8.06					
Conv. Total (cfs)	556875.6	Conv. (cfs)	108224.1	193331.0	

255320.5

Length Wtd. (ft)	20.00	Wetted Per. (ft)	149.66	80.67	265.81
Min Ch El (ft)	235.50	Shear (lb/sq ft)	0.25	0.40	0.26
Alpha	1.28	Stream Power (lb/ft s)	1321.35	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	141.82	56.39	66.49
C & E Loss (ft)	0.00	Cum SA (acres)	27.14	4.26	10.99

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	251.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.	0.063	0.040	0.050
W.S. Elev (ft)	251.38	Reach Len. (ft)	20.00	20.00	20.00
Crit W.S. (ft)	245.01	Flow Area (sq ft)	1483.15	1153.04	2708.75
E.G. Slope (ft/ft)	0.000598	Area (sq ft)	2696.55	1153.04	4553.48
Q Total (cfs)	19382.00	Flow (cfs)	3944.48	6182.06	9255.47
Top Width (ft)	953.41	Top Width (ft)	289.60	80.00	583.80
Vel Total (ft/s)	3.63	Avg. Vel. (ft/s)	2.66	5.36	3.42
Max Chl Dpth (ft)	15.88	Hydr. Depth (ft)	9.92	14.41	10.20
Conv. Total (cfs)	792374.3	Conv. (cfs)	161257.9	252734.8	378381.6
Length Wtd. (ft)	20.00	Wetted Per. (ft)	149.66	80.67	265.81
Min Ch El (ft)	235.50	Shear (lb/sq ft)	0.37	0.53	0.38
Alpha	1.23	Stream Power (lb/ft s)	1321.35	0.00	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	204.23	65.58	

91.17
C & E Loss (ft) 0.00 Cum SA (acres) 30.17 4.26
12.04

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

BRIDGE

RIVER: W Br Neshminy
REACH: 1 RS: 2460.118

INPUT
Description: WBNES_02 - South of Sunset
Distance from Upstream XS = 20
Deck/Roadway Width = 7
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 409

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	252.43		1.38	252.52		5.01	253.61	
8.87	257.36		19.79	262.06		20.75	262.39	
21.2	262.41		22.61	262.43		27.39	262.4	
29.17	262.62		33.37	262.82		37.54	262.69	
39.55	262.68		44.68	262.89		45.89	262.92	
46.34	262.93		53.22	263.14		56.31	263.22	
60.44	263.46		62.9	263.27		65.5	263.25	
73.14	260.82		79.4	258.29		81.31	258.15	
83.6	257.98		87.23	257.98		91.73	258.1	
93.09	258.09		96.49	258.19		99.02	258.23	
101.15	258.44		107.75	259.05		111.28	259.29	
115.72	259.1		116.69	259.08		121.68	259.09	
128.9	258.71		130.92	258.58		131.81	258.55	
133.8	258.45		137.52	258.37		144.01	257.93	
144.44	257.9		145.3	257.9		151.54	257.97	
153.7	258.04		158.69	258.06		163.25	258.3	
165.77	258.36		172.76	258.42		172.85	258.42	
173.1	258.44		178.45	258.82		180.34	258.93	
186.11	258.58		190.1	258.53		194.79	257.9	
201.68	255.62		203.92	254.4		206.46	253.1	
209.01	250.97		212.04	249.34		216.31	246.31	
219.83	244.53		221.06	244.33		222.21	244.1	
227.31	243.35		231.7	243.24		233.96	243.17	
234.45	243.14		234.89	243.13		241.39	242.71	
242.77	242.73		245.25	242.74		250.67	242.71	
250.86	242.71		251.35	242.67		257.15	242.38	

258.71	242.3		263.49	242.38	266.76	242.4	
269.76	242.35		274.72	242.19	276	242.23	
280.68	242.35		282.25	242.39	283.1	242.4	
288.98	242.46		293.43	242.36	295.36	242.24	
295.76	242.26		300.24	242.68	307.34	242.99	
308.75	242.98		311.99	243.01	315.8	242.75	
320.64	242.16		322.56	241.99	329.61	241.94	
332.44	242.01		335.22	242.2	338.28	242.21	
339.85	242.12		341.22	242.31	344.7	242.37	
352.96	242.64		354.55	242.73	356.61	243	
361.21	244.05		365.9	245.36	368.04	245.81	
374.8	245.96		375.04	245.96	375.08	245.96	
381.83	245.93		383	245.92	385.59	245.86	
389.51	245.7		390.33	245.73	390.46	245.73	
391.28	245.65		393.3	245.41	397.46	244.85	
398.53	244.74		404.01	244.18	405.64	244.05	
407.82	243.85		412.96	243.71	417.21	243.43	
423.14	242.89		423.48	242.83	424.79	242.77	
430.02	242.7		432.95	242.41	436.69	242.14	
443.22	241.81		443.25	241.81	443.3	241.81	
449.96	241.24		450.61	241.22	451.72	241.16	
456.61	241.04		457.96	241.12	460.12	241.02	
463.13	240.84		465.22	240.8	468.4	240.9	
469.59	240.93		472.36	241.19	474.69	241.19	
476.86	240.92		482.63	239.96	487.1	247.7	247
588.9	247.7	247	594.54	240.33	596.89	240.49	
600.98	240.6		605.13	240.87	607.38	241.02	
613.39	240.84		613.89	240.86	615.73	240.86	
619.62	240.91		621.69	240.86	625.1	240.91	
628.52	240.96		633.04	241.21	635.83	241.31	
639.45	241.1		641.9	241.14	644.31	241.13	
648.15	241.02		651.24	240.99	657.08	240.88	
658.18	240.9		661.81	241.08	664.18	241.27	
665.52	241.25		669.42	241.05	673.5	241.11	
674.55	241.13		676.48	241.17	680.26	241.22	
681.2	241.21		686.32	241.05	688.74	241.12	
692.38	241.17		696.26	241.04	698.4	241.05	
703.78	240.92		704.46	240.9	707.21	240.87	
710.58	240.81		711.12	240.84	716.85	240.9	
717.56	240.91		722.86	241.22	722.97	241.22	
723.09	241.25		729.01	241.86	731.17	241.84	
740.58	241.97		743.48	241.93	746.4	241.88	
747.58	241.91		752.12	242.09	753.82	242.16	
754.09	242.14		754.46	242.13	759.05	241.8	
763.26	241.58		764.07	241.57	764.59	241.61	
768.99	241.9		772.2	242.06	778.06	242.13	
779.7	242.12		790.41	241.23	791.64	241.11	
797.24	240.85		798.4	240.88	800.3	240.79	
805.15	241.17		807.68	241.27	812.08	241.47	
817.95	241.26		818.73	241.2	819.47	241.16	

823.66	241.33	827.59	241.64	829.77	241.66
832.34	241.64	841.84	241.65	842.18	241.64
845.44	241.76	851.18	241.56	852.19	241.56
853.22	241.65	857.72	241.87	858.86	241.94
859.17	241.94	865.32	242.05	867.3	242.05
871.81	242.11	875.46	242.08	878.3	242.1
883.49	242.32	884.66	242.29	886.19	242.37
891.21	242.46	895.57	242.7	899.36	242.71
899.99	242.68	902.75	242.8	905.88	242.95
906.56	242.95	911.41	243.13	913.28	243.17
914.57	243.29	921.27	243.34	922.96	243.31
926.68	243.55	933.13	243.35	933.56	243.37
934.57	243.48	939.63	244.07	943.6	243.85
945.47	243.75	947.84	243.63	951.74	243.49
956.28	243.84	959.13	243.86	963.85	243.62
971.39	243.73	975.49	243.37	976.81	243.35
980.5	243.38	983.27	243.4	984.44	243.5
985.5	243.55	987.29	243.72	987.96	243.77
988.43	243.75	994.3	243.62	996.64	243.58
998.47	243.91	1000.39	243.99	1001.93	243.99
1002.2	244.08	1003.39	243.99	1008.64	244.03
1011.3	243.9	1013.54	243.89	1016.07	243.91
1021.76	244.06	1022.24	244.06	1025.42	243.72
1026.61	243.71	1028.56	243.71	1032.19	243.72
1034.36	243.79	1036.4	244.01	1037.95	244.19
1040.32	244.23	1042.48	244.21	1044.69	244.19
1047.06	244.3	1050.23	244.44	1050.65	244.45
1055.32	244.6	1059.8	244.74	1060.2	244.8
1063.4	245.26	1064.17	245.28	1064.88	245.29
1068.47	245.37	1072.42	245.53	1072.92	245.57
1076.15	245.84	1078.81	245.96	1081.97	246.03
1083.8	246.02	1085.32	246.02	1088.19	246.1
1088.92	246.14	1093.75	246.24	1098.02	246.43
1099.03	246.42	1101.66	246.26	1103.94	246.31
1110.72	246.75	1110.75	246.75	1110.81	246.75
1114.4	246.78	1116.89	246.89	1119.54	246.93
1121.65	246.97	1126.55	247.33	1126.82	247.34
1127.06	247.34	1127.25	247.35	1132.29	247.62
1136.52	247.97	1137.33	247.98	1140.14	247.68
1141.89	247.61	1145.83	247.72	1147.94	247.76
1148.89	247.77	1149.57	247.72	1151.68	247.5
1153.21	247.7	1155.16	247.79	1157.53	247.92
1160.32	248.02	1162.53	248.2	1163.77	248.37
1166.14	248.37	1169.82	248.42	1171.88	248.51
1179.26	249.03	1190.74	249.18	1192.22	249.24
1192.52	249.27	1196.82	249.33	1203.66	249.41
1221.99	249.71	1228.97	249.78	1236.8	249.97
1237.63	249.84	1238.24	249.88	1241.13	249.93
1244.01	250.29	1244.46	250.3	1248.43	250.23
1251.89	250.23	1252.61	250.26	1253.57	250.26

1255.77	250.27	1257.13	250.37	1259.48	250.45
1261.64	250.45	1264.11	250.37	1266.77	250.52
1268.81	250.43	1270.26	250.44	1273.94	250.76
1278.35	250.92	1279.16	250.95	1282.71	251.14
1283.25	251.14	1288.6	251.1	1289.77	251.43
1292.03	251.64	1294.75	251.93	1297.75	251.9
1299.51	252.1	1303.95	252.44	1305.69	252.39
1305.75	252.39	1310.84	252.8	1314.41	253.06
1316	253.22	1318.51	253.25	1320.19	253.35
1321.8	253.41	1325.1	253.49	1328.02	253.38
1330.61	253.19				

Upstream Bridge Cross Section Data

Station Elevation Data num= 412

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	252.08	.11	252.07	1.36	251.85	6.29	251.59	6.46	251.58
6.59	251.61	12.14	252.15	15.66	254.8	19.1	257.29	23.53	258.68
24.54	259.21	26.55	260.25	31.33	261.03	33.38	261.24	39.19	260.95
40.39	260.84	40.81	260.86	46.05	261.02	48.59	260.8	51.88	260.1
56.5	258.42	62.58	257.14	64.03	256.89	64.37	256.86	64.96	256.87
71.89	256.81	75.3	256.94	79.48	257.06	80.8	257.16	90.24	257.61
97.71	257.44	105.54	257.36	116.12	258.25	119.46	258.08	121.75	257.88
122.9	258.02	126.57	257.7	129.48	257.36	134.9	257.65	135.83	257.69
139.26	257.35	142.42	257.08	143.82	257.12	148.88	257.36	153.5	257.36
155.49	257.37	159.54	257.47	162.16	257.51	162.39	257.54	168.39	257.81
169.81	257.85	172.16	258	174.2	258.06	175.81	258.15	181.35	258.35
182.63	258.38	186.53	258.49	189.06	258.56	190.17	258.62	194.96	258.79
199.72	257	205.72	254.11	207.47	253.02	220.17	245.88	222.34	244.62
223.46	244.29	226.27	243.71	229.36	242.97	230.97	242.59	236.03	242.59
238.34	242.66	245.28	242.31	245.63	242.29	245.76	242.3	250.98	242.31
253.23	242.32	256.4	242.42	260.78	242.39	261.83	242.38	264.37	242.43
267.77	242.41	268.29	242.44	268.77	242.43	274.38	242.18	275.9	242.2
277.3	242.2	280.95	242.16	283.44	242.17	285.75	242.08	287.53	242.1
291.04	242.16	294.06	242.02	294.15	242.02	294.32	242.03	298.64	242.19
300.54	242	304.17	241.92	306.22	241.99	307.1	242.01	312.69	241.85
313.62	241.82	313.9	241.85	320.7	242.04	325.13	241.62	327.22	241.66
331.58	241.84	332.82	241.88	334.05	241.86	340.51	241.76	340.7	241.76
341.88	241.78	346.71	241.84	348.93	241.72	350.75	241.59	352.7	241.6
357.65	241.77	358.41	241.8	360.6	241.76	364.56	241.7	365.56	241.69
370.47	241.73	379.59	241.95	380.61	241.98	381.37	241.99	382.47	242.01
387.89	242.44	388.33	242.45	388.39	242.44	395.97	242.18	395.98	242.18
395.99	242.18	402.28	242.15	405.5	242.08	408.7	241.96	411.1	241.88
415.77	241.67	417.68	241.72	422.06	241.68	424.39	241.5	428.68	241.43
433.51	241.3	434.6	241.25	439.06	241.22	441.46	241.08	446.42	241.11
447.48	241.2	452.41	241.15	454.03	241.11	456.85	241.09	460.86	241.02
462.02	241.04	467.68	241.23	470.87	241.36	474.43	241.44	479.6	240.94
481.32	240.75	500	240.1	520	236.5	540	235.8	560	236
580	239.6	584.64	240.26	586.44	240.32	587.71	240.34	590.03	240.35
591.79	240.36	592.52	240.4	595.07	240.65	598.71	240.64	599.36	240.6
605.24	240.51	605.89	240.67	607.64	240.68	612.89	240.86	616	240.7

618.18	240.72	624.26	240.82	624.45	240.81	624.63	240.82	625.88	240.97
630.04	241.41	630.93	241.55	631.82	241.51	637.59	240.92	640.82	241.2
640.86	241.2	640.9	241.2	641.06	241.2	646.82	241.03	648.14	241.12
652.66	241.28	655.45	241.26	658.63	241.22	662.77	241.23	664.5	241.24
669.92	241.16	670.3	241.16	671.93	241.15	676.7	241.14	680.4	241.24
683.28	241.33	686.94	241.35	689.81	241.34	690.56	241.39	696.2	241.27
697.08	241.19	698.67	241.25	702.52	241.36	703.92	241.44	706.94	241.55
710.76	241.56	714.56	241.13	715.15	241.13	717.39	241.12	720.82	241.15
722.73	241.23	726.19	241.44	731.21	241.49	731.44	241.5	731.65	241.49
732.44	241.46	737.26	241.27	738.91	241.26	739.24	241.25	745.8	241.2
748.08	241.28	752.69	241.48	757.41	241.25	758.41	241.21	759.08	241.2
763.42	241.21	765.33	241.22	765.74	241.25	770.07	241.12	773.61	240.92
775.28	240.89	778.13	240.85	780.43	240.85	784.38	241.09	786.45	241.01
788.31	241.1	792.19	241.21	795.38	241.25	797.99	241.3	802.43	241.5
803.69	241.55	809.45	241.28	809.53	241.28	809.59	241.29	815.5	241.49
819.94	241.23	821.61	241.28	823.88	241.33	827.87	241.53	828.97	241.59
835	242.03	839.22	241.85	841.02	241.75	845.57	241.97	846.56	242.06
848.79	242.11	854.04	242.21	857.31	242.22	857.86	242.16	860.01	242.21
869.11	242.73	870.91	242.83	871.09	242.83	871.4	242.85	877.44	242.8
878.12	242.82	879.04	242.88	884.87	242.94	887.45	243.02	891.31	243.49
894.31	243.45	898.17	243.57	902.97	243.52	904.66	243.47	910.68	243.61
910.97	243.65	912.07	243.72	914.29	244.01	917.03	244.34	917.66	244.36
925.98	244.36	931.06	244.43	933.6	244.35	939.56	244.43	944.31	244.42
945.62	244.59	949.37	244.5	957.11	244.27	957.63	244.28	957.83	244.28
957.96	244.28	958.74	244.31	976.23	244.61	979.59	244.66	980.83	244.64
981.97	244.64	985.1	244.8	989.56	244.79	990.33	244.79	992.17	244.63
996.68	243.89	999.59	244.06	1000.01	244.09	1000.06	244.09	1002.55	244.12
1004.46	244.14	1008.63	244.36	1008.84	244.36	1009.06	244.36	1009.46	244.36
1012.76	244.31	1014.86	244.35	1017.57	244.43	1019.99	244.49	1021.83	244.6
1024.23	244.96	1025.52	245.1	1028.46	245.06	1031.2	245.16	1032.79	245.18
1034.49	245.17	1037.93	245.22	1038.33	245.21	1038.56	245.22	1038.86	245.23
1043.71	245.31	1047.44	245.36	1048.56	245.3	1051.13	245.3	1053.3	245.4
1057.59	245.57	1059.29	245.62	1060.15	245.66	1063.42	245.37	1063.88	245.38
1070.19	245.8	1072.86	245.93	1075.78	246.1	1077.05	246.26	1077.59	246.33
1081.4	247.04	1083.1	247.2	1085.64	247.22	1092.3	247.41	1097.09	247.97
1097.98	248.08	1101.49	248.09	1102.13	248.12	1108.03	247.93	1111.51	248.05
1115.06	248.53	1115.12	248.54	1115.14	248.54	1120.41	248.66	1124.45	248.72
1125.7	248.72	1128.31	248.57	1131.16	248.47	1134.89	248.37	1136.39	248.38
1137.6	248.31	1140.18	248.44	1141.42	248.5	1144.15	248.44	1146.61	248.39
1150.63	248.37	1151.86	248.42	1153.32	248.52	1157.35	249.09	1161.17	249.47
1202.03	250.02	1243.8	250.4	1244.64	250.35	1245.39	250.4	1250.15	250.35
1254.84	250.51	1255.45	250.53	1257.99	250.6	1258.44	250.61	1258.54	250.61
1263.02	250.87	1267.56	251.04	1267.64	251.04	1267.77	251.04	1268.07	251.04
1271.38	251.01	1272.7	251.05	1274.58	250.97	1278.24	251	1280.79	251.18
1282.46	251.47	1284.15	251.4	1286.1	251.32	1287.67	251.42	1293.9	251.66
1294.59	251.71	1296.23	251.8	1296.89	251.88	1300.43	251.98	1302.65	252.23
1306.33	252.67	1309.33	253.02	1310.3	253.16	1313.69	253.49	1317.1	253.67
1320.28	253.49	1321.35	253.56						

Manning's n Values num= 11

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.03	24.54	.05	229.36	.12	408.7	.05	474.43	.04
500	.04	520	.04	580	.04	584.64	.04	586.44	.05
1002.55	.05								

Bank Sta: Left Right Coeff Contr. Expan.
500 580 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	350.45	254.07	F
845.47	1321.35	252	F

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
81.11	117.73		1120.75	1241.09	264.3616

Downstream Deck/Roadway Coordinates
num= 409

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	252.43		1.38	252.52		5.01	253.61	
8.87	257.36		19.79	262.06		20.75	262.39	
21.2	262.41		22.61	262.43		27.39	262.4	
29.17	262.62		33.37	262.82		37.54	262.69	
39.55	262.68		44.68	262.89		45.89	262.92	
46.34	262.93		53.22	263.14		56.31	263.22	
60.44	263.46		62.9	263.27		65.5	263.25	
73.14	260.82		79.4	258.29		81.31	258.15	
83.6	257.98		87.23	257.98		91.73	258.1	
93.09	258.09		96.49	258.19		99.02	258.23	
101.15	258.44		107.75	259.05		111.28	259.29	
115.72	259.1		116.69	259.08		121.68	259.09	
128.9	258.71		130.92	258.58		131.81	258.55	
133.8	258.45		137.52	258.37		144.01	257.93	
144.44	257.9		145.3	257.9		151.54	257.97	
153.7	258.04		158.69	258.06		163.25	258.3	
165.77	258.36		172.76	258.42		172.85	258.42	
173.1	258.44		178.45	258.82		180.34	258.93	
186.11	258.58		190.1	258.53		194.79	257.9	
201.68	255.62		203.92	254.4		206.46	253.1	
209.01	250.97		212.04	249.34		216.31	246.31	
219.83	244.53		221.06	244.33		222.21	244.1	
227.31	243.35		231.7	243.24		233.96	243.17	
234.45	243.14		234.89	243.13		241.39	242.71	
242.77	242.73		245.25	242.74		250.67	242.71	
250.86	242.71		251.35	242.67		257.15	242.38	
258.71	242.3		263.49	242.38		266.76	242.4	
269.76	242.35		274.72	242.19		276	242.23	
280.68	242.35		282.25	242.39		283.1	242.4	
288.98	242.46		293.43	242.36		295.36	242.24	
295.76	242.26		300.24	242.68		307.34	242.99	
308.75	242.98		311.99	243.01		315.8	242.75	

320.64	242.16		322.56	241.99		329.61	241.94	
332.44	242.01		335.22	242.2		338.28	242.21	
339.85	242.12		341.22	242.31		344.7	242.37	
352.96	242.64		354.55	242.73		356.61	243	
361.21	244.05		365.9	245.36		368.04	245.81	
374.8	245.96		375.04	245.96		375.08	245.96	
381.83	245.93		383	245.92		385.59	245.86	
389.51	245.7		390.33	245.73		390.46	245.73	
391.28	245.65		393.3	245.41		397.46	244.85	
398.53	244.74		404.01	244.18		405.64	244.05	
407.82	243.85		412.96	243.71		417.21	243.43	
423.14	242.89		423.48	242.83		424.79	242.77	
430.02	242.7		432.95	242.41		436.69	242.14	
443.22	241.81		443.25	241.81		443.3	241.81	
449.96	241.24		450.61	241.22		451.72	241.16	
456.61	241.04		457.96	241.12		460.12	241.02	
463.13	240.84		465.22	240.8		468.4	240.9	
469.59	240.93		472.36	241.19		474.69	241.19	
476.86	240.92		482.63	239.96		487.1	247.7	247
588.9	247.7	247	594.54	240.33		596.89	240.49	
600.98	240.6		605.13	240.87		607.38	241.02	
613.39	240.84		613.89	240.86		615.73	240.86	
619.62	240.91		621.69	240.86		625.1	240.91	
628.52	240.96		633.04	241.21		635.83	241.31	
639.45	241.1		641.9	241.14		644.31	241.13	
648.15	241.02		651.24	240.99		657.08	240.88	
658.18	240.9		661.81	241.08		664.18	241.27	
665.52	241.25		669.42	241.05		673.5	241.11	
674.55	241.13		676.48	241.17		680.26	241.22	
681.2	241.21		686.32	241.05		688.74	241.12	
692.38	241.17		696.26	241.04		698.4	241.05	
703.78	240.92		704.46	240.9		707.21	240.87	
710.58	240.81		711.12	240.84		716.85	240.9	
717.56	240.91		722.86	241.22		722.97	241.22	
723.09	241.25		729.01	241.86		731.17	241.84	
740.58	241.97		743.48	241.93		746.4	241.88	
747.58	241.91		752.12	242.09		753.82	242.16	
754.09	242.14		754.46	242.13		759.05	241.8	
763.26	241.58		764.07	241.57		764.59	241.61	
768.99	241.9		772.2	242.06		778.06	242.13	
779.7	242.12		790.41	241.23		791.64	241.11	
797.24	240.85		798.4	240.88		800.3	240.79	
805.15	241.17		807.68	241.27		812.08	241.47	
817.95	241.26		818.73	241.2		819.47	241.16	
823.66	241.33		827.59	241.64		829.77	241.66	
832.34	241.64		841.84	241.65		842.18	241.64	
845.44	241.76		851.18	241.56		852.19	241.56	
853.22	241.65		857.72	241.87		858.86	241.94	
859.17	241.94		865.32	242.05		867.3	242.05	
871.81	242.11		875.46	242.08		878.3	242.1	

883.49	242.32	884.66	242.29	886.19	242.37
891.21	242.46	895.57	242.7	899.36	242.71
899.99	242.68	902.75	242.8	905.88	242.95
906.56	242.95	911.41	243.13	913.28	243.17
914.57	243.29	921.27	243.34	922.96	243.31
926.68	243.55	933.13	243.35	933.56	243.37
934.57	243.48	939.63	244.07	943.6	243.85
945.47	243.75	947.84	243.63	951.74	243.49
956.28	243.84	959.13	243.86	963.85	243.62
971.39	243.73	975.49	243.37	976.81	243.35
980.5	243.38	983.27	243.4	984.44	243.5
985.5	243.55	987.29	243.72	987.96	243.77
988.43	243.75	994.3	243.62	996.64	243.58
998.47	243.91	1000.39	243.99	1001.93	243.99
1002.2	244.08	1003.39	243.99	1008.64	244.03
1011.3	243.9	1013.54	243.89	1016.07	243.91
1021.76	244.06	1022.24	244.06	1025.42	243.72
1026.61	243.71	1028.56	243.71	1032.19	243.72
1034.36	243.79	1036.4	244.01	1037.95	244.19
1040.32	244.23	1042.48	244.21	1044.69	244.19
1047.06	244.3	1050.23	244.44	1050.65	244.45
1055.32	244.6	1059.8	244.74	1060.2	244.8
1063.4	245.26	1064.17	245.28	1064.88	245.29
1068.47	245.37	1072.42	245.53	1072.92	245.57
1076.15	245.84	1078.81	245.96	1081.97	246.03
1083.8	246.02	1085.32	246.02	1088.19	246.1
1088.92	246.14	1093.75	246.24	1098.02	246.43
1099.03	246.42	1101.66	246.26	1103.94	246.31
1110.72	246.75	1110.75	246.75	1110.81	246.75
1114.4	246.78	1116.89	246.89	1119.54	246.93
1121.65	246.97	1126.55	247.33	1126.82	247.34
1127.06	247.34	1127.25	247.35	1132.29	247.62
1136.52	247.97	1137.33	247.98	1140.14	247.68
1141.89	247.61	1145.83	247.72	1147.94	247.76
1148.89	247.77	1149.57	247.72	1151.68	247.5
1153.21	247.7	1155.16	247.79	1157.53	247.92
1160.32	248.02	1162.53	248.2	1163.77	248.37
1166.14	248.37	1169.82	248.42	1171.88	248.51
1179.26	249.03	1190.74	249.18	1192.22	249.24
1192.52	249.27	1196.82	249.33	1203.66	249.41
1221.99	249.71	1228.97	249.78	1236.8	249.97
1237.63	249.84	1238.24	249.88	1241.13	249.93
1244.01	250.29	1244.46	250.3	1248.43	250.23
1251.89	250.23	1252.61	250.26	1253.57	250.26
1255.77	250.27	1257.13	250.37	1259.48	250.45
1261.64	250.45	1264.11	250.37	1266.77	250.52
1268.81	250.43	1270.26	250.44	1273.94	250.76
1278.35	250.92	1279.16	250.95	1282.71	251.14
1283.25	251.14	1288.6	251.1	1289.77	251.43
1292.03	251.64	1294.75	251.93	1297.75	251.9

1299.51	252.1	1303.95	252.44	1305.69	252.39
1305.75	252.39	1310.84	252.8	1314.41	253.06
1316	253.22	1318.51	253.25	1320.19	253.35
1321.8	253.41	1325.1	253.49	1328.02	253.38
1330.61	253.19				

Downstream Bridge Cross Section Data
Station Elevation Data num= 440

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	254.55	9.57	259.81	15.41	263.5	17.72	264	20.42	263.63
22.6	263.56	27.42	263.59	29.52	263.63	30.27	263.62	36.7	263.58
39.94	263.87	43.65	264.25	49.51	264.39	50.71	264.42	53.95	264.72
57.08	265.01	58.26	265.05	62.94	265.13	66.25	265.31	68.8	265.3
73.69	265.28	74.85	265.35	82.89	262.77	86.99	262.6	91.41	261.57
116.61	259.6	117.83	259.61	120.03	259.72	121.2	259.69	127.67	259.64
128.13	259.63	128.35	259.63	129.04	259.58	134.71	259.27	136.35	259.21
141.12	259.14	144.61	259.11	147.49	259.17	152.83	259.2	153.85	259.17
157.36	259.15	160.14	259.07	161.24	259.08	166.28	259.07	169.83	259.1
172.42	259.15	176.17	259.42	183.82	257.96	191.83	256.8	193.2	256.52
194.02	255.96	199.12	253.72	202.05	252.4	205.34	250.9	208.64	249.98
211.25	249.12	215.4	247.49	215.53	247.45	215.67	247.41	222.66	245.8
224.22	245.48	227.86	244.88	232.54	244.71	233.75	244.58	236.94	244.15
239.94	243.69	240.68	243.58	246.16	242.97	248.44	242.87	252.26	242.86
257.14	242.8	263.52	242.72	263.95	242.7	264.25	242.72	266.55	242.71
270.83	242.76	273.19	242.65	277.86	242.57	283.54	242.82	284.11	242.85
284.86	242.86	287.83	242.49	292.05	242.49	296.46	242.54	298.7	242.56
303.98	242.65	311.28	242.7	312.33	242.79	312.98	242.8	316.9	242.94
322.16	243.27	326.5	243.63	327.35	243.66	329.38	243.96	332.71	245.01
337.74	245.58	342.6	246.27	344.43	246.61	346.41	247.13	350.69	247.72
353.18	247.41	354.61	247.24	362.65	248.04	363.27	248.12	363.61	248.15
364.14	248.16	368.81	248.07	372.26	248.09	374.43	248.07	379.28	248.16
380.1	248.16	380.32	248.16	380.46	248.15	383.05	248.09	386.24	248.02
388.01	247.95	392.46	247.43	395.71	247.24	398.52	247.24	403.24	247.02
404.61	246.85	410.38	246.22	410.82	246.17	415.86	245.82	418.16	245.67
418.73	245.63	422.03	245.18	424.89	244.75	430.06	244.33	431.8	244.14
432	244.13	432.26	244.1	438.44	243.06	439.4	242.94	440.64	242.75
445.15	242.08	446.86	241.88	451.24	241.4	454.26	241.21	457.36	241.02
458.28	241	461.65	241.1	464.54	240.98	466.11	240.91	469.02	240.75
470.77	240.71	475.41	240.45	476.3	240.4	476.88	240.35	479.75	240.33
483.37	240.27	484.22	240.11	500	240.1	520	236.5	540	236.1
560	236.1	580	239.6	580.18	240.22	583.73	240.39	584.91	240.41
586.95	240.41	591.99	240.42	594.3	240.6	594.89	240.63	596.08	240.7
602.3	240.65	602.51	240.65	605.96	240.67	608.38	240.8	611.1	240.78
614.14	240.78	619.45	240.92	620.06	240.95	620.24	240.94	627.02	240.99
629.2	241.14	633.91	241.4	638.19	241.3	640.88	241.21	647.03	241.08
647.78	241.08	650.35	241.13	655.01	241.25	658.53	241.33	662.58	241.47
663.56	241.5	665.57	241.53	669.07	241.5	669.88	241.54	674.93	241.43
677.13	241.31	680.76	241.3	684.23	241.25	689.8	241.36	691.37	241.36
691.94	241.33	692.28	241.34	696.56	241.09	698.42	241.01	699.84	240.99
705.27	241.09	712.05	241.01	712.14	241.01	712.15	241.01	712.17	241.01

718.4	241.01	719.06	241	719.99	240.96	724.6	241.02	725.97	240.93
727.77	240.98	730.8	240.97	735.5	240.88	736.81	240.85	739.64	241.34
742.01	241.19	746.59	241.32	748.64	241.43	752.26	241.45	753.47	241.43
754.18	241.51	757.09	241.96	760.02	242.35	761.74	242.11	768.98	241.77
773.42	241.85	777.78	241.81	780.05	241.73	780.49	241.83	787.26	241.92
798.19	241.85	799.49	241.94	801.41	241.82	806.02	241.36	808.59	241.36
809.67	241.25	814.84	240.78	816.61	240.86	821.34	241.15	823.71	241.27
825.17	241.25	826.01	241.24	831.24	241.21	835.07	241.37	838.42	241.52
841.04	241.3	844.22	241	845.47	241.05	851.23	241.35	853.42	241.44
857.8	241.35	861.95	241.56	865.55	241.61	868.11	241.74	870.66	241.73
872.87	241.69	874.09	241.63	877.28	241.82	879.25	241.87	883.83	241.81
890.86	241.79	892.66	241.7	894.51	241.87	897.26	241.86	901.82	242.18
903.79	242.19	906.54	242.27	910.06	242.29	915.74	242.69	916.92	242.69
917.86	242.68	919.39	242.62	921.93	242.42	923.38	242.54	925.85	242.45
927.62	242.66	931.32	242.7	936.19	243.06	936.36	243.06	936.48	243.07
944.74	242.74	947.3	242.55	950.78	242.58	953.9	242.72	957.5	242.76
959.01	242.78	968	242.74	970.32	242.76	970.7	242.95	974.43	243.08
977.58	243.22	978.3	243.21	983.05	243.18	983.85	243.1	985.59	243.19
990.18	243.02	993.07	243.03	997.99	243.33	999.25	243.31	1002.03	243.44
1004.07	243.45	1008.98	243.37	1011.74	243.33	1012.58	243.35	1017.44	243.68
1022.73	243.81	1025.29	243.81	1029.26	243.61	1036.51	243.58	1037.2	243.63
1038.06	243.6	1038.37	243.61	1045.03	243.5	1047.29	243.48	1049.09	243.58
1050.91	243.57	1052.57	243.61	1054.84	243.73	1057.69	243.87	1059.77	243.94
1062.13	243.92	1063.3	243.97	1066.53	244.02	1067.12	244.02	1072.29	244.15
1072.43	244.17	1075.87	244.16	1076.05	244.16	1076.2	244.16	1080.26	244.49
1084.11	244.51	1084.53	244.52	1085.01	244.51	1085.77	244.52	1088.53	244.66
1090.52	244.72	1092.74	244.76	1095.34	244.95	1097.71	245.12	1099.77	245.36
1101.28	245.41	1103.97	245.46	1106.21	245.73	1108.11	245.83	1110.35	245.9
1113.81	245.89	1114.05	245.9	1118.78	246.14	1123.2	246.62	1123.47	246.63
1126.77	246.49	1128.06	246.52	1128.67	246.51	1132.88	246.95	1136.9	247.09
1138.23	247.17	1139.43	247.14	1144.07	247.19	1148.62	247.31	1149.43	247.34
1151.24	247.46	1151.9	247.49	1152.19	247.5	1156.23	247.5	1160.21	247.63
1160.87	247.64	1161.55	247.65	1162.84	247.61	1166.4	247.57	1167.16	247.56
1171.23	247.65	1174.77	247.82	1177.23	247.99	1182.53	248.21	1187.46	248.39
1188.04	248.4	1190.15	248.33	1193.66	248.44	1198.41	248.69	1199.31	248.75
1200.45	248.73	1202.5	248.91	1204.09	249.05	1204.86	249.06	1205.73	249.09
1209.84	249.25	1213.43	249.44	1214.38	249.41	1216.11	249.56	1220.49	249.79
1222.04	249.59	1226.13	249.56	1226.27	249.57	1226.73	249.58	1230.05	249.82
1233.62	249.77	1234.72	249.72	1237.05	249.82	1239.42	249.84	1241.57	249.94
1242.88	250.03	1246.94	250.22	1252.37	250.69	1252.51	250.71	1255.9	250.85
1256.71	250.86	1258.21	250.86	1262.84	250.88	1265.36	250.85	1266.96	250.83
1268.71	250.74	1271.19	250.69	1274.31	250.62	1275.03	250.63	1278.45	250.79
1279.24	250.92	1281.84	251.06	1283.11	251.06	1286.53	251.17	1290.12	251.26
1291.43	251.39	1293.74	251.47	1294.9	251.61	1297.48	251.91	1299.72	252.08
1301.95	252.11	1304.52	252.32	1306.58	252.48	1307.87	252.49	1310.2	252.63
1319.85	253.15	1324.21	253.17	1326.15	253.11	1330.57	252.96	1331.86	252.9
1332.11	252.92	1334.18	252.99	1335.08	253.09	1338.75	253.33	1339.87	253.39

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val

```
       0     .05  283.54     .12  353.18     .05  483.37     .05     500     .04
     580     .05 1066.53     .05

Bank Sta: Left   Right    Coeff Contr.   Expan.
           500     580             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  375.61   251.6       F
  900.61 1339.87     252       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   95.95  110.43259.5887 1225.14  1225.9263.3704

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  2

Pier Data
Pier Station     Upstream=   492.6    Downstream=   492.6
Upstream     num=       2
    Width   Elev    Width   Elev
      .4   235.8      .4     247
Downstream     num=       2
    Width   Elev    Width   Elev
      .4   236.1      .4     247

Pier Data
Pier Station     Upstream=   581.7    Downstream=   581.7
Upstream     num=       2
    Width   Elev    Width   Elev
      .4   235.8      .4     247
Downstream     num=       2
    Width   Elev    Width   Elev
      .4   236.1      .4     247

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only
```

Additional Bridge Parameters
Add Friction component to Momentum
Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth
inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #10%

E.G. US. (ft)	244.39	Element	Inside BR US Inside BR DS
W.S. US. (ft)	244.33	E.G. Elev (ft)	244.38 244.37
Q Total (cfs)	2671.00	W.S. Elev (ft)	244.30 244.30
Q Bridge (cfs)	1650.47	Crit W.S. (ft)	240.34 240.48
Q Weir (cfs)		Max Chl Dpth (ft)	8.50 8.20
Weir Sta Lft (ft)		Vel Total (ft/s)	1.68 1.63
Weir Sta Rgt (ft)		Flow Area (sq ft)	1588.22 1642.41
Weir Submerg		Froude # Chl	0.13 0.13
Weir Max Depth (ft)		Specif Force (cu ft)	3833.47 3846.74
Min El Weir Flow (ft)	240.59	Hydr Depth (ft)	3.54 3.53
Min El Prs (ft)	247.00	W.P. Total (ft)	478.82 495.31
Delta EG (ft)	0.03	Conv. Total (cfs)	139316.6 139124.9
Delta WS (ft)	0.03	Top Width (ft)	663.16 706.09
BR Open Area (sq ft)	931.82	Frctn Loss (ft)	0.00 0.00
BR Open Vel (ft/s)	2.50	C & E Loss (ft)	0.00 0.01
Coef of Q		Shear Total (lb/sq ft)	0.08 0.08
Br Sel Method	Energy only	Power Total (lb/ft s)	0.00 0.00

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Multiple critical depths were found at this location. The critical depth

with the lowest, valid, water surface was used.

BRIDGE OUTPUT Profile #2%

E.G. US. (ft)	248.52	Element	Inside BR US Inside BR DS
W.S. US. (ft)	248.36	E.G. Elev (ft)	248.50 248.49
Q Total (cfs)	10810.00	W.S. Elev (ft)	248.35 248.34
Q Bridge (cfs)	3029.72	Crit W.S. (ft)	244.02 244.01
Q Weir (cfs)		Max Chl Dpth (ft)	12.55 12.24
Weir Sta Lft (ft)		Vel Total (ft/s)	3.12 3.04
Weir Sta Rgt (ft)		Flow Area (sq ft)	3459.94 3552.04
Weir Submerg		Froude # Chl	0.16 0.16
Weir Max Depth (ft)		Specif Force (cu ft)	14937.62 15212.86
Min El Weir Flow (ft)	240.59	Hydr Depth (ft)	6.99 6.77
Min El Prs (ft)	247.00	W.P. Total (ft)	746.99 777.40
Delta EG (ft)	0.04	Conv. Total (cfs)	323845.0 332663.1
Delta WS (ft)	0.05	Top Width (ft)	897.91 950.12
BR Open Area (sq ft)	931.82	Frctn Loss (ft)	0.01 0.01
BR Open Vel (ft/s)	3.25	C & E Loss (ft)	0.00 0.00
Coef of Q		Shear Total (lb/sq ft)	0.32 0.30
Br Sel Method	Energy only	Power Total (lb/ft s)	0.00 0.00

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

BRIDGE OUTPUT Profile #1%

E.G. US. (ft)	249.41	Element	Inside BR US Inside BR DS
W.S. US. (ft)	249.23	E.G. Elev (ft)	249.39 249.38
Q Total (cfs)	12761.00	W.S. Elev (ft)	249.22 249.21
Q Bridge (cfs)	3019.62	Crit W.S. (ft)	244.39 244.34
Q Weir (cfs)		Max Chl Dpth (ft)	13.42 13.11
Weir Sta Lft (ft)		Vel Total (ft/s)	3.28 3.18
Weir Sta Rgt (ft)		Flow Area (sq ft)	3890.87 4010.13
Weir Submerg		Froude # Chl	0.16 0.16
Weir Max Depth (ft)		Specif Force (cu ft)	18394.08 18754.57
Min El Weir Flow (ft)	240.59	Hydr Depth (ft)	7.86 7.64
Min El Prs (ft)	247.00	W.P. Total (ft)	746.99 777.40
Delta EG (ft)	0.04	Conv. Total (cfs)	391586.8 406810.7
Delta WS (ft)	0.04	Top Width (ft)	906.51 979.37
BR Open Area (sq ft)	931.82	Frctn Loss (ft)	0.01 0.01
BR Open Vel (ft/s)	3.24	C & E Loss (ft)	0.01 0.00
Coef of Q		Shear Total (lb/sq ft)	0.35 0.32
Br Sel Method	Energy only	Power Total (lb/ft s)	0.00 0.00

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

BRIDGE OUTPUT Profile #.2%

E.G. US. (ft)	251.63	Element	Inside BR US Inside BR DS
W.S. US. (ft)	251.38	E.G. Elev (ft)	251.61 251.59
Q Total (cfs)	19382.00	W.S. Elev (ft)	251.36

251.36			
Q Bridge (cfs)	3144.47	Crit W.S. (ft)	245.44
245.39			
Q Weir (cfs)		Max Chl Dpth (ft)	15.56
15.26			
Weir Sta Lft (ft)		Vel Total (ft/s)	3.91
3.77			
Weir Sta Rgt (ft)		Flow Area (sq ft)	4951.13
5137.13			
Weir Submerg		Froude # Chl	0.18
0.17			
Weir Max Depth (ft)		Specif Force (cu ft)	28944.82
29597.49			
Min El Weir Flow (ft)	240.59	Hydr Depth (ft)	10.00
9.79			
Min El Prs (ft)	247.00	W.P. Total (ft)	746.99
777.40			
Delta EG (ft)	0.05	Conv. Total (cfs)	580339.4
615175.9			
Delta WS (ft)	0.04	Top Width (ft)	952.58
1080.22			
BR Open Area (sq ft)	931.82	Frctn Loss (ft)	0.01
0.01			
BR Open Vel (ft/s)	3.37	C & E Loss (ft)	0.01
0.00			
Coef of Q		Shear Total (lb/sq ft)	0.46
0.41			
Br Sel Method	Energy only	Power Total (lb/ft s)	0.00
0.00			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 2439.608

INPUT
Description:
Station Elevation Data num= 440

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	254.55	9.57	259.81	15.41	263.5	17.72	264	20.42	263.63
22.6	263.56	27.42	263.59	29.52	263.63	30.27	263.62	36.7	263.58
39.94	263.87	43.65	264.25	49.51	264.39	50.71	264.42	53.95	264.72

57.08	265.01	58.26	265.05	62.94	265.13	66.25	265.31	68.8	265.3
73.69	265.28	74.85	265.35	82.89	262.77	86.99	262.6	91.41	261.57
116.61	259.6	117.83	259.61	120.03	259.72	121.2	259.69	127.67	259.64
128.13	259.63	128.35	259.63	129.04	259.58	134.71	259.27	136.35	259.21
141.12	259.14	144.61	259.11	147.49	259.17	152.83	259.2	153.85	259.17
157.36	259.15	160.14	259.07	161.24	259.08	166.28	259.07	169.83	259.1
172.42	259.15	176.17	259.42	183.82	257.96	191.83	256.8	193.2	256.52
194.02	255.96	199.12	253.72	202.05	252.4	205.34	250.9	208.64	249.98
211.25	249.12	215.4	247.49	215.53	247.45	215.67	247.41	222.66	245.8
224.22	245.48	227.86	244.88	232.54	244.71	233.75	244.58	236.94	244.15
239.94	243.69	240.68	243.58	246.16	242.97	248.44	242.87	252.26	242.86
257.14	242.8	263.52	242.72	263.95	242.7	264.25	242.72	266.55	242.71
270.83	242.76	273.19	242.65	277.86	242.57	283.54	242.82	284.11	242.85
284.86	242.86	287.83	242.49	292.05	242.49	296.46	242.54	298.7	242.56
303.98	242.65	311.28	242.7	312.33	242.79	312.98	242.8	316.9	242.94
322.16	243.27	326.5	243.63	327.35	243.66	329.38	243.96	332.71	245.01
337.74	245.58	342.6	246.27	344.43	246.61	346.41	247.13	350.69	247.72
353.18	247.41	354.61	247.24	362.65	248.04	363.27	248.12	363.61	248.15
364.14	248.16	368.81	248.07	372.26	248.09	374.43	248.07	379.28	248.16
380.1	248.16	380.32	248.16	380.46	248.15	383.05	248.09	386.24	248.02
388.01	247.95	392.46	247.43	395.71	247.24	398.52	247.24	403.24	247.02
404.61	246.85	410.38	246.22	410.82	246.17	415.86	245.82	418.16	245.67
418.73	245.63	422.03	245.18	424.89	244.75	430.06	244.33	431.8	244.14
432	244.13	432.26	244.1	438.44	243.06	439.4	242.94	440.64	242.75
445.15	242.08	446.86	241.88	451.24	241.4	454.26	241.21	457.36	241.02
458.28	241	461.65	241.1	464.54	240.98	466.11	240.91	469.02	240.75
470.77	240.71	475.41	240.45	476.3	240.4	476.88	240.35	479.75	240.33
483.37	240.27	484.22	240.11	500	240.1	520	236.5	540	236.1
560	236.1	580	239.6	580.18	240.22	583.73	240.39	584.91	240.41
586.95	240.41	591.99	240.42	594.3	240.6	594.89	240.63	596.08	240.7
602.3	240.65	602.51	240.65	605.96	240.67	608.38	240.8	611.1	240.78
614.14	240.78	619.45	240.92	620.06	240.95	620.24	240.94	627.02	240.99
629.2	241.14	633.91	241.4	638.19	241.3	640.88	241.21	647.03	241.08
647.78	241.08	650.35	241.13	655.01	241.25	658.53	241.33	662.58	241.47
663.56	241.5	665.57	241.53	669.07	241.5	669.88	241.54	674.93	241.43
677.13	241.31	680.76	241.3	684.23	241.25	689.8	241.36	691.37	241.36
691.94	241.33	692.28	241.34	696.56	241.09	698.42	241.01	699.84	240.99
705.27	241.09	712.05	241.01	712.14	241.01	712.15	241.01	712.17	241.01
718.4	241.01	719.06	241	719.99	240.96	724.6	241.02	725.97	240.93
727.77	240.98	730.8	240.97	735.5	240.88	736.81	240.85	739.64	241.34
742.01	241.19	746.59	241.32	748.64	241.43	752.26	241.45	753.47	241.43
754.18	241.51	757.09	241.96	760.02	242.35	761.74	242.11	768.98	241.77
773.42	241.85	777.78	241.81	780.05	241.73	780.49	241.83	787.26	241.92
798.19	241.85	799.49	241.94	801.41	241.82	806.02	241.36	808.59	241.36
809.67	241.25	814.84	240.78	816.61	240.86	821.34	241.15	823.71	241.27
825.17	241.25	826.01	241.24	831.24	241.21	835.07	241.37	838.42	241.52
841.04	241.3	844.22	241	845.47	241.05	851.23	241.35	853.42	241.44
857.8	241.35	861.95	241.56	865.55	241.61	868.11	241.74	870.66	241.73
872.87	241.69	874.09	241.63	877.28	241.82	879.25	241.87	883.83	241.81
890.86	241.79	892.66	241.7	894.51	241.87	897.26	241.86	901.82	242.18

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  903.79  242.19  906.54  242.27  910.06  242.29  915.74  242.69  916.92  242.69
  917.86  242.68  919.39  242.62  921.93  242.42  923.38  242.54  925.85  242.45
  927.62  242.66  931.32   242.7  936.19  243.06  936.36  243.06  936.48  243.07
  944.74  242.74   947.3  242.55  950.78  242.58   953.9  242.72   957.5  242.76
  959.01  242.78     968  242.74  970.32  242.76   970.7  242.95  974.43  243.08
  977.58  243.22   978.3  243.21  983.05  243.18  983.85   243.1  985.59  243.19
  990.18  243.02  993.07  243.03  997.99  243.33  999.25  243.31 1002.03  243.44
 1004.07  243.45 1008.98  243.37 1011.74  243.33 1012.58  243.35 1017.44  243.68
 1022.73  243.81 1025.29  243.81 1029.26  243.61 1036.51  243.58  1037.2  243.63
 1038.06   243.6 1038.37  243.61 1045.03   243.5 1047.29  243.48 1049.09  243.58
 1050.91  243.57 1052.57  243.61 1054.84  243.73 1057.69  243.87 1059.77  243.94
 1062.13  243.92  1063.3  243.97 1066.53  244.02 1067.12  244.02 1072.29  244.15
 1072.43  244.17 1075.87  244.16 1076.05  244.16  1076.2  244.16 1080.26  244.49
 1084.11  244.51 1084.53  244.52 1085.01  244.51 1085.77  244.52 1088.53  244.66
 1090.52  244.72 1092.74  244.76 1095.34  244.95 1097.71  245.12 1099.77  245.36
 1101.28  245.41 1103.97  245.46 1106.21  245.73 1108.11  245.83 1110.35   245.9
 1113.81  245.89 1114.05   245.9 1118.78  246.14  1123.2  246.62 1123.47  246.63
 1126.77  246.49 1128.06  246.52 1128.67  246.51 1132.88  246.95  1136.9  247.09
 1138.23  247.17 1139.43  247.14 1144.07  247.19 1148.62  247.31 1149.43  247.34
 1151.24  247.46  1151.9  247.49 1152.19   247.5 1156.23   247.5 1160.21  247.63
 1160.87  247.64 1161.55  247.65 1162.84  247.61  1166.4  247.57 1167.16  247.56
 1171.23  247.65 1174.77  247.82 1177.23  247.99 1182.53  248.21 1187.46  248.39
 1188.04   248.4 1190.15  248.33 1193.66  248.44 1198.41  248.69 1199.31  248.75
 1200.45  248.73  1202.5  248.91 1204.09  249.05 1204.86  249.06 1205.73  249.09
 1209.84  249.25 1213.43  249.44 1214.38  249.41 1216.11  249.56 1220.49  249.79
 1222.04  249.59 1226.13  249.56 1226.27  249.57 1226.73  249.58 1230.05  249.82
 1233.62  249.77 1234.72  249.72 1237.05  249.82 1239.42  249.84 1241.57  249.94
 1242.88  250.03 1246.94  250.22 1252.37  250.69 1252.51  250.71  1255.9  250.85
 1256.71  250.86 1258.21  250.86 1262.84  250.88 1265.36  250.85 1266.96  250.83
 1268.71  250.74 1271.19  250.69 1274.31  250.62 1275.03  250.63 1278.45  250.79
 1279.24  250.92 1281.84  251.06 1283.11  251.06 1286.53  251.17 1290.12  251.26
 1291.43  251.39 1293.74  251.47  1294.9  251.61 1297.48  251.91 1299.72  252.08
 1301.95  252.11 1304.52  252.32 1306.58  252.48 1307.87  252.49  1310.2  252.63
 1319.85  253.15 1324.21  253.17 1326.15  253.11 1330.57  252.96 1331.86   252.9
 1332.11  252.92 1334.18  252.99 1335.08  253.09 1338.75  253.33 1339.87  253.39

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  283.54     .12  353.18     .05  483.37     .05     500     .04
     580     .05 1066.53     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           500     580           287.35  265.85   71.47             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  375.61   251.6       F
  900.61 1339.87     252       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   95.95  110.43259.5887 1225.14  1225.9263.3704
```

CROSS SECTION OUTPUT Profile #10%

E.G. Elev (ft)	244.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.050	0.040	0.050
W.S. Elev (ft)	244.30	Reach Len. (ft)	287.35	265.85	71.47
Crit W.S. (ft)	240.53	Flow Area (sq ft)	214.50	573.26	960.44
E.G. Slope (ft/ft)	0.000310	Area (sq ft)	346.96	573.26	1158.38
Q Total (cfs)	2671.00	Flow (cfs)	242.27	1386.28	1042.46
Top Width (ft)	742.32	Top Width (ft)	164.36	80.00	497.96
Vel Total (ft/s)	1.53	Avg. Vel. (ft/s)	1.13	2.42	1.09
Max Chl Dpth (ft)	8.20	Hydr. Depth (ft)	3.08	7.17	3.00
Conv. Total (cfs)	151711.8	Conv. (cfs)	13760.6	78740.0	59211.3
Length Wtd. (ft)	182.96	Wetted Per. (ft)	69.95	80.63	321.45
Min Ch El (ft)	236.10	Shear (lb/sq ft)	0.06	0.14	0.06
Alpha	1.55	Stream Power (lb/ft s)	1339.87	0.00	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	69.36	40.46	28.65
C & E Loss (ft)	0.00	Cum SA (acres)	19.99	4.25	7.58

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	248.48	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.050	0.040	0.050
W.S. Elev (ft)	248.31	Reach Len. (ft)	287.35	265.85	71.47

Crit W.S. (ft)	243.75	Flow Area (sq ft)	583.07	894.01	2245.86
E.G. Slope (ft/ft)	0.000553	Area (sq ft)	1209.05	894.01	3346.48
Q Total (cfs)	10810.00	Flow (cfs)	1190.80	3883.21	5735.99
Top Width (ft)	972.03	Top Width (ft)	286.69	80.00	605.34
Vel Total (ft/s)	2.90	Avg. Vel. (ft/s)	2.04	4.34	2.55
Max Chl Dpth (ft)	12.21	Hydr. Depth (ft)	4.69	11.18	7.00
Conv. Total (cfs)	459700.1	Conv. (cfs)	50639.4	165135.4	243925.4
Length Wtd. (ft)	153.87	Wetted Per. (ft)	124.84	80.63	321.45
Min Ch El (ft)	236.10	Shear (lb/sq ft)	0.16	0.38	0.24
Alpha	1.27	Stream Power (lb/ft s)	1339.87	0.00	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	118.83	52.01	54.73
C & E Loss (ft)	0.01	Cum SA (acres)	25.30	4.18	9.72

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	249.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.	0.050	0.040	0.050
W.S. Elev (ft)	249.19	Reach Len. (ft)	287.35	265.85	71.47
Crit W.S. (ft)	244.08	Flow Area (sq ft)	691.89	963.99	2526.35
E.G. Slope (ft/ft)	0.000537	Area (sq ft)	1460.85	963.99	3888.15
Q Total (cfs)	12761.00	Flow (cfs)	1541.76	4340.04	6879.20
Top Width (ft)	997.19	Top Width (ft)	288.95	80.00	628.23
Vel Total (ft/s)	3.05	Avg. Vel. (ft/s)	2.23	4.50	2.72
Max Chl Dpth (ft)	13.09	Hydr. Depth (ft)	5.56	12.05	

7.88					
Conv. Total (cfs)	550539.4	Conv. (cfs)	66515.2	187239.5	296784.7
Length Wtd. (ft)	151.61	Wetted Per. (ft)	124.84	80.63	321.45
Min Ch El (ft)	236.10	Shear (lb/sq ft)	0.19	0.40	0.26
Alpha	1.23	Stream Power (lb/ft s)	1339.87	0.00	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	140.21	55.50	63.21
C & E Loss (ft)	0.01	Cum SA (acres)	26.87	4.18	10.45

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	251.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.	0.050	0.040	0.050
W.S. Elev (ft)	251.34	Reach Len. (ft)	287.35	265.85	71.47
Crit W.S. (ft)	245.07	Flow Area (sq ft)	959.10	1135.84	3215.06
E.G. Slope (ft/ft)	0.000583	Area (sq ft)	2088.93	1135.84	5321.76
Q Total (cfs)	19382.00	Flow (cfs)	2726.74	5943.70	10711.56
Top Width (ft)	1085.74	Top Width (ft)	295.62	80.00	710.12
Vel Total (ft/s)	3.65	Avg. Vel. (ft/s)	2.84	5.23	3.33
Max Chl Dpth (ft)	15.24	Hydr. Depth (ft)	7.71	14.20	10.03
Conv. Total (cfs)	802563.3	Conv. (cfs)	112907.9	246114.7	443540.6
Length Wtd. (ft)	147.77	Wetted Per. (ft)	124.84	80.63	321.45
Min Ch El (ft)	236.10	Shear (lb/sq ft)	0.28	0.51	0.36
Alpha	1.18	Stream Power (lb/ft s)	1339.87	0.00	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	202.04	64.53	86.68

C & E Loss (ft) 0.01 Cum SA (acres) 29.90 4.18 11.44

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 2173.758

INPUT
Description:
Station Elevation Data num= 448

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	258	4.86	258.36	5.52	258.41	6.23	258.55	6.8	258.67
9.37	259.2	11.3	259.61	11.31	259.61	15.48	260.16	15.54	260.17
15.91	260.23	16.27	260.28	22.13	261.06	23.88	261.29	24.05	261.28
28.56	261.06	29.74	261.22	31.52	261.17	51.92	261.46	70.58	261.8
75.22	261.82	75.65	261.82	76.96	261.69	78.26	261.53	97.02	261.47
97.71	261.47	98.97	261.37	103.38	261.2	103.72	261.17	108.69	259.94
118.04	259.55	120.95	259.39	123.08	259.31	127.25	259.07	128.91	259.04
130.48	258.86	132.06	258.74	133.32	258.65	134.82	258.53	136.78	258.52
139.76	258.48	143.85	258.67	146.42	258.78	149.11	258.62	151.5	258.49
153.74	258.33	157.5	257.98	160.81	257.9	164.98	258.01	165.84	258.25
169.65	258.73	171.23	258.88	176.35	259.38	181.61	259.81	186.04	260.07
187.71	260.1	192.62	259.88	198.08	259.78	215.97	259.43	216.94	259.51
224.4	259.44	227.54	259.67	228.31	259.7	228.5	259.69	231.31	259.57
236.66	259.31	237.08	259.31	245.2	259.08	247.73	259.04	253.68	259.08
254.73	259.08	263.33	259.06	263.99	259.04	265.09	259.03	265.73	259
270.4	258.66	274.6	258.83	276.27	258.72	282.69	258.52	286.1	258.5
289.76	258.4	290.48	258.41	293.01	258.43	297.6	258.13	300.06	258.11
308.57	257.89	308.98	257.86	309.74	257.81	311.56	257.66	327.01	256.46
327.29	256.44	336.47	255.44	338.35	255.28	339.72	255.24	342.83	255.14
344.47	254.91	348.36	254.69	351.89	254.66	352.96	254.62	359.92	254
360.31	253.92	365.96	252.72	371.36	250.73	371.92	250.49	372.57	250.11
378.92	245.9	389.65	239.71	391.23	238.81	391.91	238.48	393.37	237.88
396.84	236.47	398.81	235.89	401.17	235.5	418.15	235.21	430.09	235.21
442.8	235.88	443.24	236.05	443.69	236.14	445.54	236.55	446.71	236.82
447.22	236.84	448.89	236.94	451.73	237.11	451.89	237.13	452.4	237.18
454.8	237.45	458.16	237.91	459.15	238.03	463.99	238.71	465.76	238.87
468.92	239.02	473.06	239.08	475.55	239.16	478.2	239.48	481.69	240.1
493.67	240.53	495.11	240.63	495.82	240.66	497	240.76	503.84	240.82
506.18	240.72	508.33	240.65	511.28	240.86	512.37	240.86	518.07	240.63
520.62	240.66	522.74	240.79	524.75	240.95	528.01	241.09	532.89	241.23
534.23	241.16	535.48	241.21	538.54	241.25	542.09	241.28	542.84	241.28

548.45	241.6	548.73	241.61	549.08	241.62	554.18	241.55	557.21	241.73
559	241.86	562.25	241.8	567.1	241.52	569.51	241.28	572.43	241.08
573.52	241.13	577.91	241.25	581.81	241.01	583.43	240.97	585.87	240.91
589.78	240.96	594.19	240.96	595.03	240.92	597.09	241.11	597.94	241.16
602.13	241	606.53	240.82	606.85	240.8	607.64	240.83	609.63	240.95
610.45	240.98	613.76	241.22	618.25	241.24	618.46	241.24	618.69	241.24
619.85	241.35	622.57	241.57	623.27	241.57	627.99	241.43	630.5	241.34
630.83	241.34	630.94	241.33	632.9	241.65	633.46	241.74	644.03	241.36
647.57	241.33	659.86	241.27	659.89	241.27	659.93	241.28	666.17	241.71
668.84	241.7	679.03	241.89	680.5	241.78	683.9	241.98	684.5	242
684.75	242.01	685.11	241.97	689.27	241.48	692.6	241.35	694.61	241.27
696.65	241.27	700.58	241.3	704.95	241.14	705.86	241.13	709.01	240.83
709.27	240.82	709.6	240.81	713.95	240.71	717.37	240.84	718.71	240.81
721.47	240.8	724.6	240.74	729.81	240.69	730.37	240.72	733.84	240.84
733.88	240.84	734.69	240.82	741.88	240.69	742.27	240.69	744.72	240.88
747.58	240.76	751.97	240.71	753.35	240.63	754.67	240.61	756.8	240.54
758.61	240.44	759.76	240.43	760.17	240.47	762.36	240.58	767.14	240.76
768.96	240.69	770.57	240.56	774.39	240.76	776.69	240.86	777.32	240.92
782.14	241.17	782.71	241.2	783.03	241.21	783.22	241.21	784.27	241.25
792.84	241.53	795.38	241.52	803.08	241.11	804.02	241.04	806.92	241.07
807.33	241.06	807.78	241.09	810.89	241.36	813.01	241.42	815.06	241.36
822.18	241.37	827.06	241.47	827.42	241.45	830.62	241.44	831.07	241.47
831.56	241.46	833.88	241.45	839.04	241.43	841.08	241.11	842.29	240.93
842.62	240.92	846.5	241.28	850.81	241.09	850.97	241.08	851.49	241.09
854.51	241.24	855.89	241.25	860.48	241.22	862.46	241.19	862.78	241.23
872.53	241.51	873.85	241.58	875.11	241.44	877.06	241.25	878.66	241.26
880.71	241.24	883.29	241.21	885.45	241.18	887.14	241.18	890.21	241.26
890.52	241.28	896.24	241.55	897.42	241.54	902.44	241.66	905.29	241.75
908.65	241.78	909.32	241.8	910.27	241.98	912.67	241.98	924.8	242.63
927.55	242.71	929.83	242.86	940.11	242.87	943.31	242.82	947.28	242.89
949.74	243.02	953.83	243.13	958.56	243.22	958.81	243.21	962.8	243.37
966.33	243.18	975.34	243.16	976.31	243.26	982.27	243.33	982.33	243.33
982.4	243.33	988.12	243.27	993.24	244	993.64	244.05	995.63	244.08
998.3	244.22	1002.56	244.38	1003.32	244.34	1008.27	244.1	1008.76	244.07
1009.31	244.06	1010.06	244.09	1016.12	244.36	1020.23	244.42	1021.18	244.45
1022.08	244.53	1025.34	244.94	1025.83	244.94	1030.5	244.95	1035.36	245.32
1035.61	245.34	1035.85	245.33	1039.48	245.52	1039.7	245.54	1043.73	245.49
1046.57	245.53	1047.95	245.7	1053.52	245.9	1053.72	245.92	1053.85	245.92
1053.91	245.92	1054.07	245.94	1060.51	246.87	1062.57	246.61	1063.19	246.65
1063.93	246.78	1067.49	247.13	1067.76	247.16	1071.55	248.07	1074.38	247.92
1077.88	247.85	1079.2	247.9	1082.12	248.11	1086.54	248.07	1090.53	248.19
1091.29	248.26	1092.18	248.29	1095.62	248.68	1095.92	248.68	1100.98	248.65
1106.27	248.6	1106.43	248.59	1110.1	248.54	1110.84	248.53	1111.99	248.59
1117.06	248.83	1120.4	248.68	1121.61	248.74	1124.29	248.61	1124.32	248.61
1124.35	248.61	1127.91	248.78	1132.16	248.81	1133.32	248.8	1134.77	248.76
1137.74	249.03	1139.04	249.1	1139.15	249.11	1139.34	249.12	1149.15	249.55
1149.19	249.55	1154.41	249.64	1156.81	250.03	1159.66	250.02	1165.21	250.33
1166.08	250.34	1167.13	250.43	1173.84	250.56	1176.21	250.5	1181.76	250.37
1181.87	250.37	1181.97	250.37	1186.71	250.57	1190.9	250.8	1191.51	250.81
1192.22	250.89	1195.12	251.12	1196.14	251.14	1201	251.34	1206.59	251.39

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 1207.46  251.37 1207.95  251.36 1213.67  251.58 1216.11  251.67 1218.23  251.65
 1220.97  251.81 1222.72  251.98 1224.63   252.1 1227.77  252.26 1230.85  252.41
 1233.08  252.55 1235.35  252.59 1237.74  252.74 1239.08  252.75    1243  252.84
 1247.46  252.63 1248.68  252.64 1250.36   252.8 1252.15  252.77 1256.99  252.82
 1258.45  252.88 1259.37  252.97 1260.25  252.86 1264.23  252.84 1264.57  252.85
 1267.82  253.06 1268.08  253.06 1268.45  253.08 1274.44  253.14 1276.27   253.4
 1278.39   253.3 1280.61   253.6 1282.31  253.92 1282.91  254.01 1287.06  253.97
 1290.17  254.28 1291.34  254.36 1291.47  254.37 1293.12  254.51 1295.22  254.58
 1300.38  254.71 1304.15  254.92 1314.53     256

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  389.65     .04  393.37     .04  445.54     .04  468.92     .05
 1003.32     .05 1291.47     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        389.65  468.92           245.81   240.7   107.6             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  875.22 1314.53  253.18       F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
   31.11   94.05263.3519  191.71  247.24264.2845

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)            244.31    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.05    Wt. n-Val.                0.050      0.040
  0.050
  W.S. Elev (ft)            244.26    Reach Len. (ft)          245.81     240.70
 107.60
  Crit W.S. (ft)            239.72    Flow Area (sq ft)         17.93     623.43
1285.58
  E.G. Slope (ft/ft)      0.000236    Area (sq ft)              17.93     623.43
1493.30
  Q Total (cfs)             2671.00    Flow (cfs)               12.86    1394.29
1263.85
  Top Width (ft)            626.38    Top Width (ft)            7.88      79.27
 539.23
  Vel Total (ft/s)            1.39    Avg. Vel. (ft/s)          0.72       2.24
   0.98
  Max Chl Dpth (ft)           9.05    Hydr. Depth (ft)          2.27       7.86
   3.16
  Conv. Total (cfs)       173871.2    Conv. (cfs)              837.3    90762.7
82271.2
  Length Wtd. (ft)          189.99    Wetted Per. (ft)          9.10      80.35
 406.83
  Min Ch El (ft)            235.21    Shear (lb/sq ft)          0.03       0.11
```

0.05					
Alpha	1.60	Stream Power (lb/ft s)	1314.53	0.00	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	68.15	36.81	26.47
C & E Loss (ft)	0.00	Cum SA (acres)	19.43	3.76	6.73

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	248.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.050	0.040	0.050
W.S. Elev (ft)	248.24	Reach Len. (ft)	245.81	240.70	107.60
Crit W.S. (ft)	243.51	Flow Area (sq ft)	62.51	939.39	2905.06
E.G. Slope (ft/ft)	0.000459	Area (sq ft)	62.51	939.39	3818.54
Q Total (cfs)	10810.00	Flow (cfs)	96.24	3852.47	6861.29
Top Width (ft)	715.73	Top Width (ft)	14.27	79.27	622.20
Vel Total (ft/s)	2.77	Avg. Vel. (ft/s)	1.54	4.10	2.36
Max Chl Dpth (ft)	13.03	Hydr. Depth (ft)	4.38	11.85	7.15
Conv. Total (cfs)	504384.6	Conv. (cfs)	4490.6	179752.6	320141.4
Length Wtd. (ft)	170.20	Wetted Per. (ft)	16.63	80.35	406.83
Min Ch El (ft)	235.21	Shear (lb/sq ft)	0.11	0.34	0.20
Alpha	1.25	Stream Power (lb/ft s)	1314.53	0.00	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	114.64	46.42	48.85
C & E Loss (ft)	0.00	Cum SA (acres)	24.31	3.70	8.71

Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	249.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.050	0.040	0.050
W.S. Elev (ft)	249.12	Reach Len. (ft)	245.81	240.70	107.60
Crit W.S. (ft)	243.83	Flow Area (sq ft)	75.58	1008.83	3260.96
E.G. Slope (ft/ft)	0.000458	Area (sq ft)	75.58	1008.83	4384.41
Q Total (cfs)	12761.00	Flow (cfs)	124.10	4331.65	8305.25
Top Width (ft)	765.28	Top Width (ft)	15.59	79.27	670.42
Vel Total (ft/s)	2.94	Avg. Vel. (ft/s)	1.64	4.29	2.55
Max Chl Dpth (ft)	13.91	Hydr. Depth (ft)	4.85	12.73	8.03
Conv. Total (cfs)	596381.1	Conv. (cfs)	5800.0	202438.1	388143.0
Length Wtd. (ft)	168.10	Wetted Per. (ft)	18.21	80.35	406.83
Min Ch El (ft)	235.21	Shear (lb/sq ft)	0.12	0.36	0.23
Alpha	1.22	Stream Power (lb/ft s)	1314.53	0.00	0.00
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	135.14	49.48	56.42
C & E Loss (ft)	0.00	Cum SA (acres)	25.86	3.70	9.38

Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	251.49	Element	Left OB	Channel	Right OB

Vel Head (ft)	0.23	Wt. n-Val.	0.050	0.040	0.050
W.S. Elev (ft)	251.26	Reach Len. (ft)	245.81	240.70	107.60
Crit W.S. (ft)	244.80	Flow Area (sq ft)	112.75	1178.43	4130.25
E.G. Slope (ft/ft)	0.000523	Area (sq ft)	112.75	1178.43	5880.48
Q Total (cfs)	19382.00	Flow (cfs)	221.79	5998.46	13161.75
Top Width (ft)	829.12	Top Width (ft)	19.73	79.27	730.13
Vel Total (ft/s)	3.58	Avg. Vel. (ft/s)	1.97	5.09	3.19
Max Chl Dpth (ft)	16.05	Hydr. Depth (ft)	5.72	14.87	10.17
Conv. Total (cfs)	847475.4	Conv. (cfs)	9697.9	262281.8	575495.8
Length Wtd. (ft)	164.45	Wetted Per. (ft)	22.90	80.35	406.83
Min Ch El (ft)	235.21	Shear (lb/sq ft)	0.16	0.48	0.33
Alpha	1.17	Stream Power (lb/ft s)	1314.53	0.00	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	194.78	57.47	77.49
C & E Loss (ft)	0.00	Cum SA (acres)	28.86	3.70	10.25

Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 1933.057

INPUT
Description: not interpolated
Station Elevation Data num= 462

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	252	1.51	252.03	6.3	251.99	6.5	251.99	7.61	252.04
8.57	252.16	10.83	252.42	12.8	252.65	17.54	252.95	19.09	253.02
20.28	253.11	22.52	253.31	23.86	253.38	26.96	253.7	29.73	254.13
35.56	255.1	38.52	255.05	39.31	255.02	39.85	254.98	44.09	254.86
46.7	255.04	53.32	255.38	54.62	255.46	54.93	255.47	55.97	255.52

61.3	255.62	65.85	255.38	67.06	255.35	69.06	255.32	71.13	255.37
72.37	255.46	75.5	255.68	78.09	255.81	79.97	255.94	85.49	256.17
87.26	256.21	88.66	256.14	91.68	256.09	94.75	256.15	96.68	256.24
98.53	256.41	101.75	256.48	105.07	256.43	107.61	256.57	114.44	256.52
114.73	256.52	114.79	256.52	114.9	256.52	115.15	256.51	122.71	256.39
128.65	256.51	132.52	256.42	135.46	256.69	138.69	256.66	147.7	256.3
150.98	256.22	152.08	256.2	153.39	256.28	155.78	256.31	160.17	256.1
162.76	256.01	163.93	256.01	167.56	256.12	171.59	256	174.74	256.05
180.41	256.39	184.86	256.65	186.31	256.72	190.08	256.69	193.01	256.66
196.73	256.96	198.27	257.04	200.01	257.09	200.34	257.1	204.57	257.31
208.5	257.27	216.24	257.3	237.56	256.9	247.3	257.63	253.06	257.69
254.59	257.75	258.33	257.78	263.75	257.81	273.41	257.3	278.1	257.02
283.22	256.91	283.33	256.92	283.85	256.92	289.51	256.89	294.58	256.55
295.24	256.56	296.27	256.48	298.69	256.56	300.28	256.45	302.79	256.55
304.76	256.59	310.86	256.52	311.82	256.48	312.79	256.41	315.78	256.21
317.58	256.2	320.26	256.28	322.08	256.45	324.16	256.51	325.55	256.55
329.7	256.65	331.95	256.73	332.18	256.73	336.6	256.74	343.04	256.28
343.11	256.28	343.27	256.28	346.11	256.26	346.74	256.25	349.12	255.93
350.53	255.98	352.67	256.1	355.32	256.28	359.17	256.39	360.16	256.42
364.68	256.31	366.84	256.36	367.09	256.37	369.44	256.44	371.68	256.67
372.73	256.78	373.05	256.78	374.07	256.77	375.53	256.76	378.11	256.89
379.14	256.93	386.77	257.58	390.7	257.62	393.35	257.67	400.53	257.6
402.81	257.83	412.92	257.5	422.29	257.19	427.89	256.65	439.62	255.91
456.04	255.56	460.06	255.46	466.6	255.13	469.05	255.01	475.16	254.26
475.51	254.22	488.53	254	489.92	254	492.58	253.73	492.91	253.71
493.07	253.71	503.69	253.68	506.03	253.56	509.07	253.32	509.38	253.29
510.33	253.21	513.19	253.07	517.51	252.74	519.05	252.7	519.33	252.67
524.33	252.43	527.85	252.53	528.18	252.54	528.47	252.54	535.95	252.1
537.18	252.06	539.06	252.04	541.84	251.88	544.25	251.75	546.1	251.7
547.96	251.75	557.62	251.88	558.67	251.86	558.81	251.86	561.02	251.89
562.05	251.89	568.6	251.19	609.26	247.8	629.17	246.81	640.01	245.82
642.45	245.44	643.89	245.2	649.85	243.44	650.13	243.31	655.16	239.57
657.39	238.25	659.43	237.37	659.61	237.29	662.18	235.18	687.77	234.62
702.06	234.43	706.84	234.43	728.88	234.97	729.83	234.97	731.42	234.96
732.3	234.96	732.45	235	732.56	235.02	734.67	235.38	737.94	235.94
738.52	235.97	739.19	235.99	741.13	235.91	743.42	235.92	747.23	235.51
753.64	235.39	755.32	235.43	755.82	235.42	756.01	235.43	768.65	237.54
779.12	239.16	780.09	239.45	781.15	239.51	782.9	239.38	783.64	239.32
790.27	239.27	790.94	239.26	791.83	239.26	792.33	239.27	794.99	239.47
798.36	239.74	801.05	239.7	807.01	239.4	808.79	239.46	809.71	239.59
812.41	239.65	815.85	239.68	817.13	239.64	818.47	239.7	820.87	239.9
821.83	239.84	835.84	240.87	835.97	240.88	836.06	240.89	836.29	240.89
843.4	241.1	844.9	241.08	849.53	241.36	851.15	241.37	851.69	241.33
857.56	240.95	859.95	240.99	862.29	240.77	866.08	240.68	868.8	240.69
869.08	240.7	869.41	240.68	874.28	240.59	877.31	240.53	877.64	240.58
880.09	240.96	883.94	241.1	888.7	240.89	888.78	240.88	888.87	240.88
889.26	240.9	894.94	241.23	895.44	241.27	897.51	241.25	897.75	241.24
898.51	241.2	902.46	241.09	903.73	241.09	905.27	241.09	906.32	240.93
909.47	241.02	912.59	241.1	913.74	241.01	920.12	240.89	921.08	240.85
921.42	240.85	923.82	240.93	923.94	240.93	923.96	240.93	924	240.93

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  928.27  240.91  930.15  240.92  932.41  241.12  932.64  241.14  932.87  241.15
  939.35  240.86  940.52  240.79  942.96  240.82  949.02  240.65  950.21  240.62
  950.45  240.61  950.61  240.63  955.16  240.73   956.7  240.73  960.68  240.74
  965.56  240.42  966.16  240.37  968.38  240.21  969.85  240.16  973.17  240.18
  974.08  240.21  974.49  240.18  974.82  240.18  977.16  240.24   979.9  240.22
   983.1  240.38  983.52   240.4  985.54  240.22  985.68   240.2  985.91   240.2
  987.98  240.28  994.52  240.52  994.76  240.52  995.18  240.58 1000.72  240.94
 1002.61  241.03  1004.6  241.11  1009.6  240.89 1010.29  240.75 1013.29  240.74
 1016.81  240.73 1018.52  240.79 1019.44  240.95 1023.65  241.24 1029.57  241.18
 1029.91   241.2 1030.46   241.2 1032.16  241.49 1035.05  241.92 1036.38  241.89
  1042.9  241.16 1044.72     241 1053.66  241.38 1054.03  241.39  1055.9  241.49
 1058.98  241.19 1063.33  240.76 1064.31  240.63 1064.64  240.65  1068.4  240.74
 1072.42  240.72 1073.14  240.72 1074.24   240.7 1078.42  240.92 1079.05  240.96
 1079.21  240.96 1079.44  240.93 1081.63  240.72 1084.97  240.79 1087.78  240.98
  1089.6  241.17 1090.11   241.2 1093.39   241.3 1096.33  241.38 1097.97  241.37
 1098.64   241.4 1104.28   241.6 1104.99  241.59 1110.27  241.78 1111.92  242.03
 1113.54  242.22 1115.85  242.18 1119.77  242.33 1120.62  242.35 1122.82  242.33
 1127.85  242.07 1129.95  242.28 1132.08  242.15 1133.84  242.18 1142.65  242.77
 1146.65  242.88 1147.74  242.88 1149.18  242.87 1151.95  242.79 1165.56     243
  1166.7     243 1167.27  243.06 1170.16  243.25 1171.61  243.41 1172.69  243.53
 1176.01   244.7 1176.91  244.94 1179.25   245.8 1179.46  245.87 1179.62  245.92
  1183.7  247.02  1186.2  247.68  1192.2  248.28 1192.97  248.32 1193.92  248.39
 1196.14  248.46 1198.49  248.72 1202.16  248.82 1203.28  248.84  1205.6   248.8
 1207.76  248.88 1212.05  249.07 1214.43   249.2 1215.63  249.28 1216.85   249.4
    1219  249.59 1220.74  249.71 1222.77  250.09 1226.09  250.57 1228.98  250.34
 1231.74  250.32 1232.36  250.14 1233.95  250.44 1242.12  250.13 1246.61  250.18
 1250.52  250.18 1286.08  250.11 1308.62  250.24 1309.84  250.23 1316.09  249.91
 1322.67   250.1 1323.47  250.09 1323.74   250.1 1324.71  250.13 1326.54  250.23
 1328.37   250.3 1329.69  250.32 1330.75  250.29 1334.35  250.08 1338.74  250.17
 1338.78  250.17 1342.23  250.21 1343.35  250.25  1344.4   250.3  1348.4  250.17
 1352.51  250.53 1353.96  250.69 1356.59  250.69 1359.88  250.66  1368.5  250.32
 1369.27  250.37 1370.86  250.65 1371.58  250.63 1375.13  250.67 1378.57  250.85
 1379.25  250.85 1380.26  250.95 1382.08  251.19  1384.2  251.25 1386.67  251.17
  1390.2  251.11 1394.29  251.48 1394.76  251.54  1397.7  251.39 1399.25  251.39
 1400.95   251.5 1404.81   251.7 1406.55   251.9 1409.78     252  1411.8  252.05
 1411.91  252.05 1416.75  252.43 1420.05   252.8 1421.01  252.82 1422.24  252.82
 1424.48  252.71 1425.92  252.62  1426.7  252.61 1427.73  252.68 1433.21  253.01
 1434.48  253.23 1438.03     254

Manning's n Values        num=      12
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  150.98     .03  200.01     .05  332.18     .03  346.11     .05
  509.38     .03  558.81     .05  655.16     .04  659.43     .04  734.67     .04
  779.12     .05 1171.61     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        655.16  779.12              147   158.7  207.02             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 1053.66 1438.03  254.02       F
```

Blocked Obstructions num= 5

Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L	Sta R	Elev
116.46	126.36	260.9335	235.2	269.92	260.7866	381.59	457.15	260.1882
564.02	629.59	243.7892	1239.46	1312.4	261.5487			

CROSS SECTION OUTPUT Profile #10%

E.G. Elev (ft)	244.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.050	0.040	0.050
W.S. Elev (ft)	244.23	Reach Len. (ft)	147.00	158.70	207.02
Crit W.S. (ft)	237.83	Flow Area (sq ft)	15.36	1077.21	984.07
E.G. Slope (ft/ft)	0.000127	Area (sq ft)	15.36	1077.21	1263.69
Q Total (cfs)	2671.00	Flow (cfs)	7.16	1891.59	772.25
Top Width (ft)	527.52	Top Width (ft)	8.00	123.96	395.57
Vel Total (ft/s)	1.29	Avg. Vel. (ft/s)	0.47	1.76	0.78
Max Chl Dpth (ft)	9.80	Hydr. Depth (ft)	1.92	8.69	3.58
Conv. Total (cfs)	236622.5	Conv. (cfs)	634.2	167575.4	68413.0
Length Wtd. (ft)	173.63	Wetted Per. (ft)	9.38	125.70	275.04
Min Ch El (ft)	234.43	Shear (lb/sq ft)	0.01	0.07	0.03
Alpha	1.43	Stream Power (lb/ft s)	1438.03	0.00	0.00
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	68.06	32.11	23.07
C & E Loss (ft)	0.02	Cum SA (acres)	19.38	3.20	5.58

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.

Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	248.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.050	0.040	0.050
W.S. Elev (ft)	248.15	Reach Len. (ft)	147.00	158.70	207.02
Crit W.S. (ft)	242.29	Flow Area (sq ft)	105.68	1562.89	2059.72
E.G. Slope (ft/ft)	0.000385	Area (sq ft)	105.68	1562.89	2838.74
Q Total (cfs)	10810.00	Flow (cfs)	99.15	6113.68	4597.17
Top Width (ft)	585.88	Top Width (ft)	50.12	123.96	411.80
Vel Total (ft/s)	2.90	Avg. Vel. (ft/s)	0.94	3.91	2.23
Max Chl Dpth (ft)	13.72	Hydr. Depth (ft)	2.11	12.61	7.50
Conv. Total (cfs)	550949.8	Conv. (cfs)	5053.4	311594.0	234302.4
Length Wtd. (ft)	177.82	Wetted Per. (ft)	51.77	125.70	275.04
Min Ch El (ft)	234.43	Shear (lb/sq ft)	0.05	0.30	0.18
Alpha	1.28	Stream Power (lb/ft s)	1438.03	0.00	0.00
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	114.16	39.50	40.63
C & E Loss (ft)	0.06	Cum SA (acres)	24.13	3.14	7.43

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	249.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.050	0.040	0.050
W.S. Elev (ft)	249.02	Reach Len. (ft)	147.00	158.70	207.02
Crit W.S. (ft)	242.73	Flow Area (sq ft)	153.71	1670.52	2298.09
E.G. Slope (ft/ft)	0.000400	Area (sq ft)	153.71	1670.52	3203.04
Q Total (cfs)	12761.00	Flow (cfs)	167.04	6966.86	5627.10
Top Width (ft)	616.29	Top Width (ft)	60.53	123.96	431.80
Vel Total (ft/s)	3.10	Avg. Vel. (ft/s)	1.09	4.17	2.45
Max Chl Dpth (ft)	14.59	Hydr. Depth (ft)	2.54	13.48	8.37
Conv. Total (cfs)	637737.3	Conv. (cfs)	8347.8	348172.3	281217.1
Length Wtd. (ft)	178.82	Wetted Per. (ft)	62.22	125.70	275.04
Min Ch El (ft)	234.43	Shear (lb/sq ft)	0.06	0.33	0.21
Alpha	1.27	Stream Power (lb/ft s)	1438.03	0.00	0.00
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	134.49	42.08	47.05
C & E Loss (ft)	0.06	Cum SA (acres)	25.65	3.14	8.02

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth

with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	251.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.050	0.040	0.050
W.S. Elev (ft)	251.13	Reach Len. (ft)	147.00	158.70	207.02
Crit W.S. (ft)	243.94	Flow Area (sq ft)	307.79	1931.58	2876.27
E.G. Slope (ft/ft)	0.000492	Area (sq ft)	307.79	1931.58	4198.36
Q Total (cfs)	19382.00	Flow (cfs)	469.24	9841.75	9071.01
Top Width (ft)	740.41	Top Width (ft)	85.79	123.96	530.65
Vel Total (ft/s)	3.79	Avg. Vel. (ft/s)	1.52	5.10	3.15
Max Chl Dpth (ft)	16.70	Hydr. Depth (ft)	3.59	15.58	10.48
Conv. Total (cfs)	873418.9	Conv. (cfs)	21145.5	443502.7	408770.7
Length Wtd. (ft)	181.42	Wetted Per. (ft)	87.57	125.70	275.04
Min Ch El (ft)	234.43	Shear (lb/sq ft)	0.11	0.47	0.32
Alpha	1.25	Stream Power (lb/ft s)	1438.03	0.00	0.00
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	193.59	48.88	65.04
C & E Loss (ft)	0.04	Cum SA (acres)	28.56	3.14	8.70

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
          This may indicate the need for additional cross sections.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
         largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
         wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth

with the lowest, valid, energy was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 1774.36

INPUT
Description:
Station Elevation Data num= 312

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
400	256.12	403.18	256.34	404	256.41	404.81	256.36	408.92	256.09
413.44	256.41	415.13	256.53	416.48	256.48	418.07	256.56	420.88	256.39
424.82	256.24	426.75	256.12	429.29	256.01	432.02	255.88	433.26	255.9
434.82	256.02	438.82	256.23	443.01	256.61	443.15	256.61	443.59	256.58
446.69	256.27	447.69	256.34	451.21	256.58	458.8	257.34	460.36	257.48
460.9	257.53	461.81	257.56	482.67	256.88	482.84	256.87	483.17	256.86
493.42	256.53	502.88	256.23	502.92	256.22	503.31	256.2	517.25	255.31
520.81	255.25	525.74	254.76	530.58	254.5	538.14	254.38	538.33	254.38
538.46	254.36	538.97	254.34	549.94	253.74	554.45	253.69	558.86	253.65
560.77	254.06	562.46	254.05	568.95	254	579.53	253.84	581.47	253.65
592.03	252.9	596.67	252.49	601.03	252.1	602.07	251.98	607.83	251.3
608.83	251.2	609.34	251.17	610.16	251.21	615.71	251.32	617.26	251.28
620.62	251.33	625.79	250.84	627.94	250.55	631.98	250.38	636.93	250.41
638.59	250.39	641.28	250.3	644.02	250.29	647.6	250	649.87	249.7
654.77	249.42	655.96	249.39	659.38	249.78	661.77	250.08	664.22	250
667.06	249.87	669.91	249.7	671.76	249.71	674.39	250.06	676.76	250
681.35	249.96	683.45	249.92	684.37	249.92	686.67	249.99	689.67	249.9
691.66	249.87	693.14	249.94	696.21	250.15	700.41	250.05	700.94	250.06
704.78	250.04	706.92	249.99	709.55	249.88	712.83	249.86	715.53	249.86
717.45	249.86	720	250.09	721.18	250.19	722.03	250.24	726.38	250.14
729.83	250.02	736.29	250.23	739.13	250.21	744.62	250.04	746.42	250.11
750.03	250.44	760.96	247.78	761.13	247.7	767.21	244.74	770.79	243.68
775.15	243.18	776.31	243.14	777.89	243.14	778.49	243.12	782.31	243.22
786.67	243.54	787.06	243.58	787.67	243.5	797.18	242.2	800.74	240.49
804.24	239.38	806.51	239.47	807.45	239.51	833	237.7	838	234.1
858	233.9	878	234.3	883	236.4	937.41	237.85	939.45	238.29
944.27	238.01	947.8	238.81	950.76	238.92	952.33	238.95	952.53	238.93
959.77	239.7	962.4	239.97	963.58	240.32	967.33	241.48	971.05	242.14
971.76	242.52	978.65	244.41	979.74	244.65	980.85	244.73	986.83	245.48
991.79	245.88	993.36	246.05	994.15	245.99	995.15	246.33	998.75	247.06
1001.77	247.65	1002.9	247.87	1003.27	247.93	1003.62	247.93	1004.17	247.97
1007.08	248.32	1007.33	248.32	1012.08	248.48	1014.78	248.54	1016.59	248.41
1018.62	248.24	1019.95	247.93	1022.3	247.65	1024.57	247.4	1026.92	247.15
1029.34	246.85	1031.09	246.35	1032.57	246.5	1036.3	246.41	1038.76	246.19
1042.08	246.03	1048.61	245.87	1049.79	245.92	1054.07	245.74	1054.27	245.72
1054.49	245.72	1055.02	245.75	1057.78	245.92	1059.14	245.92	1061.01	245.83
1064.61	245.72	1067.28	245.61	1069.12	245.66	1070.38	245.7	1073.06	245.74
1075.1	245.74	1077.25	245.78	1080.08	245.84	1080.76	245.84	1082.61	245.72

```
 1082.96  245.68 1083.09   245.7 1087.24  245.93 1090.72  245.98 1091.62     246
 1092.72  245.94 1095.05  245.68 1095.89  245.57 1096.42  245.56 1097.29   245.6
 1102.49  245.73 1105.67  245.69 1107.17  245.55 1108.74  245.56 1112.21  245.51
 1118.68   245.2 1119.01  245.18  1121.7  245.13 1123.81  245.14 1125.12  245.09
 1127.68  245.18  1129.9  245.21 1131.45  245.18 1133.99  245.17 1134.63  245.17
 1139.67  245.13  1144.5  245.25 1144.96  245.28 1146.79  245.18 1147.36  245.19
 1147.51  245.18 1151.76  245.46 1155.62   245.7 1156.33  245.77 1157.14  245.75
 1158.57  245.63 1160.44  245.51 1161.55  245.48 1162.76  245.47 1166.46  245.61
    1170  245.59 1171.17   245.7 1173.06  245.81 1176.73  245.87 1182.66  245.61
 1182.93  245.61 1183.51  245.59 1188.27  245.72 1189.73  245.81 1192.26  245.87
 1196.63  245.83 1198.46  245.96 1198.81  245.97 1199.24  246.01 1204.11  246.34
 1208.13  246.06 1208.89     246  1211.1  246.13 1212.32  246.06 1214.02   246.1
 1217.33  245.97 1218.59  246.06 1220.86  246.18 1222.47  246.16 1223.83  246.02
 1226.34  245.98 1228.17  246.09 1230.49   246.3 1233.77  246.15 1234.45   246.2
 1236.61  246.37 1238.06  246.33 1239.65  246.36 1243.24  246.51 1246.46   246.6
 1248.33  246.72 1249.38  246.68 1254.18  246.58 1259.41  246.96    1260  246.96
  1261.3  247.01 1272.49  247.33 1273.56  247.36    1274  247.36 1274.29  247.37
 1281.18  247.19 1284.02   247.7 1284.75  247.75 1286.03  247.85 1287.94  247.95
 1293.27  248.12 1293.77  248.21 1296.56  248.42  1300.8  248.91 1305.51  248.85
  1310.6  249.11 1339.62  250.54 1342.28  250.49 1344.87  250.56 1348.58  250.63
 1348.79  250.66 1351.29   250.8 1351.75  250.77  1353.1  250.81 1355.33  250.92
 1360.01  251.11 1360.04  251.11 1361.73  251.15 1365.49  251.27 1368.77  251.49
 1369.83  251.56 1370.59  251.53 1374.27  251.86 1378.55  251.96  1379.2   251.9
 1380.81  251.95 1386.09  252.42 1386.36  252.43 1388.01   252.5 1390.43  252.72
 1391.23  252.74 1391.27  252.75

Manning's n Values        num=       8
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
     400     .05  596.67     .03  806.51     .05  807.45    .045     833    .042
     883     .05   947.8     .05 1001.77     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           833     883            86.88   88.52   80.94             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     400     792   247.6       F
     968 1391.27  245.14       F
Blocked Obstructions     num=       6
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   12.39256.2287   72.88  101.62258.8233  116.32  143.35259.6797
  463.87  496.08259.1469  562.88  594.53254.3254 1298.01 1350.43261.1217

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)            244.22    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.09    Wt. n-Val.                0.042      0.042
  0.050
  W.S. Elev (ft)            244.14    Reach Len. (ft)           25.00      25.00
```

25.00					
Crit W.S. (ft)	238.89	Flow Area (sq ft)	189.18	488.52	532.46
E.G. Slope (ft/ft)	0.000313	Area (sq ft)	207.52	488.52	545.41
Q Total (cfs)	2671.00	Flow (cfs)	341.01	1367.61	962.38
Top Width (ft)	208.40	Top Width (ft)	63.75	50.00	94.65
Vel Total (ft/s)	2.21	Avg. Vel. (ft/s)	1.80	2.80	1.81
Max Chl Dpth (ft)	10.24	Hydr. Depth (ft)	4.61	9.77	6.26
Conv. Total (cfs)	151083.5	Conv. (cfs)	19289.1	77357.8	54436.7
Length Wtd. (ft)	25.00	Wetted Per. (ft)	41.68	51.59	85.46
Min Ch El (ft)	233.90	Shear (lb/sq ft)	0.09	0.18	0.12
Alpha	1.15	Stream Power (lb/ft s)	1391.27	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	67.68	29.26	18.77
C & E Loss (ft)		Cum SA (acres)	19.26	2.88	4.41

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	248.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.038	0.042	0.050
W.S. Elev (ft)	247.78	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	242.56	Flow Area (sq ft)	456.01	670.64	1402.57
E.G. Slope (ft/ft)	0.001052	Area (sq ft)	456.01	670.64	1402.57
Q Total (cfs)	10810.00	Flow (cfs)	2071.27	4255.47	4483.26
Top Width (ft)	505.34	Top Width (ft)	72.04	50.00	383.30
Vel Total (ft/s)	4.27	Avg. Vel. (ft/s)	4.54	6.35	3.20

Max Chl Dpth (ft)	13.88	Hydr. Depth (ft)	6.33	13.41	3.66
Conv. Total (cfs)	333220.2	Conv. (cfs)	63847.2	131175.6	138197.3
Length Wtd. (ft)	25.00	Wetted Per. (ft)	73.65	51.59	384.91
Min Ch El (ft)	233.90	Shear (lb/sq ft)	0.41	0.85	0.24
Alpha	1.32	Stream Power (lb/ft s)	1391.27	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	113.21	35.44	30.55
C & E Loss (ft)		Cum SA (acres)	23.92	2.82	5.54

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	249.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.	0.038	0.042	0.050
W.S. Elev (ft)	248.67	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	243.22	Flow Area (sq ft)	521.74	715.13	1758.26
E.G. Slope (ft/ft)	0.001012	Area (sq ft)	521.74	715.13	1758.26
Q Total (cfs)	12761.00	Flow (cfs)	2476.67	4643.45	5640.88
Top Width (ft)	540.70	Top Width (ft)	75.69	50.00	415.01
Vel Total (ft/s)	4.26	Avg. Vel. (ft/s)	4.75	6.49	3.21
Max Chl Dpth (ft)	14.77	Hydr. Depth (ft)	6.89	14.30	4.24
Conv. Total (cfs)	401229.9	Conv. (cfs)	77871.2	145999.0	177359.8
Length Wtd. (ft)	25.00	Wetted Per. (ft)	77.41	51.59	416.82
Min Ch El (ft)	233.90	Shear (lb/sq ft)	0.43	0.88	0.27
Alpha	1.34	Stream Power (lb/ft s)	1391.27	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	133.35	37.73	

35.26					
C & E Loss (ft)		Cum SA (acres)	25.42	2.82	
6.01					

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	251.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.43	Wt. n-Val.	0.039	0.042	0.050
W.S. Elev (ft)	250.81	Reach Len. (ft)	25.00	25.00	25.00
Crit W.S. (ft)	245.14	Flow Area (sq ft)	787.74	822.08	2646.05
E.G. Slope (ft/ft)	0.001084	Area (sq ft)	787.74	822.08	2646.05
Q Total (cfs)	19382.00	Flow (cfs)	3261.40	6062.87	10057.73
Top Width (ft)	674.53	Top Width (ft)	206.96	50.00	417.57
Vel Total (ft/s)	4.55	Avg. Vel. (ft/s)	4.14	7.37	3.80
Max Chl Dpth (ft)	16.91	Hydr. Depth (ft)	3.81	16.44	6.34
Conv. Total (cfs)	588781.3	Conv. (cfs)	99073.9	184176.3	305531.1
Length Wtd. (ft)	25.00	Wetted Per. (ft)	209.10	51.59	421.58
Min Ch El (ft)	233.90	Shear (lb/sq ft)	0.25	1.08	0.42
Alpha	1.32	Stream Power (lb/ft s)	1391.27	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	191.74	43.86	48.78
C & E Loss (ft)		Cum SA (acres)	28.07	2.82	6.44

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

BRIDGE

RIVER: W Br Neshminy
REACH: 1 RS: 1728.924

INPUT
Description: WBNES_01L - W. Butler Ave
Distance from Upstream XS = 25
Deck/Roadway Width = 32.6
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 331

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
400	256.08		406.25	255.84		409.46	256.01	
411.71	256.06		416.33	256.12		422.73	255.65	
423.26	255.68		424.85	255.67		428.16	255.66	
429.39	255.7		430.54	255.72		433.81	255.61	
438.35	255.66		439.28	255.64		443.18	255.39	
444.59	255.27		445.36	255.3		448.99	255.48	
451.96	255.55		453.27	255.49		455.83	255.18	
458.06	255.08		459.31	255		461.25	254.96	
468.77	255.14		471.69	254.89		473.1	254.83	
475.67	254.73		476.71	254.7		479.81	254.72	
481.5	254.66		483.3	254.52		485.83	254.24	
488.21	254.43		489.07	254.42		490.36	254.38	
494.08	254.18		500.31	254.09		501.87	254.1	
502.9	253.95		505.61	253.73		509.67	253.79	
510.86	253.89		513.36	253.71		515.97	253.55	
516.54	253.51		517.11	253.49		520.67	253.29	
522.42	253.2		528.23	252.77		528.48	252.76	
529.04	252.83		532.02	253.18		532.82	253.16	
538.46	252.61		543.18	252.42		545.92	252.52	
547.19	252.47		547.91	252.43		552.49	252.09	
556.89	251.74		557.72	251.71		558.46	251.73	
562.01	251.98		562.92	251.92		568.11	251.84	
573.48	251.67		574.04	251.61		574.91	251.59	
576.17	251.58		577.72	251.53		578.23	251.54	
584.78	251.38		588.94	251.11		592.59	250.91	
593.66	250.9		599.31	250.59		604.34	250.5	
605.3	250.51		605.87	250.47		609.66	250.45	
611.67	250.32		616.31	249.99		619.48	249.81	
621.2	249.83		622.35	249.75		625	249.65	
629.54	249.44		633.3	249.27		634.93	249.3	
639.42	249.19		639.56	249.2		640.22	249.16	
646.12	248.74		650.11	248.69		651.35	248.66	
654.45	248.94		654.71	248.94		655.45	248.87	
661.44	248.22		665.11	248.13		666.39	248.13	
669	248.23		669.58	248.24		674.06	248.12	
677.7	247.73		680.19	247.56		682.24	247.49	
685.22	247.57		686.49	247.58		690.75	247.74	
695.73	247.75		696.04	247.73		697.76	247.41	

699.31	247.16		699.66	247.15		703.32	247.2
707.54	247.2		713.48	247.36		715.23	247.37
720.56	247.2		721.36	247.27		723.69	247.38
724.59	247.39		725.64	247.32		728.88	247.41
729.97	247.52		734.88	247.2		740.92	247.47
741.17	247.5		742.07	247.49		744.53	247.48
745.24	247.43		748.72	247.39		751.43	247.51
752.99	247.6		754.86	247.56		758.34	247.88
758.45	247.88		765.94	247.99		768.89	248.04
769.79	247.95		780.9	247.97		781.12	248.01
783.34	248.2		784.32	248.22		787.31	248.2
794.13	248.37		795.3	248.39		796.55	248.44
802.01	248.49		814	249		814	252.5
817	252.5	244.9	942.5	252.5	244.9	945.5	252.5
945.5	249		965.16	248.51		966.25	248.48
969.52	248.45		971.32	248.26		974.27	248.16
977.77	248.41		979.49	248.35		982.47	248.11
984.98	247.86		986.75	247.94		988.15	247.87
992.74	247.91		993.13	247.93		1001.27	247.55
1001.87	247.53		1003.02	247.56		1004.19	247.51
1008.2	247.5		1012.15	247.4		1013.01	247.4
1015.33	247.35		1016.99	247.29		1018.28	247.21
1021.08	247.18		1024.79	246.87		1025.55	246.88
1027.2	246.94		1027.94	246.92		1031.15	246.76
1034.21	246.69		1035.8	246.61		1037.41	246.63
1040.2	246.82		1040.46	246.82		1045.08	246.45
1049.84	246.61		1053.04	246.34		1053.64	246.34
1054.11	246.3		1057.78	246.24		1061.54	246.02
1062.51	246.02		1064.73	246.25		1065.61	246.23
1068.47	246.22		1070.92	246.11		1072.8	246
1075.01	245.91		1076.76	245.72		1078.06	245.8
1081.94	245.87		1087.68	245.53		1088.32	245.52
1090.88	245.55		1091.09	245.56		1098.76	245.54
1099.32	245.55		1100.05	245.49		1101.74	245.16
1104.45	245.2		1107.41	245.08		1109.59	244.97
1112.88	245.1		1114.25	245.21		1115.8	245.27
1119.85	245.34		1125.69	245.26		1125.98	245.24
1126.89	245.29		1128.46	245.36		1131.98	245.34
1134.66	245.3		1138.33	245.27		1141.26	245.14
1146.6	245.06		1151.25	245.16		1152.14	245.2
1155.15	245.08		1155.71	245.04		1158.78	245.04
1162.06	244.99		1163.34	244.98		1164.81	244.89
1171.06	244.67		1173.17	244.78		1177.01	244.67
1178.05	244.72		1179.95	245.05		1186.14	245.05
1187.65	245.08		1188.57	245.03		1189.99	245.04
1191.62	245.17		1192.77	245.35		1194.96	245.34
1196.79	245.34		1199.49	245.27		1202.68	245.32
1204.24	245.43		1205.73	245.49		1209.29	245.3
1212.52	245.4		1213.94	245.4		1215.48	245.35
1218.32	245.68		1218.43	245.68		1220.03	245.48

1228.71	245.66	1230.21	245.58	1232.39	246.05
1233.25	246.18	1237.9	246.11	1239.85	246.07
1241.59	246.21	1243.65	246.49	1245.24	246.5
1247.53	246.5	1251.6	246.54	1253.96	246.65
1255.5	246.78	1259.73	247	1263.04	247.11
1263.79	246.99	1266.11	247.25	1268	247.21
1273.17	247.4	1273.43	247.42	1280.12	248.24
1281.27	248.23	1282.01	248.2	1285.3	248.17
1288.73	248.29	1289.52	248.38	1290.67	248.48
1295.32	248.61	1297.46	248.85	1298.85	249.1
1299.28	249.12	1303.04	249.09	1306.26	249.07
1308.08	249.12	1312.15	249.38	1316.83	249.58
1317.27	249.64	1320.49	249.83	1323.25	249.98
1325.49	250.24	1327.97	250.3	1330.43	250.33
1333.48	250.31	1334.18	250.21	1335.41	250.37
1339.18	250.65	1342.49	250.98	1343.04	251
1346.86	251.09	1351.19	251.3	1352.19	251.39
1354.88	251.49	1357.25	251.67	1357.82	251.68
1359.24	251.84	1360.39	251.89	1361.48	251.97
1365.55	252.35	1367.71	252.46	1369.02	252.52
1371.93	252.58	1372.96	252.68	1373.34	252.73
1376.11	252.99	1376.72	252.99	1378.35	252.9
1378.63	252.91				

Upstream Bridge Cross Section Data
Station Elevation Data num= 312

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
400	256.12	403.18	256.34	404	256.41	404.81	256.36	408.92	256.09
413.44	256.41	415.13	256.53	416.48	256.48	418.07	256.56	420.88	256.39
424.82	256.24	426.75	256.12	429.29	256.01	432.02	255.88	433.26	255.9
434.82	256.02	438.82	256.23	443.01	256.61	443.15	256.61	443.59	256.58
446.69	256.27	447.69	256.34	451.21	256.58	458.8	257.34	460.36	257.48
460.9	257.53	461.81	257.56	482.67	256.88	482.84	256.87	483.17	256.86
493.42	256.53	502.88	256.23	502.92	256.22	503.31	256.2	517.25	255.31
520.81	255.25	525.74	254.76	530.58	254.5	538.14	254.38	538.33	254.38
538.46	254.36	538.97	254.34	549.94	253.74	554.45	253.69	558.86	253.65
560.77	254.06	562.46	254.05	568.95	254	579.53	253.84	581.47	253.65
592.03	252.9	596.67	252.49	601.03	252.1	602.07	251.98	607.83	251.3
608.83	251.2	609.34	251.17	610.16	251.21	615.71	251.32	617.26	251.28
620.62	251.33	625.79	250.84	627.94	250.55	631.98	250.38	636.93	250.41
638.59	250.39	641.28	250.3	644.02	250.29	647.6	250	649.87	249.7
654.77	249.42	655.96	249.39	659.38	249.78	661.77	250.08	664.22	250
667.06	249.87	669.91	249.7	671.76	249.71	674.39	250.06	676.76	250
681.35	249.96	683.45	249.92	684.37	249.92	686.67	249.99	689.67	249.9
691.66	249.87	693.14	249.94	696.21	250.15	700.41	250.05	700.94	250.06
704.78	250.04	706.92	249.99	709.55	249.88	712.83	249.86	715.53	249.86
717.45	249.86	720	250.09	721.18	250.19	722.03	250.24	726.38	250.14
729.83	250.02	736.29	250.23	739.13	250.21	744.62	250.04	746.42	250.11
750.03	250.44	760.96	247.78	761.13	247.7	767.21	244.74	770.79	243.68
775.15	243.18	776.31	243.14	777.89	243.14	778.49	243.12	782.31	243.22

786.67	243.54	787.06	243.58	787.67	243.5	797.18	242.2	800.74	240.49
804.24	239.38	806.51	239.47	807.45	239.51	833	236.3	838	232.7
858	232.5	878	232.9	883	235	937.41	237.85	939.45	238.29
944.27	238.01	947.8	238.81	950.76	238.92	952.33	238.95	952.53	238.93
959.77	239.7	962.4	239.97	963.58	240.32	967.33	241.48	971.05	242.14
971.76	242.52	978.65	244.41	979.74	244.65	980.85	244.73	986.83	245.48
991.79	245.88	993.36	246.05	994.15	245.99	995.15	246.33	998.75	247.06
1001.77	247.65	1002.9	247.87	1003.27	247.93	1003.62	247.93	1004.17	247.97
1007.08	248.32	1007.33	248.32	1012.08	248.48	1014.78	248.54	1016.59	248.41
1018.62	248.24	1019.95	247.93	1022.3	247.65	1024.57	247.4	1026.92	247.15
1029.34	246.85	1031.09	246.35	1032.57	246.5	1036.3	246.41	1038.76	246.19
1042.08	246.03	1048.61	245.87	1049.79	245.92	1054.07	245.74	1054.27	245.72
1054.49	245.72	1055.02	245.75	1057.78	245.92	1059.14	245.92	1061.01	245.83
1064.61	245.72	1067.28	245.61	1069.12	245.66	1070.38	245.7	1073.06	245.74
1075.1	245.74	1077.25	245.78	1080.08	245.84	1080.76	245.84	1082.61	245.72
1082.96	245.68	1083.09	245.7	1087.24	245.93	1090.72	245.98	1091.62	246
1092.72	245.94	1095.05	245.68	1095.89	245.57	1096.42	245.56	1097.29	245.6
1102.49	245.73	1105.67	245.69	1107.17	245.55	1108.74	245.56	1112.21	245.51
1118.68	245.2	1119.01	245.18	1121.7	245.13	1123.81	245.14	1125.12	245.09
1127.68	245.18	1129.9	245.21	1131.45	245.18	1133.99	245.17	1134.63	245.17
1139.67	245.13	1144.5	245.25	1144.96	245.28	1146.79	245.18	1147.36	245.19
1147.51	245.18	1151.76	245.46	1155.62	245.7	1156.33	245.77	1157.14	245.75
1158.57	245.63	1160.44	245.51	1161.55	245.48	1162.76	245.47	1166.46	245.61
1170	245.59	1171.17	245.7	1173.06	245.81	1176.73	245.87	1182.66	245.61
1182.93	245.61	1183.51	245.59	1188.27	245.72	1189.73	245.81	1192.26	245.87
1196.63	245.83	1198.46	245.96	1198.81	245.97	1199.24	246.01	1204.11	246.34
1208.13	246.06	1208.89	246	1211.1	246.13	1212.32	246.06	1214.02	246.1
1217.33	245.97	1218.59	246.06	1220.86	246.18	1222.47	246.16	1223.83	246.02
1226.34	245.98	1228.17	246.09	1230.49	246.3	1233.77	246.15	1234.45	246.2
1236.61	246.37	1238.06	246.33	1239.65	246.36	1243.24	246.51	1246.46	246.6
1248.33	246.72	1249.38	246.68	1254.18	246.58	1259.41	246.96	1260	246.96
1261.3	247.01	1272.49	247.33	1273.56	247.36	1274	247.36	1274.29	247.37
1281.18	247.19	1284.02	247.7	1284.75	247.75	1286.03	247.85	1287.94	247.95
1293.27	248.12	1293.77	248.21	1296.56	248.42	1300.8	248.91	1305.51	248.85
1310.6	249.11	1339.62	250.54	1342.28	250.49	1344.87	250.56	1348.58	250.63
1348.79	250.66	1351.29	250.8	1351.75	250.77	1353.1	250.81	1355.33	250.92
1360.01	251.11	1360.04	251.11	1361.73	251.15	1365.49	251.27	1368.77	251.49
1369.83	251.56	1370.59	251.53	1374.27	251.86	1378.55	251.96	1379.2	251.9
1380.81	251.95	1386.09	252.42	1386.36	252.43	1388.01	252.5	1390.43	252.72
1391.23	252.74	1391.27	252.75						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
400	.05	596.67	.03	806.51	.05	833	.042	883	.05
947.8	.05	1001.77	.05						

Bank Sta: Left Right Coeff Contr. Expan.

833	883	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent

400	792	247.6	F
968	1391.27	245.14	F

Blocked Obstructions num= 6

Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L	Sta R	Elev
0	12.39	256.2287	72.88	101.62	258.8233	116.32	143.35	259.6797
463.87	496.08	259.1469	562.88	594.53	254.3254	1298.01	1350.43	261.1217

Downstream Deck/Roadway Coordinates

num= 331

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
400	256.08		406.25	255.84		409.46	256.01	
411.71	256.06		416.33	256.12		422.73	255.65	
423.26	255.68		424.85	255.67		428.16	255.66	
429.39	255.7		430.54	255.72		433.81	255.61	
438.35	255.66		439.28	255.64		443.18	255.39	
444.59	255.27		445.36	255.3		448.99	255.48	
451.96	255.55		453.27	255.49		455.83	255.18	
458.06	255.08		459.31	255		461.25	254.96	
468.77	255.14		471.69	254.89		473.1	254.83	
475.67	254.73		476.71	254.7		479.81	254.72	
481.5	254.66		483.3	254.52		485.83	254.24	
488.21	254.43		489.07	254.42		490.36	254.38	
494.08	254.18		500.31	254.09		501.87	254.1	
502.9	253.95		505.61	253.73		509.67	253.79	
510.86	253.89		513.36	253.71		515.97	253.55	
516.54	253.51		517.11	253.49		520.67	253.29	
522.42	253.2		528.23	252.77		528.48	252.76	
529.04	252.83		532.02	253.18		532.82	253.16	
538.46	252.61		543.18	252.42		545.92	252.52	
547.19	252.47		547.91	252.43		552.49	252.09	
556.89	251.74		557.72	251.71		558.46	251.73	
562.01	251.98		562.92	251.92		568.11	251.84	
573.48	251.67		574.04	251.61		574.91	251.59	
576.17	251.58		577.72	251.53		578.23	251.54	
584.78	251.38		588.94	251.11		592.59	250.91	
593.66	250.9		599.31	250.59		604.34	250.5	
605.3	250.51		605.87	250.47		609.66	250.45	
611.67	250.32		616.31	249.99		619.48	249.81	
621.2	249.83		622.35	249.75		625	249.65	
629.54	249.44		633.3	249.27		634.93	249.3	
639.42	249.19		639.56	249.2		640.22	249.16	
646.12	248.74		650.11	248.69		651.35	248.66	
654.45	248.94		654.71	248.94		655.45	248.87	
661.44	248.22		665.11	248.13		666.39	248.13	
669	248.23		669.58	248.24		674.06	248.12	
677.7	247.73		680.19	247.56		682.24	247.49	
685.22	247.57		686.49	247.58		690.75	247.74	
695.73	247.75		696.04	247.73		697.76	247.41	
699.31	247.16		699.66	247.15		703.32	247.2	
707.54	247.2		713.48	247.36		715.23	247.37	

720.56	247.2		721.36	247.27		723.69	247.38
724.59	247.39		725.64	247.32		728.88	247.41
729.97	247.52		734.88	247.2		740.92	247.47
741.17	247.5		742.07	247.49		744.53	247.48
745.24	247.43		748.72	247.39		751.43	247.51
752.99	247.6		754.86	247.56		758.34	247.88
758.45	247.88		765.94	247.99		768.89	248.04
769.79	247.95		780.9	247.97		781.12	248.01
783.34	248.2		784.32	248.22		787.31	248.2
794.13	248.37		795.3	248.39		796.55	248.44
802.01	248.49		814	249		814	252.5
817	252.5	244.9	942.5	252.5	244.9	945.5	252.5
945.5	249		965.16	248.51		966.25	248.48
969.52	248.45		971.32	248.26		974.27	248.16
977.77	248.41		979.49	248.35		982.47	248.11
984.98	247.86		986.75	247.94		988.15	247.87
992.74	247.91		993.13	247.93		1001.27	247.55
1001.87	247.53		1003.02	247.56		1004.19	247.51
1008.2	247.5		1012.15	247.4		1013.01	247.4
1015.33	247.35		1016.99	247.29		1018.28	247.21
1021.08	247.18		1024.79	246.87		1025.55	246.88
1027.2	246.94		1027.94	246.92		1031.15	246.76
1034.21	246.69		1035.8	246.61		1037.41	246.63
1040.2	246.82		1040.46	246.82		1045.08	246.45
1049.84	246.61		1053.04	246.34		1053.64	246.34
1054.11	246.3		1057.78	246.24		1061.54	246.02
1062.51	246.02		1064.73	246.25		1065.61	246.23
1068.47	246.22		1070.92	246.11		1072.8	246
1075.01	245.91		1076.76	245.72		1078.06	245.8
1081.94	245.87		1087.68	245.53		1088.32	245.52
1090.88	245.55		1091.09	245.56		1098.76	245.54
1099.32	245.55		1100.05	245.49		1101.74	245.16
1104.45	245.2		1107.41	245.08		1109.59	244.97
1112.88	245.1		1114.25	245.21		1115.8	245.27
1119.85	245.34		1125.69	245.26		1125.98	245.24
1126.89	245.29		1128.46	245.36		1131.98	245.34
1134.66	245.3		1138.33	245.27		1141.26	245.14
1146.6	245.06		1151.25	245.16		1152.14	245.2
1155.15	245.08		1155.71	245.04		1158.78	245.04
1162.06	244.99		1163.34	244.98		1164.81	244.89
1171.06	244.67		1173.17	244.78		1177.01	244.67
1178.05	244.72		1179.95	245.05		1186.14	245.05
1187.65	245.08		1188.57	245.03		1189.99	245.04
1191.62	245.17		1192.77	245.35		1194.96	245.34
1196.79	245.34		1199.49	245.27		1202.68	245.32
1204.24	245.43		1205.73	245.49		1209.29	245.3
1212.52	245.4		1213.94	245.4		1215.48	245.35
1218.32	245.68		1218.43	245.68		1220.03	245.48
1228.71	245.66		1230.21	245.58		1232.39	246.05
1233.25	246.18		1237.9	246.11		1239.85	246.07

1241.59	246.21	1243.65	246.49	1245.24	246.5
1247.53	246.5	1251.6	246.54	1253.96	246.65
1255.5	246.78	1259.73	247	1263.04	247.11
1263.79	246.99	1266.11	247.25	1268	247.21
1273.17	247.4	1273.43	247.42	1280.12	248.24
1281.27	248.23	1282.01	248.2	1285.3	248.17
1288.73	248.29	1289.52	248.38	1290.67	248.48
1295.32	248.61	1297.46	248.85	1298.85	249.1
1299.28	249.12	1303.04	249.09	1306.26	249.07
1308.08	249.12	1312.15	249.38	1316.83	249.58
1317.27	249.64	1320.49	249.83	1323.25	249.98
1325.49	250.24	1327.97	250.3	1330.43	250.33
1333.48	250.31	1334.18	250.21	1335.41	250.37
1339.18	250.65	1342.49	250.98	1343.04	251
1346.86	251.09	1351.19	251.3	1352.19	251.39
1354.88	251.49	1357.25	251.67	1357.82	251.68
1359.24	251.84	1360.39	251.89	1361.48	251.97
1365.55	252.35	1367.71	252.46	1369.02	252.52
1371.93	252.58	1372.96	252.68	1373.34	252.73
1376.11	252.99	1376.72	252.99	1378.35	252.9
1378.63	252.91				

Downstream Bridge Cross Section Data
Station Elevation Data num= 318

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
400	256.34	404.86	256.29	409.17	256.3	410.49	256.13	413.42	256.24
415.04	256.28	416.98	256.23	418.16	256.1	421.76	255.68	424.38	255.48
425.95	255.21	426.9	255.2	428.66	255.15	432.62	255.08	433.38	255.26
440.67	255.64	444.67	255.57	446.51	255.79	449.2	255.54	453.72	255.14
455.08	255.07	456.59	255.04	458.36	255.02	462.51	255.24	467.24	255.13
469.54	255.15	472.54	255.03	473.51	254.97	482.03	254.73	483.96	254.23
485.26	253.99	487.53	253.89	488.26	253.93	488.68	253.92	492.8	253.86
496.3	253.84	497.56	253.81	502.44	253.94	503.54	253.93	509.17	253.81
510.98	253.8	512.69	253.82	514.49	253.82	519.44	253.72	520.55	253.86
528.46	253.7	547.06	252.61	551.76	252.52	552.16	252.5	554.5	252.41
559.96	252.15	561.54	252.08	563.11	252	580.37	251.22	589.54	251.02
589.79	251	590.66	250.99	592	250.81	594.66	250.56	597.72	250.41
601.3	250.16	603.36	250.07	605.51	249.9	607.86	250	609	249.98
610.1	250	614.25	249.94	618.48	249.82	619.36	249.81	622.69	249.97
623.82	249.98	625.02	249.99	626.56	250	637.87	250.17	645.18	249.81
646.18	249.74	658.36	248.94	664.08	248.65	666.82	248.44	668.07	248.39
669.65	248.34	683.27	247.82	686.07	247.61	687.2	247.58	694.12	247.34
694.38	247.33	694.77	247.36	700.46	247.91	702.85	247.85	706.53	247.83
709.4	247.83	711.17	247.7	713.59	247.61	715.36	247.6	715.61	247.65
725.19	247.48	727.38	247.5	728.79	247.38	732.12	247.29	732.59	247.27
733.74	247.35	735.78	247.44	737.56	247.51	738.68	247.48	740.98	247.61
742.23	247.53	745.92	247.07	747.97	247.07	749.96	246.96	751.71	246.87
753.9	246.95	755.2	246.95	758.42	246.74	760.48	246.78	765.87	246.63
768.29	247.03	768.52	247.03	768.76	247.01	773.4	246.54	777.73	246.5
778.01	246.53	781.31	246.47	782.56	246.4	785.25	246.39	789.08	246.38

791.19	246.58	792.43	246.59	793.75	246.47	800.71	244.76	801.64	244.44
804.54	243.12	807.4	242.27	807.86	242.21	808.09	242.11	813.36	240.46
818.09	239.05	818.83	238.77	821.84	238.07	833	237.7	838	234.1
858	233.7	878	234.3	883	236.4	905.71	235.51	907	235.59
909.41	235.45	911.52	235.39	913.61	235.33	915.49	235.17	916.81	235.15
918.74	234.91	921.66	234.74	924.51	234.75	927.09	234.78	928.47	234.92
930.16	234.86	934	234.85	936.31	235.09	941.66	235.48	941.84	235.51
942.01	235.56	942.11	235.62	944.74	236.59	951.39	239.03	955.54	240.09
961.4	240.36	968.37	240	972.97	240.7	973.35	240.73	973.7	240.76
976.31	240.57	980.52	241.32	986.03	241.87	988.75	241.58	993.2	242.17
998.34	242	1002.29	240.28	1003.07	240.21	1011.11	240.86	1013.53	241.13
1017.59	242.14	1019.56	242.09	1024.24	241.08	1026.15	240.86	1027.58	241.03
1030.57	241.51	1031.26	241.47	1035.48	240.71	1037.02	240.75	1039.15	240.76
1040.15	240.78	1042.75	241.51	1045.6	241.14	1050.71	241.48	1052.62	241.38
1053.51	241.59	1054.03	241.54	1062.41	241.99	1062.87	241.86	1065.14	241.92
1068.13	242.1	1074.35	242.55	1074.48	242.56	1074.5	242.56	1074.58	242.56
1080.43	242.86	1082.87	242.82	1084.45	242.87	1088.96	242.89	1089.37	242.89
1089.98	242.96	1093.94	242.87	1097.37	243.01	1098.41	242.98	1102.45	242.87
1102.51	242.87	1102.52	242.87	1106.32	243.34	1109.09	243.4	1110.32	243.3
1111.97	243.58	1113.37	243.84	1114.89	243.78	1116.71	243.71	1119.7	243.85
1124.76	243.96	1127.22	244.05	1128.62	244.11	1129.55	244	1131.73	244.05
1134.97	243.92	1136.95	244.04	1138.84	244.05	1142.99	244.14	1146.84	243.8
1149.27	244.33	1150.88	244.31	1152.27	244.24	1155.9	244.34	1159.38	244.61
1160.66	244.57	1161.99	244.56	1164.02	244.75	1164.73	244.76	1165.32	244.78
1169.04	244.51	1172.27	244.83	1175.81	244.75	1177.36	244.79	1178.39	244.78
1179	244.82	1182.55	244.96	1185.8	245.09	1186.43	245.09	1188.57	245.24
1190.07	245.26	1191.56	245.39	1193.16	245.4	1196.77	245.38	1200.19	245.48
1201.27	245.55	1202.85	245.56	1205.99	245.46	1210.28	245.43	1211.94	245.38
1212.74	245.34	1213.13	245.26	1214.14	245.11	1215.85	244.92	1217.99	244.74
1218.97	244.83	1221.35	245.05	1222.8	245.17	1223.64	245.15	1225.83	245.21
1229.55	245.31	1230.27	245.37	1230.49	245.39	1232.18	245.42	1238.13	245.64
1238.85	245.66	1239.07	245.7	1240.81	245.9	1243.12	245.9	1251.19	246.05
1253.93	246.05	1256.13	246.13	1263.67	246.62	1268.99	246.97	1271.03	247.17
1275.16	247.41	1277.75	247.62	1282.02	248.05	1282.37	248.07	1284.04	248.46
1290.95	250.9	1291.07	250.94	1291.09	250.94	1291.2	250.95	1292.96	251.02
1293.2	251.09	1293.42	251.12	1296.26	251.48	1297.55	251.29	1300.25	251.39
1305.42	251.62	1316.69	252.2	1331.33	252.91	1336.49	252.86	1340.6	252.5
1344.58	252.92	1348.79	252.67	1350.23	252.68	1358.41	253.32	1360.75	253.35
1364.38	253.41	1369.47	253.23	1369.5	253.23				

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
400	.05	732.12	.03	808.09	.05	833	.042	883	.12
907	.05	951.39	.05	1225.83	.05				

Bank Sta: Left Right Coeff Contr. Expan.

Left	Right	Coeff	Contr.	Expan.
833	883		.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
400	807	246.65	F

```
   972.5  1369.5   244.1       F
Blocked Obstructions     num=       7
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   10.49254.6451   49.53   68.82255.5246   86.57  117.46256.9026
  137.41   171.1257.3667  238.29  280.03257.4501  521.89  585.75252.1089
  633.51  665.15242.6655

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  2

Pier Data
Pier Station     Upstream=  858.25    Downstream=  858.25
Upstream     num=       2
    Width   Elev    Width   Elev
     3.5   232.5     3.5   244.9
Downstream     num=       2
    Width   Elev    Width   Elev
     3.5   233.7     3.5   244.9

Pier Data
Pier Station     Upstream=  901.25    Downstream=  901.25
Upstream     num=       2
    Width   Elev    Width   Elev
     3.5   232.5     3.5   244.9
Downstream     num=       2
    Width   Elev    Width   Elev
     3.5   233.7     3.5   244.9

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum               Cd   =       1
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =      .8
           Max Low Cord                =

Additional Bridge Parameters
       Add Friction component to Momentum
```

Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth
inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #10%

E.G. US. (ft)	244.22	Element	Inside BR US Inside BR DS
W.S. US. (ft)	244.14	E.G. Elev (ft)	243.63 243.81
Q Total (cfs)	2671.00	W.S. Elev (ft)	243.50 243.68
Q Bridge (cfs)	2671.00	Crit W.S. (ft)	237.77 237.84
Q Weir (cfs)		Max Chl Dpth (ft)	10.98 9.95
Weir Sta Lft (ft)		Vel Total (ft/s)	2.74 2.71
Weir Sta Rgt (ft)		Flow Area (sq ft)	973.08 987.16
Weir Submerg		Froude # Chl	0.15 0.16
Weir Max Depth (ft)		Specif Force (cu ft)	4475.86 4454.02
Min El Weir Flow (ft)	245.17	Hydr Depth (ft)	8.21 8.33
Min El Prs (ft)	244.90	W.P. Total (ft)	167.94 168.53
Delta EG (ft)	0.43	Conv. Total (cfs)	104997.0 98713.1
Delta WS (ft)	0.44	Top Width (ft)	118.51 118.51
BR Open Area (sq ft)	1131.79	Frctn Loss (ft)	
BR Open Vel (ft/s)	2.74	C & E Loss (ft)	
Coef of Q		Shear Total (lb/sq ft)	0.23 0.27
Br Sel Method	Momentum	Power Total (lb/ft s)	400.00 400.00

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

BRIDGE OUTPUT Profile #2%

E.G. US. (ft)	248.15	Element	Inside BR US Inside BR DS
W.S. US. (ft)	247.78	E.G. Elev (ft)	248.15 247.69
Q Total (cfs)	10810.00	W.S. Elev (ft)	247.78 247.02
Q Bridge (cfs)	8740.63	Crit W.S. (ft)	242.06 242.05
Q Weir (cfs)	2069.37	Max Chl Dpth (ft)	15.26 13.29
Weir Sta Lft (ft)	759.44	Vel Total (ft/s)	6.43 6.01
Weir Sta Rgt (ft)	1279.39	Flow Area (sq ft)	1682.06 1799.56
Weir Submerg	0.35	Froude # Chl	0.35 0.40
Weir Max Depth (ft)	2.99	Specif Force (cu ft)	11905.71 10879.38
Min El Weir Flow (ft)	245.17	Hydr Depth (ft)	6.44 7.56
Min El Prs (ft)	244.90	W.P. Total (ft)	556.45 532.70
Delta EG (ft)	1.06	Conv. Total (cfs)	
Delta WS (ft)	1.08	Top Width (ft)	261.16 237.99
BR Open Area (sq ft)	1131.79	Frctn Loss (ft)	
BR Open Vel (ft/s)	7.72	C & E Loss (ft)	
Coef of Q		Shear Total (lb/sq ft)	
Br Sel Method	Press/Weir	Power Total (lb/ft s)	400.00 400.00

Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum
answer has been disregarded.
Note: The downstream water surface is above the minimum elevation required for orifice flow. The orifice flow equation was
used for pressure flow.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from

the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: For the cross section inside the bridge at the downstream end, the water surface and energy are based on critical
depth over the weir.

BRIDGE OUTPUT Profile #1%

E.G. US. (ft)	249.04	Element	Inside BR US Inside BR DS
W.S. US. (ft)	248.67	E.G. Elev (ft)	249.04 248.58
Q Total (cfs)	12761.00	W.S. Elev (ft)	248.67 247.77
Q Bridge (cfs)	9021.34	Crit W.S. (ft)	242.84 242.86
Q Weir (cfs)	3739.66	Max Chl Dpth (ft)	16.15 14.04
Weir Sta Lft (ft)	755.76	Vel Total (ft/s)	6.34 5.77
Weir Sta Rgt (ft)	1298.01	Flow Area (sq ft)	2014.06 2209.77
Weir Submerg	0.46	Froude # Chl	0.33 0.40
Weir Max Depth (ft)	3.89	Specif Force (cu ft)	13846.08 12609.93
Min El Weir Flow (ft)	245.17	Hydr Depth (ft)	5.22 6.46
Min El Prs (ft)	244.90	W.P. Total (ft)	681.47 636.72
Delta EG (ft)	1.15	Conv. Total (cfs)	
Delta WS (ft)	1.16	Top Width (ft)	385.87 341.85
BR Open Area (sq ft)	1131.79	Frctn Loss (ft)	
BR Open Vel (ft/s)	7.97	C & E Loss (ft)	
Coef of Q		Shear Total (lb/sq ft)	
Br Sel Method	Press/Weir	Power Total (lb/ft s)	400.00 400.00

Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum

answer has been disregarded.
Note: The downstream water surface is above the minimum elevation required for orifice flow. The orifice flow equation was used for pressure flow.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: For the cross section inside the bridge at the downstream end, the water surface and energy are based on critical depth over the weir.

BRIDGE OUTPUT Profile #.2%

E.G. US. (ft)	251.23	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	250.81	E.G. Elev (ft)	251.23	250.46
Q Total (cfs)	19382.00	W.S. Elev (ft)	250.81	249.67
Q Bridge (cfs)	9071.15	Crit W.S. (ft)	248.22	248.37
Q Weir (cfs)	10310.85	Max Chl Dpth (ft)	18.29	15.94
Weir Sta Lft (ft)	608.51	Vel Total (ft/s)	6.31	5.73
Weir Sta Rgt (ft)	1298.01	Flow Area (sq ft)	3069.89	3379.79
Weir Submerg	0.62	Froude # Chl	0.29	0.35
Weir Max Depth (ft)	6.07	Specif Force (cu ft)	20096.61	18011.86
Min El Weir Flow (ft)	245.17	Hydr Depth (ft)	5.68	6.64
Min El Prs (ft)	244.90	W.P. Total (ft)	841.98	805.40
Delta EG (ft)	1.17	Conv. Total (cfs)		
Delta WS (ft)	1.13	Top Width (ft)	540.47	508.76
BR Open Area (sq ft)	1131.79	Frctn Loss (ft)		
BR Open Vel (ft/s)	8.01	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)		

Br Sel Method Press/Weir Power Total (lb/ft s) 400.00 400.00

Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Note: The downstream water surface is above the minimum elevation required for orifice flow. The orifice flow equation was used for pressure flow.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: For the cross section inside the bridge at the upstream end, the water surface and energy have been projected from the upstream cross section. The selected bridge modeling method does not compute answers inside the bridge.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
Note: For the cross section inside the bridge at the downstream end, the energy is based on critical depth over the weir. The water surface has been projected.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 1685.841

INPUT
Description:
Station Elevation Data num= 318

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
400	256.34	404.86	256.29	409.17	256.3	410.49	256.13	413.42	256.24
415.04	256.28	416.98	256.23	418.16	256.1	421.76	255.68	424.38	255.48
425.95	255.21	426.9	255.2	428.66	255.15	432.62	255.08	433.38	255.26
440.67	255.64	444.67	255.57	446.51	255.79	449.2	255.54	453.72	255.14
455.08	255.07	456.59	255.04	458.36	255.02	462.51	255.24	467.24	255.13
469.54	255.15	472.54	255.03	473.51	254.97	482.03	254.73	483.96	254.23
485.26	253.99	487.53	253.89	488.26	253.93	488.68	253.92	492.8	253.86
496.3	253.84	497.56	253.81	502.44	253.94	503.54	253.93	509.17	253.81
510.98	253.8	512.69	253.82	514.49	253.82	519.44	253.72	520.55	253.86
528.46	253.7	547.06	252.61	551.76	252.52	552.16	252.5	554.5	252.41
559.96	252.15	561.54	252.08	563.11	252	580.37	251.22	589.54	251.02
589.79	251	590.66	250.99	592	250.81	594.66	250.56	597.72	250.41
601.3	250.16	603.36	250.07	605.51	249.9	607.86	250	609	249.98
610.1	250	614.25	249.94	618.48	249.82	619.36	249.81	622.69	249.97
623.82	249.98	625.02	249.99	626.56	250	637.87	250.17	645.18	249.81
646.18	249.74	658.36	248.94	664.08	248.65	666.82	248.44	668.07	248.39

```
  669.65  248.34  683.27  247.82  686.07  247.61   687.2  247.58  694.12  247.34
  694.38  247.33  694.77  247.36  700.46  247.91  702.85  247.85  706.53  247.83
   709.4  247.83  711.17   247.7  713.59  247.61  715.36   247.6  715.61  247.65
  725.19  247.48  727.38   247.5  728.79  247.38  732.12  247.29  732.59  247.27
  733.74  247.35  735.78  247.44  737.56  247.51  738.68  247.48  740.98  247.61
  742.23  247.53  745.92  247.07  747.97  247.07  749.96  246.96  751.71  246.87
   753.9  246.95   755.2  246.95  758.42  246.74  760.48  246.78  765.87  246.63
  768.29  247.03  768.52  247.03  768.76  247.01   773.4  246.54  777.73   246.5
  778.01  246.53  781.31  246.47  782.56   246.4  785.25  246.39  789.08  246.38
  791.19  246.58  792.43  246.59  793.75  246.47  800.71  244.76  801.64  244.44
  804.54  243.12   807.4  242.27  807.86  242.21  808.09  242.11  813.36  240.46
  818.09  239.05  818.83  238.77  821.84  238.07     833   237.7     838   234.1
     858   233.7     878   234.3     883   236.4  905.71  235.51     907  235.59
  909.41  235.45  911.52  235.39  913.61  235.33  915.49  235.17  916.81  235.15
  918.74  234.91  921.66  234.74  924.51  234.75  927.09  234.78  928.47  234.92
  930.16  234.86     934  234.85  936.31  235.09  941.66  235.48  941.84  235.51
  942.01  235.56  942.11  235.62  944.74  236.59  951.39  239.03  955.54  240.09
   961.4  240.36  968.37     240  972.97   240.7  973.35  240.73   973.7  240.76
  976.31  240.57  980.52  241.32  986.03  241.87  988.75  241.58   993.2  242.17
  998.34     242 1002.29  240.28 1003.07  240.21 1011.11  240.86 1013.53  241.13
 1017.59  242.14 1019.56  242.09 1024.24  241.08 1026.15  240.86 1027.58  241.03
 1030.57  241.51 1031.26  241.47 1035.48  240.71 1037.02  240.75 1039.15  240.76
 1040.15  240.78 1042.75  241.51  1045.6  241.14 1050.71  241.48 1052.62  241.38
 1053.51  241.59 1054.03  241.54 1062.41  241.99 1062.87  241.86 1065.14  241.92
 1068.13   242.1 1074.35  242.55 1074.48  242.56  1074.5  242.56 1074.58  242.56
 1080.43  242.86 1082.87  242.82 1084.45  242.87 1088.96  242.89 1089.37  242.89
 1089.98  242.96 1093.94  242.87 1097.37  243.01 1098.41  242.98 1102.45  242.87
 1102.51  242.87 1102.52  242.87 1106.32  243.34 1109.09   243.4 1110.32   243.3
 1111.97  243.58 1113.37  243.84 1114.89  243.78 1116.71  243.71  1119.7  243.85
 1124.76  243.96 1127.22  244.05 1128.62  244.11 1129.55     244 1131.73  244.05
 1134.97  243.92 1136.95  244.04 1138.84  244.05 1142.99  244.14 1146.84   243.8
 1149.27  244.33 1150.88  244.31 1152.27  244.24  1155.9  244.34 1159.38  244.61
 1160.66  244.57 1161.99  244.56 1164.02  244.75 1164.73  244.76 1165.32  244.78
 1169.04  244.51 1172.27  244.83 1175.81  244.75 1177.36  244.79 1178.39  244.78
    1179  244.82 1182.55  244.96  1185.8  245.09 1186.43  245.09 1188.57  245.24
 1190.07  245.26 1191.56  245.39 1193.16   245.4 1196.77  245.38 1200.19  245.48
 1201.27  245.55 1202.85  245.56 1205.99  245.46 1210.28  245.43 1211.94  245.38
 1212.74  245.34 1213.13  245.26 1214.14  245.11 1215.85  244.92 1217.99  244.74
 1218.97  244.83 1221.35  245.05  1222.8  245.17 1223.64  245.15 1225.83  245.21
 1229.55  245.31 1230.27  245.37 1230.49  245.39 1232.18  245.42 1238.13  245.64
 1238.85  245.66 1239.07   245.7 1240.81   245.9 1243.12   245.9 1251.19  246.05
 1253.93  246.05 1256.13  246.13 1263.67  246.62 1268.99  246.97 1271.03  247.17
 1275.16  247.41 1277.75  247.62 1282.02  248.05 1282.37  248.07 1284.04  248.46
 1290.95   250.9 1291.07  250.94 1291.09  250.94  1291.2  250.95 1292.96  251.02
  1293.2  251.09 1293.42  251.12 1296.26  251.48 1297.55  251.29 1300.25  251.39
 1305.42  251.62 1316.69   252.2 1331.33  252.91 1336.49  252.86  1340.6   252.5
 1344.58  252.92 1348.79  252.67 1350.23  252.68 1358.41  253.32 1360.75  253.35
 1364.38  253.41 1369.47  253.23  1369.5  253.23

Manning's n Values        num=       8
```

```
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
     400     .05  732.12     .03  818.09    .045     833    .042     838    .042
     883     .12  905.71     .05 1225.83     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           833     883           197.77  196.87  193.67             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
     400     807  246.65       F
   972.5  1369.5   244.1       F
Blocked Obstructions     num=       7
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0   10.49254.6451   49.53   68.82255.5246   86.57  117.46256.9026
  137.41   171.1257.3667  238.29  280.03257.4501  521.89  585.75252.1089
  633.51  665.15242.6655

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           243.79    Element                Left OB    Channel
Right OB
  Vel Head (ft)              0.09    Wt. n-Val.              0.041      0.042
  0.061
  W.S. Elev (ft)           243.70    Reach Len. (ft)        197.77     196.87
 193.67
  Crit W.S. (ft)           237.74    Flow Area (sq ft)      117.19     470.56
 624.18
  E.G. Slope (ft/ft)      0.000363   Area (sq ft)           119.87     470.56
 884.59
  Q Total (cfs)            2671.00   Flow (cfs)             229.45    1384.15
1057.40
  Top Width (ft)           309.32    Top Width (ft)          29.73      50.00
 229.60
  Vel Total (ft/s)           2.20    Avg. Vel. (ft/s)         1.96       2.94
   1.69
  Max Chl Dpth (ft)         10.00    Hydr. Depth (ft)         4.51       9.41
   6.97
  Conv. Total (cfs)       140228.4   Conv. (cfs)            12046.0    72668.5
55514.1
  Length Wtd. (ft)         196.08    Wetted Per. (ft)        26.64      51.60
  90.42
  Min Ch El (ft)           233.70    Shear (lb/sq ft)         0.10       0.21
   0.16
  Alpha                      1.22    Stream Power (lb/ft s) 1369.50       0.00
   0.00
  Frctn Loss (ft)            0.06    Cum Volume (acre-ft)    67.45      28.31
  17.71
  C & E Loss (ft)            0.00    Cum SA (acres)          19.21       2.79
   4.23
```

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	247.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.	0.040	0.042	0.057
W.S. Elev (ft)	246.70	Reach Len. (ft)	197.77	196.87	193.67
Crit W.S. (ft)	242.08	Flow Area (sq ft)	227.85	620.72	1838.07
E.G. Slope (ft/ft)	0.001393	Area (sq ft)	227.85	620.72	1838.07
Q Total (cfs)	10810.00	Flow (cfs)	963.88	4303.99	5542.14
Top Width (ft)	495.97	Top Width (ft)	64.09	50.00	381.88
Vel Total (ft/s)	4.02	Avg. Vel. (ft/s)	4.23	6.93	3.02
Max Chl Dpth (ft)	13.00	Hydr. Depth (ft)	3.56	12.41	4.81
Conv. Total (cfs)	289587.3	Conv. (cfs)	25821.1	115298.8	148467.4
Length Wtd. (ft)	195.91	Wetted Per. (ft)	65.42	51.60	384.32
Min Ch El (ft)	233.70	Shear (lb/sq ft)	0.30	1.05	0.42
Alpha	1.57	Stream Power (lb/ft s)	1369.50	0.00	0.00
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	112.84	34.30	28.28
C & E Loss (ft)	0.09	Cum SA (acres)	23.88	2.79	4.95

Warning: Divided flow computed for this cross-section.
Warning: When the Manning's n value for the channel was composited, the computed n

value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	247.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.	0.039	0.042	0.056
W.S. Elev (ft)	247.50	Reach Len. (ft)	197.77	196.87	193.67
Crit W.S. (ft)	242.71	Flow Area (sq ft)	296.24	660.90	2149.46
E.G. Slope (ft/ft)	0.001321	Area (sq ft)	296.24	660.90	2149.46
Q Total (cfs)	12761.00	Flow (cfs)	1189.90	4651.62	6919.49
Top Width (ft)	555.43	Top Width (ft)	112.13	50.00	393.31
Vel Total (ft/s)	4.11	Avg. Vel. (ft/s)	4.02	7.04	3.22
Max Chl Dpth (ft)	13.80	Hydr. Depth (ft)	2.64	13.22	5.47
Conv. Total (cfs)	351154.6	Conv. (cfs)	32743.3	128002.4	190409.0
Length Wtd. (ft)	195.87	Wetted Per. (ft)	113.56	51.60	395.78
Min Ch El (ft)	233.70	Shear (lb/sq ft)	0.22	1.06	0.45
Alpha	1.49	Stream Power (lb/ft s)	1369.50	0.00	0.00
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	132.91	36.57	32.47
C & E Loss (ft)	0.10	Cum SA (acres)	25.28	2.79	5.32

Warning: Divided flow computed for this cross-section.
Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may

wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	250.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.	0.037	0.042	0.055
W.S. Elev (ft)	249.67	Reach Len. (ft)	197.77	196.87	193.67
Crit W.S. (ft)	245.36	Flow Area (sq ft)	651.97	769.35	3018.49
E.G. Slope (ft/ft)	0.001158	Area (sq ft)	651.97	769.35	3018.49
Q Total (cfs)	19382.00	Flow (cfs)	2607.90	5611.07	11163.04
Top Width (ft)	640.26	Top Width (ft)	185.79	50.00	404.47
Vel Total (ft/s)	4.37	Avg. Vel. (ft/s)	4.00	7.29	3.70
Max Chl Dpth (ft)	15.97	Hydr. Depth (ft)	3.51	15.39	7.46
Conv. Total (cfs)	569585.2	Conv. (cfs)	76639.1	164894.3	328051.8
Length Wtd. (ft)	195.82	Wetted Per. (ft)	187.32	51.60	407.22
Min Ch El (ft)	233.70	Shear (lb/sq ft)	0.25	1.08	0.54
Alpha	1.33	Stream Power (lb/ft s)	1369.50	0.00	0.00
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	190.76	42.63	44.47
C & E Loss (ft)	0.10	Cum SA (acres)	27.70	2.79	5.70

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth

with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 1488.97

INPUT
Description: not interpolated
Station Elevation Data num= 409

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	255.3	5.19	255.23	5.32	255.23	5.35	255.23	5.65	255.26
8.9	255.69	16.08	255.55	18.29	255.51	19.27	255.49	20.13	255.36
24.06	255.37	27.26	255.56	30.3	255.67	32.52	255.68	37.69	255.61
38.56	255.69	41.7	255.69	41.93	255.68	42.86	255.66	59.25	255.27
66.57	255.67	67.83	255.73	72.81	255.22	76.58	254.56	78.42	254.38
81.14	254.02	82.77	253.88	84.48	253.7	88.48	253.47	91.56	253.23
95	253.19	96.19	253.29	100.24	253.16	102.58	253.1	106.03	253.16
119.81	253.33	125.91	253.28	128.04	253.38	130.61	253.34	133.37	253.24
134.08	253.25	140.21	253.36	140.48	253.37	145.03	253.69	146.79	253.81
147.04	253.82	148.44	253.64	152.19	253.61	158.7	253.49	165.17	253.63
166.76	253.76	167.79	253.58	170.53	253.51	174.58	253.62	176.4	253.69
181.29	253.78	181.54	253.79	181.81	253.78	182.84	253.71	193.46	253.13
194.66	253.25	200.22	253.34	200.83	253.36	202.02	253.34	208.37	253.01
214.25	253.08	215.89	253.01	220.47	252.69	222.77	252.75	226.88	252.83
229.68	252.62	232.84	252.52	237.53	251.12	240.32	250.27	244.17	250.39
246.64	250.55	250.98	250.42	253.1	250.28	257.85	250.03	259.5	249.93
264.76	249.77	265.92	249.89	271.49	249.9	271.98	249.83	272.9	249.85
282.11	250.23	286.7	250.31	298.08	250.52	304.41	250.59	313.87	249.73
314.9	249.67	332.37	249.41	332.72	249.4	332.98	249.37	333.54	249.36
339.14	248.84	340.15	248.82	345.34	248.6	346.8	248.54	351.5	248.27
353.35	248.22	357.55	248.15	359.79	248	362.95	247.99	364.29	248.05
367.78	247.85	372.38	247.67	374.88	247.57	377	247.45	386.59	247.36
386.81	247.34	387.26	247.35	388.5	247.3	389.9	247.25	407.96	246.3
412.87	246.05	414.71	246.1	419.38	246.2	425.41	245.94	426.21	245.92
426.53	245.92	429.83	245.72	436.6	245.82	439.69	245.83	441.27	245.98
445.31	245.59	445.45	245.58	445.78	245.54	448.69	245.57	451.72	245.8
454.03	245.69	457.08	245.61	457.22	245.61	460.31	245.58	461.91	245.6
462.64	245.57	463.41	245.5	466.3	245.36	482.27	244.65	483.77	244.75
484.94	244.74	487.22	244.64	490.56	244.45	492.89	244.35	495.53	244.2
499.9	243.85	504.1	243.57	504.97	243.57	507.39	243.55	507.55	243.54
507.78	243.54	512.38	243.55	515.67	243.88	517.3	243.85	518.4	243.73
522.31	243.82	527.37	243.6	527.45	243.6	527.5	243.6	532.24	243.68
538.23	243.33	538.99	243.29	539.3	243.29	542.33	243.47	545.58	243.43
549.09	243.2	554.19	243.28	562.63	243.29	564.87	243.19	566.75	243.21
568.45	242.98	569.1	242.96	571.11	242.92	571.85	242.88	574.44	242.75
575.64	242.75	577.41	242.86	578.5	242.87	579.58	242.81	582.82	242.65
586.14	242.68	586.56	242.65	587.44	242.67	588.75	242.67	593.34	242.58
597.9	242.21	598.69	242.13	600.78	242.16	602.84	242.09	608.25	242

609.25	241.98	609.64	241.98	611.71	242.06	612.32	242.04	615.67	241.9
619.3	242.03	620.24	242.06	621.09	242.04	622.54	241.87	623.88	241.75
624.88	241.73	626.75	241.77	630.6	241.88	632.63	241.97	634.94	242.01
635.48	242	641.43	242.25	642.62	242.33	646.5	242.54	647.01	242.61
651.57	243.16	655.51	243.02	657.13	242.75	658.35	242.71	661.45	242.16
664.19	241.55	665.72	241.26	667.52	240.57	669.05	239.94	671.79	238.8
673.62	237.94	676.45	236.83	679.09	235.4	680.26	234.76	682.12	233.69
685.41	233.69	690.55	233.69	693.81	233.69	703.24	233.69	704.81	233.69
743.17	233.68	750.21	233.68	751.17	233.68	752.01	234.82	754.52	235.66
756.57	237.11	761.04	237.46	761.31	237.46	762.66	237.58	763.07	237.62
769.22	237.99	772.44	238.2	772.61	238.18	772.67	238.17	776.77	237.53
777.82	237.41	781.62	237.48	784.51	237.55	785.59	237.41	788.65	237.49
791.75	237.77	792.86	237.79	795.43	237.79	796.24	237.71	797.97	237.76
799.11	237.84	806.98	238.12	807.24	238.14	807.66	238.24	812.18	238.63
814.5	239.32	820.5	240.03	820.8	240.08	821.25	240.07	821.56	240.06
828.1	239.88	830.37	239.84	836.36	239.57	840.76	239.34	842.24	239.32
844.82	239.36	848.31	239.68	853.38	239.8	865.72	240.77	872.23	240.77
874.67	240.74	875.91	240.7	877.05	240.59	878.98	240.64	881.86	240.49
885.09	240.5	892.95	240.56	893.17	240.56	893.21	240.57	893.26	240.57
899.69	241.85	900.87	242.01	903.26	242.79	905.4	243.49	908.73	244.83
909.92	244.89	912.2	244.99	916.17	245.58	916.54	245.64	918.04	245.72
920.8	245.53	924.35	245.61	924.59	245.56	926.15	245.47	926.43	245.48
927.7	245.49	931.62	245.53	932.47	245.55	932.99	245.55	934.2	245.56
936.27	245.56	936.76	245.56	940.45	245.6	941.4	245.68	942.43	245.74
945.9	246	948.75	246.19	950.3	246.17	950.62	246.11	954.52	246.06
956.84	246.22	958.36	246.38	958.74	246.4	962.36	246.28	964.77	246.21
966.59	246.12	966.89	246.12	967.39	246.13	970.18	246.35	972.71	246.55
973.16	246.57	973.97	246.44	975.07	246.29	975.7	246.27	980.03	246.41
981.17	246.46	981.34	246.45	981.45	246.46	983.1	246.43	986.79	246.56
989.37	246.7	990.57	246.63	991.39	246.59	995.03	246.67	997.64	246.75
999.08	246.66	999.61	246.61	1004.31	246.98	1005.77	247.08	1006.6	246.99
1007.82	247.02	1010.99	247.34	1013.88	247.74	1015.11	247.69	1018.62	247.97
1018.88	247.99	1018.92	247.98	1019.65	247.98	1023.39	247.98	1024.27	248.06
1026.91	248.33	1030.47	248.8	1030.9	248.79	1032.56	248.94	1033.32	248.96
1037.97	249.03	1038.62	249.04	1039.25	248.93	1040.71	248.94	1045.36	249.18
1048.96	249.05	1050.72	249.19	1052.94	249.17	1053.46	249.24	1065.16	250.71
1079.19	252.52	1080.3	252.56	1081.56	252.56	1082.28	252.57	1085.93	252.44
1088.28	252.58	1089.95	252.55	1090.57	252.6	1094.07	253.04	1096.6	253.36
1098.64	253.7	1098.89	253.73	1099.42	253.76	1106.03	254.31	1107.18	254.26
1110.05	254.48	1117.8	255.21	1119.18	255.46	1121.41	255.83	1124.03	256
1128.37	256.54	1144.71	257.7	1149.35	259.19	1155.14	259.63	1159.96	260.82
1160.63	260.87	1170.59	261.25	1170.9	261.27	1171.34	261.34	1179.03	262.29
1180.53	262.34	1182.62	262.53	1184.53	262.67	1187.37	262.69	1189.37	263.25
1195.37	263.66	1195.45	263.67	1196.87	263.92	1197.32	264		

Manning's n Values num= 10

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	673.62	.04	676.45	.04	685.41	.04	750.21	.04
752.01	.04	756.57	.12	936.27	.05	1037.97	.05	1196.87	.12

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        673.62  756.57            252.1   270.8  273.04             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0  602.05  245.49       F
Blocked Obstructions     num=       5
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
       0    2.61255.8656   28.25   35.81255.6446    44.1   68.01255.2086
  303.93  332.32247.4984 1124.84 1151.76 272.325

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           243.72    Element                  Left OB    Channel
Right OB
  Vel Head (ft)              0.10    Wt. n-Val.                0.050      0.040
  0.120
  W.S. Elev (ft)           243.62    Reach Len. (ft)          252.10     270.80
 273.04
  Crit W.S. (ft)           237.19    Flow Area (sq ft)        122.19     794.47
 633.95
  E.G. Slope (ft/ft)      0.000291   Area (sq ft)             166.77     794.47
 633.95
  Q Total (cfs)            2671.00   Flow (cfs)                87.80    2232.83
 350.38
  Top Width (ft)           383.76    Top Width (ft)           151.66      82.95
 149.15
  Vel Total (ft/s)           1.72    Avg. Vel. (ft/s)           0.72       2.81
   0.55
  Max Chl Dpth (ft)          9.94    Hydr. Depth (ft)           1.71       9.58
   4.25
  Conv. Total (cfs)       156473.2   Conv. (cfs)              5143.4   130803.9
20525.9
  Length Wtd. (ft)         269.08    Wetted Per. (ft)          72.49      85.15
 149.94
  Min Ch El (ft)           233.68    Shear (lb/sq ft)           0.03       0.17
   0.08
  Alpha                      2.24    Stream Power (lb/ft s)  1197.32       0.00
   0.00
  Frctn Loss (ft)            0.07    Cum Volume (acre-ft)      66.80      25.45
  14.33
  C & E Loss (ft)            0.01    Cum SA (acres)            18.80       2.49
   3.38


Warning: Divided flow computed for this cross-section.
Note:    Manning's n values were composited to a single value in the main channel.
Note:    Multiple critical depths were found at this location.  The critical depth
with the lowest, valid, energy was used.
```

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	246.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.70	Wt. n-Val.	0.050	0.040	0.120
W.S. Elev (ft)	246.01	Reach Len. (ft)	252.10	270.80	273.04
Crit W.S. (ft)	242.36	Flow Area (sq ft)	636.02	992.62	1014.19
E.G. Slope (ft/ft)	0.001674	Area (sq ft)	636.02	992.62	1014.19
Q Total (cfs)	10810.00	Flow (cfs)	1437.66	7756.42	1615.92
Top Width (ft)	522.16	Top Width (ft)	249.77	82.95	189.44
Vel Total (ft/s)	4.09	Avg. Vel. (ft/s)	2.26	7.81	1.59
Max Chl Dpth (ft)	12.33	Hydr. Depth (ft)	2.55	11.97	5.35
Conv. Total (cfs)	264217.5	Conv. (cfs)	35139.1	189582.1	39496.3
Length Wtd. (ft)	267.15	Wetted Per. (ft)	250.91	85.15	190.55
Min Ch El (ft)	233.68	Shear (lb/sq ft)	0.26	1.22	0.56
Alpha	2.68	Stream Power (lb/ft s)	1197.32	0.00	0.00
Frctn Loss (ft)	0.36	Cum Volume (acre-ft)	110.88	30.65	21.94
C & E Loss (ft)	0.09	Cum SA (acres)	23.17	2.49	3.68

Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	247.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.71	Wt. n-Val.	0.050	0.040	0.119
W.S. Elev (ft)	246.80	Reach Len. (ft)	252.10	270.80	273.04

Crit W.S. (ft)	243.02	Flow Area (sq ft)	846.69	1058.30	1187.04
E.G. Slope (ft/ft)	0.001654	Area (sq ft)	846.69	1058.30	1187.04
Q Total (cfs)	12761.00	Flow (cfs)	2158.68	8578.31	2024.01
Top Width (ft)	603.54	Top Width (ft)	275.15	82.95	245.44
Vel Total (ft/s)	4.13	Avg. Vel. (ft/s)	2.55	8.11	1.71
Max Chl Dpth (ft)	13.12	Hydr. Depth (ft)	3.08	12.76	4.84
Conv. Total (cfs)	313803.1	Conv. (cfs)	53083.7	210947.4	49772.0
Length Wtd. (ft)	266.32	Wetted Per. (ft)	276.32	85.15	246.65
Min Ch El (ft)	233.68	Shear (lb/sq ft)	0.32	1.28	0.50
Alpha	2.68	Stream Power (lb/ft s)	1197.32	0.00	0.00
Frctn Loss (ft)	0.34	Cum Volume (acre-ft)	130.32	32.68	25.05
C & E Loss (ft)	0.10	Cum SA (acres)	24.40	2.49	3.90

Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	249.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.73	Wt. n-Val.	0.050	0.040	0.112
W.S. Elev (ft)	248.97	Reach Len. (ft)	252.10	270.80	273.04
Crit W.S. (ft)	245.13	Flow Area (sq ft)	1512.88	1238.44	1756.44
E.G. Slope (ft/ft)	0.001585	Area (sq ft)	1512.88	1238.44	1756.44
Q Total (cfs)	19382.00	Flow (cfs)	4869.35	10912.18	3600.47
Top Width (ft)	698.59	Top Width (ft)	335.89	82.95	279.75
Vel Total (ft/s)	4.30	Avg. Vel. (ft/s)	3.22	8.81	2.05

Max Chl Dpth (ft)	15.29	Hydr. Depth (ft)	4.50	14.93	6.28
Conv. Total (cfs)	486901.0	Conv. (cfs)	122324.4	274128.2	90448.4
Length Wtd. (ft)	264.49	Wetted Per. (ft)	337.11	85.15	281.09
Min Ch El (ft)	233.68	Shear (lb/sq ft)	0.44	1.44	0.62
Alpha	2.55	Stream Power (lb/ft s)	1197.32	0.00	0.00
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	185.85	38.09	33.86
C & E Loss (ft)	0.12	Cum SA (acres)	26.51	2.49	4.18

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 1218.175

INPUT
Description: not interpolated
Station Elevation Data num= 461

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	250.61	1.96	250.56	5.94	250.57	8.63	250.65	11.42	250.62
21.66	250.15	22.25	250.1	25.11	250.08	27.57	249.98	29.68	249.9
33.3	249.7	34.47	249.69	39.78	249.82	41.93	249.73	46.06	249.42
49.13	249.34	50.38	249.33	54.63	249.19	55.79	249.14	56.64	249.18
60.29	249.38	64.33	249.29	64.7	249.28	65.2	249.28	70.59	249.27
72.29	249.26	76.76	249.09	80.4	248.99	82.89	248.96	87.16	248.87
89.59	248.78	93.67	248.67	95.52	248.77	101.02	248.43	102.12	248.32
102.51	248.31	108.27	248.17	111.9	248.13	114.67	248.14	116.63	247.97
119.92	247.96	123.76	247.98	127.05	247.93	128.1	247.89	132.33	247.68
136.12	247.75	137.62	247.76	138.06	247.75	143.3	247.87	143.93	247.93
145.54	248.01	150.12	247.99	152.75	247.84	154.78	247.74	160.31	247.53
160.6	247.51	161.59	247.55	165.18	247.66	168.09	247.31	169.55	247.12
170.06	247.09	171.22	247.01	174.73	246.9	175.78	246.82	180.42	246.83
183.08	246.75	186.16	246.66	190.58	246.48	191.96	246.41	196.85	246.52
197.62	246.51	197.76	246.53	203.22	246.21	204.45	246.14	208.74	245.93
209.4	245.91	214.38	245.69	216.63	245.7	219.97	245.71	223.85	245.74
225.62	245.71	230.99	245.68	231.21	245.69	232.04	245.69	235.38	245.68
237.63	245.57	239.24	245.47	241.62	245.45	243.95	245.44	244.65	245.42

249.63	245.27	253.28	245.35	255.98	245.4	260.24	245.49	261.97	245.5
267.78	245.26	268.05	245.25	268.43	245.25	273.33	245.26	276.94	245.22
278.59	245.23	279.01	245.23	283.99	245.16	285.77	245.17	289.29	245.26
292.49	245.12	294.67	245.03	299.16	245.17	299.99	245.19	303.28	245
305.09	244.85	306.73	244.86	309.45	244.82	312.41	244.71	314.27	244.67
314.57	244.66	319.33	244.8	321.06	244.7	324.58	244.55	327.54	244.61
329.75	244.59	334.04	244.55	334.99	244.56	338.96	244.57	339.94	244.62
340.7	244.6	343.87	244.59	347.74	244.54	347.79	244.54	347.85	244.54
352.66	244.46	353.77	244.39	357.1	244.36	358.71	244.41	359.92	244.46
360.6	244.45	361.77	244.46	363.88	244.5	364.93	244.46	366.13	244.46
370.39	244.42	374.02	244.14	375.37	244.03	377.34	244.1	379.87	244.12
382.35	244.04	384.87	243.99	387.47	243.98	388.89	244.04	390.64	244.06
393.46	244.06	398.63	244.08	400.01	244.1	400.77	244.08	402.9	244.01
404.08	244.04	406.36	244.1	408.25	244	410.93	243.88	414.15	244.06
415.04	244.05	417.4	243.99	418.59	244.01	419.52	243.95	421.62	243.72
427.48	243.33	427.57	243.32	427.59	243.32	427.68	243.32	427.82	243.33
430.82	243.55	432.75	243.52	434.5	243.41	437.62	243.13	441.05	243.1
442.01	243.07	444.25	243.06	446.44	243.08	449.8	242.86	452.65	242.66
454.5	242.65	456.41	242.6	457.72	242.5	459.93	242.43	461.39	242.44
464.07	242.51	468.15	242.48	468.28	242.48	470.34	242.46	471.23	242.35
474.06	242.26	476.26	242.15	478.68	242.03	481.75	242.06	483.23	242.01
484.87	241.97	488.61	241.84	493.19	241.83	494.31	241.79	495.23	241.75
497.16	241.64	498.1	241.69	500.48	241.65	502	241.67	504.66	241.63
508.84	241.56	508.87	241.56	508.95	241.56	510.92	241.47	511.7	241.39
514.85	241.26	517.58	241.21	519.82	241.11	522.35	241.16	523.65	241.24
525.02	241.19	528.06	241.11	529.66	241.21	529.93	241.22	530.3	241.23
532.17	241.22	535.76	241.22	539.05	241.18	540.07	241.17	540.98	241.01
543.15	240.99	547.81	241.1	547.85	241.1	549.8	240.98	551.07	240.95
554.26	240.84	555.9	240.77	556.59	240.78	557.83	240.69	558.68	240.63
559.04	240.62	559.55	240.66	562.92	240.75	565.36	240.81	567.17	240.95
567.52	240.94	568.15	240.92	570.3	240.88	573.26	240.74	574.15	240.73
574.96	240.78	576.26	240.75	578.69	240.7	583.1	240.46	584.85	240.58
585.09	240.59	585.63	240.57	591.92	240.36	592.2	240.33	593.82	240.47
594.13	240.47	595.06	240.47	599.23	240.44	600.63	240.36	601.79	240.47
602.67	240.45	604.24	240.47	609.65	240.32	610.12	240.28	611.51	240.22
612.3	240.2	615.15	240.08	617.61	239.97	618.31	239.97	619.16	240.1
620.38	240.31	622.01	240.25	627.09	240.1	628.39	240.14	629.18	240.1
632.12	240.13	636.02	240.31	636.08	240.31	636.86	240.37	638.08	240.45
638.17	240.46	643.38	240.57	644.91	240.6	644.93	240.6	646.97	240.72
647.11	240.72	647.32	240.73	651.06	240.91	653.71	241.16	655.43	241.53
655.9	241.56	658.94	241.69	662.65	241.76	663.28	241.75	664.72	241.71
669.13	241.75	671.43	241.79	673.18	241.94	673.44	241.9	680.8	241.52
681.52	241.52	682.14	241.51	683.07	241.38	693.72	239.92	696.83	238.52
696.95	238.46	697.49	238.34	697.95	238.14	702.08	237.05	706.41	236
707.9	235.78	709.23	235.48	714.57	234.81	714.82	234.77	716.57	234.31
718.4	234.08	719.9	233.95	721.17	233.84	722.2	233.67	722.66	233.52
734.51	233.52	739.39	233.52	747.47	233.52	764.56	233.52	776.51	233.52
776.73	233.6	785.75	237.06	786	237.05	786.41	237.29	786.48	237.3
788.1	237.7	789.36	238.04	791.32	238.53	791.87	238.62	793.83	238.92
794.66	239.06	798.27	239	800.13	239.18	802.09	239.28	803.86	239.32

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  805.18  239.39  810.74  239.44  811.25  239.38  813.13  239.34  814.01  239.31
  816.24  239.38  818.62  239.49  819.54  239.46  820.82  239.44  822.63  239.48
  828.23  239.69  828.86  239.71  830.53  239.65  831.88  239.62  833.11  239.36
   836.8  238.98  837.75     239  839.27  238.74  840.84  238.81  845.56  239.03
  846.12  238.87  847.88  238.58  852.86  238.51  854.18  238.41  854.67  238.38
  859.34  238.18  862.71  238.42  864.37  238.51  867.79   238.7  873.42   239.2
   874.5   239.1  890.91  239.93  891.61  239.99  892.23  239.93  892.73  239.83
   900.2  238.63  901.11  238.63  906.52  238.49     907  238.42  908.99  238.54
  909.48  238.55   911.2  238.64  914.32  238.75  915.19  238.76  921.66  240.07
  924.12  240.71  931.43  242.76  932.46  243.14  933.09  243.39  935.27  243.99
  935.57  244.19  940.87  247.14  943.49  248.11  944.85  248.84  945.98  249.42
  946.32  249.62   952.1  252.48  954.69  253.68  956.09  254.47  958.25  254.86
  961.83  255.53  963.06  255.73  965.78  256.01  968.33  256.23  970.68  256.62
  971.68   256.7  972.65  256.69  973.44  256.68  978.07   256.5  978.12   256.5
  978.13   256.5  985.55  257.01   988.7  257.03  989.29  257.07  989.59  257.05
  989.77  257.02  993.28   256.6  996.42  256.88 1000.65  256.97 1004.21  257.32
 1005.33  257.51 1013.04  258.79 1013.27  258.81 1015.63  258.68 1017.96  258.97
 1020.98  259.27  1022.9  259.54 1024.38  259.95 1026.95  260.93 1032.14  261.44
  1038.8  264.26  1042.4  265.43 1045.49  265.92  1050.8   267.4 1052.39  267.63
 1053.75  267.84 1062.34  269.81 1067.93  271.77 1081.33  280.05 1083.96   280.8
  1084.7  280.96 1088.14  282.03 1089.69  282.62 1094.76  283.59 1095.54  283.81
 1097.35  284.25 1102.15  285.46 1103.64  285.59 1106.01  285.82 1106.08  285.83
 1110.11  286.57 1112.43  286.86 1114.93  286.78 1115.15  286.79 1115.34  286.83
 1119.22  287.63 1121.43   287.7 1122.44  287.65 1123.99  287.73 1125.92  287.92
 1129.06  288.23

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  170.06     .05  702.08     .04  706.41     .04   719.9     .04
  776.73     .04  785.75     .12

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        702.08  785.75           344.72  378.52   389.6             .1       .3

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)            243.64    Element                 Left OB    Channel
Right OB
  Vel Head (ft)               0.06    Wt. n-Val.               0.050      0.040
  0.120
  W.S. Elev (ft)            243.58    Reach Len. (ft)         344.72     378.52
 389.60
  Crit W.S. (ft)            237.26    Flow Area (sq ft)       642.57     792.52
 640.56
  E.G. Slope (ft/ft)      0.000208    Area (sq ft)            642.57     792.52
 640.56
  Q Total (cfs)             2671.00   Flow (cfs)              480.53    1888.05
 302.42
  Top Width (ft)            510.06    Top Width (ft)          278.36      83.67
```

148.03					
Vel Total (ft/s)	1.29	Avg. Vel. (ft/s)	0.75	2.38	
0.47					
Max Chl Dpth (ft)	10.06	Hydr. Depth (ft)	2.31	9.47	
4.33					
Conv. Total (cfs)	184986.0	Conv. (cfs)	33280.3	130760.7	
20944.9					
Length Wtd. (ft)	365.83	Wetted Per. (ft)	279.29	84.67	
149.28					
Min Ch El (ft)	233.52	Shear (lb/sq ft)	0.03	0.12	
0.06					
Alpha	2.50	Stream Power (lb/ft s)	1129.06	0.00	
0.00					
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	64.46	20.52	
10.34					
C & E Loss (ft)	0.01	Cum SA (acres)	17.55	1.97	
2.45					

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	246.25	Element	Left OB	Channel	
Right OB					
Vel Head (ft)	0.39	Wt. n-Val.	0.050	0.040	
0.120					
W.S. Elev (ft)	245.86	Reach Len. (ft)	344.72	378.52	
389.60					
Crit W.S. (ft)	242.47	Flow Area (sq ft)	1502.11	983.30	
984.21					
E.G. Slope (ft/ft)	0.001120	Area (sq ft)	1502.11	983.30	
984.21					
Q Total (cfs)	10810.00	Flow (cfs)	3141.08	6268.26	
1400.66					
Top Width (ft)	728.04	Top Width (ft)	491.55	83.67	
152.82					
Vel Total (ft/s)	3.12	Avg. Vel. (ft/s)	2.09	6.37	
1.42					
Max Chl Dpth (ft)	12.34	Hydr. Depth (ft)	3.06	11.75	
6.44					
Conv. Total (cfs)	323057.3	Conv. (cfs)	93871.4	187327.1	

41858.7

Length Wtd. (ft)	363.28	Wetted Per. (ft)	492.60	84.67	154.62
Min Ch El (ft)	233.52	Shear (lb/sq ft)	0.21	0.81	0.44
Alpha	2.59	Stream Power (lb/ft s)	1129.06	0.00	0.00
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	104.70	24.51	15.68
C & E Loss (ft)	0.06	Cum SA (acres)	21.02	1.97	2.61

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	247.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.050	0.040	0.120
W.S. Elev (ft)	246.70	Reach Len. (ft)	344.72	378.52	389.60
Crit W.S. (ft)	243.05	Flow Area (sq ft)	1922.07	1053.27	1112.63
E.G. Slope (ft/ft)	0.001029	Area (sq ft)	1922.07	1053.27	1112.63
Q Total (cfs)	12761.00	Flow (cfs)	4389.29	6736.92	1634.79
Top Width (ft)	755.15	Top Width (ft)	517.16	83.67	154.32
Vel Total (ft/s)	3.12	Avg. Vel. (ft/s)	2.28	6.40	1.47
Max Chl Dpth (ft)	13.18	Hydr. Depth (ft)	3.72	12.59	7.21
Conv. Total (cfs)	397904.3	Conv. (cfs)	136863.8	210065.6	50974.9
Length Wtd. (ft)	362.21	Wetted Per. (ft)	518.24	84.67	156.34
Min Ch El (ft)	233.52	Shear (lb/sq ft)	0.24	0.80	0.46
Alpha	2.43	Stream Power (lb/ft s)	1129.06	0.00	

0.00					
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	122.31	26.12	17.84
C & E Loss (ft)	0.05	Cum SA (acres)	22.11	1.97	2.65

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	249.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.	0.050	0.040	0.120
W.S. Elev (ft)	248.94	Reach Len. (ft)	344.72	378.52	389.60
Crit W.S. (ft)	244.41	Flow Area (sq ft)	3190.67	1240.99	1464.57
E.G. Slope (ft/ft)	0.000870	Area (sq ft)	3190.67	1240.99	1464.57
Q Total (cfs)	19382.00	Flow (cfs)	8913.98	8144.58	2323.44
Top Width (ft)	861.20	Top Width (ft)	618.24	83.67	159.29
Vel Total (ft/s)	3.29	Avg. Vel. (ft/s)	2.79	6.56	1.59
Max Chl Dpth (ft)	15.42	Hydr. Depth (ft)	5.16	14.83	9.19
Conv. Total (cfs)	657054.9	Conv. (cfs)	302186.1	276103.5	78765.2
Length Wtd. (ft)	359.91	Wetted Per. (ft)	619.41	84.67	161.81
Min Ch El (ft)	233.52	Shear (lb/sq ft)	0.28	0.80	0.49
Alpha	2.04	Stream Power (lb/ft s)	1129.06	0.00	0.00
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	172.24	30.38	23.76
C & E Loss (ft)	0.02	Cum SA (acres)	23.75	1.97	2.80

Warning: When the Manning's n value for the channel was composited, the computed n value was larger [smaller] than the
largest [smallest] user entered n value. The n value has been set to the largest [smallest] entered value. The user may
wish to examine this cross section and enter a single n value for the entire channel.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 839.6553

INPUT
Description: not interpolated
Station Elevation Data num= 480

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	246.05	2.93	245.73	6.52	245.49	7.65	245.36	12.25	244.98
17.24	244.91	18.72	244.79	22.09	244.59	23.93	244.64	25.54	244.49
28.42	244.34	31.7	244.11	33.78	244.05	38.32	244.06	40.04	244.03
43.07	243.92	46.31	243.97	47.35	243.91	48.63	243.96	50.98	243.83
55.87	243.69	56.55	243.63	60.67	243.81	62.69	243.8	64.25	243.84
67.98	243.79	70.29	243.82	72.65	243.81	77.24	243.86	80.03	243.84
82.02	243.76	84.34	243.86	87.43	244.06	90.19	244.04	94.69	243.93
101.12	243.87	106.89	244.27	108.7	244.17	113.1	243.67	119.81	243.23
121.46	243.37	123.69	243.25	125.99	243.36	131.53	243.42	133.67	243.4
138.07	243.14	145.67	243.03	148.08	243.01	152.28	242.66	155.72	242.72
160.72	242.59	164.55	242.4	167.43	242.43	171.81	243.37	174.61	244.57
175.95	245.11	180.97	245.98	183.85	245.9	188.64	245.4	189.68	245.45
193.68	244.83	198.16	244	199.87	243.92	204.74	244.19	205.97	244.16
208.3	244.21	209.11	244.23	214.43	244.12	215.69	244.17	218.88	244.5
224.27	244.07	225.93	243.63	228.66	243.18	231.99	242.84	233.42	242.6
235.08	242.54	237.28	242.34	239.04	242.08	246.12	241.94	248.17	241.95
249.65	241.91	251.68	241.67	253.69	241.74	256.01	241.77	260.29	242.02
261.69	241.95	269.71	242.42	273.85	242.46	279.05	242.15	282.8	241.57
285.04	241.28	288.35	241	291.21	240.68	293.16	240.72	296.48	240.72
298.16	240.78	301.28	240.8	305.11	240.51	306.27	240.45	307.6	240.48
311.3	240.74	314.63	240.87	317.52	240.88	322.21	240.78	326	240.75
330.34	240.61	334.05	240.24	337.49	240.04	340.39	239.85	344.2	240
347.33	239.89	349.12	239.89	352.79	240.08	355.03	239.97	361.32	240.04
366.04	240.19	366.76	240.18	369.68	239.91	371.53	239.87	373.12	239.91
376.57	240.07	381.17	240.24	384.21	240.17	389.11	240.19	394.48	240.18
397.55	240.29	398.89	240.18	401.41	240.1	404.06	240.23	407.09	240.31
409.93	240.17	413.53	240.19	417.92	240.06	421.5	240.15	424.54	240.26
426.28	240.22	428.15	240.07	431.37	240.12	435.22	240.22	439.91	239.84
442.23	239.89	442.78	239.84	445.94	239.76	447.86	239.82	450.14	239.82
454.22	239.59	457.17	239.77	461.9	239.52	466.78	239.34	468.41	239.43

470.43	239.47	477.22	239.68	481.44	239.52	485.21	239.59	489.39	239.57
494.06	239.59	497.77	239.95	498.36	239.97	501.24	239.73	506.25	239.73
510.95	239.76	517.31	239.89	519.3	239.89	523.56	239.84	527.07	239.83
528.61	239.79	530.31	239.69	532.8	239.62	537.59	239.82	542.17	239.78
548.36	239.96	550.05	239.85	555.18	239.94	556.13	239.94	560.08	240.26
564.39	240.18	566.85	240.17	572.18	240.04	573.99	239.98	575.27	240.01
580.03	239.95	581.57	240.01	583.79	239.99	586.14	240.19	588.46	240.21
591.38	240.04	592.71	239.92	593.8	239.9	596.2	239.94	602.2	240.23
603.93	240.22	606.24	239.93	610.31	239.98	613.98	240.17	616.18	239.97
619.89	239.85	623.86	239.81	626.18	239.65	633.12	240.07	634.05	240.06
636.01	239.9	639.69	239.85	643.52	239.93	645.85	239.93	647.67	240
649.19	239.92	654.19	239.81	656.23	239.82	661.53	239.91	665.01	239.87
665.29	239.89	669.85	239.9	672.57	239.94	673.84	240	677.72	239.84
682.5	240.01	684.55	239.87	687.28	239.89	691.59	240.06	693.87	239.74
695.43	239.76	699.57	239.91	700.97	239.93	703.42	240.09	710.48	239.96
712.86	239.88	718.52	240.07	721.9	240.14	726.1	240.13	729.42	240.27
730.27	240.25	731.82	240.09	734.72	240.01	739.06	240.11	741.24	240.02
742.85	240.1	747.3	239.9	748.42	239.87	751.07	239.94	752.6	239.89
759.21	239.84	760.35	239.73	765.42	239.89	769.25	240.11	769.96	240.07
774.05	240.09	778.48	239.95	779.4	240.02	782.49	240.06	785.62	240.02
787.26	239.97	789.14	240.08	792.49	240.23	796.14	240.19	798.71	240.08
800.89	240.09	801.98	239.93	808.19	239.86	809.35	239.95	813.82	239.83
817.96	239.84	825.11	239.98	827.54	239.71	832.36	239.68	834.67	239.71
837.19	239.86	844.34	239.9	846.82	239.69	851.23	239.56	854.06	239.75
855.46	239.72	859.18	239.88	863.62	239.83	866.21	239.7	869.29	239.69
873.47	239.62	875.91	239.23	877.22	239.13	882.8	238.92	883.54	238.95
885.61	239.17	887.14	239.07	892.68	238.85	895.27	238.62	899.13	238.86
902.44	238.75	904.8	238.84	909.85	238.52	912.16	238.46	914.67	238.12
917.92	238.15	921.74	238.09	922.78	238.04	924.21	238.15	928.44	238.36
930.94	238.38	934.2	238.53	937.27	238.54	941.46	238.74	941.9	238.83
944.03	238.9	945.53	238.88	949.88	238.74	951.17	238.77	953.89	239.06
955.41	239.05	961.08	239.25	963.67	239.22	964.84	239.29	969.25	239.43
971.84	239.42	973.56	239.24	974.64	239.23	977.71	239.11	983.05	239.08
983.31	239.06	992.21	237.69	992.82	237.51	996.41	236.84	1000.29	236.55
1001.27	236.37	1003.33	236.27	1007.84	235.84	1010.87	235.89	1014.87	235.83
1019.46	235.69	1020.29	235.71	1023.1	235.59	1027.95	236.3	1029.32	236.33
1031.35	236.17	1033.34	236.06	1039.09	235.82	1049.09	235.76	1051.72	235.32
1053.27	235.24	1058.66	235.21	1059.9	235.25	1062.29	235.26	1071.47	234.91
1073.88	234.62	1078.32	233.98	1080.65	233.49	1082	233.43	1084.18	233.21
1115.73	233.21	1119.29	233.22	1119.65	233.57	1120.02	233.94	1124.46	236.49
1129.79	239.54	1130.7	239.79	1131.08	239.77	1134.98	239.83	1139.76	240.22
1140.81	240.24	1147.32	240.68	1150.79	240.65	1154.67	240.35	1158.12	240.52
1159.67	240.44	1160.53	240.52	1163.6	240.43	1167.3	240.51	1170.31	240.69
1177.85	240.92	1180.17	240.79	1185.61	241.16	1188.29	241.3	1189.98	241.32
1195.95	241.58	1197.89	241.64	1199.78	241.63	1203.52	242.01	1207.49	242.07
1208.91	242.24	1213.05	242.85	1214.18	242.99	1218.25	243.71	1219.5	243.79
1225.79	245.68	1227.63	246.43	1231.95	248.6	1235.77	248.7	1238.2	248.83
1239.75	248.74	1246.48	249.3	1248.88	249.46	1249.61	249.43	1252.56	249.44
1257.11	249.87	1258.61	249.92	1260.31	250.12	1261.53	250	1266.27	250.39
1267.06	250.37	1269.5	250.62	1276.14	251.06	1279.25	251.14	1282.9	251.49

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 1285.94  251.62 1287.39   251.6 1289.15   251.8 1291.54  251.99 1293.05  252.05
 1296.65   252.4 1298.96  252.37 1302.62   252.8 1305.65  253.18 1308.77   253.3
    1312  254.02 1315.52  254.54 1316.94  254.53 1323.62  257.23 1327.13  258.49
 1336.99  262.43 1338.33  262.56 1340.62  262.39 1343.18   262.5 1348.23  263.04
 1348.82     263 1352.61  262.93 1357.07  262.51 1358.65  262.32 1365.08  262.33
 1372.18     262 1375.91   262.1 1378.01  262.09 1381.47  261.92 1384.57  262.08
 1386.49  262.13 1387.71     262 1393.91  261.78 1397.31  261.77 1402.43   262.2
 1406.15  261.95 1407.05  261.97  1413.7  262.39 1416.51  262.08  1419.8  262.13
 1431.09  262.37 1432.58  262.46  1436.6  262.52 1439.86  262.44 1444.38  262.58
 1448.77  262.51 1450.31  262.41 1453.79   262.4 1459.05  262.48 1459.94  262.44
 1465.25  262.87 1466.01  263.06 1472.65  263.16 1474.89  262.17 1475.29  262.09
  1480.4  262.36 1481.11  262.33 1484.65  262.68 1489.56  262.55 1490.72  262.57
 1493.48  262.78 1494.97  262.84  1498.1  262.67 1506.02  262.85 1534.25  264.79
 1541.47   264.3 1545.14  264.57 1550.74  264.39 1553.58  264.68 1554.88  264.69
 1558.75  264.56 1560.24   264.6 1563.98  264.82 1568.37  264.74 1570.64  264.74
  1575.5  264.93 1577.98  264.93 1579.71  265.12 1581.51  265.16 1583.03  265.13

Manning's n Values        num=       9
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05   208.3     .05  337.49     .05 1071.47     .04 1078.32     .04
    1082     .04 1124.46     .12  1130.7     .12 1197.89     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1071.47 1124.46           538.37  598.45  533.67             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
       0  692.35     253       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1508.47 1551.65272.8389

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)            243.58    Element                  Left OB    Channel
Right OB
  Vel Head (ft)               0.03    Wt. n-Val.                0.050      0.040
  0.112
  W.S. Elev (ft)            243.55    Reach Len. (ft)          538.37     598.45
 533.67
  Crit W.S. (ft)            237.53    Flow Area (sq ft)       1833.98     528.47
 250.56
  E.G. Slope (ft/ft)      0.000112    Area (sq ft)            3380.75     528.47
 250.56
  Q Total (cfs)             2671.00    Flow (cfs)              1648.58     950.39
  72.03
  Top Width (ft)            1048.30    Top Width (ft)           902.41      52.99
  92.90
  Vel Total (ft/s)             1.02    Avg. Vel. (ft/s)            0.90       1.80
   0.29
```

Max Chl Dpth (ft)	10.34	Hydr. Depth (ft)	4.84	9.97	2.70
Conv. Total (cfs)	252270.9	Conv. (cfs)	155705.7	89762.2	6803.0
Length Wtd. (ft)	561.42	Wetted Per. (ft)	379.81	54.09	93.97
Min Ch El (ft)	233.21	Shear (lb/sq ft)	0.03	0.07	0.02
Alpha	1.58	Stream Power (lb/ft s)	1583.03	0.00	0.00
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	48.54	14.78	6.35
C & E Loss (ft)	0.00	Cum SA (acres)	12.88	1.37	1.38

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	245.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.	0.050	0.040	0.104
W.S. Elev (ft)	245.71	Reach Len. (ft)	538.37	598.45	533.67
Crit W.S. (ft)	241.58	Flow Area (sq ft)	2650.27	642.56	460.98
E.G. Slope (ft/ft)	0.000630	Area (sq ft)	5556.32	642.56	460.98
Q Total (cfs)	10810.00	Flow (cfs)	7220.19	3120.75	469.07
Top Width (ft)	1216.23	Top Width (ft)	1061.85	52.99	101.39
Vel Total (ft/s)	2.88	Avg. Vel. (ft/s)	2.72	4.86	1.02
Max Chl Dpth (ft)	12.50	Hydr. Depth (ft)	6.99	12.13	4.55
Conv. Total (cfs)	430600.3	Conv. (cfs)	287605.5	124310.3	18684.5
Length Wtd. (ft)	558.14	Wetted Per. (ft)	379.81	54.09	102.76
Min Ch El (ft)	233.21	Shear (lb/sq ft)	0.27	0.47	0.18
Alpha	1.42	Stream Power (lb/ft s)	1583.03	0.00	0.00

Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	76.77	17.45	9.22
C & E Loss (ft)	0.01	Cum SA (acres)	14.88	1.37	1.47

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	246.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.050	0.040	0.101
W.S. Elev (ft)	246.53	Reach Len. (ft)	538.37	598.45	533.67
Crit W.S. (ft)	241.93	Flow Area (sq ft)	2961.86	686.11	545.14
E.G. Slope (ft/ft)	0.000627	Area (sq ft)	6435.30	686.11	545.14
Q Total (cfs)	12761.00	Flow (cfs)	8668.19	3472.40	620.41
Top Width (ft)	1227.82	Top Width (ft)	1071.47	52.99	103.36
Vel Total (ft/s)	3.04	Avg. Vel. (ft/s)	2.93	5.06	1.14
Max Chl Dpth (ft)	13.32	Hydr. Depth (ft)	7.81	12.95	5.27
Conv. Total (cfs)	509577.3	Conv. (cfs)	346141.6	138661.0	24774.6
Length Wtd. (ft)	557.23	Wetted Per. (ft)	379.81	54.09	104.90
Min Ch El (ft)	233.21	Shear (lb/sq ft)	0.31	0.50	0.20
Alpha	1.39	Stream Power (lb/ft s)	1583.03	0.00	0.00
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	89.24	18.56	10.43
C & E Loss (ft)	0.01	Cum SA (acres)	15.82	1.37	1.50

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth

with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	248.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.	0.050	0.040	0.098
W.S. Elev (ft)	248.72	Reach Len. (ft)	538.37	598.45	533.67
Crit W.S. (ft)	242.91	Flow Area (sq ft)	3791.84	802.12	776.44
E.G. Slope (ft/ft)	0.000675	Area (sq ft)	8780.99	802.12	776.44
Q Total (cfs)	19382.00	Flow (cfs)	13569.89	4672.01	1140.10
Top Width (ft)	1236.08	Top Width (ft)	1071.47	52.99	111.62
Vel Total (ft/s)	3.61	Avg. Vel. (ft/s)	3.58	5.82	1.47
Max Chl Dpth (ft)	15.51	Hydr. Depth (ft)	10.00	15.14	6.96
Conv. Total (cfs)	746250.9	Conv. (cfs)	522471.5	179882.9	43896.6
Length Wtd. (ft)	555.47	Wetted Per. (ft)	379.81	54.09	113.65
Min Ch El (ft)	233.21	Shear (lb/sq ft)	0.42	0.62	0.29
Alpha	1.33	Stream Power (lb/ft s)	1583.03	0.00	0.00
Frctn Loss (ft)	0.37	Cum Volume (acre-ft)	124.87	21.50	13.74
C & E Loss (ft)	0.01	Cum SA (acres)	17.07	1.37	1.59

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 241.2043

INPUT

Description: not interpolated
Station Elevation Data num= 480

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	249.83	6.39	249.78	7.92	249.73	12.62	249.8	15.31	249.74
19.97	249.3	26.64	248.78	30.19	248.66	37.6	248.24	37.97	248.24
44.01	248.66	49.67	248.18	51.59	248.16	57.9	247.93	64.54	247.85
68.83	248.01	72.13	247.84	76.88	247.85	81.31	247.43	84.26	247.38
87.29	247.38	93.37	247.3	97.28	247.55	99.33	247.48	103.93	246.93
105.55	246.93	110.41	246.85	112.26	246.78	117.74	247.22	129.92	246.76
135.69	246.59	141.14	246.32	142.16	246.3	145.25	246.24	147.96	246.26
151.75	246.41	155.58	246.43	159.86	246.2	161.48	246.16	166.2	246.39
172.27	246.03	172.77	246.05	179.21	245.96	184.13	246.17	189.7	246.17
192.85	246.12	195.68	245.94	202.78	245.86	207.73	245.96	217.8	246.21
220.99	246.05	223.91	245.75	227.07	245.63	229.75	245.74	231.19	245.75
236.96	245.68	242.08	245.68	242.62	245.7	248.26	245.63	251.06	245.38
257.93	245.51	265.95	244.89	271.62	245.02	280.63	244.88	281.25	244.84
286.68	244.72	290.54	244.42	294.46	244.59	298.84	244.59	303.97	244.63
308.51	244.57	309.95	244.63	314.57	244.48	315.84	244.47	317.47	244.32
323.61	244.17	327.22	243.93	329.76	243.95	331.8	243.88	333.88	244.02
335.66	244.04	338.6	244	341.88	244	344.27	243.93	349.74	244.34
351.48	244.22	356.12	244.17	360.29	243.84	362.19	243.86	372.42	243.67
377.94	243.13	383.49	243.13	388.13	242.91	389.33	242.94	395.19	243
397.9	242.89	401.04	242.72	402.83	242.73	407.34	242.82	412.69	242.67
417.86	242.63	423.04	242.65	429.24	242.49	433.55	242.35	435.3	242.33
437.31	242.38	440.03	242.2	441.16	242.06	444.19	242.01	447.36	242.12
453.34	242.07	457.35	241.99	459.21	241.9	462.05	241.92	463.51	241.86
471.01	241.94	480.43	241.88	481.3	241.89	485.64	241.79	489.39	241.83
491.89	241.79	495.31	241.67	500.55	241.72	503.36	241.58	504.75	241.38
507.23	241.31	508.87	241.32	513.12	241.46	518.55	241.33	523.7	241.26
527.53	241.29	538.34	242.22	542.04	242.48	543.48	242.54	547.21	242.52
548.66	242.47	553.03	242.64	560.01	242.01	567.83	241.53	570.27	241.6
574.21	241.19	575.96	241.05	586.87	240.67	589.76	240.51	595.44	240.61
605.3	240.4	612.06	240.24	617.87	240.55	623.42	240.36	625.92	240.34
628.95	240.23	635.48	240.25	645.83	240.2	649.29	240.21	659.71	240.65
665.61	241.13	668.15	241.05	676.97	241.24	678.98	241.31	682.5	240.92
685.44	240.76	686.21	240.81	692.46	240.75	702.12	240.62	703.84	240.73
707.04	240.61	711.95	240.54	714.03	240.68	719.4	240.39	723.66	240.34
727.7	240.47	732.41	240.35	739.11	240.34	741.57	240.08	749.2	239.88
750.72	239.88	757.43	239.51	766.25	239.41	769.79	239.49	777.61	240.07
779.8	240.41	785.31	239.46	788.44	239.14	795.66	239.28	800.03	238.98
803.22	238.8	808.66	237.84	811.99	237.74	813.19	237.75	818.64	238.46
821.71	238.75	824.59	238.71	826.33	238.65	828.78	238.63	831.33	238.74
832.77	238.91	835.54	238.85	839.43	239.04	843.24	239.5	850.22	239.92
850.94	239.88	859.84	239.93	863.44	240.24	866.72	240.4	875.15	241.02
881.91	241.04	886.9	241.3	887.9	241.38	894.32	241.42	897.17	241.52
899.44	241.99	912.21	242.64	913.49	242.65	913.93	242.56	917.56	241.44
928.13	238.35	929.6	238.2	930.94	237.66	935.96	236.09	937.01	235.72
939.78	235.11	941.97	235.24	952.51	234.99	956.09	234.86	960.46	234.87
961.04	234.79	967.25	232.42	972.31	232.41	995.22	232.4	1011.77	232.38
1013.08	232.38	1014.47	233.09	1017.07	234.03	1023.17	236.54	1024.35	236.83

1024.94	236.65	1029.81	236.54	1034.64	236.35	1039.52	236.35	1041.92	236.47
1043.16	236.64	1043.58	236.56	1048.3	237	1049.33	237.04	1052.24	236.93
1056.28	237.17	1058.42	237.36	1061.27	237.39	1065.89	237.86	1067.51	238.05
1070.43	238.15	1073.99	238.38	1078.96	238.45	1079.96	238.49	1085.48	238.85
1088.28	238.8	1090.92	239.07	1094.46	239.34	1096.04	239.32	1097.3	239.23
1103.75	239.47	1106.24	239.3	1108.68	238.89	1112.15	238.42	1120.95	237.83
1121.15	237.68	1127.16	231.89	1129.24	231.89	1139	231.89	1157.54	231.9
1173.81	231.9	1175.36	231.9	1179.69	232.89	1181.96	233.4	1191.75	235.03
1194.06	234.92	1200.13	234.44	1202.84	233.98	1207.6	232.74	1208.82	232.56
1212.94	232.88	1217.69	233.99	1226.54	236.25	1236.53	237.96	1239.43	238.29
1241.67	238.45	1243.13	238.49	1248.18	238.83	1250.11	238.85	1252.45	238.93
1258.84	239.49	1262.08	239.47	1265	239.61	1270.9	239.93	1272.85	240.21
1273.84	240.25	1275.76	240.52	1279.85	240.87	1281.45	240.81	1290.69	244.03
1291.54	244.29	1297.7	247.16	1301.1	248.87	1304.36	250.65	1306.93	251.57
1310.12	253.07	1314.56	254.95	1316.17	255.52	1321.09	256.26	1326.53	257.15
1330.22	257.6	1333.16	257.86	1336.46	258.02	1340.66	258.44	1345.13	258.77
1351.43	258.94	1352.78	258.96	1355.75	259.2	1360.11	259.51	1363.09	259.67
1366.32	259.97	1368.71	260.05	1371.14	260.03	1371.77	259.95	1373.11	260.07
1377.19	260.34	1378.66	260.22	1380.25	260.18	1382.26	260.37	1387.77	260.43
1388.82	260.51	1392.12	260.64	1394.21	260.67	1397.06	260.46	1397.6	260.49
1402.63	260.99	1405.8	261.28	1407.4	261.22	1412.73	261.99	1413.41	262.06
1413.88	262.27	1416.82	262.73	1419.86	263.22	1422.28	263.43	1423.55	263.71
1425.16	263.76	1429.16	264.43	1430.76	264.84	1437.87	265	1438.99	265.18
1442.2	265.57	1448.65	266.42	1450.07	266.56	1454.38	266.81	1457.94	266.87
1461.22	267.32	1463.02	267.33	1464.23	267.4	1467.1	267.68	1470.11	268.04
1472.67	268.23	1478.94	268.99	1481.17	269.33	1483.58	269.39	1486.5	269.53
1487.33	269.66	1494.99	270.65	1496.41	270.8	1498.1	270.9	1500.01	271.2
1505.08	271.84	1506.57	272.12	1509.91	272.82	1512	273.19	1515.02	273.48
1516.11	273.76	1539.34	276.96	1541.44	277.15	1543.66	277.46	1554.12	278.09
1558.27	278.61	1559.74	278.84	1563.13	278.96	1567.02	279.31	1571.05	279.64
1573.5	280.03	1577.79	280.5	1580.26	280.93	1582.52	281.03	1584.8	281.35
1588.85	282.05	1590.36	282.28	1591.96	282.34	1597.18	283.02	1600.52	283.75
1603.6	284.37	1606.06	284.53	1607.11	284.54	1609.1	284.8	1610.73	285.09
1611.47	285.07	1617.65	285.45	1619.84	285.7	1623.12	285.96	1626.18	286.08
1629.76	286.03	1633.71	286.18	1636.35	286.35	1638	286.69	1643.59	286.92
1648.83	287.55	1651.71	287.7	1657.36	288.68	1658.52	288.76	1660.84	289.21
1665.87	289.94	1667.99	290.22	1669.15	290.23	1672.24	290.48	1674.49	290.88
1677.19	291.42	1678.78	291.56	1683.15	291.79	1684.32	291.92	1686.37	291.97
1688.19	292.16	1693.74	292.51	1697.3	292.81	1700.43	293.44	1704.13	293.68
1709.7	294.21	1717.51	294.77	1718.3	294.85	1720.94	294.77	1723.31	294.6
1728.71	294.49	1729.33	294.42	1736.08	294.68	1738.09	294.67	1740.15	294.6
1743.2	294.91	1744.98	295.04	1746.24	294.99	1746.83	295.05	1752.73	295.34
1755.02	295.51	1758.26	295.87	1762	296.24	1763.73	296.54	1772.28	297.04
1777.41	297.19	1780.78	297.51	1782.73	297.64	1785.94	297.68	1789.47	298.13
1792.26	298.28	1794.72	298.56	1798.33	298.86	1801.07	299.05	1803.4	299.02
1805.11	299.08	1811.58	299.56	1831.29	300.32	1854.37	299.78	1859.88	299.56
1862.81	299.59	1866.14	299.74	1871.27	299.44	1872.64	299.51	1874.64	299.76
1876.12	299.6	1879.75	299.39	1883.15	299.43	1886.61	299.7	1889.45	299.86
1892.45	300.33	1897.23	301.16	1898.43	301.3	1902.08	301.84	1903.6	302.15

Manning's n Values num= 12

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	142.16	.12	360.29	.05	538.34	.12	972.31	.05
1011.77	.05	1121.15	.04	1139	.04	1173.81	.04	1181.96	.04
1191.75	.12	1416.82	.05						

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1121.15	1191.75	176.62	183.19	177.62	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	667.55	251.97	F

CROSS SECTION OUTPUT Profile #10%

E.G. Elev (ft)	243.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.066	0.040	0.120
W.S. Elev (ft)	243.51	Reach Len. (ft)	176.62	183.19	177.62
Crit W.S. (ft)	234.99	Flow Area (sq ft)	2345.49	775.03	586.00
E.G. Slope (ft/ft)	0.000065	Area (sq ft)	2899.24	775.03	586.00
Q Total (cfs)	2671.00	Flow (cfs)	1359.21	1119.97	191.83
Top Width (ft)	915.17	Top Width (ft)	747.11	70.60	97.45
Vel Total (ft/s)	0.72	Avg. Vel. (ft/s)	0.58	1.45	0.33
Max Chl Dpth (ft)	11.62	Hydr. Depth (ft)	5.17	10.98	6.01
Conv. Total (cfs)	330960.3	Conv. (cfs)	168417.8	138773.4	23769.1
Length Wtd. (ft)	180.91	Wetted Per. (ft)	456.91	73.24	98.84
Min Ch El (ft)	231.89	Shear (lb/sq ft)	0.02	0.04	0.02
Alpha	2.03	Stream Power (lb/ft s)	1903.60	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	9.73	5.83	1.23
C & E Loss (ft)	0.00	Cum SA (acres)	2.69	0.52	0.21

Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth

with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #2%

E.G. Elev (ft)	245.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.070	0.040	0.120
W.S. Elev (ft)	245.41	Reach Len. (ft)	176.62	183.19	177.62
Crit W.S. (ft)	238.38	Flow Area (sq ft)	3208.10	909.29	776.19
E.G. Slope (ft/ft)	0.000511	Area (sq ft)	4438.49	909.29	776.19
Q Total (cfs)	10810.00	Flow (cfs)	5884.37	4095.43	830.20
Top Width (ft)	1036.92	Top Width (ft)	864.11	70.60	102.20
Vel Total (ft/s)	2.21	Avg. Vel. (ft/s)	1.83	4.50	1.07
Max Chl Dpth (ft)	13.52	Hydr. Depth (ft)	7.07	12.88	7.59
Conv. Total (cfs)	478048.9	Conv. (cfs)	260223.5	181111.6	36713.8
Length Wtd. (ft)	180.58	Wetted Per. (ft)	456.91	73.24	103.97
Min Ch El (ft)	231.89	Shear (lb/sq ft)	0.22	0.40	0.24
Alpha	1.97	Stream Power (lb/ft s)	1903.60	0.00	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	15.00	6.79	1.64
C & E Loss (ft)	0.00	Cum SA (acres)	2.97	0.52	0.22

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	246.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.071	0.040	0.120

W.S. Elev (ft)	246.22	Reach Len. (ft)	176.62	183.19	177.62
Crit W.S. (ft)	239.31	Flow Area (sq ft)	3576.17	966.58	859.82
E.G. Slope (ft/ft)	0.000542	Area (sq ft)	5169.59	966.58	859.82
Q Total (cfs)	12761.00	Flow (cfs)	7091.42	4668.24	1001.34
Top Width (ft)	1130.12	Top Width (ft)	955.58	70.60	103.94
Vel Total (ft/s)	2.36	Avg. Vel. (ft/s)	1.98	4.83	1.16
Max Chl Dpth (ft)	14.33	Hydr. Depth (ft)	7.88	13.69	8.27
Conv. Total (cfs)	548152.2	Conv. (cfs)	304613.7	200525.6	43012.9
Length Wtd. (ft)	180.46	Wetted Per. (ft)	456.91	73.24	105.89
Min Ch El (ft)	231.89	Shear (lb/sq ft)	0.26	0.45	0.27
Alpha	1.94	Stream Power (lb/ft s)	1903.60	0.00	0.00
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	17.52	7.21	1.82
C & E Loss (ft)	0.00	Cum SA (acres)	3.29	0.52	0.23

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	248.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.	0.073	0.040	0.120
W.S. Elev (ft)	248.36	Reach Len. (ft)	176.62	183.19	177.62
Crit W.S. (ft)	241.02	Flow Area (sq ft)	4546.86	1117.66	1087.06
E.G. Slope (ft/ft)	0.000663	Area (sq ft)	7359.02	1117.66	1087.06
Q Total (cfs)	19382.00	Flow (cfs)	11216.32	6577.14	1588.54
Top Width (ft)	1256.98	Top Width (ft)	1078.03	70.60	

108.35					
Vel Total (ft/s)	2.87	Avg. Vel. (ft/s)	2.47	5.88	1.46
Max Chl Dpth (ft)	16.47	Hydr. Depth (ft)	10.02	15.83	10.03
Conv. Total (cfs)	752754.1	Conv. (cfs)	435617.1	255441.8	61695.3
Length Wtd. (ft)	180.21	Wetted Per. (ft)	456.91	73.24	110.78
Min Ch El (ft)	231.89	Shear (lb/sq ft)	0.41	0.63	0.41
Alpha	1.87	Stream Power (lb/ft s)	1903.60	0.00	0.00
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	25.13	8.32	2.32
C & E Loss (ft)	0.01	Cum SA (acres)	3.78	0.52	0.24

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: W Br Neshminy
REACH: 1 RS: 58.01602

INPUT
Description:
Station Elevation Data num= 279

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	252.34	4.96	252.2	9.92	252.14	14.88	252.23	19.84	252.29
24.8	252.04	29.76	251.84	34.72	252.14	39.68	252.31	44.64	252.21
49.6	252.14	54.56	252.1	59.52	252.08	64.48	251.98	69.44	251.89
74.4	251.84	79.36	251.81	84.32	251.75	89.28	251.6	94.24	251.57
99.2	251.52	104.16	251.25	109.12	251.12	114.08	250.99	119.04	250.79
124	250.52	128.96	250.21	133.92	249.89	138.88	249.54	143.84	249.32
148.8	249.06	153.76	248.75	158.72	248.43	163.68	248.26	168.64	248.28
173.6	248.14	178.56	247.83	183.52	247.57	188.48	247.43	193.45	247.23
198.41	247.1	203.37	246.99	208.33	247.15	213.29	247.02	218.25	246.91
223.21	246.74	228.17	246.6	233.13	246.49	238.09	246.38	243.05	246.3
248.01	246.15	252.97	245.9	257.93	245.75	262.89	245.64	265.23	245.61
267.85	245.58	272.81	245.44	277.77	245.39	282.73	245.45	286.77	245.45
287.69	245.45	292.65	245.51	297.61	245.7	302.57	245.99	307.53	246.21
312.49	246.61	317.45	246.83	322.41	246.94	327.37	246.92	332.33	246.83
337.29	246.58	342.25	246.34	347.21	246.05	352.17	245.55	357.13	245.28

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  362.09  244.99  367.05   244.8  372.01   244.2  376.97  243.73  381.93   243.4
  386.89  243.07  391.85  242.65  396.81  242.29  401.77  241.93  406.73  241.52
  411.69  241.37  416.65  241.33  421.61   241.1  426.57  241.03  431.53  241.17
  436.49  241.13  441.45  241.03  446.41  241.02  451.37  240.82  456.33  240.87
  461.29  241.07  466.25  240.88  471.21  240.44  476.17  240.23  481.13  240.03
  486.09  239.79  491.05  239.67  496.01  239.61  500.97  239.64  505.93  239.66
  510.89  239.77  515.85  239.63  520.81   239.8  525.77  239.96  530.73  239.93
  535.69  239.85  540.65  239.85  545.61   239.9  550.57  240.06  555.54  240.15
   560.5  240.24  565.46  240.47  570.42  240.77  575.38  240.88  580.34  240.89
   585.3  240.84  590.26  241.01  595.22  241.04  600.18  240.81  605.14  240.92
   610.1  241.11  615.08  241.29  620.07  241.31  625.06   241.2  630.05  241.36
  635.04   241.3  640.03   241.2  645.01  240.96     650  241.02  654.99  240.91
  659.98  240.87  664.97   241.1  669.95  241.22  674.94  240.96  679.93  240.58
  684.92  240.32  689.91   240.3  694.89  240.15  699.88  239.86  704.87  239.55
  709.86  239.23  714.85  239.08  719.84  239.11  724.82  239.24  729.81  239.44
   734.8  239.38  739.79  239.46  744.78  239.77  749.76  239.74  754.75  238.93
  759.74  237.84  764.73   237.2  769.72  237.22   774.7  237.47  779.69  237.86
  784.68  238.26  789.67  238.38  794.66  238.63  799.65  238.39  804.63  238.33
  809.62  238.33  814.61  238.43   819.6  238.46  824.59  238.55  829.57  238.79
  834.56  239.08  839.55   239.4  844.54   239.7  849.53  240.02  854.51  240.03
   859.5  239.95  864.49  240.16  869.48  240.62  874.47  241.03  879.46  241.26
  884.44   241.3  889.43  241.35  894.42  241.35  899.41  241.29   904.4  241.13
  909.38  241.04  914.37  241.01  919.36  240.98  924.35  240.94  929.34  240.93
  934.32  241.11  937.34  240.84  939.31  240.67   944.3   239.9  949.29  239.31
  954.28  238.39  959.27  236.97  964.25  235.38  969.24  233.85  974.23  232.58
  979.22  232.05  984.21  232.02  989.19     232  994.18     232  999.17     232
 1004.16     232 1009.15     232 1014.13  231.99 1019.12  231.99 1024.11  231.97
  1029.1  231.95 1034.09  231.94 1039.07  231.93 1044.06  231.92 1049.05  231.92
 1054.04  231.91 1059.03   232.4 1064.02     233    1069  232.85 1073.96  232.02
 1078.91  231.86 1083.86  231.86 1088.81  231.86 1093.77  231.86 1098.72  231.86
 1103.67  231.86 1108.62  231.86 1113.58  231.86 1118.53  231.86 1123.48  231.86
 1124.06  231.86 1128.43  231.86 1133.38  233.13 1138.34  237.86 1143.29  242.93
 1148.24  247.69 1153.19  252.28 1158.15  256.67  1163.1  260.57 1168.05  262.94
    1173  265.05 1177.96   267.4 1182.91  269.89 1187.86  272.23 1192.81  273.77
 1197.77  275.03 1202.72  276.56 1207.67  277.89 1212.62  278.88 1217.58  279.88
 1222.53  280.58 1227.48  281.32 1232.43  282.34 1237.39   282.9 1242.34  283.49
 1247.29  284.12 1252.24  284.87 1257.19  285.61 1262.15  286.19  1267.1  286.86
 1272.05   287.4    1277  288.01  1280.9  288.44 1281.96  288.56 1286.91  288.82
 1291.86  289.23 1296.81  289.77 1301.77  290.33 1306.72  290.77 1311.67  290.78
 1316.62  291.05 1321.58  291.24 1326.53  291.76 1331.48  292.08 1336.43  292.39
 1341.39  292.51 1346.34  292.59 1351.29  292.49 1356.24  292.41

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  265.23     .12  959.27     .04 1138.34     .12  1280.9     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        959.27 1138.34             89.48   58.02  101.77             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
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       0  364.83  252.18       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
       0   33.63257.6837

CROSS SECTION OUTPUT  Profile #10%


  E.G. Elev (ft)           243.52    Element                  Left OB    Channel
Right OB
  Vel Head (ft)              0.02    Wt. n-Val.                0.120      0.040
  0.120
  W.S. Elev (ft)           243.50    Reach Len. (ft)

  Crit W.S. (ft)           234.10    Flow Area (sq ft)       1900.27    1996.19
  15.54
  E.G. Slope (ft/ft)      0.000041   Area (sq ft)            1900.27    1996.19
  15.54
  Q Total (cfs)            2671.00   Flow (cfs)               331.42    2337.66
   1.93
  Top Width (ft)           763.46    Top Width (ft)           578.84     179.07
   5.54
  Vel Total (ft/s)           0.68    Avg. Vel. (ft/s)           0.17       1.17
   0.12
  Max Chl Dpth (ft)         11.64    Hydr. Depth (ft)           3.28      11.15
   2.80
  Conv. Total (cfs)       418382.8   Conv. (cfs)             51912.6   366168.3
  301.9
  Length Wtd. (ft)                   Wetted Per. (ft)         579.89     181.92
   7.91
  Min Ch El (ft)           231.86    Shear (lb/sq ft)           0.01       0.03
   0.00
  Alpha                      2.58    Stream Power (lb/ft s)  1356.24       0.00
   0.00
  Frctn Loss (ft)                    Cum Volume (acre-ft)

  C & E Loss (ft)                    Cum SA (acres)



Note:    Multiple critical depths were found at this location.  The critical depth
with the lowest, valid, energy was used.

CROSS SECTION OUTPUT  Profile #2%


  E.G. Elev (ft)           245.48    Element                  Left OB    Channel
Right OB
  Vel Head (ft)              0.18    Wt. n-Val.                0.120      0.040
```

0.120					
W.S. Elev (ft)	245.30	Reach Len. (ft)			
Crit W.S. (ft)	237.18	Flow Area (sq ft)	2959.62	2318.52	
27.20					
E.G. Slope (ft/ft)	0.000351	Area (sq ft)	2961.43	2318.52	
27.20					
Q Total (cfs)	10810.00	Flow (cfs)	1998.46	8799.65	
11.89					
Top Width (ft)	788.99	Top Width (ft)	602.51	179.07	
7.41					
Vel Total (ft/s)	2.04	Avg. Vel. (ft/s)	0.68	3.80	
0.44					
Max Chl Dpth (ft)	13.44	Hydr. Depth (ft)	4.98	12.95	
3.67					
Conv. Total (cfs)	577282.3	Conv. (cfs)	106722.8	469924.3	
635.1					
Length Wtd. (ft)		Wetted Per. (ft)	595.56	181.92	
10.51					
Min Ch El (ft)	231.86	Shear (lb/sq ft)	0.11	0.28	
0.06					
Alpha	2.84	Stream Power (lb/ft s)	1356.24	0.00	
0.00					
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #1%

E.G. Elev (ft)	246.31	Element	Left OB	Channel	
Right OB					
Vel Head (ft)	0.21	Wt. n-Val.	0.120	0.040	
0.120					
W.S. Elev (ft)	246.10	Reach Len. (ft)			
Crit W.S. (ft)	237.77	Flow Area (sq ft)	3435.17	2461.77	
33.47					
E.G. Slope (ft/ft)	0.000377	Area (sq ft)	3474.11	2461.77	
33.47					
Q Total (cfs)	12761.00	Flow (cfs)	2657.44	10087.30	
16.26					
Top Width (ft)	856.28	Top Width (ft)	668.96	179.07	
8.25					

Vel Total (ft/s)	2.15	Avg. Vel. (ft/s)	0.77	4.10	0.49
Max Chl Dpth (ft)	14.24	Hydr. Depth (ft)	5.78	13.75	4.06
Conv. Total (cfs)	656952.3	Conv. (cfs)	136808.3	519307.1	836.9
Length Wtd. (ft)		Wetted Per. (ft)	595.56	181.92	11.66
Min Ch El (ft)	231.86	Shear (lb/sq ft)	0.14	0.32	0.07
Alpha	2.89	Stream Power (lb/ft s)	1356.24	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #.2%

E.G. Elev (ft)	248.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.120	0.040	0.120
W.S. Elev (ft)	248.20	Reach Len. (ft)			
Crit W.S. (ft)	239.71	Flow Area (sq ft)	4683.49	2837.82	53.08
E.G. Slope (ft/ft)	0.000475	Area (sq ft)	5035.76	2837.82	53.08
Q Total (cfs)	19382.00	Flow (cfs)	4999.93	14348.35	33.72
Top Width (ft)	977.32	Top Width (ft)	787.80	179.07	10.45
Vel Total (ft/s)	2.56	Avg. Vel. (ft/s)	1.07	5.06	0.64
Max Chl Dpth (ft)	16.34	Hydr. Depth (ft)	7.88	15.85	5.08
Conv. Total (cfs)	889028.1	Conv. (cfs)	229340.6	658140.7	1546.8
Length Wtd. (ft)		Wetted Per. (ft)	595.56	181.92	14.70
Min Ch El (ft)	231.86	Shear (lb/sq ft)	0.23	0.46	0.11

Alpha	2.94	Stream Power (lb/ft s)	1356.24	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

SUMMARY OF MANNING'S N VALUES

River:W Br Neshminy

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7	n8	n9	n10	n11	n12	n13
1	18937.81	.05	.03	.05	.05	.038	.038	.038	.05	.05	.03			
1	18500.98	.05	.03	.05	.038	.038	.038	.05	.12	.05	.03	.05	.03	.05
1	18437.76	Bridge												
1	18388.17	.05	.12	.04	.05	.12	.05							
1	18288.75	.05	.12	.042	.12	.05								
1	17911.97	.05	.12	.04	.04	.04	.12	.05						
1	17408.13	.05	.05	.12	.04	.04	.12	.05						
1	17013.07	.05	.12	.04	.04	.04	.12	.05						
1	16436.43	.05	.12	.04	.04	.04	.04	.04	.12	.05				
1	15916.41	.05	.05	.12	.04	.04	.01	.04	.04	.12	.05			
1	15388.21	.05	.05	.05	.04	.04	.04	.04	.04	.12	.05			
1	15308.34	.05	.05	.05	.04	.04	.04	.04	.04	.12	.05			
1	15257.58	Bridge												
1	15200.99	.05	.12	.12	.04	.04								