



**Municipal Planning Commission
City Service Center – 915 Quarrier Street – Suite 6
Wednesday, April 5, 2023
3:00 p.m.**

Agenda

- 1. Call to Order**
- 2. Unfinished Business**
- 3. New Business**

Development of Significant Impact: Considering an application for a DSI at 1661 Washington Street West.

- 4. Minutes of the January 4, 2023 MPC meeting**
- 5. Announcements**
- 6. Adjournment**

***Meetings may be recorded and broadcast via internet <https://charlestonwv.civicclerk.com>**

Municipal Planning Commission

Application and Checklist for DSI



MPC Hearing Date: 04/05/2023

DSI X or Major DSI

Applicant Information	Property Information
Name: Washington Greene L.P.	Address: 1661 Washington Street, Charleston
Address: 500 S. Front Street, 10th Floor Columbus, OH 43215	Tax Map and Parcel: 12-10-220, 12-20-221, 12-10-222, 12-10-223
Phone: 614-396-3200	Zoning District: CVD
Agents Name, Address, Phone (If other than Applicant): Anne Little, VP of Development alittle@wodagroup.com	Property Owner and Mailing Address: (if other than applicant)

IMPORTANT: This application must be typed or legibly printed and filed by the filing deadline with the Planning Department in person or by mail to 915 Quarrier Street, Suite 1 Charleston, WV 25301. The following items must accompany this application:

A. Developments of Significant Impact

Applications for permits for Developments of Significant Impact (DSI), as defined by the ordinance shall be accompanied by a site plan drawn to scale that includes the following for the use of the Planning Director:

1. The actual dimensions, size, square footage, and shape of the lot to be built upon as shown on an actual survey by a licensed land surveyor or registered professional engineer licensed by the State of West Virginia
2. The exact sizes and locations of existing structures on the lot, if any
3. The location, square footage, and dimensions of the proposed structure or alteration
4. The location of the lot with respect to adjacent rights-of-way
5. The existing and proposed uses of the structure and land
6. The number of employees, families, housekeeping units, bedrooms, or rental units the structure is designed to accommodate
7. The location and dimensions of off-street parking and means of ingress and egress for such space
8. Height of structure
9. Setbacks
10. Buffer yard and screening, if applicable
11. Location of garbage collection area and screening
12. Street typical for internal roadways
13. Location and size of drainage structures
14. Location of stormwater detention system, if applicable
15. Utility lines and easements
16. Signature of applicant
17. Drainage plan and drainage calculations that bear the name, address, signature and seal of a registered professional engineer, with floodplain zones clearly denoted, a typical of all swales, and a design of the drop inlets
18. If applicable, design of stormwater detention system and drainage calculations that bear the name, address,

and seal of a registered professional engineer and that meet the requirements of Article 24 of this ordinance and the design standards of the United States Natural Resource Conservation Service

19. Parking plan
20. Landscaping plan
21. Sign plan
22. Approved WV Division of Highways Access Permit, if applicable
23. Approved State of West Virginia NPDES General Permit for Storm Water Associated with Industrial (Construction) Activity, if applicable
24. Any other such information concerning the lot or neighboring lots as may be required by the Planning Director to determine conformance with, and provide for the enforcement of, this ordinance; where deemed necessary, the Planning Director may require that in the case of accessory structures or minor Additions, all dimensions shown on plans relating to the size of the lot and the location of the structure(s) be based on an actual survey by a registered land surveyor or professional engineer licensed by the State of West Virginia.
25. Where the Planning Director determines that any of the items listed above is unnecessary, he or she may waive its requirement.
26. No site plan shall be accepted unless it is complete and is verified as to the correctness of information given by the signature of the applicant attesting thereto.
27. The Planning Director may require that the lot and location of the building thereon shall be staked out on the ground before construction of a dwelling unit or primary structure is begun. The Planning Director, where deemed appropriate, may require the same for accessory structures or minor Additions. In any case, it shall be the owner's responsibility to ensure that a structure is placed on his property according to the approved site plan.
28. Site plans approved by the Planning Commission authorize only the use, arrangement, and construction set forth in such approved site plans and no other use, arrangement or construction. Furthermore, the approval of a site plan shall not be construed to be approval of any violation of the provisions of this ordinance. The issuance of a building permit based upon site plans given approval by the Planning Commission shall not prevent the Planning Director from thereafter requiring the correction of errors in said site plans or from preventing operations from being carried on when in violation with this ordinance.
29. One copy of the site plan submitted for a permit as required above for the Planning Commission shall be returned to the applicant after the Planning Commission has marked such copy as either approved or denied as to the provisions of this ordinance and attested to same by the signature of the Planning Director. The original, similarly marked, shall be retained by the Planning Department.

B. Major Developments of Significant Impact

Major Developments of Significant Impact (MDSI), as defined by the ordinance, are those that are of such scope and scale that they have an impact on the region in terms of the transportation network, the environment, the schools, etc. Such projects include regional shopping centers and large scale residential developments. All applications for a MDSI shall be accompanied by a site plan, submitted under the seal and signature of a professional engineer licensed to practice by the State of West Virginia, and shall observe the following format:

1. Sheet One (Title Sheet)
 - a. Full legal description with sufficient reference to section corners and boundary map of the subject project, including appropriate benchmark references
 - b. Name of the Project
 - c. Name and address of the owner, developer, and person who prepared the plans
 - d. Total acreage within the project and the number of residential dwelling units or the gross square footage of non-residential buildings
 - e. Existing zoning of the subject land and all adjacent lands
 - f. Boundary lines of adjacent tracts of land, showing owners of record
 - g. A key or vicinity map at a scale of one inch equals four hundred feet or less, showing the boundaries of the proposed project and covering the general area within which it is to be located
 - h. A statement of the proposed uses, stating the type and size of residential and non-residential buildings, and the type of business, commercial or industry, so as to reveal the effect of the project

on traffic, fire hazards, or congestion of population

- i. Proposed covenants, restrictions, by-laws, or articles of incorporation affecting property owners and/or homeowners associations; and
 - j. Statement of proposed starting and completion dates for the project, including any proposed phasing and sequencing.
2. Sheet Two (Existing Site Conditions)
 - a. Location, widths, and type of construction of all existing streets, street names, alleys, or other public ways and easements, street classifications, railroad and utility rights-of-way or easements, parks, wooded areas, cemeteries, watercourses, drainage ditches, designated wetlands, low areas subject to flooding, permanent buildings, bridges, and other data considered pertinent by the Commission or the Planning Director for the subject land, and within three hundred (300) feet of the proposed project;
 - b. Existing water mains, fire hydrants, storm sewers, sanitary sewers, culverts, bridges, and other utility structures or facilities within, adjacent to, or serving the subject land, including pipe sizes, grades, and locations;
 - c. Existing contours based in U.S.G.S. datum with intervals of not more than five (5) feet where the slope is greater than ten (10) percent and not more than two (2) feet where the slope is less than ten (10) percent. Elevations shall be based on sea level datum.
 - d. The water elevation at the date of the survey of lakes, streams, or designated wetlands within the project or affecting it, as well as the approximate high and low water elevation of such lakes, streams, or designated wetlands. The plan shall also show the contour line of the regulatory flood (100-year flood) elevation and the contour line for the floodway fringe boundary. All elevations shall be based on sea level datum.
3. Sheet Three (Proposed Site Conditions)
 - a. Location, widths, and type of construction of all existing and proposed streets, street names, alleys, or other public ways and easements, railroad and utility rights-of-way or easements, parks, wooded areas, cemeteries, watercourses, drainage ditches, designated wetlands, low areas subject to flooding, permanent buildings, bridges, and other data considered pertinent by the Commission or the Planning Director for the subject land, and within three hundred (300) feet of the proposed project.
 - b. Existing and proposed water mains, fire hydrants, storm sewers, sanitary sewers, culverts, bridges, and other utility structures or facilities within, adjacent to, or serving the subject land, including pipe sizes, grades, and locations.
 - c. Building setback lines, showing dimensions.
 - d. Full description and details, including engineering calculations, for provision of storm water drainage plans and facilities, including basin mapping. The standard for drainage detention is that the run-off rate of a 100-year post-development event cannot exceed the rate for a 10-year pre-development event.
 - e. Internal and perimeter sidewalk system/pedestrian circulation plan.
 - f. Proposed contours with intervals of not more than five (5) feet where the slope is greater than ten (10) percent and not more than two (2) feet where the slope is less than ten (10) percent. The plan shall also show the contour line for the floodway fringe boundary.
 - g. Show the location and detail plans for all trash dumpsters.
4. Sheet Four (Erosion Control Plan)
 - a. Location, widths, and type of construction of all existing and proposed streets, street names, alleys, or other public ways and easements, railroad and utility rights-of-way or easements, parks, wooded areas, cemeteries, watercourses, drainage ditches, designated wetlands, low areas subject to flooding, permanent buildings, bridges, and other data considered pertinent by the Commission or the Planning Director for the subject land, and within three hundred (300) feet of the proposed project.
 - b. Proposed contours with intervals of not more than five (5) feet where the slope is greater than ten (10) percent and not more than two (2) feet where the slope is less than ten (10) percent.

- c. Details of terrain and area drainage, including the identity and location of watercourses, intermittent and perennial streams, receiving waters, and springs, and the total acreage of land that will be disturbed.
 - d. The direction of drainage flow and the approximate grade of all existing or proposed streets.
 - e. Detailed plans and locations of all surface and subsurface drainage devices, walls, dams, sediment basins, storage reservoirs, and other protective devices to be constructed with, or as part of, the proposed project, together with a map showing the drainage area, the complete drainage network, including outfall lines and natural drainage ways which may be affected by the proposed development, and the estimated runoff of the area served by the drains.
 - f. A description of the methods to be employed in disposing of soil and other material that is removed from the grading site, including the location of the disposal site.
 - g. Measures for soil erosion and sediment control which must meet or exceed the methods and standards adopted by the West Virginia Department of Natural Resources and/or set forth in the West Virginia Handbook For Erosion Control in Developing Areas and which must comply with the design principles, performance standards, and requirements set forth.
 - h. A schedule of the sequence of installation of planned erosion and sediment control measures as related to the progress of the project, including the total area of soil surface that is to be disturbed during each stage, the anticipated starting and completion dates, and a schedule for the maintenance of such measures.
 - i. Copies of the letter of intent and response from the Kanawha County Soil and Water Conservation District office for compliance, when required.
 - j. Any other information reasonably required by the Commission or Planning Director to properly evaluate the plan.
5. Sheet Five (Landscape Plan)
- A landscape plan prepared to the standards specified in this zoning ordinance.
6. Sheet Six (Plat-like dedication sheet, if necessary)
- The following information shall be submitted if a plat-like dedication document for easements and rights-of-way is deemed necessary by the Planning Commission:
- a. Parcels of land proposed to be dedicated or reserved for public use, or reserved for common use of all property owners within the project, with the proposed conditions and maintenance requirements, if any, shall be designated as such and clearly labeled on the plans.
 - b. Radii, internal angles, points of curvature; tangent bearings and lengths of all arcs, chord, and chord bearings.
 - c. Accurate location of all survey monuments erected, corners and other points established in the field in their proper places.
7. All sheets shall contain the following information:
- a. The proposed name by which the project shall be legally and commonly known.
 - b. Date of survey, scale, and north point.
 - c. All lots or out lots intended for sale or lease shall be designated with boundary lines and numbered or labeled for identification purposes.
 - d. Private parks, common areas, or excluded parcels shall be designated as such and clearly labeled on the plans.
 - e. Such other information as may be deemed necessary for proper review of the site plan by the Planning Director, City Engineer, or Planning Commission.
 - f. All necessary reference points tying the subject property to the appropriate section corners.
 - g. Each sheet shall be sealed and signed by the professional engineer preparing the drawings.
 - h. All sheets shall be tied to state plane coordinates for horizontal and vertical controls.
 - i. Names and addresses of the parties within 200 feet of the property.
 - j. The applicant must provide stamped, self-addressed envelopes in sufficient quantities to provide

notification to the parties identified in the item above.

I hereby affirm that all of the statements and information contained in or filed with this application are true and correct to the best of my knowledge.



Signature

3/9/23

Date

Planning Department Use Only

Comments:

Information pertaining to the property proposed for rezoning:

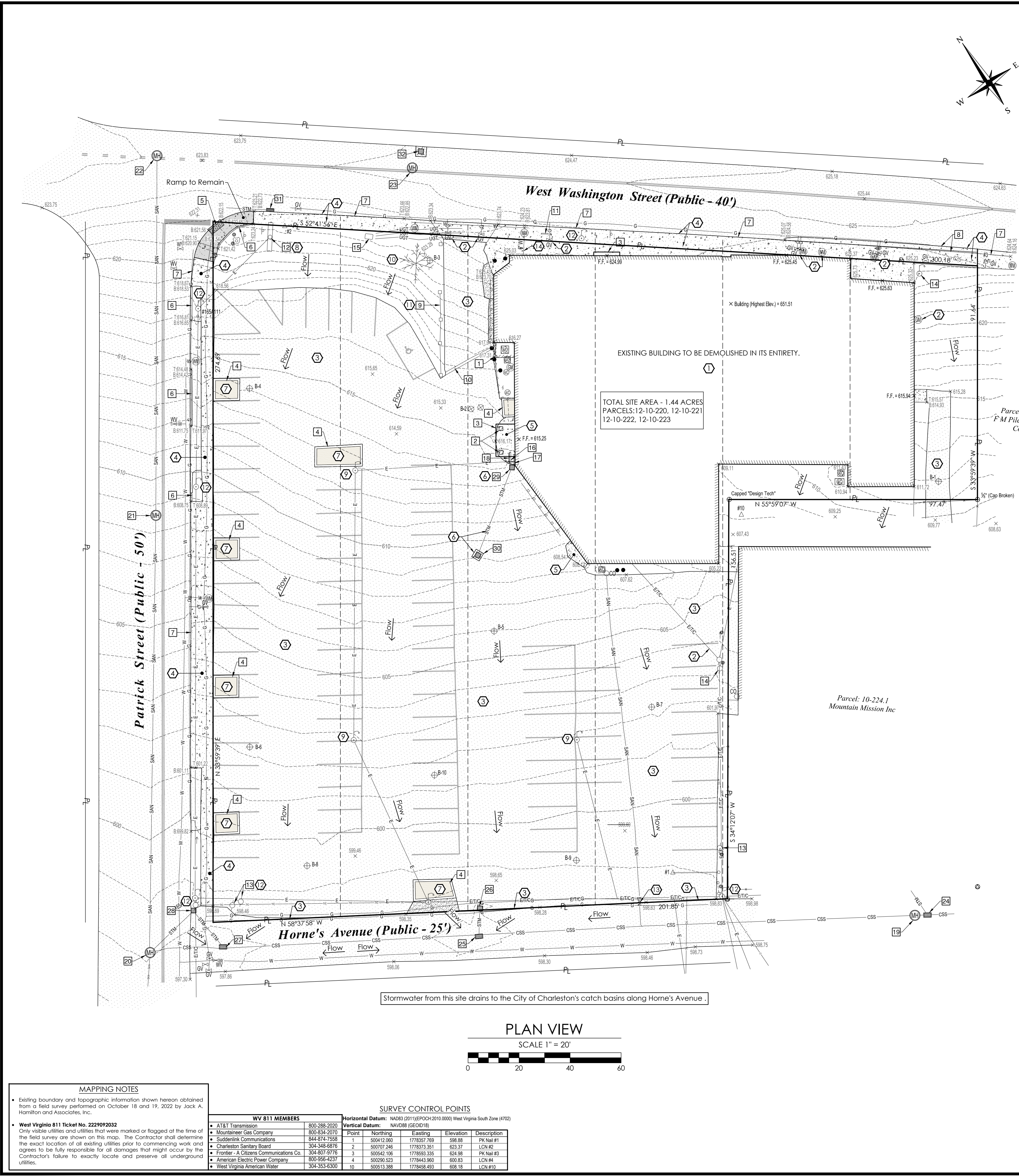
Application reviewed by:

MPC Action: ☐ Recommended

☐ Not recommended

Planning Official Signature and Title

Date



EXISTING CONDITIONS NOTES

1 Existing building foundation column.
2 Existing covered entrance columns.
3 Existing building canopy/awning limits.
4 Existing raised planter with railroad tie border.
5 Existing handicap accessible ramp with truncated dome detectable warning surface.
6 Existing concrete curb.
7 Existing integral concrete curb and sidewalk.
8 Existing concrete curb and concrete gutter.
9 Existing wood post and chain barrier.
10 Existing asphalt speed bump.
11 Existing steel tube bike rack.
12 Existing billboard sign with overhead electric service.
13 Existing bracing pole.
14 Existing abandoned light/utility pole.
15 Existing underground telephone/communications vault.
16 Existing 6"Ø PVC outlet pipe (F/L = 613.63).
17 Existing 4"Ø PVC outlet pipe (F/L = 613.80).
18 Existing 2"Ø PVC outlet pipe (F/L = 613.88).
19 Existing Combined Sewer Manhole: T/C Elev. = 599.12
Inlet Inv. (SE): 6"Ø VCP = 596.72 (Storm)
Inlet Inv. (SE): 12"Ø VCP = 593.42
Outlet Inv. (NW): 12"Ø VCP = 593.42
20 Existing Combined Sewer Manhole: T/C Elev. = 598.25
Inlet Inv. (SE): 12"Ø VCP = 591.63
Inlet Inv. (NE): 36"Ø VCP = 590.65
Outlet Inv. (SW): 36"Ø VCP = 590.67
21 Existing Sanitary Sewer Manhole: T/C Elev. = 608.62
Unable to access structure.
22 Existing Sanitary Sewer Manhole: T/C Elev. = 623.95
Unable to access structure (bolted).
23 Existing Sanitary Sewer Manhole: T/C Elev. = 624.25
Unable to access structure (paved over).
24 Existing Catch Basin: T/G Elev. = 599.13
Inlet Inv. (N): 10"Ø CMP = 597.36
Outlet Inv.: Unable to determine (sediment)
Structure Inv. Elev. = 597.03 (top of sediment)
25 Existing Catch Basin: T/G Elev. = 597.54
Inlet Inv. (NE): 12"Ø CMP = 595.59
Outlet Inv. (NW): 8"Ø VCP = 595.54
26 Existing Catch Basin: T/G Elev. = 597.96
Outlet Inv. (SW): 12"Ø CMP = 596.41
27 Existing Catch Basin: T/G Elev. = 597.51
Outlet Inv. (NW): 8"Ø PVC = 595.89
28 Existing Catch Basin: T/G Elev. = 598.57
Inlet Inv.: Unable to determine (sediment)
Outlet Inv.: Unable to determine (sediment)
Structure Inv. Elev. = 594.77 (top of sediment)
29 Existing Catch Basin: T/G Elev. = 613.36
Outlet Inv. (SW): 6"Ø PVC = 612.50
Structure Inv. Elev. = 612.36
30 Existing Catch Basin: T/G Elev. = 609.14
Inlet Inv. (NE): 6"Ø PVC = 608.53
Structure Inv. Elev. = 608.57
No outlet pipe.
31 Existing Catch Basin: T/G Elev. = 622.56
Outlet Inv. (NW): 10"Ø = 620.66
Structure Inv. Elev. = 620.36
32 Existing Catch Basin: T/G Elev. = 624.08

PROPERTY DESCRIPTION

EXHIBIT A
All of those certain tracts or parcels of land, together with the improvements thereon and the appurtenances thereto belonging, situate in the City of Charleston, Charleston West Tax District, Kanawha County, West Virginia, in the Knight and Couch Addition to West Charleston, as shown upon a map entitled, "MAP OF WEST CHARLESTON OWNED BY THE WEST CHARLESTON COMPANY CHARLESTON KANAWHA CO. W. VA.", made by Vernable & Vance Engineers, dated July 1894 and filed for record on February 7, 1895, in the Office of the Clerk of the County Commission of Kanawha County, West Virginia, in Map Book 1, of page 5, and describes as follows:

PARCEL NO. 1:
All of Lot No. 7 of Block 43 of the Knight and Couch Addition, more particularly bounded and described as follows:
BEGINNING of an iron pin located at a point 6.3 feet from the curb line of the southerly side of Washington Street, common corner to Lots Nos. 6 and 7, Block 43 of said Knight and Couch Addition; thence S. 35° 48' W., a distance of 247.48 feet to an iron pin in the northerly line of a 20 foot alley; common corner to said Lots Nos. 6 and 7; thence with said northerly line of said alley, N. 57° 00' W., a distance of 50 feet to an iron pin, common corner to Lots Nos. 7 and 8 of said Block 43; thence N. 35° 48' E., a distance of 253.00 feet to a notch in the sidewalk, being 6.3 feet from the southerly curb line of said Washington Street, common corner of said Lots Nos. 7 and 8; thence with said southerly line of Washington Street, S. 50° 40' E., a distance of 50.04 feet to the place of beginning, as shown upon a map prepared by John H. Burnett, C.E., dated January 19, 1949, attached to a deed recorded in the aforesaid Clerk's Office in Deed Book 680, at page 325. Being the same parcel conveyed unto the party of the first part from Kyriacos Vassiliou and Flora Vassiliou, his wife, by deed dated February 26, 1992, and record in said Clerk's Office in deed Book 2287, at page 742, and being denominated as PARCEL NO. 1 therein.

PARCEL NO. 2:
All of Lot No. 8 of Block 43 of the Knight and Couch Addition, more particularly bounded and described as follows:
BEGINNING of a point in the north line of a twenty foot alley, said point being the common corner to Lots Nos. 8 and 9, Block 43, Knight and Couch Addition to West Charleston; thence S. 40° 48' E. 50 feet with the north line of the said twenty foot alley to a point being the common corner between Lots Nos. 7 and 8; thence N. 38° 02' E., 250 feet with the line between Lots Nos. 7 and 8 to a point in the south line of Charleston Street (now Washington Street West); thence N. 57° 34' W. 30 feet with the south line of Charleston Street to a point; thence S. 32° 02' W. 253 feet with the line between Lots Nos. 8 and 9 to the place of beginning. Being the same parcel conveyed unto the party of the first part from Kyriacos Vassiliou and Flora Vassiliou, his wife, by deed dated February 26, 1992, and of record in said Clerk's Office in Deed Book 2287, at page 742, and being denominated as PARCEL NO. 2 therein.

PARCEL NO. 3:
All of Lot No. 9 of Block 43 of the Knight and Couch Addition, and being the same property conveyed unto the party of the first part from Ogin Realty, a corporation, aka Ogin Realty, Inc., a corporation, by deed dated December 30, 1986, and of record in said Clerk's Office in Deed Book 2147, at page 304, and by Corrective Deed dated November 9, 1987, and of record in said Clerk's Office in Deed Book 2150, at page 495, and being denominated therein as PARCEL NO. ONE (1) and PARCEL NO. FOUR (4). The conveyance of the latter two parcels resulted from a reconveyance of Lot No. 9, PARCEL NO. FOUR (4) having fronted on the northerly terminus of the lot at West Washington Street and PARCEL NO. ONE (1) having fronted on the southerly terminus of the lot at Horn's Alley.

PARCEL NO. 4:
All of Lot No. 10 of Block 43 of the Knight and Couch Addition, and being the same property conveyed unto the party of the first part from Ogin Realty, a corporation, aka Ogin Realty, Inc., a corporation, by deed dated December 30, 1986, and of record in said Clerk's Office in Deed Book 2147, at page 304, and by Corrective Deed dated November 9, 1987, and of record in said Clerk's Office in Deed Book 2150, at page 495, and being denominated therein as PARCEL NO. THREE (3).

PARCEL NO. 5:
All of Lot No. 11 of Block 43 of the Knight and Couch Addition and being the same property conveyed unto the party of the first part from Tina Edith Rose, widow, et al., by deed dated October 21, 1987, and of record in the said Clerk's Office in Deed Book 2191, at page 146. Lot No. 11 is not denominated as such in this letter deed; however, the bounded description together with the exception thereto is coextensive with Lot 11.

PARCEL NO. 6:
All of Lot No. 12 of Block 43 of the Knight and Couch Addition, and being the same property conveyed unto the party of the first part from John T. Cooperhaver, Jr., et al., by deed dated March 11, 1988, and of record in the said Clerk's Office in Deed Book 2201, at page 572. Being part of the same property conveyed unto Ogin Realty, LLC, a West Virginia limited liability company, by Ogin Realty, a general partnership, by confirmatory deed dated December 30, 1986, and recorded in the Office of the Clerk of the County Commission of Kanawha County, West Virginia, in Deed Book 2459, at page 21. The property includes a certain piece or parcel of property bounded on the North by Washington Street West, on the West by Patrick Street, on the South by Horn's Alley, and on the East by Lot No. 6 of Block 43 of the Knight and Couch Addition, regardless of any dimensions set out in the deed.

There is excepted from Parcel No. 1 and Parcel No. 2 above that certain lot-conveyance from Ogin Realty, LLC, a West Virginia limited liability company, to Mountain Mission, Inc., a West Virginia corporation, dated August 27, 2013, and recorded in the Office of the Clerk of the County Commission of Kanawha County, West Virginia, in Deed Book 2857, at page 419.

CHADAN ENGINEERING, INC.

171 West Main Street
P.O. Box 495
St. Clairsville, Ohio 43950
Office: 304.845.8480
chadanengineering.com

REGISTERED PROFESSIONAL ENGINEER
014858
STATE OF WEST VIRGINIA

FOR PERMIT APPROVAL

CLIENT:
Washington Greene, L.P.
Attn: Anne Little
500 S. Front Street, 10th Floor
Columbus, OH 43215
614.396.3200

WASHINGTON GREENE
Site Development Plans
1661 Washington Street, City of Charleston,
Kanawha County, West Virginia

LEGEND

Property Line
Existing Survey Control Point
Existing Grade Contour (Index)
Existing Grade Contour (Intermediate)
Existing Grade Spot Elevation
Existing Grade Spot Elevation (Top/Bottom Curb)
Existing Soil Boring Location
Existing Overhead Electric/Tele/CatV
Existing Overhead Telephone/Cable
Existing Overhead Electric
Existing Overhead Telephone
Existing Overhead Cable
Existing Utility Pole
Existing Light Pole/Utility Pole with Light
Existing Water Meter
Existing Water Valve
Existing Hydrant
Existing Waterline
Existing Sanitary Manhole
Existing Sanitary Sewer
Existing Storm Inlet/Catch Basin
Existing Storm Sewer
Existing Gas Valve
Existing Gas Line
Existing Chain Link Fence
Existing Wooden Fence
Existing Guardrail
Existing Bollard
Proposed Chain Link Fence
Proposed Grade Contour (Index)
Proposed Grade Contour (Intermediate)
Proposed Spot Elevation
Proposed Storm Structure
Existing Asphalt Surface
Existing Concrete Surface
Existing Brick Surface
Existing Aggregate Surface
Proposed Standard Asphalt Surface
Proposed Heavy Duty Asphalt Surface
Proposed Concrete Surface

DEMOLITION NOTES

1 Existing building to be demolished in its entirety including foundations and footings. Contractor shall acquire all permits, licenses, and provide any applicable bonding, as required by the City and State. The building shall be tested for hazardous materials. If encountered, all hazardous materials shall be removed by a licensed remediation contractor prior to any demolition activities. All demolished building materials to be disposed in a State approved construction and demolition debris disposal facility. Contractor must follow the shoring plan provided by the Structural Engineer or Shoring Contractor.

2 Utility connections to be terminated per all City and Utility Provider requirements.

3 Remove existing asphalt pavement. Saw-cut along the property line at Horne's Avenue and along adjacent property lines.

4 Sidewalk with integral curbs to be removed. Include all associated hand rails and miscellaneous items. Repair asphalt as needed. Provide all necessary barricades, signage and traffic controls per West Virginia Dept. of Highways requirements.

5 Remove existing concrete sidewalk/slab.

6 Remove existing storm sewer structure and associated piping.

7 Remove existing planter boxes, trees, and all associated items.

8 Remove existing billboard sign assembly.

9 Remove existing light poles and associated wiring.

10 Remove existing tree.

11 Remove existing fence, guardrail, railing, etc.

12 Existing light/utility pole to remain.

13 Existing 4" sanitary sewer service line to be cut and capped at property line per Charleston Sanitary Board (CSB) requirements, prior to razing of the existing building. Remaining line to be abandoned in-place.

14 Existing 6" waterline to be capped per City and utility requirements.

SHEET NOTES

1. All existing improvements are to be demolished, removed from the site, and disposed per all applicable Federal, State and local requirements.

MAPPING NOTES

Existing boundary and topographic information shown hereon obtained from a field survey performed on October 18 and 19, 2022 by Jack A. Hamilton and Associates, Inc.

West Virginia 811 Ticket No. 222992032
Only visible utilities and utilities that were marked or flagged at the time of the field survey are shown on this map. The Contractor shall determine the exact location of all existing utilities prior to commencing work and agrees to be fully responsible for all damages that might occur by the Contractor's failure to exactly locate and preserve all underground utilities.

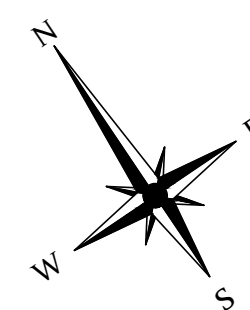
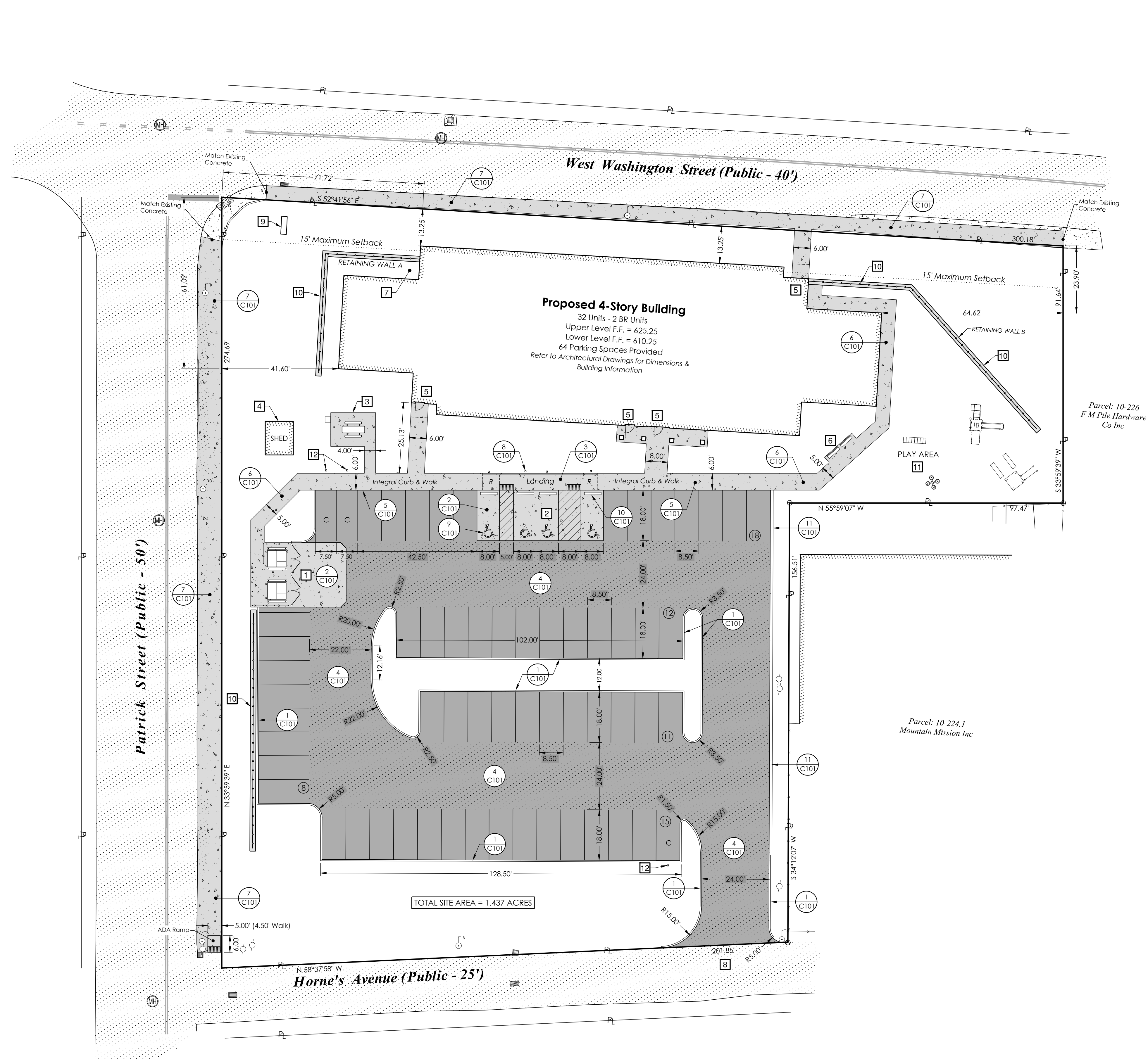
WV 811 MEMBERS

AT&T Transmission	800-288-2020
Mountain Gas Company	800-834-2070
Suddenlink Communications	844-874-7558
Charleston Sanitary Board	304-348-6876
Frontier - A Citizens Communications Co.	304-807-6176
American Electric Power Company	800-956-4237
West Virginia American Water	304-353-6300

SURVEY CONTROL POINTS

Point	Northing	Easting	Elevation	Description
1	50812.060	177837.769	598.88	PK Nail #1
2	50070.246	177837.351	623.37	LCN #2
3	50594.106	177859.335	624.86	PK Nail #3
4	50090.523	177843.960	600.83	LCN #4
10	50813.388	177848.493	608.18	LCN #10

Horizontal Datum: NAD83 (2011) (EPSG:2010.0000) West Virginia South Zone (4702)
Vertical Datum: NAVD83 (GEOID10)



LEGEND

	Property Line
	Existing Survey Control Point
	Existing Grade Contour (Index)
	Existing Grade Contour (Intermediate)
	Existing Grade Spot Elevation
	Existing Grade Spot Elevation (Top/Bottom Curb)
	Existing Soil Boring Location
	Existing Overhead Electric/Tele/CatV
	Existing Overhead Telephone/Cable
	Existing Overhead Electric
	Existing Overhead Telephone
	Existing Overhead Cable
	Existing Utility Pole
	Existing Light Pole/Utility Pole with Light
	Existing Water Meter
	Existing Water Valve
	Existing Hydrant
	Existing Waterline
	Existing Sanitary Manhole
	Existing Sanitary Sewer
	Existing Storm Inlet/Catch Basin
	Existing Storm Sewer
	Existing Gas Valve
	Existing Gas Line
	Existing Chain Link Fence
	Existing Wooden Fence
	Existing Guardrail
	Existing Bollard
	Proposed Chain Link Fence
	Proposed Grade Contour (Index)
	Proposed Grade Contour (Intermediate)
	Proposed Spot Elevation
	Proposed Storm Structure
	Existing Asphalt Surface
	Existing Concrete Surface
	Existing Brick Surface
	Existing Aggregate Surface
	Proposed Standard Asphalt Surface
	Proposed Heavy Duty Asphalt Surface
	Proposed Concrete Surface

CODED NOTES

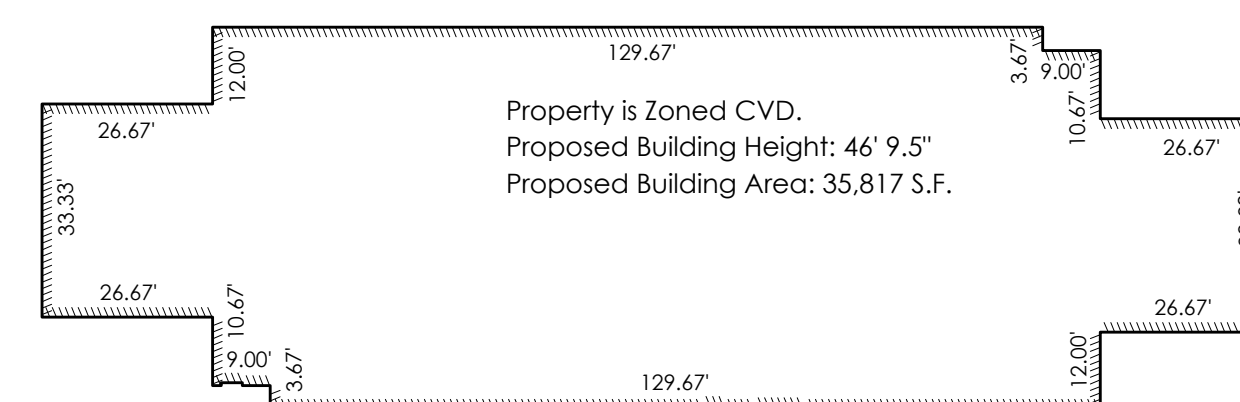
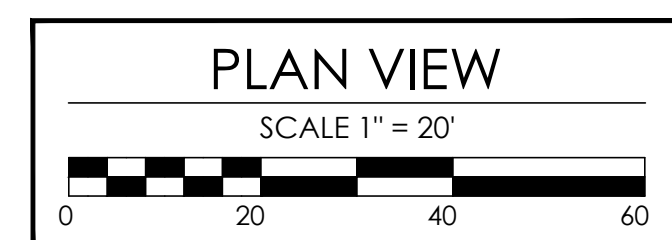
- 1 Dumpster enclosure and pad. Refer to Architectural plans.
- 2 Handicap parking not to exceed 2% in any direction.
- 3 Picnic area & furnishings. Refer to Architectural plans.
- 4 10' X 12' concrete slab for shed. Refer to Architectural plans.
- 5 Refer to Architectural plans for entrance stoop details.
- 6 Refer to Architectural plans for bench specifications.
- 7 Refer to Architectural plans for HVAC pad details.
- 8 Contractor to repair existing asphalt as needed at new site entrance.
- 9 Development sign. Refer to Architectural plans.
- 10 Refer to Structural plans for retaining wall information.
- 11 Refer to Architectural plans for playground equipment information.
- 12 Provide "COMPACT VEHICLE PARKING ONLY" sign.

DETAILS

1. Concrete Curb
2. Concrete Paving
3. Parallel Handicap Ramp
4. Asphalt Pavement
5. Integral Walk & Curb
6. Sidewalk
7. City Curb & Sidewalk Replacement
8. Handicap Parking Sign
9. Handicap Logo
10. Wheel Stop
11. Heavy Duty Curb

SHEET NOTES

1. All sidewalks to be a minimum of 5 feet wide.
2. Building footprint provided by the Architect.
3. Parking stripes per Architectural Specifications Book. If not indicated, handicap parking to be blue, others white.
4. Landscaping plans by others.
5. Site lighting plan by others.



BUILDING FOOTPRINT
SCALE: 1"=30'

NOTE: Building footprint was provided by the Architect. All dimensions are to be verified against the architectural set.

CLIENT:
Washington Greene, L.P.
Attn: Anne Little
500 S. Front Street, 10th Floor
Columbus, OH 43215
614.396.3200

WASHINGTON GREENE
Site Development Plans

1661 Washington Street, City of Charleston,
Kanawha County, West Virginia

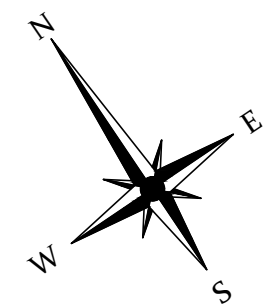
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NOTES:

Site Plan

C100





WASHINGTON GREENE
Site Development Plans
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Kanawha County, West Virginia

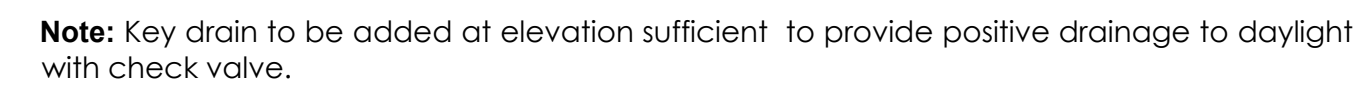
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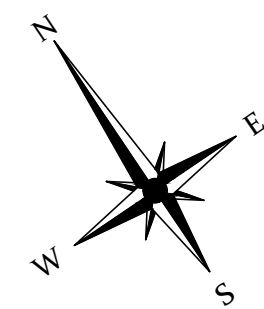
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NOTES:

Grading & Drainage Details

C201





	Property Line
	Existing Survey Control Point
	Existing Grade Contour (Index)
	Existing Grade Contour (Intermediate)
	Existing Grade Spot Elevation
	Existing Grade Spot Elevation (Top/Bottom Curve)
	Existing Soil Boring Location
	Existing Overhead Electric/Tele/CatV
	Existing Overhead Telephone/Cable
	Existing Overhead Electric
	Existing Overhead Telephone
	Existing Overhead Cable
	Existing Utility Pole
	Existing Light Pole/Utility Pole with Light
	Existing Water Meter
	Existing Water Valve
	Existing Hydrant
	Existing Waterline
	Existing Sanitary Manhole
	Existing Sanitary Sewer
	Existing Storm Inlet/Catch Basin
	Existing Storm Sewer
	Existing Gas Valve
	Existing Gas Line
	Existing Chain Link Fence
	Existing Wooden Fence
	Existing Guardrail
	Existing Bollard
	Proposed Chain Link Fence
	Proposed Grade Contour (Index)
	Proposed Grade Contour (Intermediate)
	Proposed Spot Elevation
	Proposed Storm Structure
	Existing Asphalt Surface
	Existing Concrete Surface
	Existing Brick Surface
	Existing Aggregate Surface
	Proposed Standard Asphalt Surface
	Proposed Heavy Duty Asphalt Surface
	Proposed Concrete Surface

Legend	Symbol	Description
IP	Inlet Protection	
SSF	Super Silt Fence	_____ SSF _____
CE	Construction Entrance	
CW	Concrete Wash	
NS	Notice Sign	
ECB	Erosion Control Blanket	
CFS	18" Compost Filter Sock	_____ CFS _____
TS	Tracking of Slope	
RG	Rain Gauge	
LOD	Limit of Disturbance - 1.55 Acres	

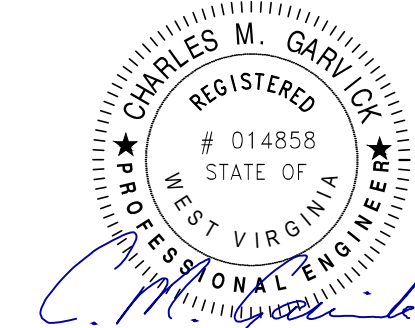
Notes: No solid or toxic wastes are anticipated to be found at this location. In the event that hazardous materials are encountered, they will be collected and disposed of at a State approved disposal facility. All work will be in accordance with standard State procedures.

The following is a procedure for the implementation of the erosion and sediment controls. Each step in this sequence shall be completed before commencing the next step. Each BMP shall be installed according to the details shown on the plans. Provide demolition of only the necessary areas to complete the installation of each BMP.

1. Construct stabilized construction access for the site.
2. Install perimeter controls.
3. Demolish existing building, pavement and site improvements, except for the sidewalk along Patrick Street.
4. Install concrete wash out.
5. Grade site to subgrade elevations. Lawn areas that are brought to final grade shall be stabilized, seeded and mulched within 14 days. New drive and parking areas to be stoned within 4 days of reaching subgrade.
6. Install site utilities and building footings.
7. Install curbs and sidewalks.
8. Final grading of site and topsoil redistribution.
9. Landscape and stabilize site.
10. Install aggregate base for parking and drive areas.
11. Pave site and remove temporary access sidewalk along Patrick Street.
12. Remove BMPs only after 70% of the site has been stabilized with a minimum of 70% vegetated cover.

Enhanced BMPs to be incorporated for this site:

1. Super silt fence to be installed along the perimeter.
2. New drive and parking areas will be stoned within 4 days of reaching subgrade.
3. Inspections are to be completed every 4 days and after rainfall events of 0.25 inches or greater.
4. Contractor to avoid tracking sediment over underground detention system.



FOR PERMIT APPROVAL

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Washington Greene, L.P.
Attn: Anne Little
500 S. Front Street, 10th Floor
Columbus, OH 43215
614.396.3200

WASHINGTON GREENE
Site Development Plans

1661 Washington Street, City of Charleston,
Kanawha County, West Virginia

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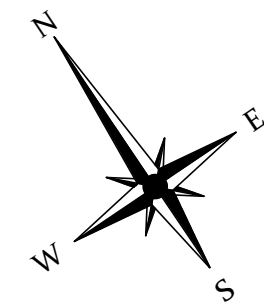
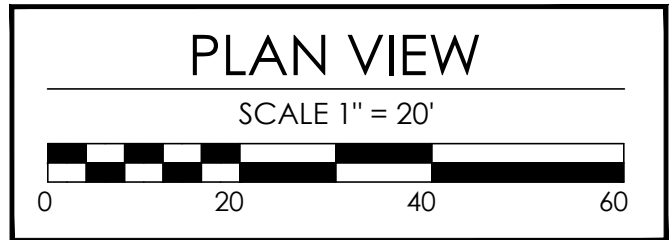
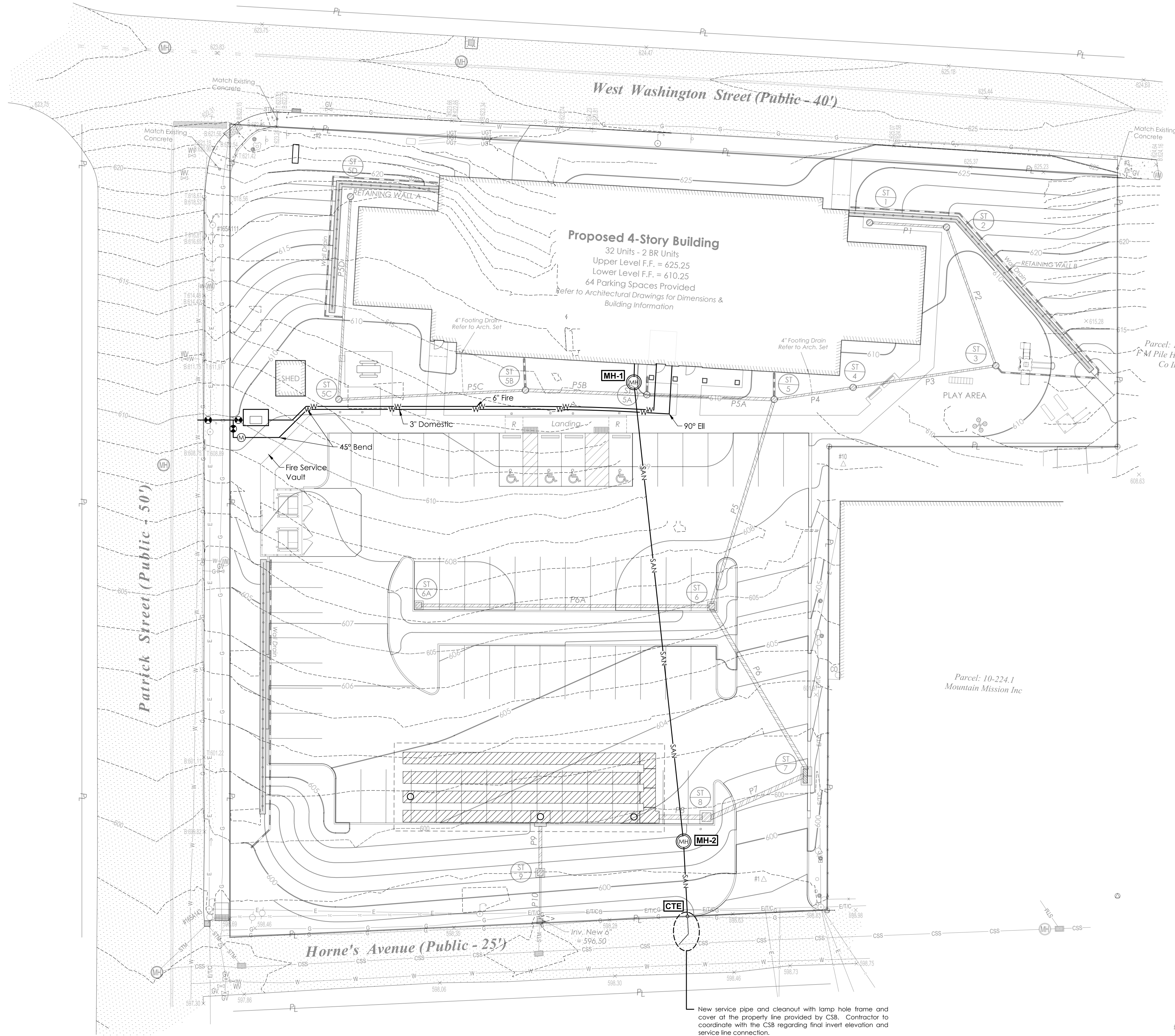
NOTES:

Storm Water Pollution Prevention Plan

C300

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LEGEND

PL	Property Line
△ #4	Existing Survey Control Point
---	Existing Grade Contour (Index)
---	Existing Grade Contour (Intermediate)
665.75 X	Existing Grade Spot Elevation
1671.00 8479.50 X	Existing Grade Spot Elevation (Top/Bottom Curb)
⊕ B1	Existing Soil Boring Location
ETIC	Existing Overhead Electric/Tele/CatV
TIC	Existing Overhead Telephone/Cable
E	Existing Overhead Electric
T	Existing Overhead Telephone
C	Existing Overhead Cable
○	Existing Utility Pole
○	Existing Light Pole/Utility Pole with Light
⊕	Existing Water Meter
WV	Existing Water Valve
⊕	Existing Hydrant
W	Existing Waterline
MH	Existing Sanitary Manhole
SAN	Existing Sanitary Sewer
■	Existing Storm Inlet/Catch Basin
STM	Existing Storm Sewer
⊕	Existing Gas Valve
G	Existing Gas Line
—	Existing Chain Link Fence
—	Existing Wooden Fence
—	Existing Guardrail
—	Existing Bollard
—	Proposed Chain Link Fence
600	Proposed Grade Contour (Index)
659.90 X	Proposed Grade Contour (Intermediate)
⊕	Proposed Spot Elevation
⊕	Proposed Storm Structure
■	Existing Asphalt Surface
■	Existing Concrete Surface
■	Existing Brick Surface
■	Existing Aggregate Surface
■	Proposed Standard Asphalt Surface
■	Proposed Heavy Duty Asphalt Surface

PROPOSED UTILITY LEGEND

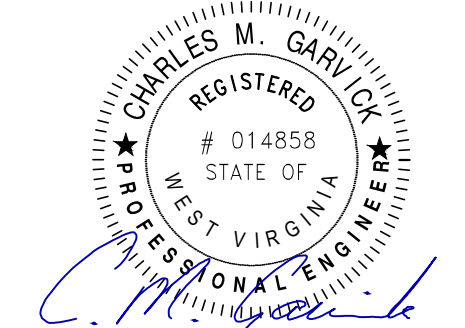
SAN	Proposed Sanitary Sewer (8" SDR 35 PVC)
MH-1	Proposed Sanitary Manhole
CTE	Connect to Existing Cleanout
W	Proposed Waterline*
⊕	Proposed Gate Valve
⊕	Proposed 2' Meter Assembly, Per City Requirement

*Note: 6" waterline to be C900 DR14 PVC and 3" waterline to be SDR 21 PVC, or approved equal.

Roof drains, foundation drains, and other clean water connections to the sanitary sewer system are prohibited.

DETAILS

- 1-40' Standard Manhole
- 2-24' Inside Cleanout
- 2-24' Trench Detail
- 2-40' Sanitary Service Profile
- 2-40' Fire Service Vault
- 2-40' 6" Gate Valve
- 2-40' Waterline Trench
- 2-40' Thrust Blocking



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Kanawha County, West Virginia

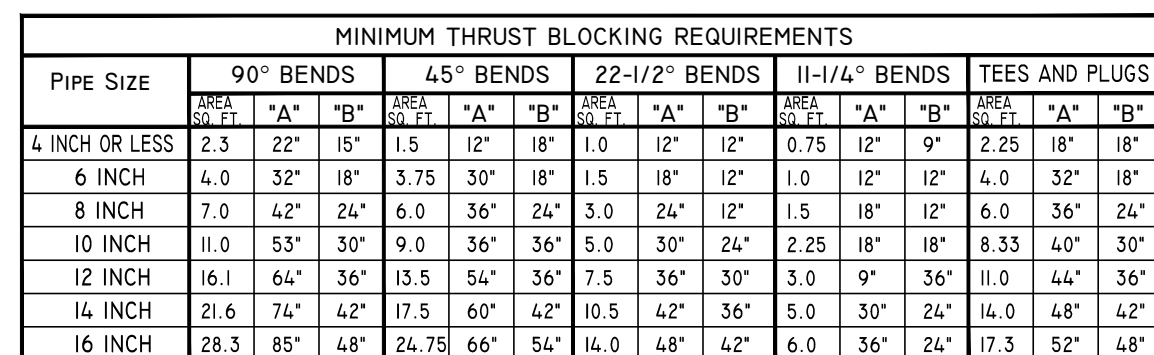
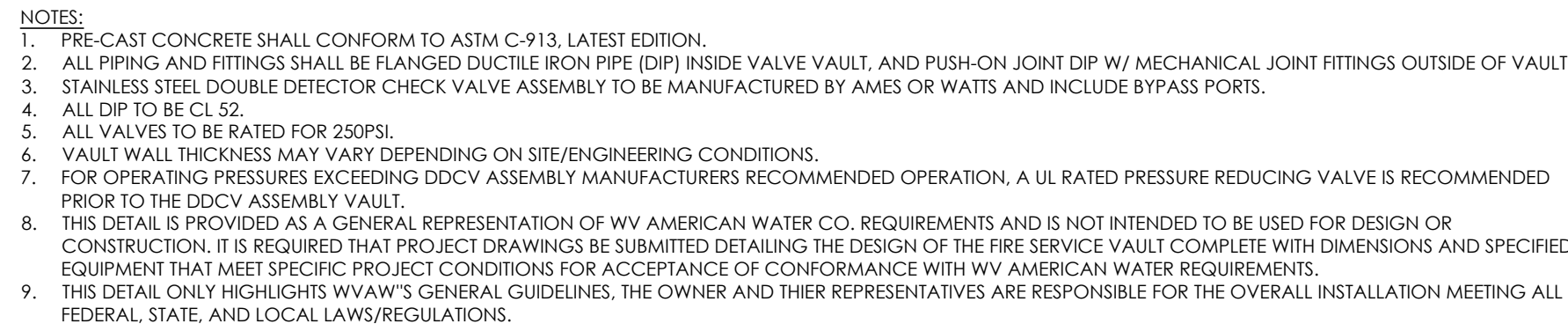
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REVISIONS	
ISSUE	

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NOTES:

Site Utility
Plan

C400



NOTE'S:

1.) SOLID BLOCKS MAY BE USED UNDER FITTINGS AND ALONG SIDES OF THRUST BLOCKING TO HOLD CONCRETE IN PLACE. ALL CONCRETE MUST BE MIXED 4000# MINIMUM

2.) ALL FITTINGS TO BE WRAPPED WITH 8-MIL PLASTIC, LEAVING NO CONCRETE ON BOLTS



1. All 6" waterlines shall be C900 [DR-14] PVC and 3" lines shall be SDR 21 PVC, or equal.
2. All pipe that is installed shall be bedded with a minimum of 6" above and below the pipe with sand.
3. Waterline shall be installed with 4-foot minimum cover unless otherwise approved.
4. A minimum vertical clearance of 18 inches shall be provided between the proposed water main and other utilities or structures, unless otherwise noted.
5. A minimum horizontal clearance of 4 feet shall be provided between the proposed water line and other utilities or structures unless otherwise approved.
6. The waterline shall be placed with a minimum of 10-foot horizontal separation from any sanitary sewers or when the water line crosses a sanitary sewer, the water line shall be a minimum of 18 inches above the sewer.
7. All fittings shall be mechanical joint (MJ), fusion epoxy coated, ductile iron, restrained by the use of restrainers (Megalug or equal) and thrust blocked with concrete as required.
8. A 16-foot minimum length of waterline shall be provided on each side of any mainline fitting, or the joint shall be restrained with bell restraint fittings.
9. All service connections made to existing lines will be made per City requirements. The connection shall be made wet using a tapping tee and valve. If a line to be connected is the same as the existing line, 2" connected to 2" or 6" connected to 6", the connection will be made dry. Exceptions may be made due to unforeseen field circumstances.
10. Magnetic detectable tracer pipe shall be installed at 18 inches deep with all PVC pipe.
11. Trace wire to be installed on all water & sewer lines.

171 West Main Street
P.O. Box 695
Clairsville, Ohio 43950
Office: 304.845.8480
adanengineering.com



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Columbus, OH 43215

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WASHINGTON GREENE
Site Development Plans

1661 Washington Street, City of Charleston,
Kanawha County, West Virginia

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NOTES:

Waterline Details

C402

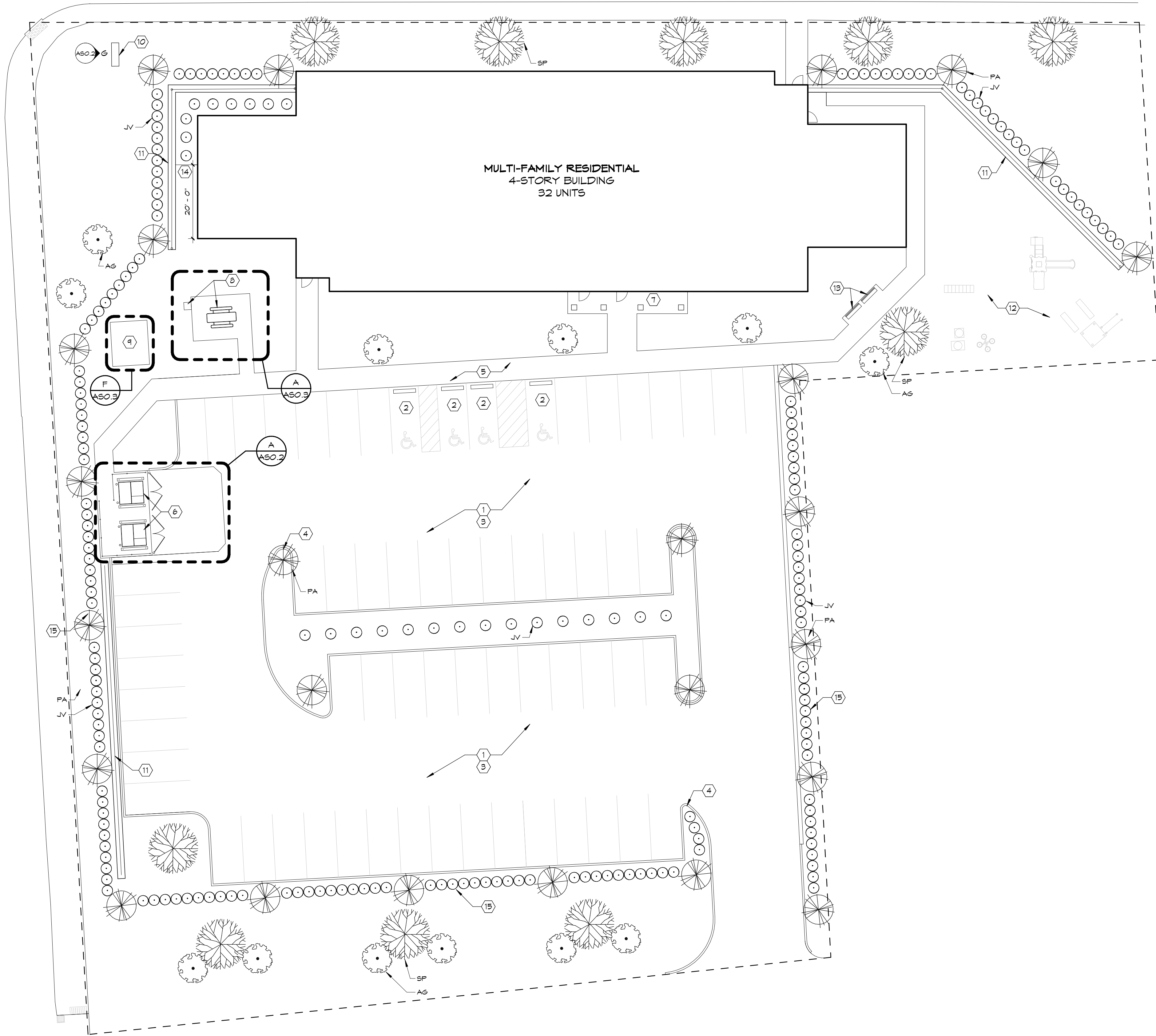
PATRICK STREET

WASHINGTON STREET

MULTI-FAMILY RESIDENTIAL
4-STORY BUILDING
32 UNITS

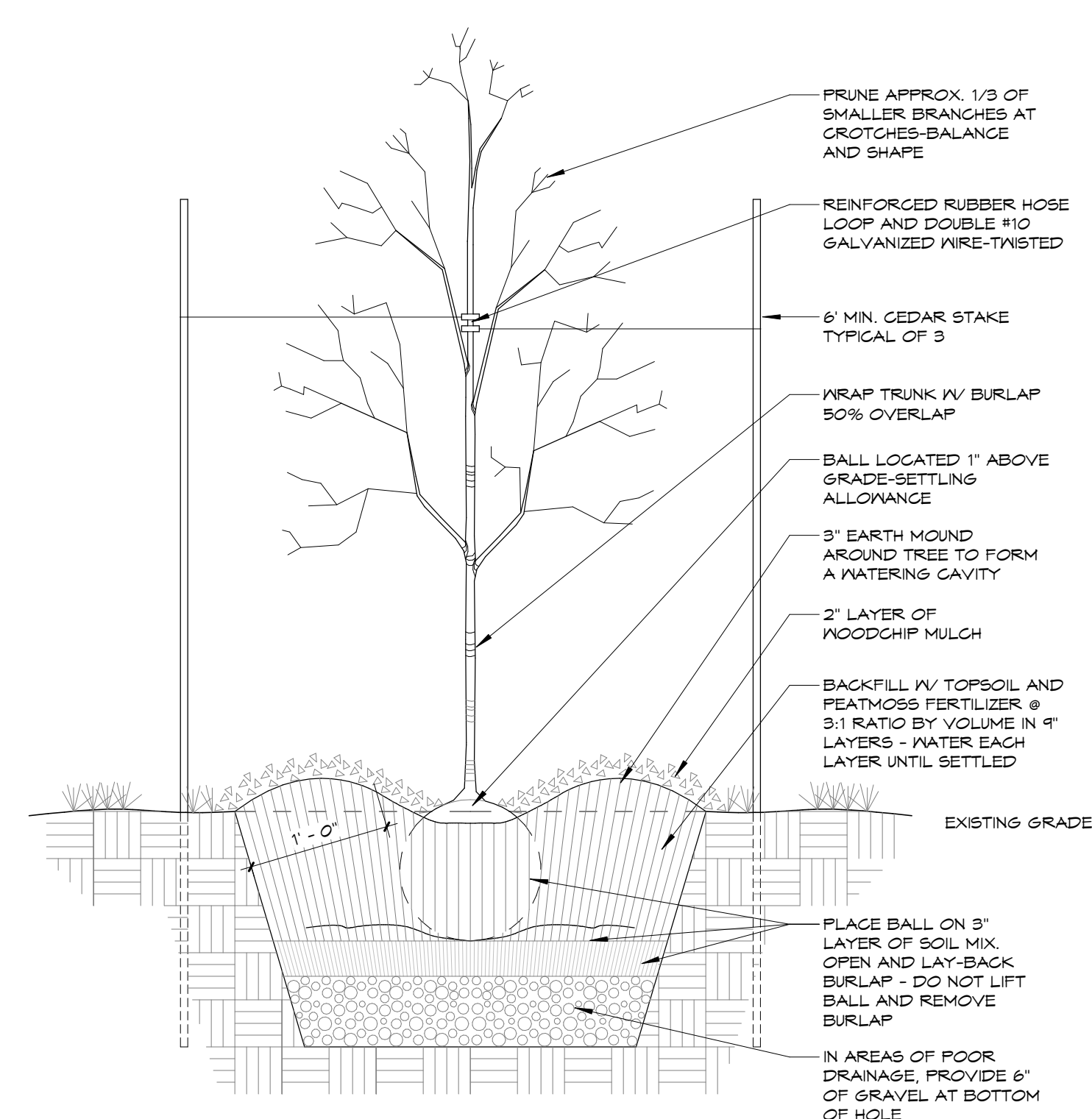
A LANDSCAPING PLAN

1/16" = 1'-0"



B TREE PLANTING DETAIL

1" = 1'-0"



GENERAL NOTES

- DO NOT SCALE DRAWINGS.
- ALL WORK SHALL CONFORM WITH GOVERNING CODES.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS IN FIELD, NOTIFY ARCHITECT IF ANY DISCREPANCIES OCCUR.
- ALL MATERIALS AND PRODUCTS SHALL BE INSTALLED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

CODED NOTES

- FOR SITE LIGHTING, SEE ELECTRICAL SITE PLAN.
- ACCESSIBLE PARKING SPACES, SEE CIVIL. PARKING SPACES AND LOADING AREA TO BE REINFORCED CONCRETE ACCESSIBLE RAMP. REFER TO CIVIL DRAWINGS.
- NEW PAVED PARKING LOT.
- CONCRETE CURBS, SEE CIVIL.
- NEW SIDEWALKS TO CREATE ACCESSIBLE ROUTE TO NOT EXCEED 5% SLOPE AND 2% CROSS SLOPE. REFER TO CIVIL DRAWINGS FOR EXTENT AND LOCATION.
- TRASH DUMPSTER.
- CONCRETE ENTRY SLAB, SEE STRUCTURAL.
- ACCESSIBLE GRILLE AND PIANO TABLES.
- MAINTENANCE SHED ON CONCRETE SLAB, REFER TO DETAIL E/ASO.3 FOR SLAB CONSTRUCTION. PROVIDE SLOPED CONCRETE RAMP FROM EDGE OF TO NEW SIDEWALK AS NECESSARY.
- PROJECT ILLUMINATED MONUMENT SIGNAGE PER ZONING REQUIREMENTS.
- GUARDRAIL ON RETAINING WALL, SEE STRUCTURAL.
- PLAYGROUND EQUIPMENT.
- BENCH, SEE ASO.3.
- FENCE, SEE E/ASO.2.
- 4' LANDSCAPE BUFFER.

LANDSCAPE GENERAL NOTES

- ALL PLANTS TO BE INSTALLED WITH IDENTIFICATION TAGS. TAGS TO BE REMOVED AFTER INSPECTION BY FIELD ARCHITECT.
- PROVIDE A 2" THICK X 4'-0" DIAMETER MULCH AREA AROUND TREES AND A 2" THICK X 2'-0" DIAMETER MULCH AREA AROUND SHRUBS.
- ALL AREAS DISTURBED DURING CONSTRUCTION TO BE LIMED, FERTILIZED, MULCHED AND SEEDS.
- ALL AREAS DISTURBED DURING CONSTRUCTION TO HAVE A MINIMUM OF 4" TOPSOIL IN PLACE BEFORE PLANTING.
- SOD AROUND ALL YARD DRAINS 4' X 4'.
- IF APPLICABLE, ALL SPLASH BLOCKS TO DRAIN ONTO 2' X 3' SOD AREA.
- SOD ALL DRAINAGE SNALES TO 6'-0" WIDE.
- VERIFY LOCATION OF TREES AND BUSHES SO THAT THEY DO NOT CONFLICT WITH THE LOCATION OF BURIED UTILITY LINES.

LANDSCAPE LEGEND

- AS AMELANCHIER GRANDIFLORA (AUTUMN BRILLIANCE)
PA PICEA ABEES NIDIFORMIS
SP REDBUD
JV JUNIPUS 'DWARF BOXYWOOD'



DESIGN GROUP
1971 E. BELTLINE AVE. NE, SUITE 201
GRAND RAPIDS, MICHIGAN 49525
PHONE: 612-330-1500
FAX: 614-396-3268

Washington Greene
1661 Washington Street West, Charleston
WV 25387

LANDSCAPE PLAN

ISSUANCE

FOR REVIEW 2023 0309

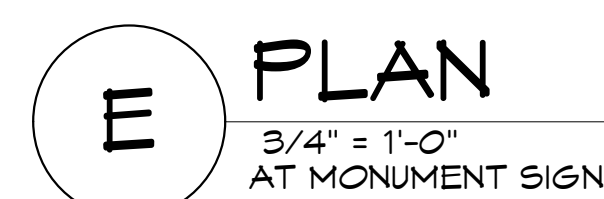
SHEET NO.

AS0.1

JOB NUMBER: WOD268



DESIGN GROUP
1971 E. BELTLINE AVE. NE, SUITE 20
GRAND RAPIDS, MICHIGAN 49525
PHONE: 612-330-1500
FAX: 614-396-3268



Washington Greene
1661 Washington Street West, Charleston
WV 25387

SITE DETAILS

[illegible]

AS0.2

JOB NUMBER: WOD268

LINE OF ROOF ABOVE

12'-0"

20'-0"

1'-0"

1'-0"

1'-0"

8'-0"

2'-0"

ENGINEERED WOOD TRUSSES @ 24" O.C.

8'-0"

HORIZONTAL SIDING 56-2 TO MATCH BUILDING ON 1/2" O.S.B. ON 2x4 WOOD STUDS @ 16" O.C.

ROOF SHINGLES - CLASS A

ROOF UNDERLAYMENT
#15 FELT PAPER

WATER MEMBRANE
BARRIER 2' FROM
INTERIOR WALL, TYP.

3/4" EXTERIOR OSB
ROOF SHEATHING

ALUMINUM DRIP EDGE
2" NAILING EDGE
1/4" 1" DROP

2X6 FASCIA BOARD

4" ALUMINUM GUTTER
AND DOWNSPOUT

PRESSURE TREATED WOOD
2X6 FASCIA BOARD
KNAUFED 1/4" 32 ALUMINUM
BREAK METAL 1/4" DRIP EDGE

PERFORATED VINYL SOFFIT

PRESSURE TREATED
DOUBLE 2X4 TOP PLATE

1' - 0"

8' - 0" / 10'

12" MIN

5' CONCRETE SONOTUBE
AT EACH CORNER OF SLAB

4" COMPACTED SAND
UNDER CONCRETE

4000 PSI FIBER
REINFORCED CONCRETE

(2) #5 BAR TURNED 90

CONTINUOUS RIDGE VENT
SHINGLE OVER TYPE

ENGINEERED WOOD
TRUSSES @ 24" O.C.

12 5

ENGINEERED WOOD
TRUSSES @ 24" O.C.

8' - 0" / 10'

10' - 0" X 12' - 0" X 4"
THICK SLAB FOR
MAINTENANCE SHED -
REFER TO SITE PLAN
FOR LOCATION

6"

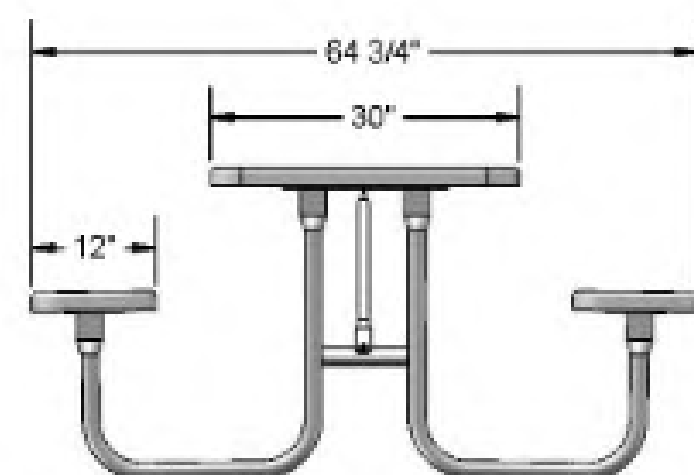
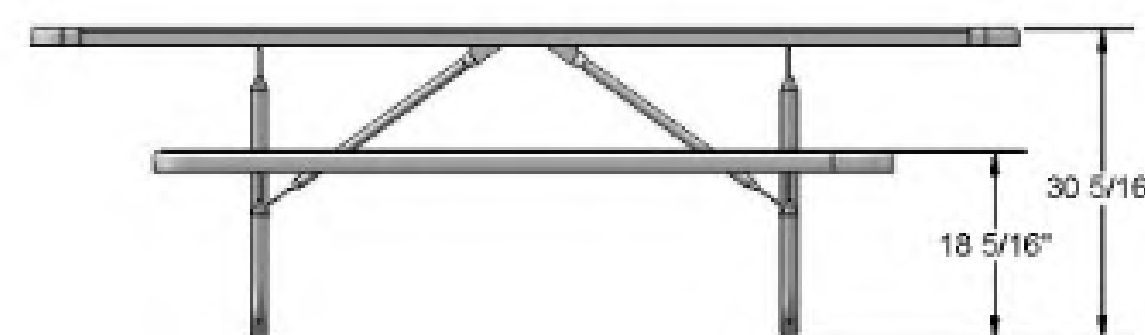
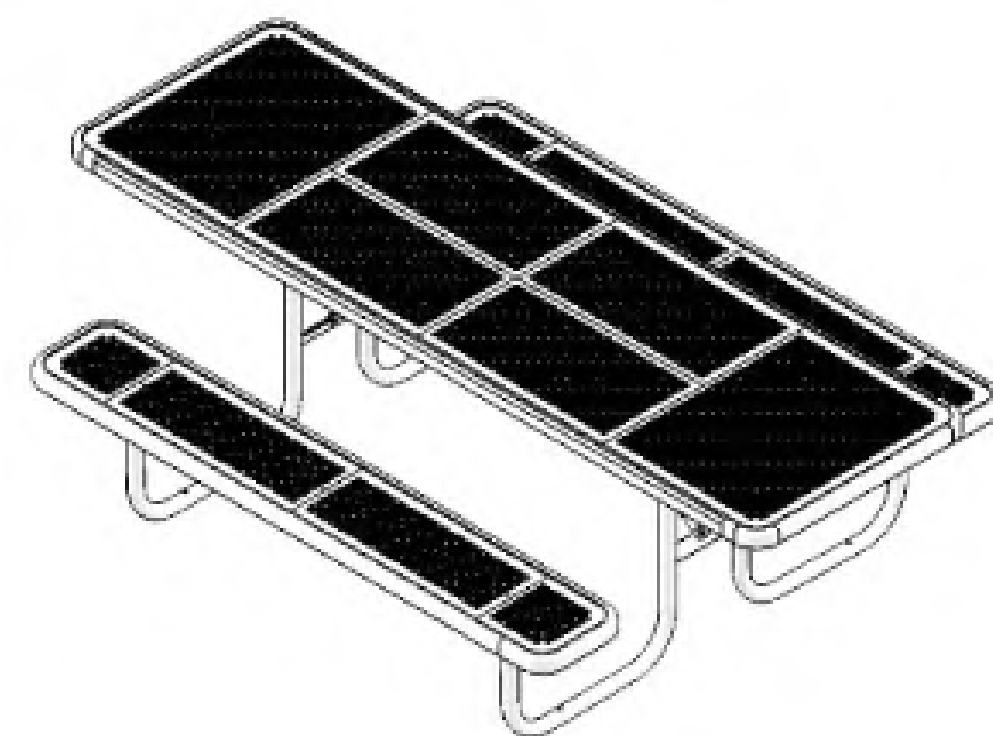
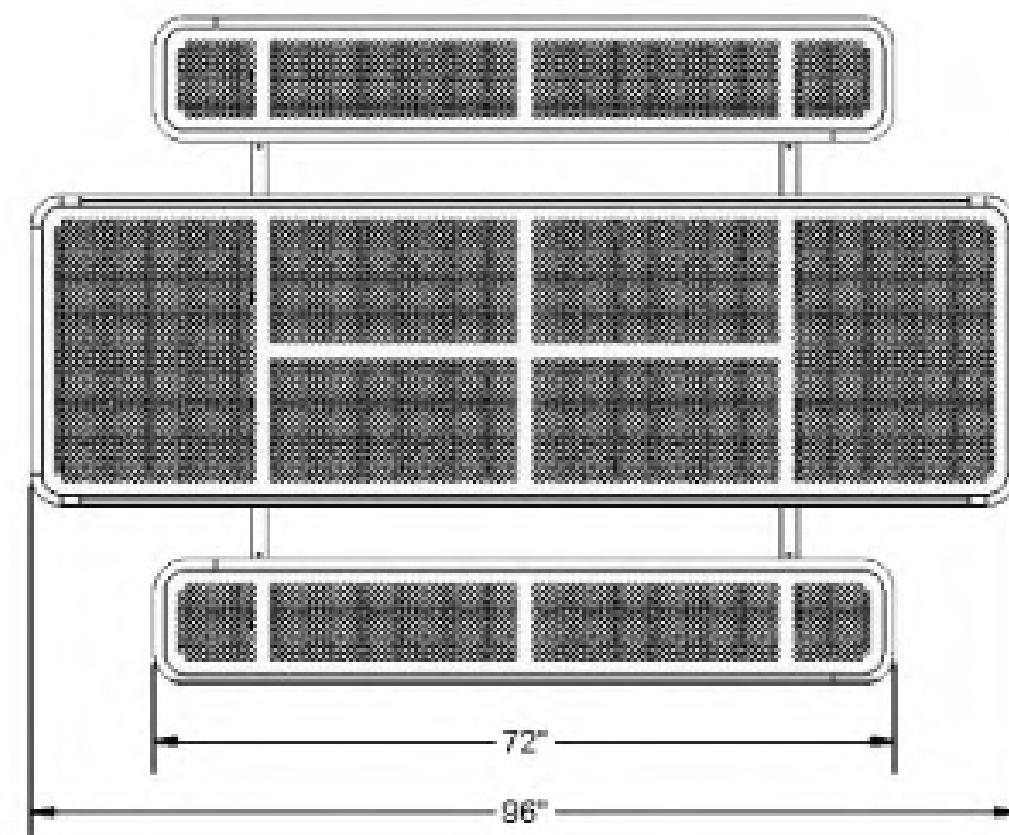
8'

E SECTION
3/4" = 1'-0"
SHED

[illegible]

D SITE BENCH
N.T.S.

C GRILL
N.T.S.



12' - 0"

19' - 0"

ACCESSIBLE PICNIC TABLE, TYP. SEE DETAIL B/ASO.3

P
ASO.2

ASO.1

ASO.3

ASO.3

ACCESSIBLE TRASH RECEPTACLE, REFER TO DETAIL G/ASO.3

ACCESSIBLE POST MOUNTED SWIVEL GRILL, REFER TO DETAIL G/ASO.3

A FLOOR PLAN
1/2" = 1'-0"

B ACCESSIBLE PICNIC BENCH
N.T.S.

REFER TO A0.2 - A0.5 AND ANSI ICC A117.1-2017 AND UNIFORM FEDERAL ACCESSIBILITY STANDARDS FOR ALL ACCESSIBILITY REQUIREMENTS.



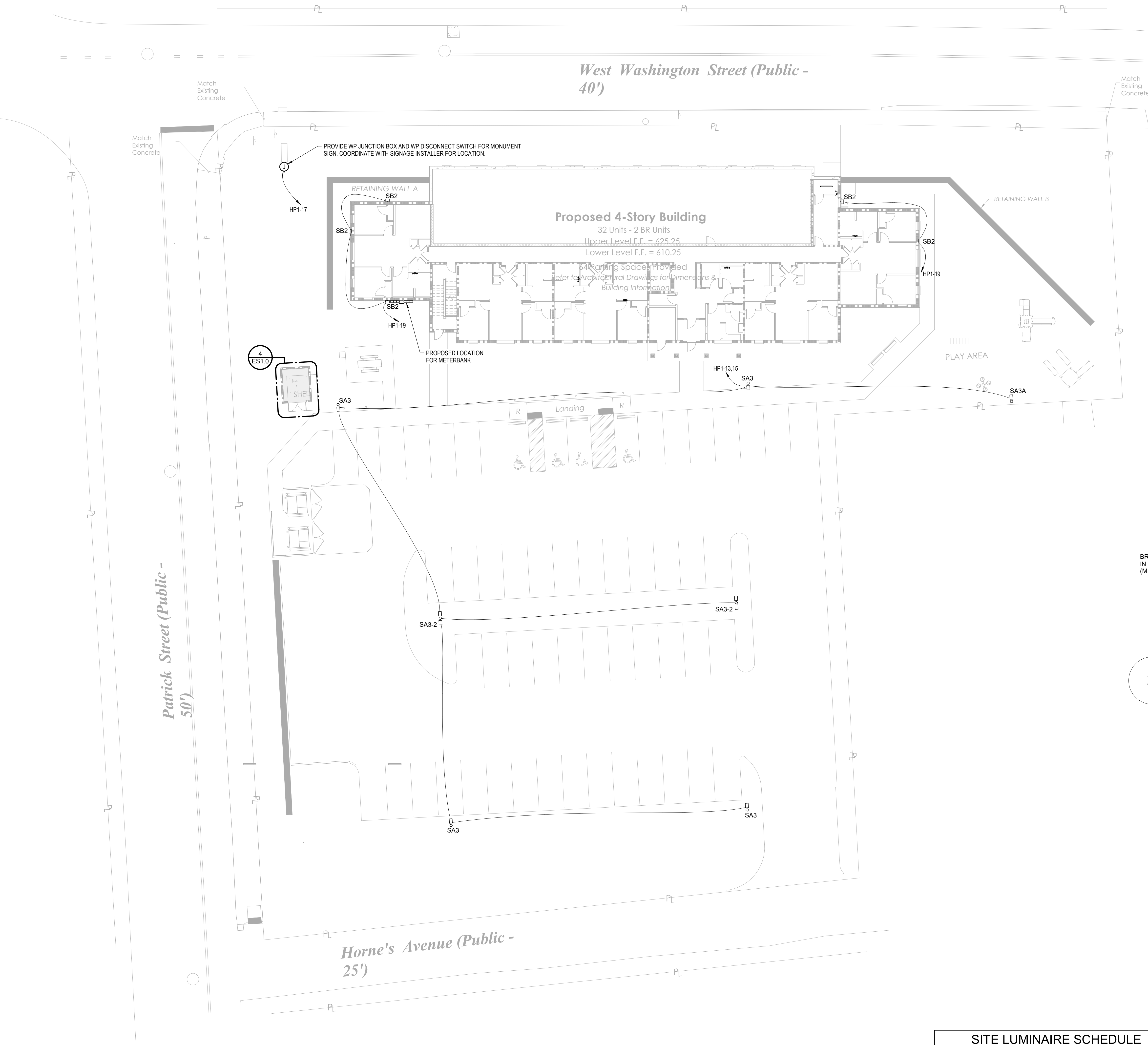
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1661 Washington Street West, Charleston
WV 25387

STIE DETAILS

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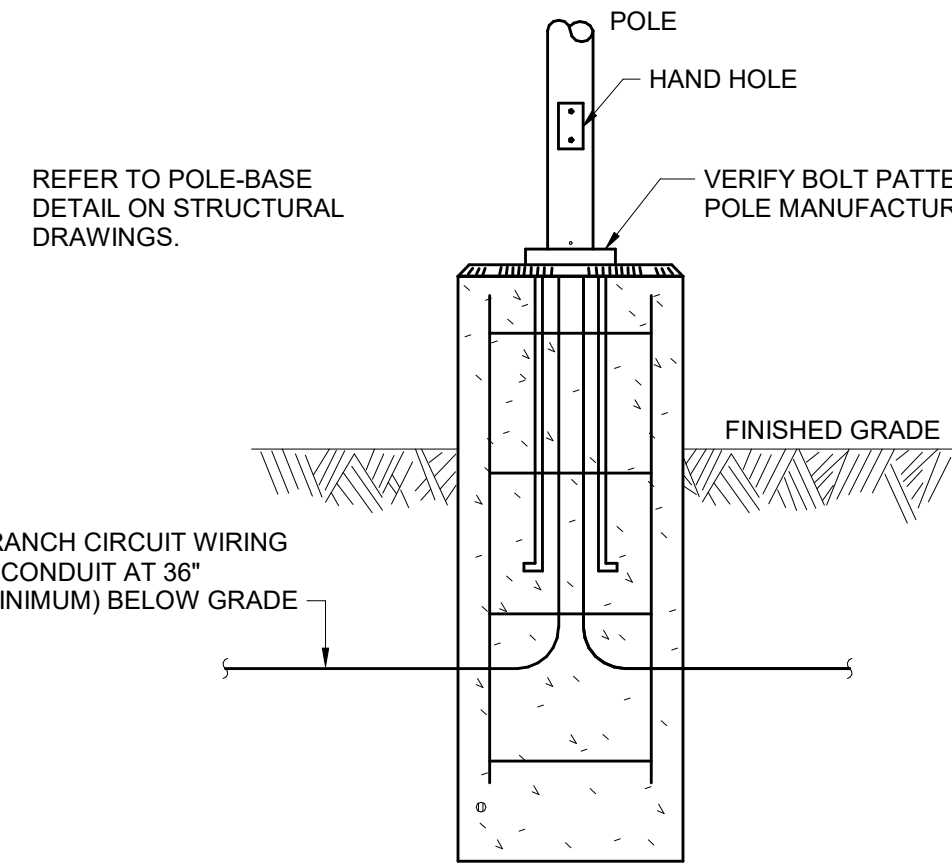
AS0.3

JOB NUMBER: WOD268

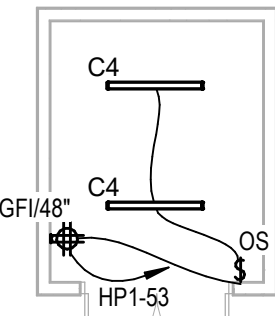


1 ELECTRICAL SITE PLAN
1/16" = 1'-0"

- GENERAL NOTES:**
1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND ALL LOCAL ORDINANCES.
 2. COORDINATE NEW POWER/TELEPHONE/CABLE UTILITY INSTALLATION REQUIREMENTS WITH LOCAL UTILITY COMPANIES.
 3. ALL DEVICES, EQUIPMENT, FIXTURES, ETC. MUST BE GROUNDED BY USE OF A PROPERLY SIZED GROUNDING CONDUCTOR. MECHANICAL/ELECTRICAL BONDS OF THE METALLIC RACEWAY SYSTEM SHALL ALSO BE MAINTAINED.
 4. ALL SITE LIGHTING CONDUCTORS SHALL BE (CU), XHHW-2 IN 1-1/2" C, UNLESS OTHERWISE NOTED. CONDUCTOR SIZE AS NOTED ON PLAN.
 5. CIRCUITS MAY BE COMBINED IN CONDUIT PROVIDED WIRE IS PROPERLY DE-RATED AND CONDUIT SIZED PER CODE. UNDER NO CIRCUMSTANCES SHALL MORE THAN NINE (9) CURRENT CARRYING CONDUCTORS BE RUN IN A SINGLE CONDUIT.
 6. ALL CONDUITS SHALL CONTAIN A GROUND WIRE SIZED PER NEC TABLE #250-122, WHERE CIRCUIT CONDUCTORS ARE INCREASED IN SIZE FOR VOLTAGE DROP, THE GROUND WIRE SIZE SHALL BE INCREASED PROPORTIONATELY (ACCORDING TO CIRCULAR MIL AREA) FROM THE SIZE REQUIRED BY NEC TABLE #250-122.
 7. PROVIDE PVC TO RGS ADAPTOR DURING CONDUIT TRANSITION AT ENTRANCE INTO BUILDING. PROVIDE WATERPROOF SEALING OF PENETRATIONS, AS REQUIRED.
 8. CONDUIT ROUTING IS SHOWN DIAGRAMMATICALLY. ACTUAL ROUTING TO BE DETERMINED IN FIELD. INCREASE WIRE SIZE AS REQUIRED PER VOLTAGE DROP OF ACTUAL ROUTING.
 9. ELECTRICAL CONTRACTOR SHALL PROVIDE TRENCHING AND BACKFILL FOR COMMUNICATION CABLEING AS REQUIRED. COORDINATE ALL REQUIREMENTS WITH LOCAL UTILITY PRIOR TO BID.
 10. ELECTRICAL CONTRACTOR SHALL PROVIDE TRENCHING AND BACKFILL AS REQUIRED FOR PRIMARY AND SECONDARY CONDUCTORS. PRIMARY CONDUCTORS PROVIDED BY UTILITY COMPANY. PRIMARY DUCTBANK, SECONDARY DUCTBANK & SECONDARY CABLEING ARE PROVIDED BY THE E.C. PRIMARY AND SECONDARY CONNECTIONS TO TRANSFORMER AS DETERMINED BY LOCAL POWER COMPANY (AEP). COORDINATE ALL REQUIREMENTS WITH LOCAL POWER COMPANY (AEP) PRIOR TO ROUGH-IN.
 11. PROVIDE GROUND ROD AT EACH LIGHT POLE LOCATION PER LIGHT POLE BASE DETAIL ON THIS SHEET REGARDLESS OF POLE BASE TYPE BEING PROVIDED.
- KEYED NOTE SCHEDULE:**
1. COORDINATE NEW SECONDARY SERVICE INSTALLATION REQUIREMENTS WITH THE LOCAL UTILITY COMPANY. SEE ONE-LINE DIAGRAM ON E04 FOR ADDITIONAL INFORMATION.
 2. PROVIDE (2) 4" WITH PULLWIRE, ONE FOR TELEPHONE AND ONE FOR CABLE SERVICE. COORDINATE EXACT ROUTING AND REQUIREMENTS WITH SERVICE PROVIDERS.
 3. COORDINATE MOUNTING LOCATION OF EXTERIOR LIGHTING PHOTOCELL IN THE FIELD AND LOCATE PER MANUFACTURER'S RECOMMENDATIONS.
 4. ROUTE BRANCH CIRCUIT CONDUCTORS BACK TO PANEL VIA THE LIGHTING CONTRACTOR. SEE THIS DRAWING FOR LIGHT CONTROLS SCHEMATIC.
 5. COORDINATE FINAL LOCATION OF UTILITY TRANSFORMER AND ALL REQUIREMENTS WITH LOCAL UTILITY COMPANY. PROVIDE BOLLARDS AS REQUIRED BY UTILITY COMPANY, PER BOLLARD DETAIL ON THIS SHEET.



3 POLE BASE DETAIL
N.T.S.



4 SITE SHED DETAIL
1/8" = 1'-0"

SITE LUMINAIRE SCHEDULE						
SYMBOL	TYPE	LAMP SOURCE	VOLTS	FIXTURE WATTS	MTG	DESCRIPTION
SA3		8000 LUMEN LED 4000K	120-277V	80	20' POLE (RSA-B-S-20-40-B-1)	POLE MOUNTED LED SITE AREA FIXTURE WITH TYPE III LIGHT DISTRIBUTION. DIE-CAST ALUMINUM CONSTRUCTION, GASKETED WITH A WEATHERPROOF SEAL AND FINISH AS SPECIFIED BY ARCHITECT/OWNER. PROVIDE WITH 20' ALUMINUM POLE FOR SINGLE FIXTURE MOUNT WITH FINISH TO MATCH FIXTURE FINISH. CONFIRM DRILL PATTERN PRIOR TO ORDERING.
SA3A		5600 LUMEN LED 4000K	120-277V	55	10' POLE (RSA-B-S-10-40-B-1)	POLE MOUNTED LED SITE AREA FIXTURE WITH TYPE III LIGHT DISTRIBUTION. DIE-CAST ALUMINUM CONSTRUCTION, GASKETED WITH A WEATHERPROOF SEAL AND FINISH AS SPECIFIED BY ARCHITECT/OWNER. PROVIDE WITH 10' ALUMINUM POLE FOR SINGLE FIXTURE MOUNT WITH FINISH TO MATCH FIXTURE FINISH. CONFIRM DRILL PATTERN PRIOR TO ORDERING.
SA3-2		17600 LUMEN LED 4000K	120-277V	160	20' POLE (RSA-B-S-20-40-B-1)	(2) POLE MOUNTED LED SITE AREA FIXTURE WITH TYPE III LIGHT DISTRIBUTION MOUNTED AT 180°. DIE-CAST ALUMINUM CONSTRUCTION, GASKETED WITH A WEATHERPROOF SEAL AND FINISH AS SPECIFIED BY ARCHITECT/OWNER. PROVIDE WITH 20' ALUMINUM POLE FOR TWO FIXTURES MOUNTED AT 180° WITH FINISH TO MATCH FIXTURE FINISH. CONFIRM DRILL PATTERN PRIOR TO ORDERING.
SB2		2420 LUMEN LED 4000K	120V	28.6	WALL	LED WALL PACK WITH TYPE II LIGHT DISTRIBUTION, DIE-CAST ALUMINUM HOUSING LISTED FOR WET LOCATIONS AND BLACK FINISH.
						CATALOG NO.
						PROGRESS LIGHTING PCPAS 80 3 XX
						PROGRESS LIGHTING PCPAS 55 3 XX
						PROGRESS LIGHTING (2) PCPAS 80 3 XX
						PROGRESS LIGHTING LNC2-12L1-4K-2-2

PRELIMINARY
THIS DRAWING IS FOR
INFORMATION ONLY
NOT FOR BIDDING OR
CONSTRUCTION

DESIGN GROUP, INC.
1971 E. BELTLINE AVE., NE, SUITE 201
GRAND RAPIDS, MICHIGAN 49525
PHONE: 616-330-1500
FAX: 616-330-3268

BlueStreak consulting
25201 Emory Road, Suite 410
Cleveland, OH 44128
TEL: 216-223-3300
www.bluestreak-consulting.com

Washington Greene
1661 Washington Street West
Charleston, WV 25387

ELECTRICAL SITE PLAN

ISSUANCE

SHEET NO.

ES1.0

JOB NUMBER: 20781



west virginia department of environmental protection

Division of Water and Waste Management
601 57th Street SE
Charleston, West Virginia 25304-2345
Phone: 304-926-0495/Fax: 304-926-0463

Harold Ward, Cabinet Secretary
www.dep.wv.gov

February 28, 2023

WASHINGTON GREENE LP
ANNE LITTLE
500 S. FRONT ST., 10 FL
COLUMBUS, OH 43215

Re: General Permit Registration No. WVR112076,
Washington Greene Apartments,
Kanawha County, Acres (1.54)

Dear Permittee:

Please be advised that this letter constitutes approval of your construction activity, and you are now authorized to operate under WV/NPDES General Water Pollution Control Permit No. WV0115924, effective on February 9, 2019. You should carefully read the contents of this General Permit and become familiar with all requirements needed to remain in compliance with your permit. The reissued General Permit expires February 9, 2024, and is located on our website at:

<https://dep.wv.gov/WWE/Programs/stormwater/csw/Documents/Reissued%20permit%20WV0115924%201-10-19%20signed.pdf>

A "Notice of Termination" must be completed and submitted when all disturbed areas are stabilized. The form is located at:

<https://dep.wv.gov/WWE/Programs/stormwater/csw/Documents/ConstructionStormwaterNoticeofTermination.pdf>

Please note the following important requirements:

Promoting a healthy environment

1. Final stabilization means disturbed areas shall be covered by the appropriate permanent protection. Final stabilization includes: pavement, buildings, stable waterways (riprap, concrete, grass, or pipe), a healthy, vigorous stand of perennial grass that uniformly covers at least 70 percent of the ground, stable outlet channels with velocity dissipation which directs site runoff to a natural watercourse, and any other approved structure or material.

2. In accordance with Section II.H. of General Permit WV0115924, a Storm Water Pollution Prevention Plan (SWPPP) must be maintained, which contains details regarding erosion and sediment controls. The SWPPP is to be retained on site and be available for review by the Director or the Director's authorized representative as of the date of your coverage by the General Permit, which is the date of this letter.

3. The erosion and sediment control measures shall be maintained in proper condition to perform the functions for which they were designed. In order to ensure the efficiency and proper maintenance of these measures, the permittee shall make sufficiently frequent, periodic inspections to detect any impairment of the designed stability, capacity, or environmental requirements of the approved measures. The permittee shall take steps to correct any such impairment found to exist.

4. If the SWPPP proves to be ineffective in controlling erosion and the sediment in storm water discharges associated with industrial/construction activities, or site conditions change, the Permittee shall amend the SWPPP and install appropriate sediment and/or control devices in accordance with Section III.C.2 of the permit and the application instructions.

5. In accordance with Section II.I. of General Permit WV0115924, a site-specific Groundwater Protection Plan (GPP) must be maintained and retained on site and be available for review by the Director or the Director's authorized representative as of the date of your coverage by the General Permit, which is the date of this letter.

Your annual permit fee has been assessed as \$100.00. You will be invoiced by this agency one month prior to the anniversary date of your original approval date. Failure to submit the annual fee within ninety (90) days of the due date will render your permit void upon the date you are mailed a certified written notice to that effect.

In accordance with section II.A.1.d, Minor Construction Projects shall submit an Annual Progress Map if permitted for more than one year to remain compliant and retain coverage each year for the full term granted under WV0115924. Projects that have not submitted a Notice of Termination in accordance with Part IV of the General Permit or submitted the Annual Progress Map shall expire one year from the date of issuance.

General Permit WV0115924 expires 2/9/2024, therefore the registration will expire February 9, 2024. If the project is still in the grading phase one year from the date of issuance, the permittee shall submit an annual progress map via email to the reviewer. If General Permit WV0115924 is reissued or extended, you will be given the opportunity to extend your coverage or comply with the new General Permit at that time.

Issuance of this approval of the General Permit registration does not authorize any injury to persons or property or invasion of other private rights, or any infringement of federal, state, or local law or rules.

The validity of this General Permit Registration is contingent upon payment of the applicable annual permit fee, as required by Chapter 22, Article 11, Section 10 of the Code of West Virginia.

Your efforts toward preventing the degradation of our natural resources are greatly appreciated. If you have any questions, please contact Jennifer Liddle of this Division at (304) 574-4465 extension 00294 or at Jennifer.D.Liddle@wv.gov.

Katheryn Emery, P.E., Director
Division of Wastewater Management
601 57th St SE
Charleston, WV 25304-2345
Phone: (304) 926-0495
Fax: (304) 926-0463

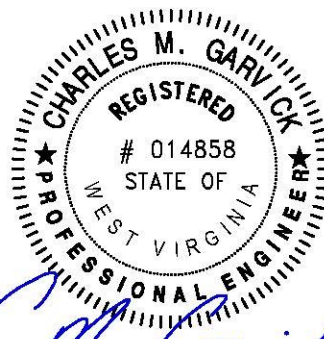
Washington Greene New Apartment Building

*1661 Washington Street, City of Charleston,
Kanawha County, West Virginia*

Stormwater Pollution Prevention and Control Plan

February, 2023

*Prepared By:
Charles Garvick*



C. M. Garvick

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SECTION 1: SITE EVALUATION, ASSESSMENT AND PLANNING

1.1 Site Information

Project Name: Washington Greene Apartments
Project Location: 1661 Washington Street
City, County, State: Charleston, Kanawha County, West Virginia
Latitude: 38°22'21.7" *Longitude:* 81°39'47.7"
Lat/Long was determined by GPS

Section 1.1 Supporting information:
USGS Map Appendix A

1.2 Contact Information

Owner:
Washington Greene, Limited Partnership
Attn. Anne Little
500 S. Front Street 10th Floor
Columbus, OH 43215
614.396.0020

SWPPCP Contacts:
City of Charleston
Engineering Department
114 Dickinson Street
Charleston, WV 25301
304.348.8103

SWPPCP Prepared By:
Charles Garvick, P.E.
Chadan Engineering, Inc.
PO Box 695
St. Clairsville, OH 43950
740.449.2194

Subcontractors:
List to be kept updated by the General Contractor

Section 1.2 Supporting Information:
Subcontractor Sign-off Appendix B
List to be maintained by the General Contractor

1.3 Nature of Construction Activity Sequence

Washington Greene, Limited Partnership is proposing to perform earth disturbing activities in association with the demolition of an existing retail building and associated parking lot for the construction of a new apartment building. The activities will include the building demolition and removal of asphalt pavement from the site, grading to proposed subgrades as indicated on the plans, installation of site utilities, preparation and installation of asphalt drive and parking areas, preparation and installation of the new building, installation of concrete walks and landscaping activities. As requested

by the City of Charleston Engineering Department, the plan includes the installation of a stormwater management system to comply with the City of Charleston’s requirements.

- Construct stabilized construction access for the site.
- Install perimeter controls.
- Demolish existing building, pavement and site improvements, except for the sidewalk along Patrick Street.
- Install concrete wash out.
- Grade site to subgrade elevations. Lawn areas that are brought to final grade shall be stabilized, seeded and mulched with 14 days. New drive and parking areas to be stoned within 4 days of reaching subgrade as part of the enhanced BMP approach. Contractor may have to water during dry months. Erosion control blanket to be installed as noted.
- Install new stormwater collection system. Once catch basins are installed, inlet protect must be installed. Once the underground storage system has been installed, the remainder of the parking lot is to be stoned to minimize the amount of sediment entering the underground system.
- Install building footings.
- Install site utilities.
- Install curbs and sidewalks.
- Final grading of site and topsoil redistribution.
- Landscape and stabilize site by seeding and mulching.
- Pave site
- Remove and replace sidewalk along Patrick Street.
- Remove BMPs only after 70% of the site has been stabilized with a minimum of 70% vegetated cover.

1.4 Soils, Slopes, Vegetation and Existing Drainage Patterns

The NRCS map indicates that the site consists of Laidig channery loam and Urban Land – Tyler Complex. A Hydrologic Soil Group of B has been chosen based on the majority of the site being identified as Laidig soils.

The site slopes from the north to the south, towards Horne’s Avenue. Post construction stormwater calculations were completed using curve number values for Type B soils in lawn areas and impervious conditions in all other locations.

Section 1.4 Supporting Information:
NRCS Soils Report Appendix C

1.5 Construction Site Estimates

<i>Drainage Area Studied:</i>	1.541 Acres (Total Limits of Disturbance)
<i>% impervious area pre-development:</i>	96.3%
<i>% impervious area post development:</i>	68.1%
<i>Pre-development runoff coefficient:</i>	94
<i>Post development runoff coefficient:</i>	84 Avg. - Refer to Hydrographs for individual areas

Section 1.5 Supporting Information:	
Existing Condition Map	Plan Sheet C001
Drainage Maps	Appendix E

1.6 Receiving Waters

The site drains to the City of Charleston's collection system in Horne's Avenue, which discharges to the Kanawha River.

1.7 Potential Pollution Sources

Potential sources of sediment to stormwater runoff:

- Site grading
- Construction traffic
- Fuel areas

The primary source of pollutants from this site is sediment. Fugitive dust from the excavation operation is also potential source of pollutants. Preventive maintenance shall include periodic inspections of the sediment control structures. The general contractor will also inspect equipment used on the operation for leaks and potential leaks of lubricating oils and fuels.

The general contractor will advocate and require good workmanlike practices within the permit area. The facility shall be maintained in a clean and orderly fashion.

Proposed disturbed areas will be exposed to stormwater during construction. Refer to plans for proper sediment and erosion control practices.

No significant leaks or spills of toxic or hazardous pollutants are anticipated at the proposed site. However, should a spill occur, it must be noted as part of SWPPP and appropriate clean-up measures taken. The proper agencies shall be notified as well. See Section 3.2.

SECTION 2: EROSION AND SEDIMENT CONTROL

2.1 Minimize Disturbed Area

The **Limit of Disturbance (LOD)** should be identified in the field based upon the construction plans. Sensitive areas that are not to be disturbed will have an orange mesh fencing erected and maintained until construction is complete. The existing vegetation area and temporary fencing are to be a part of routine site inspections, with deficiencies being noted and repaired.

2.2 Control Storm Water Flowing onto and through Project

There is no offsite stormwater entering the project site.

2.3 Stabilize Soils

Temporary Seeding:

For areas of the site that are to be dormant for 14 days or more, seed and mulch shall be applied within 4 days.

Permanent Seeding:

Areas of the site that have reached final grade shall be seeded and mulched within 4 days including topsoil piles. Permanent stabilization shall be applied throughout the site within 4 days of construction completion.

All seeded areas, permanent and temporary, shall be routinely inspected and after storm events until sufficient cover has been established. If areas with no cover remains, the contractor shall reseed and mulch.

Dust control will be implemented as needed and when winds greater than 15 mph occur. Water shall be dispersed no more than three times a day at a rate of 250-300 gallons per acre. The rate may be adjusted if needed to prevent runoff.

2.4 Perimeter Controls

Super Silt Fence and Compost Filter Sock shall be installed as part of the sediment and erosion work for this site. No grading or demolition work shall take place without these items in place. Once the silt level has reached half the fabric or sock height, the silt shall be removed and dispersed within the site limits or a second compost filter sock shall be stacked.

2.5 Construction Access

A construction entrance will be provided at the proposed main drive access to the site. This stone pad shall be a minimum of 50 feet long and 20 feet wide. A stockpile of stone shall be maintained on site should the entrance become sediment-laden and need replaced. A detail has been provided in the plan set. The construction access shall be maintained and inspected routinely. Should any debris or sediment be tracked onto Horne's Avenue, the Contractor shall immediately remove the material and deposit it within the construction limits. This access area shall be installed as the first step of the construction process. Water trucks or hoses are not permitted to remove sediment from the public right-of-way.

2.6 Inlet Protection

A sediment collection product such as a Dandy Products "Dandy Bag" , or approved equal, will be installed at all storm sewer catch basins, curb inlets, and yard drains at this project. Once the bag is 1/3 full, it shall be emptied, cleaned and reinstalled. Damaged or worn bags shall be replaced with new.

2.7 Concrete Washout

A concrete washout water collection assembly shall be provided at the site as shown Sheets C300 and 301 of the project plans. A basin-style facility as shown on Sheet C301, or an approved portable washout collection unit, will be provided.

2.8 Tracking of Slopes

Final soil slopes will be tracked in by a dozer, excavator or other tracked equipment. The equipment will be run up and down the slopes to provide track marks that run parallel to the top of slope. Tracking across the final slope with resulting perpendicular track marks is not permitted.

2.9 Erosion Control Blanket

At a minimum, erosion control blanket (ECB) shall be installed on all slopes greater than or equal to 3H:1V. Additional areas may be covered with ECB to aid in stabilizing the finished grades prior to seed germination.

SECTION 3: GOOD HOUSEKEEPING BMP'S

3.1 Material Handling and Waste management

Construction Waste: All waste materials will be collected and disposed of into metal trash dumpsters. These dumpsters shall be provided by the general contractor and emptied in a timely manner. The dumpsters shall be conveniently located but should not be placed in the vicinity of stormwater conveyances. The collection and disposal of all waste material shall meet all local and state regulations. The general contractor shall maintain a clean worksite. Should construction debris be dispersed off-site due to weather conditions, it is the responsibility of the contractor to collect the debris and properly dispose.

Sanitary Waste: Temporary sanitary facilities shall be provided by the contractor near the construction staging area.

3.2 Spill Prevention and Control

The General Contractor will maintain all facilities in a clean and orderly fashion.

The following procedures shall be adhered to for all spills, leaks, and accidents or other unplanned discharge or emission of hazardous chemicals.

- 1) Secure and evacuate the area of the spill, leak or emission of hazardous chemical substance.
- 2) Contact the following agencies:
 City of Charleston Emergency Services (911)
 Fire Department (911)
 Spill Hotline (1-800-642-3074)
 National Response Center (1-800-424-8802)
 E.P.A. Hotline (1-800-353-0202)
- 3) Contact the company's Project Manager. The Project Manager is to meet the Emergency Response Personnel at the site and is to stay with them until they or the officer in charge release them.
- 4) Project Manager shall help and assist Emergency Response Personnel in any manner requested including cleanup of the site.
- 5) All spills and discharges shall be contained, cleaned and disposed of in accordance with all applicable State and Federal regulations, which may apply.
- 6) Material Safety Data Sheets shall be kept in the Project Managers office or work area, and each Instructor responsible for an area, which contains hazardous chemicals, should also keep in his personal (home) possession of a copy of the Material Safety Data Sheets as a backup source of information.

CONCRETE, PATIO, STUCCO AND OTHER WASHOUT GUIDANCE

Use this guidance for managing all liquid and solid wastes generated by washout operations (concrete, stucco, paint, form release oils, curing compounds, and other construction materials) related to construction activity on National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) construction stormwater permitted sites. To protect water quality, the NPDES Construction Stormwater Permit requires best management practices (BMPs) for concrete and other washout wastes on construction sites.

Background

The chutes of concrete mixers and hoppers of concrete pumps are typically rinsed out after delivery of concrete. Tools, hand mixers and wheelbarrows are also washed to prevent hardening. Hardened concrete is relatively benign. However, liquid concrete wash water is a caustic material due to a high pH and it contains hazardous metals such as chromium. These materials can leach into the ground and contaminate groundwater. The high pH can inhibit plant growth and harm aquatic life if the runoff migrates to a lake or stream. Solids from liquid waste that are improperly disposed of can clog storm drainpipes and cause flooding. In order to comply with the prohibition of discharging any materials other than treated stormwater, there must be a means to prevent the discharge of washout water from the cleanup of stucco, paint, form release oils, curing compounds, and other construction materials.

Groundwater and surface water can be protected from liquid concrete and other washout wastes through proper use of BMPs at NPDES/SDS construction stormwater permitted sites. Installing washout facilities not only prevents pollution but also is a matter of good housekeeping at a construction site.

Washout at Construction Sites

Washout facilities are used to contain all concrete and liquid wash water generated by the construction activity. Liquid and so solid washout wastes must be contained in a leak-proof container and cannot contact the ground. The washout containers should be covered to prevent exposure to rainfall and potential overflow.

Washout facilities should also be used for cleaning other cementitious (cement-like) construction materials from tools and equipment such as stucco, mortar, plaster and grout. Depositing the wash water into a container allows evaporation and hardening to occur for easier disposal and to prevent runoff of liquids.



Recover & Recycle Wash Water Back into Truck

While the Construction Stormwater Permit does not allow concrete chute rinse water to come into contact with the ground, the permit does allow the wasting, the end of the load of plastic structural concrete, to come into contact with the ground. After drying, the remaining solids may be used as a fill material, a component in recycled aggregate or any other commercially useful application. Up to 0.5 cubic yards of concrete solids may be managed/buried on-site. If concrete solids are buried on-site, they should be at least two feet below the surface and must not be buried within three feet of the

groundwater table. Quantities larger than 0.5 cubic yards of concrete solids must either be managed with the rest of the site's solid wastes or obtain an approval from WVDEP for other beneficial use options.

There are circumstances where concrete washout may be allowed onto a prepared compacted roadbed. This allowance is intended for slip form paving type machines that cannot be readily moved off the paving area to a washout station. The area where wash water will flow onto must be compacted and will be paved over the next day. There must be a barrier of some type to keep the wash water on the compacted roadbed until it dries. This allowance is not intended for truck washouts.

A concrete washout sign must be installed at each temporary washout facility to inform the site personnel to use the designated facilities. The facility should be located close to the concrete pouring or mixing operation and be easily accessible by concrete mix trucks. It is also important to locate the facility so that spills or overflows will be directed away from storm drain inlets, curb and gutters, water conveyances or surface waters. The facility will need to be inspected regularly for leaks, damage, or potential overflow and receive regular maintenance.

Washing of Applicators & Containers Used for Paint, Concrete, or Other Materials

The permittee must comply with the prohibition of discharges other than stormwater that includes the washout and cleanout of stucco, paint, concrete, form release oils, curing compounds, and other construction materials. The permittee must provide effective containment for all liquid and solid wastes generated by washout operations and provide an effective means to eliminate the discharge of these wastes to the site or receiving waters. To comply, the permittee should evaluate and incorporate methods in the Stormwater Pollution Prevention Plan to prevent these discharges such as:

1. Direct all wash water into a leak-proof container or leak-proof pit. The container or pit must be designed so that no overflows can occur due to inadequate sizing or precipitation.
2. Handle washout or cleanout wastes as follows:
 - Do not dump liquid wastes in storm sewers
 - Dispose of liquid wastes properly
 - Remove and dispose of hardened concrete waste consistent with the handling of other construction wastes
3. Locate any washout or cleanout activities as far away as possible from surface waters and stormwater inlets or conveyances, and, to the extent practicable, designate areas to be used for these activities and conduct such activities only in these areas.



Self-Contained Washout Facility

Best Management Practices

There are many BMP options for disposal of liquid and solid wastes from washout activities. Many ready mix trucks are now equipped with the ability to collect chute wash water and solids and return them to the concrete plant for recycling or re-use.

Services are also available for hire that deliver a prefabricated washout container to collect concrete chute rinse water as well as wash water from tools and equipment generated on-site. Some services provide the containers alone without providing maintenance and disposal of materials, while other companies offer complete service that includes delivery of containers and regular pickups of solid and liquid waste materials. If these options are not available, the site owner and contractor can install a washout containment facility. A leak-proof container can be purchased or constructed onsite using an impermeable plastic or vinyl liner. The operators at the site will need to ensure no rips or tears develop in the liners or the liner will need to be replaced.



Concrete Washout Service

Washout facilities should be designed to promote evaporation where feasible to harden the concrete or other washout wastes for disposal as a solid waste. Hardened concrete can also be crushed for reuse as a construction material. However, if stored liquids have not evaporated and the washout is nearing capacity, vacuum and dispose of the waste in an approved manner. The local municipal wastewater treatment plant may be contacted to determine if there are special disposal requirements for concrete or other washout waters at their facility.

If the waste is stored onsite, remove the liquids or cover the washout facility before predicted rainstorms to prevent overflows. Companies that offer prefabricated and watertight washout containers generally offer a vacuum service to remove the liquid material. In case of a spill, immediately contain the spread of the spill, recover spilled materials, clean up the area and properly dispose of materials.

Hardened concrete solids can be removed whole or broken up first depending on the type of equipment available on-site. If the material is not utilized in accordance with the standing beneficial use determination, up to 0.5 cubic yards of concrete washout solids may be managed on-site. If concrete washout solids are buried on-site, they should be at least two feet below the surface and must not be buried in the groundwater table. Quantities larger than 0.5 cubic yards of concrete washout solids must either be managed with the rest of the sites solid wastes or obtain an approval from WVDEP for other beneficial use options.

Road Construction Concrete Cutting or Grinding Slurry

Other operations on-site such as saw cutting, coring, grinding and grooving or construction of exposed-aggregate concrete surfaces may generate a similar liquid wastewater. Process wastewater generated by these operations cannot be discharged into any of the nation's waterways. The liquid and solid wastes generated by these operations should be handled in accordance with the fact sheet *Road Construction Concrete Slurry Guidance* found at <http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/construction-stormwater/road-construction-concrete-slurry-guidance.html>.

Local Requirements

In addition to State requirements, please note that there may be City, County or watershed management organization requirements that may be more stringent than those found in the NPDES Construction Stormwater Permit.

Definitions

Concrete-chute rinse-off water: Liquid wastes generated when a ready-mix truck operator washes non-structural concrete materials off the chutes used to deliver concrete to a project.

Concrete equipment and tools rinse-off water: Liquid wastes generated when a concrete contractor or finisher washes non-structural concrete materials off tools or equipment used to place or finish concrete.

Plastic concrete is that freshly mixed structural concrete which is pliable and capable of being molded or shaped like a lump of modeling clay.

Hardened structural concrete is a strong, non-combustible, durable, abrasion-resistant, and practically impermeable material.

Additional information

United States Environmental Protection Agency Concrete Washout Guidelines:

<http://www.epa.gov/npdes/pubs/concretewashout.pdf>

3.3 BMP Maintenance

Note that all BMPs are to be inspected by a qualified person every 4 days and within 24 hours of every 0.25" rainfall event over a 24-hour period. Inspection records are to be kept on site. Repairs or maintenance to the BMPs shall be performed as soon as practicable after the inspection, following the 0.25-inch rain event in a 24-hour period. Repairs shall be re-inspected no later than 48 hours following repair. If repairs cannot be completed within that period, the reason for the delay is to be explained on the inspection report and an anticipated completion date shall be provided.

Construction Entrance: The entrance shall be maintained in a condition that will prevent tracking or flow of mud onto public rights-of-way. This may require periodic top dressing with additional stone or the washing and reworking of existing stone as conditions demand and repair and/or cleanout of any structures used to trap sediment. All materials spilled, dropped washed or tracked from vehicles onto roadways or into storm drains must be removed immediately. The use of water trucks to remove material dropped, washed or tracked onto roadways will not be permitted under any circumstances.

Super and Standard Silt Fence: Any required repairs or maintenance shall be made immediately. Should the fabric decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits should be removed after each storm event. Sediment must be removed when deposits reach approximately one-half the height of the barrier. If any portion of silt fence is knocked down during a rain event (because it was installed in an

area of concentrated flow) then other measures such as a sediment trap or super silt fence must be installed.

Filter Sock: Remove sediment collected at the base of the sock when sediment levels reach 1/3 of the exposed height. Where the filter sock deteriorates or fails, it will be repaired or replaced with a more effective alternative. During removal, the filter sock will be dispersed on-site in such a way as to facilitate and not obstruct seeding.

Concrete Wash: Prepare soil base free of rocks or other debris that may cause tears or holes in the liner. For liner, use 10 Mil or thicker UV resistant, impermeable sheeting, free of holes and tears or other defects that compromise impermeability of the material. Provide a sign for the washout near the facility. Keep concrete washout structure watertight. Replace impermeable liner if damaged (e.g., ripped or punctured). Empty or replace washout structure that is 75 percent full and dispose of accumulated material properly. Do not reuse plastic liner. Wet-vacuum stored liquids that have not evaporated and dispose of in an approved manner. Prior to forecasted rainstorms, remove liquids or cover structure to prevent overflows. Remove hardened solids, whole or broken up, for disposal or recycling. Maintain runoff diversion around excavated washout structure until structure is removed.

Erosion Control Blanket: Basic monitoring should consist of visual inspections to determine mat integrity and attachment performance. Rill development beneath the mat or edge lifting is evidence of inadequate attachment. Until vegetation is fully established, the ground surface should be inspected for signs of rill or gully erosion below the matting. Any signs of erosion, tearing of the matting or areas where the matting is no longer anchored firmly to the ground should be repaired. Repair any damaged areas immediately by restoring soil to finished grade, re-applying soil amendments and seed, and replacing the erosion control blanket. Additional staking and trenching can be employed to correct defects. Recently placed mats may be replaced, but once vegetation becomes established, replacement is not a reasonable option unless large failures have occurred. If the erosion blanket is vegetated, the vegetation should be watered as needed. Getting grass established as quickly as possible is very important.

SECTION 4: INSPECTIONS

The General Contractor is responsible for all site inspections concerning the stormwater system. The site is to be inspected every 4 days and after every rainfall event exceeding 0.25 inches of rainfall. The inspection is to include all aspects of the sediment and erosion plan as well as the items related to the post construction stormwater system. All inspections are to be recorded including time, date, weather conditions, personnel on site and any deficiencies. If deficiencies are noted, the inspector shall coordinate to ensure that items in need of repair are addressed. An inspection log is to be kept in job office.

Section 4 Supporting Documents:

Sample Inspection Report	Appendix F
Corrective Action Log	Appendix G

SECTION 5: DOCUMENTATION & TRAINING

Section 5.1: Construction Record Keeping

The following is a list of dates that should be recorded in a construction log for a period of 3 years after the permit is terminated:

- On site mobilization
- Construction entrance installation
- Any site inspections by outside agencies
- Description and date of changes to the SWPPP
- Final stabilization achieved

Any changes to the SWPPP shall be documented and kept on site.

Section 5 Supporting Documents:

Sample Inspection Report	Appendix F
Corrective Action Log	Appendix G

Section 5.2 Training

It is the responsibility of the General Contractor to inform all personnel on the job site about the SWPPP. This should be a part of the regular weekly job meeting. A log of training and discussions should be maintained on site for reference.

Training shall be conducted at the start of construction and will be conducted quarterly thereafter.

Inspection logs shall be kept onsite for a period of three years following project completion.

SECTION 6: FINAL STABILIZATION

General

1.

Site Preparation

1. A subsoiler, plow or other implement shall be used to reduce soil compaction and allow maximum infiltration. (Maximizing infiltrations will help control both runoff rate and water quality.) Subsoiling should be done when the soil moisture is low enough to allow the soil to crack or fracture. Subsoiling shall not be done on slip-prone areas where soil preparation should be limited to what is necessary for establishing vegetation.
2. The site shall be graded, as needed, to permit the use of conventional equipment for seedbed preparation and seeding.
3. Resoil shall be applied where needed to establish vegetation.

Seedbed Preparation

1. Ground limestone shall be applied to acid soil as recommended by a soil test. In lieu of a soil test, lime shall be applied at the rate of 100 lb./1,000 sq. ft. or 2 tons/ac.

2. Fertilizer shall be applied as recommended by a soil test. In lieu of a soil test, fertilizer shall be applied at a rate of 12 lb./1,000 sq. ft. or 500 lb./ac. of 10-10-10 or 12-12-12 analysis.
3. The lime and fertilizer shall be worked into the soil with a disk harrow, spring tooth harrow or other suitable field implement to a depth of three inches. On sloping land, the soil shall be worked on the contour.

Seeding Dates and Soil Conditions

1. Seeding should be done March 1 to May 31 or August 1 to October 15. These seeding dates are ideal, but with the use of additional mulch and irrigations, seedings may be made any time throughout the growing season. Tillage/seedbed preparation should be done when the soil is dry enough to crumble and not form ribbons when compressed by hand. For winter seeding, see the following section on dormant seeding.

Dormant Seedings

1. Seedings shall not be planted from October 15 through November 20. During this period, the seeds are likely to germinate, but will not be able to survive the winter.
2. The following methods may be used for Dormant Seeding:
 - From October 15 to November 20, prepare the seedbed, add the required amounts of lime and fertilizer, then mulch and anchor. After November 20, and before March 15, broadcast the selected seed mixture. Increase the seeding rates by 50% for this type of seeding.
 - From November 20 through March 15, when soil conditions permit, prepare the seedbed, lime and fertilize, apply the selected seed mixture, mulch and anchor. Increase the seeding rates by 50% for this type of seeding.
 - Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder or hydro seeder (slurry may include seed and fertilizer) on a firm, moist seedbed.
 - Where feasible, except when a cultipacker type seeder is used, the seedbed should be firmed following seeding operations with a cultipacker, roller or light drag. On sloping land, seeding operations should be on the contour.

Mulching

1. Mulch material shall be applied immediately after seeding. Seedings made during optimum seeding dates and with favorable soil conditions and on very flat areas may not need mulch to achieve adequate stabilization. Dormant seeding shall be mulched.
2. Materials:
 - If straw is used, it shall be unrotted, small-grain straw applied at the rate of 2 tons/ac. or 90 lb./1,000 sq. ft. (two or three bales). The mulch shall be spread uniformly by hand or mechanically, so the soil surface is covered. For uniform distribution of hand-spread mulch, divide the area into approximate 1,000 sq.-ft. sections and spread two 45-lb. bales of straw in each section.

Hydro-seeders wood cellulose fiber is used, it shall be used at 2,000 lb./ac. or 46 lb./1,000 sq. ft.

Other acceptable mulches include mulch mattings applied according to manufacturer's recommendations or wood chips applied at 6 tons/ac.

3. Straw Mulch Anchoring Methods:

Straw mulch shall be anchored immediately to minimize loss by wind or water.

Mechanical disk, crimper or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped and shall generally be longer than six inches.

Mulch Nettings shall be used according to the manufacturer's recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.

Irrigation

1. Separate irrigation is not proposed for these areas.

Seeding Applications

1. Refer to the following table for seeding applications and sowing rates:

Permanent Seeding ~ 70% Cover within 30 Days			
Seed Mix	Seeding Rate		Notes:
	lb./ac.	lb./1000 ft ²	
General Use			
Creeping Red Fescue	20-40	2 - 1	
Domestic Ryegrass	10-20	3 - 2	
Kentucky Bluegrass	10-20	3 - 2	
Tall Fescue	40	1	
Dwarf Fescue	40	1	
Steep Banks or Cut Slopes			
Tall Fescue	40	1	
Crown Vetch	10	3	Do not seed later than August
Tall Fescue	20	2	
Flat Pea	20	2	Do not seed later than August
Tall Fescue	20	2	
Road Ditches and Swales			

Tall Fescue	40	4	
Dwarf Fescue Kentucky Bluegrass	90 5	2 3	
Lawns			
Kentucky Blue Grass	60	1 2	
Perennial Ryegrass	60	1 2	
Kentucky Bluegrass	60	1 2	For shaded areas
Creeping Red Fescue	60	1 2	
Note: Other approved seed species may be substituted.			

Maintenance of Permanent Seeding

1. Permanent seeding shall not be considered established for at least one full year from the time of planting. Seeded areas shall be inspected for failure and vegetation reestablished as needed. Depending on site conditions, it may be necessary to irrigate, fertilize, overseed or reestablish plantings in order to provide permanent vegetation for adequate erosion control.
2. Maintenance fertilization rates shall be established by soil test recommendations or by using the rates shown in the following table.

Maintenance for Permanent Seedings - Fertilization and Mowing					
Mixture	Formula	lb./ac.	lb./1,000 ft ²	Time	Mowing
Creeping Red Fescue Ryegrass Kentucky Bluegrass	10-10-10	500	12	Fall, Yearly or as needed	Not closer than 3"
Tall Fescue	10-10-10	500	12	Fall, Yearly or as needed	Not closer than 4"
Dwarf Fescue	10-10-10	500	12	Fall, Yearly or as needed	Not closer than 2"
Crown Vetch Fescue	0-20-20	400	10	Spring, Yearly following establishment and every 4 - 7 years thereafter	Do not mow
				Spring, Yearly	

Flat Pea Fescue	0-20-20	400	10	following establishment and every 4 - 7 years thereafter	Do not mow
-----------------	---------	-----	----	--	------------

Note: Following actual soil test recommendations is preferred to use the fertilizer rates shown above.

Temporary Seeding:

1. Structural erosion and sediment-control practices shall be installed and stabilized with temporary seeding prior to grading the rest of the construction site.
2. Temporary seed shall be applied between construction operations on soil that will not be graded or reworked for 14 days or more. These idle areas should be seeded as soon as possible after grading or shall be seeded within 4 days. Several applications of temporary seeding are necessary on typical construction projects.
3. The seed bed should be pulverized and loose to ensure the success of establishing vegetation. However, temporary seeding shall not be postponed if ideal seedbed preparation is not possible.
4. Soil Amendments--Applications of temporary vegetation shall establish adequate stands of vegetation which may require the use of soil amendments. Soil tests should be taken on the site to predict the need for lime and fertilizer.
5. Seeding Method--Seed shall be applied uniformly with a cyclone seeder, drill, cultipacker seeder, or hydroseeder. When feasible, seed that has been broadcast shall be covered by raking or dragging and then lightly tamper into place using a roller or cultipacker. If hydroseeding is used, the seed and fertilizer will be mixed on-site, and the seeding shall be done immediately and without interruption.

Mulching Temporary Seeding

1. Applications of temporary seeding shall include mulch which shall be applied during or immediately after seeding. Seedings made during optimum seeding dates and with favorable soil conditions and on very flat areas may not need mulch to achieve adequate stabilization.
2. Materials:
 - Straw--If straw is used, it shall be un-rotted, small-grain straw applied at the rate of 2 tons/ac. or 90 lb./1,000 sq. ft. (two to three bales). The mulch shall be spread uniformly by hand or mechanically, so the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000 sq. ft. sections and spread two 45-lb bales of straw in each section.
 - Hydroseeders--If wood cellulose fiber is used, it shall be used at 2,000 lb./ac. or 46 lb./1,000 sq. ft.
 - Other--Other acceptable mulches include mulch mattings applied according to manufacturer's recommendations or wood chips applied at 6 tons/ac.
3. Straw mulch shall be anchored immediately to minimize loss by wind or water.

Anchoring Methods:

- Mechanical--A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but, generally, be left longer than 6 in.
- Mulch Nettings--Nettings shall be used according to the manufacturer's recommendations. Netting may be necessary to hold mulch in place in areas of concentration runoff and on critical slopes.

Temporary Seeding Table ~ 70% Cover within 30 Days

Temporary Seeding Species Selection			
Seeding Dates	Species	Lb./1,000 ft. ²	Per Ac.
	Oats	3	4 bushels
	Tall Fescue	1	40 lb.
	Annual Ryegrass	1	40 lb.
	Perennial Ryegrass	1	40 lb.
	Tall Fescue	1	40 lb.
	Annual Ryegrass	1	40 lb.
	Rye	3	2 bushels
	Tall Fescue	1	40 lb.
	Annual Ryegrass	1	40 lb.
	Wheat	3	2 bushels
	Tall Fescue	1	40 lb.
	Annual Ryegrass	1	40 lb.
	Perennial Ryegrass	1	40 lb.
	Tall Fescue	1	40 lb.
	Annual Ryegrass	1	40 lb.
November 1 to Spring Seeding	Use mulch only, sodding practices or dormant seeding.		
Note: Other approved seed species may be substituted.			

SECTION 7: Post Development Control:

7.1 Storm Water Requirements

This site is under the jurisdiction of the City of Charleston. All calculations were completed using HydroCad version 10 for sizing the stormwater management facility and stormwater pipe sizes. HydroCad reports included within this document are summaries of the control features of the site. Complete HydroCad reports, including sub-catchment drainage areas are available upon request.

7.2 Post Construction Narrative

The City of Charleston has confirmed that this development will be considered a major commercial development for stormwater control purposes. An on-site collection system is shown on the plans. This collection system is controlled by the proposed underground system to be located in the lower portion

of the parking lot. The City's requirements for this include the post construction control of the 1, 2, 10 and 25-year storm events to predevelopment conditions or less.

7.3 Stormwater Calculations

The system was designed to promote ground water recharge through the use of perforated pipe embedded in stone under the parking lot. In addition to providing an opportunity for recharge, the City of Charleston requires control of the 1-year, 2-year, 10-year and 25-year storm events for this development, along with safe passage of the 100-yr storm event through the stormwater management system.

This control will be achieved within the underground system and the outlet structure will be used to control the discharge from the site. There will be volume below the invert of the lowest orifice in the structure that will be used to promote groundwater recharge. The connection point to the existing system will be at an existing catch basin located along Horne's Avenue.

Table 1 below provides a summary of the HydroCad results.

TABLE 1: Pre and Post Development Comparisons.
East Side of Site

<i>Storm Event</i>	<i>Pre-Construction Discharge (cfs)</i>	<i>Post Construction Discharge Total</i>	<i>Peak Elev. In SWM</i>
<i>1 Year - 24 Hour</i>	<i>4.10</i>	<i>0.49</i>	<i>598.82</i>
<i>2 Year - 24 Hour</i>	<i>5.06</i>	<i>0.71</i>	<i>598.90</i>
<i>5 Year - 24 Hour</i>	<i>6.35</i>	<i>1.68</i>	<i>599.12</i>
<i>10 Year - 24 Hour</i>	<i>7.37</i>	<i>2.64</i>	<i>599.40</i>
<i>25 Year - 24 Hour</i>	<i>8.78</i>	<i>3.10</i>	<i>599.87</i>
<i>50 Year - 24 Hour</i>	<i>9.93</i>	<i>3.52</i>	<i>600.30</i>
<i>100 Year - 24 Hour</i>	<i>11.10</i>	<i>3.94</i>	<i>600.78</i>

The total post construction discharge shown above includes those areas of the site that are not controlled by the proposed stormwater management facility that are within the same pre-construction drainage area.

Section 7.3 Supporting Documents:

Appendix H HydroCad 10 Pre-Development Reports

Appendix I HydroCad 10 Post-Development Reports for Stormwater Management BMP

Appendix J HydroCad 10 Post-Development Reports for Total Site Discharge (Includes SWM BMP)

7.4 Water Quality Calculations

Following the latest WVDEP requirements for permanent water quality measures, the stormwater volume required to meet the quality standards was calculated using the flowing equation:

$$WQv = (Rv)(P)(A/12)$$

Where: WQv = Water Quality Volume, *Acre-Feet*

Rv = Volumetric Runoff Coefficient

P = Precipitation, *1.0 inch*

A = Area Draining to BMP, *Acres*

Total area draining to BMP = 1.094 Acres. 68.1% Impervious.

Impervious Fraction = 0.745 Ac./1.094 Acres = 0.681

$R_v = 0.05 + 1.00 \times 0.681 = 0.731$

$WQ_v = (0.731)(1.00)(1.094/12) = 0.067 \text{ Ac-Ft} = 2,903 \text{ CF}$

The underground stormwater detention system has been designed to provide the required water quality volume for the site. The system will have an outlet control structure that contains a weir plate with a small, 1.0" diameter orifice hole. The top of weir is set an elevation that will provide 3,082 cubic feet of storage for water quality purposes.

Section 7.4 Supporting Documents:

Appendix K Water Quality Calculations & Orifice Sizing

7.5 Long Term Maintenance Plan

Long-term maintenance of the storm sewer system is included for the owner's reference. This maintenance plan is to be kept on site and updated with any repairs that may be required.

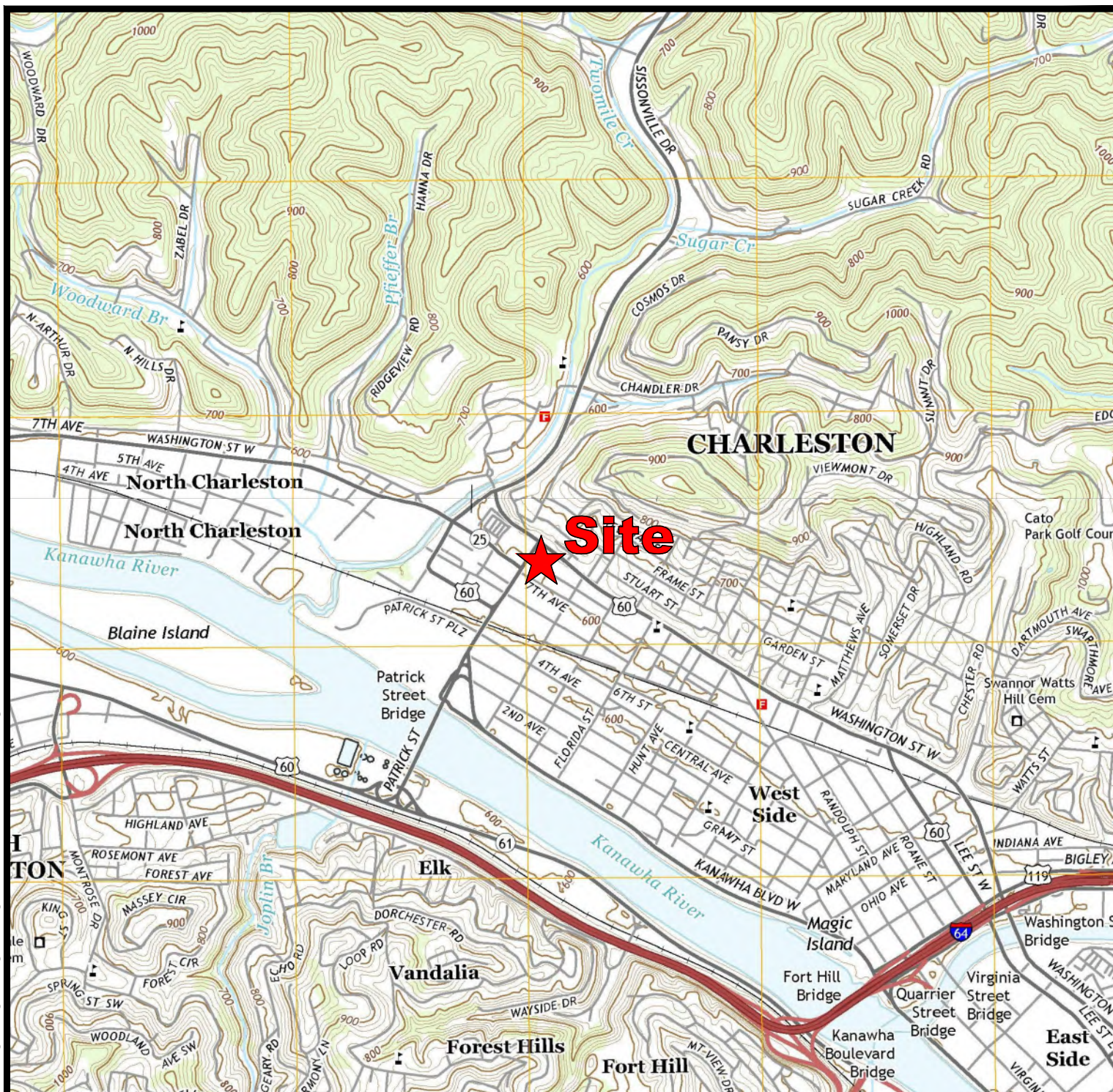
Section 7.5 Supporting Documents:

Appendix L Long Term Maintenance Schedule

END REPORT

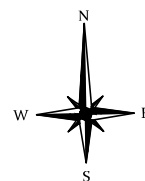
APPENDIX A

January 31, 2023 - 2:14pm Q:\Clients\The Woda Group\Washington Greene Engineering Drawings\Washington Greene - Drive Relocate-WIP.dwg



USGS MAP

Scale: 1" = 2000'



171 West Main Street
P.O. Box 695
St. Clairsville, Ohio 43950
Office: 740.449.2194
chadanengineering.com

Washington Greene Apartments

1661 Washington Street, City of Charleston
Kanawha County, West Virginia

APPENDIX B

**CONTRACTOR/SUBCONTRACTOR CERTIFICATION NPDES GENERIC PERMIT FOR STORM
WATER DISCHARGES FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES**

"I certify under penalty of law that I understand and shall comply with, the terms and conditions of the State of West Virginia General Permit for Stormwater Discharge from Large and Small Construction Activities and this Stormwater Pollution Prevention Plan prepared thereunder."

Signature of Contractor/Subcontractor

Date

Name and Title

Name of Contracting or Subcontracting Firm

Address or P.O. Box of Contracting or Subcontracting Firm

City

State

Zip Code

Telephone: Contracting or Subcontracting Firm

Area Code

Number

Email of Contracting or Subcontracting Firm

APPENDIX C



United States
Department of
Agriculture

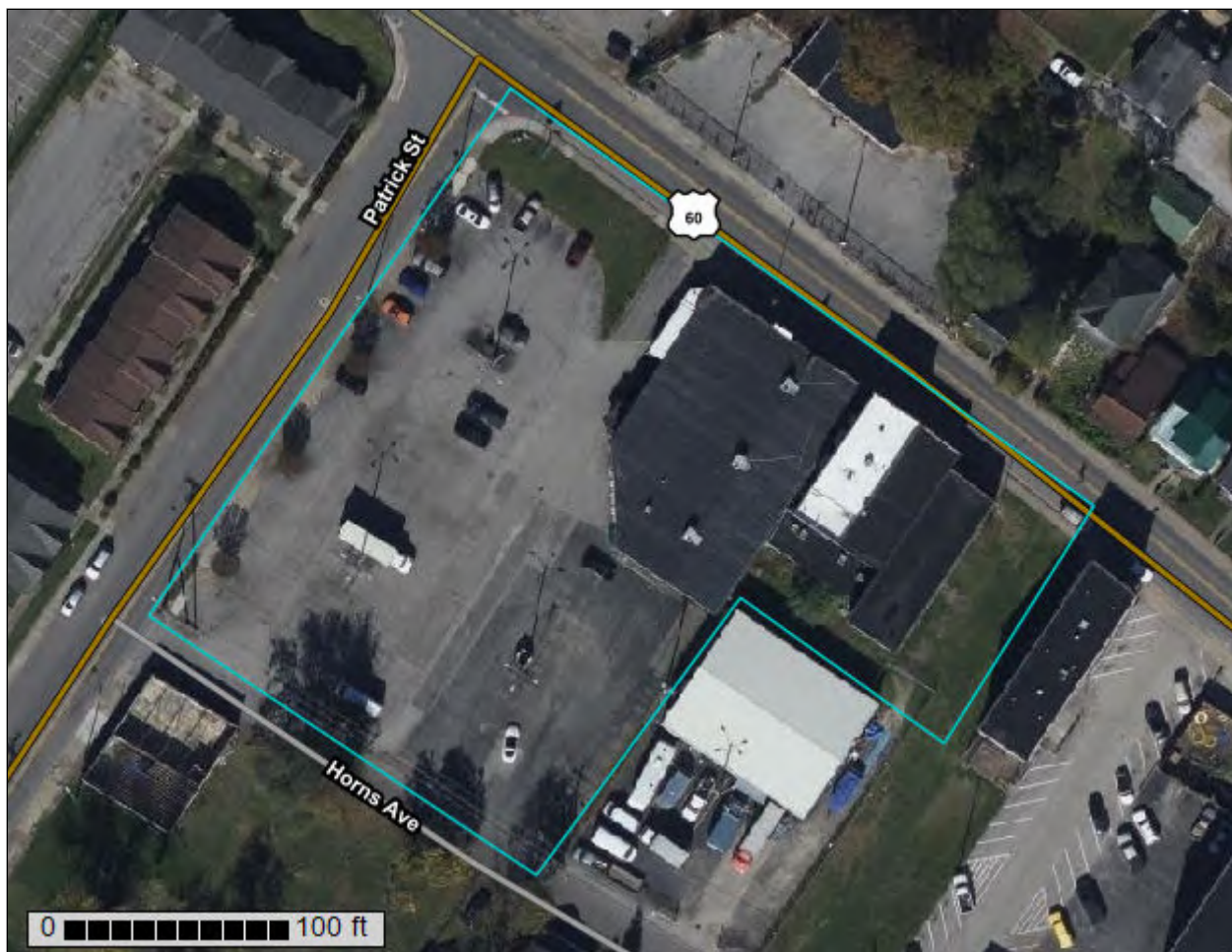
NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Kanawha County, West Virginia**

Washington Greene



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Map Scale: 1:899 if printed on A landscape (11" x 8.5") sheet.

0 10 20 40 60 Meters

0 40 80 160 240 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kanawha County, West Virginia
Survey Area Data: Version 16, Sep 9, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 1, 2020—Aug 1, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
LdC	Laidig channery loam, 8 to 15 percent slopes	1.5	88.7%
Ut	Urban land-Tyler complex	0.2	11.3%
Totals for Area of Interest		1.7	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Kanawha County, West Virginia

LdC—Laidig channery loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: k6nq

Elevation: 570 to 1,330 feet

Mean annual precipitation: 35 to 47 inches

Mean annual air temperature: 44 to 66 degrees F

Frost-free period: 165 to 192 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Laidig and similar soils: 85 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Laidig

Setting

Landform: Hillsides

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Fine-loamy colluvium derived from interbedded sedimentary rock

Typical profile

A - 0 to 9 inches: channery loam

Bt - 9 to 45 inches: channery loam

Bx - 45 to 82 inches: very channery loam

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: About 16 to 31 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: B

Ecological site: F125XY002WV - Interbedded Sedimentary Colluvium

Other vegetative classification: Acid Loams (AL3)

Hydric soil rating: No

Minor Components

Andover

Percent of map unit: 5 percent

Landform: Coves

Custom Soil Resource Report

Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Wetlands (W3)
Hydric soil rating: Yes

Ut—Urban land-Tyler complex

Map Unit Setting

National map unit symbol: k6p6
Elevation: 570 to 660 feet
Mean annual precipitation: 35 to 47 inches
Mean annual air temperature: 44 to 66 degrees F
Frost-free period: 165 to 192 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 65 percent
Tyler and similar soils: 20 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified
Other vegetative classification: Not Suited (NS)
Hydric soil rating: No

Description of Tyler

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Fine-silty alluvium derived from sedimentary rock

Typical profile

Ap+Bt1 - 0 to 14 inches: silt loam
Bt2 - 14 to 20 inches: silt loam
Bx - 20 to 60 inches: clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 18 to 24 inches to fragipan
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Custom Soil Resource Report

Depth to water table: About 6 to 16 inches
Frequency of flooding: None
Frequency of ponding: Occasional
Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Hydrologic Soil Group: D
Ecological site: F126XY007OH - Poorly Drained Tread
Hydric soil rating: No

Minor Components

Robertsville, ponded

Percent of map unit: 5 percent
Landform: Flats, stream terraces
Landform position (three-dimensional): Interfluve, tread
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

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Custom Soil Resource Report

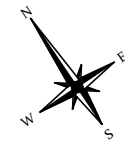
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APPENDIX D

APPENDIX E



PLAN VIEW

SCALE 1" = 20'

0 20 40 60

	Property Line
	Existing Survey Control Point
	Existing Grade Contour (Index)
	Existing Grade Contour (Intermediate)
	Existing Grade Spot Elevation
	Existing Grade Spot Elevation (Top/Bottom Curb)
	Existing Soil Boring Location
	Existing Overhead Electric/Tele/CatV
	Existing Overhead Telephone/Cable
	Existing Overhead Electric
	Existing Overhead Telephone
	Existing Overhead Cable
	Existing Utility Pole
	Existing Light Pole/Utility Pole with Light
	Existing Water Meter
	Existing Water Valve
	Existing Hydrant
	Existing Waterline
	Existing Sanitary Manhole
	Existing Sanitary Sewer
	Existing Storm Inlet/Catch Basin
	Existing Storm Sewer
	Existing Gas Valve
	Existing Gas Line
	Existing Chain Link Fence
	Existing Wooden Fence
	Existing Guardrail
	Existing Bollard
	Proposed Chain Link Fence
	Proposed Grade Contour (Index)
	Proposed Grade Contour (Intermediate)
	Proposed Spot Elevation
	Proposed Storm Structure
	Existing Asphalt Surface
	Existing Concrete Surface
	Existing Brick Surface
	Existing Aggregate Surface
	Proposed Standard Asphalt Surface
	Proposed Heavy Duty Asphalt Surface

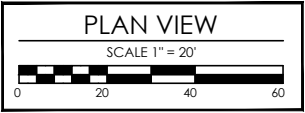
WASHINGTON GREENE
Site Development Plans

1661 Washington Street, City of Charleston,
Kanawha County, West Virginia

[illegible]

Pre-Development
Drainage Area

EX-1



- | | |
|--|--|
| | Property Line |
| | Existing Survey Control Point |
| | Existing Grade Contour (Index) |
| | Existing Grade Contour (Intermediate) |
| | Existing Grade Spot Elevation |
| | Existing Grade Spot Elevation (Top/Bottom Curbl) |
| | Existing Soil Boring Location |
| | Existing Overhead Electric/Tele/CAV |
| | Existing Overhead Telephone/Cable |
| | Existing Overhead Electric |
| | Existing Overhead Telephone |
| | Existing Overhead Cable |
| | Existing Utility Pole |
| | Existing Light Pole/Utility Pole with Light |
| | Existing Water Meter |
| | Existing Water Valve |
| | Existing Hydrant |
| | Existing Waterline |
| | Existing Sanitary Manhole |
| | Existing Sanitary Sewer |
| | Existing Storm Inlet/Catch Basin |
| | Existing Storm Sewer |
| | Existing Gas Valve |
| | Existing Gas Line |
| | Existing Chain Link Fence |
| | Existing Wooden Fence |
| | Existing Guardrail |
| | Existing Bollard |
| | Proposed Chain Link Fence |
| | Proposed Grade Contour (Index) |
| | Proposed Grade Contour (Intermediate) |
| | Proposed Spot Elevation |
| | Proposed Storm Structure |
| | Existing Asphalt Surface |
| | Existing Concrete Surface |
| | Existing Brick Surface |
| | Existing Aggregate Surface |
| | Proposed Standard Asphalt Surface |
| | Proposed Heavy Duty Asphalt Surface |

CLIENT:
Washington Greene, L.P.
Attn: Anne Little
500 S. Front Street, 10th Floor
Columbus, OH 43215
614.396.3200

WASHINGTON GREENE
Site Development Plans

1661 Washington Street, City of Charleston,
Kanawha County, West Virginia

[illegible]

DATE ISSUED: 01-25-2023
DRAWN: RLL CHECKED: CMG

NOTES:

Post-Development
Drainage Area

EX-2

APPENDIX F

Storm Water Construction Site Inspection Report

General Information			
Project Name			
NPDES Tracking No.		Location	
Date of Inspection		Start/End Time	
Inspector's Name(s)			
Inspector's Contact Information			
Describe present phase of construction			
Type of Inspection: ☐ Regular ☐ Pre-storm event ☐ During storm event ☐ Post-storm event			
Weather Information			
Has there been a storm event since the last inspection? ☐ Yes ☐ No If yes, provide: Storm Start Date & Time: Storm Duration (hrs): Approximate Precipitation (in):			
Weather at time of this inspection? ☐ Clear ☐ Cloudy ☐ Rain ☐ Sleet ☐ Fog ☐ Snowing ☐ High Winds ☐ Other: _____ Temperature: _____			
Have any discharges occurred since the last inspection? ☐ Yes ☐ No If yes, describe:			
Are there any discharges at the time of inspection? ☐ Yes ☐ No If yes, describe:			

Site-specific BMPs

	BMP	BMP Installed?	BMP Maintenance Required?	Corrective Action Needed and Notes
1		☐ Yes ☐ No	☐ Yes ☐ No	
2		☐ Yes ☐ No	☐ Yes ☐ No	
3		☒ Yes ☐ No	☐ Yes ☐ No	
4		☐ Yes ☐ No	☐ Yes ☐ No	
5		☐ Yes ☐ No	☐ Yes ☐ No	

	BMP	BMP Installed?	BMP Maintenance Required?	Corrective Action Needed and Notes
6		☐ Yes ☐ No	☐ Yes ☐ No	
7		☐ Yes ☐ No	☐ Yes ☐ No	
8		☐ Yes ☐ No	☐ Yes ☐ No	
9		☐ Yes ☐ No	☐ Yes ☐ No	
10		☐ Yes ☐ No	☐ Yes ☐ No	
11		☐ Yes ☐ No	☐ Yes ☐ No	
12		☐ Yes ☐ No	☐ Yes ☐ No	
13		☐ Yes ☐ No	☐ Yes ☐ No	
14		☐ Yes ☐ No	☐ Yes ☐ No	
15		☐ Yes ☐ No	☐ Yes ☐ No	
16		☐ Yes ☐ No	☐ Yes ☐ No	
17		☐ Yes ☐ No	☐ Yes ☐ No	
18		☐ Yes ☐ No	☐ Yes ☐ No	
19		☐ Yes ☐ No	☐ Yes ☐ No	
20		☐ Yes ☐ No	☐ Yes ☐ No	

Overall Site Issues

	BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes
1	Are all slopes and disturbed areas not actively being worked properly stabilized?	☐ Yes ☐ No	☐ Yes ☐ No	
2	Are natural resource areas (e.g., streams, wetlands, mature trees, etc.) protected with barriers or similar BMPs?	☐ Yes ☐ No	☐ Yes ☐ No	
3	Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	☐ Yes ☐ No	☐ Yes ☐ No	
4	Are discharge points and receiving waters free of any sediment deposits?	☐ Yes ☐ No	☐ Yes ☐ No	
5	Are storm drain inlets properly protected?	☐ Yes ☐ No	☐ Yes ☐ No	
6	Is the construction exit preventing sediment from being tracked into the street?	☐ Yes ☐ No	☐ Yes ☐ No	
7	Is trash/litter from work areas collected and placed in covered dumpsters?	☐ Yes ☐ No	☐ Yes ☐ No	
8	Are washout facilities available, clearly marked, and maintained?	☐ Yes ☐ No	☐ Yes ☐ No	
9	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	☐ Yes ☐ No	☐ Yes ☐ No	
10	Are materials that are potential storm water contaminants stored inside or under cover?	☐ Yes ☐ No	☐ Yes ☐ No	
11	Are non-storm water discharges (e.g., wash water, dewatering) properly controlled?	☐ Yes ☐ No	☐ Yes ☐ No	

	BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes
12	(Other)	☐ Yes ☐ No	☐ Yes ☐ No	

Non-Compliance

--

CERTIFICATION STATEMENT

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Print name and title:

Signature: _____ **Date:**

APPENDIX G

Section A – Initial Report (CGP Part 5.4.1) (Complete this section within 24 hours of identifying the condition that triggered corrective action)				
Name of Project		NPDES ID No.		Today's Date
Date Problem First Discovered		Time Problem First Discovered		
Name and Contact Information of Individual Completing this Form				
What site conditions triggered the requirement to conduct corrective action <i>(check the box that applies):</i> ☐ A stormwater control needs repair or replacement (beyond routine maintenance required under Part 2.1.4) ☐ A stormwater control necessary to comply with the requirements of this permit was never installed, or was installed incorrectly ☐ A discharge is causing an exceedance of applicable water quality standards ☐ A Part 1.3 prohibited discharge has occurred ☐ EPA requires corrective action as a result of permit violations found during an EPA inspection carried out under Part 4.8				
Provide a description of the problem: Deadline for completing corrective action <i>(check the box that applies):</i> Repairs or maintenance to BMPs shall be performed as soon as practicable after the inspection following the 0.25-inch rain event in a 24-hour period, and repairs shall be re-inspected no later than 48 hours following repair. If repairs cannot be completed within that period, the reason for the delay shall be explained on the inspection report and such an anticipated completion date shall be provided. ☐ Immediately take all reasonable steps to address the condition, including cleaning up any contaminated surfaces so the material will not discharge in subsequent storm events ☐ Complete by close of the next business day when problem does not require a new or replacement control or significant repair ☐ Repair as soon as practicable from the time of discovery for problems that require a new or replacement control or significant repair ☐ Infeasible to complete the installation or repair at this time. Explain why it is infeasible and document schedule for installing control: Anticipated Completion Date: _____				
Enter date of corrective action completion: _____				
Section B – Corrective Action Completion (CGP Part 5.4.2) (Complete this section <u>no later than 24 hours</u> after completing the corrective action)				
Section B.1 – Why the Problem Occurred				
Cause(s) of Problem <i>(Add an additional sheet if necessary)</i>	How You Determined the Cause and the Date You Determined the Cause			
1. 2.	1. 2.			
Section B.2 – Stormwater Control Modifications Implemented to Correct the Problem				
List of Stormwater Control Modification(s) Needed to Correct Problem <i>(Add an additional sheet if necessary)</i>	Date of Completion	SWPPP Update Necessary?	Notes	
1.		☐ Yes ☐ No If yes, provide date SWPPP modified:		
2.		☐ Yes ☐ No If yes, provide date SWPPP modified:		

Section C –Signature and Certification (CGP Part 5.4.3)

Section C.1 – Contractor or Subcontractor Signature and Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature of Contractor or Subcontractor: _____

Date:

Printed Name and Affiliation: _____

Section C.2 – Operator Signature and Certification

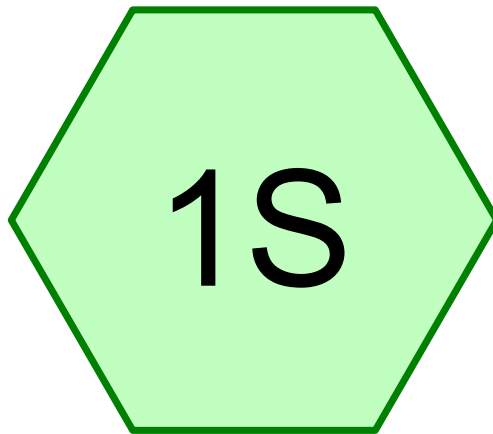
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature of Operator or "Duly Authorized Representative": _____

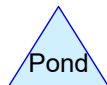
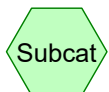
Date:

Printed Name and Affiliation: _____

APPENDIX H



Pre-Development



Washington Greene - Pre Development

Prepared by {enter your company name here}

HydroCAD® 10.00-21 s/n 09942 © 2018 HydroCAD Software Solutions LLC

Type II 24-hr 1-Year Rainfall=2.16"

Printed 2/2/2023

Page 2

Summary for Subcatchment 1S: Pre-Development

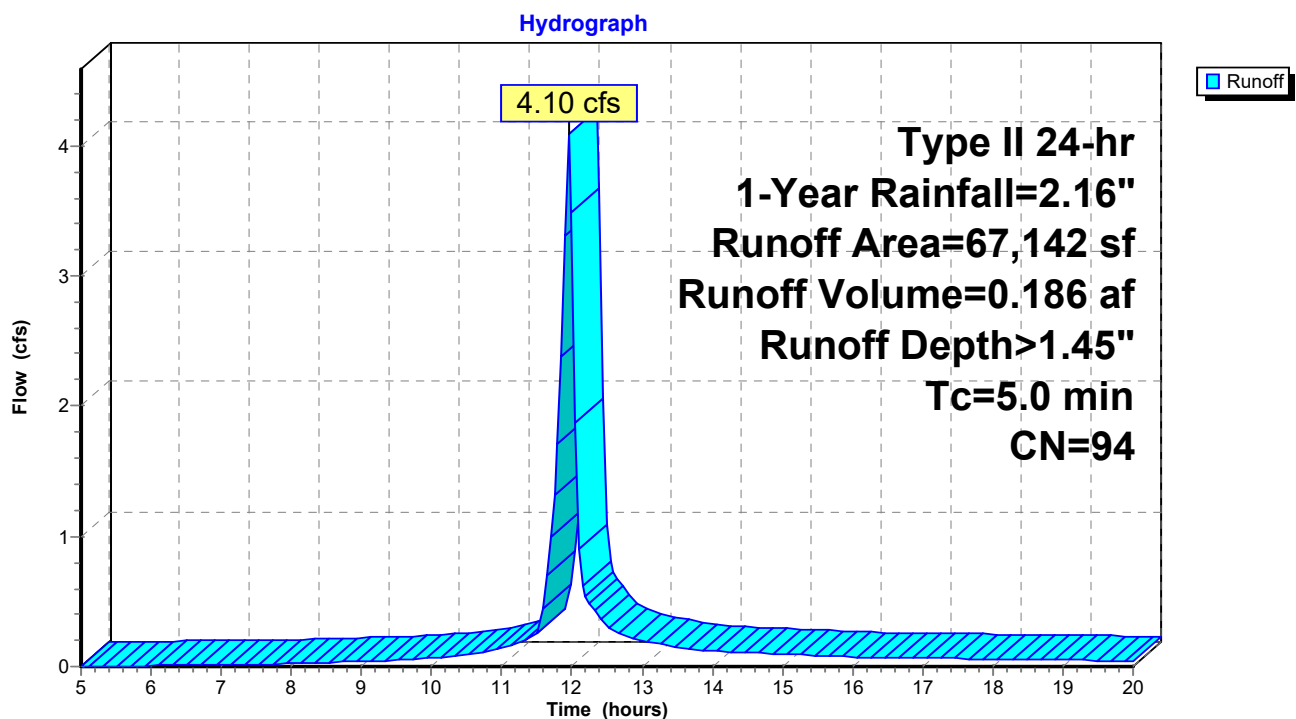
Runoff = 4.10 cfs @ 11.95 hrs, Volume= 0.186 af, Depth> 1.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.16"

Area (sf)	CN	Description
6,610	61	>75% Grass cover, Good, HSG B
60,532	98	Paved parking, HSG B
67,142	94	Weighted Average
6,610		9.84% Pervious Area
60,532		90.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Pre-Development

Subcatchment 1S: Pre-Development



Washington Greene - Pre Development

Prepared by {enter your company name here}

HydroCAD® 10.00-21 s/n 09942 © 2018 HydroCAD Software Solutions LLC

Type II 24-hr 2-Year Rainfall=2.57"

Printed 2/2/2023

Page 3

Summary for Subcatchment 1S: Pre-Development

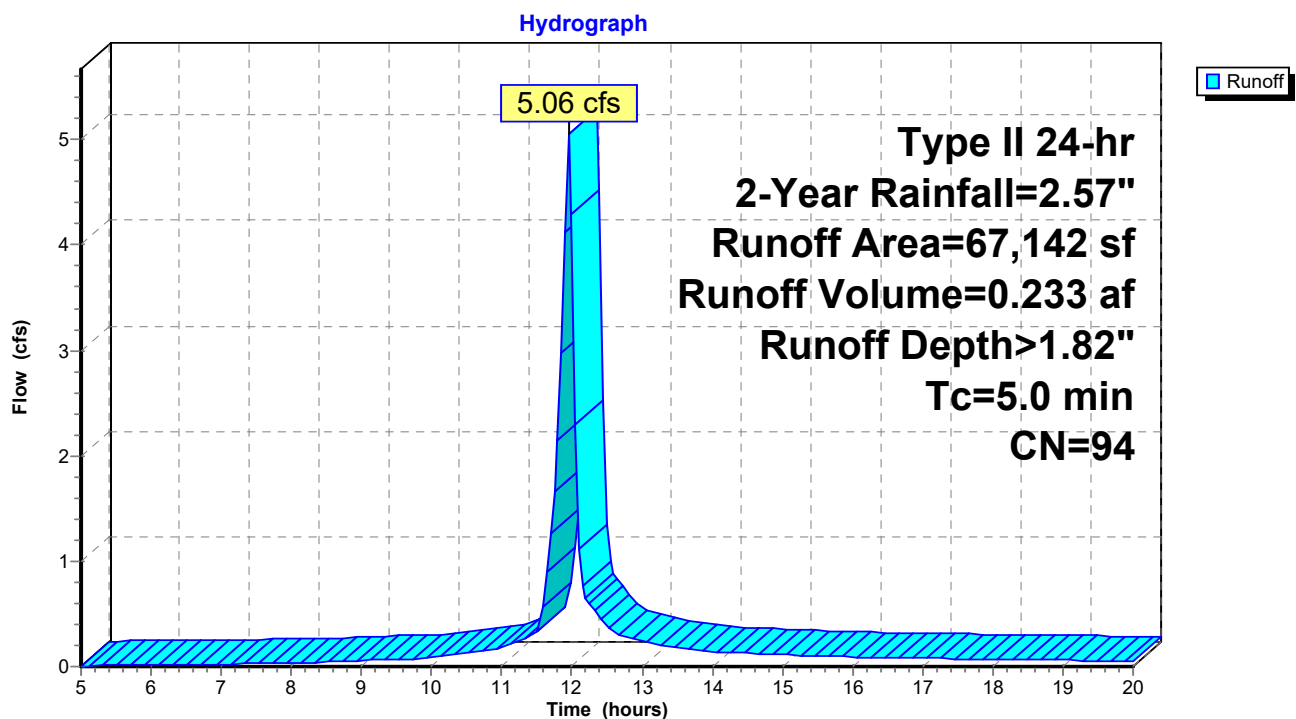
Runoff = 5.06 cfs @ 11.95 hrs, Volume= 0.233 af, Depth> 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-Year Rainfall=2.57"

Area (sf)	CN	Description
6,610	61	>75% Grass cover, Good, HSG B
60,532	98	Paved parking, HSG B
67,142	94	Weighted Average
6,610		9.84% Pervious Area
60,532		90.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Pre-Development

Subcatchment 1S: Pre-Development



Washington Greene - Pre Development

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Type II 24-hr 5-Year Rainfall=3.12"

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Summary for Subcatchment 1S: Pre-Development

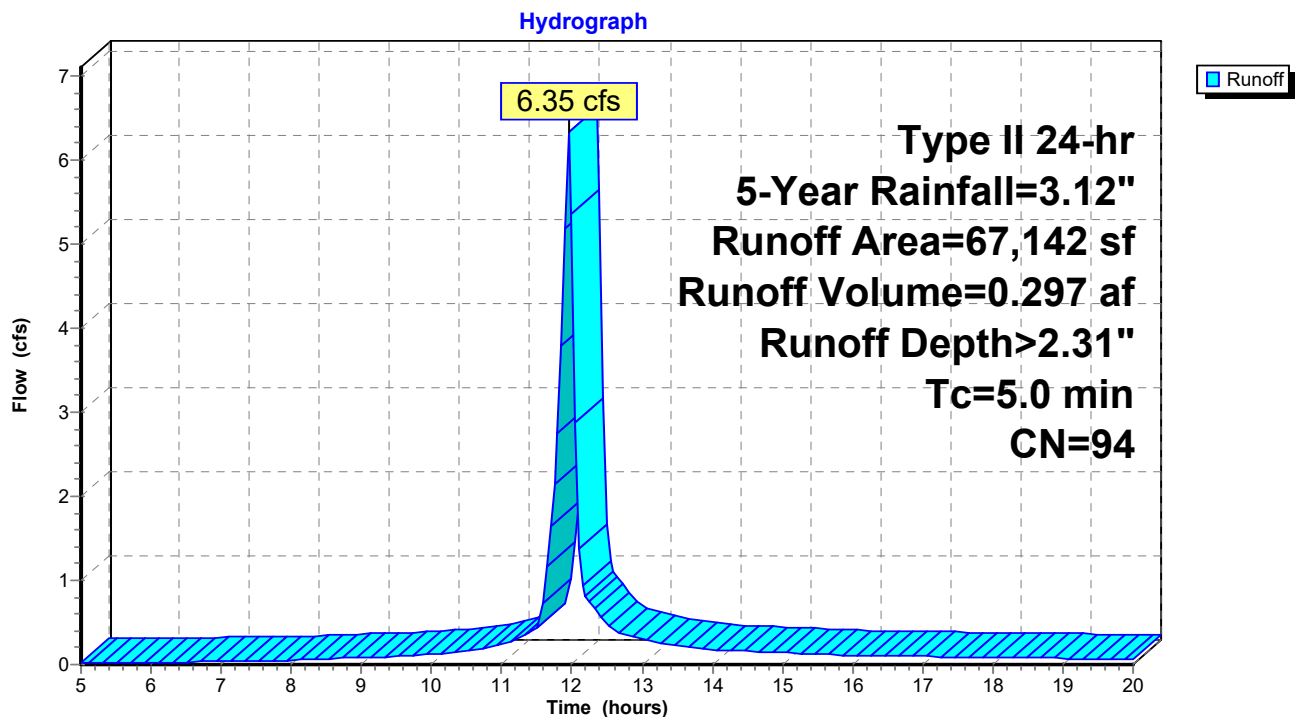
Runoff = 6.35 cfs @ 11.95 hrs, Volume= 0.297 af, Depth> 2.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-Year Rainfall=3.12"

Area (sf)	CN	Description
6,610	61	>75% Grass cover, Good, HSG B
60,532	98	Paved parking, HSG B
67,142	94	Weighted Average
6,610		9.84% Pervious Area
60,532		90.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Pre-Development

Subcatchment 1S: Pre-Development



Washington Greene - Pre Development

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Type II 24-hr 10-Year Rainfall=3.56"

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Summary for Subcatchment 1S: Pre-Development

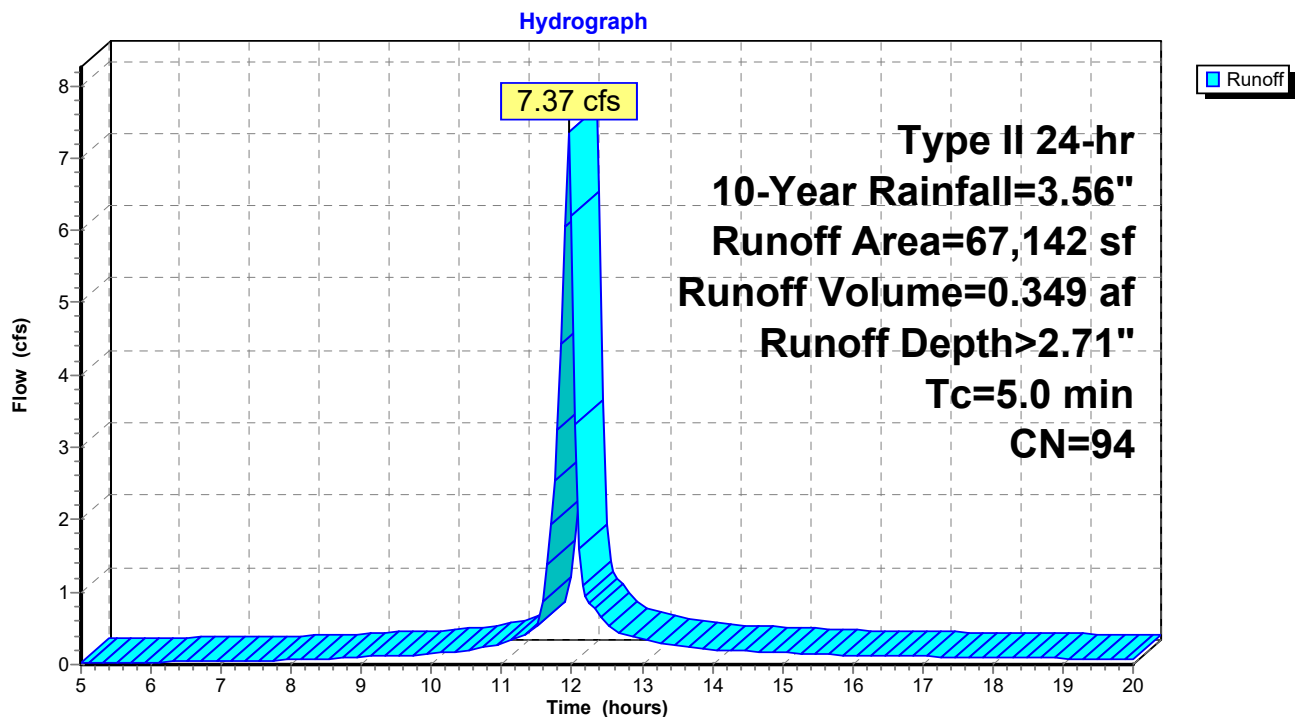
Runoff = 7.37 cfs @ 11.95 hrs, Volume= 0.349 af, Depth> 2.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=3.56"

Area (sf)	CN	Description
6,610	61	>75% Grass cover, Good, HSG B
60,532	98	Paved parking, HSG B
67,142	94	Weighted Average
6,610		9.84% Pervious Area
60,532		90.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Pre-Development

Subcatchment 1S: Pre-Development



Washington Greene - Pre Development

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Type II 24-hr 25-Year Rainfall=4.17"

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Summary for Subcatchment 1S: Pre-Development

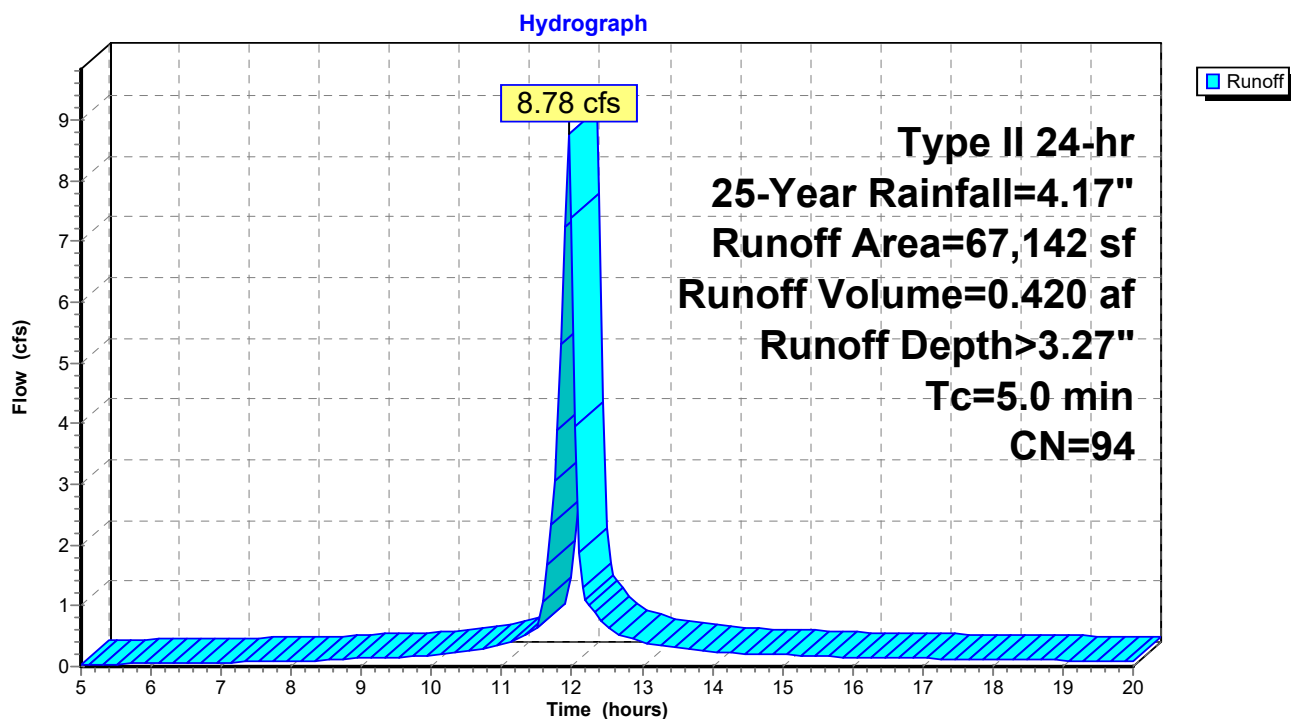
Runoff = 8.78 cfs @ 11.95 hrs, Volume= 0.420 af, Depth> 3.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-Year Rainfall=4.17"

Area (sf)	CN	Description
6,610	61	>75% Grass cover, Good, HSG B
60,532	98	Paved parking, HSG B
67,142	94	Weighted Average
6,610		9.84% Pervious Area
60,532		90.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Pre-Development

Subcatchment 1S: Pre-Development



Washington Greene - Pre Development

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Type II 24-hr 50-Year Rainfall=4.67"

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Summary for Subcatchment 1S: Pre-Development

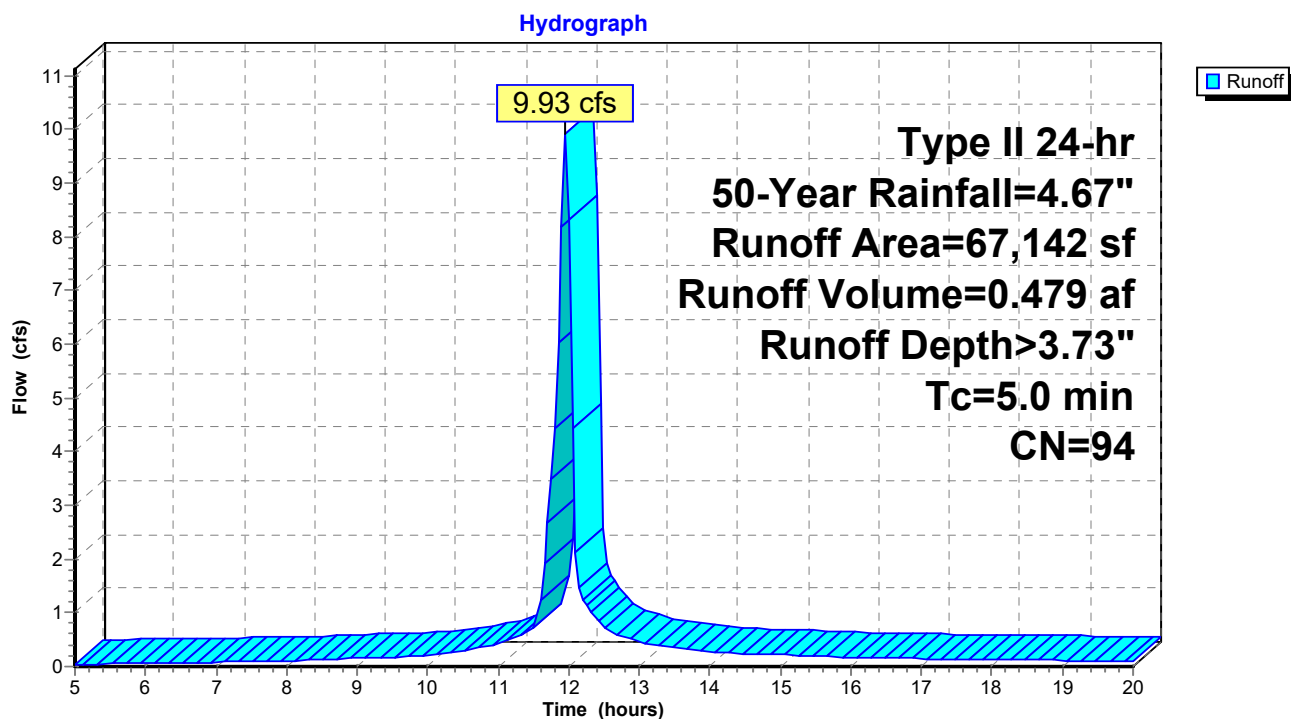
Runoff = 9.93 cfs @ 11.95 hrs, Volume= 0.479 af, Depth> 3.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-Year Rainfall=4.67"

Area (sf)	CN	Description
6,610	61	>75% Grass cover, Good, HSG B
60,532	98	Paved parking, HSG B
67,142	94	Weighted Average
6,610		9.84% Pervious Area
60,532		90.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Pre-Development

Subcatchment 1S: Pre-Development



Washington Greene - Pre Development

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Type II 24-hr 100-Year Rainfall=5.18"

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Summary for Subcatchment 1S: Pre-Development

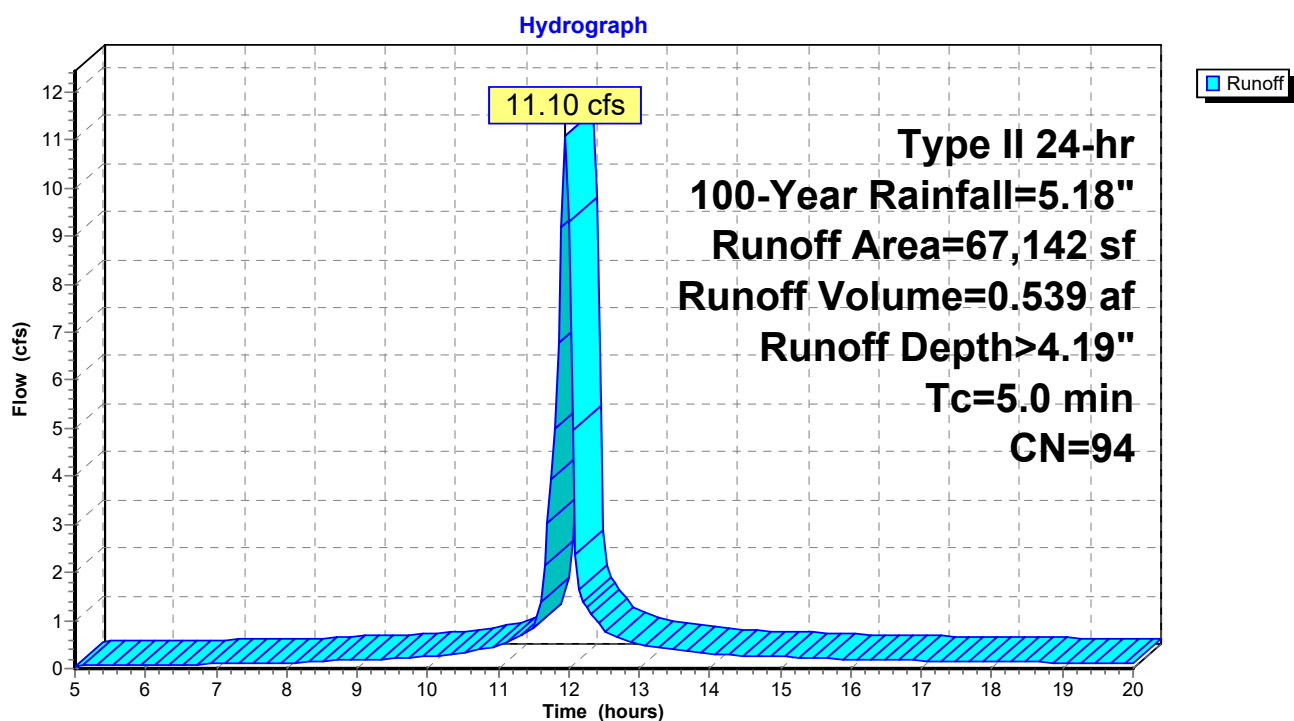
Runoff = 11.10 cfs @ 11.95 hrs, Volume= 0.539 af, Depth> 4.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=5.18"

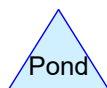
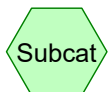
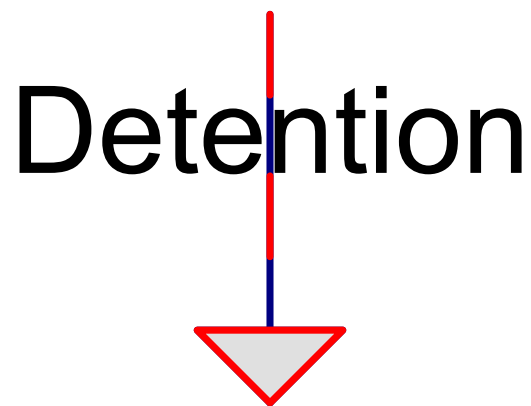
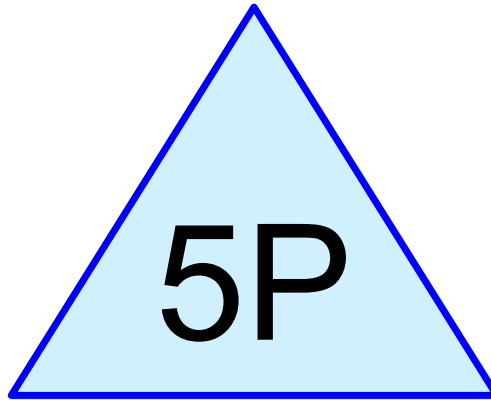
Area (sf)	CN	Description
6,610	61	>75% Grass cover, Good, HSG B
60,532	98	Paved parking, HSG B
67,142	94	Weighted Average
6,610		9.84% Pervious Area
60,532		90.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Pre-Development

Subcatchment 1S: Pre-Development



APPENDIX I



Routing Diagram for Washington Greene - Larger Detention Option

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Washington Greene - Larger Detention Option

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Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	5P	596.85	596.50	14.4	0.0243	0.013	6.0	0.0	0.0

Washington Greene - Larger Detention Option

Type II 24-hr 1-Year Rainfall=2.16"

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Summary for Pond 5P: Detention

Inflow Area = 1.097 ac, 68.09% Impervious, Inflow Depth > 1.19" for 1-Year event
Inflow = 2.18 cfs @ 11.96 hrs, Volume= 0.109 af
Outflow = 0.07 cfs @ 13.88 hrs, Volume= 0.038 af, Atten= 97%, Lag= 115.2 min
Primary = 0.07 cfs @ 13.88 hrs, Volume= 0.038 af
Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.01 hrs, dt= 0.03 hrs
Peak Elev= 598.84' @ 13.88 hrs Surf.Area= 2,713 sf Storage= 3,159 cf
Flood Elev= 602.00' Surf.Area= 2,713 sf Storage= 6,927 cf

Plug-Flow detention time= 319.1 min calculated for 0.038 af (35% of inflow)
Center-of-Mass det. time= 180.7 min (976.8 - 796.2)

Volume	Invert	Avail.Storage	Storage Description
#1	597.00'	2,617 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 10,852 cf Overall - 4,310 cf Embedded = 6,542 cf x 40.0% Voids
#2	597.00'	4,310 cf	48.0" Round Pipe Storage Inside #1 L= 343.0'
		6,927 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
597.00	2,713	0	0
601.00	2,713	10,852	10,852

Device	Routing	Invert	Outlet Devices
#1	Primary	596.85'	6.0" Round 6" Outlet Pipe L= 14.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 596.85' / 596.50' S= 0.0243 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Device 1	596.85'	0.7" Vert. Orifice/Grate C= 0.600
#3	Device 1	598.80'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 2.20 Width (feet) 2.00 2.00
#4	Secondary	601.00'	20.0" W x 4.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.07 cfs @ 13.88 hrs HW=598.84' TW=0.00' (Dynamic Tailwater)

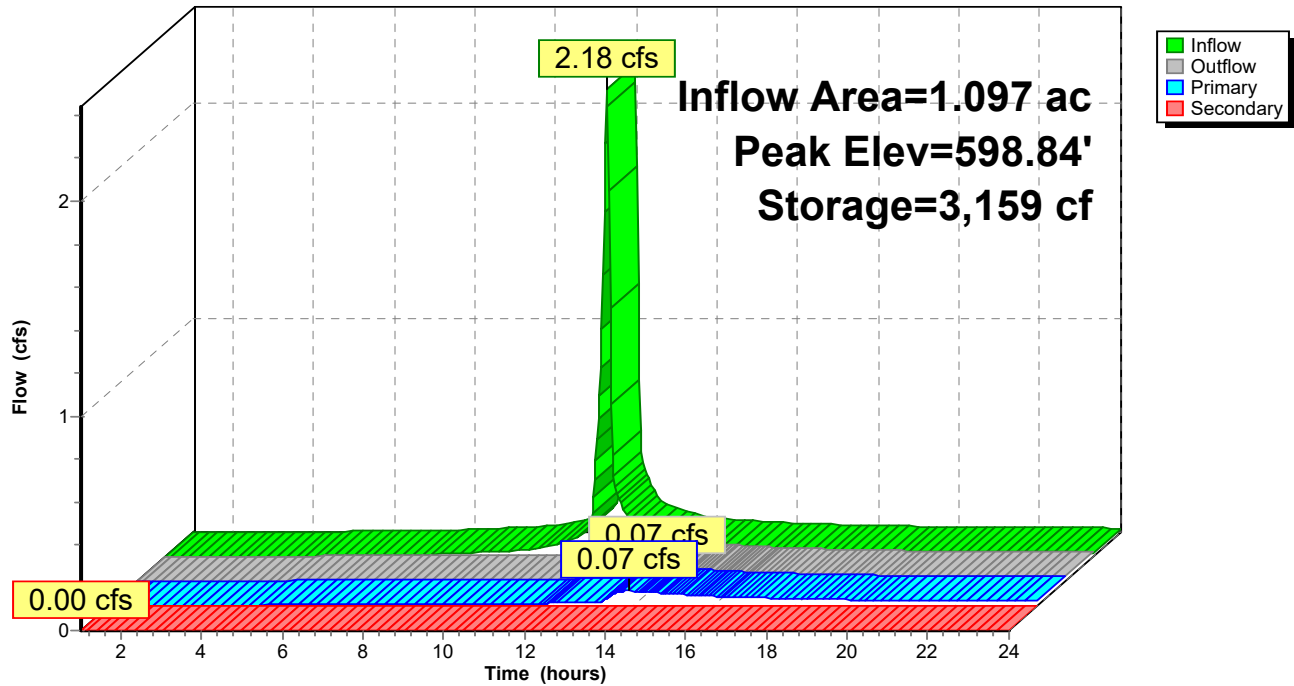
↑ **1=6" Outlet Pipe** (Passes 0.07 cfs of 1.25 cfs potential flow)
↑ **2=Orifice/Grate** (Orifice Controls 0.02 cfs @ 6.74 fps)
↑ **3=Custom Weir/Orifice** (Weir Controls 0.05 cfs @ 0.66 fps)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=597.00' TW=0.00' (Dynamic Tailwater)

↑ **4=Orifice/Grate** (Controls 0.00 cfs)

Pond 5P: Detention

Hydrograph



Washington Greene - Larger Detention Option

Type II 24-hr 2-Year Rainfall=2.57"

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Summary for Pond 5P: Detention

Inflow Area = 1.097 ac, 68.09% Impervious, Inflow Depth > 1.51" for 2-Year event
 Inflow = 2.77 cfs @ 11.96 hrs, Volume= 0.138 af
 Outflow = 0.29 cfs @ 12.35 hrs, Volume= 0.067 af, Atten= 90%, Lag= 23.6 min
 Primary = 0.29 cfs @ 12.35 hrs, Volume= 0.067 af
 Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.01 hrs, dt= 0.03 hrs
 Peak Elev= 598.92' @ 12.35 hrs Surf.Area= 2,713 sf Storage= 3,310 cf
 Flood Elev= 602.00' Surf.Area= 2,713 sf Storage= 6,927 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 120.9 min (912.8 - 792.0)

Volume	Invert	Avail.Storage	Storage Description
#1	597.00'	2,617 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 10,852 cf Overall - 4,310 cf Embedded = 6,542 cf x 40.0% Voids
#2	597.00'	4,310 cf	48.0" Round Pipe Storage Inside #1 L= 343.0'
		6,927 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
597.00	2,713	0	0
601.00	2,713	10,852	10,852

Device	Routing	Invert	Outlet Devices
#1	Primary	596.85'	6.0" Round 6" Outlet Pipe L= 14.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 596.85' / 596.50' S= 0.0243 ' /' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Device 1	596.85'	0.7" Vert. Orifice/Grate C= 0.600
#3	Device 1	598.80'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 2.20 Width (feet) 2.00 2.00
#4	Secondary	601.00'	20.0" W x 4.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.29 cfs @ 12.35 hrs HW=598.92' TW=0.00' (Dynamic Tailwater)

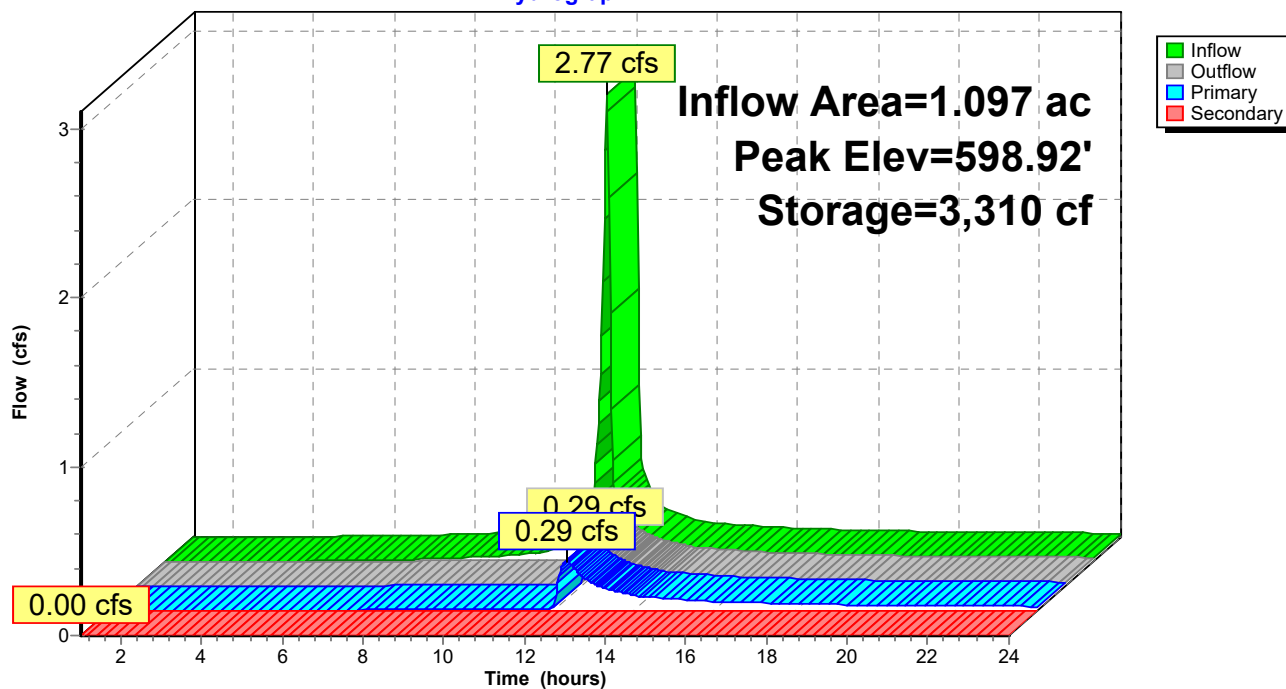
↑ **1=6" Outlet Pipe** (Passes 0.29 cfs of 1.28 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.02 cfs @ 6.88 fps)
 ↑ **3=Custom Weir/Orifice** (Weir Controls 0.27 cfs @ 1.13 fps)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=597.00' TW=0.00' (Dynamic Tailwater)

↑ **4=Orifice/Grate** (Controls 0.00 cfs)

Pond 5P: Detention

Hydrograph



Washington Greene - Larger Detention Option

Type II 24-hr 5-Year Rainfall=3.12"

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Summary for Pond 5P: Detention

Inflow Area = 1.097 ac, 68.09% Impervious, Inflow Depth > 1.96" for 5-Year event
Inflow = 3.58 cfs @ 11.96 hrs, Volume= 0.179 af
Outflow = 1.36 cfs @ 12.06 hrs, Volume= 0.108 af, Atten= 62%, Lag= 6.0 min
Primary = 1.36 cfs @ 12.06 hrs, Volume= 0.108 af
Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.01 hrs, dt= 0.03 hrs
Peak Elev= 599.16' @ 12.06 hrs Surf.Area= 2,713 sf Storage= 3,771 cf
Flood Elev= 602.00' Surf.Area= 2,713 sf Storage= 6,927 cf

Plug-Flow detention time= 196.6 min calculated for 0.108 af (60% of inflow)
Center-of-Mass det. time= 86.1 min (873.5 - 787.3)

Volume	Invert	Avail.Storage	Storage Description
#1	597.00'	2,617 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 10,852 cf Overall - 4,310 cf Embedded = 6,542 cf x 40.0% Voids
#2	597.00'	4,310 cf	48.0" Round Pipe Storage Inside #1 L= 343.0'
		6,927 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
597.00	2,713	0	0
601.00	2,713	10,852	10,852

Device	Routing	Invert	Outlet Devices
#1	Primary	596.85'	6.0" Round 6" Outlet Pipe L= 14.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 596.85' / 596.50' S= 0.0243 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Device 1	596.85'	0.7" Vert. Orifice/Grate C= 0.600
#3	Device 1	598.80'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 2.20 Width (feet) 2.00 2.00
#4	Secondary	601.00'	20.0" W x 4.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.36 cfs @ 12.06 hrs HW=599.16' TW=0.00' (Dynamic Tailwater)

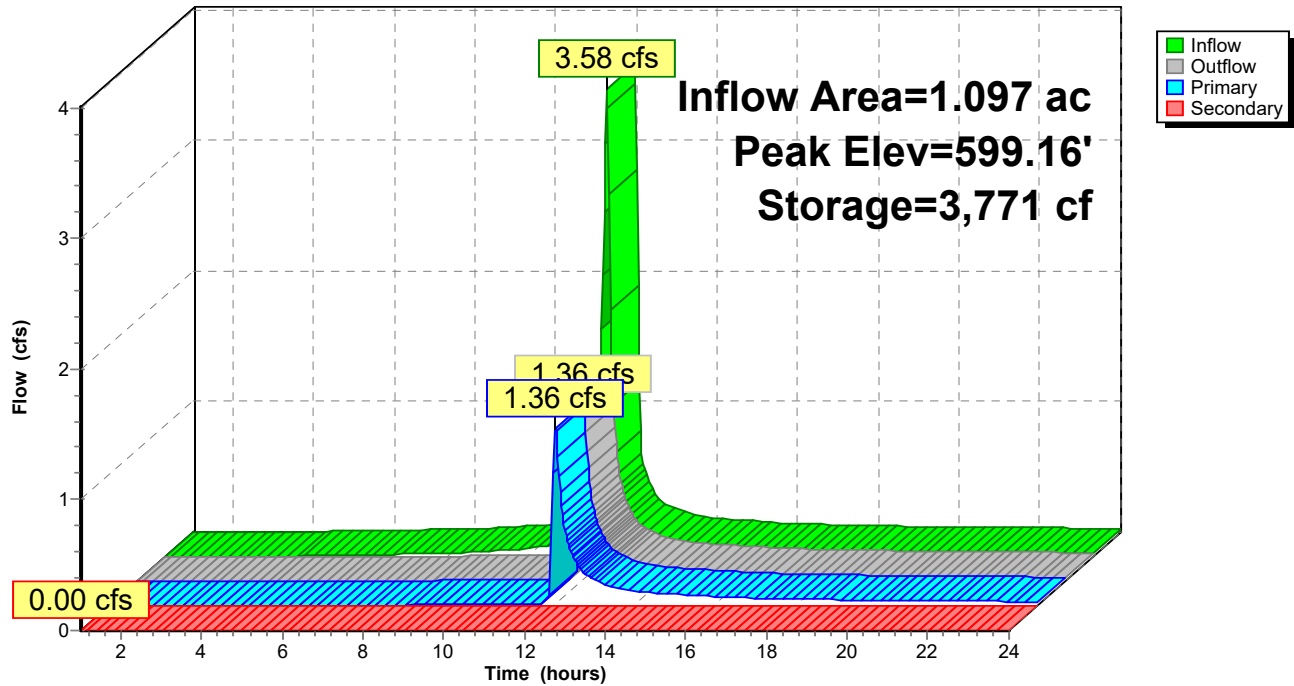
↑ **1=6" Outlet Pipe** (Inlet Controls 1.36 cfs @ 6.90 fps)
↑ **2=Orifice/Grate** (Passes < 0.02 cfs potential flow)
↑ **3=Custom Weir/Orifice** (Passes < 1.39 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=597.00' TW=0.00' (Dynamic Tailwater)

↑ **4=Orifice/Grate** (Controls 0.00 cfs)

Pond 5P: Detention

Hydrograph



Washington Greene - Larger Detention Option

Type II 24-hr 10-Year Rainfall=3.56"

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Summary for Pond 5P: Detention

Inflow Area = 1.097 ac, 68.09% Impervious, Inflow Depth > 2.33" for 10-Year event
 Inflow = 4.25 cfs @ 11.96 hrs, Volume= 0.213 af
 Outflow = 1.45 cfs @ 12.07 hrs, Volume= 0.142 af, Atten= 66%, Lag= 6.8 min
 Primary = 1.45 cfs @ 12.07 hrs, Volume= 0.142 af
 Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.01 hrs, dt= 0.03 hrs
 Peak Elev= 599.46' @ 12.07 hrs Surf.Area= 2,713 sf Storage= 4,347 cf
 Flood Elev= 602.00' Surf.Area= 2,713 sf Storage= 6,927 cf

Plug-Flow detention time= 177.9 min calculated for 0.141 af (66% of inflow)
 Center-of-Mass det. time= 74.0 min (858.3 - 784.3)

Volume	Invert	Avail.Storage	Storage Description
#1	597.00'	2,617 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 10,852 cf Overall - 4,310 cf Embedded = 6,542 cf x 40.0% Voids
#2	597.00'	4,310 cf	48.0" Round Pipe Storage Inside #1 L= 343.0'
		6,927 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
597.00	2,713	0	0
601.00	2,713	10,852	10,852

Device	Routing	Invert	Outlet Devices
#1	Primary	596.85'	6.0" Round 6" Outlet Pipe L= 14.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 596.85' / 596.50' S= 0.0243 ' /' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Device 1	596.85'	0.7" Vert. Orifice/Grate C= 0.600
#3	Device 1	598.80'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 2.20 Width (feet) 2.00 2.00
#4	Secondary	601.00'	20.0" W x 4.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.45 cfs @ 12.07 hrs HW=599.46' TW=0.00' (Dynamic Tailwater)

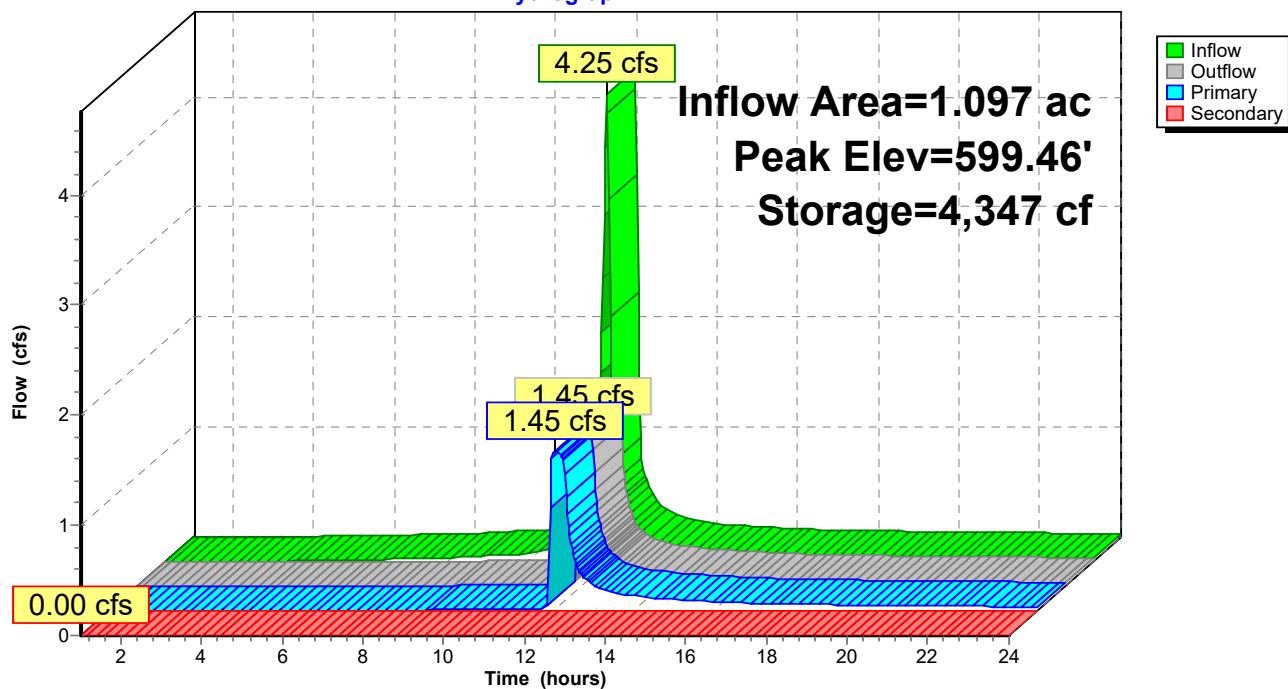
↑ **1=6" Outlet Pipe** (Inlet Controls 1.45 cfs @ 7.40 fps)
 ↑ **2=Orifice/Grate** (Passes < 0.02 cfs potential flow)
 ↑ **3=Custom Weir/Orifice** (Passes < 3.55 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=597.00' TW=0.00' (Dynamic Tailwater)

↑ **4=Orifice/Grate** (Controls 0.00 cfs)

Pond 5P: Detention

Hydrograph



Washington Greene - Larger Detention Option

Type II 24-hr 25-Year Rainfall=4.17"

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Summary for Pond 5P: Detention

Inflow Area = 1.097 ac, 68.09% Impervious, Inflow Depth > 2.86" for 25-Year event
 Inflow = 5.19 cfs @ 11.96 hrs, Volume= 0.261 af
 Outflow = 1.60 cfs @ 12.08 hrs, Volume= 0.190 af, Atten= 69%, Lag= 7.2 min
 Primary = 1.60 cfs @ 12.08 hrs, Volume= 0.190 af
 Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.01 hrs, dt= 0.03 hrs
 Peak Elev= 599.95' @ 12.08 hrs Surf.Area= 2,713 sf Storage= 5,242 cf
 Flood Elev= 602.00' Surf.Area= 2,713 sf Storage= 6,927 cf

Plug-Flow detention time= 162.2 min calculated for 0.189 af (72% of inflow)
 Center-of-Mass det. time= 66.5 min (847.2 - 780.7)

Volume	Invert	Avail.Storage	Storage Description
#1	597.00'	2,617 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 10,852 cf Overall - 4,310 cf Embedded = 6,542 cf x 40.0% Voids
#2	597.00'	4,310 cf	48.0" Round Pipe Storage Inside #1 L= 343.0'
		6,927 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
597.00	2,713	0	0
601.00	2,713	10,852	10,852

Device	Routing	Invert	Outlet Devices
#1	Primary	596.85'	6.0" Round 6" Outlet Pipe L= 14.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 596.85' / 596.50' S= 0.0243 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Device 1	596.85'	0.7" Vert. Orifice/Grate C= 0.600
#3	Device 1	598.80'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 2.20 Width (feet) 2.00 2.00
#4	Secondary	601.00'	20.0" W x 4.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.59 cfs @ 12.08 hrs HW=599.94' TW=0.00' (Dynamic Tailwater)

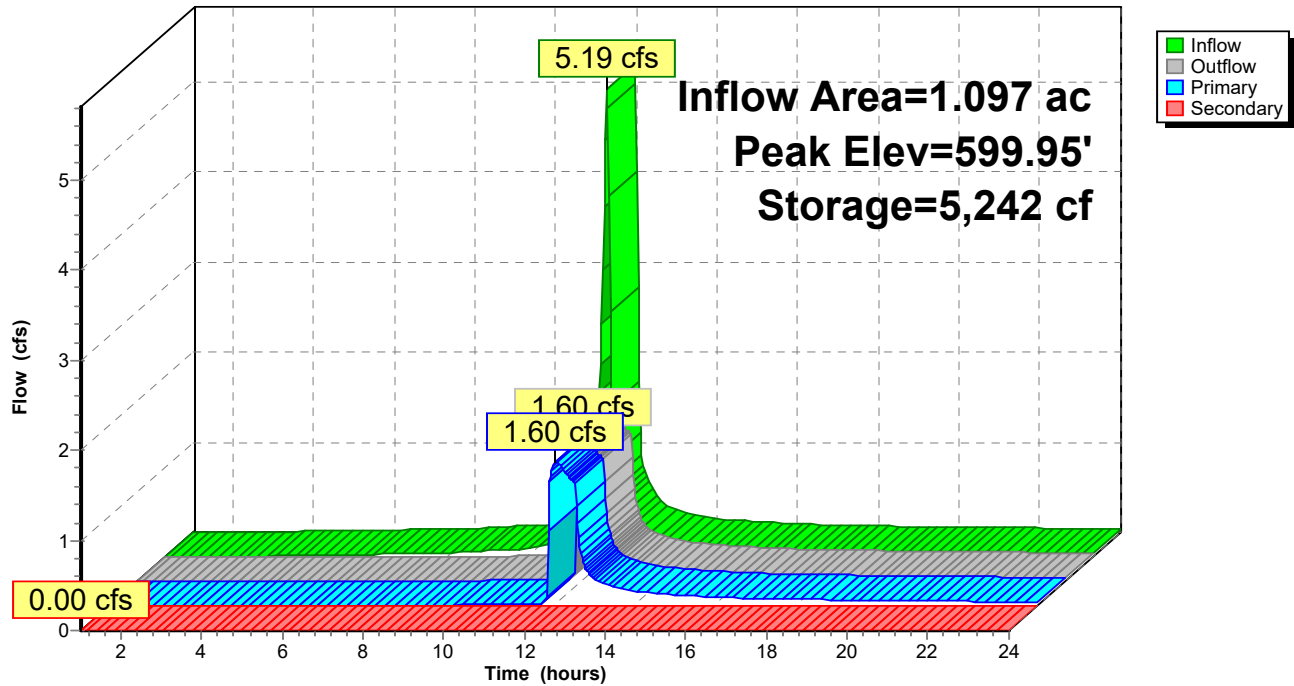
↑ **1=6" Outlet Pipe** (Inlet Controls 1.59 cfs @ 8.12 fps)
 ↑ **2=Orifice/Grate** (Passes < 0.02 cfs potential flow)
 ↑ **3=Custom Weir/Orifice** (Passes < 8.01 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=597.00' TW=0.00' (Dynamic Tailwater)

↑ **4=Orifice/Grate** (Controls 0.00 cfs)

Pond 5P: Detention

Hydrograph



Washington Greene - Larger Detention Option

Type II 24-hr 50-Year Rainfall=4.67"

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Summary for Pond 5P: Detention

Inflow Area = 1.097 ac, 68.09% Impervious, Inflow Depth > 3.30" for 50-Year event
 Inflow = 5.97 cfs @ 11.96 hrs, Volume= 0.302 af
 Outflow = 1.71 cfs @ 12.08 hrs, Volume= 0.230 af, Atten= 71%, Lag= 7.5 min
 Primary = 1.71 cfs @ 12.08 hrs, Volume= 0.230 af
 Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.01 hrs, dt= 0.03 hrs
 Peak Elev= 600.38' @ 12.08 hrs Surf.Area= 2,713 sf Storage= 5,991 cf
 Flood Elev= 602.00' Surf.Area= 2,713 sf Storage= 6,927 cf

Plug-Flow detention time= 154.1 min calculated for 0.230 af (76% of inflow)
 Center-of-Mass det. time= 64.0 min (842.1 - 778.1)

Volume	Invert	Avail.Storage	Storage Description
#1	597.00'	2,617 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 10,852 cf Overall - 4,310 cf Embedded = 6,542 cf x 40.0% Voids
#2	597.00'	4,310 cf	48.0" Round Pipe Storage Inside #1 L= 343.0'
		6,927 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
597.00	2,713	0	0
601.00	2,713	10,852	10,852

Device	Routing	Invert	Outlet Devices
#1	Primary	596.85'	6.0" Round 6" Outlet Pipe L= 14.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 596.85' / 596.50' S= 0.0243 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Device 1	596.85'	0.7" Vert. Orifice/Grate C= 0.600
#3	Device 1	598.80'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 2.20 Width (feet) 2.00 2.00
#4	Secondary	601.00'	20.0" W x 4.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.71 cfs @ 12.08 hrs HW=600.37' TW=0.00' (Dynamic Tailwater)

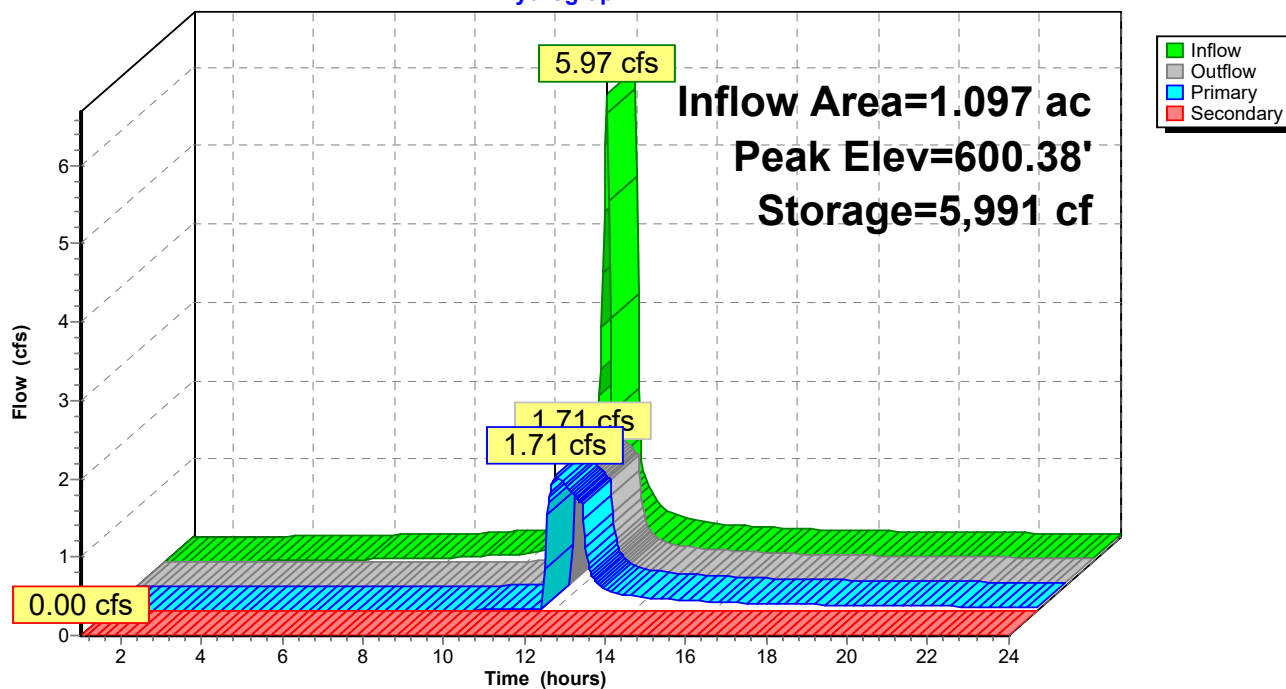
↑ **1=6" Outlet Pipe** (Inlet Controls 1.71 cfs @ 8.71 fps)
 ↑ **2=Orifice/Grate** (Passes < 0.02 cfs potential flow)
 ↑ **3=Custom Weir/Orifice** (Passes < 12.87 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=597.00' TW=0.00' (Dynamic Tailwater)

↑ **4=Orifice/Grate** (Controls 0.00 cfs)

Pond 5P: Detention

Hydrograph



Washington Greene - Larger Detention Option

Type II 24-hr 100-Year Rainfall=5.18"

Prepared by {enter your company name here}

Printed 2/2/2023

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Summary for Pond 5P: Detention

Inflow Area = 1.097 ac, 68.09% Impervious, Inflow Depth > 3.76" for 100-Year event
 Inflow = 6.77 cfs @ 11.96 hrs, Volume= 0.344 af
 Outflow = 1.84 cfs @ 12.08 hrs, Volume= 0.271 af, Atten= 73%, Lag= 7.6 min
 Primary = 1.84 cfs @ 12.08 hrs, Volume= 0.271 af
 Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.01 hrs, dt= 0.03 hrs
 Peak Elev= 600.87' @ 12.08 hrs Surf.Area= 2,713 sf Storage= 6,761 cf
 Flood Elev= 602.00' Surf.Area= 2,713 sf Storage= 6,927 cf

Plug-Flow detention time= 146.8 min calculated for 0.271 af (79% of inflow)
 Center-of-Mass det. time= 62.9 min (838.8 - 775.9)

Volume	Invert	Avail.Storage	Storage Description
#1	597.00'	2,617 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 10,852 cf Overall - 4,310 cf Embedded = 6,542 cf x 40.0% Voids
#2	597.00'	4,310 cf	48.0" Round Pipe Storage Inside #1 L= 343.0'
		6,927 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
597.00	2,713	0	0
601.00	2,713	10,852	10,852

Device	Routing	Invert	Outlet Devices
#1	Primary	596.85'	6.0" Round 6" Outlet Pipe L= 14.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 596.85' / 596.50' S= 0.0243 ' / Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Device 1	596.85'	0.7" Vert. Orifice/Grate C= 0.600
#3	Device 1	598.80'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 2.20 Width (feet) 2.00 2.00
#4	Secondary	601.00'	20.0" W x 4.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.83 cfs @ 12.08 hrs HW=600.86' TW=0.00' (Dynamic Tailwater)

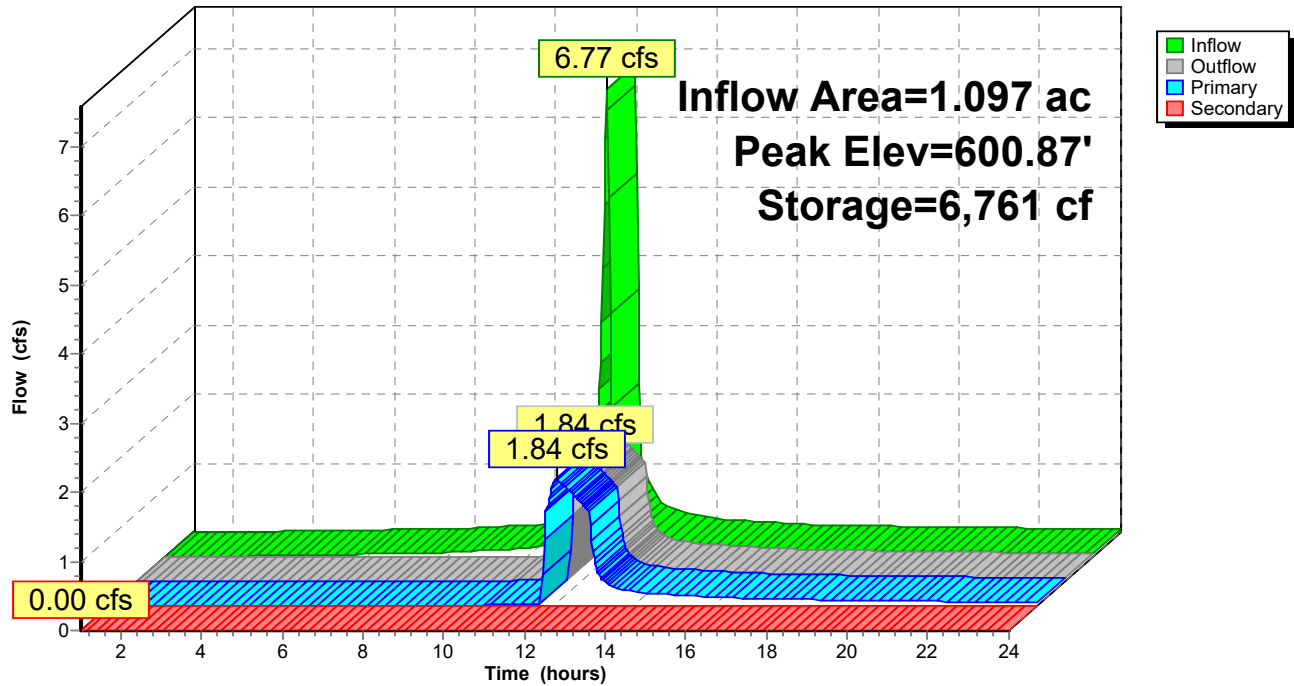
↑ **1=6" Outlet Pipe** (Inlet Controls 1.83 cfs @ 9.34 fps)
 ↑ **2=Orifice/Grate** (Passes < 0.03 cfs potential flow)
 ↑ **3=Custom Weir/Orifice** (Passes < 19.37 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=597.00' TW=0.00' (Dynamic Tailwater)

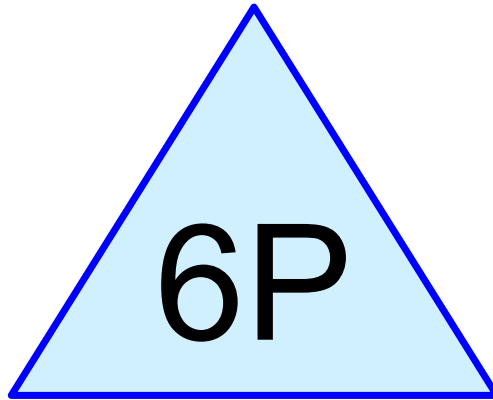
↑ **4=Orifice/Grate** (Controls 0.00 cfs)

Pond 5P: Detention

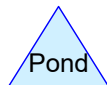
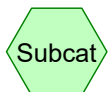
Hydrograph



APPENDIX J



Total Site Discharge



Routing Diagram for Washington Greene - Larger Detention Option

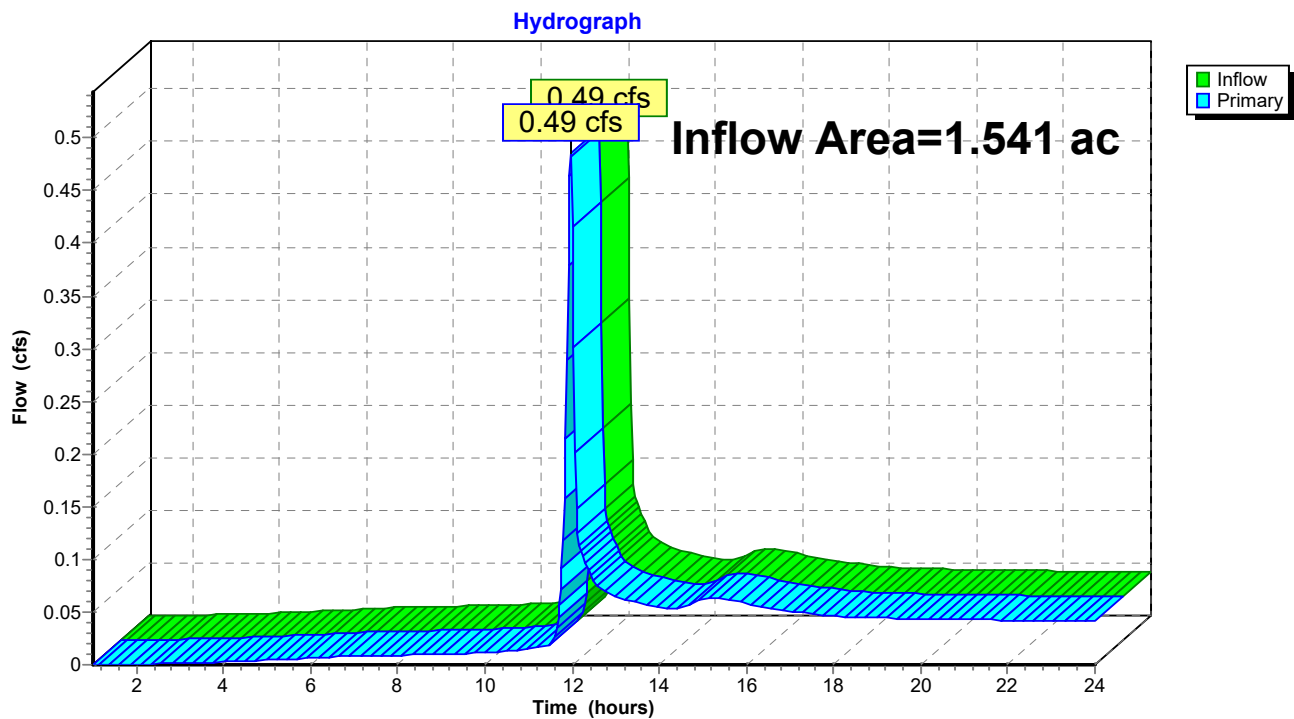
Prepared by {enter your company name here}, Printed 3/9/2023

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Summary for Pond 6P: Total Site Discharge

Inflow Area = 1.541 ac, 61.64% Impervious, Inflow Depth > 0.51" for 1-Year event
Inflow = 0.49 cfs @ 11.97 hrs, Volume= 0.065 af
Primary = 0.49 cfs @ 11.97 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.0 min

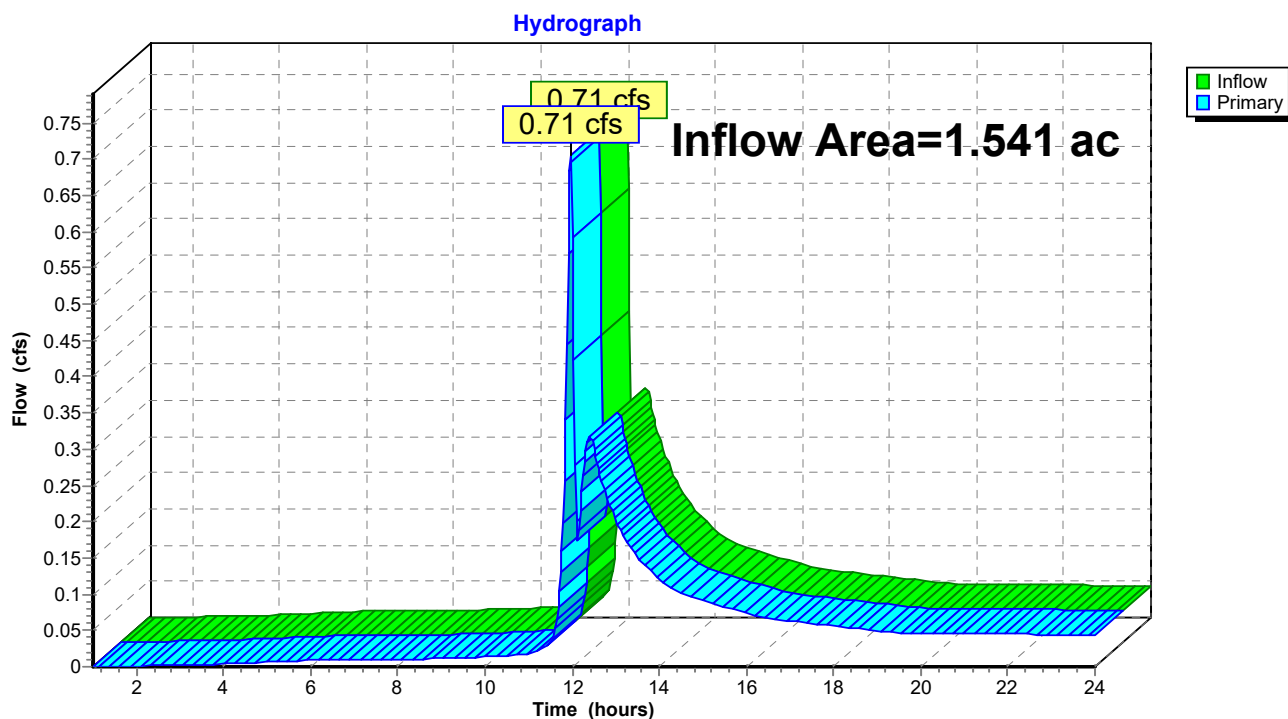
Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.01 hrs, dt= 0.03 hrs

Pond 6P: Total Site Discharge

Summary for Pond 6P: Total Site Discharge

Inflow Area = 1.541 ac, 61.64% Impervious, Inflow Depth > 0.79" for 2-Year event
Inflow = 0.71 cfs @ 11.97 hrs, Volume= 0.101 af
Primary = 0.71 cfs @ 11.97 hrs, Volume= 0.101 af, Atten= 0%, Lag= 0.0 min

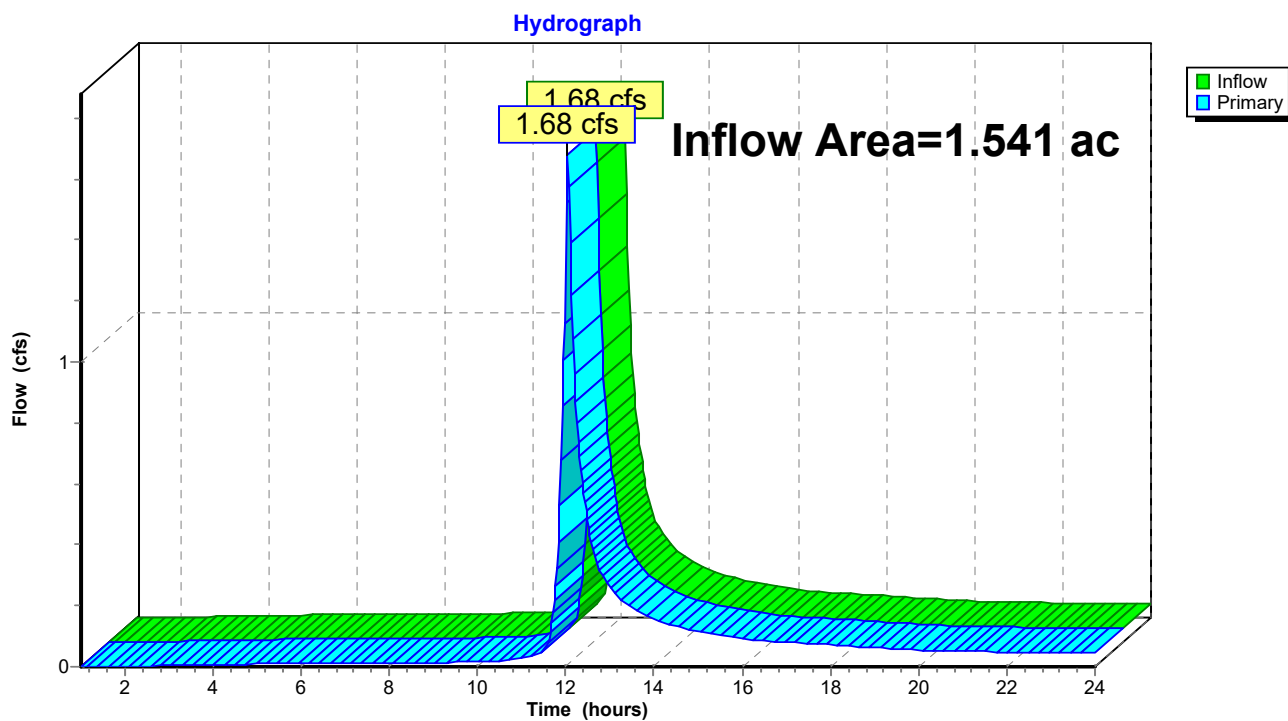
Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.01 hrs, dt= 0.03 hrs

Pond 6P: Total Site Discharge

Summary for Pond 6P: Total Site Discharge

Inflow Area = 1.541 ac, 61.64% Impervious, Inflow Depth > 1.20" for 5-Year event
Inflow = 1.68 cfs @ 12.04 hrs, Volume= 0.154 af
Primary = 1.68 cfs @ 12.04 hrs, Volume= 0.154 af, Atten= 0%, Lag= 0.0 min

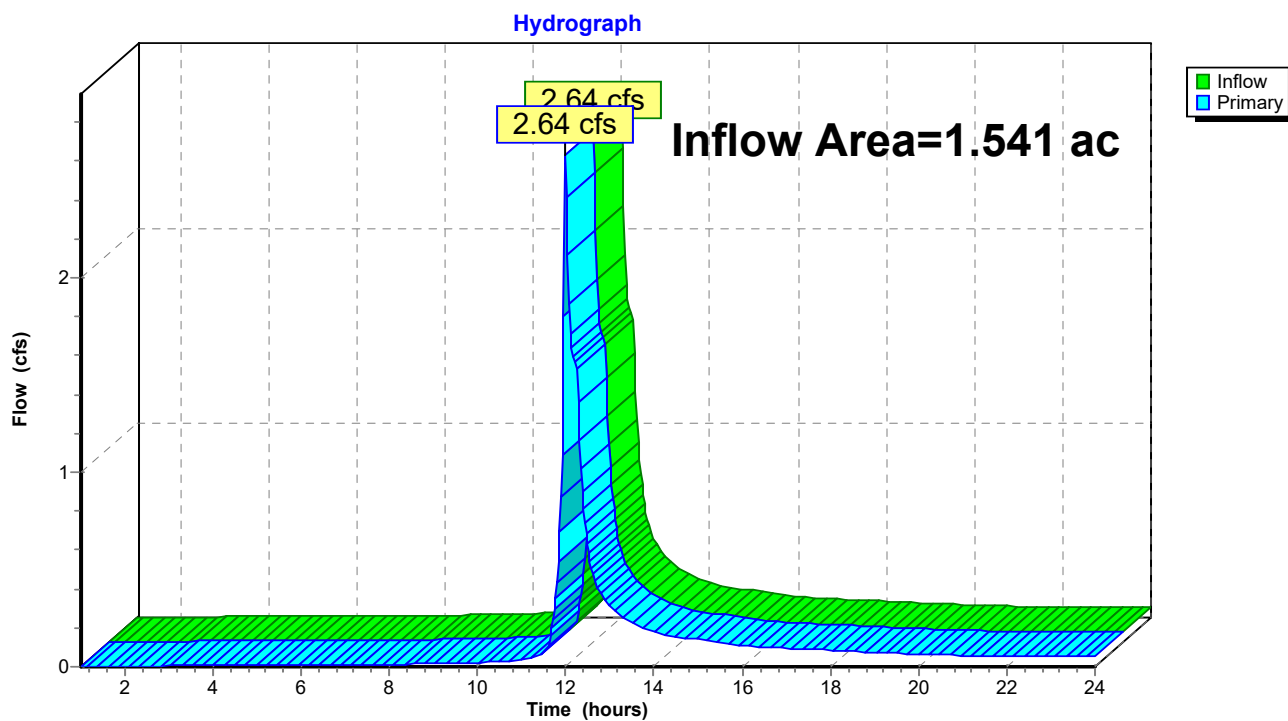
Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.01 hrs, dt= 0.03 hrs

Pond 6P: Total Site Discharge

Summary for Pond 6P: Total Site Discharge

Inflow Area = 1.541 ac, 61.64% Impervious, Inflow Depth > 1.55" for 10-Year event
Inflow = 2.64 cfs @ 11.99 hrs, Volume= 0.199 af
Primary = 2.64 cfs @ 11.99 hrs, Volume= 0.199 af, Atten= 0%, Lag= 0.0 min

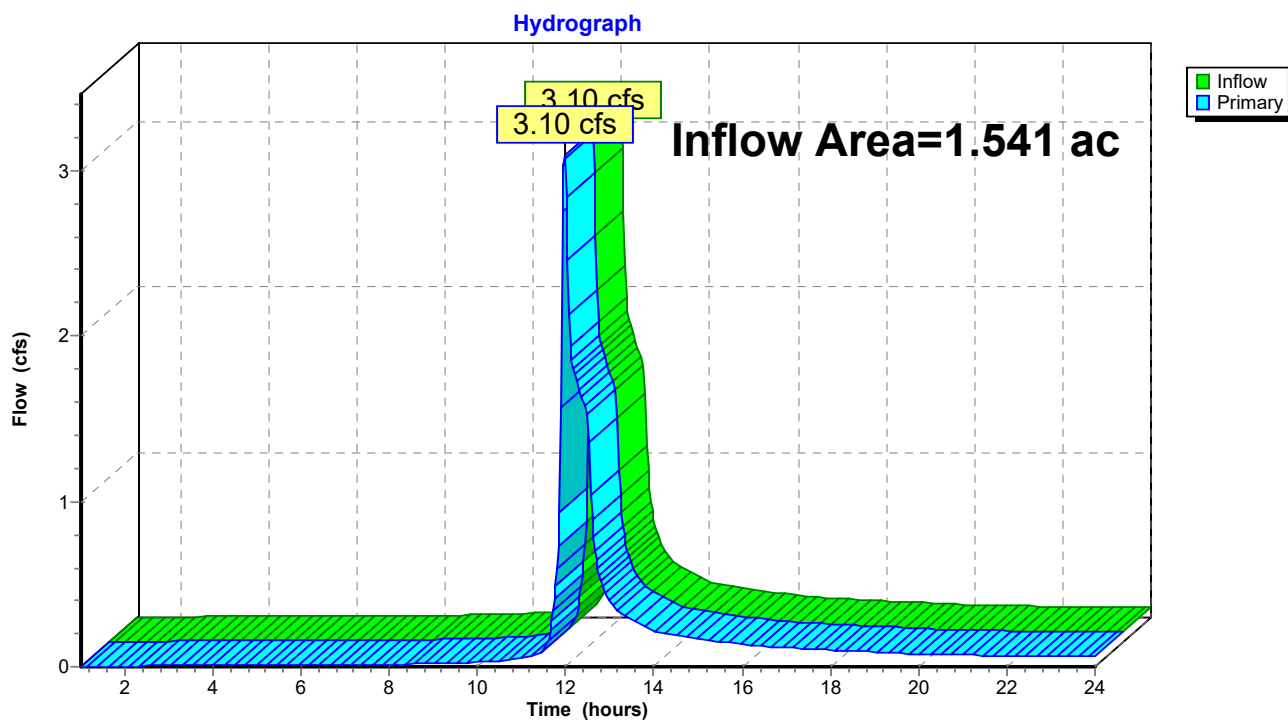
Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.01 hrs, dt= 0.03 hrs

Pond 6P: Total Site Discharge

Summary for Pond 6P: Total Site Discharge

Inflow Area = 1.541 ac, 61.64% Impervious, Inflow Depth > 2.06" for 25-Year event
Inflow = 3.10 cfs @ 11.97 hrs, Volume= 0.265 af
Primary = 3.10 cfs @ 11.97 hrs, Volume= 0.265 af, Atten= 0%, Lag= 0.0 min

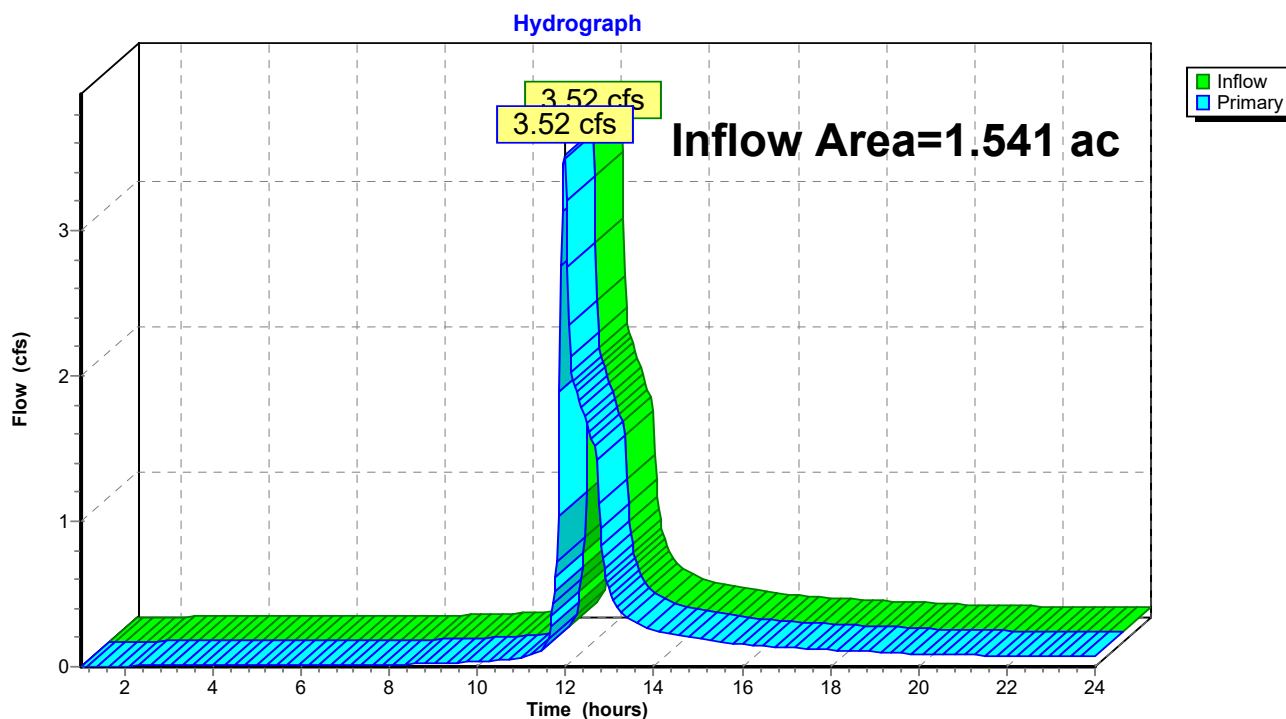
Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.01 hrs, dt= 0.03 hrs

Pond 6P: Total Site Discharge

Summary for Pond 6P: Total Site Discharge

Inflow Area = 1.541 ac, 61.64% Impervious, Inflow Depth > 2.49" for 50-Year event
Inflow = 3.52 cfs @ 11.97 hrs, Volume= 0.320 af
Primary = 3.52 cfs @ 11.97 hrs, Volume= 0.320 af, Atten= 0%, Lag= 0.0 min

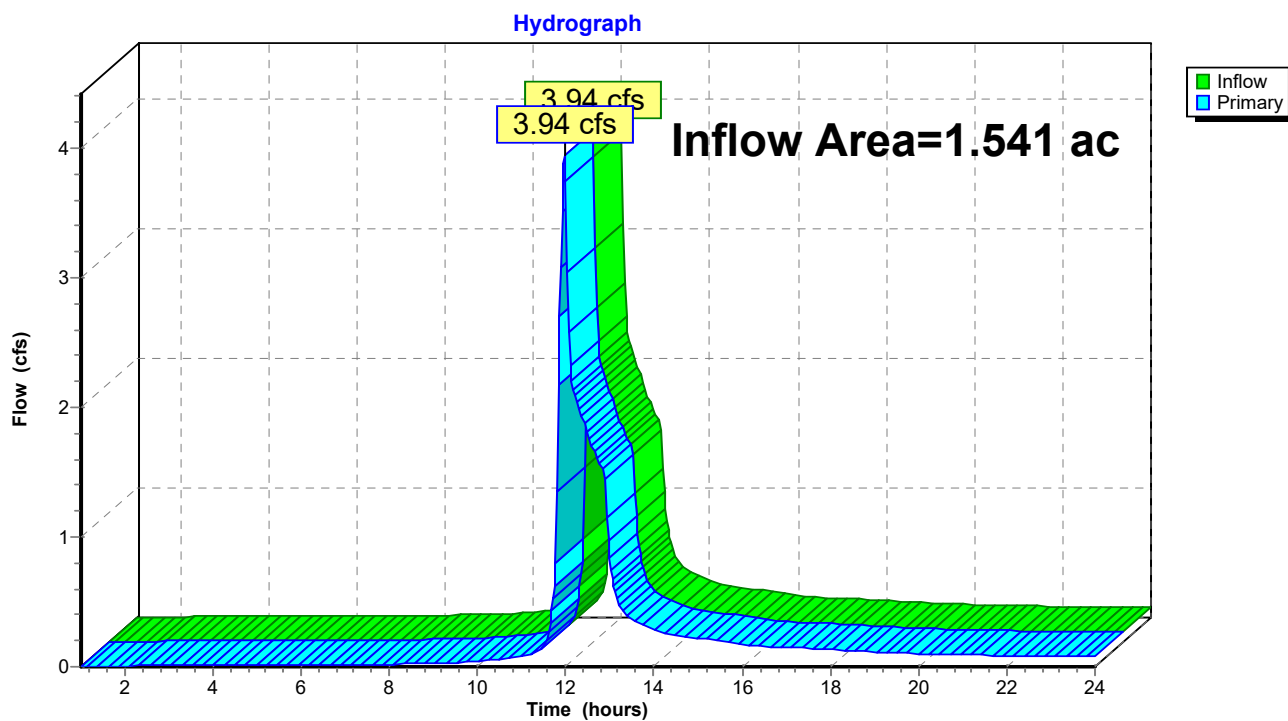
Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.01 hrs, dt= 0.03 hrs

Pond 6P: Total Site Discharge

Summary for Pond 6P: Total Site Discharge

Inflow Area = 1.541 ac, 61.64% Impervious, Inflow Depth > 2.94" for 100-Year event
Inflow = 3.94 cfs @ 11.97 hrs, Volume= 0.377 af
Primary = 3.94 cfs @ 11.97 hrs, Volume= 0.377 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.01 hrs, dt= 0.03 hrs

Pond 6P: Total Site Discharge

APPENDIX K

SEDIMENT WATER QUALITY VOLUME CALCULATOR

Washington Greene - Water Quality Volume Determination

Water Quality Volume:

Equation 1:

$$W_{qv} = (Rv)(P)(A/12)$$

			<u>Enter Data</u>	<u>Unit</u>
W_{qv}	=	Water Quality Volume, <i>Acre-Feet</i>		
Rv	=	Volumetric Runoff Coefficient (<i>Equation 2</i>)	0.731	<i>See Below</i>
P	=	Precipitation, <i>Use 1.0 inch</i>	1.000	<i>inch</i>
A	=	Area Draining to BMP, <i>Acres</i>	1.094	<i>acres</i>

Equation 2:

$$Rv = 0.05 + 1.0 * i$$

$$i = \text{Impervious Fraction} = \text{Area}_{\text{impervious}} / \text{Area}_{\text{total}}$$

$$\text{Impervious Fraction} = 0.745 / 1.094 = 0.681$$

$$Rv = 0.05 + 1.0000 \times 0.681 = 0.731$$

Water Quality Volume:

$$W_{qv} = 0.067 \text{ Acre-Feet} \times 2,903 \text{ CF}$$

APPENDIX L



Municipal Planning Commission
City Service Center – 915 Quarrier Street – Suite 6
Wednesday, January 4, 2023
3:00 P.M.

Members Present

Shawn Taylor, Chair
Margo Teeter
Terry Picket (via phone)
Quintie Smith (via phone)
JoEllen Zacks
Adam Krason
Alice Hypes
Shannon Ferrari
Justin Marlow
Cory Stout
Terri Allen, Mayors Designee
Lisa Fischer-Casto
J. D. Stricklen, Kanawha County Representative

Members Absent

Aric Margolis
Deanna McKinney
Mary Beth Hoover

Staff Present

Dan Vriendt
Chad Webb

In Attendance:

George Smith, OV Smith & Sons – Applicant
Jim Smith, OV Smith & Sons – Applicant
Sharon Parson w/ Sunbelt
Fred Truman w/Sunbelt
Aric Leach w/Sunbelt
Beth Kerns, City Council Member
Richard Hunt – Owner of Church Building at 1801 Bigley Avenue

1. Call to Order

2. Unfinished Business - None

3. New Business

Rezoning: Bill No. 7982 – A Bill amending the Zoning Ordinance of the City of Charleston, West Virginia, enacted the 1st day of January 2006, as amended, and the map made a part thereof, by rezoning from a R-4 district to a C-10 district, those certain parcels of land identified as follows:

- a) 1801 Bigley Avenue (also 302 Aletha Street), Charleston, West Virginia (Charleston West, M30, P25)
- b) 1804 ODell Avenue, Charleston, West Virginia (Charleston West, M30, P26)

- c) 1803 Bigley Avenue, Charleston, West Virginia (Charleston West, M30, P27)
- d) 1804 Odell Avenue, Charleston, West Virginia (Charleston West, M30, P28)
- e) 1805 Bigley Avenue, Charleston, West Virginia (Charleston West, M30, P29)

Applicant George Smith of OV Smith & Sons, a local real estate development company based in Big Chimney, West Virginia, presented his request before the Committee. Accompanying George Smith is Jim Smith, founder of OV Smith. The company has been in existence for approximately 65 years. Mr. Smith they are not super aggressive, but when they do a project, they like doing one that is complimentary to the neighborhood.

In attendance today, representing Sunbelt Rentals, is the Bigley Avenue Store Manager, Sharon Parsons, Market Manager Fred Truman, and the District Manager, Aric Leach, Richard Hunt, owner of the property of church at 1805 Bigley Avenue. Also, in attendance is newly sworn in City Council Member Beth Kerns, who represents Ward 7 of the City of Charleston.

George Smith spoke to the fact that Sunbelt is a business that is flourishing in today's business market. Sunbelt's problem is that they need more room for storage and that is the purpose of today's meeting. Mr. Smith said he envisioned a fenced yard, concreted lot, in accordance with the requirements as set forth in the city ordinance. Sunbelt Rentals is a great corporate neighbor and perfectly suited for this particular area. Sunbelt has been in this location for approximately four years and there have never been any complaints against them due to noise or anything of that nature.

It would be beneficial for the city if this is approved because a few of the structures on the adjoining lots involved are beyond repair. The church that sits on property owned by Mr. Hunt has not been open for approximately 20 years. Mr. Smith said he was inside the church building and the entire ceiling has collapsed.

There are three decent rental houses that are currently occupied and owned by Mr. Hunt. The applicant stated that they are more than glad to work with the current tenants. Applicant stated further that they have not closed on the property because they were waiting to see how today's proceeding went. If approved, the applicant is more than glad to work with the tenants to give them free rent and ample time to relocate, since the applicant does not envision doing anything until Spring.

Quintie Smith spoke in favor of the work the applicants are wanting to do.

J.D. Strickland noted that there has not been new residential construction on Bigley Avenue in approximately 50 years. It was originally zoned R-4 before I-77 was constructed. Currently, it is zoned C-8, Village Commercial District. J.D. stated further there was nothing inappropriate about this request based on recent business development in the area.

There was no one present to speak in opposition to the applicant's request.

Chad Webb presented the staff's findings and recommendation to the MPC:

STANDARD OF REVIEW:

A rezoning is a change to the zoning map, which requires a legislative decision. Therefore, the Commission's role is to make a recommendation to Planning Committee with final action being at City Council. The Commission should determine if the request is spot zoning and if it is consistent with the Comprehensive Plan. A rezoning is considered spot zoning when all the following factors are present: A small parcel of land is singled out for special and privileged treatment; The singling out is not in the public interest but only for the benefit of the landowner; the action is not in accordance with the comprehensive plan. If a request is inconsistent with the comprehensive plan, the commission should consider if the original zoning classification was in error, or if the character of the area has changed significantly since the adoption of the comprehensive plan. Proposed uses should be treated with care, because once rezoned, any use that is permitted within the district would be permitted 'by right' with no review by the Commission.

HISTORY:

The parcels in question are currently zoned R-4 and consist of private single-family homes and one larger structure used for religious services and outreach. Petitioner seeks to acquire the properties and have them rezoned as C-10 to allow warehousing and a storage yard for their large-scale equipment rentals.

ANALYSIS:

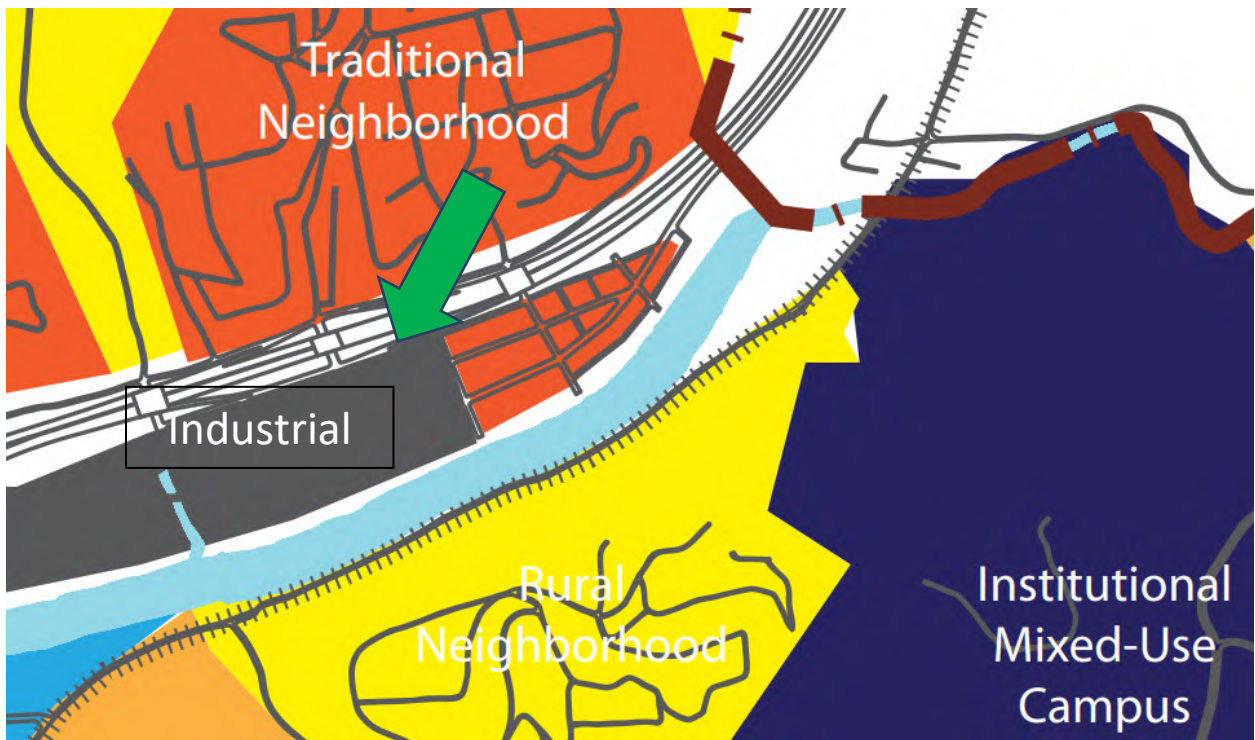
Existing Land Use and Zoning: The properties are zoned R-4 Single-Family Residential District and are a mixture of single-family homes and a religious institution.

Surrounding Land Use and Zoning: The properties reside on the northern part of the 1800 block of Bigley Avenue, which are all currently zoned for Single-Family Residential use. To the west and east of this block, along Bigley Ave, are expanding zones of C-8 Village Commercial District. These developments have turned this section of Bigley Ave – from the split from Pennsylvania Ave to the west and to Lilly Street to the East – into a predominantly commercial corridor.

Current Zoning: The R-4 district is extremely restrictive and allows mainly for "single family neighborhoods on smaller lots, located within convenient walking distance of other uses," low impact at-home businesses, and religious institutions via a conditional use permit. It would not allow an expansion of the Sunbelt Equipment Rental business in any capacity.

Proposed Zoning: The C-10 General Commercial District designation would allow for the proposed expansion of Sunbelt Rentals' general business with a particular focus on accommodating the needed expansion of outdoor storage.

Compliance with the Comprehensive Plan: The comprehensive plan's future land use map designates this collection of properties as being at the confluence of an area of Traditional/Core Neighborhoods with a well-established area of Industrial use immediately adjacent to it. The R-4 district the parcels currently reside in exists in compliance with the spirit of the "Traditional/Core Neighborhood" designation by maintaining the easily walkable, historic grid of Charleston's flat valley floor core. However, this Traditional/Core Neighborhood area south of the interstate has already begun a change into more of a mixed-use district, particularly along Bigley Avenue. Whereas the parcels immediately border a sizeable and well-established Industrial zone, the question of changing the zoning of these properties to C-10 would largely turn on whether this is merely an organic expansion of a zone of industry and commerce or a spot zoning in a well-defined block of traditional single-family housing.



Summary: Applicant seeks to rezone a block of properties on the border between a commercial/industrial zone and a single-family housing neighborhood from their existing R-4 designation to a C-10 designation to allow for expansion of an equipment rental business that resides across Aletha Street.

RECOMMENDATION AND FINDINGS:

Staff recommends **approval** for the following reasons:

1. The rezoning is consistent with the future land use map in that it allows for an organic expansion of the preestablished Industrial zone,

2. The rezoning allows for further transistion of the Bigley Ave corridor to become commercial, and
3. The rezoning avoids spot rezoning by maintaining a clearly defined border between the commercial expansion along Bigley Ave and the remainder of the 1800 block of Bigley.

Beth Kerns, Councilwoman for Ward 7, addressed the Committee. Councilwoman Kerns stated that they are very happy with Sunbelt being in this location. They are a very clean well-organized franchised business. Sunbelt has brought a lot of traffic to the area and are right off the interstate exit. The Councilwoman stated further that they would love to see that development continue.

Mote and Vote: Adam Krason made a motion to approve Bill No. 7982. The motion was seconded by Shannon Ferrari and passed unanimously by a vote of 12-0.

4. Minutes of the December 7, 2022 MPC meeting

Mote and Vote: Alice Hypes made a motion to approve the minutes of the December 7, 2022 meeting. The motion was seconded by Margo Teeter and passed unanimously by a vote of 12-0.

5. Announcements

6. Adjournment

PERMANENT STORMWATER MAINTENANCE INFORMATION

OWNER:

Washington Greene, L.P.
500 S. Front Street, 10th Floor
Columbus, OH 43215
P: 614.396.3200

RESPONSIBILITY:

The Owner shall be responsible for the routine maintenance and repair of the stormwater management practices. The Best Management Practices (BMPs) indicated on the drainage plan includes an underground stormwater management system, catch basins, yard drains, and an outlet structure.

The Owner shall retain ongoing inspection and maintenance responsibilities for these private storm water components and BMP's water quality features outside the public right-of-way. Inspection checklists are included and shall be incorporated in an inspection log to be kept by the Owner.

MAINTENANCE REQUIREMENTS:

Catch Basins / Yard Drains: All stormwater inlets shall be inspected quarterly. Any sediment and debris shall be removed and properly disposed according to all regulatory agencies. Any damage to the structure or grate shall be repaired.

Outlet Structure: The outlet structure, as noted on the plans, contains a control weir and orifice that is used to reduce the flow of the stormwater. It is critical that this structure remain in good, clean condition. Inspections of this structure shall be completed once a month and any debris and sediment removed. Any deficiencies shall be immediately addressed.

Underground Storage System: This system is designed to collect and detain stormwater from the site to meet the City of Charleston's requirements. The storage piping/chambers shall be inspected every year and any debris or sediment shall be removed and disposed appropriately. The pipe/chambers are to be considered confined spaces, therefore, the inspector must have the appropriate training, certification and safety gear to complete the inspection and clean-up process.

All inspections and repairs shall be recorded and kept on site.