

# Dublin Gateway

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## Preliminary Development Plan Application Preliminary Plat Application

02/04/20

City of Dublin, Ohio  
Planning and Zoning Commission

Prepared For:

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**SCHOTTENSTEIN**  
REAL ESTATE GROUP

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Prepared By:



## PRELIMINARY DEVELOPMENT PLAN MATERIALS

### SECTION I

#### **Application Requirements**

- Planning Checklist
- Planning Application
- Rezoning Statement
- Development Text
- Legal Description
- Subarea Descriptions
- Adjacent Owners
- Utility Feasibility Memo
- Stormwater Memo

### SECTION II

#### **Preliminary Development Plan Exhibits**

- Cover
- Regional Context Map
- Vicinity Map
- Existing Conditions
- Illustrative Plan
- Site Plan
- Subarea & Phasing Map
- Open Space and Connectivity Plan
- Overall Landscape Plan
- Hyland Croy Rural Corridor Enlargement
- Landscape Notes and Details
- Utility Plans (3 sheets)
- Grading Plans (3 sheets)
- Street Sections
- Existing Tree Survey
- Existing Tree Data

## PRELIMINARY PLAT SUBMITTAL MATERIALS

### SECTION III

#### **Preliminary Plat Exhibits**

- Cover
- Vicinity Map
- Preliminary Plat (3 Sheets)

**DUBLIN GATEWAY  
PLANNED UNIT DEVELOPMENT (PUD) ZONING DISTRICT**

**Rezoning Statement**

***I. Introduction***

The Dublin Gateway Planned Unit Development District is being created in order to provide an appropriate variety of housing options at this entrance and transitional location. This community will provide for the development of single-family homes (varying lot sizes) as well as an adult congregate living facility (ACLF). The ACLF will provide senior living residential opportunities as detailed in the zoning text being filed along with this application.

***II. Explain the relationship of the proposed development to existing and future land uses in the surrounding area, the street system, community facilities, open space system, services, and other public improvements.***

This community will be located to the west of and adjacent to the existing Post Preserve residential subdivision and to south of and adjacent to the Park Place residential subdivision. Lots within the proposed zoning district that share a common boundary with those subdivisions will include single-family homes with lot sizes and setbacks that are consistent with those which are located in the already-developed communities. Single-family homes are being constructed by another developer within a community to be known as Autumn Rose.

Property to the west of the proposed zoning district is presently located in Jerome Township. That property currently is zoned to permit commercial development, ACLF uses and now constructed with multi-family housing. Property to the south of the proposed zoning district is zoned and anticipated to develop with regional and community commercial uses in the future. The single-family portion of the proposed project provides a transition between existing single-family homes in the City and permitted commercial zoning and future uses to the west. Similarly, the ACLF's location on the south side of the site provides a transition from existing and proposed residential uses and anticipated commercial uses to the south.

This proposal will provide for the extension of three public streets stubbed into the eastern boundary line of the proposed zoning district and will provide connectivity to Hyland-Croy Road. The leisure trail system from the Post Preserve neighborhood will be extended into this site.

***III. State how the proposed rezoning relates to existing land use character of the vicinity and to the Dublin Community Plan. If the proposal is inconsistent with the Community Plan, then justify the proposed deviation from the Community Plan.***

The proposed rezoning relates to the existing land use character in the vicinity as detailed in Item II above. It also meets the recommendations of the Community Plan. The Community Plan

recommends Suburban Residential – Low Density and Suburban Residential – Medium Density (together ranging from 1 - 5 residential units per acre). These recommendations call for residences primarily composed of single-family dwellings, multi-family units, as well as detached cluster housing or patio homes. This proposal seeks a density of approximately 2.6 units per acre with respect to the single-family component of the projects. The ACLF use will accommodate additional residential options in a more institutional-type setting.

***IV. Explain how the proposed rezoning meets the criteria for Planned Districts [§153.052(B)].***

The proposed PUD has been designed in accordance with the standards of Dublin City Codes and accepted planning principles to ensure the use of land, buildings, and other structures are sensitive to the surrounding built environment and respectful of anticipated future land uses in the area. A mix of residential uses is being provided that makes the planned district form of zoning appropriate for this proposal. The physical relationship of buildings and other site improvements to one another and surrounding open space, as created by building size, mass, height, shape, and setback, shall result in a harmonious development within the PUD and adjacent to it.

**DUBLIN GATEWAY  
PLANNED UNIT DEVELOPMENT (PUD) ZONING DISTRICT**

**February 4, 2020**

**Development Text**

**I. SUBAREA A:** Subarea A is comprised of 9.9+/- acres located in the southern portion of this zoning district. This subarea will accommodate the development of ACLF uses as described below. Subarea A may consist of more than one tax parcel.

A. Permitted Uses: ACLFs shall be the primary permitted use in this subarea. Open Space, parkland and improvements associated with such open space/parkland as well as parking for the ACLF facility(s) shall also be permitted uses. For purposes of this text, an “ACLF” shall be defined to mean “one or more buildings providing living accommodations for senior citizens and the elderly (age restricted to 55+ years of age in accordance with Federal Laws which permit such restrictions) with one or more levels of care, including (but not necessarily limited to) nursing care, on-site dispensary facilities for medication prescribed by a physician providing care only to residents on-site, dining facilities, and assistance with other activities of daily living. This term shall include, but not necessarily be limited to, so-called independent living and assisted living facilities age restricted to 55+ years of age in accordance with Federal Laws which permit such restrictions, skilled nursing, memory care, licensed care and/or age-restricted congregate living apartments, nursing homes, medical rehabilitation facilities, either individually or in some combination thereof.”

B. Design Intent: The preliminary development plan and this PUD zoning text are intended to reflect commitments and other development standards/details for Subarea A. A detailed site plan with building elevations shall be submitted for final development plan approval.

C. Density, Lot and Setback Commitments:

1. Number of Units: There shall be a maximum of 150 units in this subarea. For purposes of this text, a “unit” shall mean “a room or living space in which one or two individuals resides or in which 1 or 2 beds are located.” The maximum gross floor area of ACLF uses shall not exceed 14,500 square feet per gross acre contained within Subarea A as a permitted use.

2. Lot Coverage: Maximum lot coverage within this subarea shall not exceed 70%.

3. Setbacks:

(a) Hyland Croy Road: There shall be a minimum building and pavement setback of 100 feet as measured from the edge of the right-of-way of Hyland Croy Road as such right of way exists on the date when this text becomes legally effective, except where

may otherwise be indicated on the Development Plan exhibits for Subarea A. Sidewalks, leisure paths and basins shall be permitted to encroach anywhere within this setback as shown on an approved final development plan.

(b) Post Road: There shall be a minimum building and pavement setback of 100 feet as measured from the edge of the right-of-way of Post Road as such right of way exists on the date when this text becomes legally effective. Paths and basins shall be permitted anywhere within this setback as shown on an approved final development plan.

(c) Perimeter Boundaries: There shall be a minimum building and pavement setback of 30 feet from the eastern boundary line of this subarea. There shall be a minimum building and pavement setback of 10 feet from the northern boundary line of this subarea. Paths and basins shall be permitted anywhere within this setback as shown on an approved final development plan.

(d) Interior Parcel Lines: There shall be a zero-setback required for buildings and pavement for interior parcel lines within this subarea. Where buildings or pavement cross interior parcel lines, appropriate easements detailing rights of use and obligations for maintenance shall be recorded with the Office of the Recorder of Union County, Ohio.

D. Access, Parking, Pedestrian, and Traffic-Related Commitments:

1. Minimum Parking: There shall be a minimum of 0.5 parking spaces and a maximum of 1.5 parking spaces provided per unit in this subarea, as provided by the applicant in the final development plan application for this subarea. Parking spaces within garages shall count toward the minimum parking requirement. Final locations of exterior parking spaces shall be approved as part of a final development plan. Buildings and uses on one tax parcel within Subarea A may be served by parking spaces located on that tax parcel and/or parking spaces that are located on another tax parcel within Subarea A in order to meet parking requirements, provided that necessary cross parking and cross access easements are recorded with Union County. It is the intent of the development to minimize the appearance of parking lots from view along Hyland Croy Road and adjacent neighborhoods. It is understood that parking, traffic circulation/drop off may be a feature or signature entry of an ACLF end user, such that final determinations as to site layout, location of parking and appropriate views/mounding/screening for parking shall be made at the time of final development plan.

2. Access Points: Primary vehicular access to and from this Subarea A shall be provided from a new public street located generally perpendicular to Hyland Croy Road that is adjacent to the northern boundary line of Subarea A. A private access drive shall extend into Subarea A with a minimum width of 22 feet in the general location shown on the preliminary development plan and may serve more than one tax parcel in this Subarea

provided that a cross access easement is recorded with Union County. The final location of this private access drive and other access drives within this subarea shall be approved as part of a final development plan for this subarea.

3. Hyland Croy Road ROW: No additional right-of-way for Hyland Croy Road shall be required to be dedicated from Subarea A.

4. Post Road ROW: No right-of-way dedication for Post Road shall be required in conjunction with the development of Subarea A.

5. Private Walks: A private walk system shall be provided within Subarea A to accommodate internal pedestrian circulation with connections to Subarea B. Locations and specifications shall be approved as part of a final development plan.

E. Buffering, Landscaping, Open Space and Screening Commitments:

1. Open Space: Open spaces are conceptually illustrated on the preliminary development plan. Final detailed locations and sizes of these open spaces shall be approved as part of a final development plan. The open spaces in this subarea shall be owned and maintained by the owner of Subarea A, as detailed on the preliminary development plan.

2. Street Trees: Street trees shall be provided on both sides of the private access drive at a rate of 1 tree per 40 linear feet and in locations that are approved as part of a final development plan. Trees may be equally spaced or planted in groupings provided that the total quantity equals 1 tree per 40 lineal feet. Street trees shall be a minimum of 2 inches in caliper at installation. Street trees shall be provided as listed in Appendix E to the Dublin City Code as that code exists at the time this rezoning and preliminary plan are approved. Street trees shall be installed in accordance with the City of Dublin Code. The City Forester shall determine final type and location.

3. Landscaping: Except as otherwise provided in other sections of this text, the minimum landscaping size at installation shall be in accordance with City of Dublin Code Section 153.133, Minimum Landscaping Requirements.

(a) High quality foundation plantings shall be required around each building, with numbers, spacing, and species to be reviewed and approved as part of the final development plan for this subarea.

(b) The perimeter screening along the east property line shall include the provision of additional deciduous trees to fill gaps in the existing tree row with the balance of the screening requirement to include continuous screening to a minimum height of 6 feet. Perimeter screening along the north property line shall include continuous evergreen screening to a minimum height of 6 feet. A landscape plan for this area shall be approved as part of the final development plan.

4. Rural Corridor Landscaping:

(a) A landscape plan for the rural corridor along Hyland Croy and Post Road shall be provided as part of the final development plan. It is the intent for the rural corridor landscape to have a consistent treatment and character along the frontage of Subareas A and B.

(b) The rural corridor landscape may include low earth mounds with gentle slopes not greater than 4:1, fencing, walls, entry features, and signage at key locations. In lieu of formal street tree plantings, deciduous trees shall be provided at a ratio of 4 trees per 100 linear feet of frontage. Within the rural corridor setback, these trees shall be planted closer to the right of way to mature and reflect what might have been a historic tree row. Native tree species should be considered in the landscape plan and trees may be planted in groupings provided the total quantity equals 4 trees per 100 linear feet. Shrub plantings and ornamental grasses may be included (but are not required) as part of the overall rural corridor landscape concept. All final species and tree placement subject to final approval by the City Forester.

5. Storm Water Basins: Storm water basins may be located within the required setbacks and shall have a minimum of 1 fountain or aerator provided in each.

6. Screening of Service Structures: Screening shall meet the intent of screening required per Dublin City Code Section 153.133 (C) by providing an overall comprehensive screening approach. A detailed plan shall be provided as part of the final development plan. This plan may utilize portions of the proposed structures, partial masonry walls, earth mounding and landscaping to screen the service courtyard or enclosures.

7. Preservation of Existing Vegetation: The developer shall preserve existing trees within 10 feet of the eastern property line where practical and feasible. This shall not preclude the developer from removing trees necessary for grading of infrastructure, utilities and providing adequate site drainage.

8. Fences: Fences may be permitted but shall not be required in this subarea. Fencing (except for fences required per Dublin City Code Section 153.133 and fencing as part of the Rural Corridor Landscaping as provided in Section 3 above) shall be a decorative, open metal style with masonry piers for sections of fence that exceed the normal Code allowance of 4 feet in height to be approved with the final development plan. Other/difference fencing may be approved as a part of a final development plan.

F. Tree replacement:

1. A tree replacement plan shall be provided as part of the final development plan.

2. Trees planted within this subarea that are not required to fulfill another landscape requirement in the Dublin City Code may be counted toward 50% of required tree

replacement. This includes but is not limited to tree plantings around stormwater management areas and along the private access drive, in open spaces, along property perimeters, and the tree plantings along the rural corridor may be counted toward tree replacement.

G. Architectural Standards:

1. Maximum building height: Primary use buildings in this subarea may be no more than two stories and may have a maximum height of 35 feet as measured from finish floor height to the highest point of the coping of a flat roof or to the mean height level between eaves and ridge of a gable, hip or gambrel roof. Accessory buildings and garages shall have architecturally integrated design with the primary buildings and shall not exceed 25 feet in height.

2. Design: The final designs of the buildings in this subarea shall be approved as part of a final development plan. Buildings shall have the appearance of a pitched roof and four-sided architecture provided.

3. Exterior Materials: Permitted primary and secondary materials for buildings in this subarea are as follows:

(a) Primary Materials: Permitted primary cladding materials shall include:

1. Brick
2. Stone/Synthetic Stone
3. Stucco/Synthetic Stucco
4. Wood siding
5. Fiber Cement Siding
6. Additional materials determined acceptable by the Planning and Zoning Commission

(b) Secondary Materials: Permitted trim materials shall include:

1. Gypsum Reinforced Fiber Cement Trim
2. Decorative Synthetic Millwork for Exterior Applications
3. Composite Trim
4. Metal Trim
5. Stucco
6. EIFS

(c) Roofing Materials: Permitted roofing materials shall include:

1. 25 year or better dimensional asphalt shingles, minimum 325 lbs./square weight
2. Metal standing seam
3. EPDM roofing where not visible from grade, adjacent right of ways or adjacent properties.

4. Lighting:

(a) Security lighting, if used, shall be of a motion sensor type.

(b) Street lighting, if used, shall not exceed 18 feet in height. Fixtures and their colors and spacing shall be approved at time of final development plan. Street light poles and fixtures shall be consistent in height, color, and appearance throughout the subarea.

(c) Lighting of entry features and any additional proposed lighting shall be provided and approved at time of final development plan. Ground mounted lighting shall be shielded and landscaped.

(d) Fully shielded, cut-off type lighting fixtures shall be required. Exterior lighting fixtures shall be similar in appearance throughout this subarea.

H. Signage Commitments:

1. It is the intent for the signage to be consistent in character along the frontage of Subareas A and B.

2. Signage within this subarea shall be provided as set forth below. A comprehensive signage package shall be submitted for review and approval by the Planning Commission as part of a final development plan for this subarea.

3. Subarea A signage shall include a ground sign identifying the overall development. The development sign area shall not exceed 20 square feet.

4. Signs and entry features shall be permitted within the Hyland Croy setback and/or reserve median, and may be installed and maintained by the owner of Subarea A pursuant to a right-of-way encroachment permit that it shall obtain from the City. Any such sign shall meet applicable setbacks for site distance. The reserve median shall be owned and maintained privately by the owner of Subarea A.

5. Additional signage may be proposed provided in a comprehensive sign package at the time of final development plan.

I. Utilities: All new utility lines and wiring shall be placed underground. Utility easement locations and widths shall be determined in the final development plan for this subarea.

**II. SUBAREA B:** Subarea B includes 35.6+/- acres that cover the northern three-quarters of the zoning district's acreage. It will provide for the development of single-family homes as provided below.

A. Permitted Uses: Permitted uses in Subarea B shall be as follows:

1. Single-family detached residences.
2. Publicly or privately-owned parks and open spaces and storm water facilities.
3. Model homes and sales offices, in accordance with Dublin City Code Section 153.073(D). Two single-family model homes shall be permitted in this subarea.
4. Home occupation uses in association with a permitted dwelling, in accordance with Dublin City Code Section 153.073(A) and (B).

B. Owners' Association: Prior to commencing construction of the first residential unit in Subarea B, the Developer shall create a homeowners' association (an "HOA") to govern the subarea. The written instruments that create the HOA(s) shall be recorded with the Office of the Recorder of Union County, Ohio and shall require each homeowner within Subarea B to pay an assessment charge to the HOA(s) for the purpose of funding the operations and obligations of the HOA(s).

C. Density, Lot and Setback Commitments:

1. Number of Units: There shall be a maximum of 90 residential units in this subarea, consisting of all single-family homes.

2. Lot Coverage: Maximum lot coverage on internal lots within this subarea shall not exceed 70%. Maximum lot coverage for perimeter lots backing up to the east and north property line shall not exceed 60%

3. Lot Widths and Depths; Frontage:

- a. There shall be a minimum lot width of 53 feet for interior lots on which single-family homes are constructed, as measured at the building setback line, or a minimum corner lot width as shown at the building setback line as indicated on the Site Plan and Preliminary Plat.
- b. Perimeter lots that back up to the east and north property line shall have a minimum lot width of 65 feet or a minimum corner lot width as shown at the building setback line as indicated on the Site Plan and Preliminary Plat.
- c. All lots in this subarea shall have an average minimum lot depth of 110 feet and a minimum lot size of 5830 square feet.
- d. All homes shall front on a public street.

4. Setbacks:

(a) Hyland Croy Road: There shall be a minimum pavement and building setback of 100 feet as measured from the edge of the right-of-way of Hyland Croy Road after the required 50-foot dedication of right-of-way from this subarea is completed as

detailed elsewhere in this text. Public streets, leisure paths, basins/storm water facilities and sidewalks may be located within this setback.

(b) Front Yards: There shall be a minimum front yard setback of 20 feet for homes from any public right-of-way. On corner lots, the 20 foot front yard setback shall be required from both public street(s) right of way and shown on the final development plan.

(c) Rear Yard Setbacks: The minimum rear yard setback for homes shall be 10 feet as measured from the rear property line of the lot, except that the minimum rear yard setback for single-family homes that back onto the eastern boundary line of this subarea shall be 30 feet as measured from the rear property line of the lot and the minimum rear yard setback for single-family homes that back onto the northern boundary line of this subarea shall be 25 feet as measured from the rear property line of the lot. Patios shall be permitted to encroach up to 5 feet into the required minimum rear yard setback. Lots 68, 69 and 70 as indicated on the Preliminary Plat shall have their rear yard adjacent to lots 67 and 71.

(d) Side Yard Setbacks: There shall be two standards for side yard setbacks. For interior lots, a minimum side yard setback of 5 feet as measured from each side property line, except that where a lot's side property line is the eastern boundary line of this subarea, the minimum side yard setback from that side property line shall be 10 feet. Patios shall be permitted to encroach up to 5 feet into the required side yard setback.

For perimeter lots that back to the east and north property lines, a minimum side yard setback of 7.5 feet as measured from each side property line, except that where a lot's side property line is the eastern boundary line of this subarea, the minimum side yard setback from that side property line shall be 10 feet. Patios shall be permitted to encroach up to five feet into the required rear yard setback.

D. Access, Parking, Pedestrian, and Traffic-Related Commitments:

1. Off-Street Parking: Each single-family home shall have a minimum two-car garage and shall be required to have a minimum of 2 off-street parking spaces on their driveways in addition to parking spaces within the garage.

2. On-Street Parking: On-street parking shall be permitted on public streets within this subarea in accordance with Dublin City Code.

3. Access Points: Primary vehicular access to and from this subarea shall be provided from Hyland Croy Road in the general locations shown on the approved preliminary development plan.

4. Hyland Croy Road ROW: Prior to the issuance of the first building permit for a home or building to be constructed in this subarea, the owner of Subarea B shall be required to dedicate right-of-way for Hyland Croy Road for a distance of 50 feet from the centerline of that street as it exists on the date that this text becomes legally effective.

5. Other Street Widths and Rights-of-Way: The internal vehicular transportation system for this subarea shall include only public streets. These public streets shall include extensions of Holbein Drive, Stillhouse Lane, and Springview Lane westward into the subarea and the construction of other public streets as generally shown on the preliminary development plan. All public streets in this subarea shall have a right-of-way width of 50 feet and a pavement width of 28 feet measured back-of-curb to back-of-curb. Public streets shall be of curb-and-gutter construction.

6. Public Street Improvements and Construction: The applicant has submitted a traffic study for review of the City in conjunction with the filing of the preliminary development plan. Public street improvements that are required with respect to the development of this subarea shall be determined in the approved traffic study. The respective obligations of the developer of Subarea B and the City with respect to the construction of these public street improvements and the payment of related costs shall be detailed in a separate written infrastructure agreement between them which shall be based upon the traffic study.

7. Leisure Trails; Public Sidewalks: Asphalt leisure trails with a width of 8 feet shall be constructed by the Applicant/Developer in the general locations identified in the approved preliminary development plan. Final locations for asphalt leisure paths shall be approved as part of a final development plan. Public sidewalks shall be constructed of concrete and shall be a minimum of 4 feet in width, and shall be located on both sides of all public streets other than Hyland Croy Road.

E. Buffering, Landscaping, Open Space and Screening Commitments:

1. Parkland and Open Space: Parkland and open space shall be provided in this subarea in accordance with the requirements of Dublin City Code as indicated in the approved preliminary development plan and preliminary plat. All open space reserves shall be owned by the City and maintained by the HOA with the exception of storm water basins and appurtenances thereto which shall be maintained by the City. Final detailed locations and sizes of these open space reserves shall be approved as part of a final development plan.

2. The HOA shall own and maintain the open space reserves denoted as Reserve areas C and E on the Preliminary Plan. No change in ownership shall affect setbacks, other property site metrics or site data calculated as if the open spaces and reserves were owned by the Developer or HOA. The City ownership of open spaces or reserves shall not result in a change of any setback, development standard/site data or other property metric.

3. Hyland Croy Rural Corridor Landscaping:

(a) A detailed landscape plan for the rural corridor along Hyland Croy shall be provided as part of the final development plan, including detailed explanations for maintenance and which clearly identifies the level of maintenance for which the HOA will be responsible. It is the intent for this rural corridor landscape to be a consistent landscape treatment and character along the frontage of Subareas A and B.

- (b) The rural corridor landscape may include low earth mounds with gentle slopes not greater than 4:1, fencing, walls entry features and signage at key locations. In lieu of formal street tree plantings, deciduous trees shall be provided at a ratio of 4 trees per 100 linear feet of frontage. Within the rural corridor setback, these trees shall be planted closer to the right of way to grow and reflect what might have been a historic tree row. Native tree species should be considered in the landscape plan and trees may be planted in groupings provided the total quantity equals 4 trees per 100 linear feet. Shrub plantings and ornamental grasses may be included as part of the overall rural corridor landscape concept.
3. Storm Water Basins: Storm water basins may be located within the required setbacks and shall have a minimum of 1 fountain or aerator provided in each.
  4. Street Trees: Street trees shall be provided on both sides of the street at a rate of 1 tree per 40 linear feet and in locations that are approved as part of a final development plan. Trees may be equally spaced or planted in groupings provided that the total quantity equals 1 tree per 40 linear feet. Street trees shall be a minimum of 2 inches in caliper at installation. Street trees shall be provided as listed in Appendix E to the Dublin City Code. Street trees shall be installed in accordance with City of Dublin Code. The City Forester shall determine final type and location.
  5. Landscaping: Except as otherwise provided in other sections of this text, the minimum landscaping size at installation shall be per City of Dublin Code Section 153.133 Minimum Landscape Requirements. Performance assurances shall be provided for landscaping in accordance with City of Dublin Code.
  6. Stream Corridor Protection Zone: A stream corridor protection zone shall be created along the stream located within this subarea with a variable width as shown on the preliminary development plan. The final widths of this zone shall be approved as part of the final development plan, provided that they shall be substantially consistent with that which is approved as part of the preliminary development plan. No improvements shall be made within the stream corridor protection zone, except storm water basin outlets may be located therein and a pedestrian path may be constructed to connect with an existing nearby path. Storm water basin outlets may also encroach into floodways located in this subarea. A pedestrian path shall be permitted to cross the stream corridor protection zone in a location that is approved as part of the final engineering for this subarea and in accordance with all required state and/or federal permits.
  7. Preservation of Existing Vegetation: The developer shall make reasonable attempts to preserve existing trees within 10 feet of the eastern property line and along the stream corridor protection zone where practical and feasible. This shall not preclude the developer from removing trees necessary for grading of infrastructure, utilities and providing adequate site drainage.
  8. Fences: Fences, unless required by Dublin City Code, shall not be permitted for the residential lots in this subarea.

F. Tree replacement:

1. A tree replacement plan shall be provided as part of the final development plan.
2. Trees planted within this subarea that are not required to fulfill another landscape requirement in the code may be counted toward 50% of required tree replacement. This includes but is not limited to tree plantings around storm water management areas, in open spaces, along property perimeters, and of the tree plantings along the rural corridor may be counted toward tree replacement.

G. Signage Commitments:

1. It is the intent for the signage to be consistent in character along the frontage of Subareas A and B.
2. Signage within this subarea may be generally provided as provided below. A comprehensive signage package shall be submitted for review and approval as part of a final development plan for this subarea.
  - (a) Two entry features shall be permitted for Subarea B along Hyland Croy Road within the setback and in the median(s) and/or along either side of the two vehicular entries to this Subarea B. These entry features may include but not be limited to fencing, walls, columns, landscaping and signs as indicated below.
  - (b) Two signs shall be permitted and may be included at the Subarea B entries as described herein. Each sign area shall not exceed 20 square feet. Each sign proposed shall be installed and maintained by a property owners' association that governs Subarea B. If signs are located within the median, a right-of-way encroachment permit shall be obtained from the City. Signage for Subarea B shall be incorporated into a masonry base and/or masonry column compatible in design with the signage for Subarea A and may be incorporated into an entry feature. Sign height to be determined with the comprehensive sign package and in accordance with required site distance.
3. Additional signage may be approved with the final development plan.
4. The City of Dublin has requested this Site accommodate a ground sign to identify the adjacent Post Preserve development. This Post Preserve sign shall not exceed 20 square feet. This sign and square footage is in addition to the two signs and square footage provided for Subarea B, as set forth herein above. The final details for this additional signage (wording, design, materials, dimensions, placement, etc.) to be determined at the time of final development plan.

H. Architectural Standards: All single-family homes in this subarea shall meet the residential appearance standards in Dublin City Code Section 153.190 unless otherwise provided in this text or as a part of home building elevations and materials that are approved as part of a final development plan.

1. Maximum building height: Homes may be 1, 1 1/2 or 2 stories and may have a maximum height of 35 feet as measured in accordance with Dublin City Code.

2. Exterior Materials: Permitted primary and secondary materials for buildings in this subarea are as follows:

(a) Cladding Materials: The exterior cladding of all structures on all lots shall be finished using all natural materials, including brick, thin brick, stone, manufactured stone, wood, engineered wood, fiber-cement siding products, stucco or any combination thereof.

(b) Trim Materials: Wood, aluminum, PVC, urethane foam, EIFS, copper or fiber-cement products. Shutters shall be considered as trim for the purpose of meeting the Residential Appearance Code requirements.

(c) Roofing Materials: 25 year or better dimensional asphalt shingles (minimum 240 lbs/square weight) and metal standing seam.

(d) Windows may be vinyl.

3. Architectural Diversity: At the time that this zoning text has been submitted for review as part of the preliminary development plan application for this zoning district, it is anticipated that a minimum of six base single-family home designs will be used to meet market demand. Variations in materials and colors of the exterior elevations will be incorporated to provide diversity in terms of exterior appearances. Materials shall be natural earth tones in a warm hue. Elevations and further specifications to be provided at the time of Final Development Plan. Diversity shall also be provided such that the front elevation of any home shall not be the same as the home immediately adjacent to the home on either side or the home directly across the street. Homes fronting on Hyland Croy Road shall require additional architectural features on the front façade which may include but not be limited to: stone/synthetic stone water tables, shutters with operable hardware, masonry entry piers, etc.

4. Garages: Front-loaded and attached garages shall be permitted on each home. Single-bay or double-bay garage doors shall be permitted. All garages door openings shall be a maximum 50% of the front linear home façade, with decorative with stamped pattern and hardware.

5. Skylights: Skylights in portions of the roof that are not visible from the public street, parkland, or open space which is adjacent to the parcel on which a home is located shall be permitted.

6. Lighting:

(a) Security lighting, when used, shall be of a motion sensor type.

(b) One coach light shall be permitted on each residential units/lots. Coach light poles and fixtures shall be consistent in height, color and appearance throughout the subarea.

(c) Lighting of entry features and any additional proposed lighting shall be provided and approved at time of final development plan. Ground mounted lighting shall be shielded and landscaped.

7. Swimming Pools: Swimming pools shall be prohibited in this subarea.

8. Storage Buildings:

(a) Storage Sheds: Storage sheds shall be prohibited.

(b) Equipment Storage: Storage of all maintenance equipment shall be within garages or otherwise screened from off-site view. Such items should not be visible from streets, common open spaces, adjacent lots or developments.

I. Utilities: All new utility lines and wiring shall be placed underground. Utility easement locations and widths shall be determined in the final development plan for this subarea.

**Parcel Description of 45.472 Acres**

Situated in the State of Ohio, County of Union, Township of Jerome, Virginia Military District Survey No. 3452, begin those 43.523 and 1.949 acre tracts conveyed to Denise Ann Gorden Trustee and Roger Warren Gorden Trustee by deeds of record in Official Records 783, Page 368 and Page 376, (all references are to the records of the Recorder's Office, Union County, Ohio) and being more particularly described as follows:

BEGINNING at the westerly common corner of said 43.523 acre tract and that 1.121 acre tract conveyed to the City of Dublin by deed of record in Official Record 796, Page 523, in the centerline of Hyland-Croy Road;

Thence North 04° 14' 48" West, with said centerline, a distance of 2511.05 feet to the southwesterly corner of that subdivision entitled "Park Place Section 1" of record in Plat Book 5, Page 33;

Thence North 85° 33' 48" East, with the southerly line of said "Park Place Section 1", a distance of 591.86 feet to the northwesterly corner of that subdivision entitled "Post Preserve Section 3" of record in Plat Book 5, Page 161;

Thence South 04° 16' 31" East, with the westerly lines of said "Post Preserve Section 3", that subdivision entitled "Post Preserve Section 2" of record in Plat Book 5, Page 91 and that subdivision entitled "Post Preserve Section 1" of record in Plat Book 5, Page 66, a distance of 3525.04 feet to the most northerly corner of that 0.564 acre tract conveyed to the City of Dublin by deed of record in Official Record 307, Page 88, being in the westerly right-of-way line of Post Preserve Road;

Thence with said westerly right-of-way line, with the arc of a curve to the left, having a central angle of 13° 12' 46", a radius of 639.79 feet, an arc length of 147.54 feet, a chord bearing of South 46° 41' 09" West and chord distance of 147.21 feet;

Thence with said westerly right-of-way line of Post Preserve Road, the northerly right-of-way line of Post Road and the easterly right-of-way line of said Hyland-Croy Road by deeds of record in Official Record 307, Page 88, Official Record 796, Page 529 and Official Record 796, Page 523, the following courses and distances:

South 83° 38' 47" West, a distance of 12.40 feet;

North 52° 45' 27" West, a distance of 210.05 feet;

North 60° 55' 15" West, a distance of 76.06 feet;

North 55° 07' 57" West, a distance of 81.39 feet;

North 25° 23' 15" West, a distance of 131.24 feet;

North 09° 37' 47" West, a distance of 95.61 feet;

North 07° 10' 09" West, a distance of 110.71 feet;

North 19° 31' 55" West, a distance of 202.55 feet;

North 12° 15' 36" West, a distance of 157.04 feet;

North 06° 32' 15" West, a distance of 140.77 feet;

North 04° 14' 19" West, a distance of 53.90 feet; and

South 84° 51' 04" West, a distance of 40.04 feet to the POINT OF BEGINNING, containing 45.472 acres, more or less.

EVANS, MECHWART, HAMBLETON & TILTON, INC.

**Subarea A ~ 9.9 Acres**

Situated in the State of Ohio, County of Union, Township of Jerome, Virginia Military District Survey No. 3452, being out of the 43.523 acre tract conveyed to Denise Ann Gorden Trustee and Roger Warren Gorden Trustee by deeds of record in Official Record 783, Page 368 and Official Record 783, Page 376, (all references are to the records of the Recorder's Office, Union County, Ohio) and being more particularly described as follows:

BEGINNING at the southernmost corner of Lot 1 of that subdivision entitled "Post Preserve Section 1" of record in Plat Book 5, Page 66 and the northernmost corner of that 0.564 acre tract conveyed to the City of Dublin by deed of record in Official Record 307, Page 88, being in the westerly right-of-way line of Post Preserve Road;

Thence with said westerly right-of-way line, with the arc of a curve to the left, having a central angle of  $13^{\circ} 12' 46''$ , a radius of 639.79 feet, an arc length of 147.54 feet, a chord bearing of South  $46^{\circ} 41' 09''$  West and chord distance of 147.21 feet;

Thence with said westerly right-of-way line of Post Preserve Road, the northerly right-of-way line of Post Road and the easterly right-of-way line of said Hyland-Croy Road by deeds of record in Official Record 307, Page 88, Official Record 796, Page 529 and Official Record 796, Page 523, the following courses and distances:

South  $83^{\circ} 38' 47''$  West, a distance of 12.40 feet;

North  $52^{\circ} 45' 27''$  West, a distance of 210.05 feet;

North  $60^{\circ} 55' 15''$  West, a distance of 76.06 feet;

North  $55^{\circ} 07' 57''$  West, a distance of 81.39 feet;

North  $25^{\circ} 23' 15''$  West, a distance of 131.24 feet;

North  $09^{\circ} 37' 47''$  West, a distance of 95.61 feet;

North  $07^{\circ} 10' 09''$  West, a distance of 110.71 feet;

North  $19^{\circ} 31' 55''$  West, a distance of 202.55 feet;

North  $12^{\circ} 15' 36''$  West, a distance of 157.04 feet;

North  $06^{\circ} 32' 15''$  West, a distance of 140.77 feet; and

North  $04^{\circ} 14' 19''$  West, a distance of 53.84 feet;

Thence across said 43.523 acre tract, the following courses and distances:

North  $84^{\circ} 56' 06''$  East, a distance of 103.09 feet;

South  $04^{\circ} 16' 31''$  East, a distance of 139.25 feet; and

North  $85^{\circ} 43' 29''$  East, a distance of 450.00 feet to a westerly line of said "Post Preserve Section 1";

Thence South  $04^{\circ} 16' 31''$  East, with said westerly line, a distance of 875.05 feet to the POINT OF BEGINNING, containing 9.9 acre, more or less.

EVANS, MECHWART, HAMBLETON & TILTON, INC.

**Subarea B ~ 35.6 Acres**

Situated in the State of Ohio, County of Union, Township of Jerome, Virginia Military District Survey No. 3452, being those 43.523 and 1.949 acre tracts conveyed to Denise Ann Gorden Trustee and Roger Warren Gorden Trustee by deeds of record in Official Records 783, Page 368 and Page 376, (all references are to the records of the Recorder's Office, Union County, Ohio) and being more particularly described as follows:

BEGINNING at the westerly common corner of said 43.523 acre tract and that 1.121 acre tract conveyed to the City of Dublin by deed of record in Official Record 796, Page 523, in the centerline of Hyland-Croy Road;

Thence North 04° 14' 48" West, with said centerline, a distance of 2511.05 feet to the southwesterly corner of that subdivision entitled "Park Place Section 1" of record in Plat Book 5, Page 33;

Thence North 85° 33' 48" East, with the southerly line of said "Park Place Section 1", a distance of 591.86 feet to the northwesterly corner of that subdivision entitled "Post Preserve Section 3" of record in Plat Book 5, Page 161;

Thence South 04° 16' 31" East, with the westerly lines of said "Post Preserve Section 3", that subdivision entitled "Post Preserve Section 2" of record in Plat Book 5, Page 91 and that subdivision entitled "Post Preserve Section 1" of record in Plat Book 5, Page 66, a distance of 2649.99 feet;

Thence across said 43.523 acre tract, the following courses and distances:

South 85° 43' 29" West, a distance of 450.00 feet;

North 04° 16' 31" West, a distance of 139.25 feet; and

South 84° 56' 06" West, a distance of 143.13 feet to the POINT OF BEGINNING, containing 35.6 acres, more or less.

EVANS, MECHWART, HAMBLETON & TILTON, INC.

## List of Property Owners within 150 Feet

| PID           | Name                                    | Address                 | Mailing City   | State | Zipcode |
|---------------|---|-------------------------|----------------|-------|---------|
| 3900290163030 | Robert & Susan Speeney                  | 6800 ROYAL PLUME DR     | DUBLIN         | OH    | 43016   |
| 3900290163040 | Nagamurali Kodali & Vemulapalli Smithna | 6808 ROYAL PLUME DR     | DUBLIN         | OH    | 43016   |
| 3900290163050 | Tarek Chidiac                           | 6816 ROYAL PLUME DR     | DUBLIN         | OH    | 43016   |
| 3900290163060 | Shilpa & Apurwa Naik                    | 6824 ROYAL PLUME DR     | DUBLIN         | OH    | 43016   |
| 3900290163070 | Xue Dian Chen                           | 6832 ROYAL PLUME DR     | DUBLIN         | OH    | 43016   |
| 3900290163000 | Zobeida Monserrate & Mateo Carmelo      | 6834 STILLHOUSE LN      | DUBLIN         | OH    | 43016   |
| 3900290163080 | Sanjiv & Dipshri Walke                  | 6840 ROYAL PLUME DR     | DUBLIN         | OH    | 43016   |
| 3900290163010 | Charles & Sarah Sanders                 | 6842 STILLHOUSE LN      | DUBLIN         | OH    | 43016   |
| 3900290163350 | Bornain & Lin Chiu                      | 6848 ROYAL PLUME DR     | DUBLIN         | OH    | 43016   |
| 3900290163310 | Brent & Jodie Bahnub                    | 6849 HOLBEIN DR         | DUBLIN         | OH    | 43016   |
| 3900290061290 | Bortman & Linda Jung                    | 6851 PARK MILL DR       | DUBLIN         | OH    | 43017   |
| 3900290163340 | Srikranti & Srinivas Nandigam           | 6856 ROYAL PLUME DR     | DUBLIN         | OH    | 43016   |
| 3900290163320 | William & Kerry Razor                   | 6857 HOLBEIN DR         | DUBLIN         | OH    | 43016   |
| 3900290061300 | Ryan & Becky Crawford Trustees          | 6859 PARK MILL DR       | DUBLIN         | OH    | 43017   |
| 3900290163330 | Jiancheng & Nan Li Tang                 | 6864 ROYAL PLUME DR     | DUBLIN         | OH    | 43016   |
| 3900290061310 | Cherie & Bret Busby                     | 6867 PARK MILL DR       | DUBLIN         | OH    | 43017   |
| 3900290061320 | Angel Kowalski & Maria Cuesta           | 6875 PARK MILL DR       | DUBLIN         | OH    | 43017   |
| 3900290061320 | Kiyong & Min Kim Ahn                    | 6883 PARK MILL DR       | DUBLIN         | OH    | 43017   |
| 3900290061340 | Lawrence & Larissa Mehling              | 6891 PARK MILL DR       | DUBLIN         | OH    | 43017   |
| 3900290061350 | City of Dublin                          | 6899 PARK MILL DR       | DUBLIN         | OH    | 43017   |
| 3900290162240 | City of Dublin                          | 6900 POST PRESERVE BLVD | DUBLIN         | OH    | 43016   |
| 3900290162200 | Pamela K Bellas Karrer                  | 6925 POST PRESERVE BLVD | DUBLIN         | OH    | 43016   |
| 3900290162210 | Bharathi & Chandra Modupalli            | 6933 POST PRESERVE BLVD | DUBLIN         | OH    | 43016   |
| 3900290162220 | Ravikumar Marthy & Sheeta Ankalkoti     | 6941 POST PRESERVE BLVD | DUBLIN         | OH    | 43016   |
| 3900290162230 | Ripal & Komal Patel                     | 6949 POST PRESERVE BLVD | DUBLIN         | OH    | 43016   |
| 3900290162000 | Lora Boukheir                           | 6957 POST PRESERVE BLVD | DUBLIN         | OH    | 43016   |
| 3900290162010 | Keith & Leslie Hammond                  | 6965 POST PRESERVE BLVD | DUBLIN         | OH    | 43016   |
| 3900290162020 | Sharma & Madhavi Appala                 | 6973 POST PRESERVE BLVD | DUBLIN         | OH    | 43016   |
| 3900290162030 | Christopher Fleury                      | 6981 POST PRESERVE BLVD | DUBLIN         | OH    | 43016   |
| 3900290162040 | Mukesh Singh & Pandey Sarala            | 6989 POST PRESERVE BLVD | DUBLIN         | OH    | 43016   |
| 3900290162440 | Michael & Elizabeth Sierra              | 7011 BLAKEMORE LN       | DUBLIN         | OH    | 43016   |
| 3900290162450 | Hanbin & Mary Pang                      | 7019 BLAKEMORE LN       | DUBLIN         | OH    | 43016   |
| 3900290162460 | Rebala Divya & Chakradar Kotireddy      | 7027 BLAKEMORE LN       | DUBLIN         | OH    | 43016   |
| 3900290162470 | Rupinder & Parminder Kaur               | 7035 BLAKEMORE LN       | DUBLIN         | OH    | 43016   |
| 3900290162480 | Rajasekhar & Jyothi Kokeragadda         | 7043 BLAKEMORE LN       | DUBLIN         | OH    | 43016   |
| 3900290162490 | Tajuddin & Rubi Taj Mohammed            | 7051 BLAKEMORE LN       | DUBLIN         | OH    | 43016   |
| 3900290162500 | Siddhartha Saran                        | 7059 BLAKEMORE LN       | DUBLIN         | OH    | 43016   |
| 3900290162510 | Naga Kalle & Rayaprolu Bhagya           | 7067 BLAKEMORE LN       | DUBLIN         | OH    | 43016   |
| 3900290163250 | City of Dublin                          | 7095 POST PRESERVE BLVD | DUBLIN         | OH    | 43016   |
| 3900290131010 | City of Dublin                          | 7180 POST RD            | DUBLIN         | OH    | 43016   |
| 3900290162060 | Christopher & Tamara Novy Trustees      | 7225 SPRINGVIEW LN      | DUBLIN         | OH    | 43016   |
| 3900290162160 | Jeffrey & Kathleen Smith                | 7226 SPRINGVIEW LN      | DUBLIN         | OH    | 43016   |
| 3900290162050 | H & N Real Properties, LLC              | 7233 SPRINGVIEW LN      | DUBLIN         | OH    | 43016   |
| 3900290162150 | Rajesh Shah & Gupta Mridula             | 7234 SPRINGVIEW LN      | DUBLIN         | OH    | 43016   |
| 3900290130010 | Roger Warren & Denise Gorden            | 7270 HYLAND CROY RD     | PLAIN CITY     | OH    | 43064   |
| 3900290140000 | Roger Warren & Denise Gorden            | 7150 HYLAND CROY RD     | PLAIN CITY     | OH    | 43064   |
| 3900010110000 | City of Dublin                          | 5800 SHIER RINGS RD     | DUBLIN         | OH    | 43017   |
| 1700310291000 | Hawkins Family Partnership Ltd.         | 6001 34 ST N            | ST. PETERSBURG | FL    | 33714   |
| 1700310390010 | John Wirchanski                         | 160 FRANKLIN ST.        | DUBLIN         | OH    | 43017   |
| 1700310381020 | Paul & Mary Jacquemin                   | 7437 HYLAND CROY RD     | PLAIN CITY     | OH    | 43064   |



## MEMO

**Date:** March 5, 2019  
**To:** Aaron Stanford, PE, City of Dublin  
**From:** Patricia Brown, PE, EMH&T  
**Subject:** Dublin Gateway Utility Engineering Memo  
**Copies:** Wes Smith, Schottenstein Real Estate Group  
Linda Menerey, EMH&T

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This memo has been prepared to summarize the availability of necessary utilities at the site of the future Hyland-Croy Gateway East single family and adult congregate living development.

### **Sanitary Sewer Extensions and Taps**

Sanitary sewer service will be extended from two locations within the proposed development.

An existing 8" sanitary sewer runs east through the Post Preserve Section 1 development along Springview Lane. Sanitary flow from Subarea B - Phase 1 of the Hyland-Croy Gateway East development as well as Subarea A will be directed to an existing manhole along the 8" main.

An existing 8" sanitary sewer runs east through the Post Preserve Section 3 development along Holbein Drive. Sanitary flow from Subarea B - Phase 2 of the Hyland-Croy Gateway East development will be directed to an existing manhole along the 8" main.

### **Storm Sewer Outlet**

Storm pipes and structures will be put in place to convey the runoff from Subarea A to the proposed stormwater management area on the south side of the site. The stormwater management area will outlet to the existing storm sewer in Post Preserve Section 1.

Storm pipes and structures will be put in place to convey the runoff from Subarea B - Phases 1 & 2 of the Hyland-Croy Gateway East development to the proposed stormwater management areas on either side of the existing stream. The two stormwater management areas will outlet to the stream.



Engineers, Surveyors, Planners, Scientists

### **Water Mains, Services and Taps**

A water main will be extended along the east side of Hyland-Croy Road at which time the public water mains within the Hyland-Croy Gateway East development will connect.

Water service to Subarea A will be provided through private fire and domestic services which will tap off the extended Hyland-Croy Road water main to meters within the building.

Water service to Subarea B - Phase 1 of the Hyland-Croy Gateway East development will be provided by tapping the existing 8" water main along Springview Lane in Post Preserve Section 1 and the existing 8" water main along Stillhouse Lane in Post Preserve Section 2. A public water main will be constructed to provide water service and fire protection through fire hydrants to the proposed single family homes of the development. The public water main will be sized to meet jurisdictional requirements.

Water service to Subarea B - Phase 2 of the Hyland-Croy Gateway East development will be provided by tapping the existing 8" water main along Holbein Drive in Post Preserve Section 1. A public water main will be constructed to provide water service and fire protection through fire hydrants to the proposed single family homes of the development. The public water main will be sized to meet jurisdictional requirements.



A legacy of **experience**. A reputation for **excellence**.



2-25-19

**Dublin Gateway Preliminary Development Plan  
Stormwater Management Plan**

**Schottenstein Real Estate Group**

5500 New Albany Road  
Columbus, Ohio 43054  
Phone: 614-775-4500  
Fax: 614-775-4802  
Toll Free: 1-888-775-EMHT

emht.com

2017-0464

**May 19, 2017  
Revised July 18, 2017  
Revised February 25, 2019**

Engineers

Surveyors

Planners

Scientists

## 1.0 INTRODUCTION

The following report summarizes the preliminary stormwater report for the Hyland-Croy Gateway East single family attached/detached units and adult congregate living facility development. The project is located along the east side of Hyland-Croy just north of Post Road. The site is mainly tributary to Tri-County Ditch, which is part of the South Fork Indian Run watershed number 2350. A small portion at the very north tip of the development is tributary to North Fork Indian Run watershed number 8360. At the very southern end of the development a small area is within South Fork Indian Run watershed number 2370, which is directly tributary to South Fork Indian Run.

## 2.0 PREDEVELOPED CONDITIONS

The site has been primarily used as agricultural land with three old homesteads. The soil type is Brookstone silty clay loam and Crosby silt loam. Both of these soils are hydrologic C/D soils. We will assume they are in a drained condition and use Type C soil as the predeveloped condition RCN = 78. Exhibit 1 shows the predeveloped tributary boundaries for the City of Dublin watershed overlain by the anticipated onsite tributary boundaries. We do not anticipate draining to North Fork Indian Run, therefore an allowable release rate for Subarea 8360 is not being calculated. Table 1 lists the predeveloped release rates to South Fork Indian Run watersheds 2350 and 2370.

**Table 1**  
**Predeveloped Release Rates**

| Allowable Release Rates |      |      |      | South Fork Indian Run |       |       |        |
|-------------------------|------|------|------|-----------------------|-------|-------|--------|
| Sub-Basin               | 1-yr | 2-yr | 5-yr | 10-yr                 | 25-yr | 50-yr | 100-yr |
| 2350                    | 0.2  | 0.2  | 0.3  | 0.3                   | 0.4   | 0.6   | 0.8    |
| 2370                    | 0.2  | 0.2  | 0.3  | 0.5                   | 0.7   | 1.2   | 1.7    |

| Sub-Basin | Area (ac) | 1-yr | 2-yr | 5-yr | 10-yr | 25-yr | 50-yr | 100-yr |
|-----------|-----------|------|------|------|-------|-------|-------|--------|
| 2350      | 28.94     | 5.79 | 5.79 | 8.68 | 8.68  | 11.58 | 17.36 | 23.15  |
| 2370      | 1.05      | 0.21 | 0.21 | 0.32 | 0.53  | 0.74  | 1.26  | 1.79   |

## 3.0 POST-DEVELOPED CONDITIONS

The site is proposing (3) stormwater management areas (SWMA) as shown on Exhibit 2. There are no offsite areas tributary to the SWMA. The Hyland-Croy road frontage will be intercepted by the existing ditch and/or supplemental grass ditch and convey the runoff directly to Tri-County Ditch or Post Road. Table 2 lists the subarea characteristics for each area. The proposed plan is for each SWMA to provide water quality and detention for its own area independent of the other facilities so that when the site is built in phases, each SWMA can provide compliance for its area on its own. The critical storm calculation is provided on Table 3 for each area. Table 4 calculates the allowable release rate for each area based on the critical storm and City of Dublin Master Plan release rates.

**Table 2**  
**Post-Developed Areas**

| Subarea Identifier | Post Area (acres) | Land Usage                       | % Impervious | Runoff Curve Number | Runoff Volume (ac-ft) | Time of Concentration (min) | Tributary to:  |
|--------------------|-------------------|----------------------------------|--------------|---------------------|-----------------------|-----------------------------|----------------|
| Subarea "B" North  | 11.54             | Single-family residential        | 65           | 90                  | 1.218                 | 10                          | North SWMA     |
| Subarea "B" South  | 15.73             | Single-family residential        | 65           | 90                  | 1.660                 | 10                          | South SWMA     |
| Subarea "A"        | 9.33              | Adult Congregate Living Facility | 85           | 94                  | 1.232                 | 5                           | Subarea A SWMA |
| <b>Total</b>       | <b>36.48</b>      |                                  |              |                     |                       |                             |                |

**Table 3**  
**Post-Developed Areas**

| Subarea Identifier | Pre Area (acres) | Pre RCN | Pre Runoff Volume (ac-ft) | Post Runoff Volume (ac-ft) | % Increase | Critical Storm |
|--------------------|------------------|---------|---------------------------|----------------------------|------------|----------------|
| Subarea "B" North  | 6.25             | 76      | 0.271                     | 1.218                      | 349%       | 50-year        |
| Subarea "B" South  | 15.73            | 78      | 0.734                     | 1.660                      | 126%       | 25-year        |
| Subarea "A"        | 9.33             | 77      | 0.435                     | 1.232                      | 183%       | 25-year        |
| <b>Total</b>       | <b>36.48</b>     |         |                           |                            |            |                |

**Table 4 - Allowable and Proposed Release Rates**

| Storm | Subarea "B" North SWMA  |                    |                   | Subarea "B" South SWMA  |                    |                   |
|-------|-------------------------|--------------------|-------------------|-------------------------|--------------------|-------------------|
|       | Allowable<br>(cfs/acre) | Allowable<br>(cfs) | Proposed<br>(cfs) | Allowable<br>(cfs/acre) | Allowable<br>(cfs) | Proposed<br>(cfs) |
| 1     | 0.2                     | 1.25               | 0.56              | 0.2                     | 6.29               | 0.66              |
| 2     | 0.2                     | 1.25               | 0.66              | 0.2                     | 6.29               | 1.43              |
| 5     | 0.3                     | 1.25               | 0.78              | 0.3                     | 6.29               | 3.13              |
| 10    | 0.3                     | 1.25               | 0.87              | 0.3                     | 6.29               | 4.47              |
| 25    | 0.4                     | 1.25               | 0.98              | 0.4                     | 6.29               | 5.84              |
| 50    | 0.6                     | 1.25               | 1.06              | 0.6                     | 9.44               | 7.01              |
| 100   | 0.8                     | 5                  | 1.95              | 0.8                     | 12.58              | 11.54             |

| Subarea "A" SWMA        |                    |                   |
|-------------------------|--------------------|-------------------|
| Allowable<br>(cfs/acre) | Allowable<br>(cfs) | Proposed<br>(cfs) |
| 0.2                     | 1.87               | 0.49              |
| 0.2                     | 1.87               | 0.84              |
| 0.3                     | 1.87               | 1.25              |
| 0.3                     | 1.87               | 1.49              |
| 0.4                     | 1.87               | 1.76              |
| 0.6                     | 7.46               | 2.65              |
| 0.8                     | 7.46               | 5.36              |

The volumes needed in each SWMA were designed to provide water quality using the new EPA rainfall depth and runoff coefficient and peak flow rate control using the critical storm and Dublin Master Plan release rates are shown on Table 5. The volumes used are based on the preliminary grading of each SWMA. The resulting freeboard is shown from 100-year storm elevation to top of bank. For the north basin the freeboard is 0.45-ft and 1.0-ft for the south basin of Subarea "B". Water quality calculations are provided at the end of the report.

**Table 5**  
**Volume Summary for 100-year Storm**

| BMP                       | Volume<br>Provided<br>(cu-ft) | Volume<br>Used<br>(ac-ft) | 100-year<br>Elevation<br>(ft) | Freeboard<br>(ft) |
|---------------------------|-------------------------------|---------------------------|-------------------------------|-------------------|
| Subarea "B"<br>North SWMA | 157,610                       | 135,264                   | 927.55                        | 0.45              |
| Subarea "B"<br>South SWMA | 213,101                       | 147,532                   | 927.00                        | 1.00              |
| Subarea "A"<br>SWMA       | 159,374                       | 103,312                   | 932.76                        | 1.24              |

#### **4.0 STREAM CORRIDOR PROTECTION ZONE**

The stream corridor protection zone for Tri-County ditch was determined by plotting the floodway that was produced with the original HEC-2 model for Tri-County ditch but wasn't published by FEMA. A 20-ft offset was then applied to the old floodway to get the SCPZ limits as shown on the development plan.

#### **5.0 WATER QUALITY**


Water quality calculations are provided with this report and are consistent with the new Ohio EPA standards.

# Hydrologic Soil Group—Union County, Ohio



## MAP LEGEND

### Area of Interest (AOI)









 Area of Interest (AOI)

### Soils

#### Soil Rating Polygons





 A  
 A/D  
 B  
 B/D  
 C  
 C/D  
 D  
 Not rated or not available

#### Soil Rating Lines


 A  
 A/D  
 B  
 B/D  
 C  
 C/D  
 D  
 Not rated or not available

#### Soil Rating Points






 A  
 A/D  
 B  
 B/D

 C  
 C/D  
 D  
 Not rated or not available


### 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 1:15,800.

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: Union County, Ohio  
 Survey Area Data: Version 15, Sep 23, 2016

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

Date(s) aerial images were photographed: Feb 27, 2012—Aug 27, 2014

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.

## Hydrologic Soil Group

| Hydrologic Soil Group— Summary by Map Unit — Union County, Ohio (OH159) |   |        |              |                |
|---|---|--------|--------------|----------------|
| Map unit symbol   | Map unit name   | Rating | Acres in AOI | Percent of AOI |
| Bs  | Brookston silty clay loam, fine texture, 0 to 2 percent slopes    | C/D    | 27.7         | 35.4%          |
| CrA   | Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes | C/D    | 50.7         | 64.6%          |
| <b>Totals for Area of Interest</b>                                      |   |        | <b>78.4</b>  | <b>100.0%</b>  |

## Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

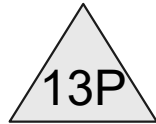
Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.



Subarea B north WQ

$$\begin{aligned} WQ_v &= \\ 0.64 * 0.9 * 11.54 / 12 &= \\ 0.55 \text{ ac-ft} \end{aligned}$$



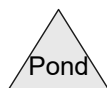
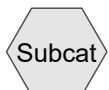
Subarea B middle WQ

$$\begin{aligned} WQ_v &= 0.64 * 0.9 * 15.73 / \\ 12 &= 0.76 \text{ ac-ft} \end{aligned}$$



Subarea A WQ

$$\begin{aligned} WQ_v &= 0.77 * 0.9 * 9.33 \\ / 12 &= 0.54 \text{ ac-ft} \end{aligned}$$



**Routing Diagram for 20170646 prelim 2019-02-25**

Prepared by Symanetc, Printed 2/25/2019

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**Summary for Pond 13P: Subarea B north WQ**

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Outflow = 0.45 cfs @ 0.00 hrs, Volume= 0.545 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.45 cfs @ 0.00 hrs, Volume= 0.545 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Starting Elev= 925.03' Surf.Area= 39,623 sf Storage= 24,277 cf  
 Peak Elev= 925.03' @ 0.00 hrs Surf.Area= 39,623 sf Storage= 24,277 cf

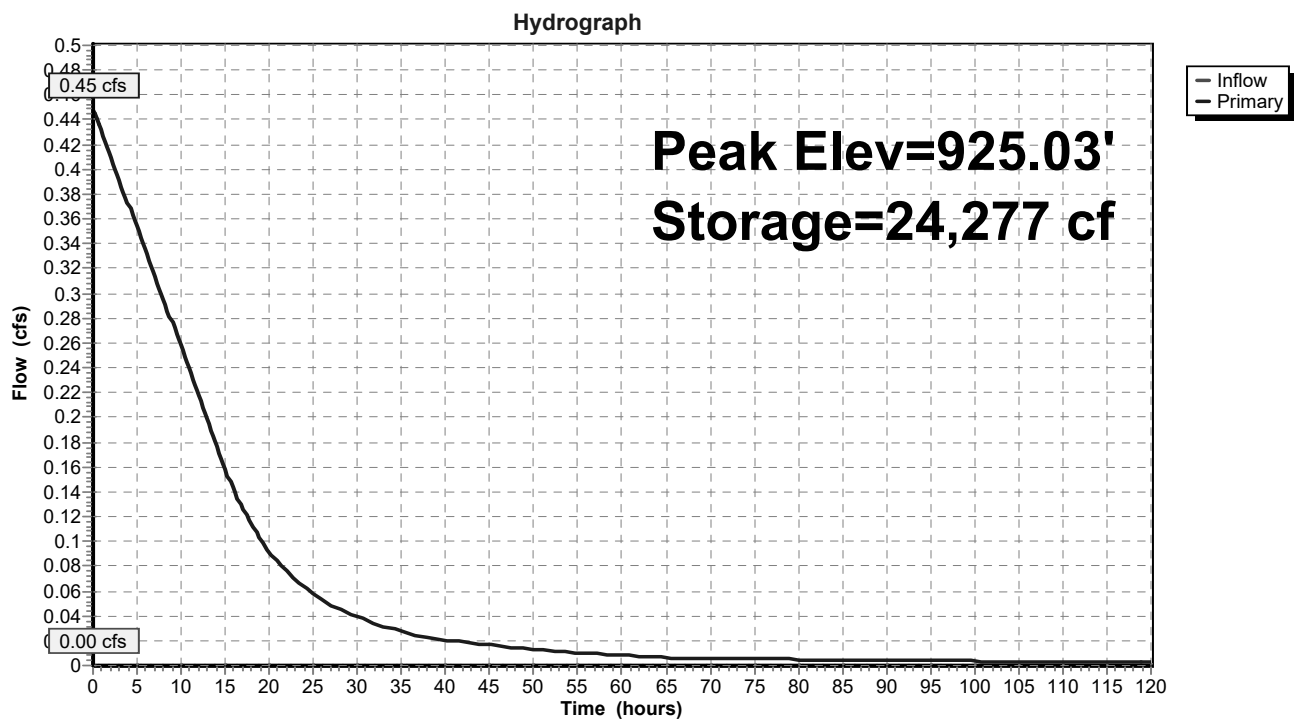
Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no inflow)

| Volume | Invert  | Avail.Storage | Storage Description  |
|--------|---------|---------------|--|
| #1     | 924.40' | 156,686 cf    | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40              | 37,449               | 0                         | 0                         |
| 925.00              | 39,518               | 23,090                    | 23,090                    |
| 926.00              | 43,009               | 41,264                    | 64,354                    |
| 927.00              | 46,603               | 44,806                    | 109,160                   |
| 928.00              | 48,450               | 47,527                    | 156,686                   |

| Device | Routing | Invert  | Outlet Devices                                  |
|--------|---------|---------|---|
| #1     | Primary | 924.40' | <b>3.5" Vert. Orifice/Grate X 2.00</b> C= 0.600 |

**Primary OutFlow** Max=0.45 cfs @ 0.00 hrs HW=925.03' (Free Discharge)  
 ↑1=Orifice/Grate (Orifice Controls 0.45 cfs @ 3.35 fps)

**Pond 13P: Subarea B north WQ**

**Summary for Pond 14P: Subarea B middle WQ**

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Outflow = 0.29 cfs @ 0.00 hrs, Volume= 0.706 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.29 cfs @ 0.00 hrs, Volume= 0.706 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Starting Elev= 925.04' Surf.Area= 53,568 sf Storage= 33,317 cf  
 Peak Elev= 925.04' @ 0.00 hrs Surf.Area= 53,568 sf Storage= 33,317 cf

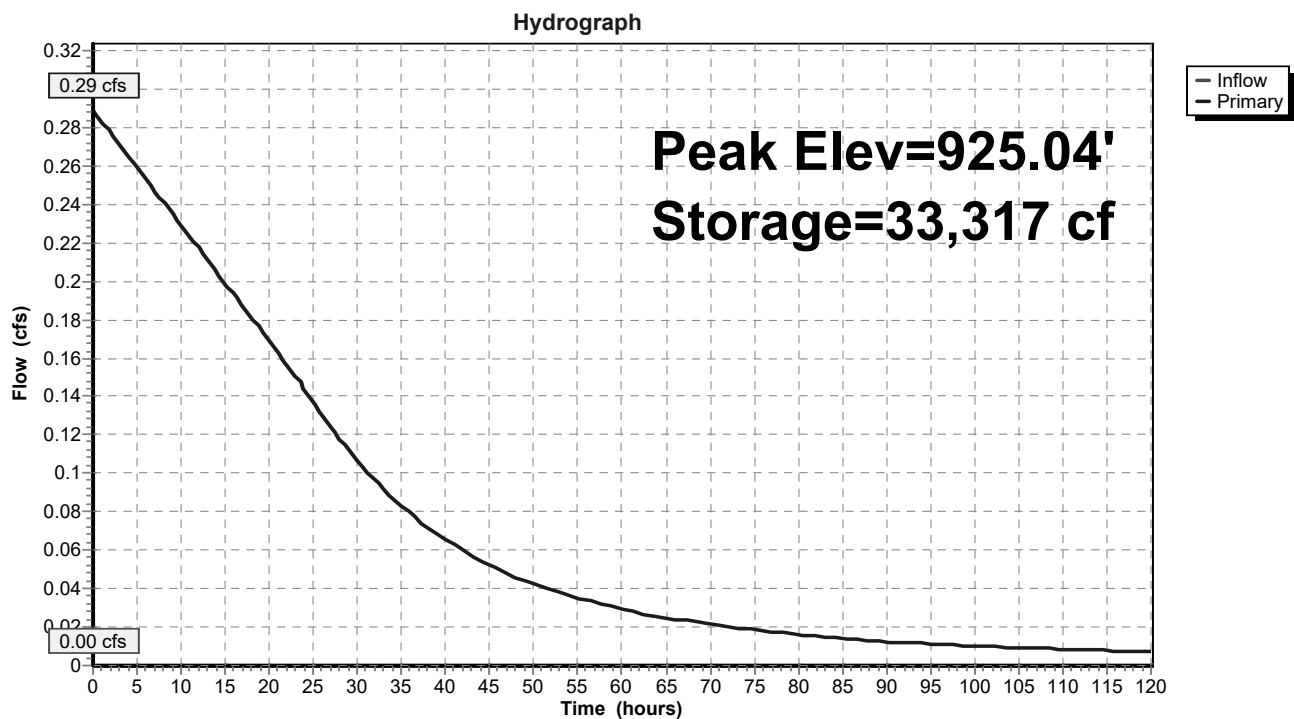
Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no inflow)

| Volume | Invert  | Avail.Storage | Storage Description  |
|--------|---------|---------------|--|
| #1     | 924.40' | 213,101 cf    | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40              | 50,550               | 0                         | 0                         |
| 925.00              | 53,377               | 31,178                    | 31,178                    |
| 926.00              | 58,164               | 55,771                    | 86,949                    |
| 927.00              | 63,051               | 60,608                    | 147,556                   |
| 928.00              | 68,038               | 65,545                    | 213,101                   |

| Device | Routing | Invert  | Outlet Devices                           |
|--------|---------|---------|--|
| #1     | Primary | 924.40' | <b>4.0" Vert. Orifice/Grate</b> C= 0.600 |

**Primary OutFlow** Max=0.29 cfs @ 0.00 hrs HW=925.04' (Free Discharge)  
 ↑1=Orifice/Grate (Orifice Controls 0.29 cfs @ 3.31 fps)

**Pond 14P: Subarea B middle WQ**

**Summary for Pond 17P: Subarea A WQ**

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Outflow = 0.31 cfs @ 0.00 hrs, Volume= 0.524 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.31 cfs @ 0.00 hrs, Volume= 0.524 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Starting Elev= 930.71' Surf.Area= 34,863 sf Storage= 23,814 cf  
 Peak Elev= 930.71' @ 0.00 hrs Surf.Area= 34,863 sf Storage= 23,814 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no inflow)

| Volume | Invert  | Avail.Storage | Storage Description  |
|--------|---------|---------------|--|
| #1     | 930.00' | 159,374 cf    | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 930.00              | 32,218               | 0                         | 0                         |
| 931.00              | 35,943               | 34,081                    | 34,081                    |
| 932.00              | 39,768               | 37,856                    | 71,936                    |
| 933.00              | 43,694               | 41,731                    | 113,667                   |
| 934.00              | 47,719               | 45,707                    | 159,374                   |

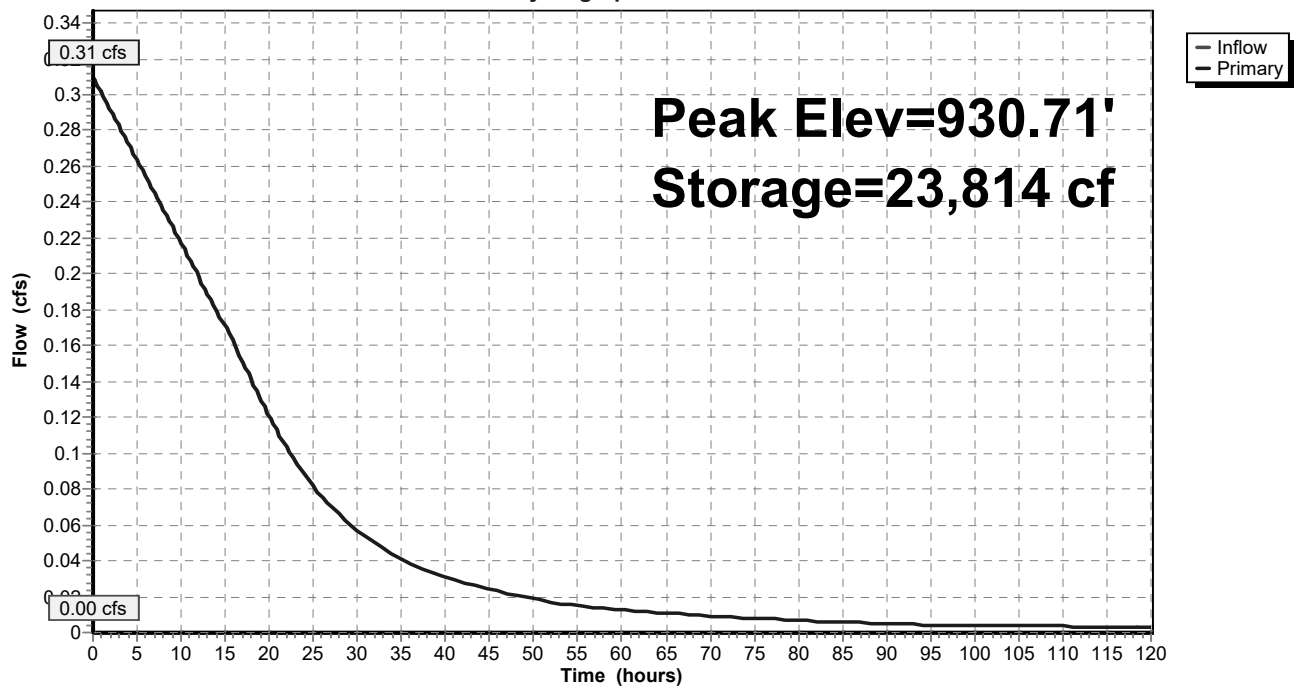
| Device | Routing | Invert  | Outlet Devices  |
|--------|---------|---------|---|
| #1     | Primary | 930.00' | <b>4.0" Vert. Orifice/Grate</b> C= 0.600  |
| #2     | Primary | 931.00' | <b>8.0" W x 4.0" H Vert. Orifice/Grate</b> C= 0.600   |
| #3     | Primary | 932.50' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=0.31 cfs @ 0.00 hrs HW=930.71' (Free Discharge)

↑  
 1=Orifice/Grate (Orifice Controls 0.31 cfs @ 3.55 fps)  
 2=Orifice/Grate ( Controls 0.00 cfs)  
 3=Orifice/Grate ( Controls 0.00 cfs)

## Pond 17P: Subarea A WQ

Hydrograph





pre north



post north



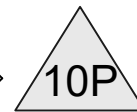
Subarea B north SWMA



pre middle



post middle



Subarea B middle  
SWMA

25-year critical,  
allowable = 0.4 cfs/acre  
\* 15.74 = 6.30 cfs.  
100-year allowable =  
12.59 cfs



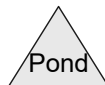
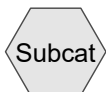
pre Subarea "A"



post Subarea "A"



Subarea "A" SWMA



**Routing Diagram for 20170646 prelim 2019-02-25**

Prepared by Symanetc, Printed 2/25/2019

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**Summary for Subcatchment 1S: pre north**

Runoff = 2.59 cfs @ 12.24 hrs, Volume= 0.271 af, Depth= 0.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 1-year Rainfall=2.20"

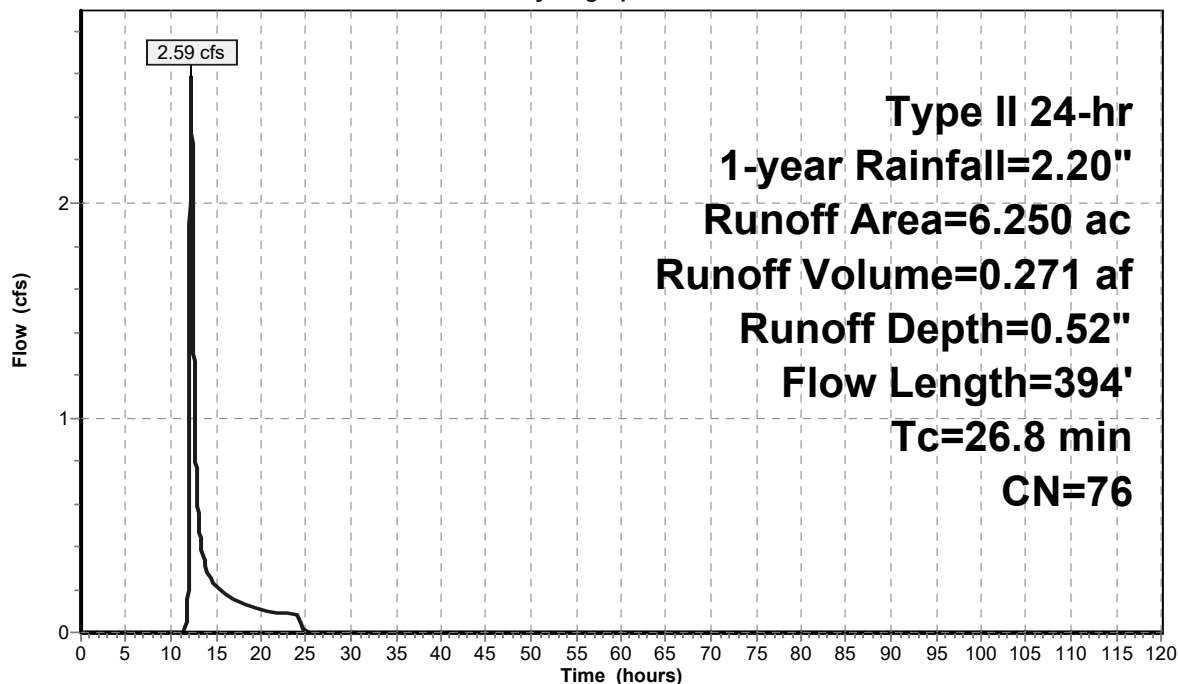
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 3.710   | 78 |                       |
| * 2.540   | 74 |                       |
| 6.250     | 76 | Weighted Average      |
| 6.250     |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---|
| 20.8     | 100           | 0.0100        | 0.08              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 2.63"                |
| 6.0      | 294           | 0.0136        | 0.82              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps |
| 26.8     | 394           | Total         |                   |                |   |

**Subcatchment 1S: pre north**

Hydrograph



**Summary for Subcatchment 2S: pre middle**

Runoff = 6.12 cfs @ 12.32 hrs, Volume= 0.734 af, Depth= 0.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 1-year Rainfall=2.20"

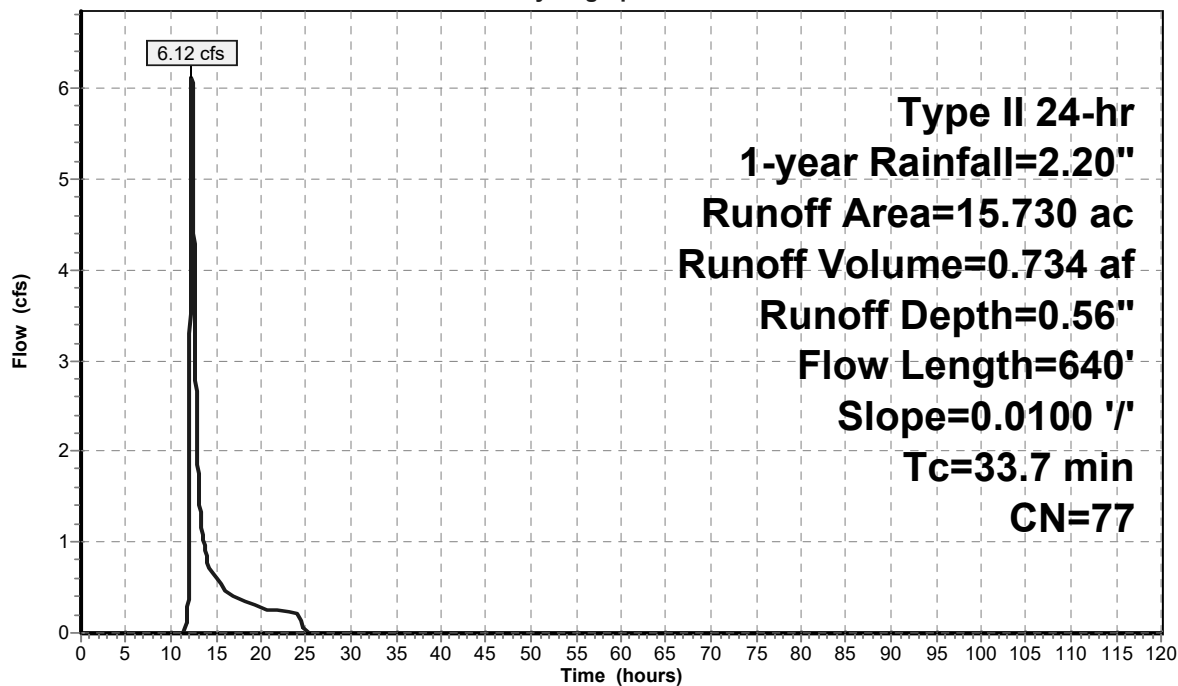
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 8.860   | 78 |                       |
| * 3.080   | 74 |                       |
| * 3.790   | 78 |                       |
| 15.730    | 77 | Weighted Average      |
| 15.730    |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description  |
|----------|---------------|---------------|-------------------|----------------|--|
| 20.8     | 100           | 0.0100        | 0.08              |                | <b>Sheet Flow,</b><br>Grass: Dense n= 0.240 P2= 2.63"                |
| 12.9     | 540           | 0.0100        | 0.70              |                | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps |
| 33.7     | 640           | Total         |                   |                |  |

**Subcatchment 2S: pre middle**

Hydrograph



**Summary for Subcatchment 4S: pre Subarea "A"**

Runoff = 3.50 cfs @ 12.35 hrs, Volume= 0.435 af, Depth= 0.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 1-year Rainfall=2.20"

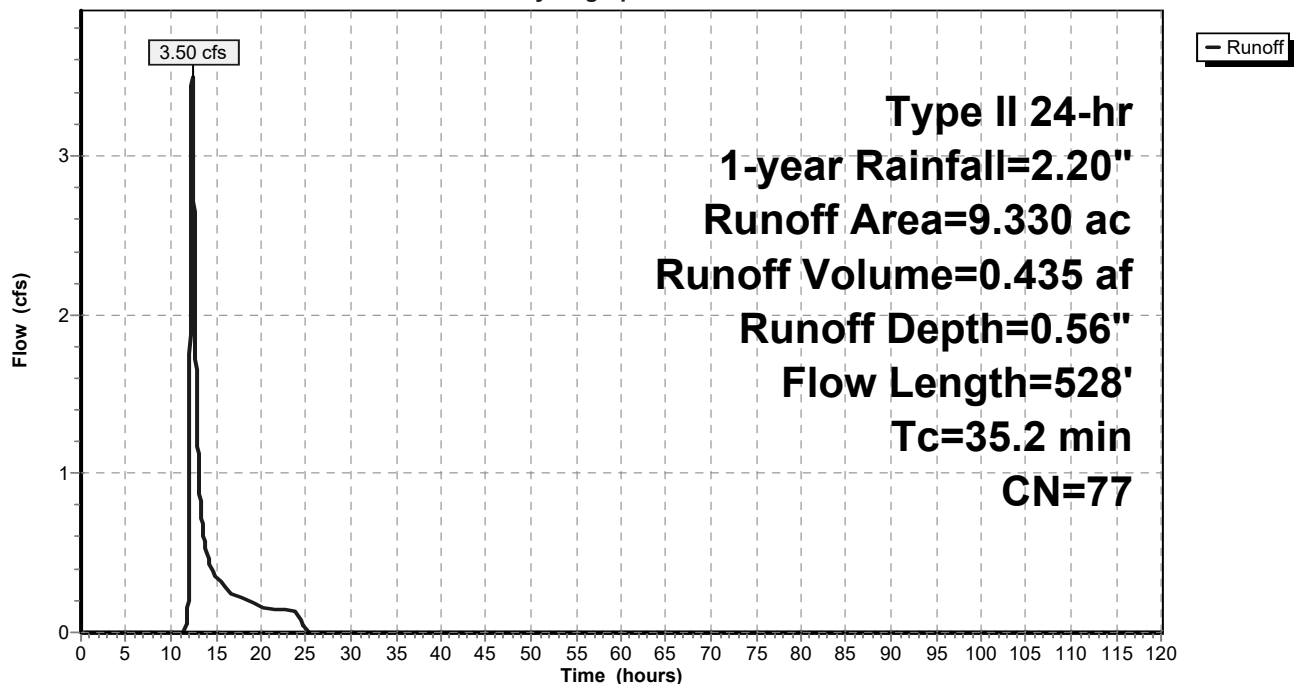
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 7.180   | 78 |                       |
| * 2.150   | 74 |                       |
| 9.330     | 77 | Weighted Average      |
| 9.330     |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---|
| 20.8     | 100           | 0.0100        | 0.08              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 2.63"                |
| 14.4     | 428           | 0.0050        | 0.49              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps |
| 35.2     | 528           | Total         |                   |                |   |

**Subcatchment 4S: pre Subarea "A"**

Hydrograph



**Summary for Subcatchment 5S: post north**

Runoff = 22.40 cfs @ 12.02 hrs, Volume= 1.218 af, Depth= 1.27"

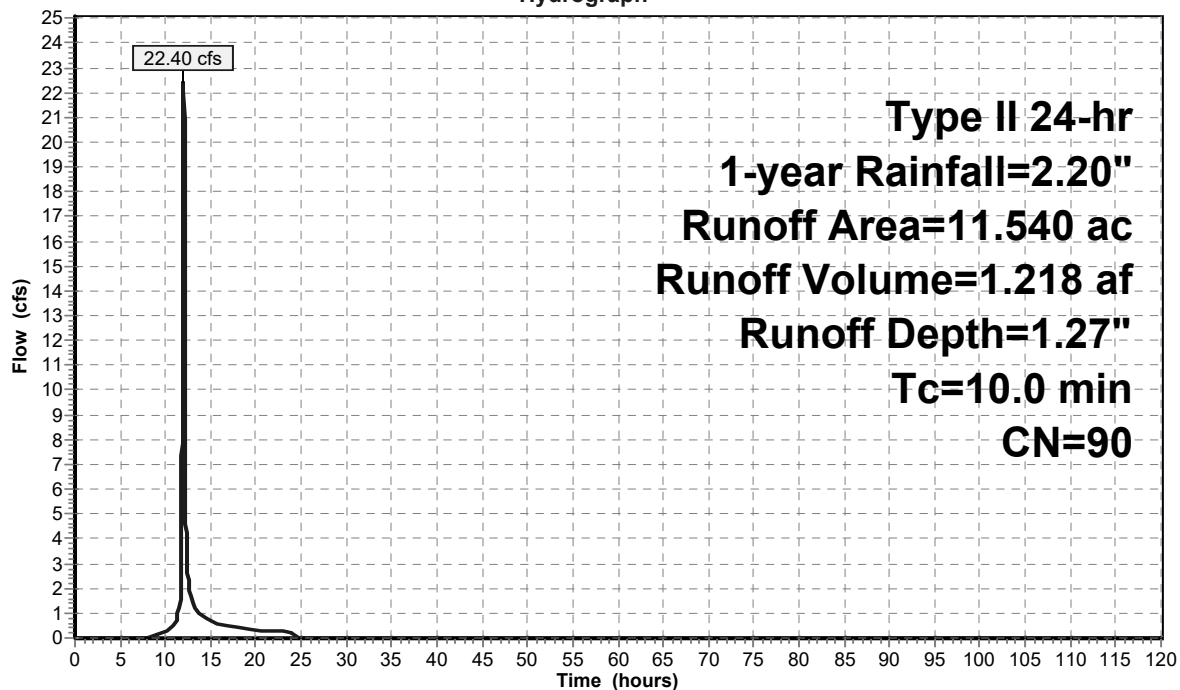
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 1-year Rainfall=2.20"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 11.540  | 90 |                       |
| 11.540    |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0        |                  |                  |                      |                   | Direct Entry, |

**Subcatchment 5S: post north**

Hydrograph



**Summary for Subcatchment 6S: post middle**

Runoff = 30.53 cfs @ 12.02 hrs, Volume= 1.660 af, Depth= 1.27"

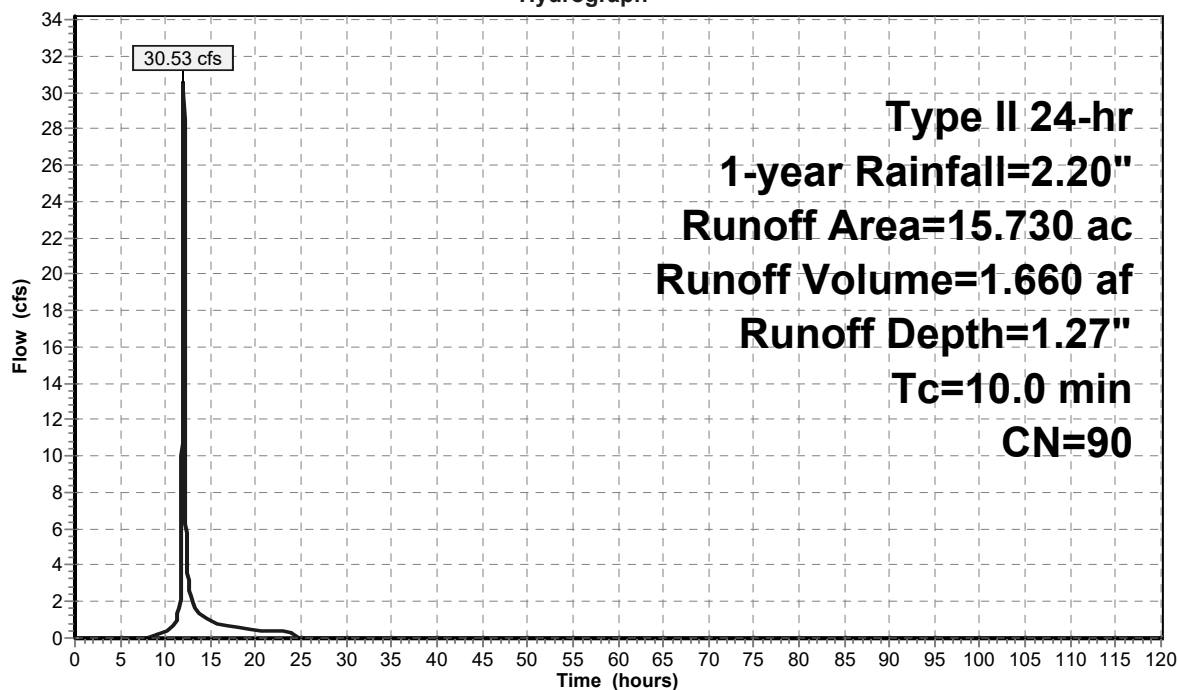
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 1-year Rainfall=2.20"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 15.730  | 90 |                       |
| 15.730    |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0        |                  |                  |                      |                   | Direct Entry, |

**Subcatchment 6S: post middle**

Hydrograph



**Summary for Subcatchment 8S: post Subarea "A"**

Runoff = 26.01 cfs @ 11.96 hrs, Volume= 1.232 af, Depth= 1.58"

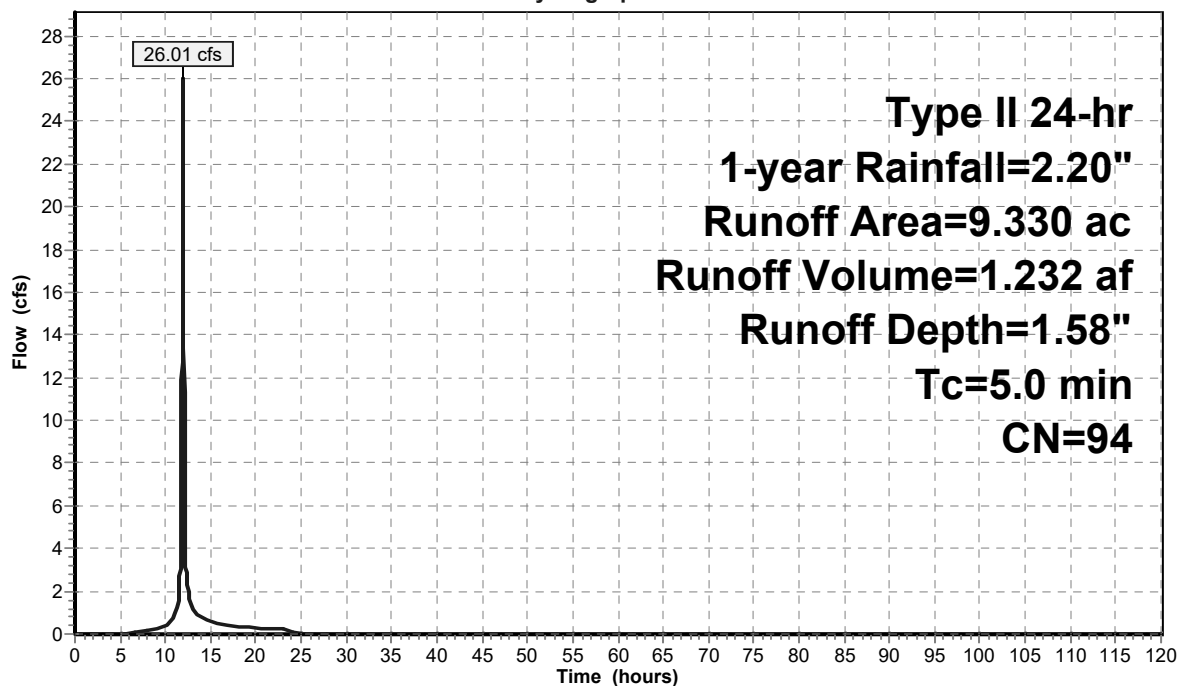
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 1-year Rainfall=2.20"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 9.330   | 94 |                       |
| 9.330     |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 5.0         |                  |                  |                      |                   | Direct Entry, |

**Subcatchment 8S: post Subarea "A"**

Hydrograph



**Summary for Pond 9P: Subarea B north SWMA**

Inflow Area = 11.540 ac, 0.00% Impervious, Inflow Depth = 1.27" for 1-year event  
 Inflow = 22.40 cfs @ 12.02 hrs, Volume= 1.218 af  
 Outflow = 0.56 cfs @ 15.73 hrs, Volume= 1.198 af, Atten= 98%, Lag= 223.1 min  
 Primary = 0.56 cfs @ 15.73 hrs, Volume= 1.198 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 925.30' @ 15.73 hrs Surf.Area= 40,575 sf Storage= 35,210 cf

Plug-Flow detention time= 924.9 min calculated for 1.198 af (98% of inflow)  
 Center-of-Mass det. time= 914.9 min ( 1,737.8 - 822.8 )

| Volume | Invert  | Avail.Storage | Storage Description  |
|--------|---------|---------------|--|
| #1     | 924.40' | 157,610 cf    | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40              | 37,449               | 0                         | 0                         |
| 925.00              | 39,518               | 23,090                    | 23,090                    |
| 926.00              | 43,009               | 41,264                    | 64,354                    |
| 927.00              | 46,603               | 44,806                    | 109,160                   |
| 928.00              | 50,297               | 48,450                    | 157,610                   |

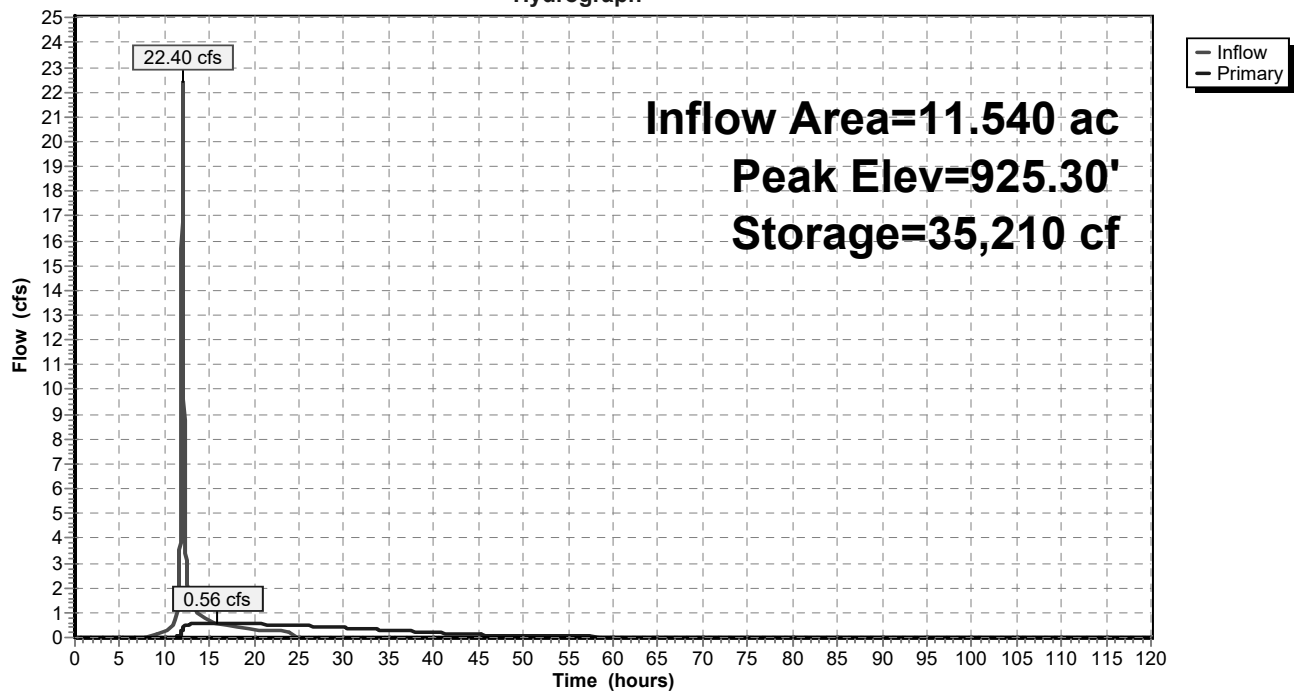
| Device | Routing | Invert  | Outlet Devices   |
|--------|---------|---------|--|
| #1     | Primary | 924.40' | <b>3.5" Vert. Orifice/Grate X 2.00</b> C= 0.600  |
| #2     | Primary | 927.50' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads  |
| #3     | Primary | 927.50' | <b>20.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b><br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

**Primary OutFlow** Max=0.56 cfs @ 15.73 hrs HW=925.30' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.56 cfs @ 4.19 fps)  
 2=Orifice/Grate ( Controls 0.00 cfs)  
 3=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

**Pond 9P: Subarea B north SWMA**

Hydrograph



**Summary for Pond 10P: Subarea B middle SWMA**

Inflow Area = 15.730 ac, 0.00% Impervious, Inflow Depth = 1.27" for 1-year event  
 Inflow = 30.53 cfs @ 12.02 hrs, Volume= 1.660 af  
 Outflow = 0.66 cfs @ 16.36 hrs, Volume= 1.571 af, Atten= 98%, Lag= 260.8 min  
 Primary = 0.66 cfs @ 16.36 hrs, Volume= 1.571 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 925.38' @ 16.36 hrs Surf.Area= 55,175 sf Storage= 51,559 cf

Plug-Flow detention time= 1,494.0 min calculated for 1.571 af (95% of inflow)  
 Center-of-Mass det. time= 1,464.0 min ( 2,286.8 - 822.8 )

| Volume | Invert  | Avail.Storage | Storage Description  |
|--------|---------|---------------|--|
| #1     | 924.40' | 213,101 cf    | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40              | 50,550               | 0                         | 0                         |
| 925.00              | 53,377               | 31,178                    | 31,178                    |
| 926.00              | 58,164               | 55,771                    | 86,949                    |
| 927.00              | 63,051               | 60,608                    | 147,556                   |
| 928.00              | 68,038               | 65,545                    | 213,101                   |

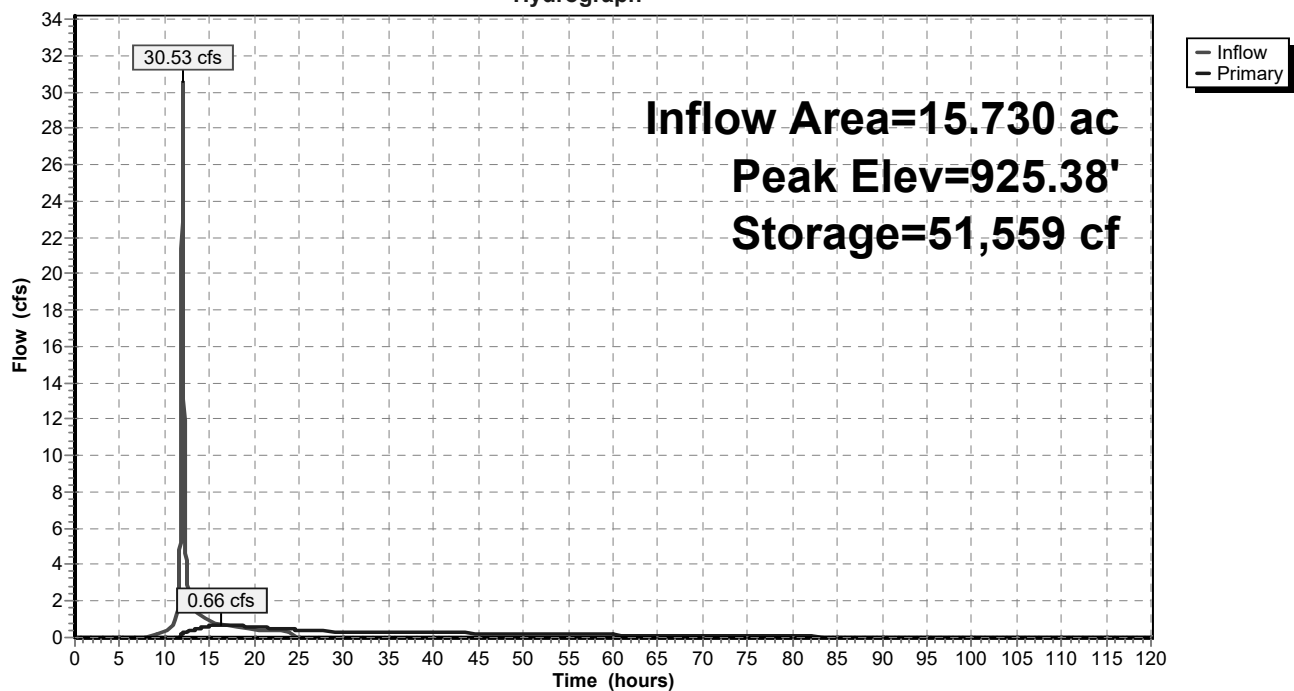
| Device | Routing | Invert  | Outlet Devices  |
|--------|---------|---------|---|
| #1     | Primary | 924.40' | <b>4.0" Vert. Orifice/Grate</b> C= 0.600  |
| #2     | Primary | 925.25' | <b>24.0" W x 7.0" H Vert. Orifice/Grate</b> C= 0.600  |
| #3     | Primary | 926.70' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=0.66 cfs @ 16.36 hrs HW=925.38' (Free Discharge)

↑  
 1=Orifice/Grate (Orifice Controls 0.38 cfs @ 4.33 fps)  
 2=Orifice/Grate (Orifice Controls 0.29 cfs @ 1.14 fps)  
 3=Orifice/Grate ( Controls 0.00 cfs)

**Pond 10P: Subarea B middle SWMA**

Hydrograph



**Summary for Pond 12P: Subarea "A" SWMA**

Inflow Area = 9.330 ac, 0.00% Impervious, Inflow Depth = 1.58" for 1-year event  
 Inflow = 26.01 cfs @ 11.96 hrs, Volume= 1.232 af  
 Outflow = 0.49 cfs @ 15.73 hrs, Volume= 1.199 af, Atten= 98%, Lag= 226.3 min  
 Primary = 0.49 cfs @ 15.73 hrs, Volume= 1.199 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 931.11' @ 15.73 hrs Surf.Area= 36,373 sf Storage= 38,150 cf

Plug-Flow detention time= 1,222.5 min calculated for 1.199 af (97% of inflow)  
 Center-of-Mass det. time= 1,206.2 min ( 2,002.3 - 796.1 )

| Volume | Invert  | Avail.Storage | Storage Description  |
|--------|---------|---------------|--|
| #1     | 930.00' | 159,374 cf    | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 930.00              | 32,218               | 0                         | 0                         |
| 931.00              | 35,943               | 34,081                    | 34,081                    |
| 932.00              | 39,768               | 37,856                    | 71,936                    |
| 933.00              | 43,694               | 41,731                    | 113,667                   |
| 934.00              | 47,719               | 45,707                    | 159,374                   |

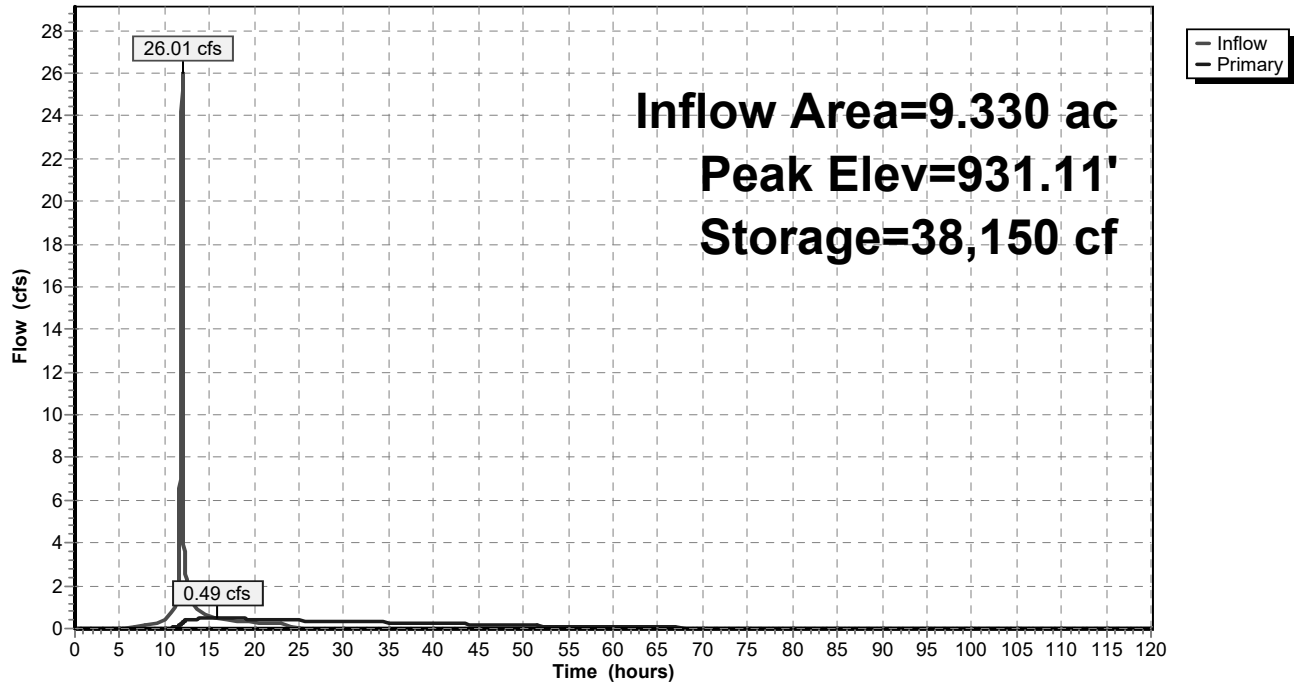
| Device | Routing | Invert  | Outlet Devices  |
|--------|---------|---------|---|
| #1     | Primary | 930.00' | <b>4.0" Vert. Orifice/Grate</b> C= 0.600  |
| #2     | Primary | 931.00' | <b>8.0" W x 4.0" H Vert. Orifice/Grate</b> C= 0.600   |
| #3     | Primary | 932.50' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=0.49 cfs @ 15.73 hrs HW=931.11' (Free Discharge)

↑  
 1=Orifice/Grate (Orifice Controls 0.41 cfs @ 4.68 fps)  
 2=Orifice/Grate (Orifice Controls 0.08 cfs @ 1.08 fps)  
 3=Orifice/Grate ( Controls 0.00 cfs)

**Pond 12P: Subarea "A" SWMA**

Hydrograph



**Summary for Subcatchment 1S: pre north**

Runoff = 4.13 cfs @ 12.24 hrs, Volume= 0.403 af, Depth= 0.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 2-year Rainfall=2.63"

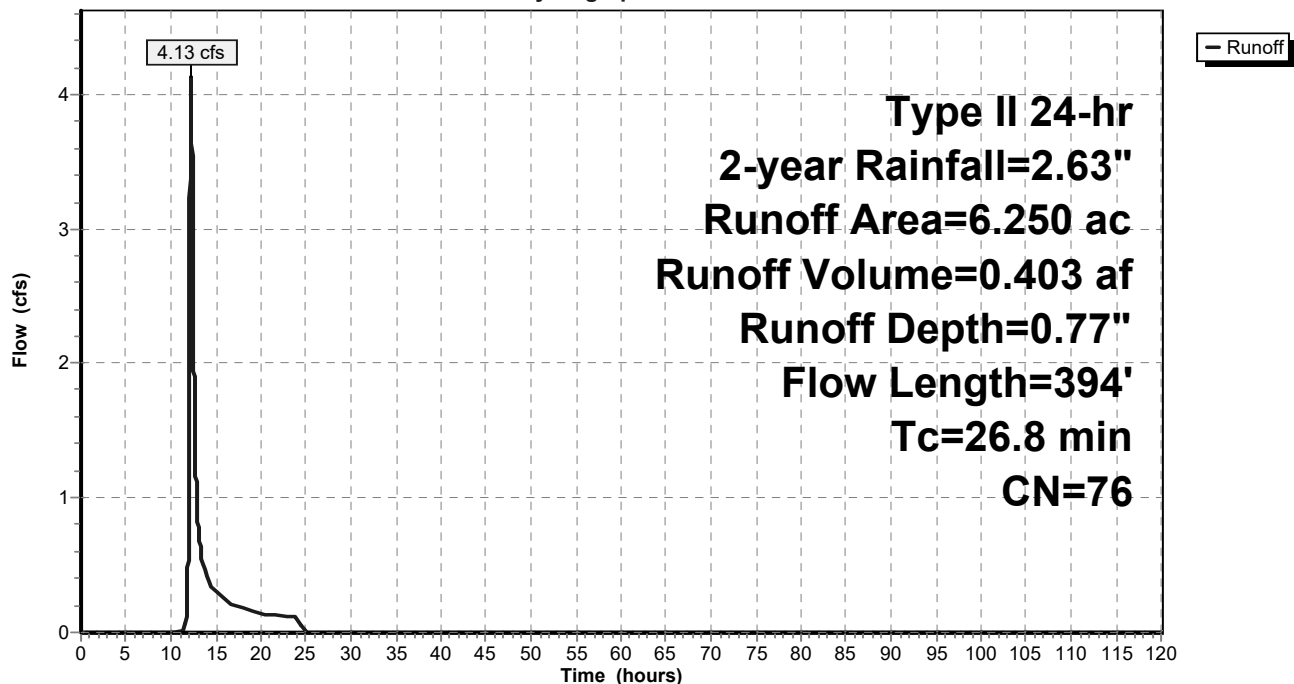
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 3.710   | 78 |                       |
| * 2.540   | 74 |                       |
| 6.250     | 76 | Weighted Average      |
| 6.250     |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description  |
|----------|---------------|---------------|-------------------|----------------|--|
| 20.8     | 100           | 0.0100        | 0.08              |                | <b>Sheet Flow,</b><br>Grass: Dense n= 0.240 P2= 2.63"                |
| 6.0      | 294           | 0.0136        | 0.82              |                | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps |
| 26.8     | 394           | Total         |                   |                |  |

**Subcatchment 1S: pre north**

Hydrograph



**Summary for Subcatchment 2S: pre middle**

Runoff = 9.59 cfs @ 12.32 hrs, Volume= 1.079 af, Depth= 0.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 2-year Rainfall=2.63"

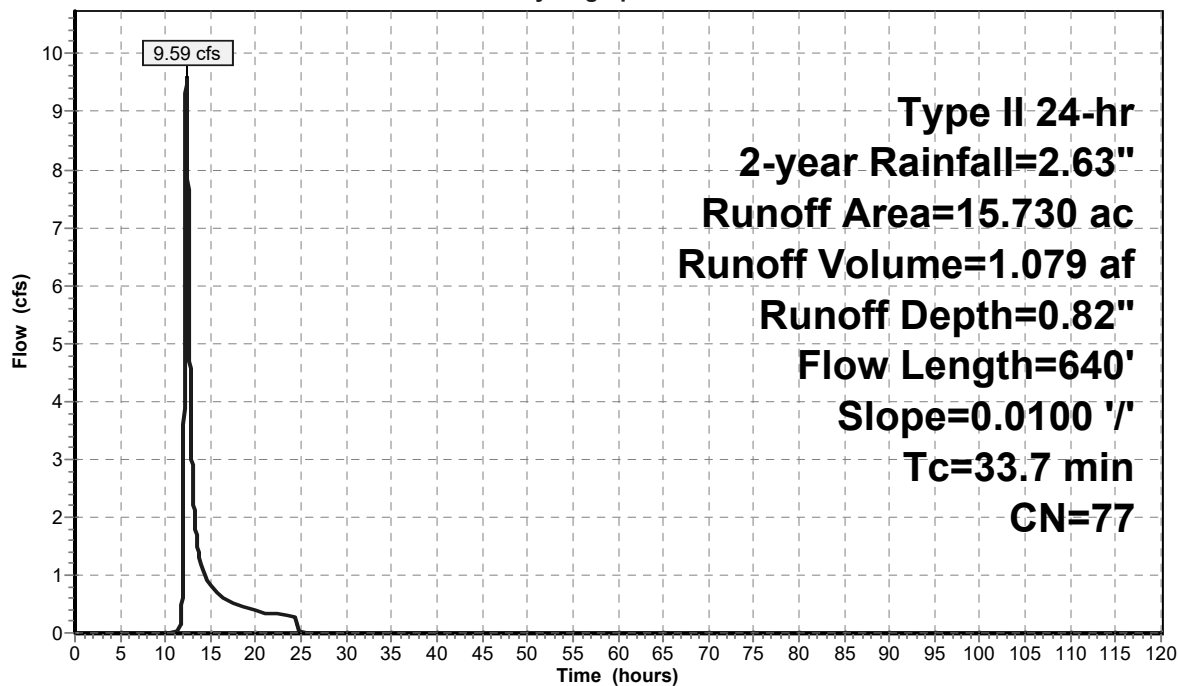
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 8.860   | 78 |                       |
| * 3.080   | 74 |                       |
| * 3.790   | 78 |                       |
| 15.730    | 77 | Weighted Average      |
| 15.730    |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---|
| 20.8     | 100           | 0.0100        | 0.08              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 2.63"                |
| 12.9     | 540           | 0.0100        | 0.70              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps |
| 33.7     | 640           | Total         |                   |                |   |

**Subcatchment 2S: pre middle**

Hydrograph



**Summary for Subcatchment 4S: pre Subarea "A"**

Runoff = 5.51 cfs @ 12.32 hrs, Volume= 0.640 af, Depth= 0.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 2-year Rainfall=2.63"

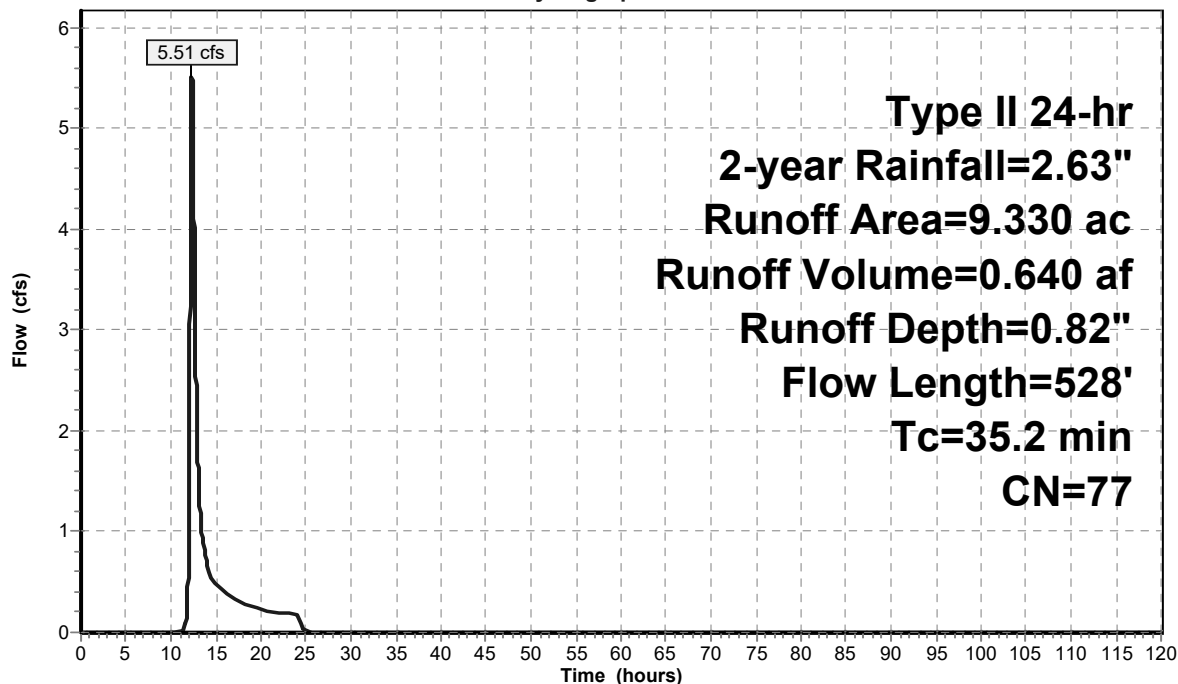
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 7.180   | 78 |                       |
| * 2.150   | 74 |                       |
| 9.330     | 77 | Weighted Average      |
| 9.330     |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description  |
|----------|---------------|---------------|-------------------|----------------|--|
| 20.8     | 100           | 0.0100        | 0.08              |                | <b>Sheet Flow,</b><br>Grass: Dense n= 0.240 P2= 2.63"                |
| 14.4     | 428           | 0.0050        | 0.49              |                | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps |
| 35.2     | 528           | Total         |                   |                |  |

**Subcatchment 4S: pre Subarea "A"**

Hydrograph



**Summary for Subcatchment 5S: post north**

Runoff = 28.93 cfs @ 12.01 hrs, Volume= 1.584 af, Depth= 1.65"

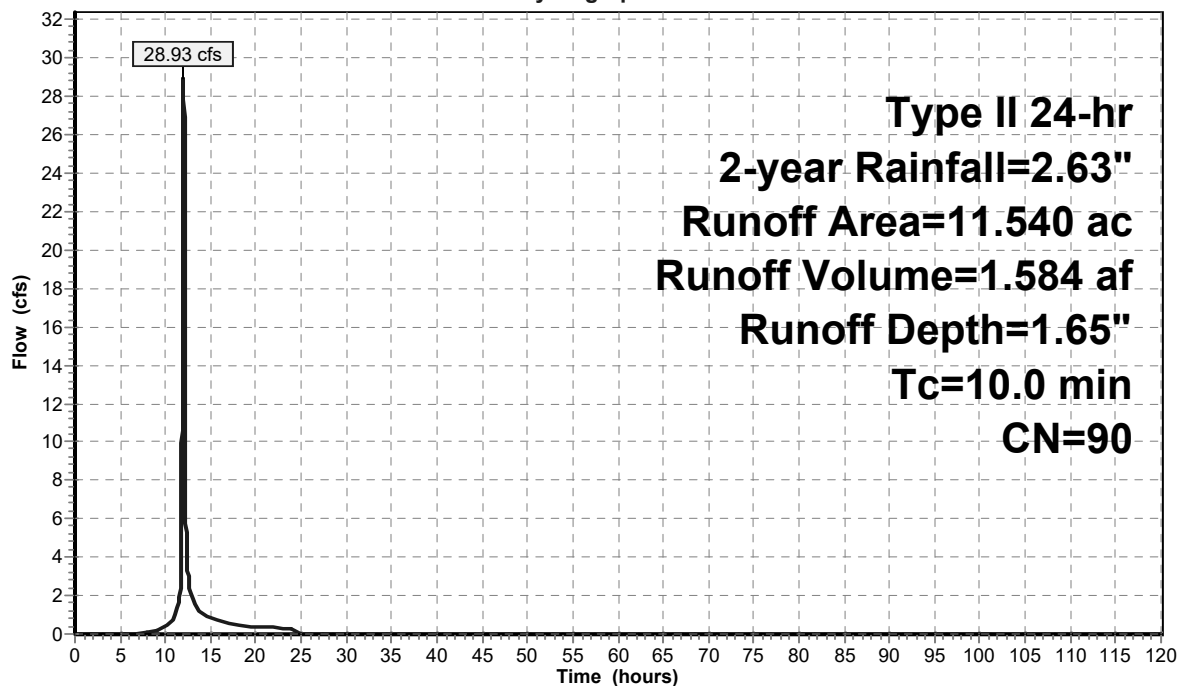
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 2-year Rainfall=2.63"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 11.540  | 90 |                       |
| 11.540    |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0        |                  |                  |                      |                   | Direct Entry, |

**Subcatchment 5S: post north**

Hydrograph



**Summary for Subcatchment 6S: post middle**

Runoff = 39.43 cfs @ 12.01 hrs, Volume= 2.160 af, Depth= 1.65"

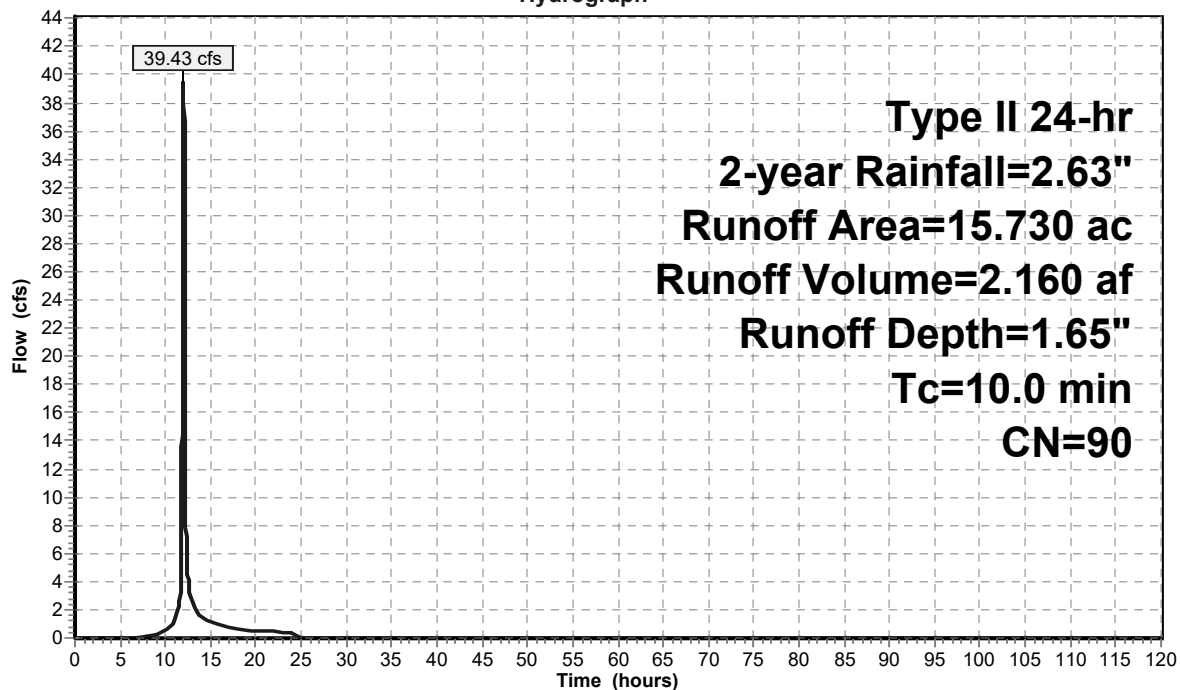
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 2-year Rainfall=2.63"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 15.730  | 90 |                       |
| 15.730    |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0        |                  |                  |                      |                   | Direct Entry, |

**Subcatchment 6S: post middle**

Hydrograph



**Summary for Subcatchment 8S: post Subarea "A"**

Runoff = 32.25 cfs @ 11.96 hrs, Volume= 1.550 af, Depth= 1.99"

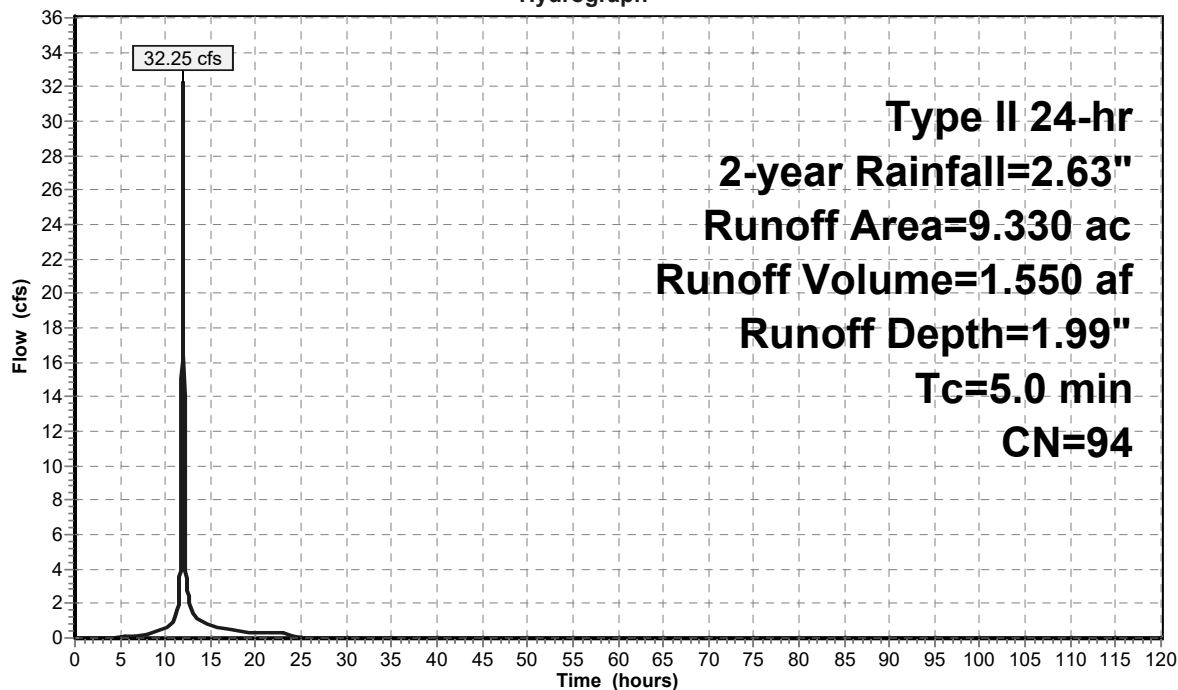
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 2-year Rainfall=2.63"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 9.330   | 94 |                       |
| 9.330     |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 5.0         |                  |                  |                      |                   | Direct Entry, |

**Subcatchment 8S: post Subarea "A"**

Hydrograph



**Summary for Pond 9P: Subarea B north SWMA**

Inflow Area = 11.540 ac, 0.00% Impervious, Inflow Depth = 1.65" for 2-year event  
 Inflow = 28.93 cfs @ 12.01 hrs, Volume= 1.584 af  
 Outflow = 0.66 cfs @ 15.94 hrs, Volume= 1.562 af, Atten= 98%, Lag= 235.7 min  
 Primary = 0.66 cfs @ 15.94 hrs, Volume= 1.562 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 925.59' @ 15.94 hrs Surf.Area= 41,589 sf Storage= 47,147 cf

Plug-Flow detention time= 998.8 min calculated for 1.562 af (99% of inflow)  
 Center-of-Mass det. time= 990.6 min ( 1,805.9 - 815.3 )

| Volume              | Invert               | Avail.Storage             | Storage Description  |
|---------------------|----------------------|---------------------------|--|
| #1                  | 924.40'              | 157,610 cf                | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |
| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet)                                  |
| 924.40              | 37,449               | 0                         | 0  |
| 925.00              | 39,518               | 23,090                    | 23,090   |
| 926.00              | 43,009               | 41,264                    | 64,354   |
| 927.00              | 46,603               | 44,806                    | 109,160  |
| 928.00              | 50,297               | 48,450                    | 157,610  |

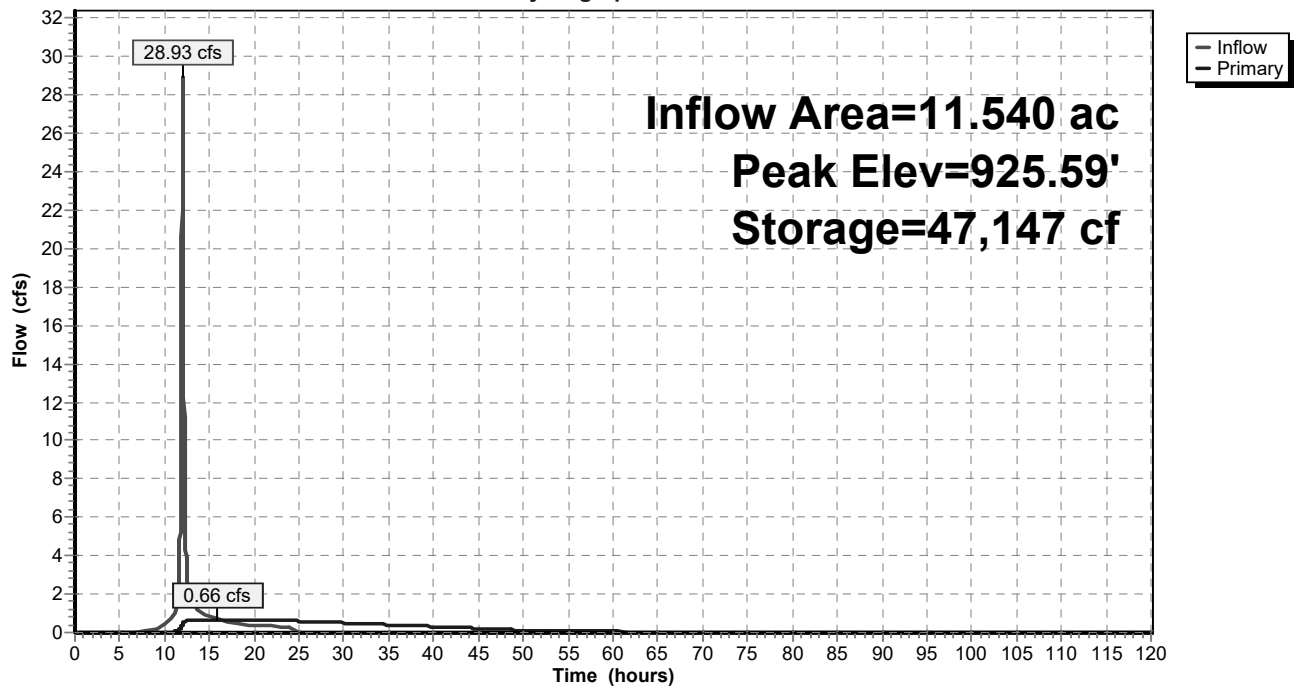
| Device | Routing | Invert  | Outlet Devices   |
|--------|---------|---------|--|
| #1     | Primary | 924.40' | <b>3.5" Vert. Orifice/Grate X 2.00</b> C= 0.600  |
| #2     | Primary | 927.50' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads  |
| #3     | Primary | 927.50' | <b>20.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b><br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

**Primary OutFlow** Max=0.66 cfs @ 15.94 hrs HW=925.59' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 0.66 cfs @ 4.93 fps)
- 2=Orifice/Grate ( Controls 0.00 cfs)
- 3=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

**Pond 9P: Subarea B north SWMA**

Hydrograph



**Summary for Pond 10P: Subarea B middle SWMA**

Inflow Area = 15.730 ac, 0.00% Impervious, Inflow Depth = 1.65" for 2-year event  
 Inflow = 39.43 cfs @ 12.01 hrs, Volume= 2.160 af  
 Outflow = 1.43 cfs @ 14.02 hrs, Volume= 2.069 af, Atten= 96%, Lag= 120.2 min  
 Primary = 1.43 cfs @ 14.02 hrs, Volume= 2.069 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 925.54' @ 14.02 hrs Surf.Area= 55,977 sf Storage= 60,873 cf

Plug-Flow detention time= 1,225.2 min calculated for 2.069 af (96% of inflow)  
 Center-of-Mass det. time= 1,200.7 min ( 2,016.0 - 815.3 )

| Volume | Invert  | Avail.Storage | Storage Description  |
|--------|---------|---------------|--|
| #1     | 924.40' | 213,101 cf    | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40              | 50,550               | 0                         | 0                         |
| 925.00              | 53,377               | 31,178                    | 31,178                    |
| 926.00              | 58,164               | 55,771                    | 86,949                    |
| 927.00              | 63,051               | 60,608                    | 147,556                   |
| 928.00              | 68,038               | 65,545                    | 213,101                   |

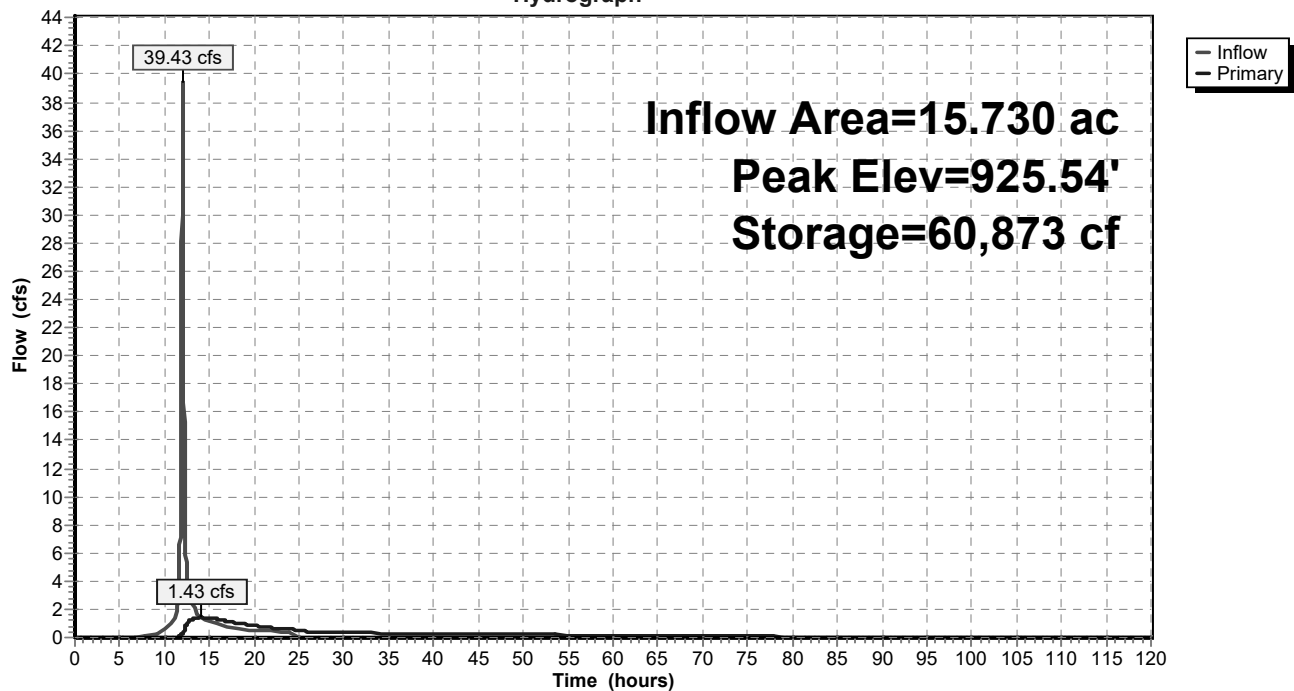
| Device | Routing | Invert  | Outlet Devices  |
|--------|---------|---------|---|
| #1     | Primary | 924.40' | <b>4.0" Vert. Orifice/Grate</b> C= 0.600  |
| #2     | Primary | 925.25' | <b>24.0" W x 7.0" H Vert. Orifice/Grate</b> C= 0.600  |
| #3     | Primary | 926.70' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=1.43 cfs @ 14.02 hrs HW=925.54' (Free Discharge)

↑  
 1=Orifice/Grate (Orifice Controls 0.42 cfs @ 4.76 fps)  
 2=Orifice/Grate (Orifice Controls 1.02 cfs @ 1.74 fps)  
 3=Orifice/Grate ( Controls 0.00 cfs)

**Pond 10P: Subarea B middle SWMA**

Hydrograph



**Summary for Pond 12P: Subarea "A" SWMA**

Inflow Area = 9.330 ac, 0.00% Impervious, Inflow Depth = 1.99" for 2-year event  
 Inflow = 32.25 cfs @ 11.96 hrs, Volume= 1.550 af  
 Outflow = 0.84 cfs @ 14.21 hrs, Volume= 1.516 af, Atten= 97%, Lag= 135.3 min  
 Primary = 0.84 cfs @ 14.21 hrs, Volume= 1.516 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 931.32' @ 14.21 hrs Surf.Area= 37,173 sf Storage= 45,832 cf

Plug-Flow detention time= 1,107.2 min calculated for 1.516 af (98% of inflow)  
 Center-of-Mass det. time= 1,093.6 min ( 1,883.2 - 789.6 )

| Volume | Invert  | Avail.Storage | Storage Description  |
|--------|---------|---------------|--|
| #1     | 930.00' | 159,374 cf    | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 930.00              | 32,218               | 0                         | 0                         |
| 931.00              | 35,943               | 34,081                    | 34,081                    |
| 932.00              | 39,768               | 37,856                    | 71,936                    |
| 933.00              | 43,694               | 41,731                    | 113,667                   |
| 934.00              | 47,719               | 45,707                    | 159,374                   |

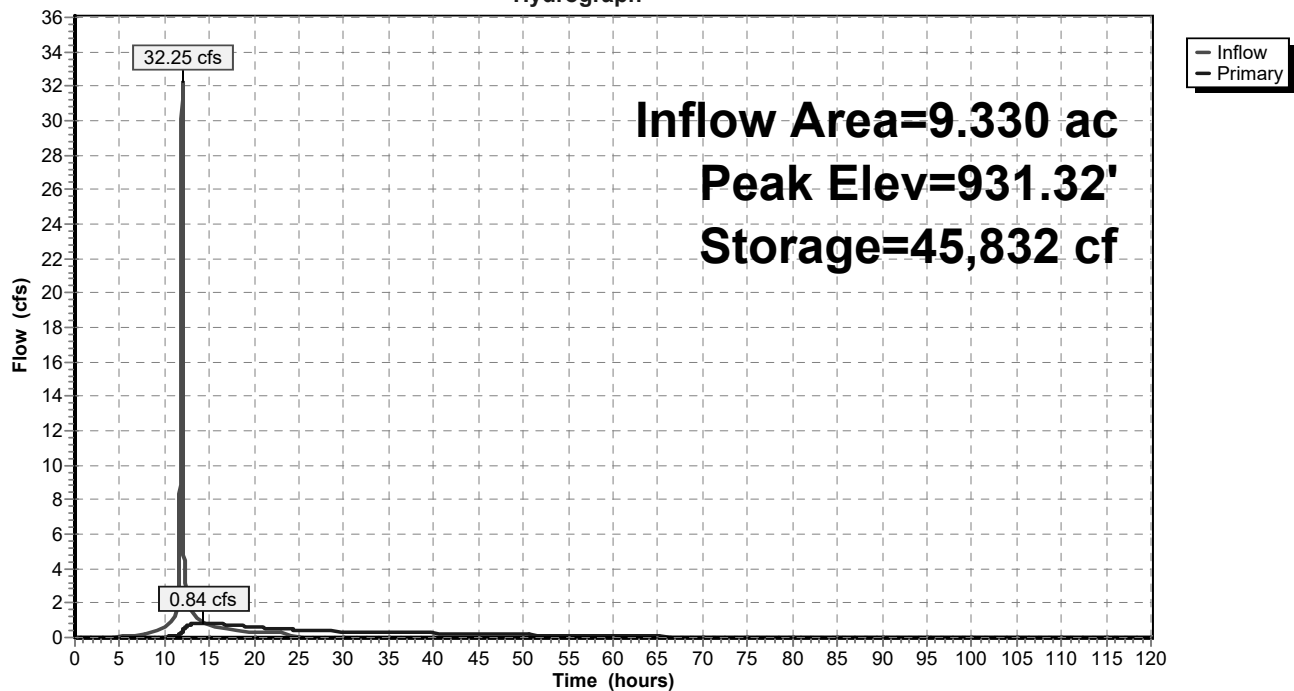
| Device | Routing | Invert  | Outlet Devices  |
|--------|---------|---------|---|
| #1     | Primary | 930.00' | <b>4.0" Vert. Orifice/Grate</b> C= 0.600  |
| #2     | Primary | 931.00' | <b>8.0" W x 4.0" H Vert. Orifice/Grate</b> C= 0.600   |
| #3     | Primary | 932.50' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=0.84 cfs @ 14.21 hrs HW=931.32' (Free Discharge)

↑  
 1=Orifice/Grate (Orifice Controls 0.45 cfs @ 5.17 fps)  
 2=Orifice/Grate (Orifice Controls 0.39 cfs @ 1.82 fps)  
 3=Orifice/Grate ( Controls 0.00 cfs)

**Pond 12P: Subarea "A" SWMA**

Hydrograph



**Summary for Subcatchment 1S: pre north**

Runoff = 6.58 cfs @ 12.22 hrs, Volume= 0.615 af, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 5-year Rainfall=3.24"

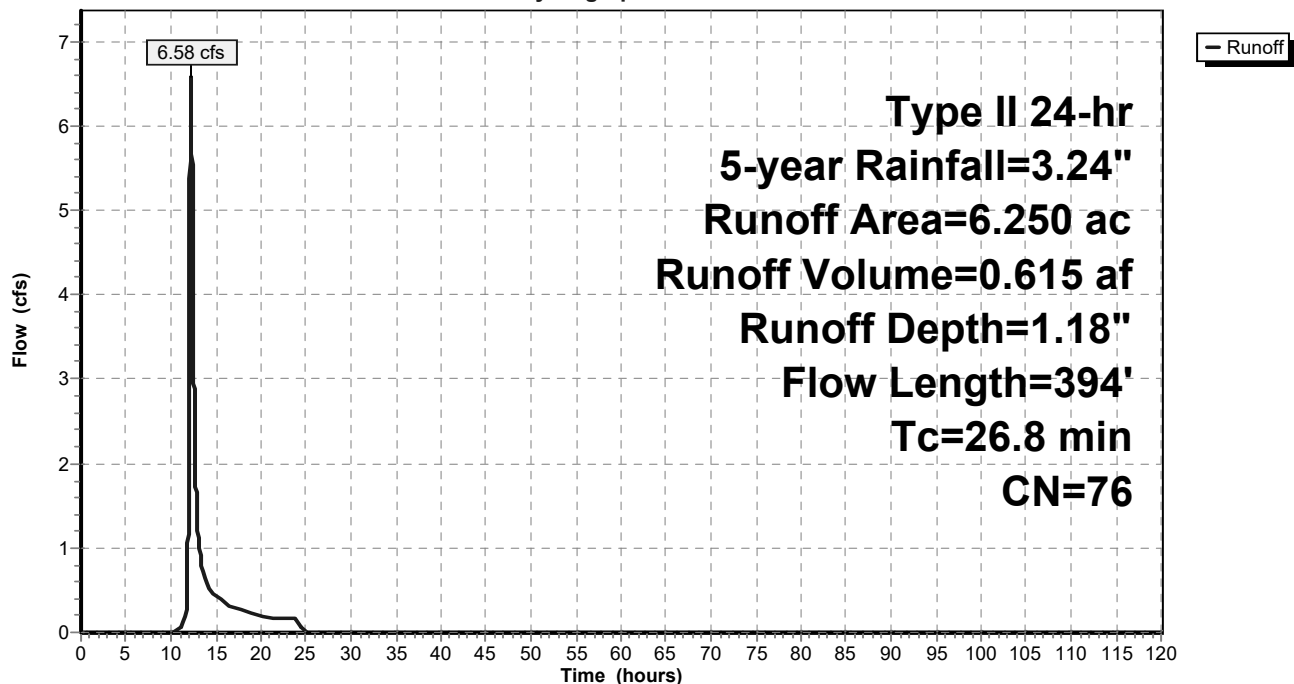
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 3.710   | 78 |                       |
| * 2.540   | 74 |                       |
| 6.250     | 76 | Weighted Average      |
| 6.250     |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description  |
|----------|---------------|---------------|-------------------|----------------|--|
| 20.8     | 100           | 0.0100        | 0.08              |                | <b>Sheet Flow,</b><br>Grass: Dense n= 0.240 P2= 2.63"                |
| 6.0      | 294           | 0.0136        | 0.82              |                | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps |
| 26.8     | 394           | Total         |                   |                |  |

**Subcatchment 1S: pre north**

Hydrograph



**Summary for Subcatchment 2S: pre middle**

Runoff = 15.07 cfs @ 12.32 hrs, Volume= 1.626 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 5-year Rainfall=3.24"

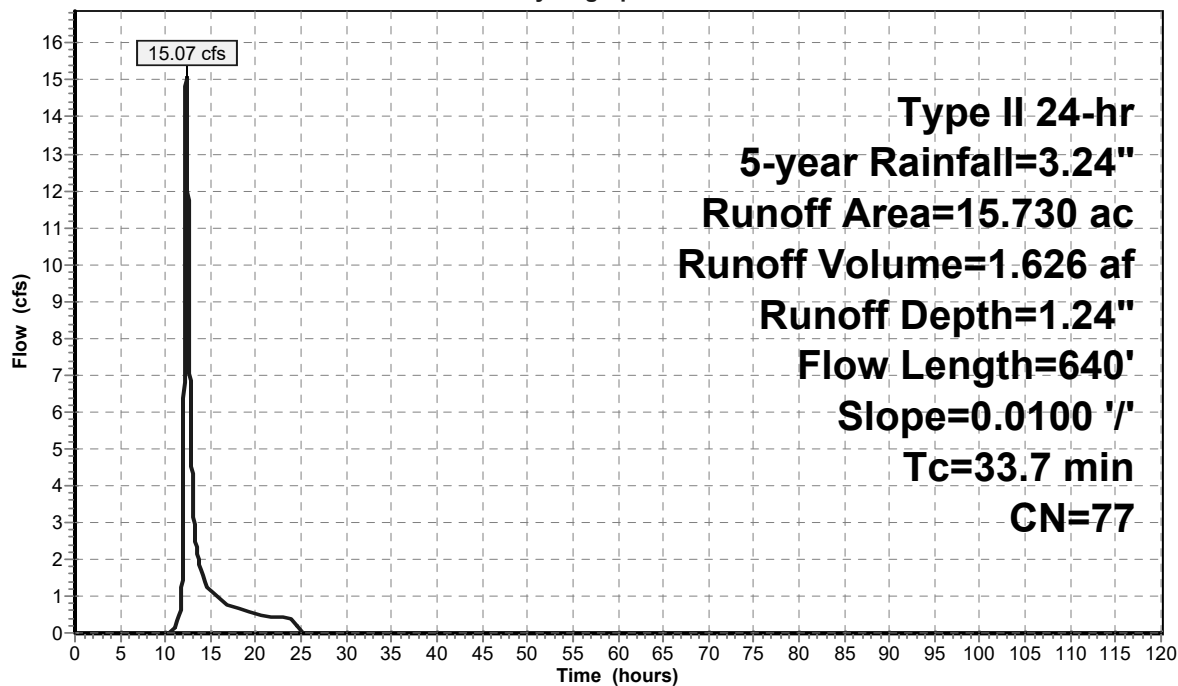
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 8.860   | 78 |                       |
| * 3.080   | 74 |                       |
| * 3.790   | 78 |                       |
| 15.730    | 77 | Weighted Average      |
| 15.730    |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---|
| 20.8     | 100           | 0.0100        | 0.08              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 2.63"                |
| 12.9     | 540           | 0.0100        | 0.70              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps |
| 33.7     | 640           | Total         |                   |                |   |

**Subcatchment 2S: pre middle**

Hydrograph



**Summary for Subcatchment 4S: pre Subarea "A"**

Runoff = 8.68 cfs @ 12.32 hrs, Volume= 0.964 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 5-year Rainfall=3.24"

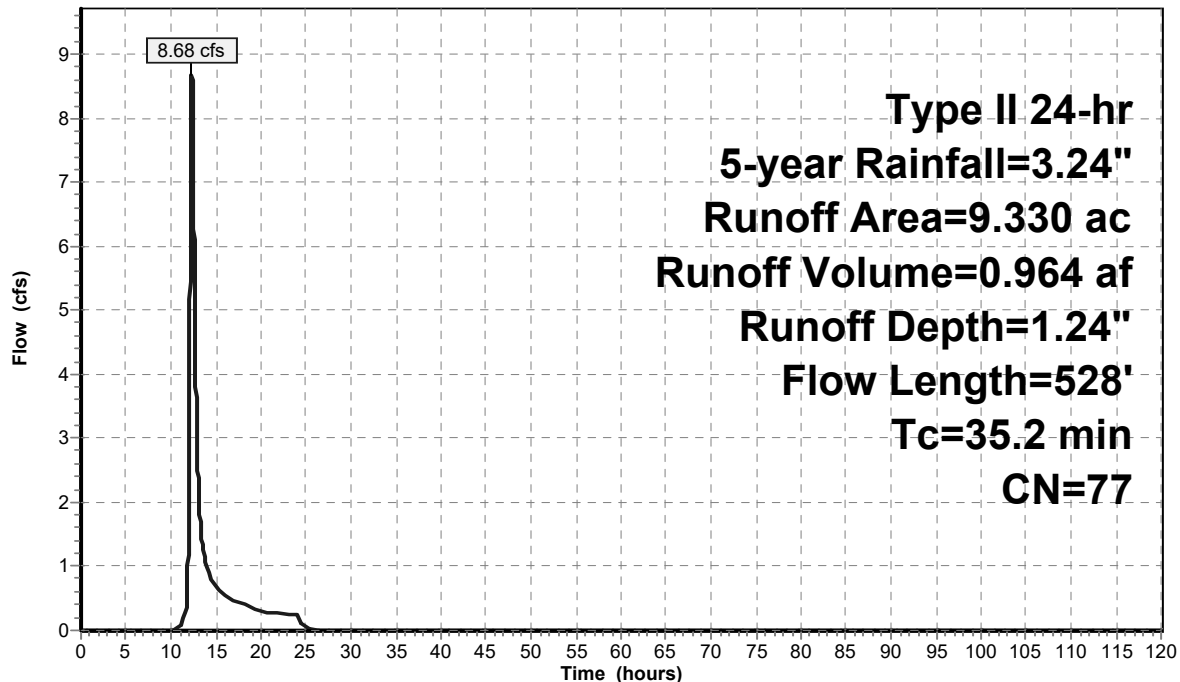
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 7.180   | 78 |                       |
| * 2.150   | 74 |                       |
| 9.330     | 77 | Weighted Average      |
| 9.330     |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description  |
|----------|---------------|---------------|-------------------|----------------|--|
| 20.8     | 100           | 0.0100        | 0.08              |                | <b>Sheet Flow,</b><br>Grass: Dense n= 0.240 P2= 2.63"                |
| 14.4     | 428           | 0.0050        | 0.49              |                | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps |
| 35.2     | 528           | Total         |                   |                |  |

**Subcatchment 4S: pre Subarea "A"**

Hydrograph



**Summary for Subcatchment 5S: post north**

Runoff = 38.27 cfs @ 12.01 hrs, Volume= 2.121 af, Depth= 2.21"

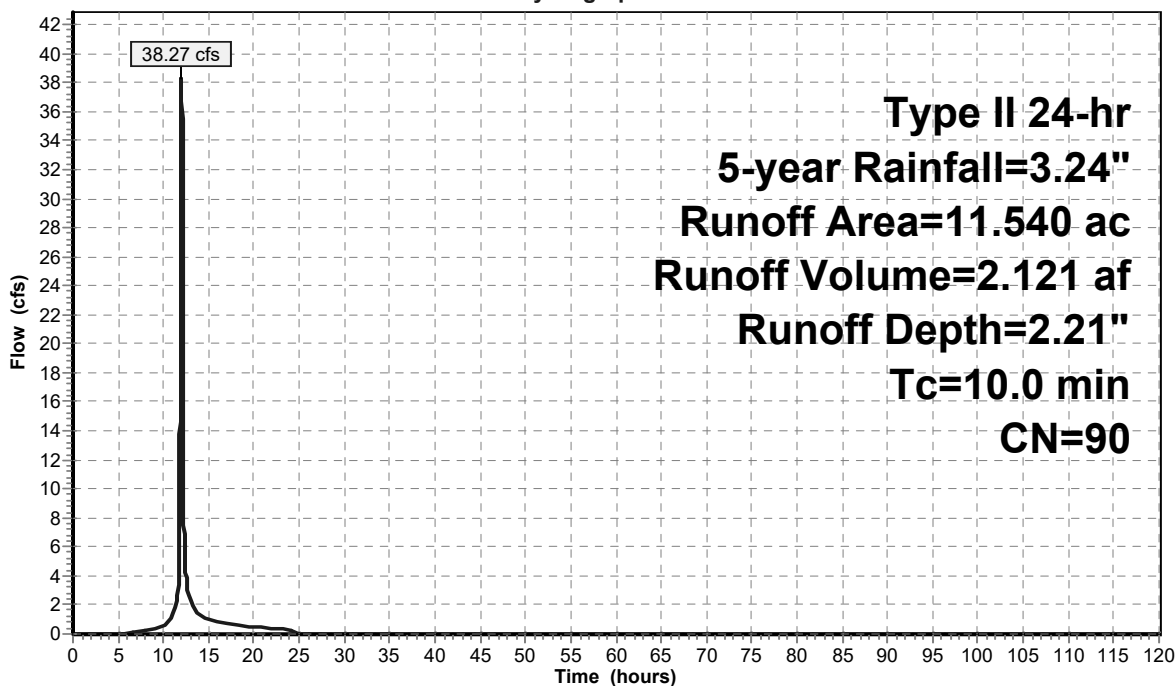
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 5-year Rainfall=3.24"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 11.540  | 90 |                       |
| 11.540    |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0        |                  |                  |                      |                   | Direct Entry, |

**Subcatchment 5S: post north**

Hydrograph



**Summary for Subcatchment 6S: post middle**

Runoff = 52.17 cfs @ 12.01 hrs, Volume= 2.891 af, Depth= 2.21"

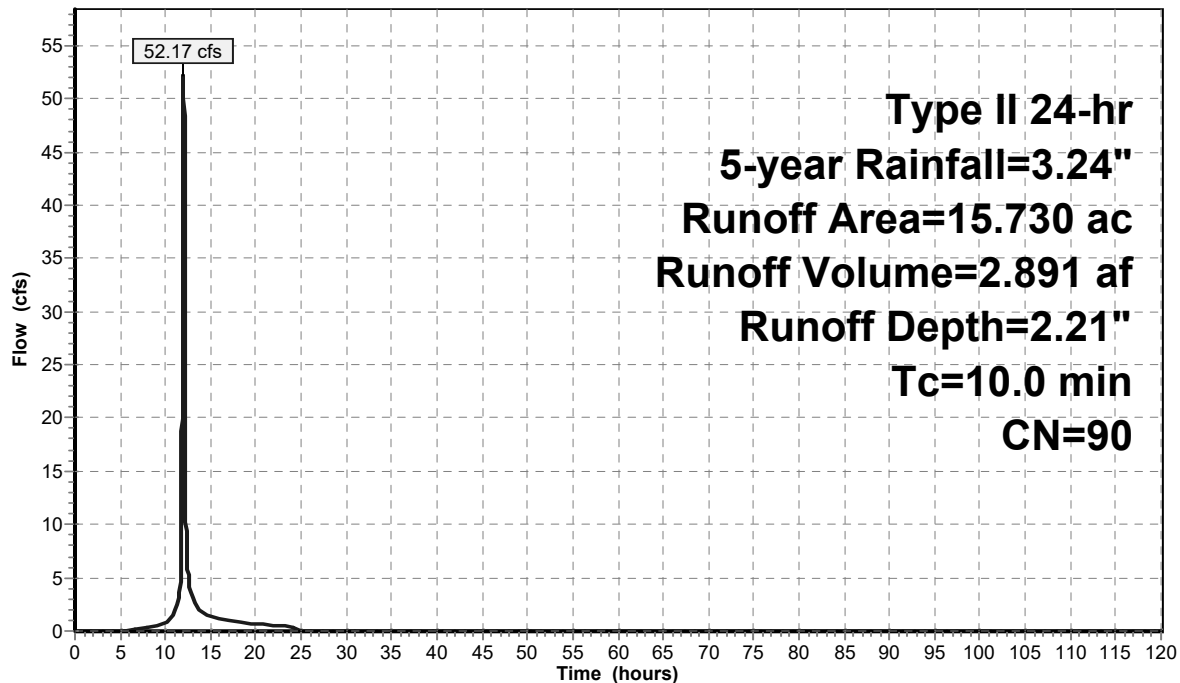
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 5-year Rainfall=3.24"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 15.730  | 90 |                       |
| 15.730    |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0        |                  |                  |                      |                   | Direct Entry, |

**Subcatchment 6S: post middle**

Hydrograph



**Summary for Subcatchment 8S: post Subarea "A"**

Runoff = 41.05 cfs @ 11.96 hrs, Volume= 2.008 af, Depth= 2.58"

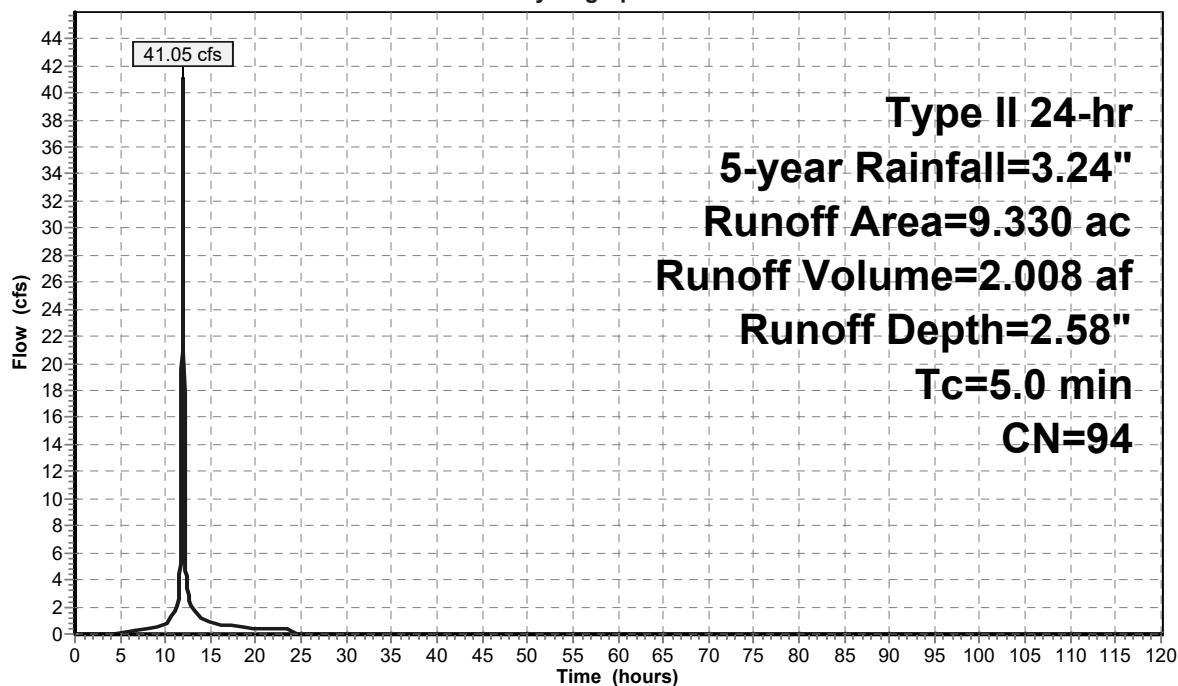
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 5-year Rainfall=3.24"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 9.330   | 94 |                       |
| 9.330     |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 5.0         |                  |                  |                      |                   | Direct Entry, |

**Subcatchment 8S: post Subarea "A"**

Hydrograph



**Summary for Pond 9P: Subarea B north SWMA**

Inflow Area = 11.540 ac, 0.00% Impervious, Inflow Depth = 2.21" for 5-year event  
 Inflow = 38.27 cfs @ 12.01 hrs, Volume= 2.121 af  
 Outflow = 0.78 cfs @ 16.29 hrs, Volume= 2.096 af, Atten= 98%, Lag= 256.7 min  
 Primary = 0.78 cfs @ 16.29 hrs, Volume= 2.096 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 926.01' @ 16.29 hrs Surf.Area= 43,062 sf Storage= 64,985 cf

Plug-Flow detention time= 1,109.5 min calculated for 2.096 af (99% of inflow)  
 Center-of-Mass det. time= 1,102.2 min ( 1,909.3 - 807.0 )

| Volume | Invert  | Avail.Storage | Storage Description  |
|--------|---------|---------------|--|
| #1     | 924.40' | 157,610 cf    | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40              | 37,449               | 0                         | 0                         |
| 925.00              | 39,518               | 23,090                    | 23,090                    |
| 926.00              | 43,009               | 41,264                    | 64,354                    |
| 927.00              | 46,603               | 44,806                    | 109,160                   |
| 928.00              | 50,297               | 48,450                    | 157,610                   |

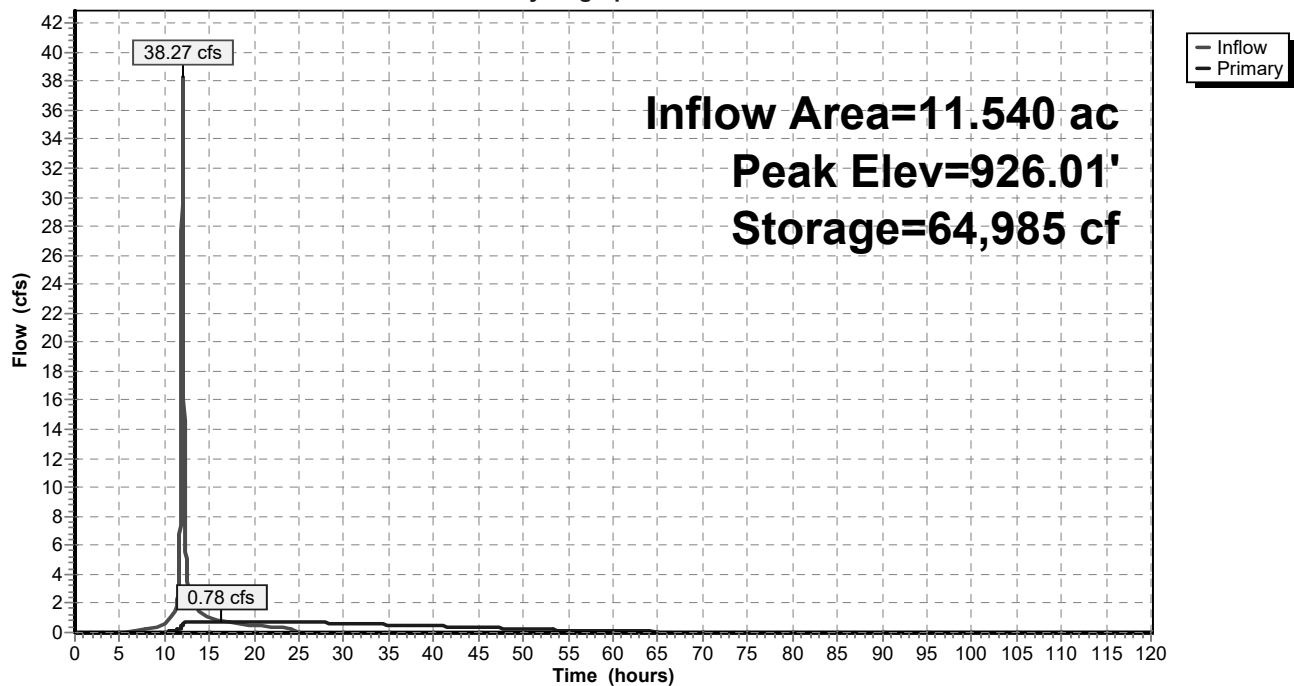
| Device | Routing | Invert  | Outlet Devices   |
|--------|---------|---------|--|
| #1     | Primary | 924.40' | <b>3.5" Vert. Orifice/Grate X 2.00</b> C= 0.600  |
| #2     | Primary | 927.50' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads  |
| #3     | Primary | 927.50' | <b>20.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b><br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

**Primary OutFlow** Max=0.78 cfs @ 16.29 hrs HW=926.01' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.78 cfs @ 5.84 fps)  
 2=Orifice/Grate ( Controls 0.00 cfs)  
 3=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

**Pond 9P: Subarea B north SWMA**

Hydrograph



**Summary for Pond 10P: Subarea B middle SWMA**

Inflow Area = 15.730 ac, 0.00% Impervious, Inflow Depth = 2.21" for 5-year event  
 Inflow = 52.17 cfs @ 12.01 hrs, Volume= 2.891 af  
 Outflow = 3.13 cfs @ 13.01 hrs, Volume= 2.799 af, Atten= 94%, Lag= 60.0 min  
 Primary = 3.13 cfs @ 13.01 hrs, Volume= 2.799 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 925.81' @ 13.01 hrs Surf.Area= 57,236 sf Storage= 75,760 cf

Plug-Flow detention time= 972.6 min calculated for 2.799 af (97% of inflow)  
 Center-of-Mass det. time= 953.6 min ( 1,760.6 - 807.0 )

| Volume | Invert  | Avail.Storage | Storage Description  |
|--------|---------|---------------|--|
| #1     | 924.40' | 213,101 cf    | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40              | 50,550               | 0                         | 0                         |
| 925.00              | 53,377               | 31,178                    | 31,178                    |
| 926.00              | 58,164               | 55,771                    | 86,949                    |
| 927.00              | 63,051               | 60,608                    | 147,556                   |
| 928.00              | 68,038               | 65,545                    | 213,101                   |

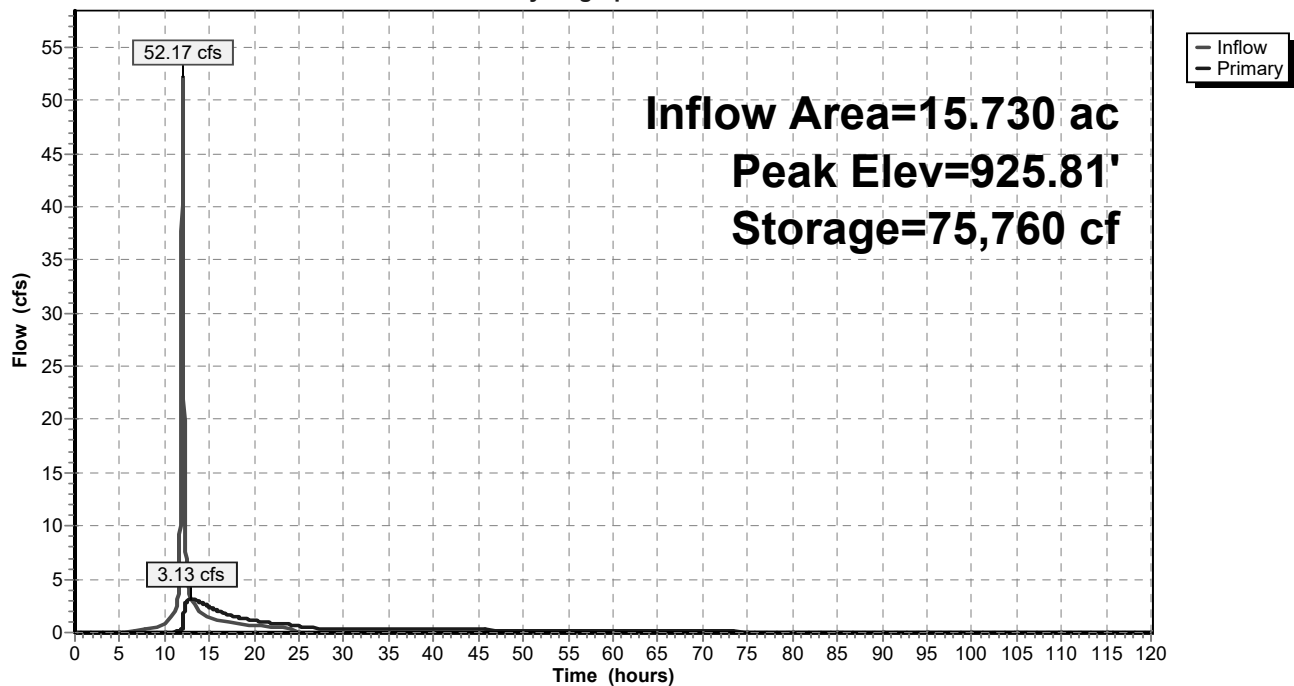
| Device | Routing | Invert  | Outlet Devices  |
|--------|---------|---------|---|
| #1     | Primary | 924.40' | <b>4.0" Vert. Orifice/Grate</b> C= 0.600  |
| #2     | Primary | 925.25' | <b>24.0" W x 7.0" H Vert. Orifice/Grate</b> C= 0.600  |
| #3     | Primary | 926.70' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=3.13 cfs @ 13.01 hrs HW=925.81' (Free Discharge)

↑  
 1=Orifice/Grate (Orifice Controls 0.47 cfs @ 5.36 fps)  
 2=Orifice/Grate (Orifice Controls 2.66 cfs @ 2.39 fps)  
 3=Orifice/Grate ( Controls 0.00 cfs)

**Pond 10P: Subarea B middle SWMA**

Hydrograph



**Summary for Pond 12P: Subarea "A" SWMA**

Inflow Area = 9.330 ac, 0.00% Impervious, Inflow Depth = 2.58" for 5-year event  
 Inflow = 41.05 cfs @ 11.96 hrs, Volume= 2.008 af  
 Outflow = 1.25 cfs @ 13.79 hrs, Volume= 1.973 af, Atten= 97%, Lag= 110.3 min  
 Primary = 1.25 cfs @ 13.79 hrs, Volume= 1.973 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 931.64' @ 13.79 hrs Surf.Area= 38,405 sf Storage= 58,010 cf

Plug-Flow detention time= 987.1 min calculated for 1.973 af (98% of inflow)  
 Center-of-Mass det. time= 976.5 min ( 1,759.0 - 782.5 )

| Volume | Invert  | Avail.Storage | Storage Description  |
|--------|---------|---------------|--|
| #1     | 930.00' | 159,374 cf    | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 930.00              | 32,218               | 0                         | 0                         |
| 931.00              | 35,943               | 34,081                    | 34,081                    |
| 932.00              | 39,768               | 37,856                    | 71,936                    |
| 933.00              | 43,694               | 41,731                    | 113,667                   |
| 934.00              | 47,719               | 45,707                    | 159,374                   |

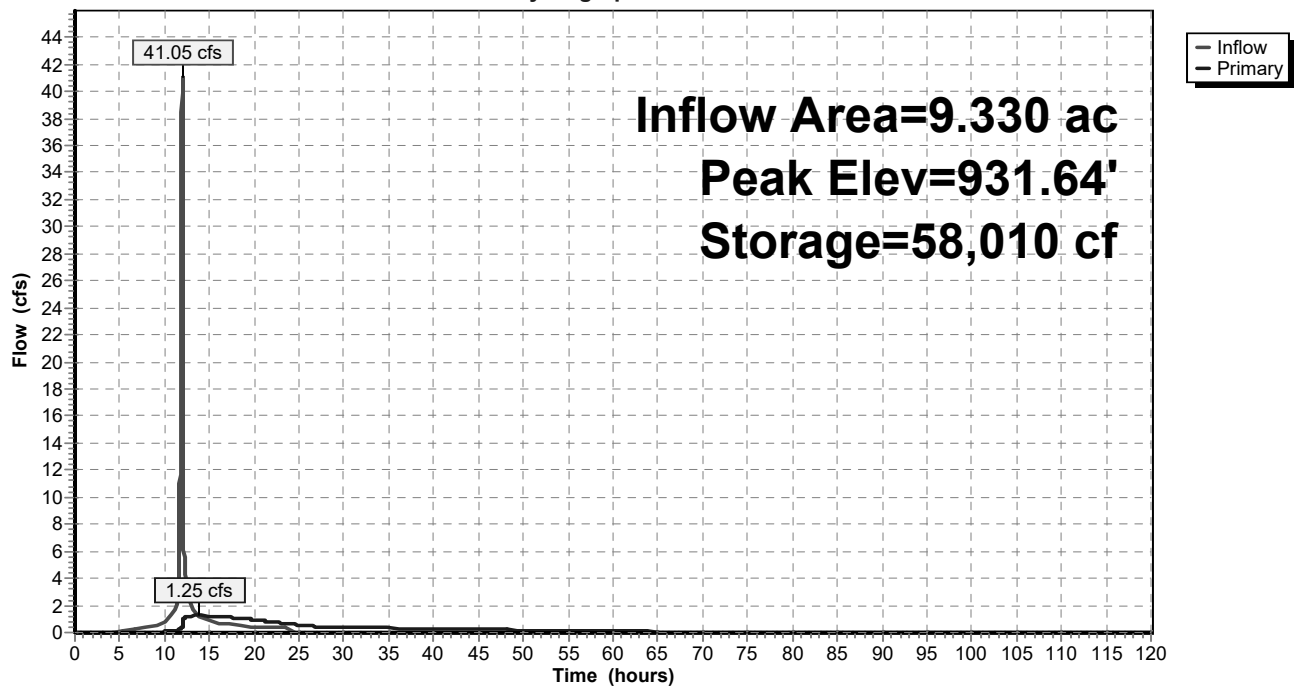
| Device | Routing | Invert  | Outlet Devices  |
|--------|---------|---------|---|
| #1     | Primary | 930.00' | <b>4.0" Vert. Orifice/Grate</b> C= 0.600  |
| #2     | Primary | 931.00' | <b>8.0" W x 4.0" H Vert. Orifice/Grate</b> C= 0.600   |
| #3     | Primary | 932.50' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=1.25 cfs @ 13.79 hrs HW=931.64' (Free Discharge)

↑  
 1=Orifice/Grate (Orifice Controls 0.51 cfs @ 5.85 fps)  
 2=Orifice/Grate (Orifice Controls 0.74 cfs @ 3.31 fps)  
 3=Orifice/Grate ( Controls 0.00 cfs)

**Pond 12P: Subarea "A" SWMA**

Hydrograph



**Summary for Subcatchment 1S: pre north**

Runoff = 8.77 cfs @ 12.21 hrs, Volume= 0.803 af, Depth= 1.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 10-year Rainfall=3.74"

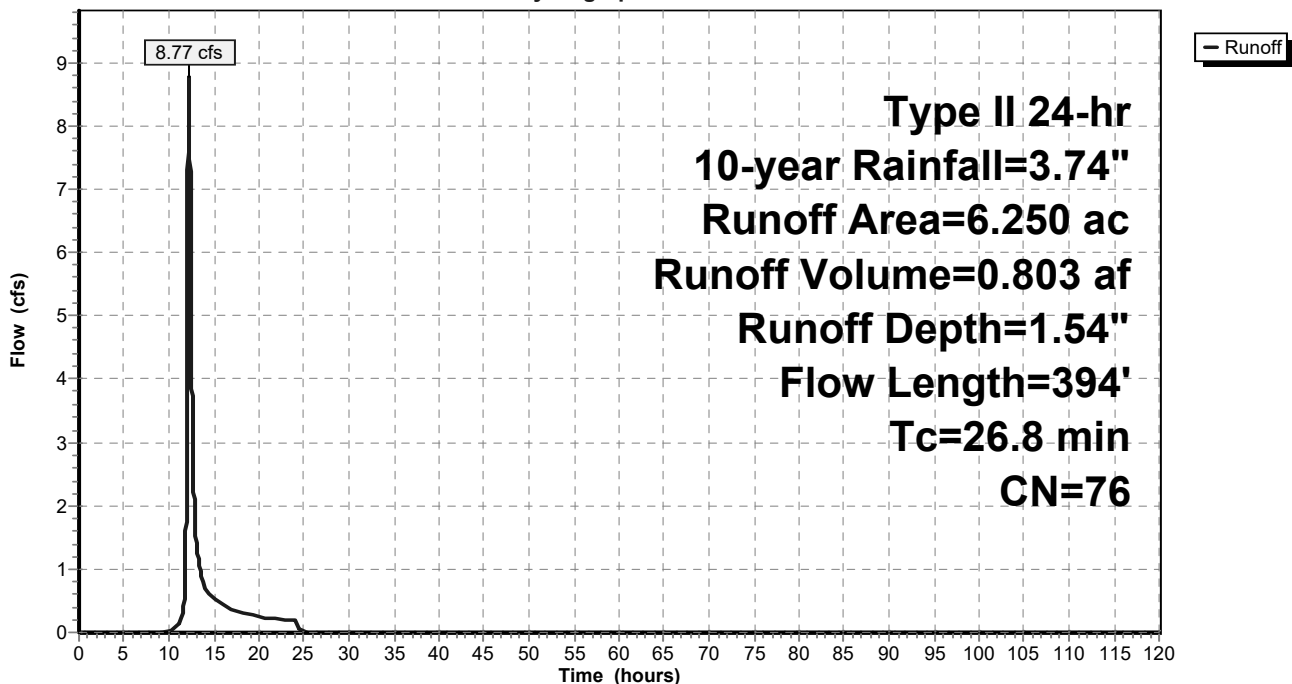
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 3.710   | 78 |                       |
| * 2.540   | 74 |                       |
| 6.250     | 76 | Weighted Average      |
| 6.250     |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---|
| 20.8     | 100           | 0.0100        | 0.08              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 2.63"                |
| 6.0      | 294           | 0.0136        | 0.82              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps |
| 26.8     | 394           | Total         |                   |                |   |

**Subcatchment 1S: pre north**

Hydrograph



**Summary for Subcatchment 2S: pre middle**

Runoff = 19.89 cfs @ 12.31 hrs, Volume= 2.112 af, Depth= 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 10-year Rainfall=3.74"

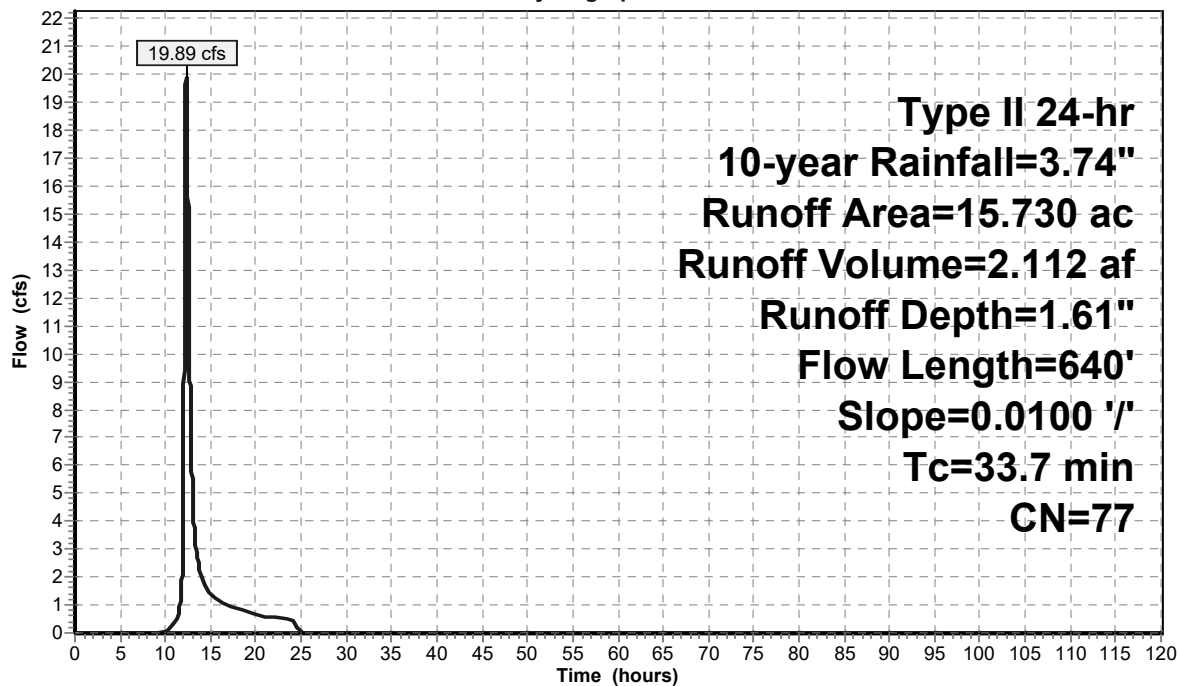
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 8.860   | 78 |                       |
| * 3.080   | 74 |                       |
| * 3.790   | 78 |                       |
| 15.730    | 77 | Weighted Average      |
| 15.730    |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---|
| 20.8     | 100           | 0.0100        | 0.08              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 2.63"                |
| 12.9     | 540           | 0.0100        | 0.70              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps |
| 33.7     | 640           | Total         |                   |                |   |

**Subcatchment 2S: pre middle**

Hydrograph



**Summary for Subcatchment 4S: pre Subarea "A"**

Runoff = 11.48 cfs @ 12.32 hrs, Volume= 1.253 af, Depth= 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 10-year Rainfall=3.74"

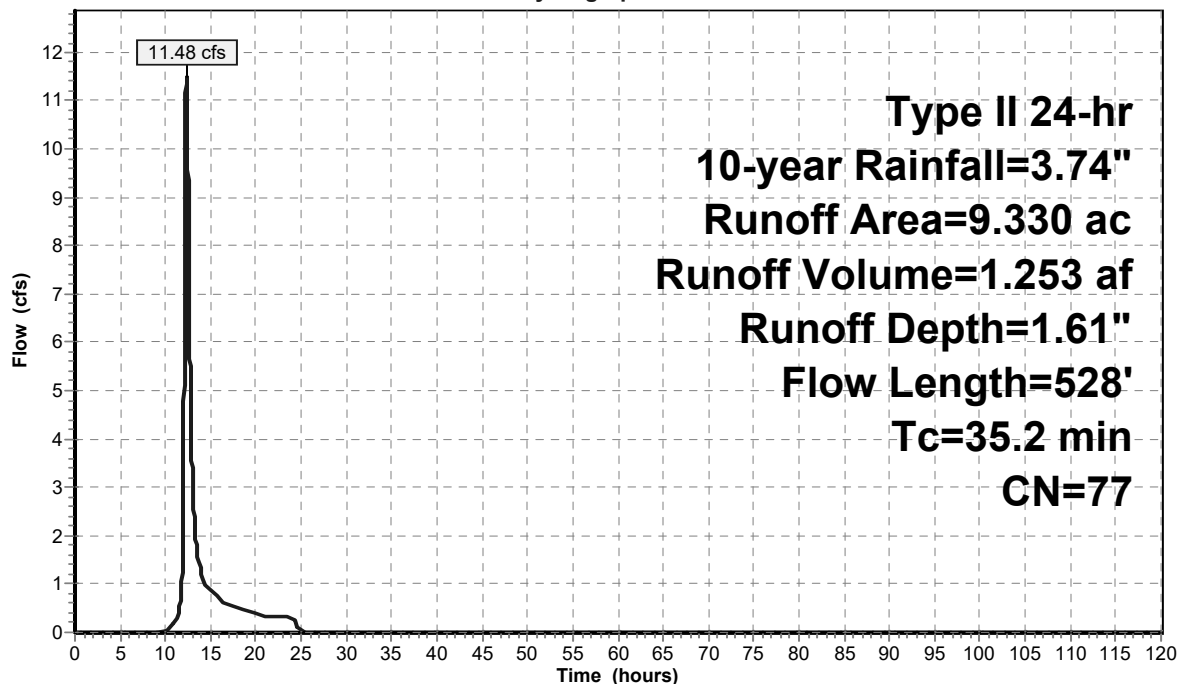
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 7.180   | 78 |                       |
| * 2.150   | 74 |                       |
| 9.330     | 77 | Weighted Average      |
| 9.330     |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---|
| 20.8     | 100           | 0.0100        | 0.08              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 2.63"                |
| 14.4     | 428           | 0.0050        | 0.49              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps |
| 35.2     | 528           | Total         |                   |                |   |

**Subcatchment 4S: pre Subarea "A"**

Hydrograph



**Summary for Subcatchment 5S: post north**

Runoff = 45.96 cfs @ 12.01 hrs, Volume= 2.571 af, Depth= 2.67"

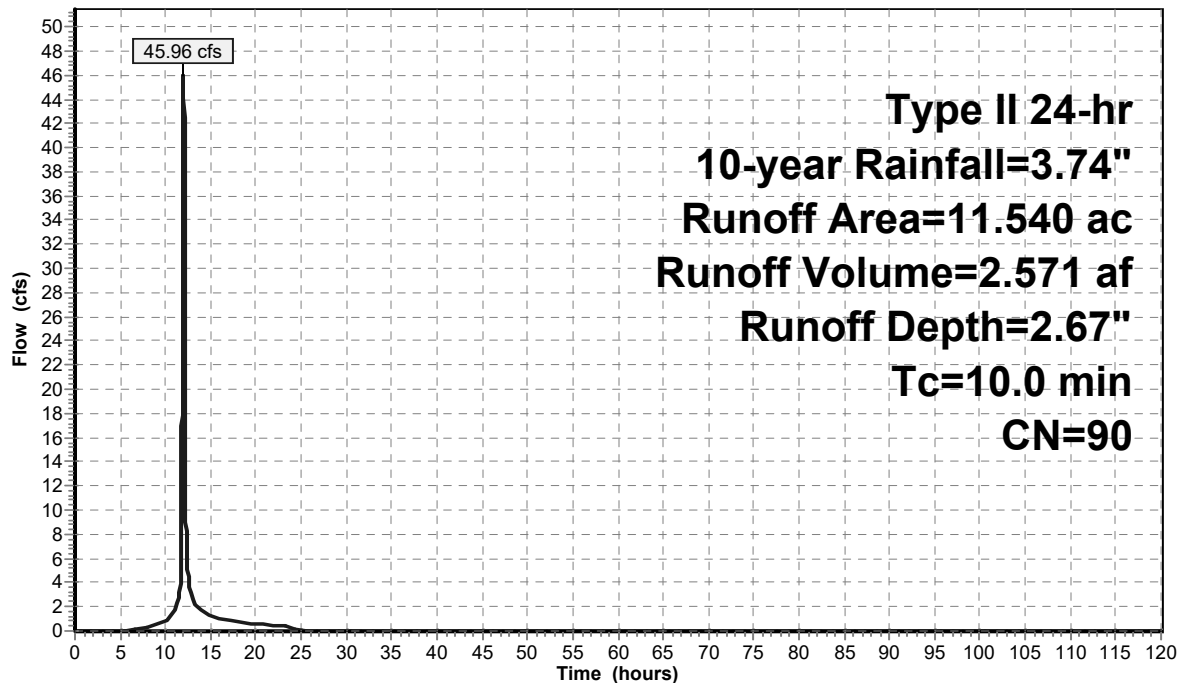
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 10-year Rainfall=3.74"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 11.540  | 90 |                       |
| 11.540    |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0        |                  |                  |                      |                   | Direct Entry, |

**Subcatchment 5S: post north**

Hydrograph



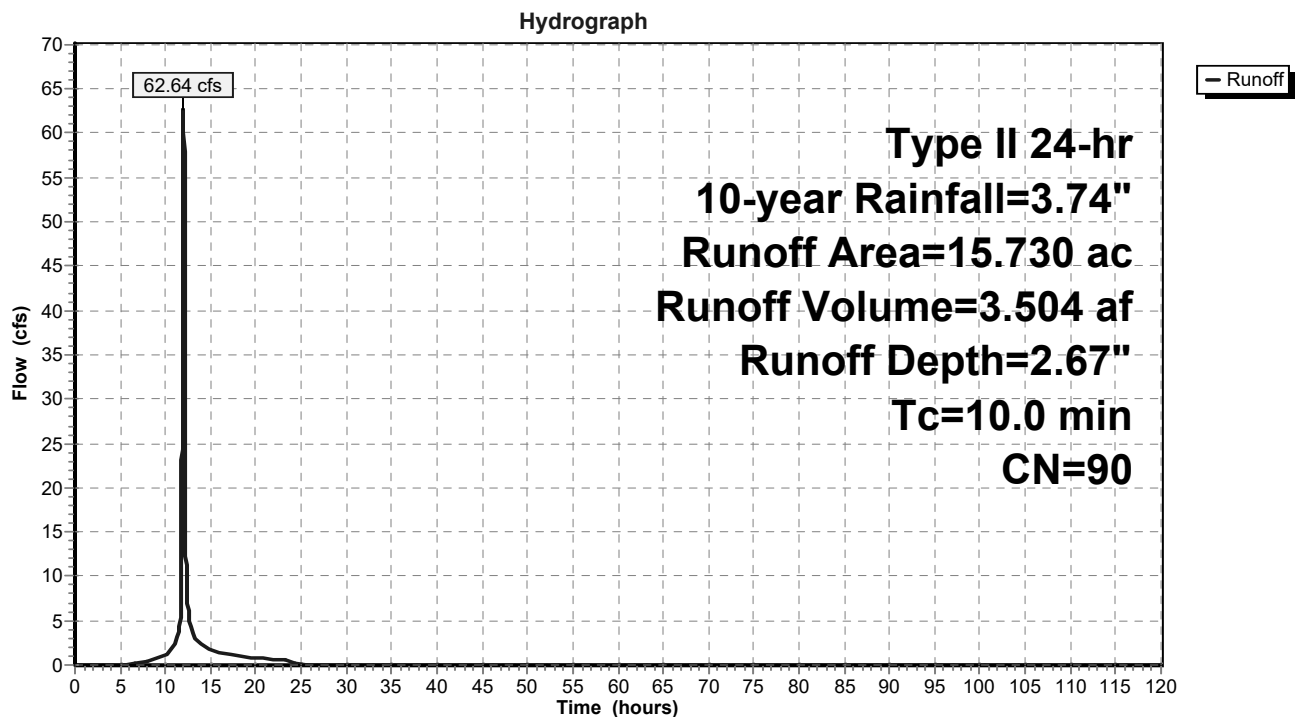
**Summary for Subcatchment 6S: post middle**

Runoff = 62.64 cfs @ 12.01 hrs, Volume= 3.504 af, Depth= 2.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 10-year Rainfall=3.74"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 15.730  | 90 |                       |
| 15.730    |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0        |                  |                  |                      |                   | Direct Entry, |

**Subcatchment 6S: post middle**

**Summary for Subcatchment 8S: post Subarea "A"**

Runoff = 48.21 cfs @ 11.96 hrs, Volume= 2.387 af, Depth= 3.07"

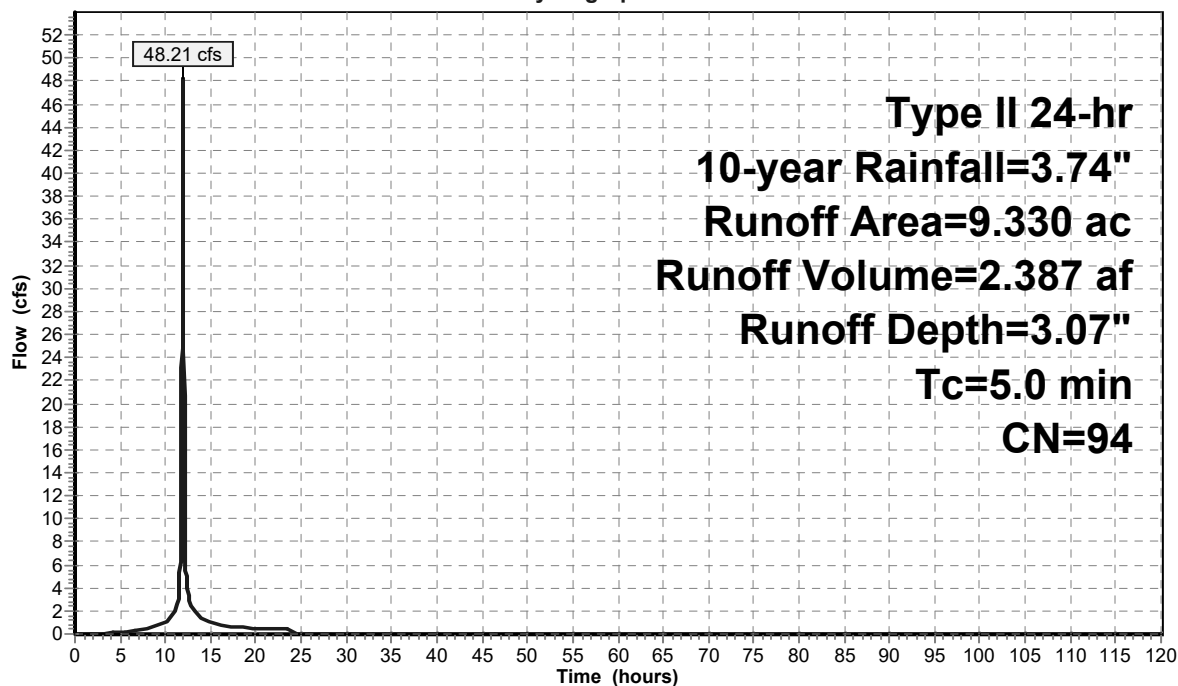
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 10-year Rainfall=3.74"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 9.330   | 94 |                       |
| 9.330     |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 5.0         |                  |                  |                      |                   | Direct Entry, |

**Subcatchment 8S: post Subarea "A"**

Hydrograph



**Summary for Pond 9P: Subarea B north SWMA**

Inflow Area = 11.540 ac, 0.00% Impervious, Inflow Depth = 2.67" for 10-year event  
 Inflow = 45.96 cfs @ 12.01 hrs, Volume= 2.571 af  
 Outflow = 0.87 cfs @ 16.79 hrs, Volume= 2.544 af, Atten= 98%, Lag= 286.8 min  
 Primary = 0.87 cfs @ 16.79 hrs, Volume= 2.544 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 926.36' @ 16.79 hrs Surf.Area= 44,314 sf Storage= 80,202 cf

Plug-Flow detention time= 1,199.2 min calculated for 2.544 af (99% of inflow)  
 Center-of-Mass det. time= 1,192.5 min ( 1,994.1 - 801.6 )

| Volume              | Invert               | Avail.Storage             | Storage Description  |
|---------------------|----------------------|---------------------------|--|
| #1                  | 924.40'              | 157,610 cf                | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |
| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet)                                  |
| 924.40              | 37,449               | 0                         | 0  |
| 925.00              | 39,518               | 23,090                    | 23,090   |
| 926.00              | 43,009               | 41,264                    | 64,354   |
| 927.00              | 46,603               | 44,806                    | 109,160  |
| 928.00              | 50,297               | 48,450                    | 157,610  |

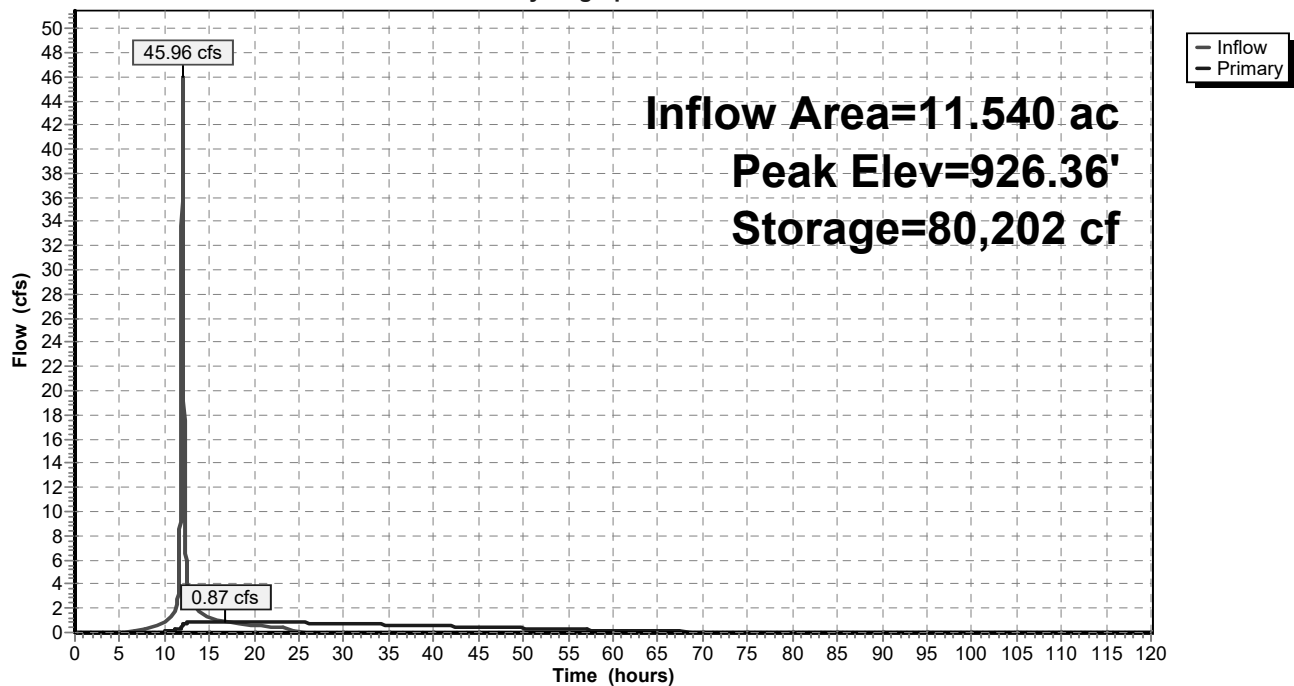
| Device | Routing | Invert  | Outlet Devices   |
|--------|---------|---------|--|
| #1     | Primary | 924.40' | <b>3.5" Vert. Orifice/Grate X 2.00</b> C= 0.600  |
| #2     | Primary | 927.50' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads  |
| #3     | Primary | 927.50' | <b>20.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b><br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

**Primary OutFlow** Max=0.87 cfs @ 16.79 hrs HW=926.36' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 0.87 cfs @ 6.49 fps)
- 2=Orifice/Grate ( Controls 0.00 cfs)
- 3=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

**Pond 9P: Subarea B north SWMA**

Hydrograph



**Summary for Pond 10P: Subarea B middle SWMA**

Inflow Area = 15.730 ac, 0.00% Impervious, Inflow Depth = 2.67" for 10-year event  
 Inflow = 62.64 cfs @ 12.01 hrs, Volume= 3.504 af  
 Outflow = 4.47 cfs @ 12.75 hrs, Volume= 3.412 af, Atten= 93%, Lag= 44.4 min  
 Primary = 4.47 cfs @ 12.75 hrs, Volume= 3.412 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 926.05' @ 12.75 hrs Surf.Area= 58,422 sf Storage= 90,026 cf

Plug-Flow detention time= 839.3 min calculated for 3.411 af (97% of inflow)  
 Center-of-Mass det. time= 823.6 min ( 1,625.2 - 801.6 )

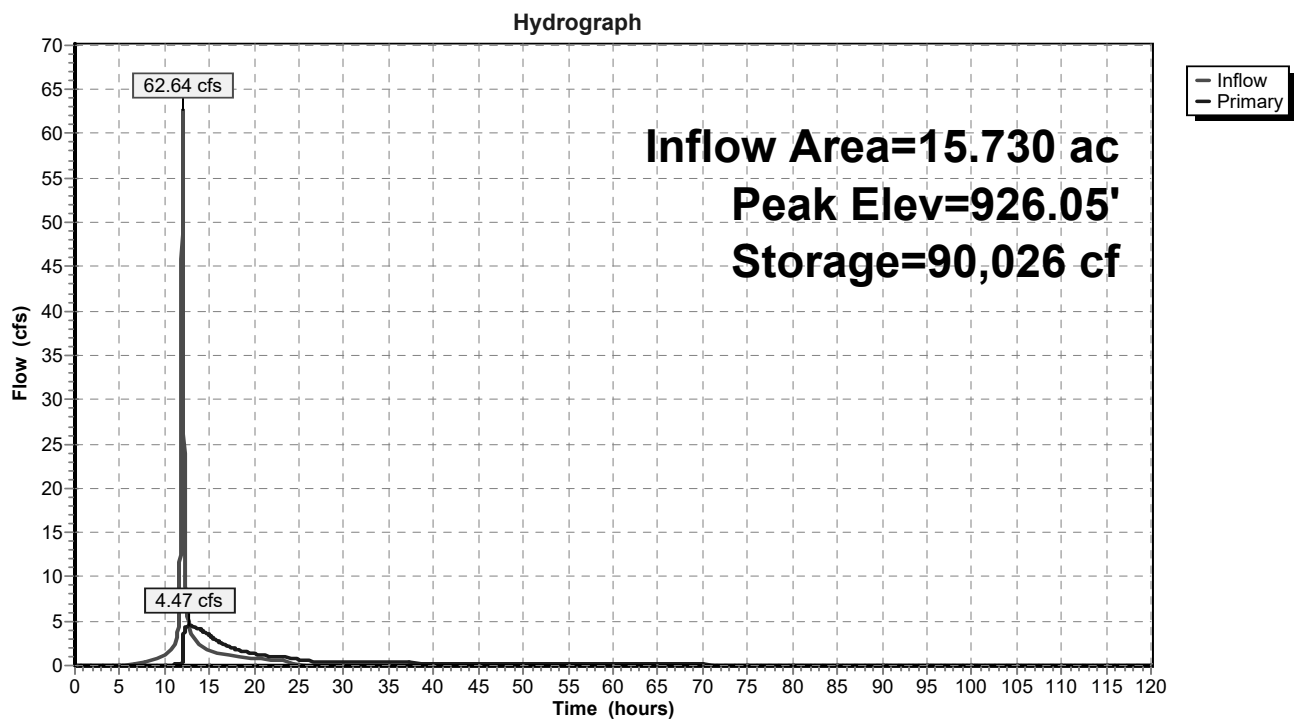
| Volume | Invert  | Avail.Storage | Storage Description  |
|--------|---------|---------------|--|
| #1     | 924.40' | 213,101 cf    | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40              | 50,550               | 0                         | 0                         |
| 925.00              | 53,377               | 31,178                    | 31,178                    |
| 926.00              | 58,164               | 55,771                    | 86,949                    |
| 927.00              | 63,051               | 60,608                    | 147,556                   |
| 928.00              | 68,038               | 65,545                    | 213,101                   |

| Device | Routing | Invert  | Outlet Devices  |
|--------|---------|---------|---|
| #1     | Primary | 924.40' | <b>4.0" Vert. Orifice/Grate</b> C= 0.600  |
| #2     | Primary | 925.25' | <b>24.0" W x 7.0" H Vert. Orifice/Grate</b> C= 0.600  |
| #3     | Primary | 926.70' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=4.47 cfs @ 12.75 hrs HW=926.05' (Free Discharge)

↑  
 1=Orifice/Grate (Orifice Controls 0.51 cfs @ 5.87 fps)  
 2=Orifice/Grate (Orifice Controls 3.96 cfs @ 3.39 fps)  
 3=Orifice/Grate ( Controls 0.00 cfs)

**Pond 10P: Subarea B middle SWMA**

**Summary for Pond 12P: Subarea "A" SWMA**

Inflow Area = 9.330 ac, 0.00% Impervious, Inflow Depth = 3.07" for 10-year event  
 Inflow = 48.21 cfs @ 11.96 hrs, Volume= 2.387 af  
 Outflow = 1.49 cfs @ 13.74 hrs, Volume= 2.351 af, Atten= 97%, Lag= 107.1 min  
 Primary = 1.49 cfs @ 13.74 hrs, Volume= 2.351 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 931.92' @ 13.74 hrs Surf.Area= 39,481 sf Storage= 68,962 cf

Plug-Flow detention time= 940.1 min calculated for 2.351 af (98% of inflow)  
 Center-of-Mass det. time= 930.4 min ( 1,708.2 - 777.8 )

| Volume | Invert  | Avail.Storage | Storage Description  |
|--------|---------|---------------|--|
| #1     | 930.00' | 159,374 cf    | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 930.00              | 32,218               | 0                         | 0                         |
| 931.00              | 35,943               | 34,081                    | 34,081                    |
| 932.00              | 39,768               | 37,856                    | 71,936                    |
| 933.00              | 43,694               | 41,731                    | 113,667                   |
| 934.00              | 47,719               | 45,707                    | 159,374                   |

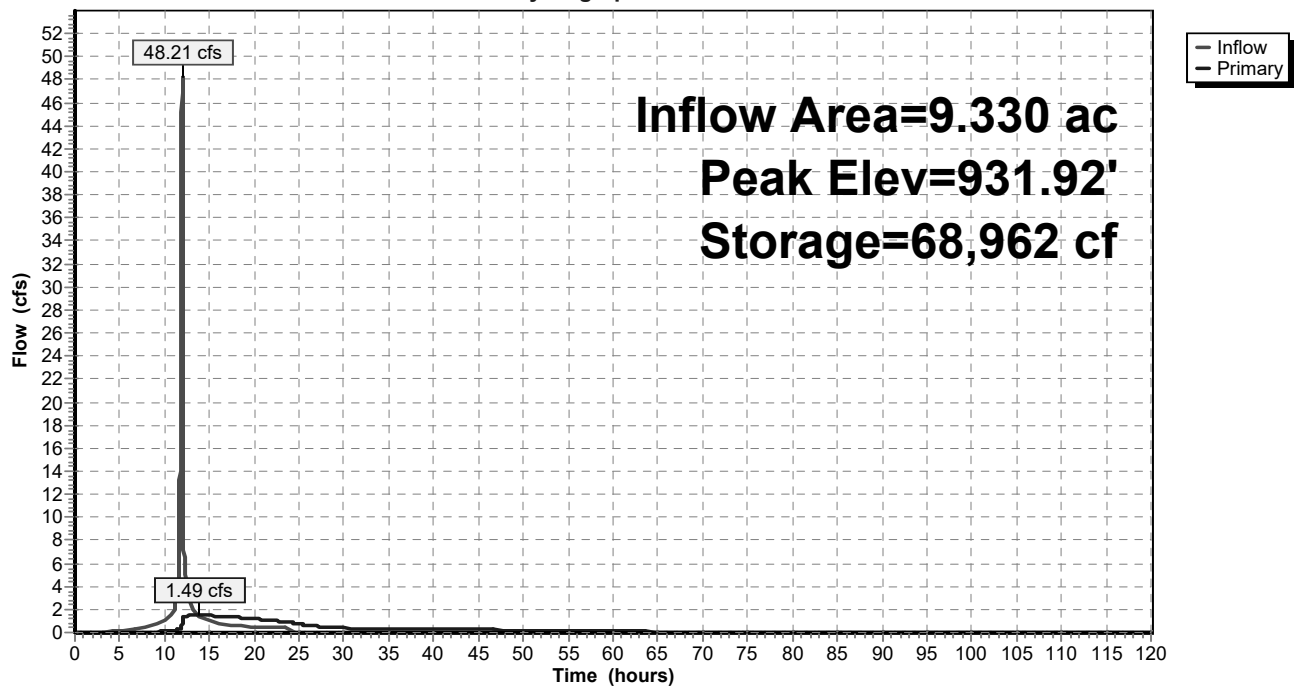
| Device | Routing | Invert  | Outlet Devices  |
|--------|---------|---------|---|
| #1     | Primary | 930.00' | <b>4.0" Vert. Orifice/Grate</b> C= 0.600  |
| #2     | Primary | 931.00' | <b>8.0" W x 4.0" H Vert. Orifice/Grate</b> C= 0.600   |
| #3     | Primary | 932.50' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=1.49 cfs @ 13.74 hrs HW=931.92' (Free Discharge)

↑  
 1=Orifice/Grate (Orifice Controls 0.56 cfs @ 6.38 fps)  
 2=Orifice/Grate (Orifice Controls 0.93 cfs @ 4.18 fps)  
 3=Orifice/Grate ( Controls 0.00 cfs)

**Pond 12P: Subarea "A" SWMA**

Hydrograph



**Summary for Subcatchment 1S: pre north**

Runoff = 12.01 cfs @ 12.21 hrs, Volume= 1.084 af, Depth= 2.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 25-year Rainfall=4.44"

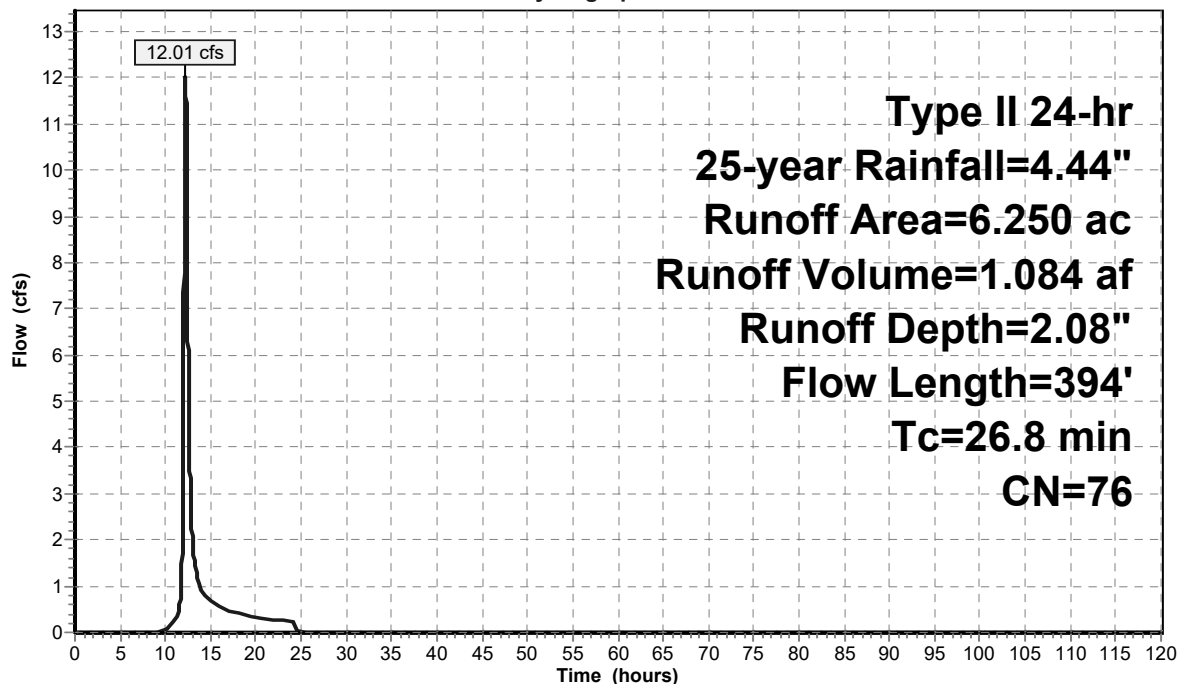
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 3.710   | 78 |                       |
| * 2.540   | 74 |                       |
| 6.250     | 76 | Weighted Average      |
| 6.250     |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---|
| 20.8     | 100           | 0.0100        | 0.08              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 2.63"                |
| 6.0      | 294           | 0.0136        | 0.82              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps |
| 26.8     | 394           | Total         |                   |                |   |

**Subcatchment 1S: pre north**

Hydrograph



**Summary for Subcatchment 2S: pre middle**

Runoff = 27.05 cfs @ 12.29 hrs, Volume= 2.834 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 25-year Rainfall=4.44"

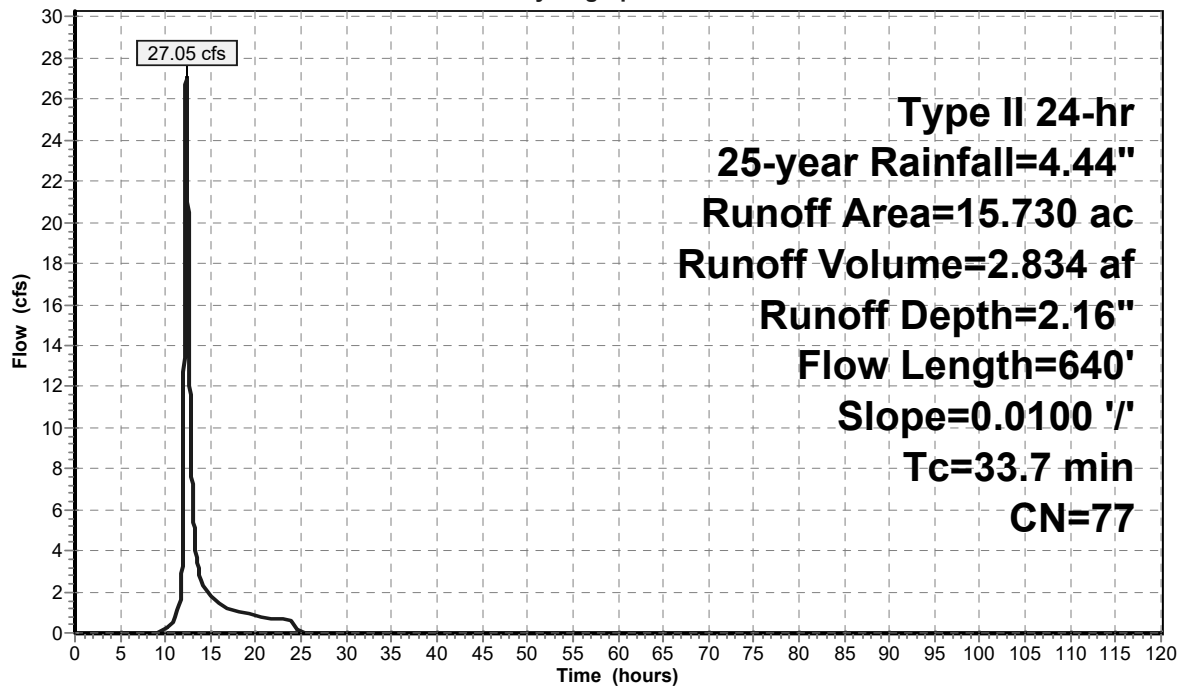
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 8.860   | 78 |                       |
| * 3.080   | 74 |                       |
| * 3.790   | 78 |                       |
| 15.730    | 77 | Weighted Average      |
| 15.730    |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---|
| 20.8     | 100           | 0.0100        | 0.08              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 2.63"                |
| 12.9     | 540           | 0.0100        | 0.70              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps |
| 33.7     | 640           | Total         |                   |                |   |

**Subcatchment 2S: pre middle**

Hydrograph



**Summary for Subcatchment 4S: pre Subarea "A"**

Runoff = 15.62 cfs @ 12.32 hrs, Volume= 1.681 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 25-year Rainfall=4.44"

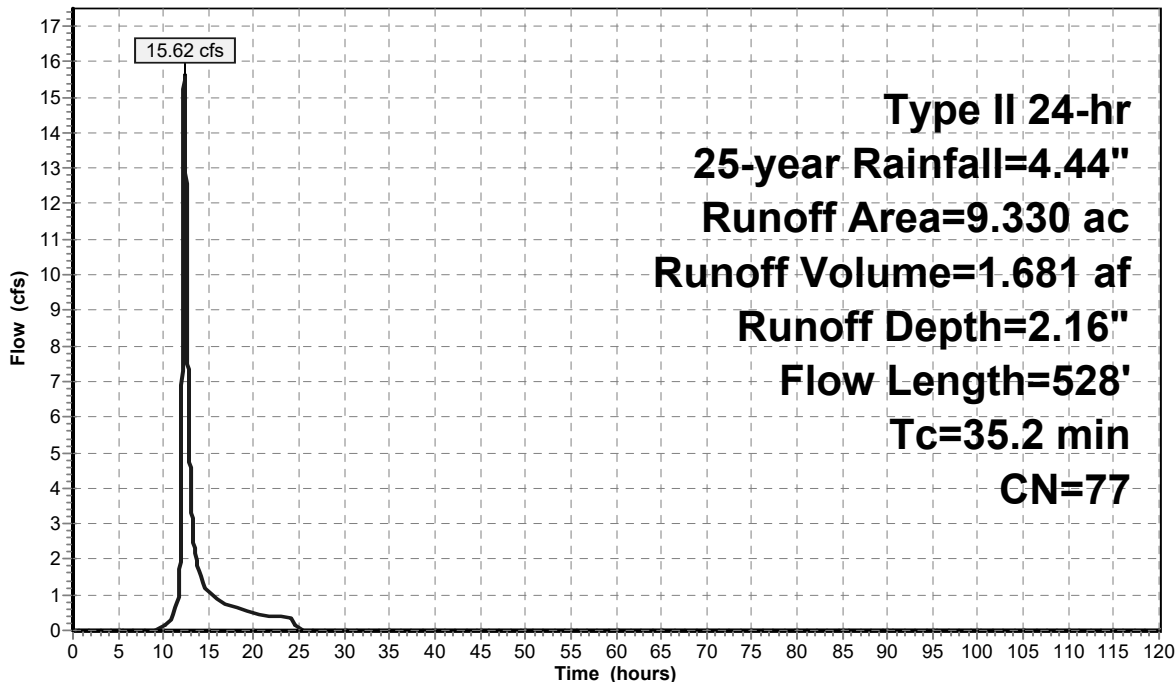
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 7.180   | 78 |                       |
| * 2.150   | 74 |                       |
| 9.330     | 77 | Weighted Average      |
| 9.330     |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---|
| 20.8     | 100           | 0.0100        | 0.08              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 2.63"                |
| 14.4     | 428           | 0.0050        | 0.49              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps |
| 35.2     | 528           | Total         |                   |                |   |

**Subcatchment 4S: pre Subarea "A"**

Hydrograph



**Summary for Subcatchment 5S: post north**

Runoff = 56.70 cfs @ 12.01 hrs, Volume= 3.210 af, Depth= 3.34"

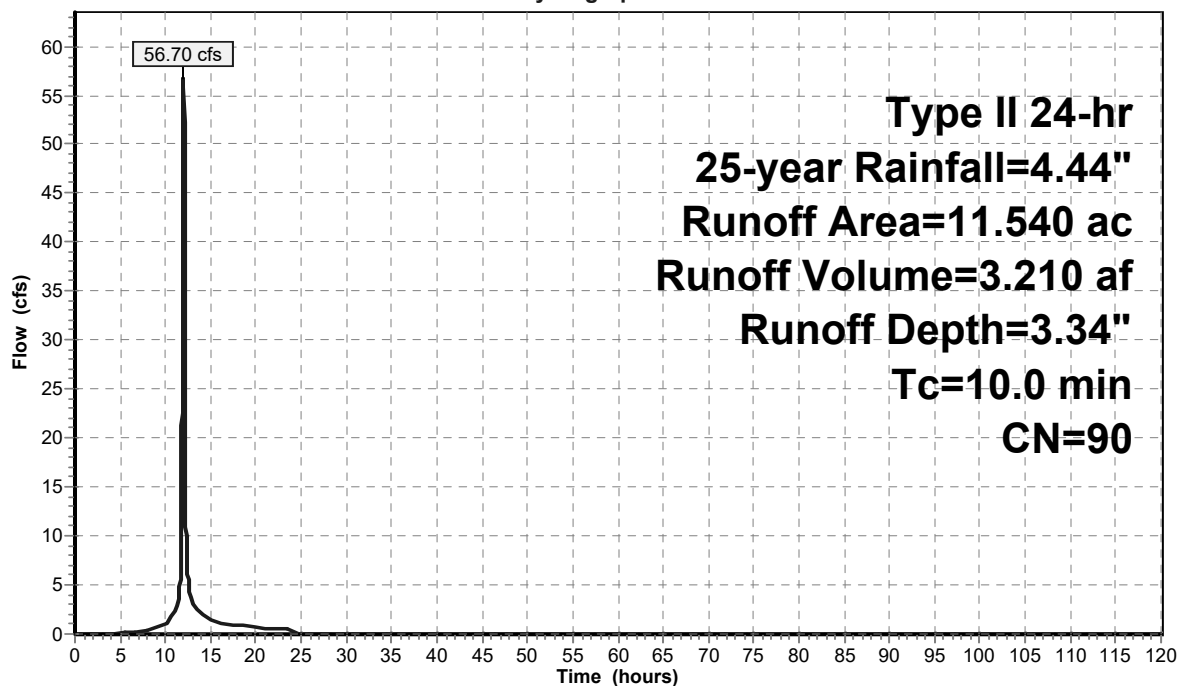
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 25-year Rainfall=4.44"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 11.540  | 90 |                       |
| 11.540    |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0        |                  |                  |                      |                   | Direct Entry, |

**Subcatchment 5S: post north**

Hydrograph



**Summary for Subcatchment 6S: post middle**

Runoff = 77.29 cfs @ 12.01 hrs, Volume= 4.376 af, Depth= 3.34"

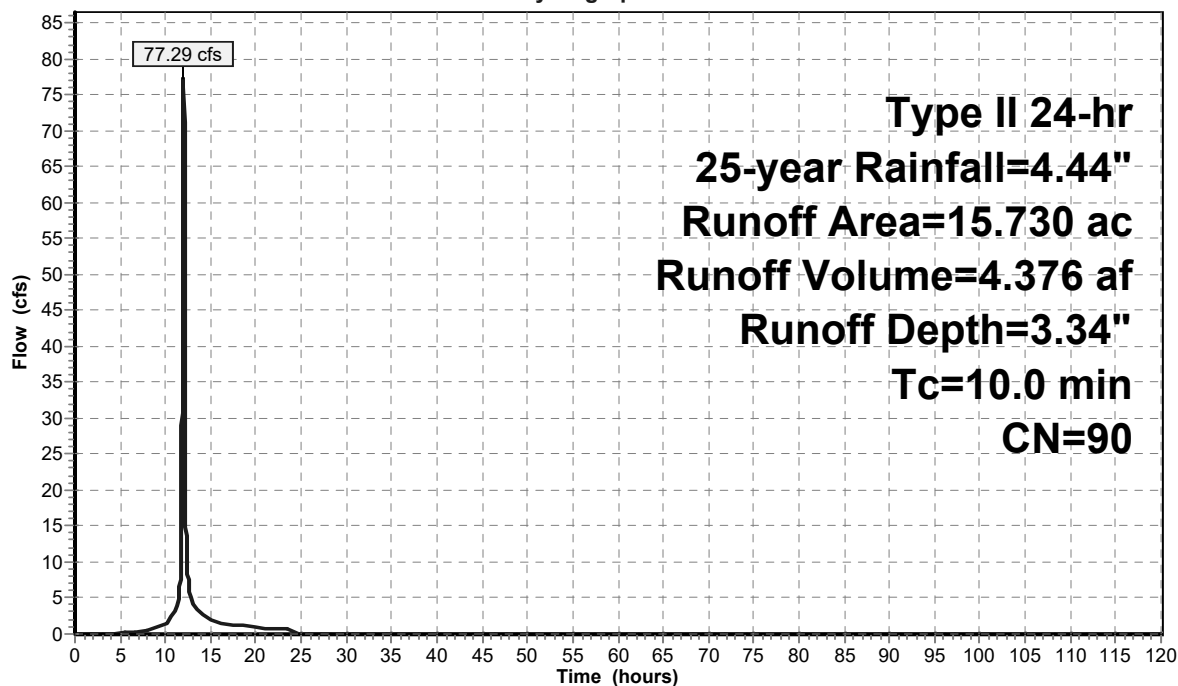
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 25-year Rainfall=4.44"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 15.730  | 90 |                       |
| 15.730    |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0        |                  |                  |                      |                   | Direct Entry, |

**Subcatchment 6S: post middle**

Hydrograph



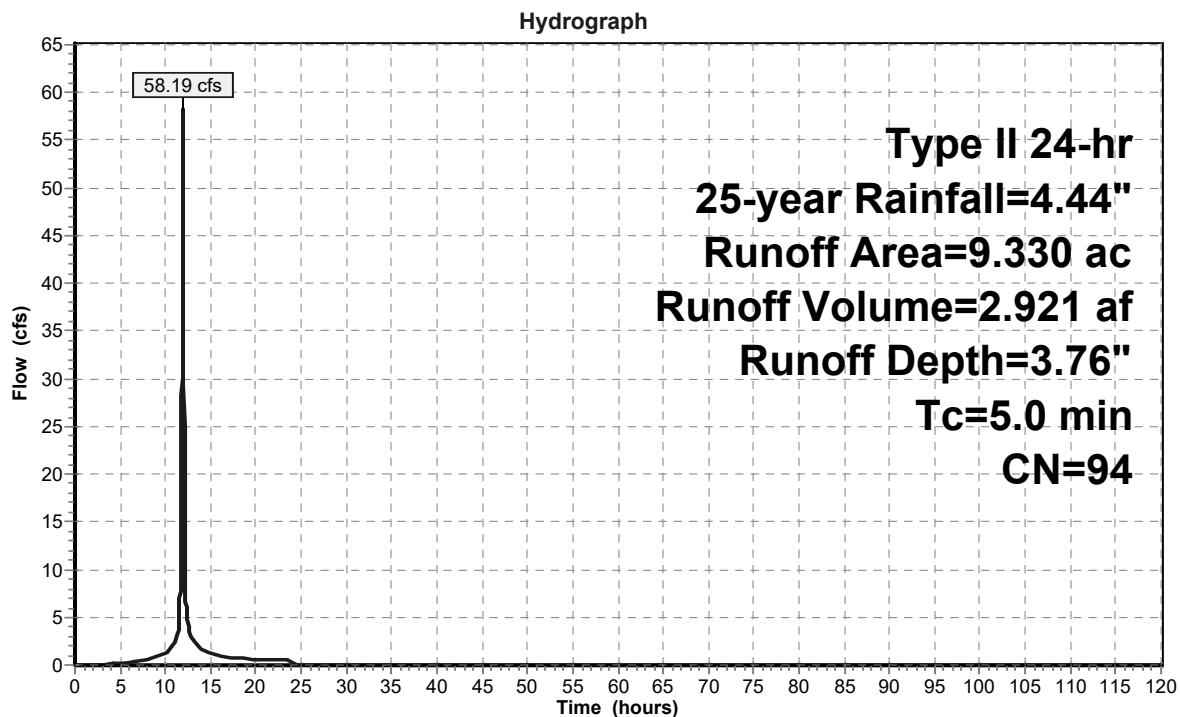
**Summary for Subcatchment 8S: post Subarea "A"**

Runoff = 58.19 cfs @ 11.96 hrs, Volume= 2.921 af, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 25-year Rainfall=4.44"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 9.330   | 94 |                       |
| 9.330     |    | 100.00% Pervious Area |

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

**Subcatchment 8S: post Subarea "A"**

**Summary for Pond 9P: Subarea B north SWMA**

Inflow Area = 11.540 ac, 0.00% Impervious, Inflow Depth = 3.34" for 25-year event  
 Inflow = 56.70 cfs @ 12.01 hrs, Volume= 3.210 af  
 Outflow = 0.98 cfs @ 17.39 hrs, Volume= 3.180 af, Atten= 98%, Lag= 322.4 min  
 Primary = 0.98 cfs @ 17.39 hrs, Volume= 3.180 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 926.85' @ 17.39 hrs Surf.Area= 46,064 sf Storage= 102,217 cf

Plug-Flow detention time= 1,320.7 min calculated for 3.180 af (99% of inflow)  
 Center-of-Mass det. time= 1,315.0 min ( 2,110.3 - 795.4 )

| Volume              | Invert               | Avail.Storage             | Storage Description  |
|---------------------|----------------------|---------------------------|--|
| #1                  | 924.40'              | 157,610 cf                | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |
| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet)                                  |
| 924.40              | 37,449               | 0                         | 0  |
| 925.00              | 39,518               | 23,090                    | 23,090   |
| 926.00              | 43,009               | 41,264                    | 64,354   |
| 927.00              | 46,603               | 44,806                    | 109,160  |
| 928.00              | 50,297               | 48,450                    | 157,610  |

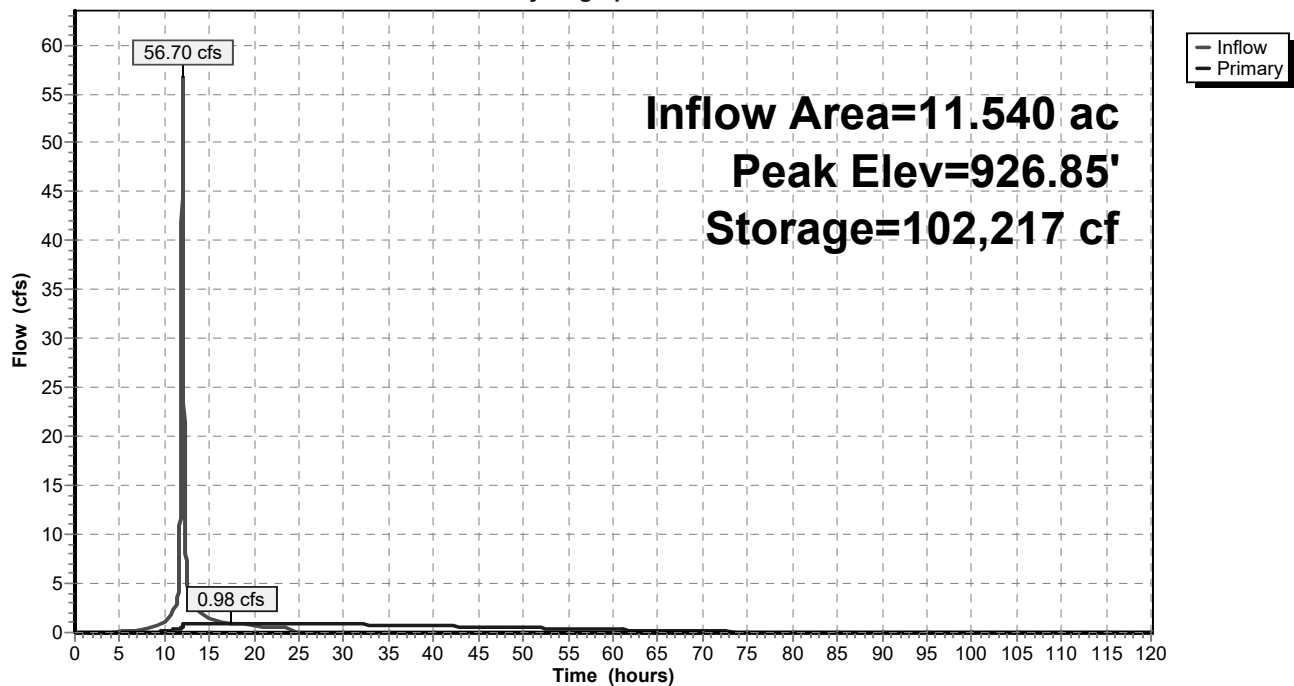
| Device | Routing | Invert  | Outlet Devices   |
|--------|---------|---------|--|
| #1     | Primary | 924.40' | <b>3.5" Vert. Orifice/Grate X 2.00</b> C= 0.600  |
| #2     | Primary | 927.50' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads  |
| #3     | Primary | 927.50' | <b>20.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b><br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

**Primary OutFlow** Max=0.98 cfs @ 17.39 hrs HW=926.85' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 0.98 cfs @ 7.31 fps)
- 2=Orifice/Grate ( Controls 0.00 cfs)
- 3=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

**Pond 9P: Subarea B north SWMA**

Hydrograph



**Summary for Pond 10P: Subarea B middle SWMA**

Inflow Area = 15.730 ac, 0.00% Impervious, Inflow Depth = 3.34" for 25-year event  
 Inflow = 77.29 cfs @ 12.01 hrs, Volume= 4.376 af  
 Outflow = 5.84 cfs @ 12.68 hrs, Volume= 4.282 af, Atten= 92%, Lag= 39.9 min  
 Primary = 5.84 cfs @ 12.68 hrs, Volume= 4.282 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 926.43' @ 12.68 hrs Surf.Area= 60,265 sf Storage= 112,406 cf

Plug-Flow detention time= 720.8 min calculated for 4.282 af (98% of inflow)  
 Center-of-Mass det. time= 707.9 min ( 1,503.3 - 795.4 )

| Volume | Invert  | Avail.Storage | Storage Description  |
|--------|---------|---------------|--|
| #1     | 924.40' | 213,101 cf    | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40              | 50,550               | 0                         | 0                         |
| 925.00              | 53,377               | 31,178                    | 31,178                    |
| 926.00              | 58,164               | 55,771                    | 86,949                    |
| 927.00              | 63,051               | 60,608                    | 147,556                   |
| 928.00              | 68,038               | 65,545                    | 213,101                   |

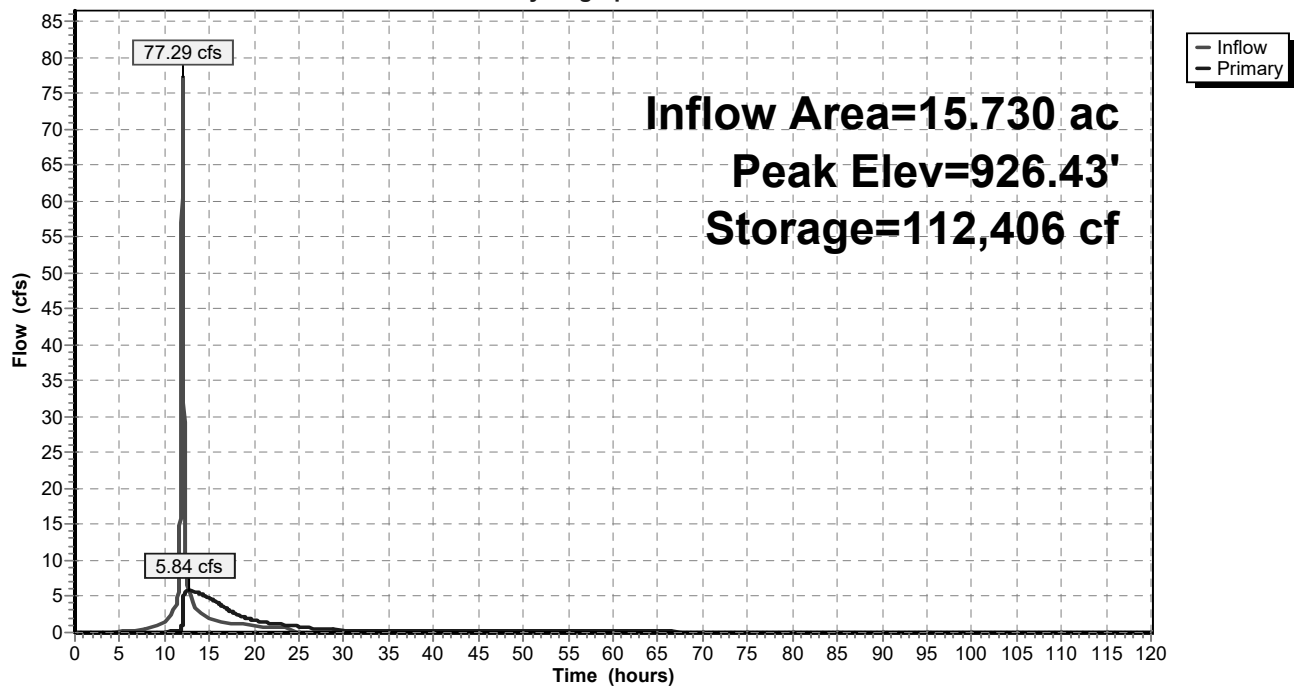
| Device | Routing | Invert  | Outlet Devices  |
|--------|---------|---------|---|
| #1     | Primary | 924.40' | <b>4.0" Vert. Orifice/Grate</b> C= 0.600  |
| #2     | Primary | 925.25' | <b>24.0" W x 7.0" H Vert. Orifice/Grate</b> C= 0.600  |
| #3     | Primary | 926.70' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=5.84 cfs @ 12.68 hrs HW=926.43' (Free Discharge)

↑  
 1=Orifice/Grate (Orifice Controls 0.57 cfs @ 6.57 fps)  
 2=Orifice/Grate (Orifice Controls 5.27 cfs @ 4.52 fps)  
 3=Orifice/Grate ( Controls 0.00 cfs)

**Pond 10P: Subarea B middle SWMA**

Hydrograph



**Summary for Pond 12P: Subarea "A" SWMA**

Inflow Area = 9.330 ac, 0.00% Impervious, Inflow Depth = 3.76" for 25-year event  
 Inflow = 58.19 cfs @ 11.96 hrs, Volume= 2.921 af  
 Outflow = 1.76 cfs @ 13.76 hrs, Volume= 2.883 af, Atten= 97%, Lag= 108.3 min  
 Primary = 1.76 cfs @ 13.76 hrs, Volume= 2.883 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 932.32' @ 13.76 hrs Surf.Area= 41,023 sf Storage= 84,852 cf

Plug-Flow detention time= 911.4 min calculated for 2.883 af (99% of inflow)  
 Center-of-Mass det. time= 903.1 min ( 1,675.6 - 772.5 )

| Volume | Invert  | Avail.Storage | Storage Description  |
|--------|---------|---------------|--|
| #1     | 930.00' | 159,374 cf    | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 930.00              | 32,218               | 0                         | 0                         |
| 931.00              | 35,943               | 34,081                    | 34,081                    |
| 932.00              | 39,768               | 37,856                    | 71,936                    |
| 933.00              | 43,694               | 41,731                    | 113,667                   |
| 934.00              | 47,719               | 45,707                    | 159,374                   |

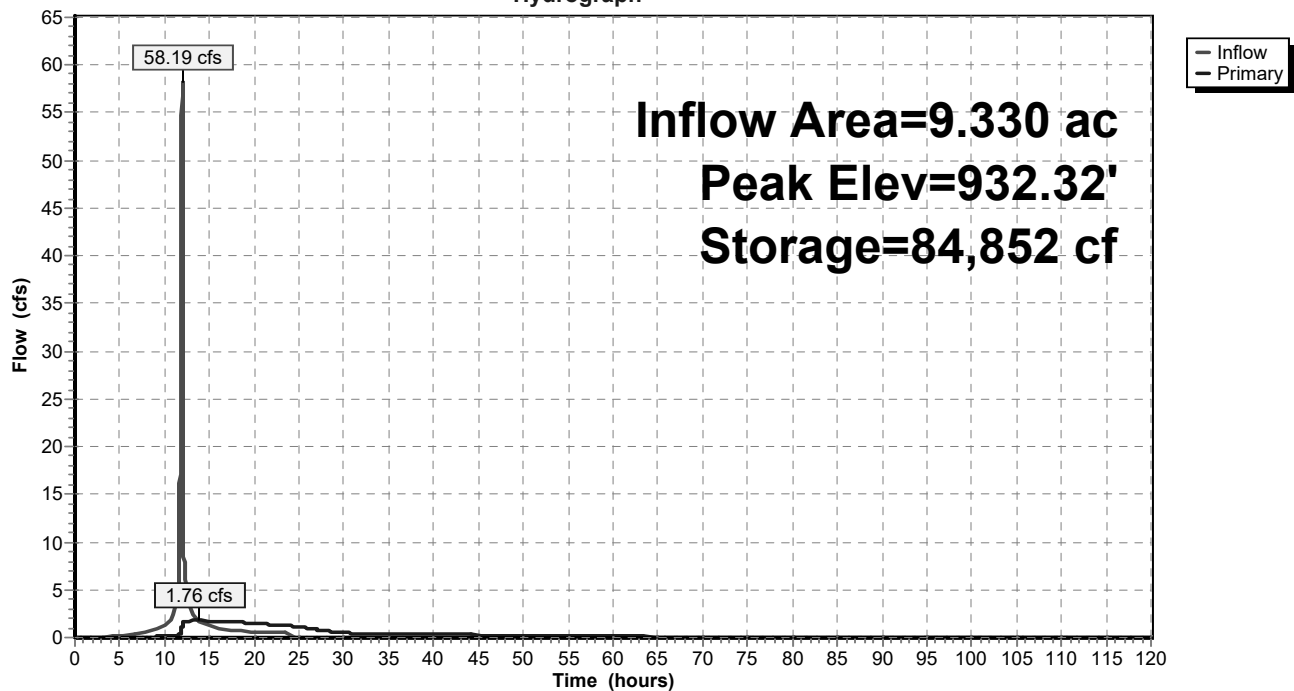
| Device | Routing | Invert  | Outlet Devices  |
|--------|---------|---------|---|
| #1     | Primary | 930.00' | <b>4.0" Vert. Orifice/Grate</b> C= 0.600  |
| #2     | Primary | 931.00' | <b>8.0" W x 4.0" H Vert. Orifice/Grate</b> C= 0.600   |
| #3     | Primary | 932.50' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=1.76 cfs @ 13.76 hrs HW=932.32' (Free Discharge)

↑  
 1=Orifice/Grate (Orifice Controls 0.62 cfs @ 7.07 fps)  
 2=Orifice/Grate (Orifice Controls 1.15 cfs @ 5.17 fps)  
 3=Orifice/Grate ( Controls 0.00 cfs)

**Pond 12P: Subarea "A" SWMA**

Hydrograph



**Summary for Subcatchment 1S: pre north**

Runoff = 14.81 cfs @ 12.21 hrs, Volume= 1.329 af, Depth= 2.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 50-year Rainfall=5.02"

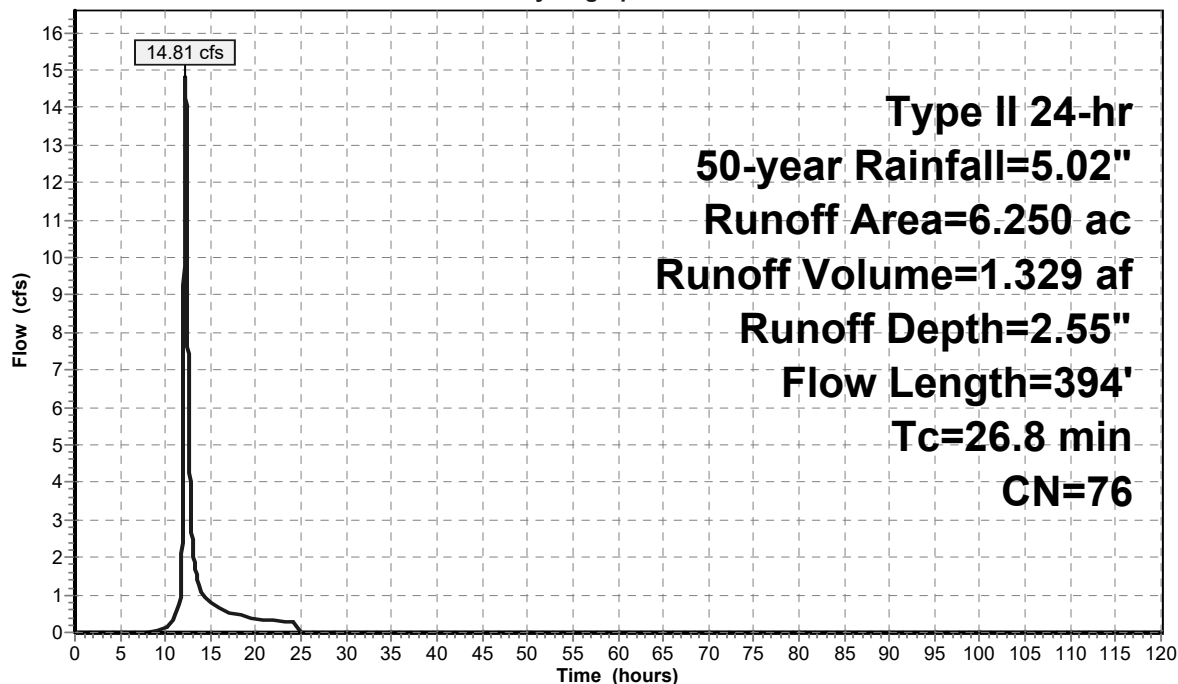
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 3.710   | 78 |                       |
| * 2.540   | 74 |                       |
| 6.250     | 76 | Weighted Average      |
| 6.250     |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---|
| 20.8     | 100           | 0.0100        | 0.08              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 2.63"                |
| 6.0      | 294           | 0.0136        | 0.82              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps |
| 26.8     | 394           | Total         |                   |                |   |

**Subcatchment 1S: pre north**

Hydrograph



**Summary for Subcatchment 2S: pre middle**

Runoff = 33.22 cfs @ 12.29 hrs, Volume= 3.460 af, Depth= 2.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 50-year Rainfall=5.02"

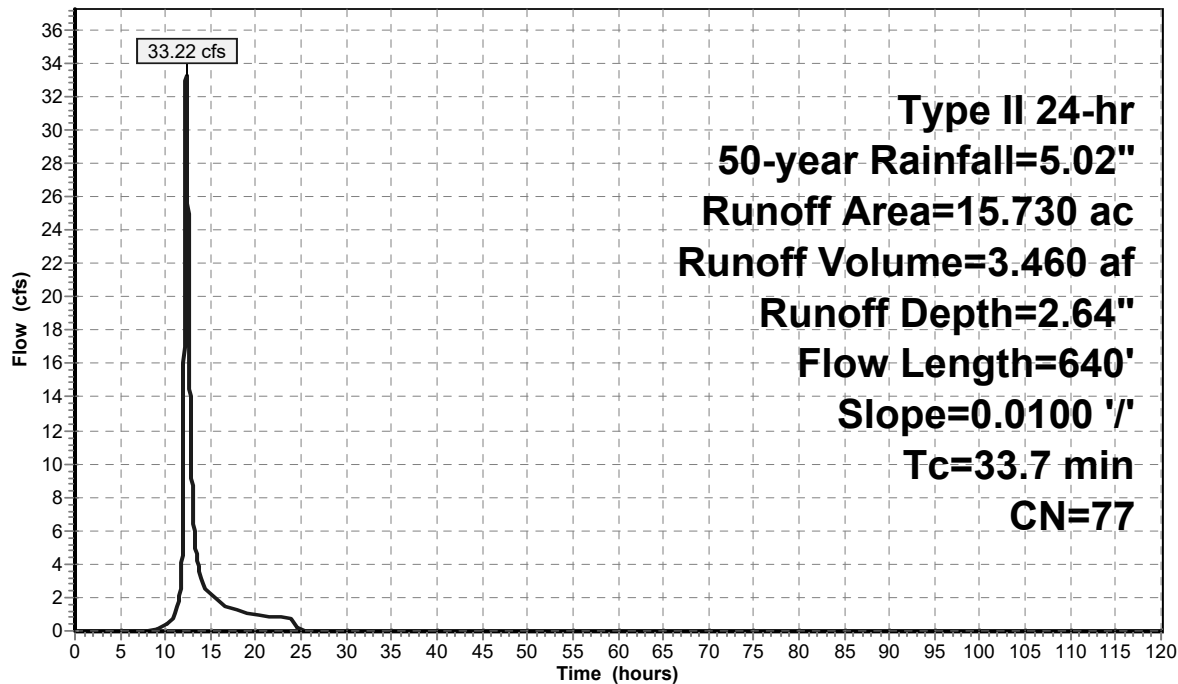
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 8.860   | 78 |                       |
| * 3.080   | 74 |                       |
| * 3.790   | 78 |                       |
| 15.730    | 77 | Weighted Average      |
| 15.730    |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---|
| 20.8     | 100           | 0.0100        | 0.08              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 2.63"                |
| 12.9     | 540           | 0.0100        | 0.70              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps |
| 33.7     | 640           | Total         |                   |                |   |

**Subcatchment 2S: pre middle**

Hydrograph



**Summary for Subcatchment 4S: pre Subarea "A"**

Runoff = 19.17 cfs @ 12.32 hrs, Volume= 2.052 af, Depth= 2.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 50-year Rainfall=5.02"

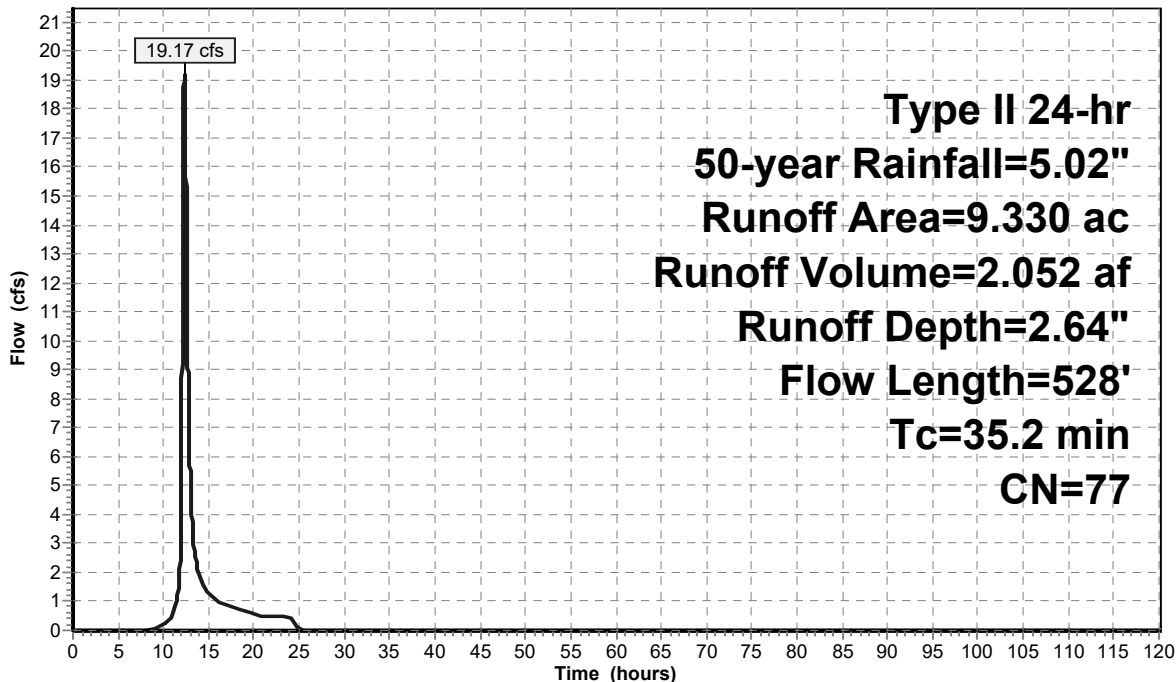
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 7.180   | 78 |                       |
| * 2.150   | 74 |                       |
| 9.330     | 77 | Weighted Average      |
| 9.330     |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---|
| 20.8     | 100           | 0.0100        | 0.08              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 2.63"                |
| 14.4     | 428           | 0.0050        | 0.49              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps |
| 35.2     | 528           | Total         |                   |                |   |

**Subcatchment 4S: pre Subarea "A"**

Hydrograph



**Summary for Subcatchment 5S: post north**

Runoff = 65.57 cfs @ 12.01 hrs, Volume= 3.746 af, Depth= 3.90"

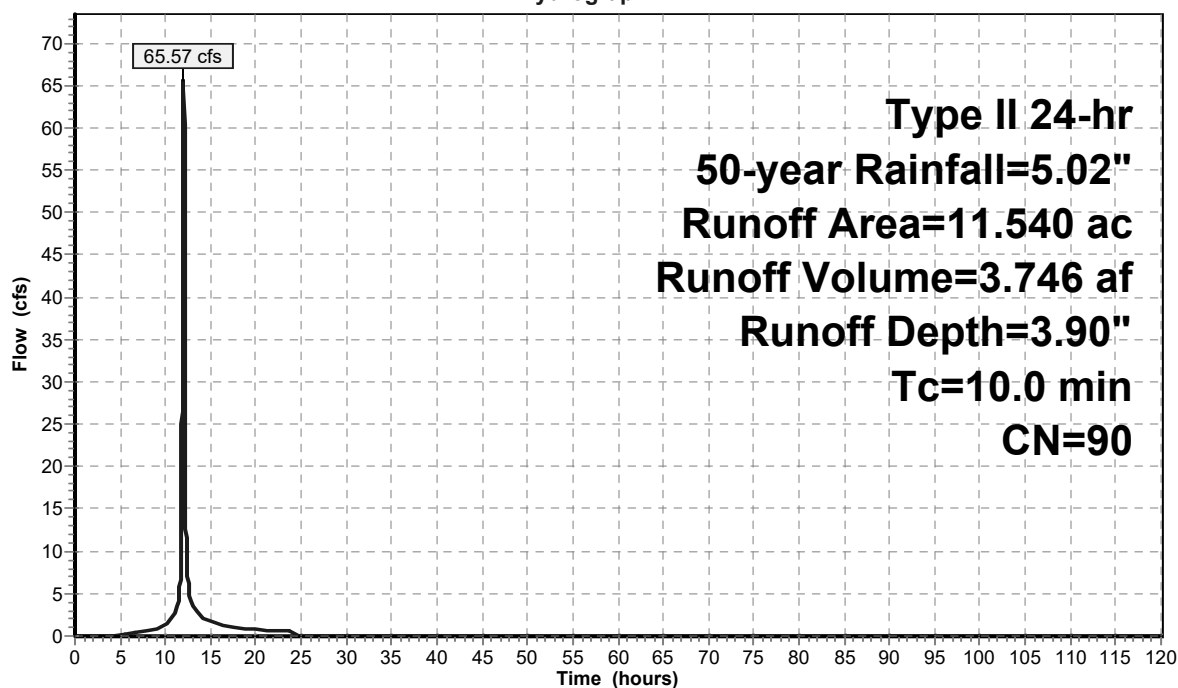
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 50-year Rainfall=5.02"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 11.540  | 90 |                       |
| 11.540    |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0        |                  |                  |                      |                   | Direct Entry, |

**Subcatchment 5S: post north**

Hydrograph



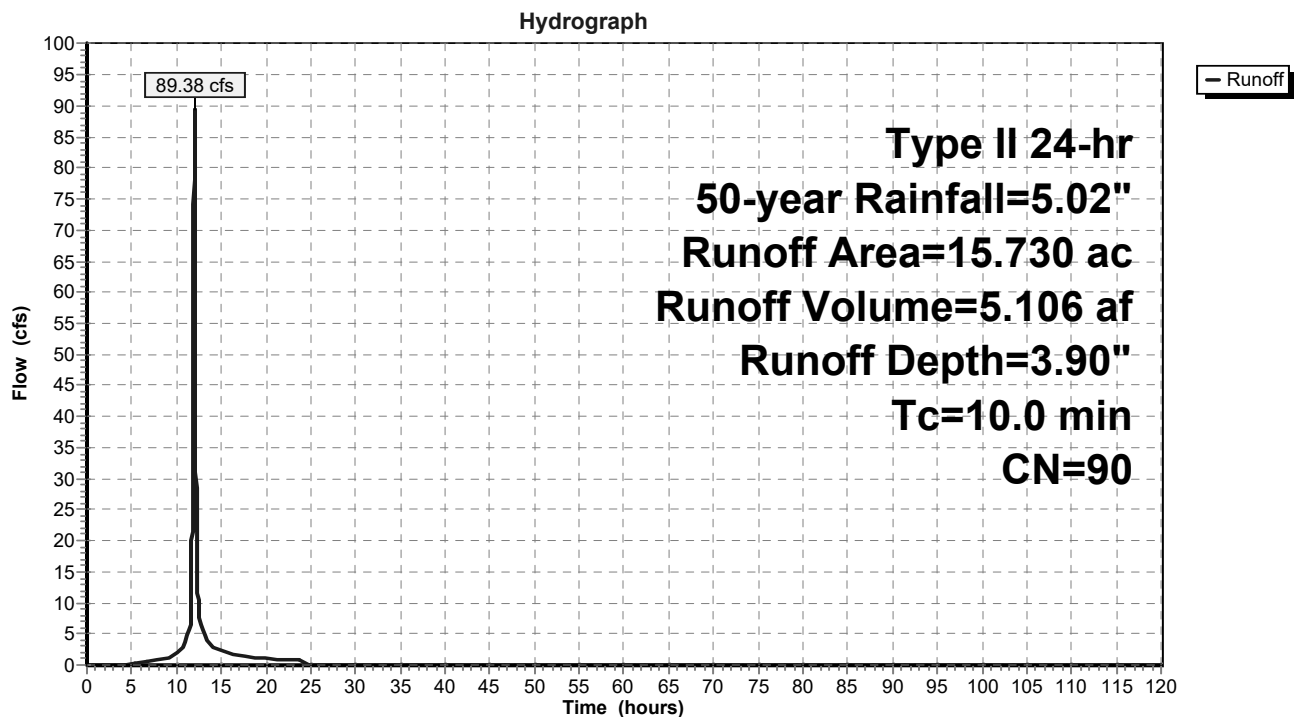
**Summary for Subcatchment 6S: post middle**

Runoff = 89.38 cfs @ 12.01 hrs, Volume= 5.106 af, Depth= 3.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 50-year Rainfall=5.02"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 15.730  | 90 |                       |
| 15.730    |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0        |                  |                  |                      |                   | Direct Entry, |

**Subcatchment 6S: post middle**

**Summary for Subcatchment 8S: post Subarea "A"**

Runoff = 66.41 cfs @ 11.96 hrs, Volume= 3.365 af, Depth= 4.33"

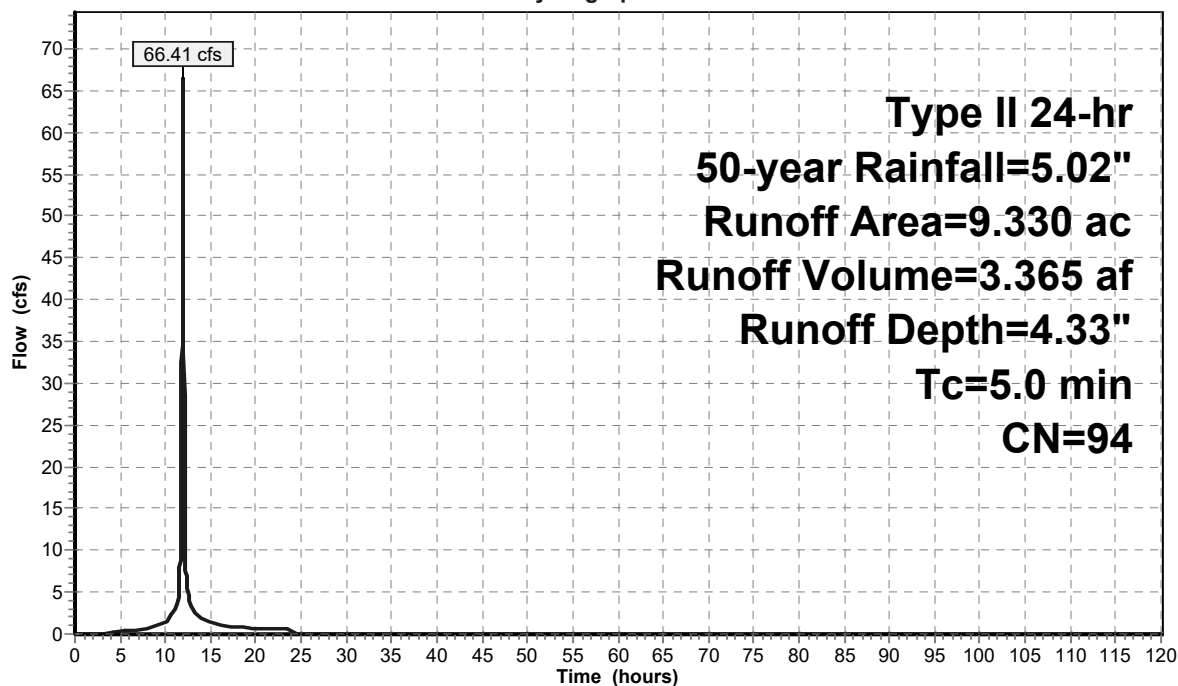
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 50-year Rainfall=5.02"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 9.330   | 94 |                       |
| 9.330     |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 5.0         |                  |                  |                      |                   | Direct Entry, |

**Subcatchment 8S: post Subarea "A"**

Hydrograph



**Summary for Pond 9P: Subarea B north SWMA**

Inflow Area = 11.540 ac, 0.00% Impervious, Inflow Depth = 3.90" for 50-year event  
 Inflow = 65.57 cfs @ 12.01 hrs, Volume= 3.746 af  
 Outflow = 1.06 cfs @ 17.80 hrs, Volume= 3.713 af, Atten= 98%, Lag= 347.2 min  
 Primary = 1.06 cfs @ 17.80 hrs, Volume= 3.713 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 927.25' @ 17.80 hrs Surf.Area= 47,529 sf Storage= 120,956 cf

Plug-Flow detention time= 1,418.3 min calculated for 3.713 af (99% of inflow)  
 Center-of-Mass det. time= 1,412.6 min ( 2,203.7 - 791.1 )

| Volume | Invert  | Avail.Storage | Storage Description  |
|--------|---------|---------------|--|
| #1     | 924.40' | 157,610 cf    | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40              | 37,449               | 0                         | 0                         |
| 925.00              | 39,518               | 23,090                    | 23,090                    |
| 926.00              | 43,009               | 41,264                    | 64,354                    |
| 927.00              | 46,603               | 44,806                    | 109,160                   |
| 928.00              | 50,297               | 48,450                    | 157,610                   |

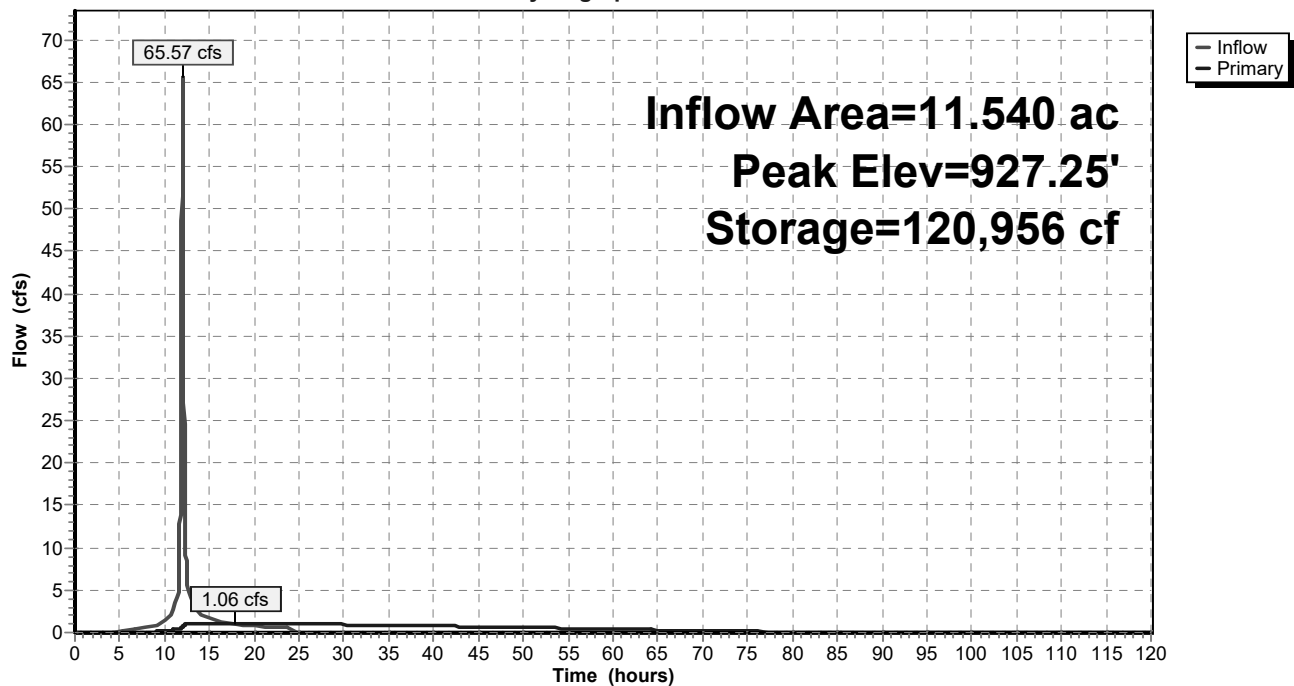
| Device | Routing | Invert  | Outlet Devices   |
|--------|---------|---------|--|
| #1     | Primary | 924.40' | <b>3.5" Vert. Orifice/Grate X 2.00</b> C= 0.600  |
| #2     | Primary | 927.50' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads  |
| #3     | Primary | 927.50' | <b>20.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b><br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

**Primary OutFlow** Max=1.06 cfs @ 17.80 hrs HW=927.25' (Free Discharge)

1=Orifice/Grate (Orifice Controls 1.06 cfs @ 7.92 fps)  
 2=Orifice/Grate ( Controls 0.00 cfs)  
 3=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

**Pond 9P: Subarea B north SWMA**

Hydrograph



**Summary for Pond 10P: Subarea B middle SWMA**

Inflow Area = 15.730 ac, 0.00% Impervious, Inflow Depth = 3.90" for 50-year event  
 Inflow = 89.38 cfs @ 12.01 hrs, Volume= 5.106 af  
 Outflow = 7.01 cfs @ 12.64 hrs, Volume= 5.012 af, Atten= 92%, Lag= 37.9 min  
 Primary = 7.01 cfs @ 12.64 hrs, Volume= 5.012 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 926.74' @ 12.64 hrs Surf.Area= 61,803 sf Storage= 131,608 cf

Plug-Flow detention time= 656.9 min calculated for 5.012 af (98% of inflow)  
 Center-of-Mass det. time= 645.3 min ( 1,436.3 - 791.1 )

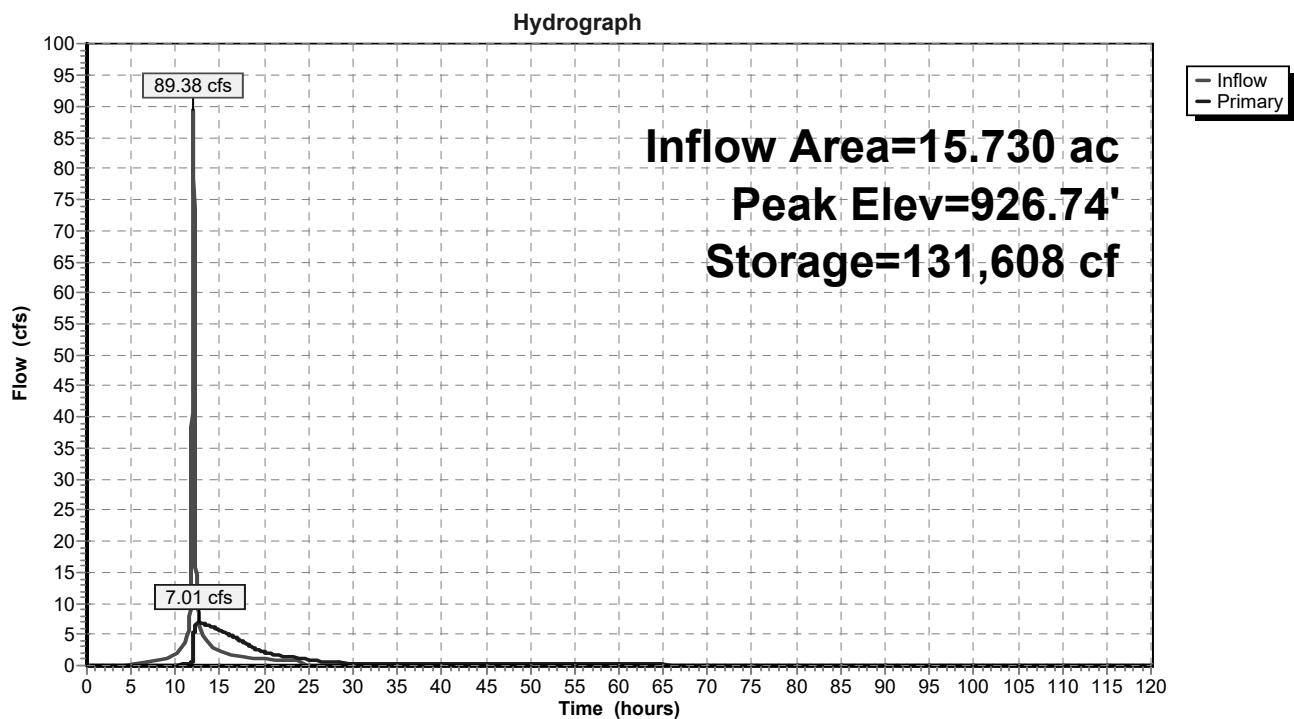
| Volume | Invert  | Avail.Storage | Storage Description  |
|--------|---------|---------------|--|
| #1     | 924.40' | 213,101 cf    | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40              | 50,550               | 0                         | 0                         |
| 925.00              | 53,377               | 31,178                    | 31,178                    |
| 926.00              | 58,164               | 55,771                    | 86,949                    |
| 927.00              | 63,051               | 60,608                    | 147,556                   |
| 928.00              | 68,038               | 65,545                    | 213,101                   |

| Device | Routing | Invert  | Outlet Devices  |
|--------|---------|---------|---|
| #1     | Primary | 924.40' | <b>4.0" Vert. Orifice/Grate</b> C= 0.600  |
| #2     | Primary | 925.25' | <b>24.0" W x 7.0" H Vert. Orifice/Grate</b> C= 0.600  |
| #3     | Primary | 926.70' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=7.00 cfs @ 12.64 hrs HW=926.74' (Free Discharge)

↑  
 1=Orifice/Grate (Orifice Controls 0.62 cfs @ 7.11 fps)  
 2=Orifice/Grate (Orifice Controls 6.15 cfs @ 5.27 fps)  
 3=Orifice/Grate (Weir Controls 0.24 cfs @ 0.69 fps)

**Pond 10P: Subarea B middle SWMA**

**Summary for Pond 12P: Subarea "A" SWMA**

Inflow Area = 9.330 ac, 0.00% Impervious, Inflow Depth = 4.33" for 50-year event  
 Inflow = 66.41 cfs @ 11.96 hrs, Volume= 3.365 af  
 Outflow = 2.65 cfs @ 13.21 hrs, Volume= 3.327 af, Atten= 96%, Lag= 75.2 min  
 Primary = 2.65 cfs @ 13.21 hrs, Volume= 3.327 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 932.59' @ 13.21 hrs Surf.Area= 42,096 sf Storage= 96,205 cf

Plug-Flow detention time= 878.9 min calculated for 3.326 af (99% of inflow)  
 Center-of-Mass det. time= 871.9 min ( 1,640.8 - 768.9 )

| Volume | Invert  | Avail.Storage | Storage Description  |
|--------|---------|---------------|--|
| #1     | 930.00' | 159,374 cf    | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 930.00              | 32,218               | 0                         | 0                         |
| 931.00              | 35,943               | 34,081                    | 34,081                    |
| 932.00              | 39,768               | 37,856                    | 71,936                    |
| 933.00              | 43,694               | 41,731                    | 113,667                   |
| 934.00              | 47,719               | 45,707                    | 159,374                   |

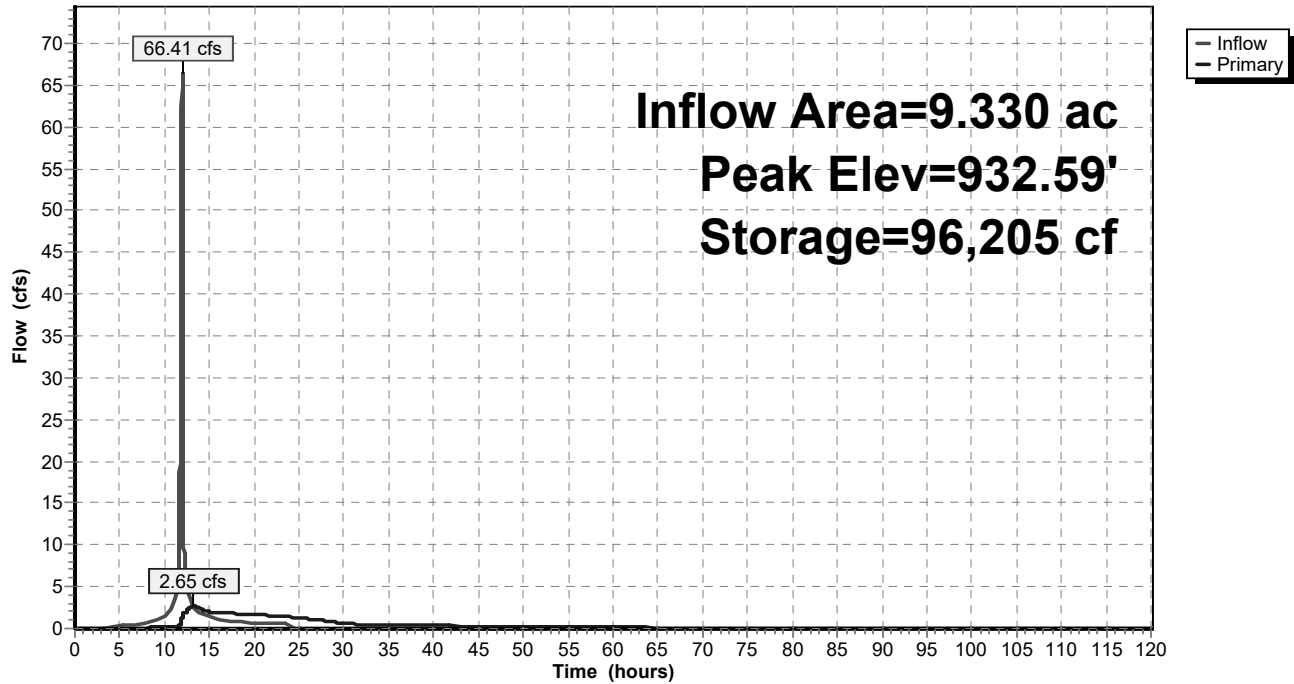
| Device | Routing | Invert  | Outlet Devices  |
|--------|---------|---------|---|
| #1     | Primary | 930.00' | <b>4.0" Vert. Orifice/Grate</b> C= 0.600  |
| #2     | Primary | 931.00' | <b>8.0" W x 4.0" H Vert. Orifice/Grate</b> C= 0.600   |
| #3     | Primary | 932.50' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=2.64 cfs @ 13.21 hrs HW=932.59' (Free Discharge)

↑  
 1=Orifice/Grate (Orifice Controls 0.65 cfs @ 7.50 fps)  
 2=Orifice/Grate (Orifice Controls 1.28 cfs @ 5.75 fps)  
 3=Orifice/Grate (Weir Controls 0.71 cfs @ 1.00 fps)

**Pond 12P: Subarea "A" SWMA**

Hydrograph



**Summary for Subcatchment 1S: pre north**

Runoff = 17.84 cfs @ 12.21 hrs, Volume= 1.595 af, Depth= 3.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 100-year Rainfall=5.63"

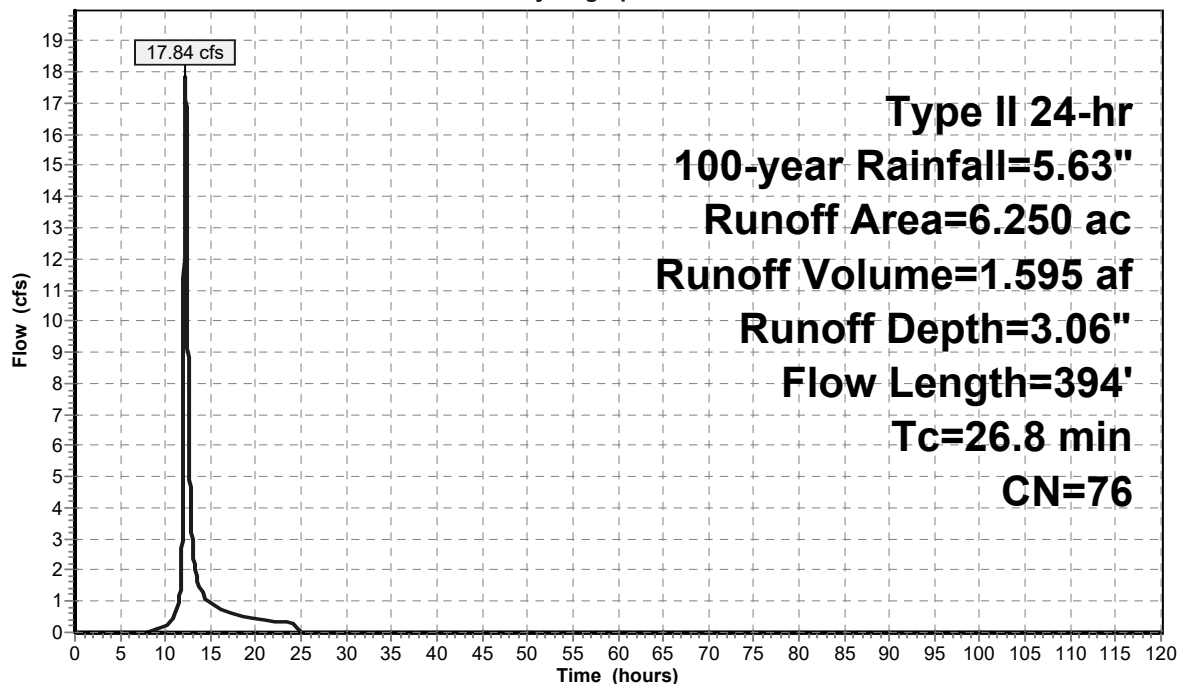
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 3.710   | 78 |                       |
| * 2.540   | 74 |                       |
| 6.250     | 76 | Weighted Average      |
| 6.250     |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---|
| 20.8     | 100           | 0.0100        | 0.08              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 2.63"                |
| 6.0      | 294           | 0.0136        | 0.82              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps |
| 26.8     | 394           | Total         |                   |                |   |

**Subcatchment 1S: pre north**

Hydrograph



**Summary for Subcatchment 2S: pre middle**

Runoff = 39.89 cfs @ 12.28 hrs, Volume= 4.140 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 100-year Rainfall=5.63"

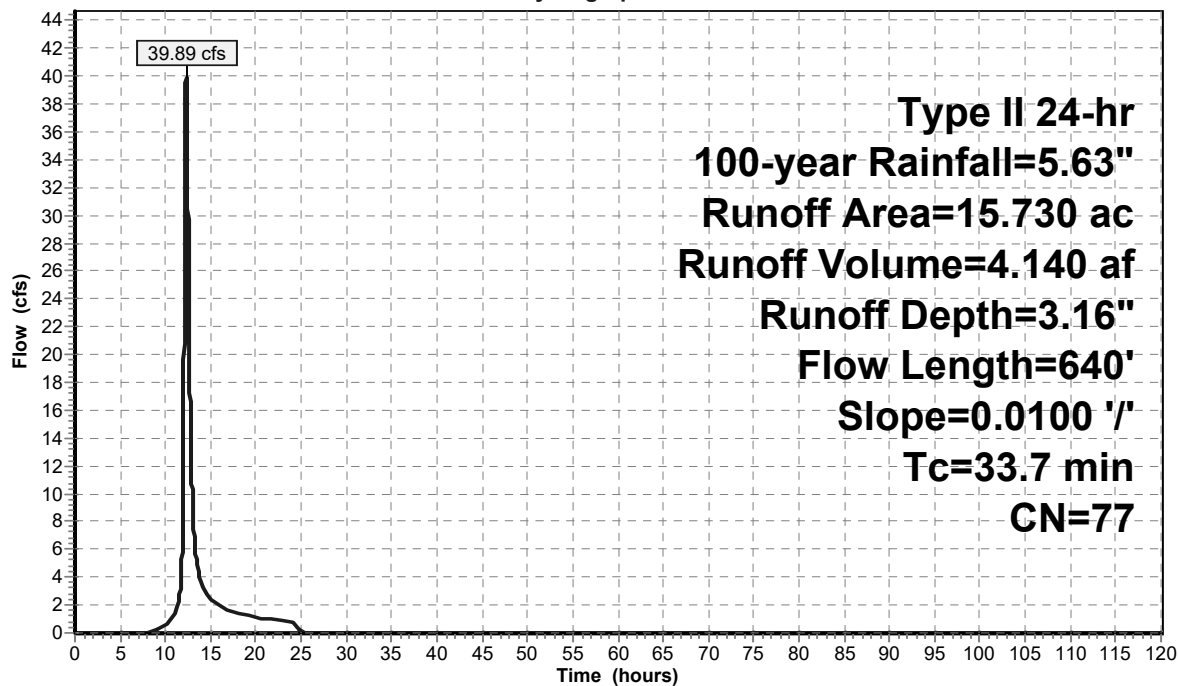
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 8.860   | 78 |                       |
| * 3.080   | 74 |                       |
| * 3.790   | 78 |                       |
| 15.730    | 77 | Weighted Average      |
| 15.730    |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---|
| 20.8     | 100           | 0.0100        | 0.08              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 2.63"                |
| 12.9     | 540           | 0.0100        | 0.70              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps |
| 33.7     | 640           | Total         |                   |                |   |

**Subcatchment 2S: pre middle**

Hydrograph



**Summary for Subcatchment 4S: pre Subarea "A"**

Runoff = 23.00 cfs @ 12.32 hrs, Volume= 2.455 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 100-year Rainfall=5.63"

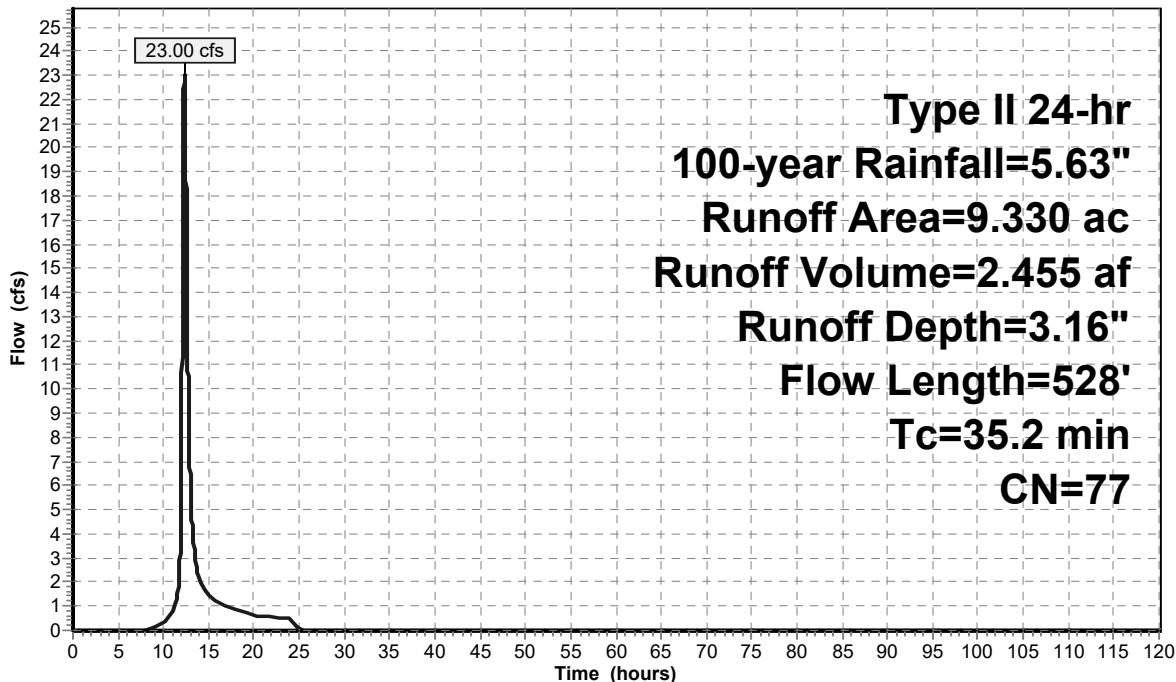
| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 7.180   | 78 |                       |
| * 2.150   | 74 |                       |
| 9.330     | 77 | Weighted Average      |
| 9.330     |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description   |
|----------|---------------|---------------|-------------------|----------------|---|
| 20.8     | 100           | 0.0100        | 0.08              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 2.63"                |
| 14.4     | 428           | 0.0050        | 0.49              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps |
| 35.2     | 528           | Total         |                   |                |   |

**Subcatchment 4S: pre Subarea "A"**

Hydrograph



**Summary for Subcatchment 5S: post north**

Runoff = 74.87 cfs @ 12.01 hrs, Volume= 4.314 af, Depth= 4.49"

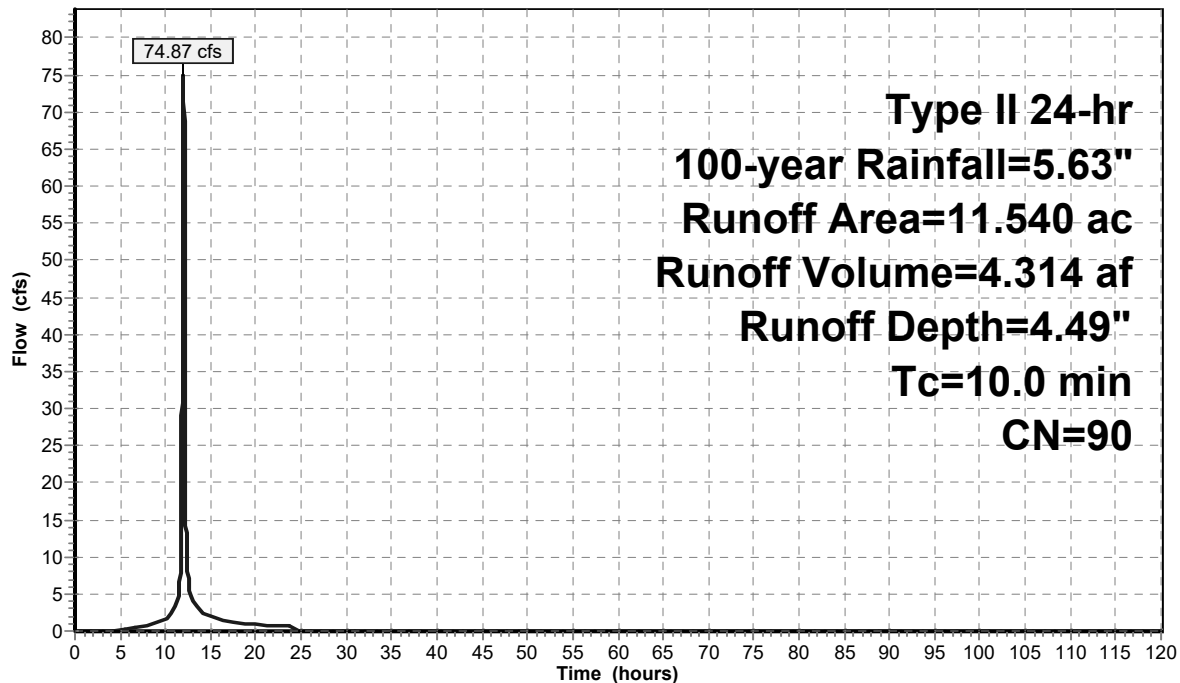
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 100-year Rainfall=5.63"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 11.540  | 90 |                       |
| 11.540    |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0        |                  |                  |                      |                   | Direct Entry, |

**Subcatchment 5S: post north**

Hydrograph



**Summary for Subcatchment 6S: post middle**

Runoff = 102.06 cfs @ 12.01 hrs, Volume= 5.880 af, Depth= 4.49"

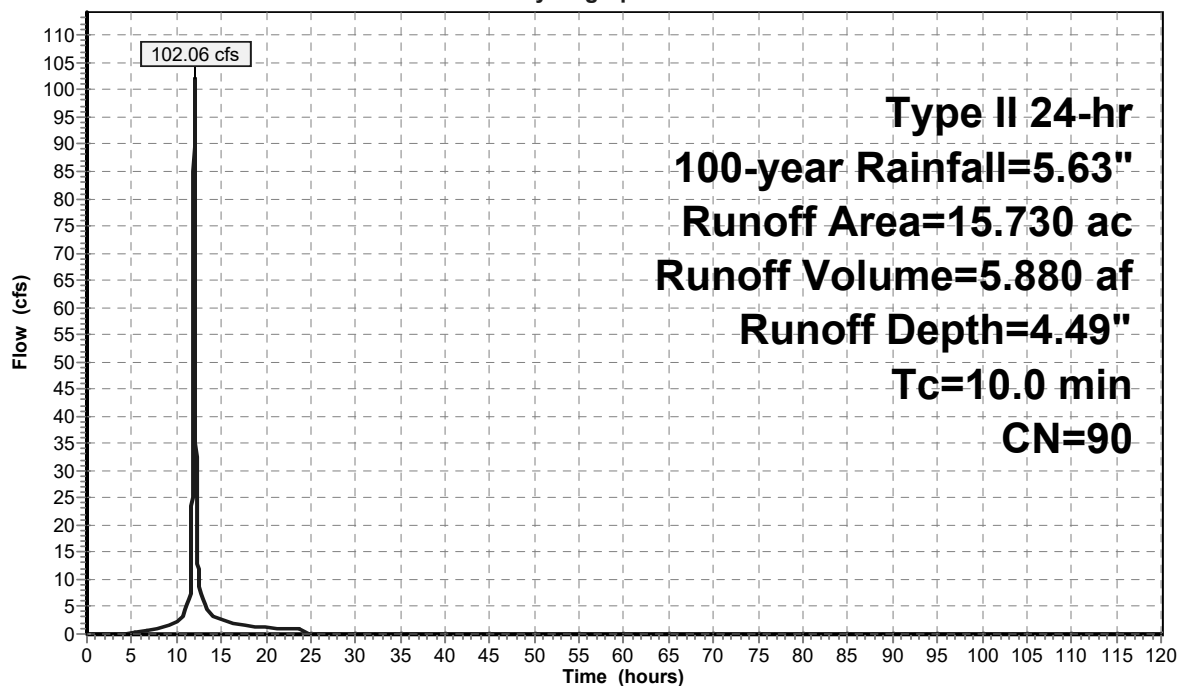
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 100-year Rainfall=5.63"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 15.730  | 90 |                       |
| 15.730    |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0        |                  |                  |                      |                   | Direct Entry, |

**Subcatchment 6S: post middle**

Hydrograph



**Summary for Subcatchment 8S: post Subarea "A"**

Runoff = 75.03 cfs @ 11.96 hrs, Volume= 3.833 af, Depth= 4.93"

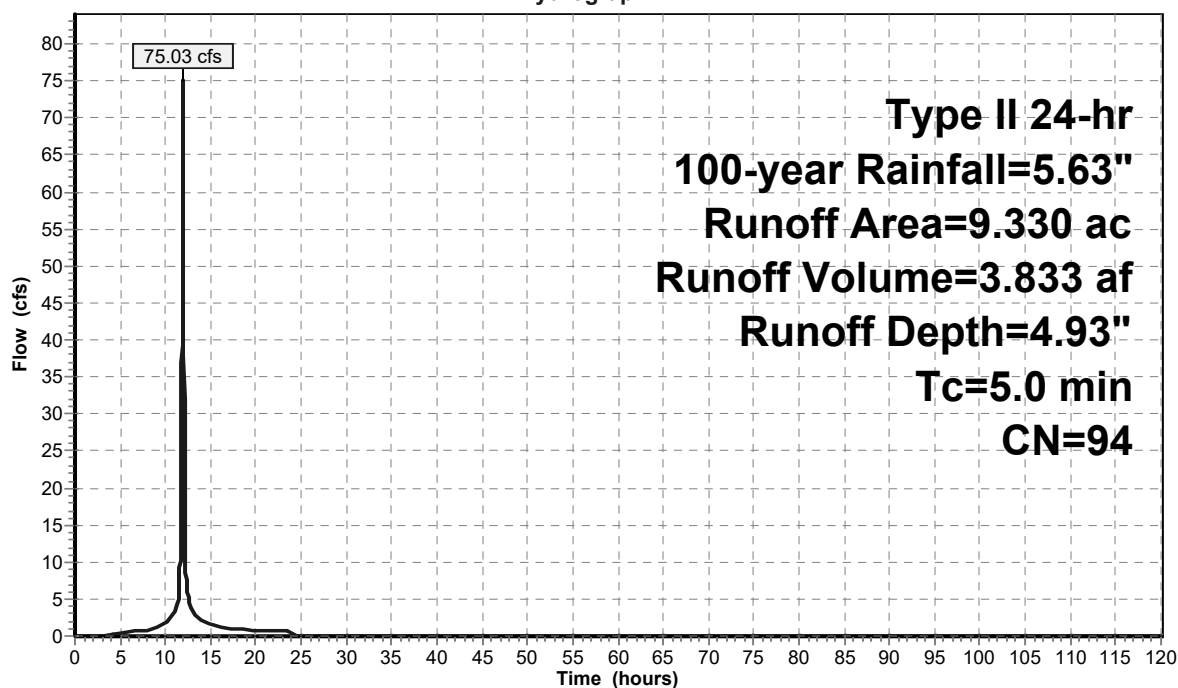
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 100-year Rainfall=5.63"

| Area (ac) | CN | Description           |
|-----------|----|-----------------------|
| * 9.330   | 94 |                       |
| 9.330     |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description   |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 5.0         |                  |                  |                      |                   | Direct Entry, |

**Subcatchment 8S: post Subarea "A"**

Hydrograph



**Summary for Pond 9P: Subarea B north SWMA**

Inflow Area = 11.540 ac, 0.00% Impervious, Inflow Depth = 4.49" for 100-year event  
 Inflow = 74.87 cfs @ 12.01 hrs, Volume= 4.314 af  
 Outflow = 1.95 cfs @ 15.02 hrs, Volume= 4.279 af, Atten= 97%, Lag= 180.6 min  
 Primary = 1.95 cfs @ 15.02 hrs, Volume= 4.279 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 927.55' @ 15.02 hrs Surf.Area= 48,628 sf Storage= 135,264 cf

Plug-Flow detention time= 1,421.0 min calculated for 4.278 af (99% of inflow)  
 Center-of-Mass det. time= 1,416.1 min ( 2,203.3 - 787.2 )

| Volume              | Invert               | Avail.Storage             | Storage Description  |
|---------------------|----------------------|---------------------------|--|
| #1                  | 924.40'              | 157,610 cf                | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |
| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet)                                  |
| 924.40              | 37,449               | 0                         | 0  |
| 925.00              | 39,518               | 23,090                    | 23,090   |
| 926.00              | 43,009               | 41,264                    | 64,354   |
| 927.00              | 46,603               | 44,806                    | 109,160  |
| 928.00              | 50,297               | 48,450                    | 157,610  |

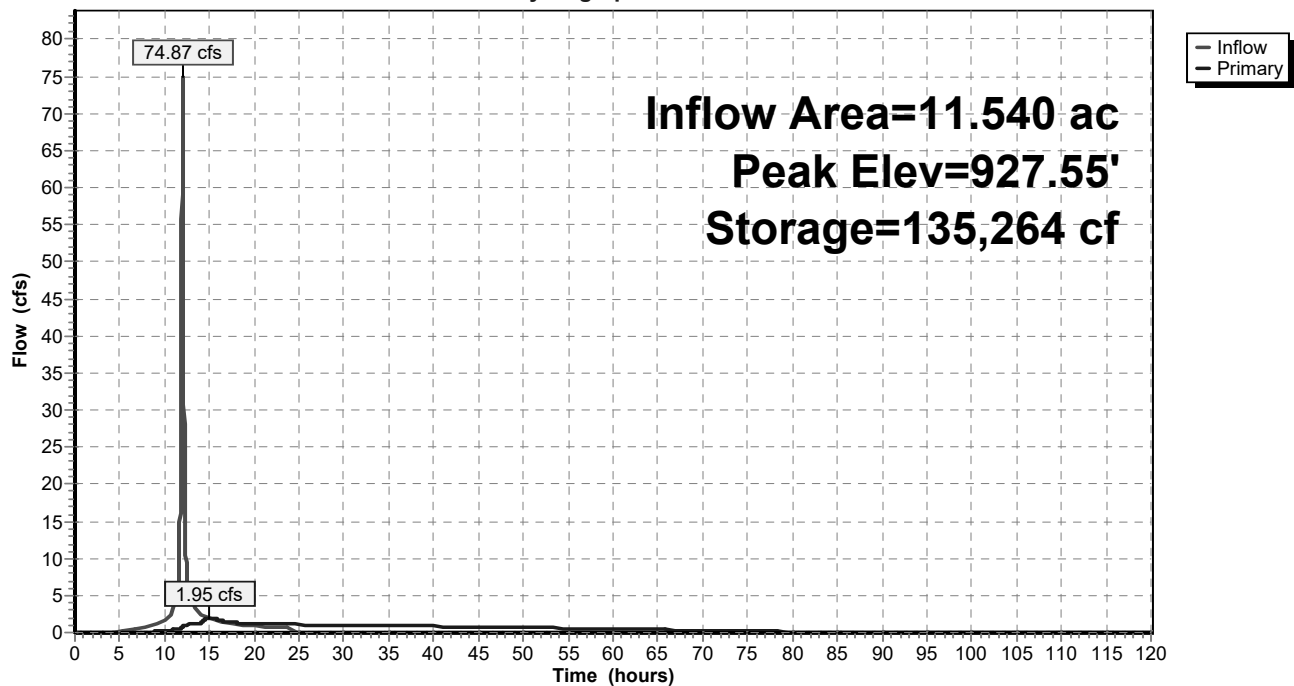
| Device | Routing | Invert  | Outlet Devices   |
|--------|---------|---------|--|
| #1     | Primary | 924.40' | <b>3.5" Vert. Orifice/Grate X 2.00</b> C= 0.600  |
| #2     | Primary | 927.50' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads  |
| #3     | Primary | 927.50' | <b>20.0' long x 10.0' breadth Broad-Crested Rectangular Weir</b><br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

**Primary OutFlow** Max=1.91 cfs @ 15.02 hrs HW=927.55' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 1.11 cfs @ 8.34 fps)
- 2=Orifice/Grate (Weir Controls 0.27 cfs @ 0.72 fps)
- 3=Broad-Crested Rectangular Weir (Weir Controls 0.53 cfs @ 0.55 fps)

**Pond 9P: Subarea B north SWMA**

Hydrograph



**Summary for Pond 10P: Subarea B middle SWMA**

Inflow Area = 15.730 ac, 0.00% Impervious, Inflow Depth = 4.49" for 100-year event  
 Inflow = 102.06 cfs @ 12.01 hrs, Volume= 5.880 af  
 Outflow = 11.54 cfs @ 12.45 hrs, Volume= 5.786 af, Atten= 89%, Lag= 26.3 min  
 Primary = 11.54 cfs @ 12.45 hrs, Volume= 5.786 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 927.00' @ 12.45 hrs Surf.Area= 63,049 sf Storage= 147,532 cf

Plug-Flow detention time= 595.0 min calculated for 5.786 af (98% of inflow)  
 Center-of-Mass det. time= 584.8 min ( 1,371.9 - 787.2 )

| Volume | Invert  | Avail.Storage | Storage Description  |
|--------|---------|---------------|--|
| #1     | 924.40' | 213,101 cf    | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40              | 50,550               | 0                         | 0                         |
| 925.00              | 53,377               | 31,178                    | 31,178                    |
| 926.00              | 58,164               | 55,771                    | 86,949                    |
| 927.00              | 63,051               | 60,608                    | 147,556                   |
| 928.00              | 68,038               | 65,545                    | 213,101                   |

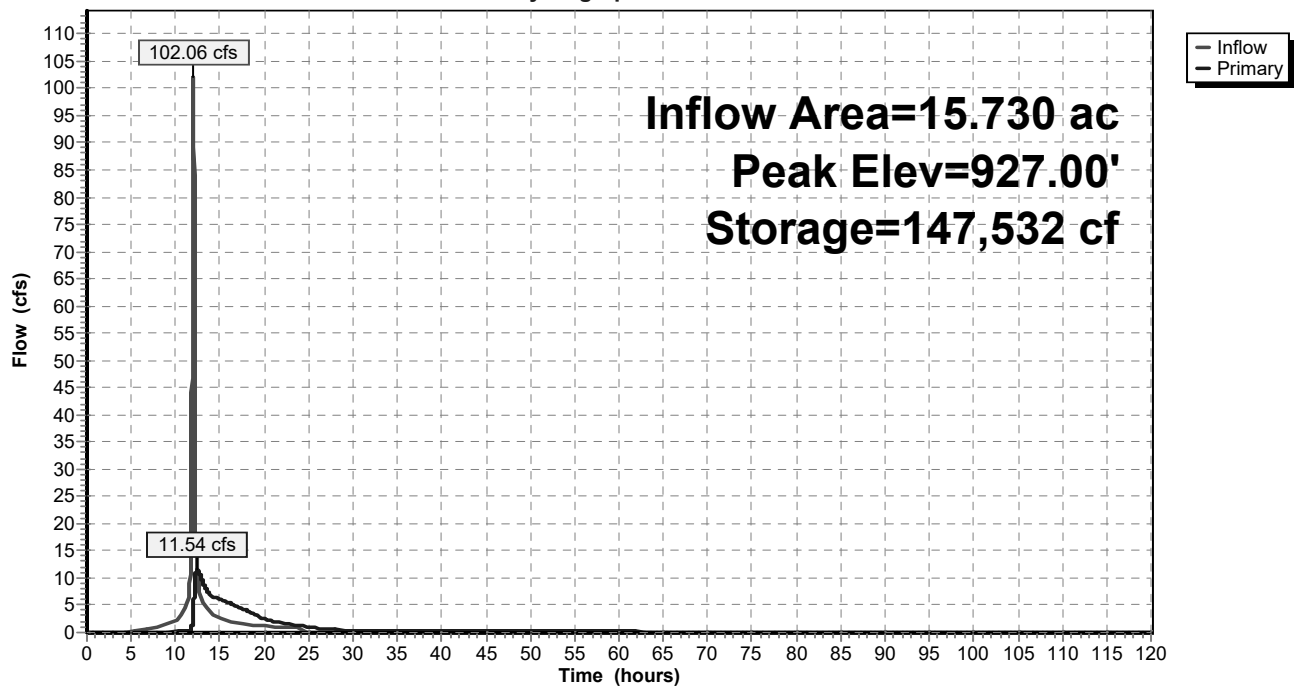
| Device | Routing | Invert  | Outlet Devices  |
|--------|---------|---------|---|
| #1     | Primary | 924.40' | <b>4.0" Vert. Orifice/Grate</b> C= 0.600  |
| #2     | Primary | 925.25' | <b>24.0" W x 7.0" H Vert. Orifice/Grate</b> C= 0.600  |
| #3     | Primary | 926.70' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads |

**Primary OutFlow** Max=11.54 cfs @ 12.45 hrs HW=927.00' (Free Discharge)

↑  
**1=Orifice/Grate** (Orifice Controls 0.66 cfs @ 7.51 fps)  
**2=Orifice/Grate** (Orifice Controls 6.77 cfs @ 5.80 fps)  
**3=Orifice/Grate** (Weir Controls 4.11 cfs @ 1.79 fps)

**Pond 10P: Subarea B middle SWMA**

Hydrograph



**Summary for Pond 12P: Subarea "A" SWMA**

Inflow Area = 9.330 ac, 0.00% Impervious, Inflow Depth = 4.93" for 100-year event  
 Inflow = 75.03 cfs @ 11.96 hrs, Volume= 3.833 af  
 Outflow = 5.36 cfs @ 12.51 hrs, Volume= 3.795 af, Atten= 93%, Lag= 33.0 min  
 Primary = 5.36 cfs @ 12.51 hrs, Volume= 3.795 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 932.76' @ 12.51 hrs Surf.Area= 42,753 sf Storage= 103,312 cf

Plug-Flow detention time= 801.4 min calculated for 3.794 af (99% of inflow)  
 Center-of-Mass det. time= 795.2 min ( 1,560.9 - 765.7 )

| Volume | Invert  | Avail.Storage | Storage Description  |
|--------|---------|---------------|--|
| #1     | 930.00' | 159,374 cf    | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |

| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 930.00              | 32,218               | 0                         | 0                         |
| 931.00              | 35,943               | 34,081                    | 34,081                    |
| 932.00              | 39,768               | 37,856                    | 71,936                    |
| 933.00              | 43,694               | 41,731                    | 113,667                   |
| 934.00              | 47,719               | 45,707                    | 159,374                   |

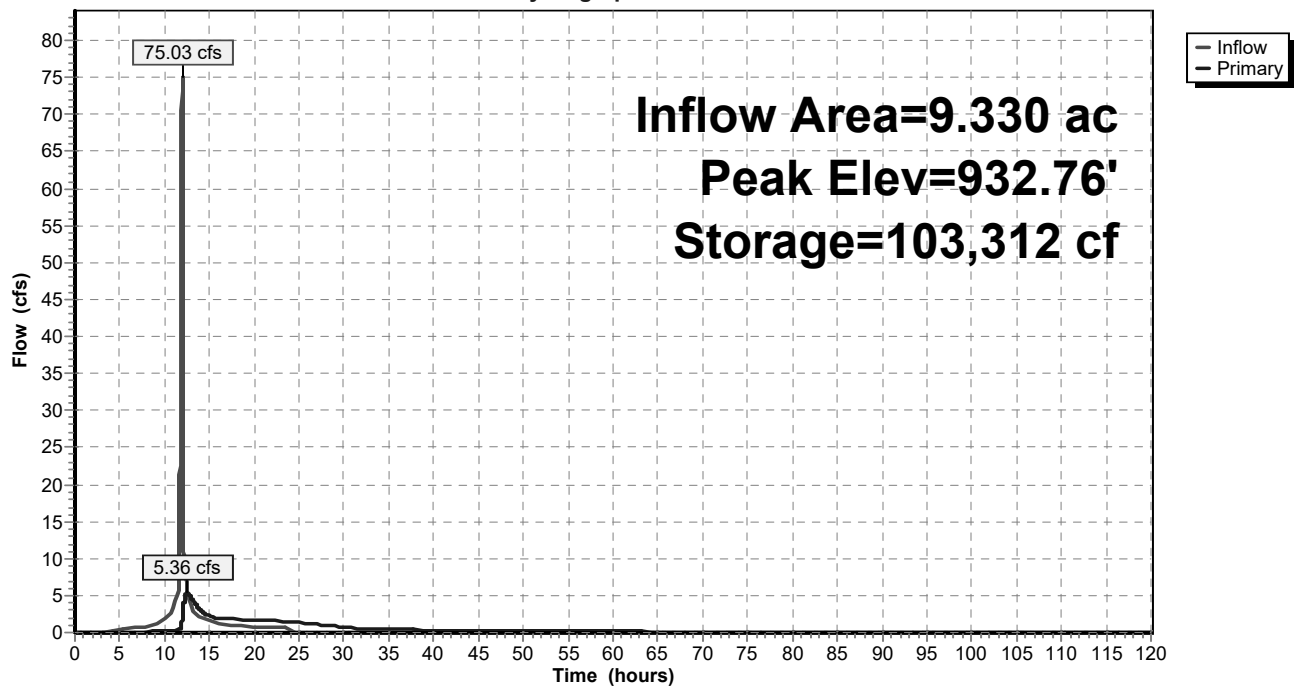
| Device | Routing | Invert  | Outlet Devices  |
|--------|---------|---------|---|
| #1     | Primary | 930.00' | <b>4.0" Vert. Orifice/Grate</b> C= 0.600  |
| #2     | Primary | 931.00' | <b>8.0" W x 4.0" H Vert. Orifice/Grate</b> C= 0.600   |
| #3     | Primary | 932.50' | <b>1.9" x 24.0" Horiz. Orifice/Grate X 8.00</b><br>C= 0.600 in 23.0" x 23.0" Grate (69% open area)<br>Limited to weir flow at low heads |

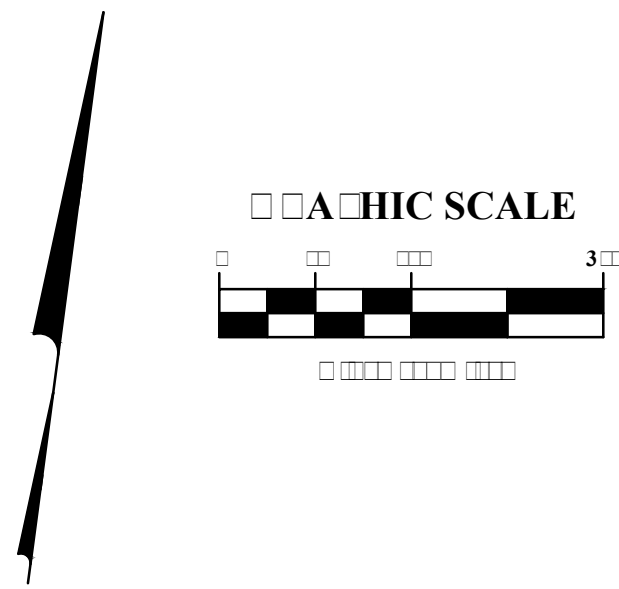
**Primary OutFlow** Max=5.36 cfs @ 12.51 hrs HW=932.76' (Free Discharge)

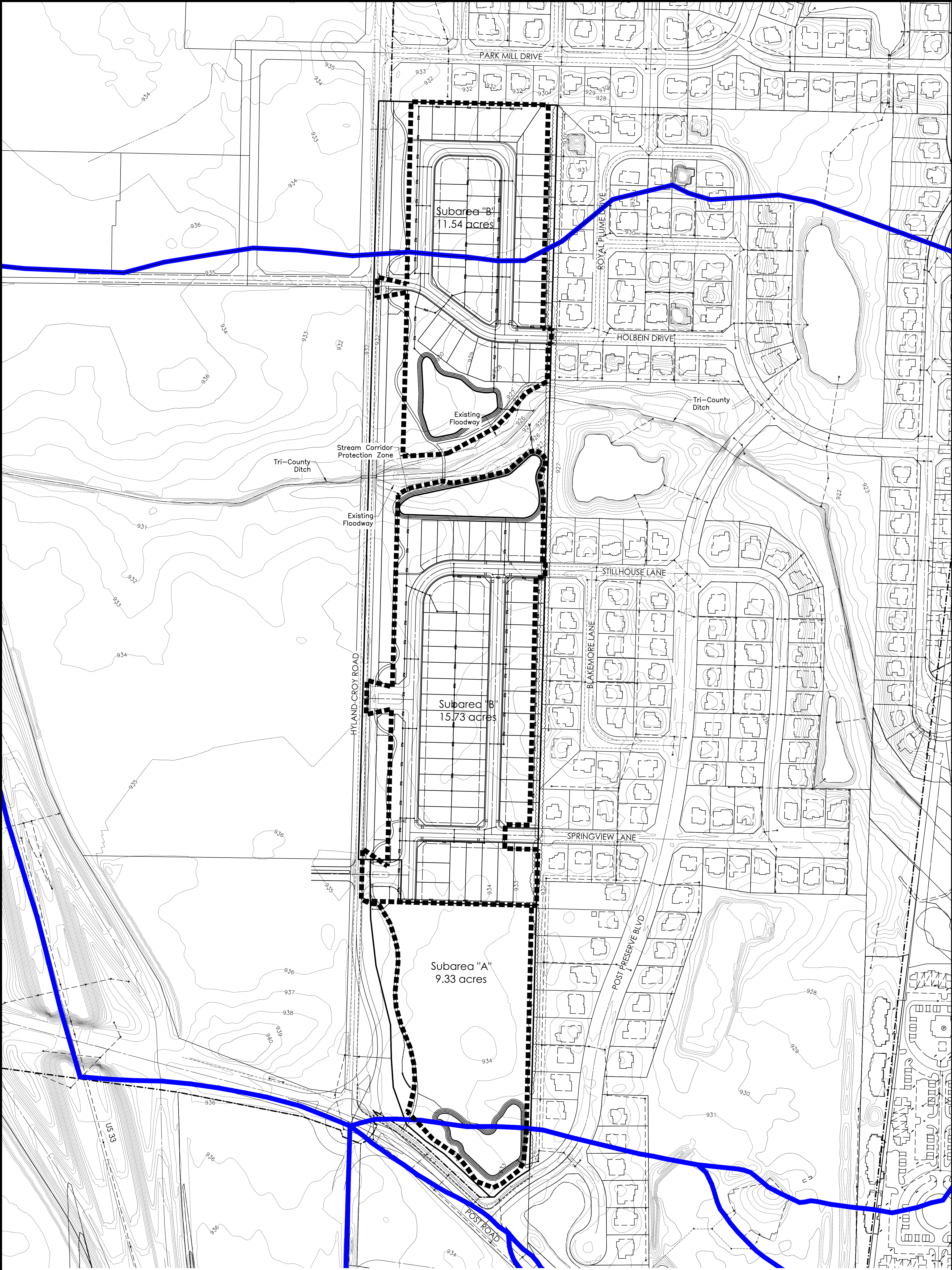
↑  
 1=Orifice/Grate (Orifice Controls 0.68 cfs @ 7.75 fps)  
 2=Orifice/Grate (Orifice Controls 1.35 cfs @ 6.08 fps)  
 3=Orifice/Grate (Weir Controls 3.33 cfs @ 1.67 fps)

**Pond 12P: Subarea "A" SWMA**

Hydrograph



[illegible]



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Tributary Area Line

Dublin Master Plan Boundaries

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CITY OF COLUMBIA, OHIO

STORMWATER MANAGEMENT PLAN

POST-EVELOPMENT CONDITIONS

MA

DATE

DESCRIPTION

REVISIONS

PRELIMINARY DEVELOPMENT PLAN  
SECTION II  
Preliminary Development Plan Exhibits

# DUBLIN GATEWAY PRELIMINARY DEVELOPMENT PLAN

DUBLIN, OHIO

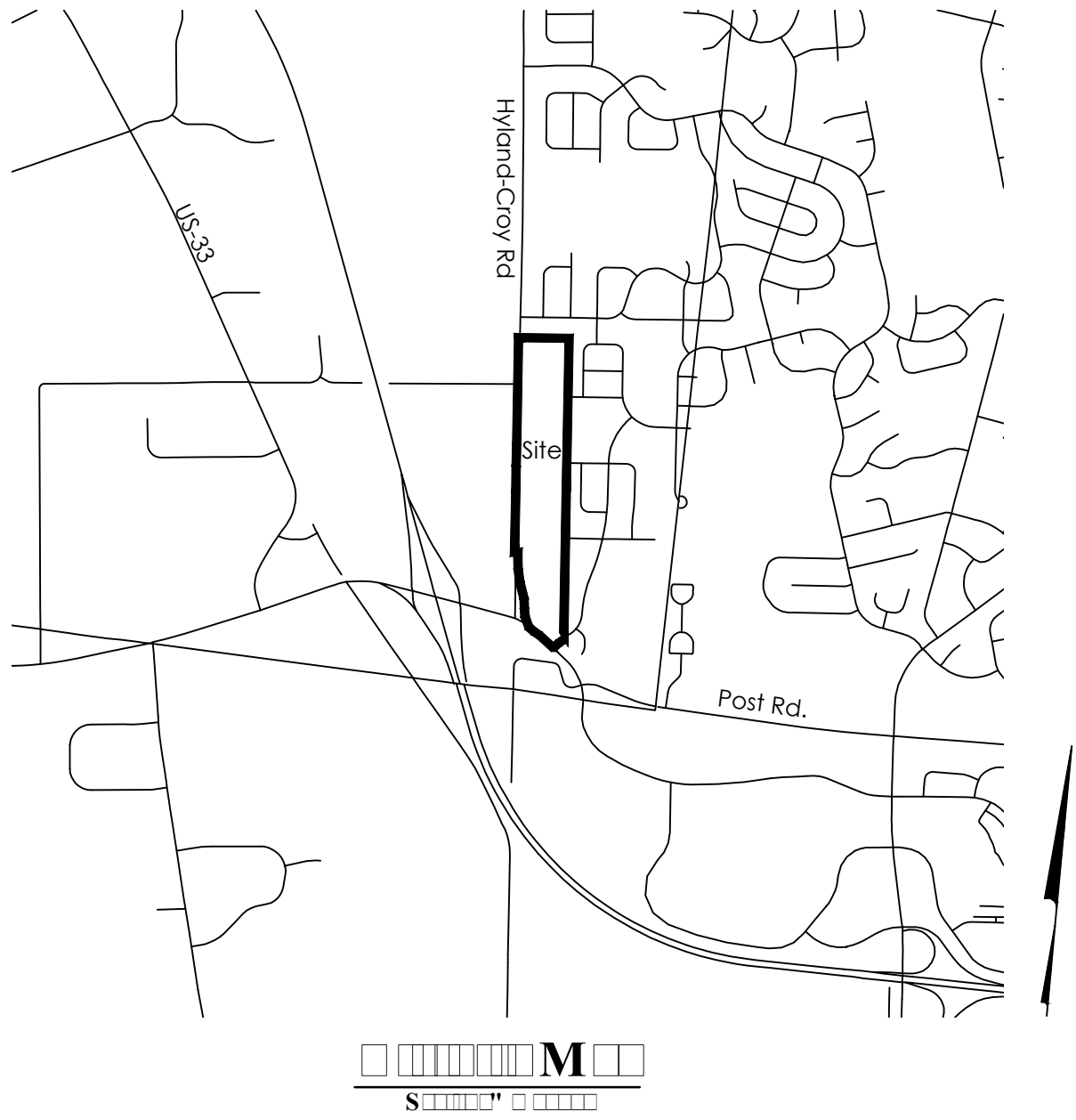
PREPARED FOR:

SCHOTTENSTEIN REAL ESTATE GROUP

2 EASTON OVAL, SUITE 150

COLUMBUS, OH 43219

P: 614.418.8915



## INDEX OF DRAWINGS

1. REGIONAL CONTEXT MAP
2. VICINITY MAP
3. EXISTING CONDITIONS
4. ILLUSTRATIVE PLAN
5. SITE PLAN
6. SUBAREA & PHASING MAP
7. OPEN SPACE & CONNECTIVITY
8. OVERALL LANDSCAPE PLAN
9. HYLAND-CROY RURAL CORRIDOR ENLARGEMENT
10. LANDSCAPE NOTES & DETAILS
11. UTILITY PLAN
12. UTILITY PLAN
13. UTILITY PLAN
14. GRADING PLAN
15. GRADING PLAN
16. GRADING PLAN
17. STREET SECTIONS
18. EX TREE SURVEY
19. EX TREE DATA

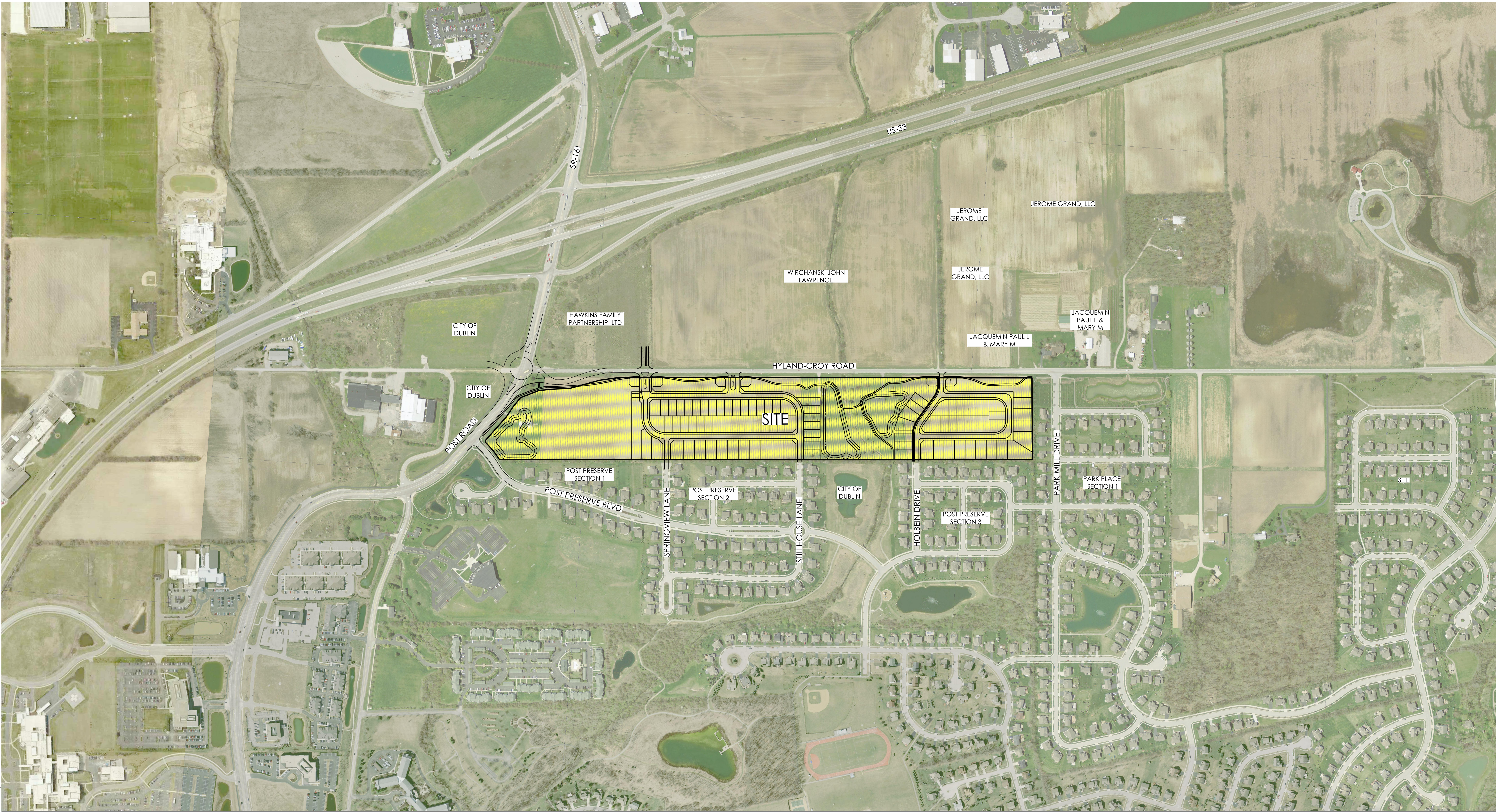
FEBRUARY 4, 2020

CIVIL ENGINEER &  
LANDSCAPE ARCHITECT



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# DUBLIN GATEWAY

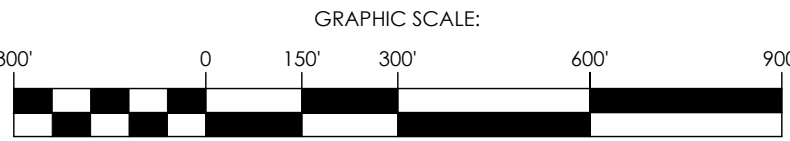
CITY OF DUBLIN, UNION COUNTY, OHIO  
PRELIMINARY DEVELOPMENT PLAN

SCHOTTENSTEIN REAL ESTATE GROUP  
2 Easton Oval, Suite 150  
Columbus, OH 43219

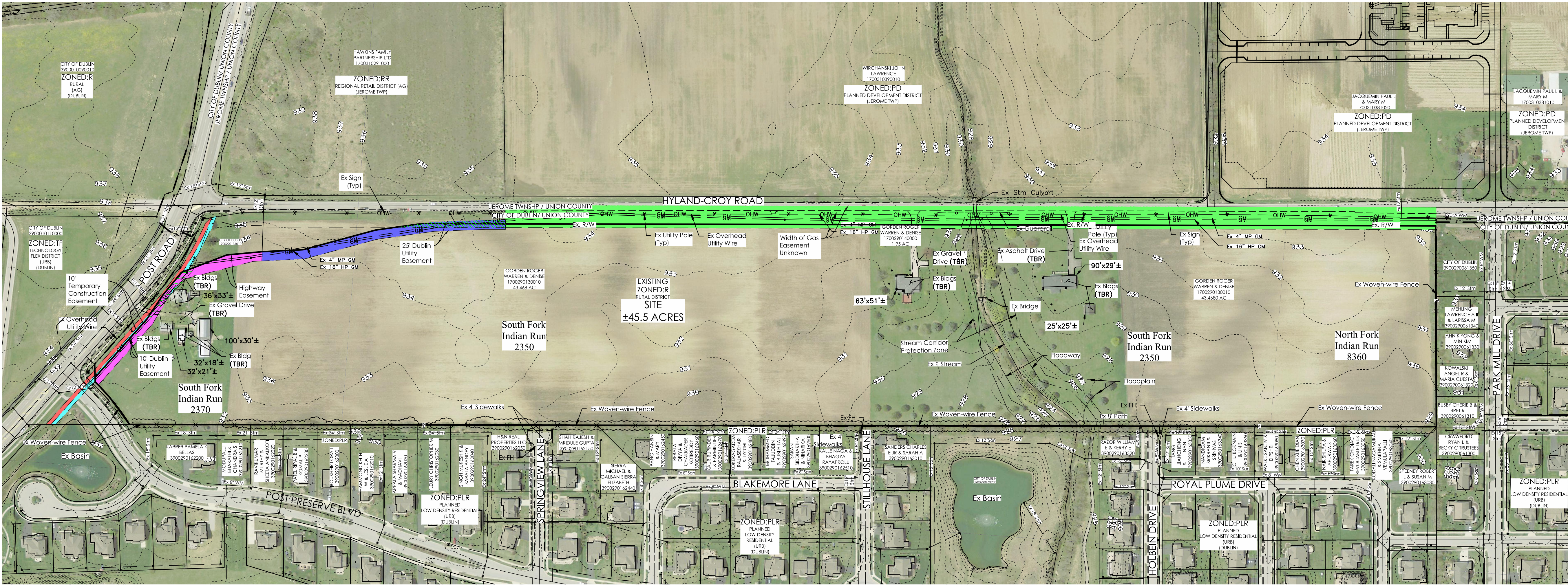
PREPARED BY:



## REGIONAL CONTEXT PLAN







- KEY:
- Gas Easement
  - Gas Easement
  - 25' Dublin Utility Easement  
(No Description of Facilities Contained Within)
  - 10' Dublin Utility Easement  
(No Description of Facilities Contained Within)
  - Highway Easement
  - 10' Temporary Construction Easement

NOTES:

See Tree Survey Plan, Sheets 18-19 for tree locations.

TBR - To Be Removed

# DUBLIN GATEWAY

CITY OF DUBLIN, UNION COUNTY, OHIO

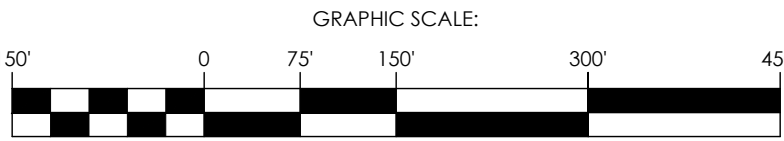
PRELIMINARY DEVELOPMENT PLAN

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2 Easton Oval, Suite 150  
Columbus, OH 43219

PREPARED BY:



## EXISTING CONDITIONS



SHEET  
319



**NOTE:**  
Future Post Road/Hyland-Croy Road roundabout shown for reference only.

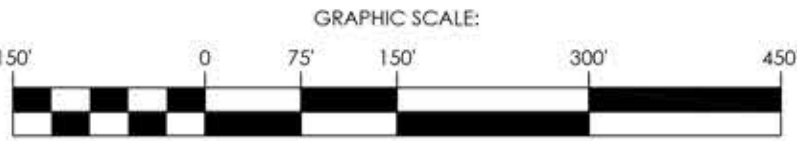
**DUBLIN GATEWAY**  
CITY OF DUBLIN, UNION COUNTY, OHIO  
PRELIMINARY DEVELOPMENT PLAN

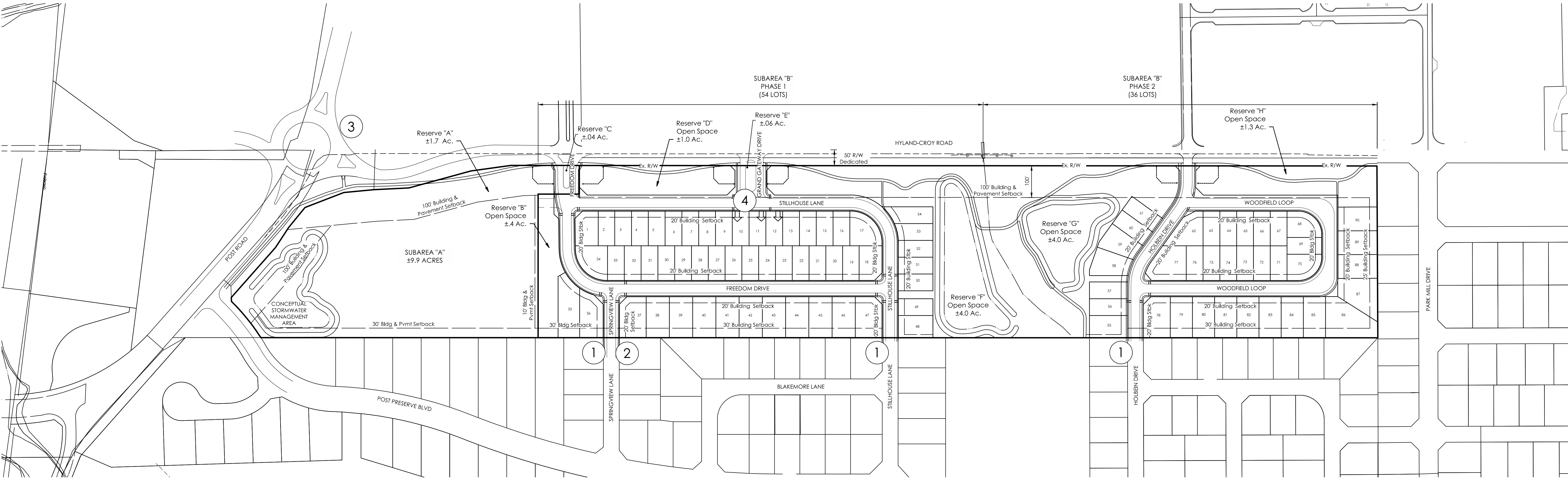
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**ILLUSTRATIVE PLAN**





**SITE STATISTICS: (OVERALL)**

|                              |                     |
|------------------------------|---------------------|
| TOTAL ACREAGE:               | ±45.5 ACRES         |
| TOTAL RESIDENTIAL UNITS      |                     |
| (200) ACLF SUBAREA A         |                     |
| (90) SINGLE FAMILY SUBAREA B |                     |
| TOTAL OPEN SPACE             | ±12.4 ACRES/(27.3%) |
| (±1.7) SUBAREA A             |                     |
| (±10.7) SUBAREA B            |                     |

**SUBAREA A:**

|                        |            |
|------------------------|------------|
| ACREAGE:               | ±9.9 ACRES |
| UNITS PERMITTED:       | 200 UNITS  |
| OPEN SPACE (PROVIDED): | ±1.7 ACRES |

**SUBAREA B:**

|                      |                     |
|----------------------|---------------------|
| ACREAGE:             | ±35.6 ACRES         |
| LOTS:                | 90 DU               |
| GROSS DENSITY:       | ±2.5 DU/ACRE        |
| OPEN SPACE REQUIRED: | ±5.7 ACRES          |
| OPEN SPACE PROVIDED: | ±10.7 ACRES (30.0%) |

| NOTES: |   |
|--------|---|
| 1      | Proposed Public Streets will be Connected to Existing Streets   |
| 2      | Existing Hammerhead at Springview Lane to be Removed as Existing Easements Allow, with Street Connection to Proposed Development                |
| 3      | Future Post Road/Hyland-Croy Road Roundabout Shown for Reference Only   |
| 4      | Driveway Locations on Lots 10,11, and 12 Shall be Located on the Side of the Lot Indicated with Arrows to Avoid Conflicts with Incoming Traffic |

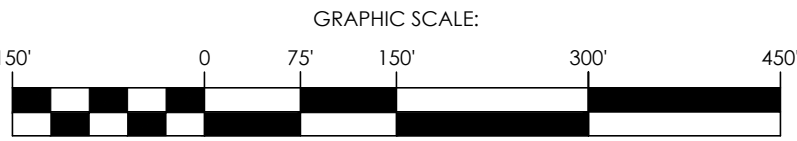
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PRELIMINARY DEVELOPMENT PLAN

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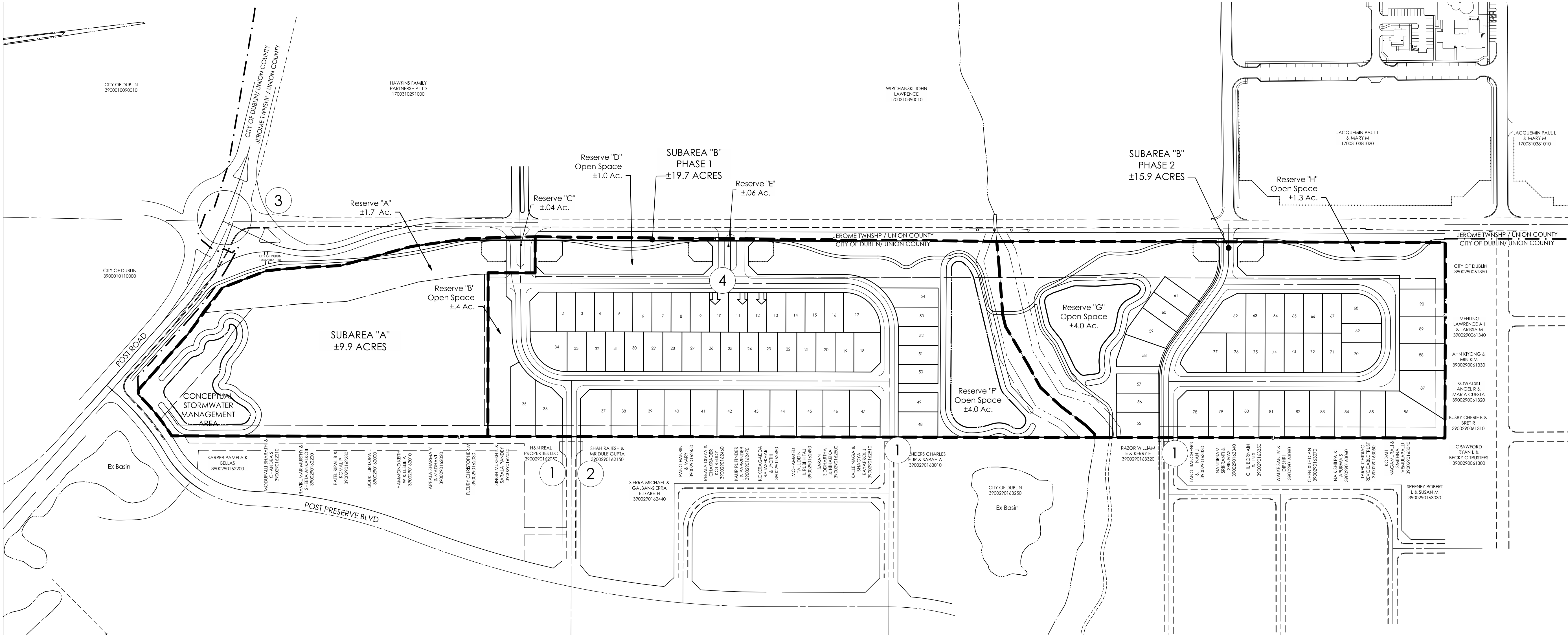
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**SITE PLAN**



SHEET  
519



| NOTES:  |  |
|---|--|
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| Subarea B Phase 1 and 2 Can Begin Out of Sequential Order |  |

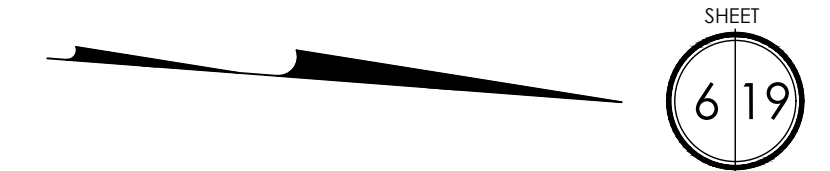
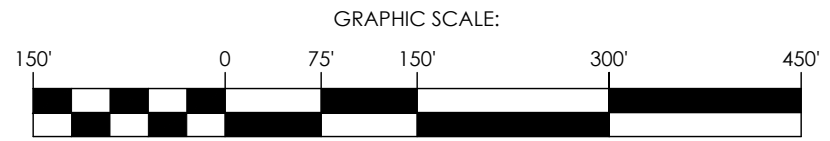
DUBLIN GATEWAY  
CITY OF DUBLIN, UNION COUNTY, OHIO  
PRELIMINARY DEVELOPMENT PLAN

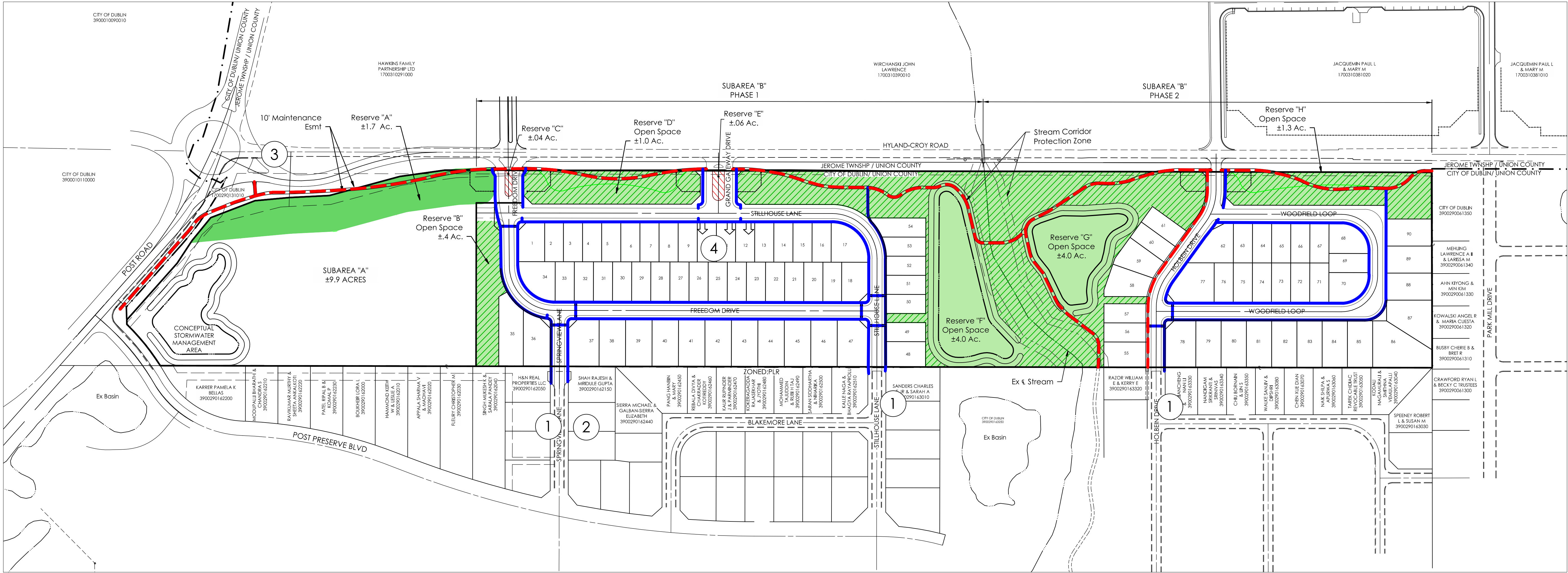
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PREPARED BY:



SUBAREA & PHASING MAP





| NOTES:  |  |
|---|--|
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| Subarea B Phase 1 and 2 Can Begin Out of Sequential Order |  |

| RESERVE OWNERSHIP/MAINTENANCE PLANS |           |               |
|-------------------------------------|-----------|---------------|
|                                     | Ownership | Maintained By |
| Reserve "A"                         | ACLF      | ACLF          |
| Reserve "B"                         | CITY      | HOA           |
| Reserve "C"                         | CITY      | ACLF          |
| Reserve "D"                         | CITY      | HOA           |
| Reserve "E"                         | CITY      | HOA           |
| Reserve "F"                         | CITY      | City/HOA*     |
| Reserve "G"                         | CITY      | City/HOA*     |
| Reserve "H"                         | CITY      | HOA           |

\* The City Shall Maintain Storm Water Management Basins and Appurtenances thereto which Serve Storm Water Functionality

**KEY**

- 8" PEDESTRIAN PATH (OWNED & MAINTAINED BY CITY)
- 4' SIDEWALK
- OPEN SPACE - AREA TO BE MAINTAINED BY CITY
- OPEN SPACE - AREA TO BE MAINTAINED BY HOA
- OPEN SPACE SUBAREA A MAINTAINED BY ACLF
- ROW ISLAND RESERVES TO BE MAINTAINED BY HOA

**OPEN SPACE**

TOTAL OPEN SPACE/REQUIRED: ±5.7 ACRES  
TOTAL OPEN SPACE PROVIDED: ±12.4 ACRES (27.3%)

**SUBAREA A:**

ACREAGE: ±9.9 ACRES  
OPEN SPACE (PROVIDED): ±1.7 ACRES  
OPEN SPACE (REQUIRED): NONE

**SUBAREA B:**

ACREAGE: ±35.6 ACRES  
TOTAL OPEN SPACE/REC FACILITY REQUIRED PHASE 1: ±3.4 ACRES  
TOTAL OPEN SPACE/REC FACILITY PROVIDED PHASE 1: ±5.4 ACRES  
TOTAL OPEN SPACE/REC FACILITY REQUIRED PHASE 2: ±2.3 ACRES  
TOTAL OPEN SPACE/REC FACILITY PROVIDED PHASE 2: ±5.3 ACRES

TOTAL OPEN SPACE/REQUIRED: ±5.7 ACRES  
TOTAL OPEN SPACE PROVIDED: ±10.7 ACRES (30.0%)

# DUBLIN GATEWAY

CITY OF DUBLIN, UNION COUNTY, OHIO

PRELIMINARY DEVELOPMENT PLAN

SCHOTTENSTEIN REAL ESTATE GROUP  
2 Easton Oval, Suite 150  
Columbus, OH 43219

PREPARED BY:

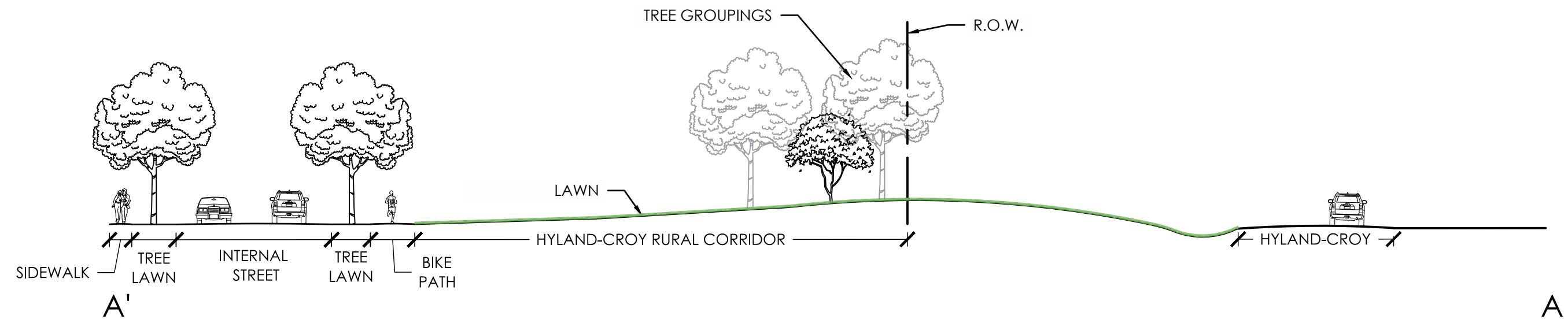
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**OPEN SPACE & CONNECTIVITY PLAN**

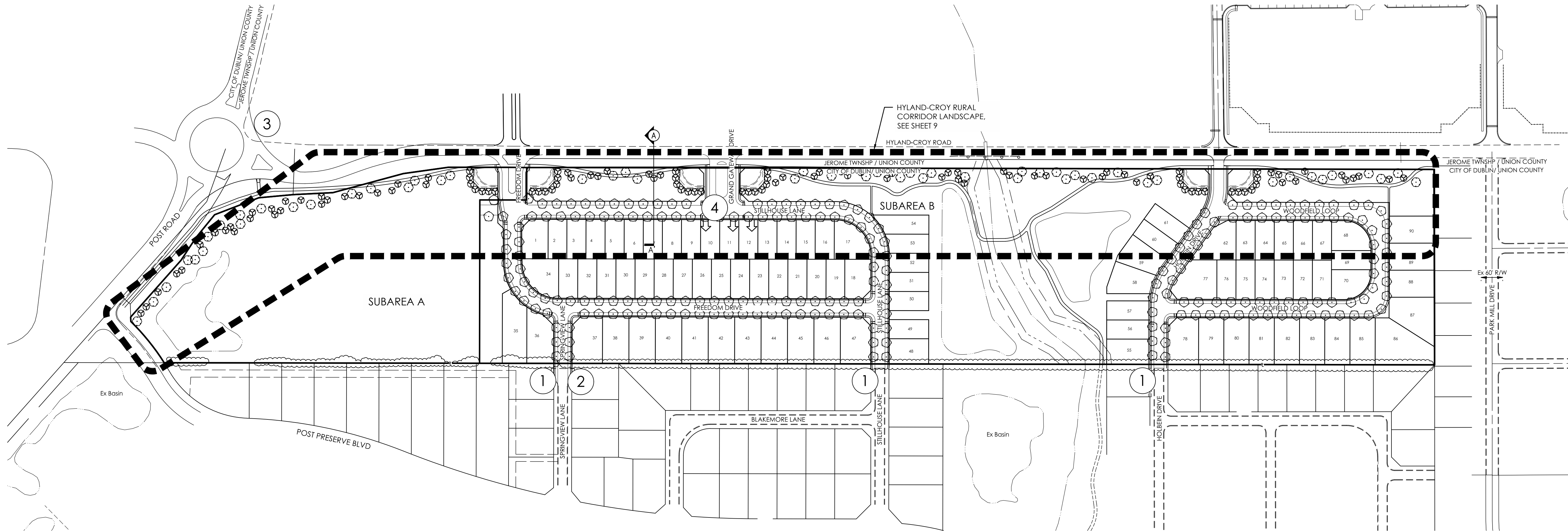
GRAPHIC SCALE:  
100' 0 50' 100' 200' 400'

DUBLIN GATEWAY FEBRUARY 4, 2020 20170464

SHEET  
719



HYLAND-CROY TYPICAL RURAL CORRIDOR SECTION ELEVATION



| NOTES: |  |
|--------|--|
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LANDSCAPE LEGEND

- DECIDUOUS STREET TREE
- DECIDUOUS SHADE TREE
- ORNAMENTAL TREE
- EVERGREEN TREE

- Notes:
- Landscape materials shall be selected to be tolerant of wet, dry, and windy conditions.
  - Stormwater basin shall provide either one (1) fountain or aerator per basin.

# DUBLIN GATEWAY

CITY OF DUBLIN, UNION COUNTY, OHIO

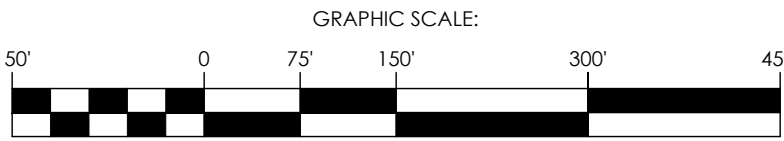
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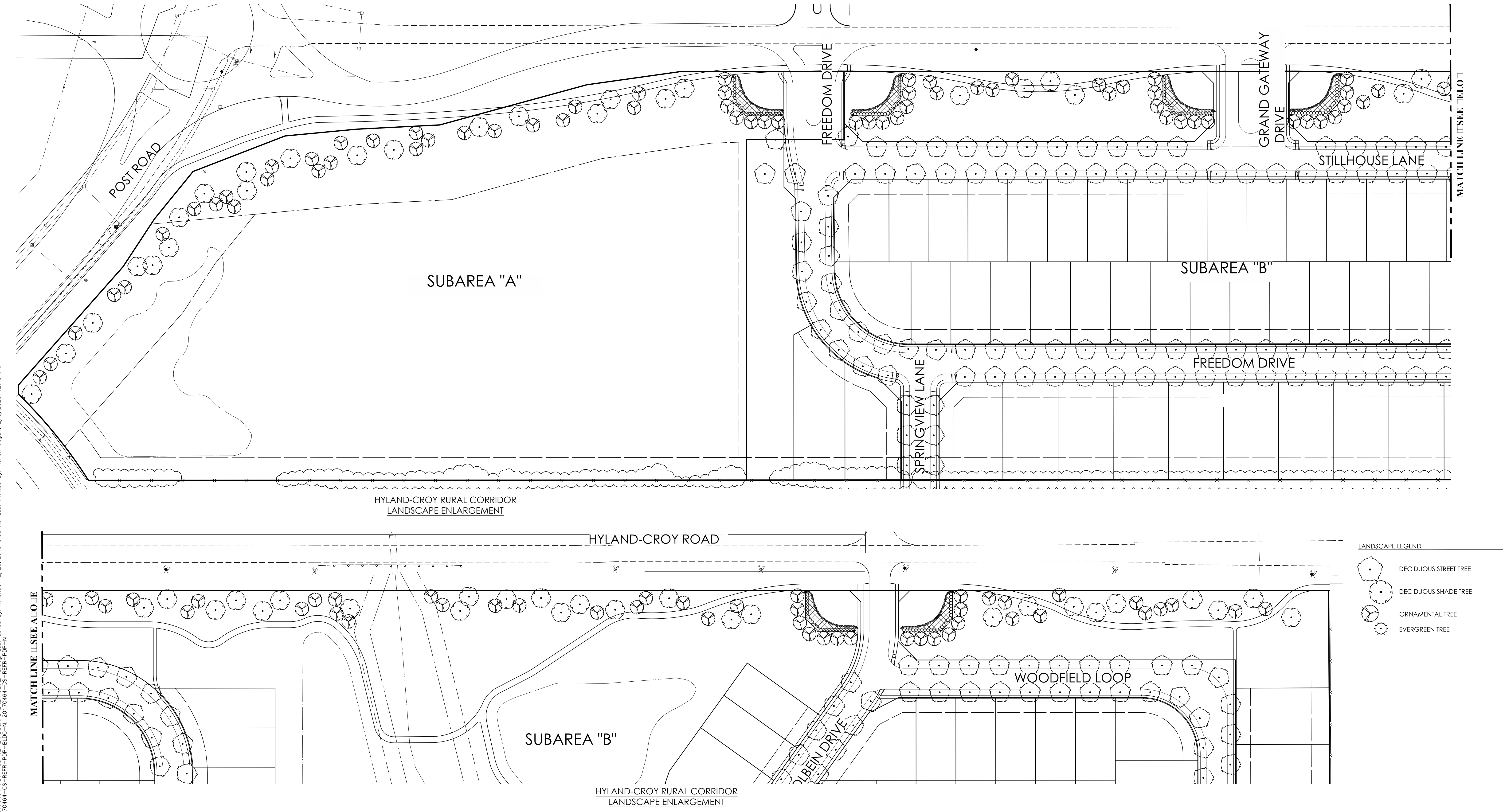
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## OVERALL LANDSCAPE PLAN



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# DUBLIN GATEWAY

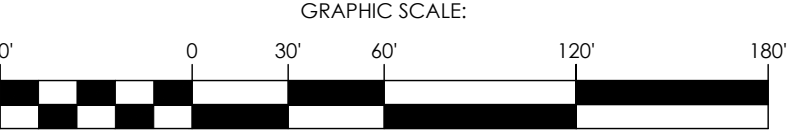
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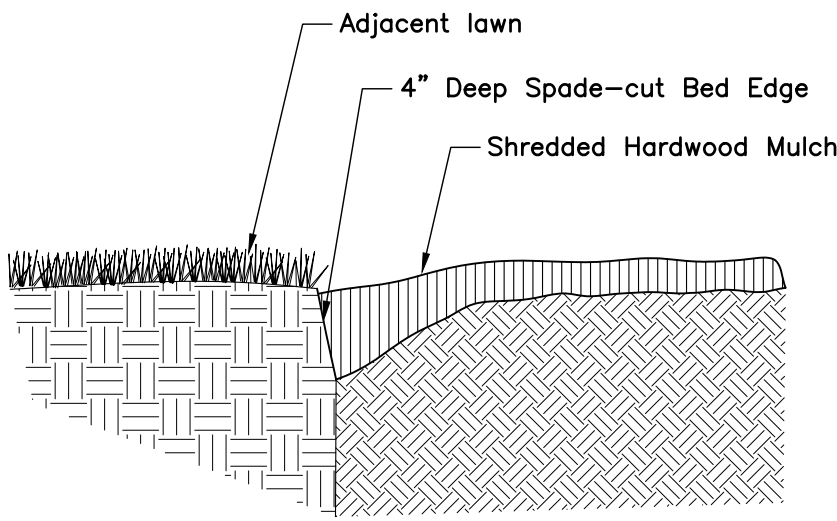
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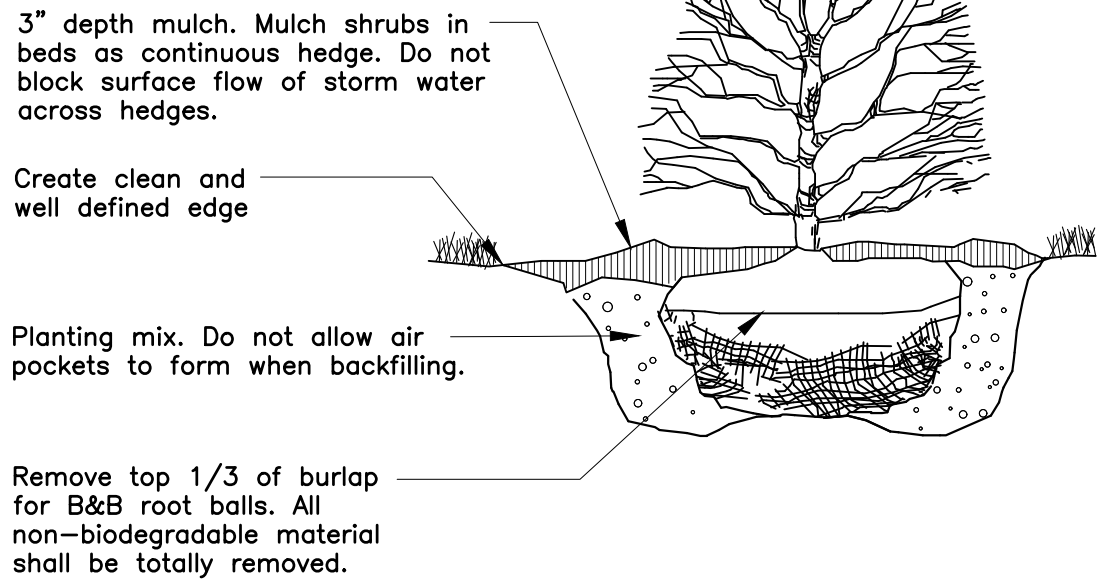
## HYLAND-CROY RURAL CORRIDOR ENLARGEMENT



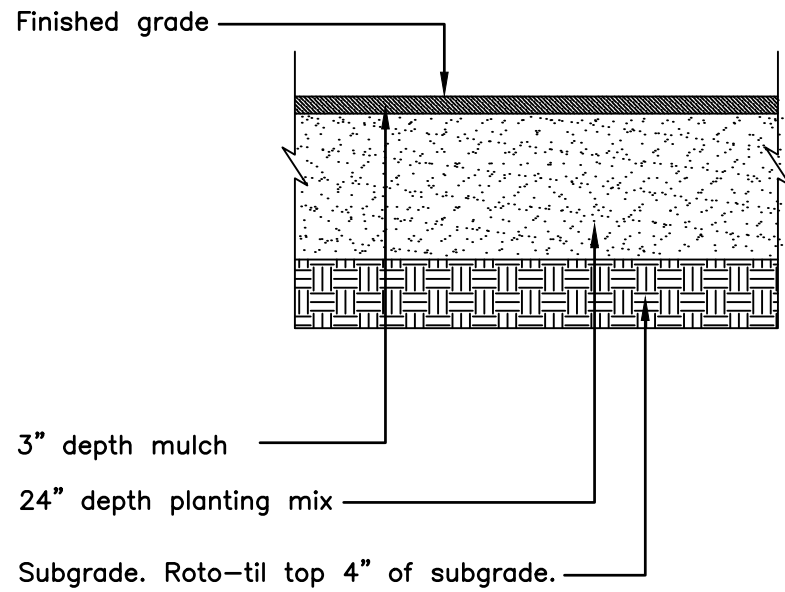
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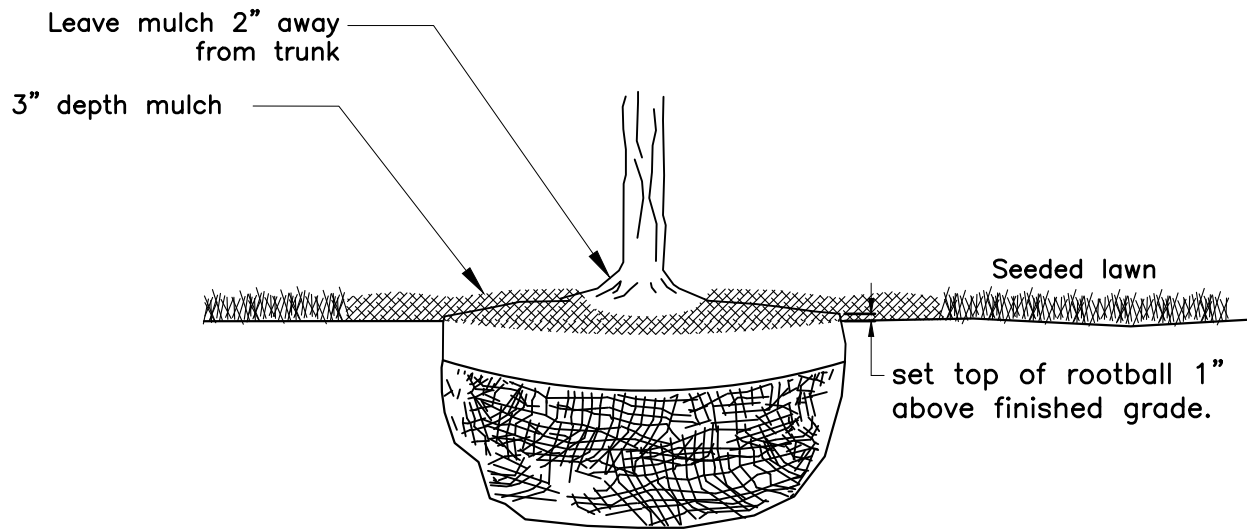


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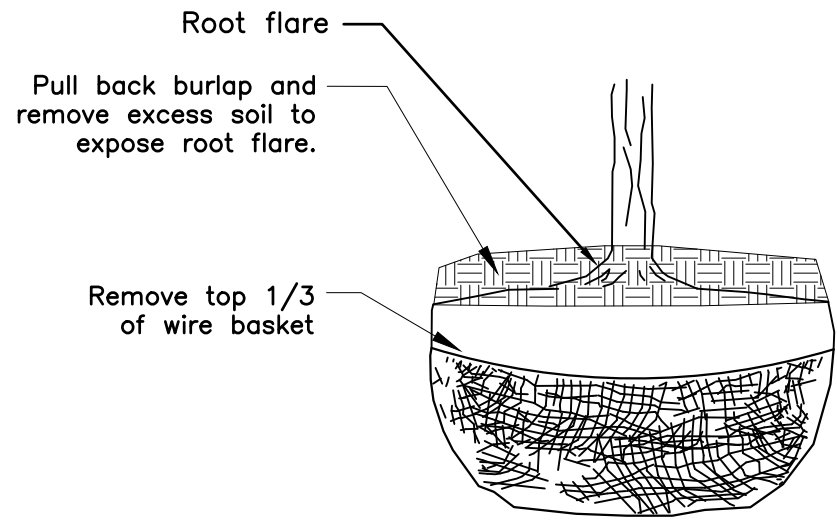


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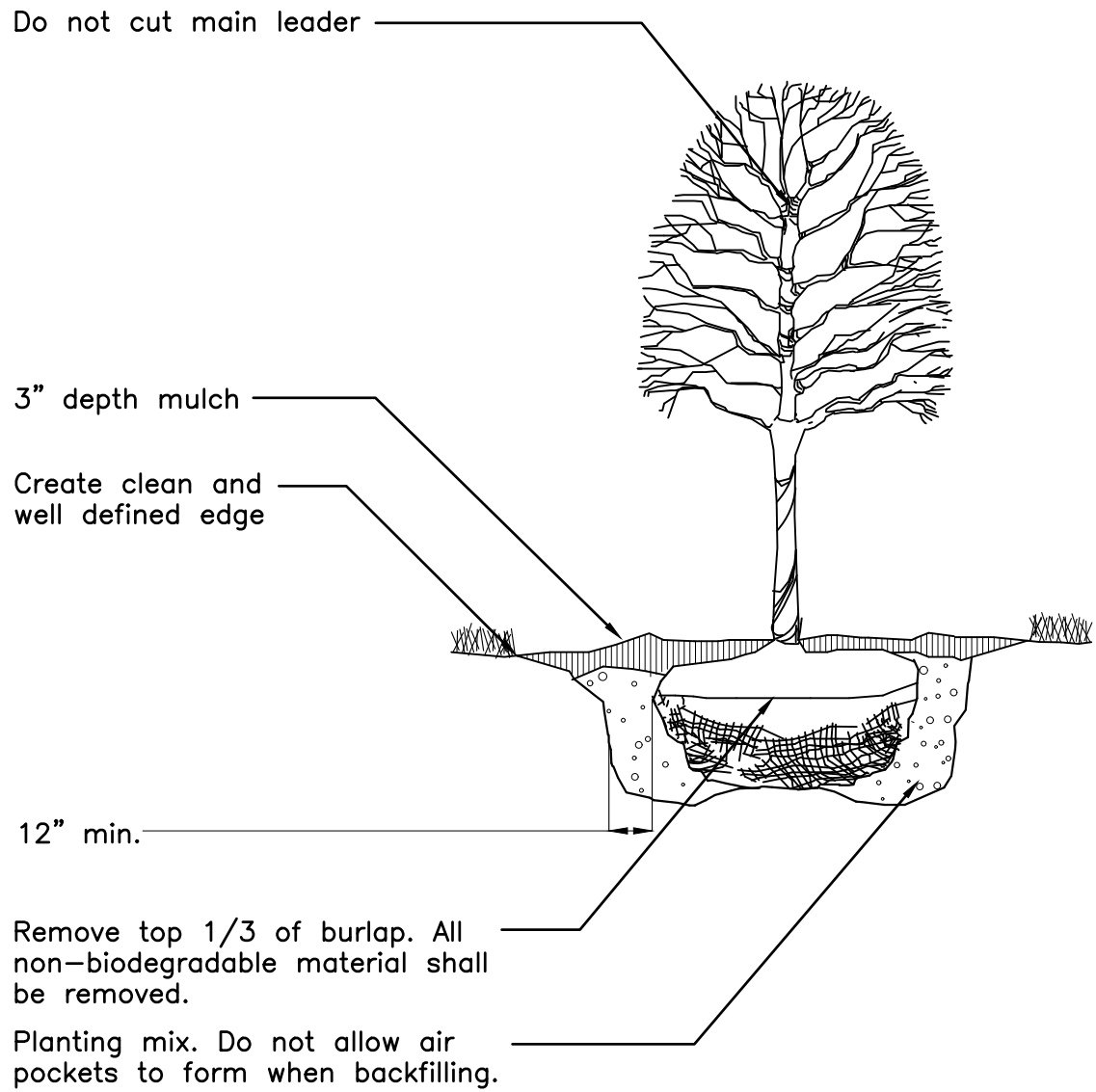
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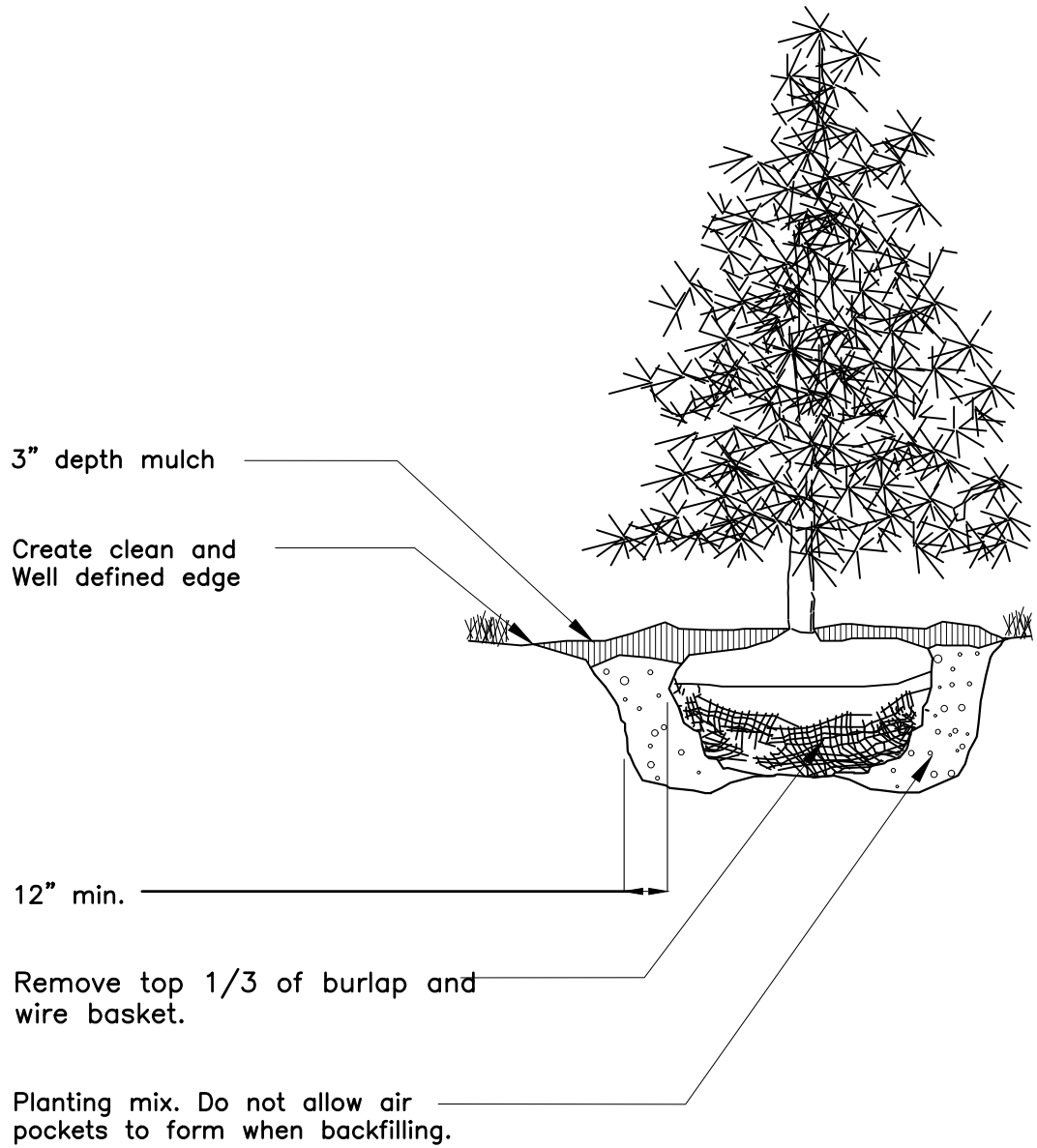
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#### GENERAL NOTES

1. Prior to installation, the landscape contractor shall inspect the general site conditions and verify the subgrade, elevations, utility locations and topsoil provided by general contractor. The landscape contractor shall notify the general contractor of any unsatisfactory conditions and work shall not proceed until such conditions have been corrected and are acceptable to the landscape contractor.
2. All plants shall meet or exceed standards set in the American Standard for Nursery Stock, ANSI Z60.1, current edition. All plants shall equal or exceed the measurements and sizes specified in the schedule.
3. Substitutions shall only be permitted with notification and written approval from the Owner. Substituted material shall be equivalent or greater in size than the specified plant. Substituted plants shall have the same essential characteristics and growth habit of the specified plant.
4. Confirm location of all utilities and subsurface drain lines prior to plant installation.
5. A pre-installation conference shall be conducted prior to planting operations with Owner and Contractor present.
6. Contractor may slightly field adjust plant locations as necessary to avoid utilities. Finished planting beds shall be graded to provide positive drainage.
7. Irrigation system, if applicable, shall be complete and operational prior to landscape planting.
8. Contractor shall repair all lawn areas disturbed during construction with seed and warrant a healthy, weed free lawn prior to project acceptance.
9. Seed all areas within contract limits that are not covered by paving, buildings or planting beds unless otherwise noted. Seeding shall not begin until area has received topsoil and finished grade.
10. Mulch planting beds with shredded hardwood mulch of uniform dark brown color. It shall be free of twigs, leaves, disease, pest or other material unsightly or injurious to plants. Average applied thickness shall be 3" depth. Mulch hedges in a continuous bed.
11. Planting beds shall be covered with pre-emergent herbicide applied at product specified rate unless otherwise noted.
12. Bed edge shall be smooth, consistent, hand trenched 4" deep and "V" shaped unless otherwise noted. All excavated material shall be removed from the bed edge and planting bed.
13. All planting bed edges to be smooth flowing arcs or straight lines as shown on plan. Plant locations and layout of beds shall be located by Contractor and approved by Landscape Architect prior to planting.
14. Install all plants in accordance with planting details and specifications.
15. Parking lot and street trees shall have a clear canopy height of 6' min.
16. Trees shall be placed a minimum of 3' from sidewalks and curbs.
17. Planting Mix shall be blended, manufactured soil consisting of three (3) parts topsoil, one (1) part compost, one (1) part sand. Topsoil shall be per ASTM D5268, ph range of 5.5 to 7, min. 4 percent organic material, free of stones and soil clumps 3/4 inch and larger. Compost shall be yard waste compost from an EPA rated Class IV compost facility or Com-til compost from City of Columbus Department of Public Utilities. Sand shall be per Item ASTM C33. Proprietary manufactured Planting Mix such as Kurtz Bros. Professional Blend or Jones SuperSoil may be used. Submit product data for review by Owner. Place Planting Mix in settled 6 inch lifts. Mix Mycorrhizal Fungi into Planting Mix during placement of Planting Mix. Application rate shall be according to manufacturer's written recommendations. Mycorrhizal Fungi shall be a dry, granular inoculant containing vesicular-arbuscular mycorrhizal fungi and ectomycorrhizal fungi.
18. Excavate planting beds to a depth of 24 inches, unless otherwise indicated. Roto-til subgrade of excavation to a depth of 4 inches, unless otherwise indicated. Incorporate a 6 inch lift of planting mix into subgrade. Place remaining Planting Mix in settled 6 inch lifts.
19. Planting beds, including mulch, shall be no higher than 6 inches above adjacent grade and shall not impede surface drainage.
20. Lawn areas shall be backfilled with Planting Mix to a minimum settled thickness of 6 inches. Roto-Til subgrade below lawns to a depth of 4 inches, unless otherwise indicated, prior to placement of Planting Mix.
21. All trees and shrubs shall be fertilized with controlled release tablets of 20-10-5 composition. Size and number of tablets shall be per manufacturer's instructions.
22. Composition and application rate of lawn fertilizer shall be sufficient to amend soil according to recommendations of a qualified soil testing agency. Submit soil test results and amendment recommendations to Owner. Lawn fertilizer shall be in a dry granular form.
23. Contractor to determine plant list quantities from the plan. Graphic representation on plan supersedes in case of discrepancy with quantities on schedule.
24. Any item or areas damaged during construction shall be repaired or replaced to its original condition at the contractor expense.
25. Contractor shall thoroughly water all plants at time of installation and as needed until project acceptance by owner. Contractor shall guarantee all plants installed (except annuals) for one full year from date of acceptance by the Owner. All plants shall be alive and at a vigorous rate of growth at the end of the guarantee period.
26. All annuals to be provided by Contractor from available seasonal stock.
27. Lawn seed mix shall be proportioned by weight as follows: 80 percent Quest, Inferno, Arid 3 and/or Pixie Tall Fescue (select 2). Sodded lawns shall match seeded lawns; 10 percent Caddieshack or GoalKeeper Perennial Ryegrass; 10 percent NuBlue or Blue Chip Kentucky Bluegrass. Seeding rate shall be 8-10 pounds per 1000 square feet.
28. Lawn seed shall not have less than 95 percent germination, not less than 85 percent pure seed, and not more than 0.5 percent weed seed.

# DUBLIN GATEWAY

## CITY OF DUBLIN, UNION COUNTY, OHIO

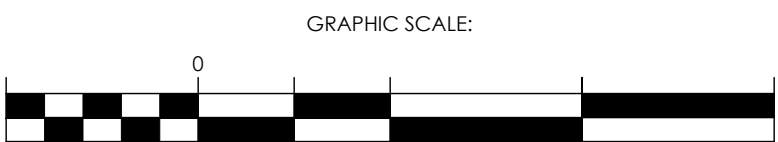
### PRELIMINARY DEVELOPMENT PLAN

SCHOTTENSTEIN REAL ESTATE GROUP  
2 Easton Oval, Suite 150  
Columbus, OH 43219

PREPARED BY:



#### LANDSCAPE NOTES & DETAILS



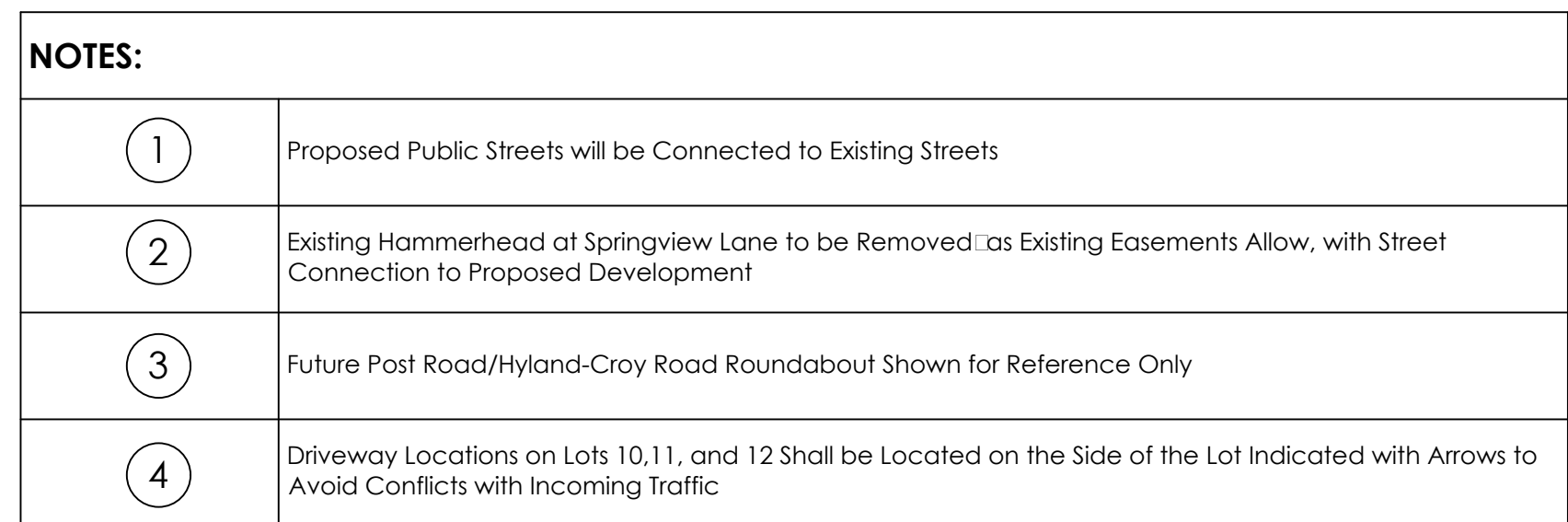
DUBLIN GATEWAY

FEBRUARY 4, 2020

20170464

SHEET

1019

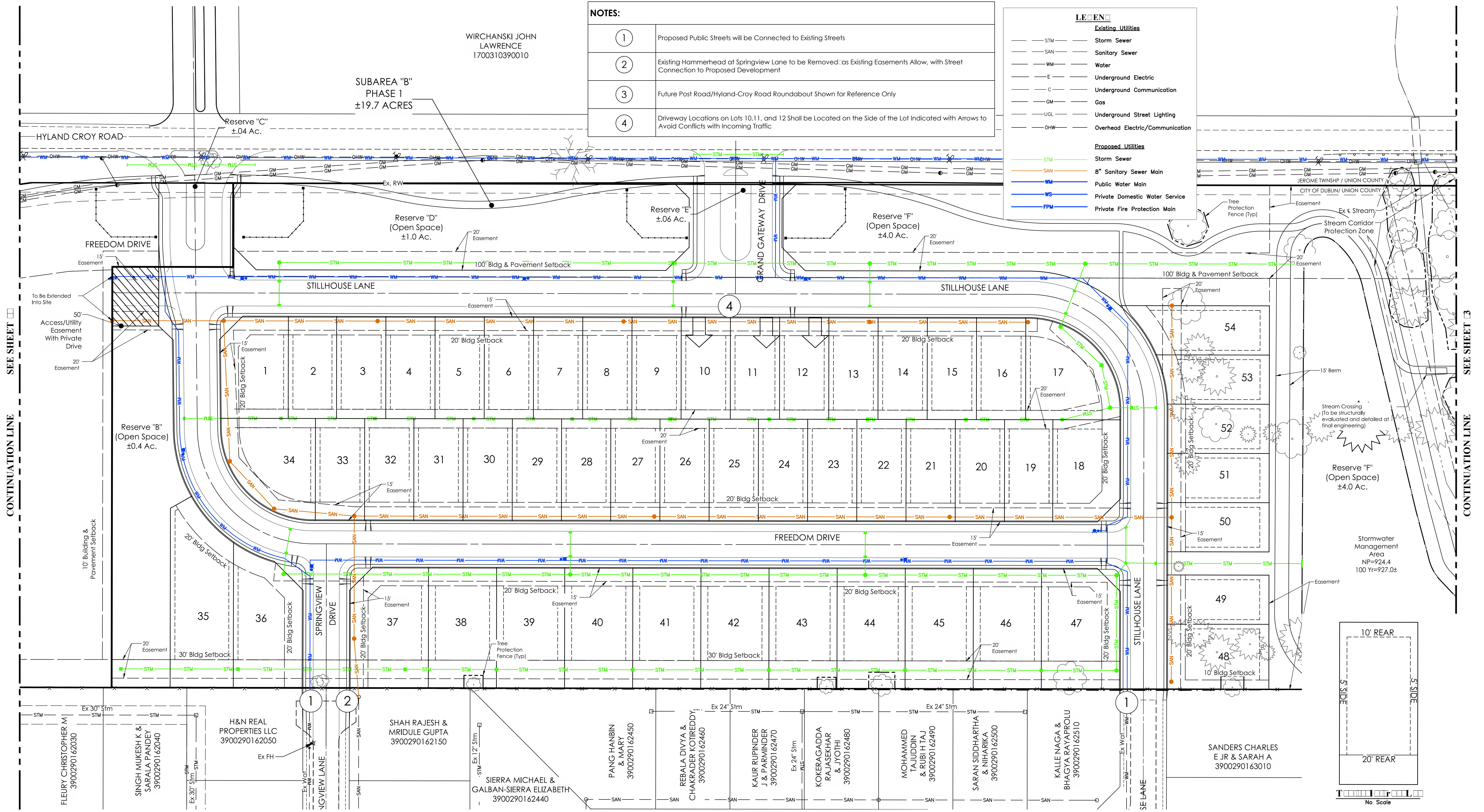


CONTINUATION LINE

## 20170464

| NOTES: |   |
|--------|---|
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- |                                  |                                 |  |
|----------------------------------|---------------------------------|--|
| <u><b>LEEN</b></u>               |                                 |  |
| <u><b>Existing Utilities</b></u> |                                 |  |
| — STM —                          | Storm Sewer                     |  |
| — SAN —                          | Sanitary Sewer                  |  |
| — WM —                           | Water                           |  |
| — E —                            | Underground Electric            |  |
| — C —                            | Underground Communication       |  |
| — GM —                           | Gas                             |  |
| — UGL —                          | Underground Street Lighting     |  |
| — OHW —                          | Overhead Electric/Communication |  |
| <u><b>Proposed Utilities</b></u> |                                 |  |
| — STM —                          | Storm Sewer                     |  |
| — SAN —                          | 8" Sanitary Sewer Main          |  |
| — WM —                           | Public Water Main               |  |
| — WS —                           | Private Domestic Water Service  |  |
| — FPM —                          | Private Fire Protection Main    |  |



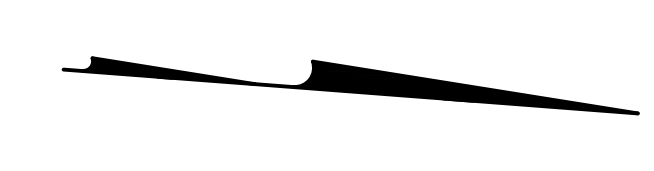
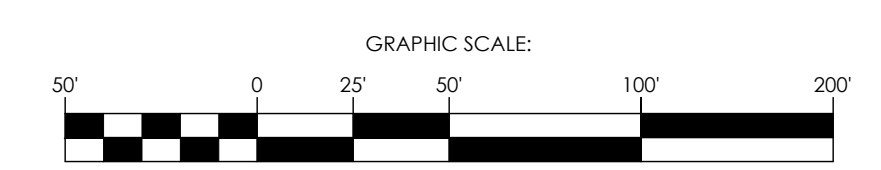
DUBLIN GATEWAY  
CITY OF DUBLIN, UNION COUNTY, OHIO  
PRELIMINARY DEVELOPMENT PLAN

SCHOTTENSTEIN REAL ESTATE GROUP  
2 Easton Oval, Suite 150  
Columbus, OH 43219

PREPARED BY:



## UTILITY PLAN



SHEET

1219

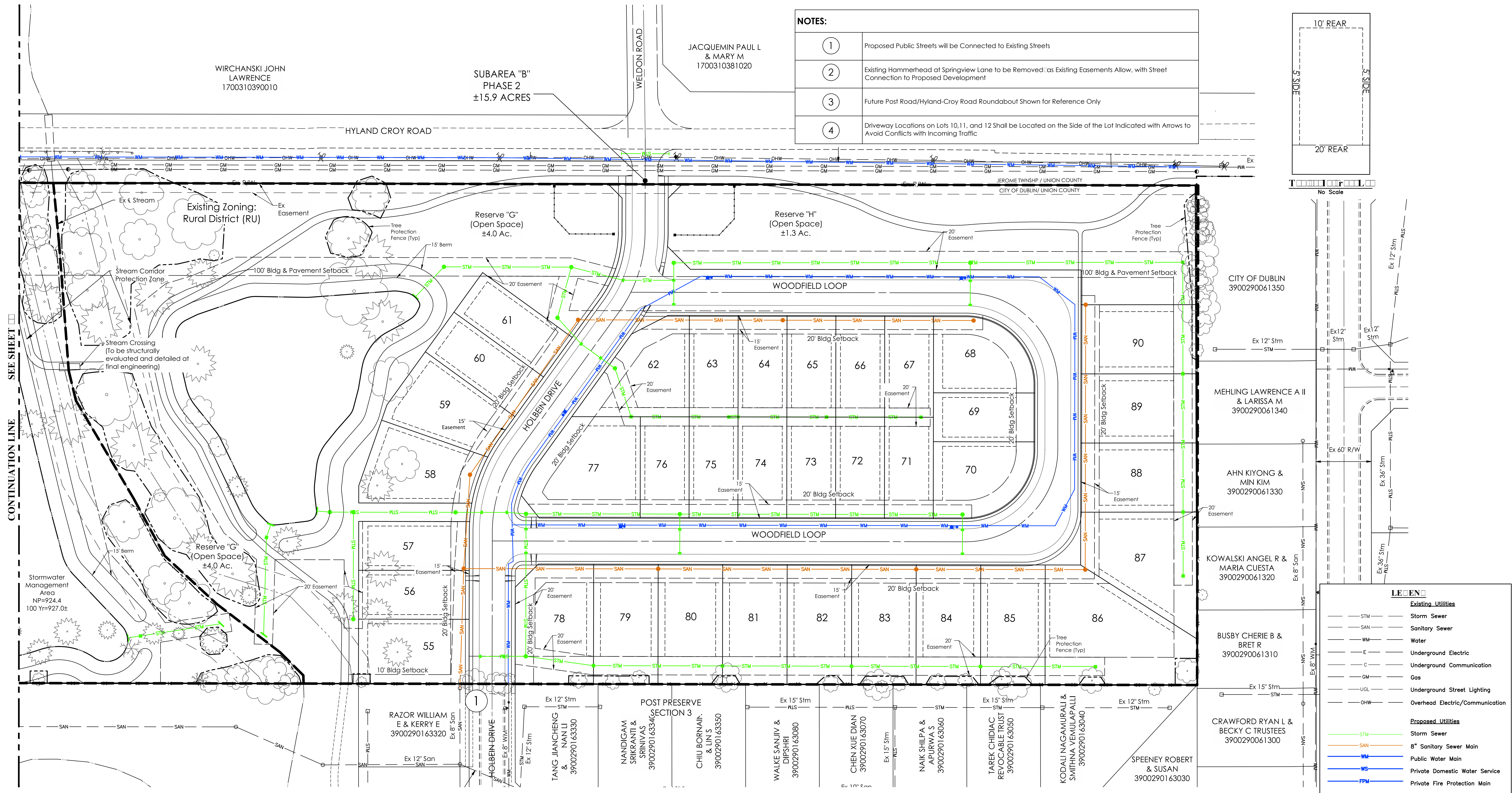
DUBLIN GATEWAY

FEBRUARY 4, 2020

20170464

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# DUBLIN GATEWAY

CITY OF DUBLIN, UNION COUNTY, OHIO

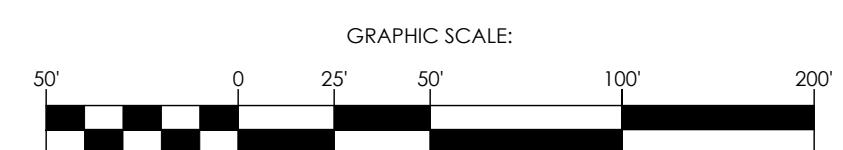
PRELIMINARY DEVELOPMENT PLAN

SCHOTTENSTEIN REAL ESTATE GROUP  
2 Easton Oval, Suite 150  
Columbus, OH 43219

PREPARED BY:



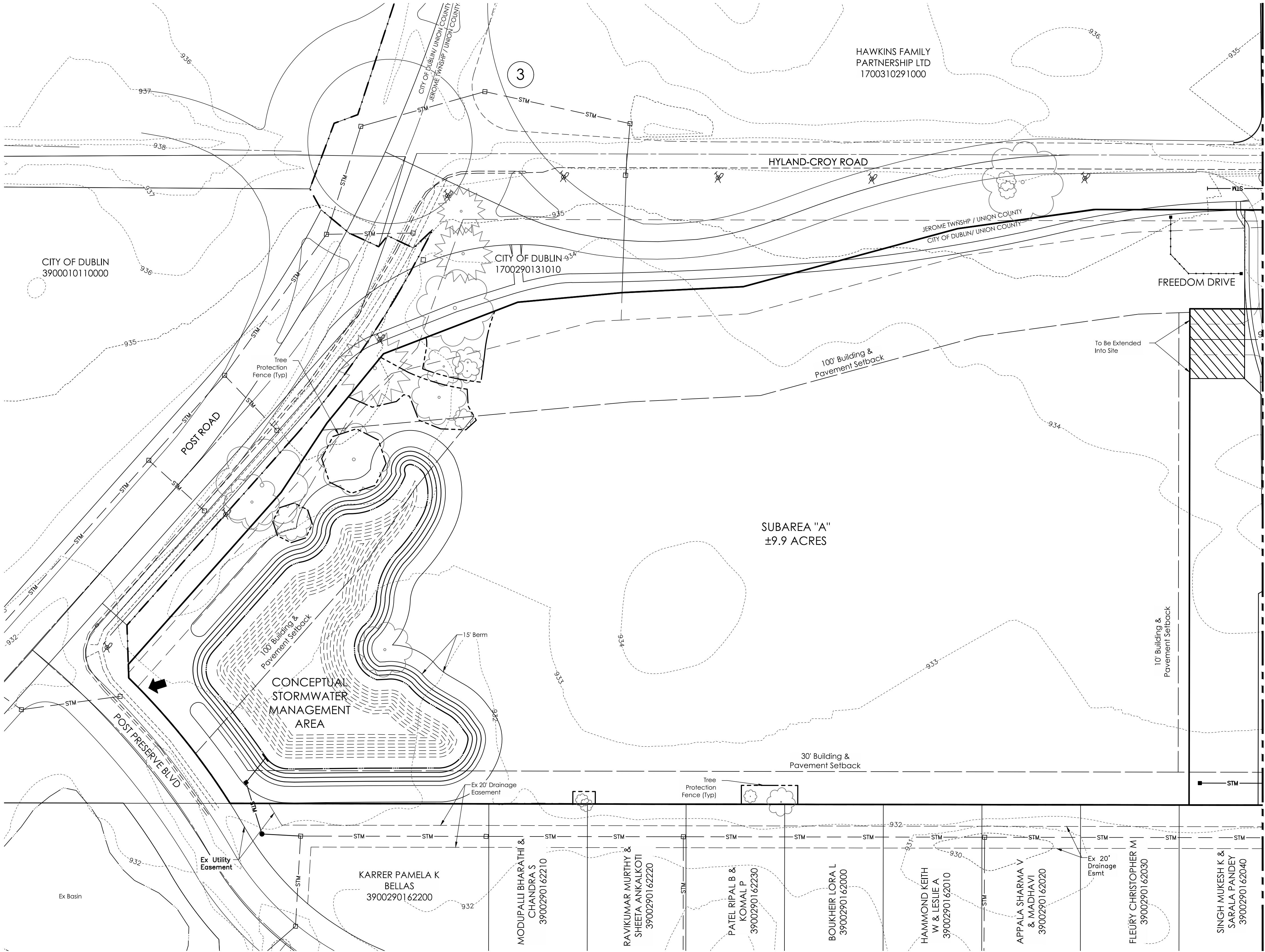
## UTILITY PLAN



DUBLIN GATEWAY

FEBRUARY 4, 2020

20170464



| NOTES: |  |
|--------|--|
| ①      | Proposed Public Streets will be Connected to Existing Streets  |
| ②      | Existing Hammerhead at Springview Lane to be Removed: as Existing Easements Allow, with Street Connection to Proposed Development                |
| ③      | Future Post Road/Hyland-Croy Road Roundabout Shown for Reference Only  |
| ④      | Driveway Locations on Lots 10, 11, and 12 Shall be Located on the Side of the Lot Indicated with Arrows to Avoid Conflicts with Incoming Traffic |

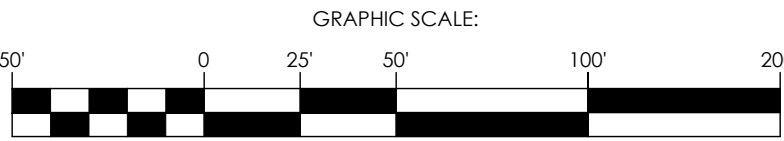
DUBLIN GATEWAY  
CITY OF DUBLIN, UNION COUNTY, OHIO  
PRELIMINARY DEVELOPMENT PLAN

SCHOTTENSTEIN REAL ESTATE GROUP  
2 Easton Oval, Suite 150  
Columbus, OH 43219

PREPARED BY:



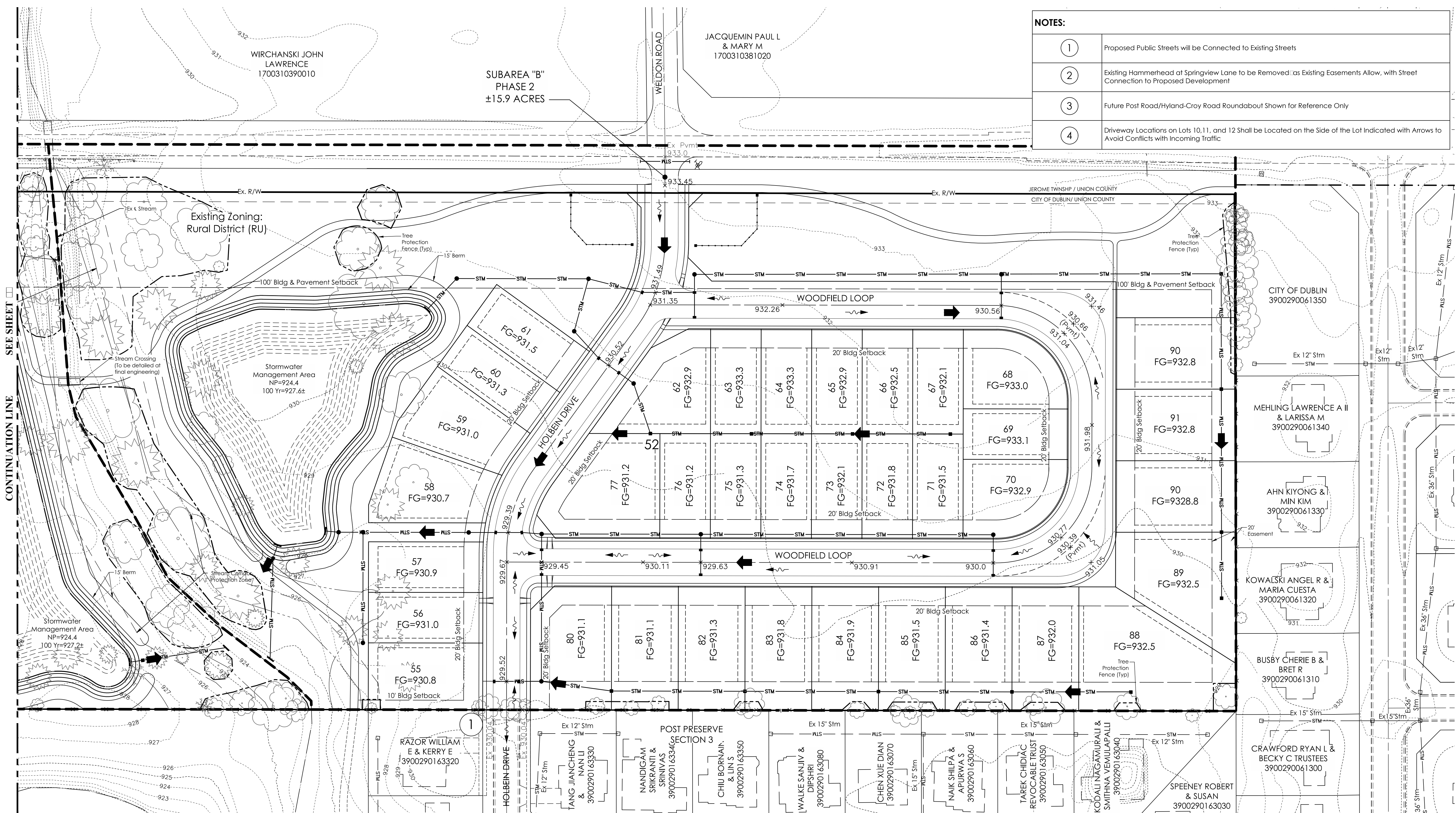
GRADING PLAN



SHEET  
1419



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| NOTES: |  |
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SEE SHEET CONTINUATION LINE

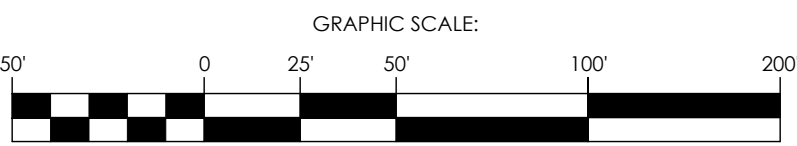
DUBLIN GATEWAY  
CITY OF DUBLIN, UNION COUNTY, OHIO  
PRELIMINARY DEVELOPMENT PLAN

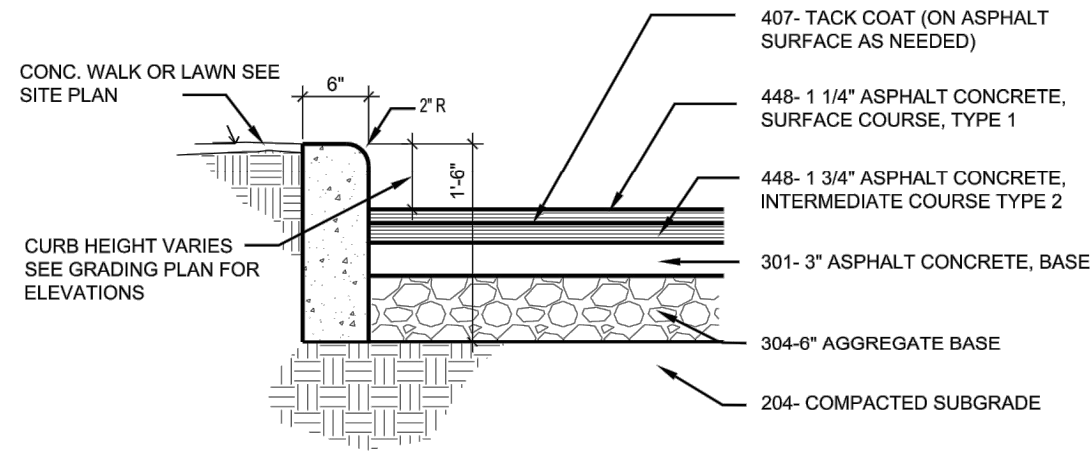
SCHOTTENSTEIN REAL ESTATE GROUP  
2 Easton Oval, Suite 150  
Columbus, OH 43219

PREPARED BY:

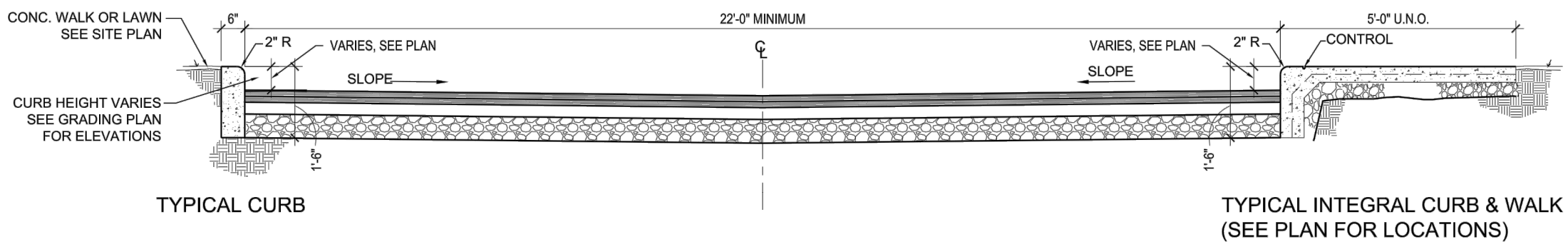


GRADING PLAN





TYPICAL CURB SECTION  
Not to Scale



TYPICAL 22' PRIVATE PAVEMENT SECTION  
Not to Scale

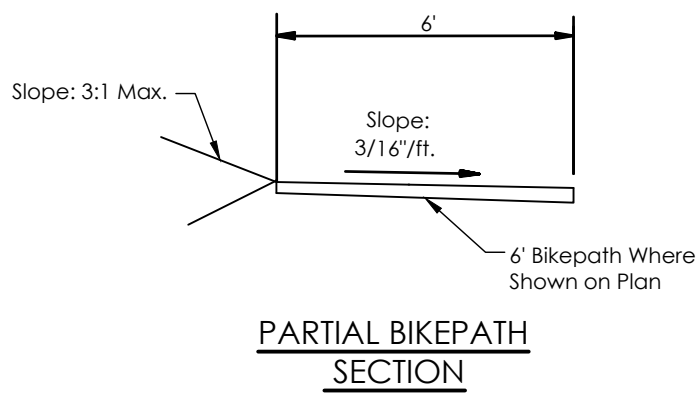
TYPICAL INTEGRAL CURB & WALK  
(SEE PLAN FOR LOCATIONS)

PAVEMENT LEGEND

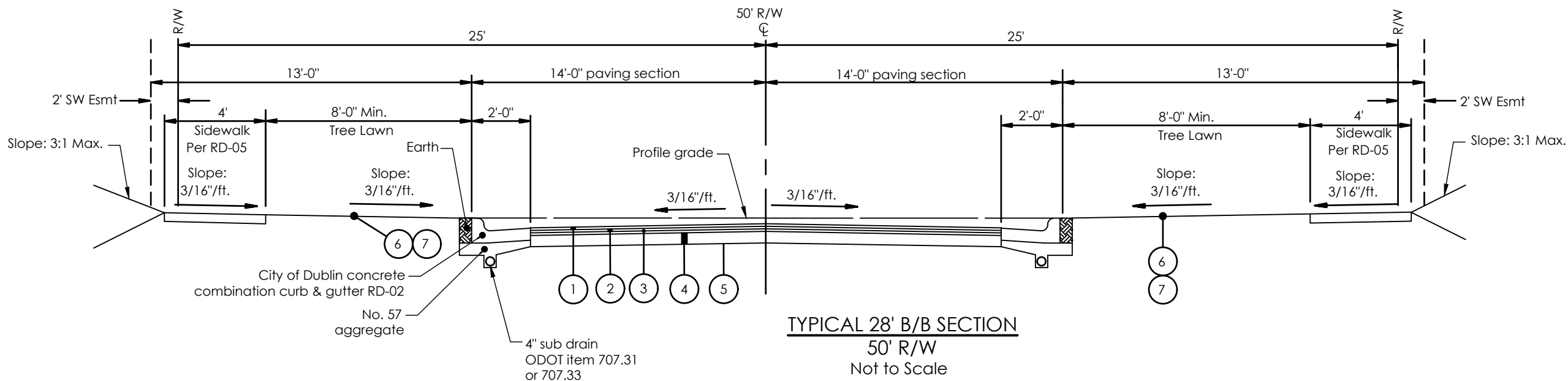
- 1 Item 448, 1.25" Asphalt Concrete, Surface Course, Type 1, Pg 64-22, Medium Traffic. \*
- 2 Item 448, 1.75" Asphalt Concrete, Intermediate Course, Type 2, Pg 64-22, Medium Traffic.
- 3 Item 301, 3" Bituminous Aggregate Base Course
- 4 Item 304, 6" Aggregate Base
- 5 Item 204, Subgrade Compaction
- 6 Item 653 - 3" Topsoil Furnished And Placed
- 7 Item 659, Seeding And Mulching

PAVEMENT LEGEND

- 1 Item 448, 1.25" Asphalt Concrete, Surface Course, Type 1, Pg 64-22, Medium Traffic. \*
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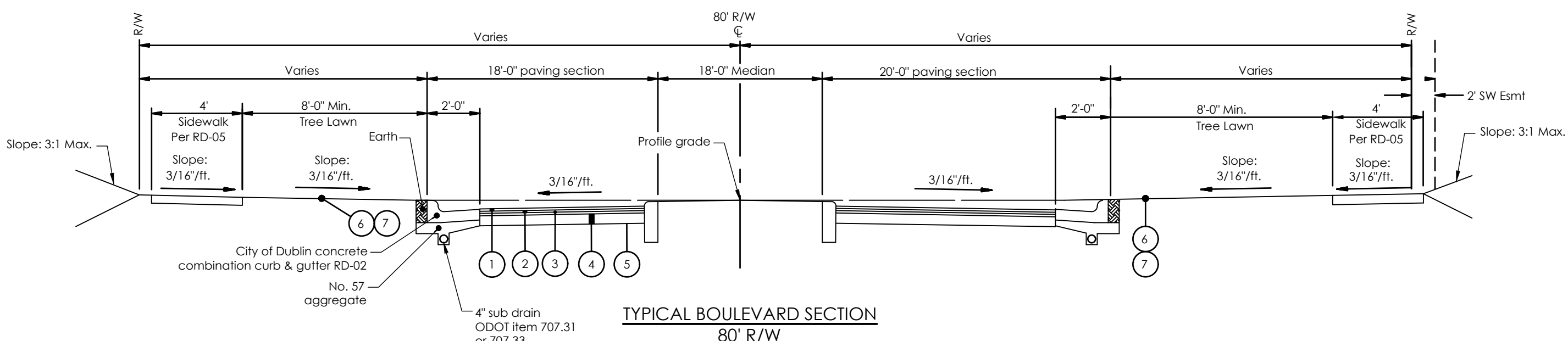


PARTIAL BIKEPATH  
SECTION

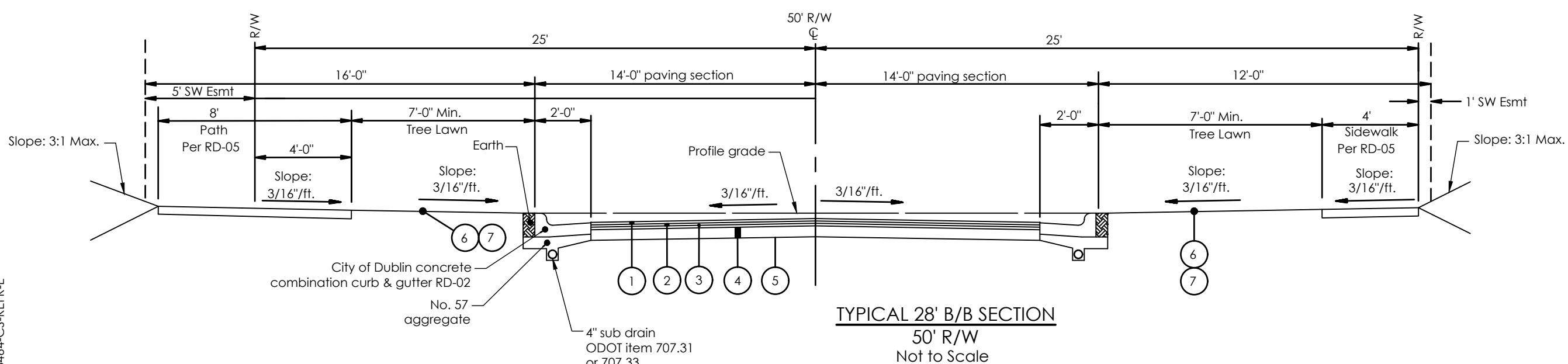


TYPICAL 28' B/B SECTION  
50' R/W  
Not to Scale

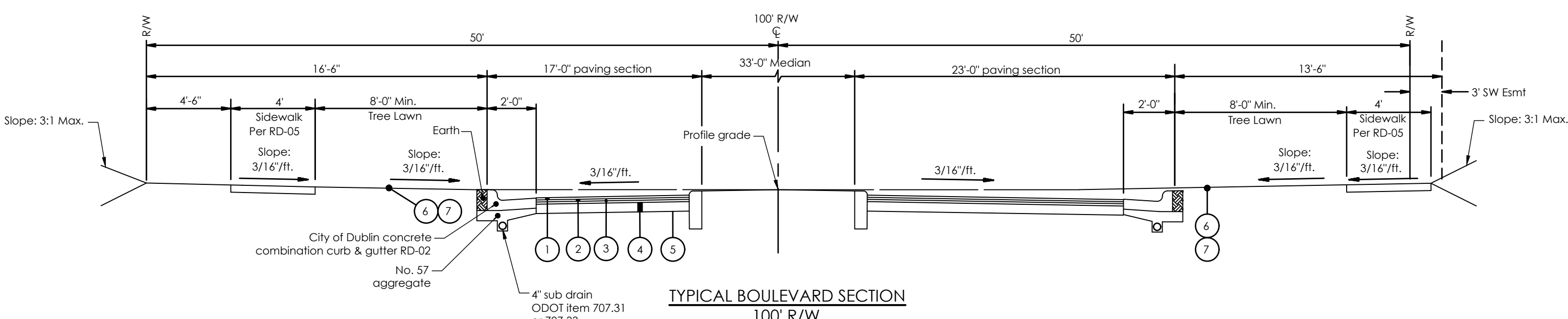
Stillhouse Lane  
Freedom Drive  
Woodfield Loop



TYPICAL BOULEVARD SECTION  
80' R/W  
Not to Scale  
Freedom Drive



TYPICAL 28' B/B SECTION  
50' R/W  
Not to Scale  
Holbein Drive



TYPICAL BOULEVARD SECTION  
100' R/W  
Not to Scale  
Grand Gateway Drive

# DUBLIN GATEWAY

## CITY OF DUBLIN, UNION COUNTY, OHIO

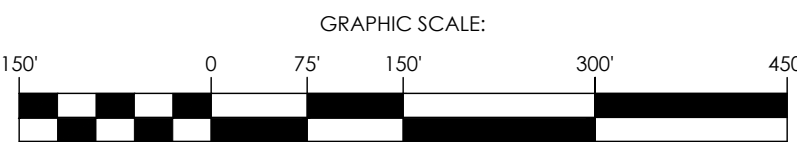
### PRELIMINARY DEVELOPMENT PLAN

SCHOTTENSTEIN REAL ESTATE GROUP  
2 Easton Oval, Suite 150  
Columbus, OH 43219

PREPARED BY:



## STREET SECTIONS



\\cmhddat01\projec101\20170464-Dwg\04Sheet-PDP-20170464-PDP-22-Ex-Trees-Survey.dwg, Last Saved By: mmeicli, 12/19/2019 12:08 PM, Last Printed By: Nericl, Megan, 2/3/2020 12:23 PM  
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# DUBLIN GATEWAY

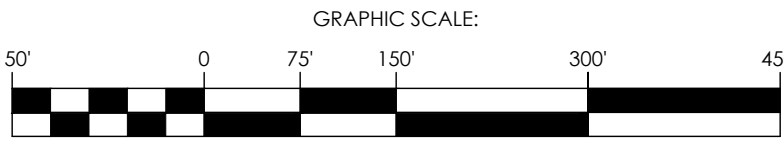
CITY OF DUBLIN, UNION COUNTY, OHIO  
PRELIMINARY DEVELOPMENT PLAN

SCHOTTENSTEIN REAL ESTATE GROUP  
2 Easton Oval, Suite 150  
Columbus, OH 43219

PREPARED BY:



## EXISTING TREE SURVEY





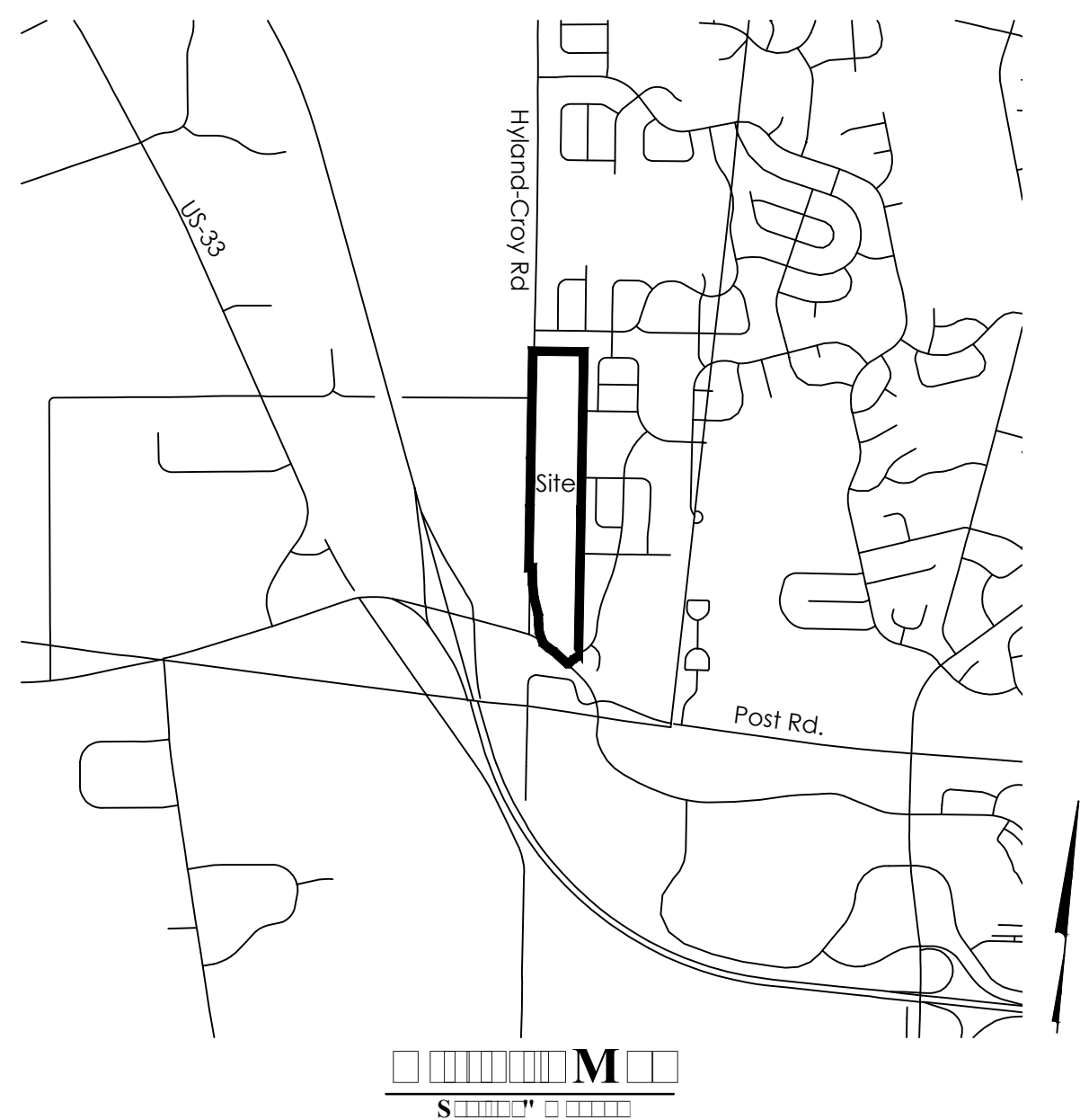
**PRELIMINARY PLAT  
SECTION III  
Preliminary Plat Exhibits**

# DUBLIN GATEWAY PRELIMINARY PLAT

DUBLIN, OHIO  
PRELIMINARY PLAT

## INDEX OF DRAWINGS

- 1. VICINITY MAP
- 2. PRELIMINARY PLAT
- 3. PRELIMINARY PLAT
- 4. PRELIMINARY PLAT



PREPARED FOR:  
SCHOTTENSTEIN REAL ESTATE GROUP  
2 EASTON OVAL, SUITE 150  
COLUMBUS, OH 43219  
P : 614.418.8915

FEBRUARY 4, 2020

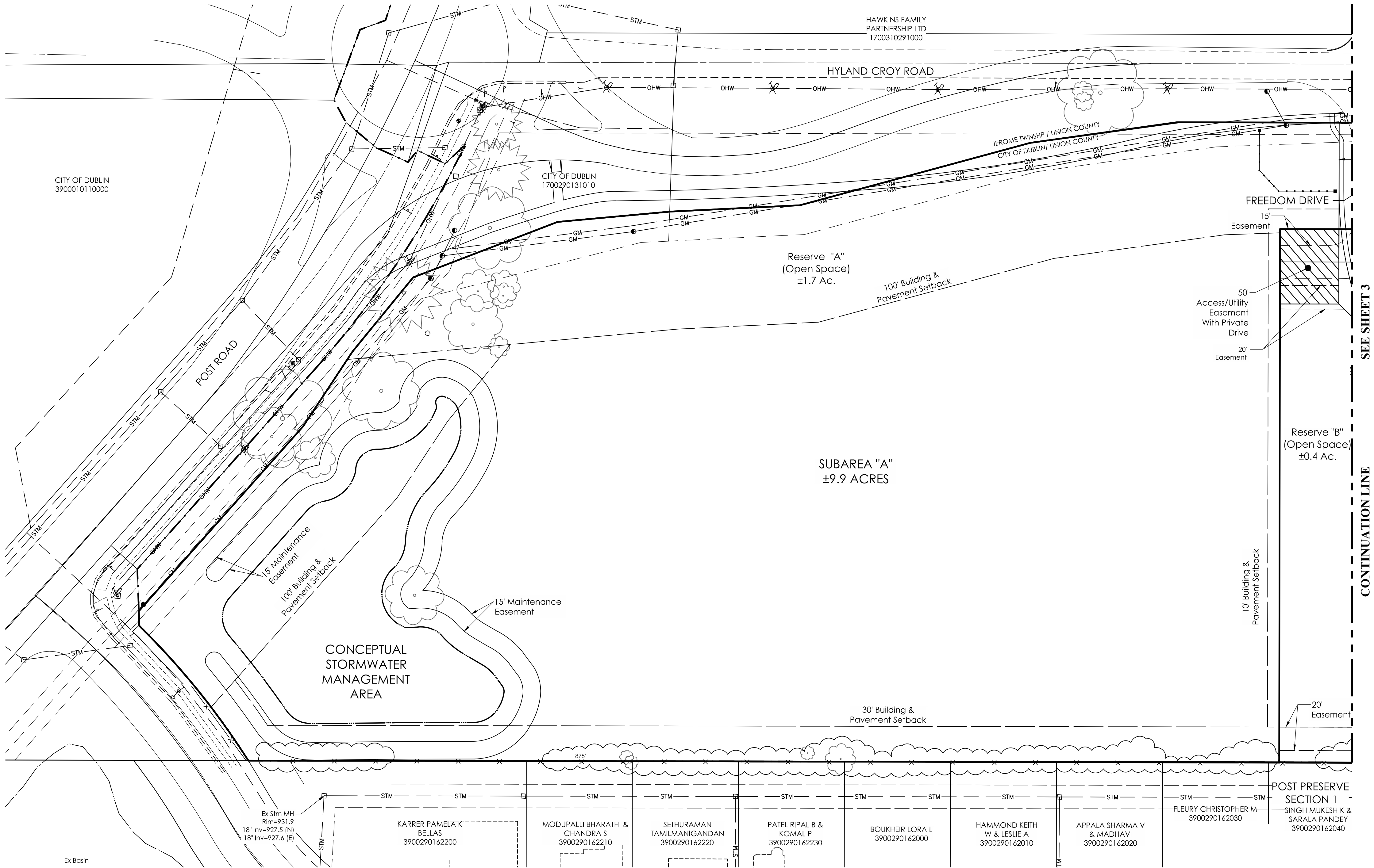
CIVIL ENGINEER &  
LANDSCAPE ARCHITECT



Evans, Mechwart, Hambleton & Tilton, Inc.  
Engineers • Surveyors • Planners • Scientists  
5500 New Albany Road, Columbus, OH 43054  
Phone: 614.775.4500 Toll Free: 888.775.3648

[emht.com](http://emht.com)





| LEGEND             |                                 |
|--------------------|---------------------------------|
| Existing Utilities |                                 |
| STM                | Storm Sewer                     |
| SAN                | Sanitary Sewer                  |
| Water              |                                 |
| E                  | Underground Electric            |
| C                  | Underground Communication       |
| GM                 | Gas                             |
| UGL                | Underground Street Lighting     |
| OHW                | Overhead Electric/Communication |

SETBACKS

SUBAREA A:

|                   |                             |
|-------------------|-----------------------------|
| HYLAND-CROY ROAD: | 100' MIN. BUILDING/PAVEMENT |
| POST ROAD:        | 100' MIN. BUILDING/PAVEMENT |
| EAST:             | 30' MIN. BUILDING/PAVEMENT  |
| NORTH:            | 10' MIN. BUILDING/PAVEMENT  |
| INTERIOR:         | 0'                          |

SUBAREA B:

|                         |                             |
|-------------------------|-----------------------------|
| HYLAND-CROY ROAD:       | 100' MIN. BUILDING/PAVEMENT |
| FRONT BUILDING SETBACK: | 20' MIN.                    |
| REAR BUILDING SETBACK:  |                             |
| INTERNAL LOTS:          | 10' MIN.                    |
| EAST PROPERTY LINE:     | 30' MIN.                    |
| NORTH PROPERTY LINE:    | 25' MIN.                    |

|  |           |
|--|-----------|
| SIDE YARD:   |           |
| INTERNAL LOTS:   | 5' MIN.   |
| PERIMETER LOTS (THAT BACK TO EAST AND NORTH PROP. LINE): | 7.5' MIN. |
| PERIMETER LOTS (THAT SIDE TO EAST PROP. LINE)            | 10' MIN.  |

| RESERVE OWNERSHIP/MAINTENANCE PLANS |           |               |
|-------------------------------------|-----------|---------------|
|                                     | Ownership | Maintained By |
| Reserve "A"                         | ACLF      | ACLF          |
| Reserve "B"                         | CITY      | HOA           |
| Reserve "C"                         | CITY      | ACLF          |
| Reserve "D"                         | CITY      | HOA           |
| Reserve "E"                         | CITY      | HOA           |
| Reserve "F"                         | CITY      | City/HOA*     |
| Reserve "G"                         | CITY      | City/HOA*     |
| Reserve "H"                         | CITY      | HOA           |

\* The City Shall Maintain Storm Water Management Basins and Appurtenances thereto which Serve Storm Water Functionality

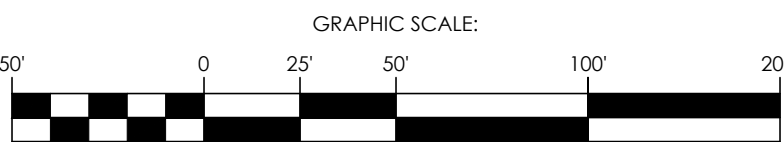
DUBLIN GATEWAY  
CITY OF DUBLIN, UNION COUNTY, OHIO  
PRELIMINARY PLAT

SCHOTTENSTEIN REAL ESTATE GROUP  
2 Easton Oval, Suite 150  
Columbus, OH 43219

PREPARED BY:



PRELIMINARY PLAT



WIRCHANSKI JOHN  
LAWRENCE  
1700310390010

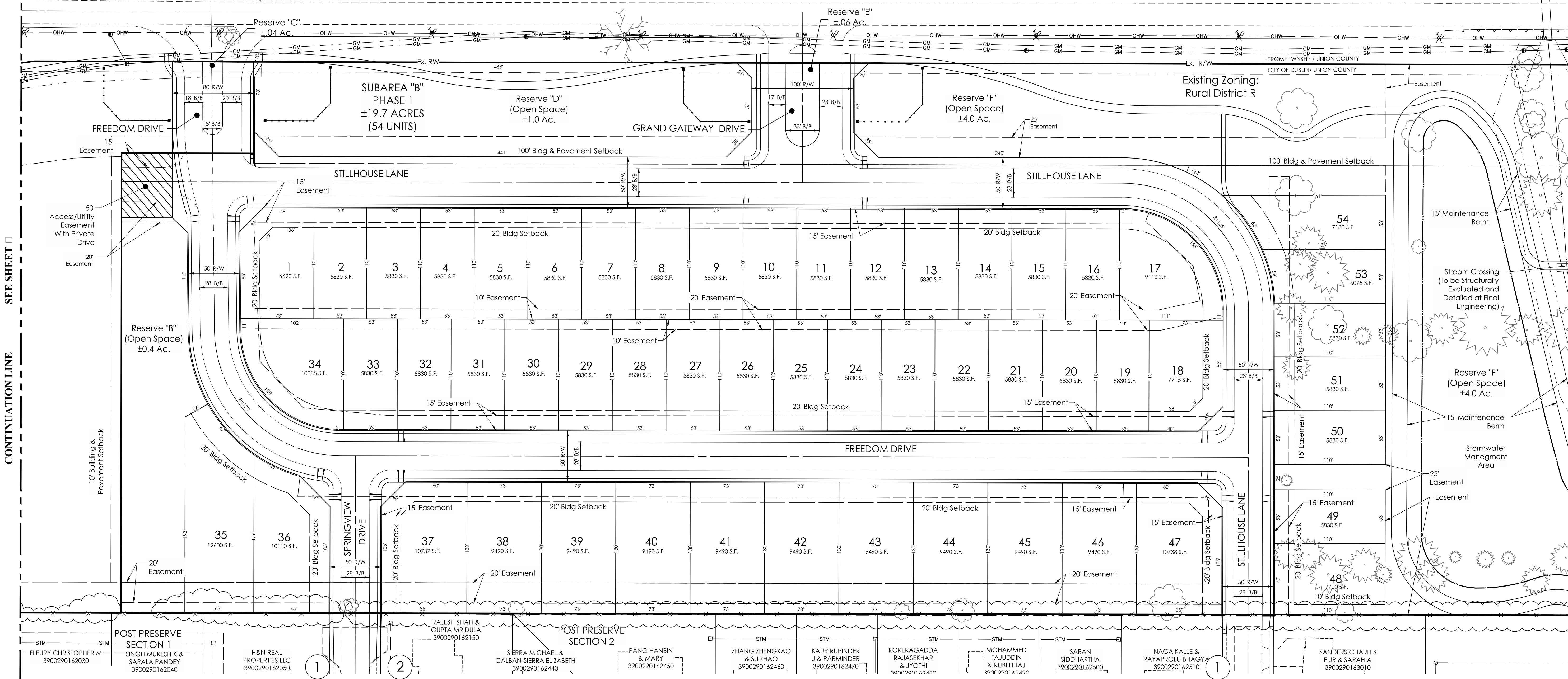
HYLAND-CROY ROAD

SEE SHEET

CONTINUATION LINE

SEE SHEET

CONTINUATION LINE



NOTES:

1

Proposed Public Streets will be Connected to Existing Streets

2

Existing Hammerhead at Springview Lane to be Removed as Existing Easements Allow, with Street Connection to Proposed Development

RESERVE OWNERSHIP/MAINTENANCE PLANS

|             | Ownership | Maintained By |
|-------------|-----------|---------------|
| Reserve "A" | ACLF      | ACLF          |
| Reserve "B" | CITY      | HOA           |
| Reserve "C" | CITY      | ACLF          |
| Reserve "D" | CITY      | HOA           |
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# DUBLIN GATEWAY

CITY OF DUBLIN, UNION COUNTY, OHIO

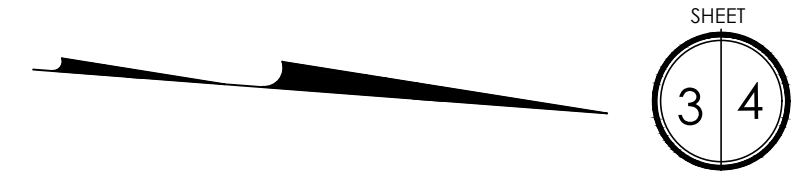
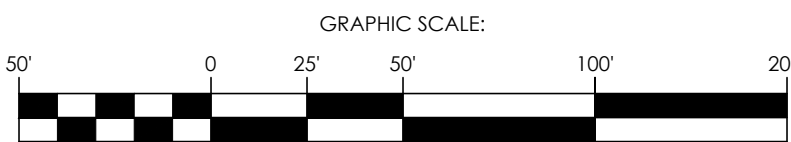
## PRELIMINARY PLAT

SCHOTTENSTEIN REAL ESTATE GROUP  
2 Easton Oval, Suite 150  
Columbus, OH 43219

PREPARED BY:



## PRELIMINARY PLAT



DUBLIN GATEWAY

FEBRUARY 4, 2020

20170464

SEE SHEET 3  
CONTINUATION LINE

WIRCHANSKI JOHN  
LAWRENCE  
1700310390010

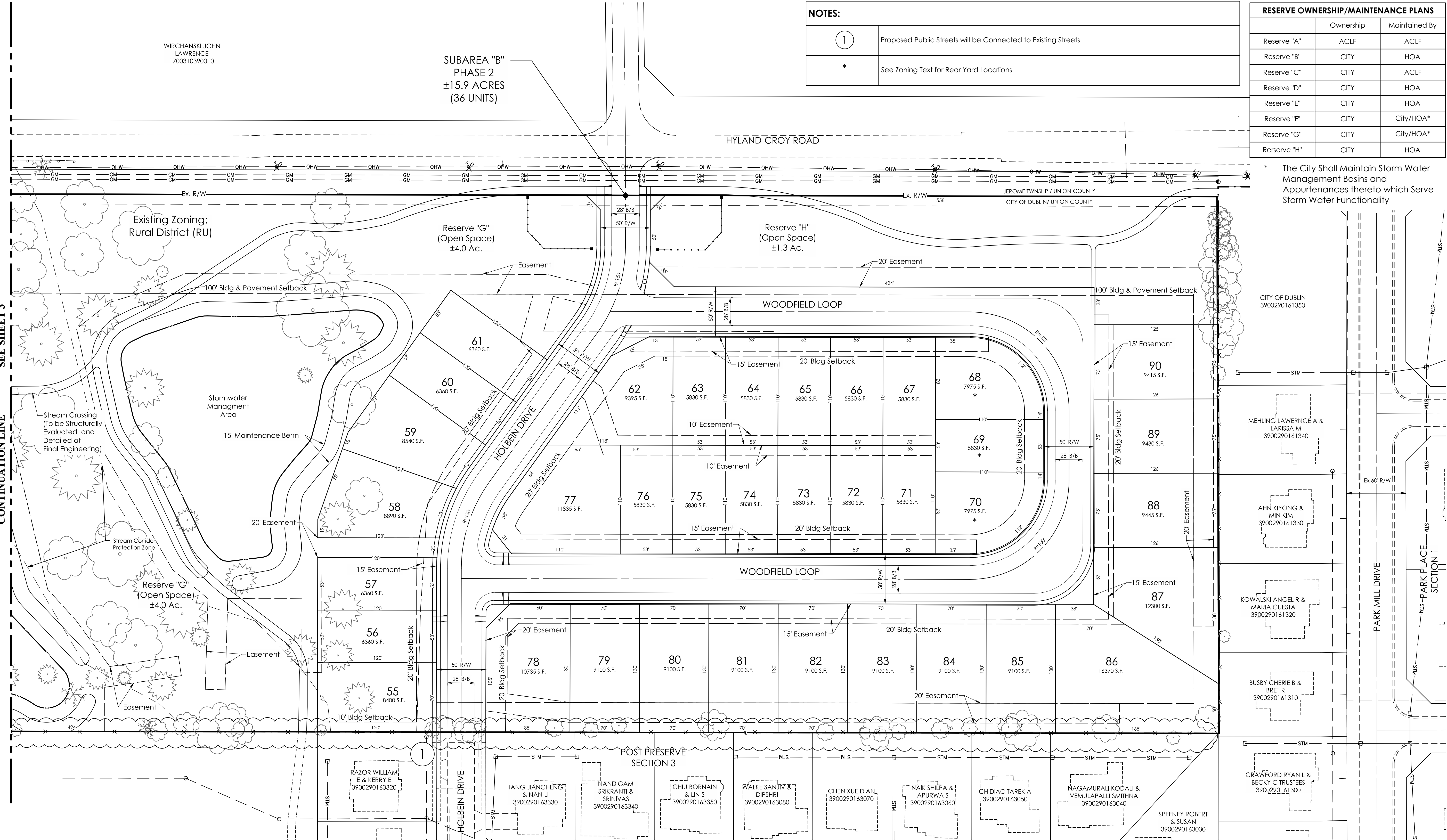
SUBAREA "B"  
PHASE 2  
±15.9 ACRES  
(36 UNITS)

NOTES:

- |   |   |
|---|---|
| ① | Proposed Public Streets will be Connected to Existing Streets |
| * | See Zoning Text for Rear Yard Locations                       |

| RESERVE OWNERSHIP/MAINTENANCE PLANS |           |               |
|-------------------------------------|-----------|---------------|
|                                     | Ownership | Maintained By |
| Reserve "A"                         | ACLF      | ACLF          |
| Reserve "B"                         | CITY      | HOA           |
| Reserve "C"                         | CITY      | ACLF          |
| Reserve "D"                         | CITY      | HOA           |
| Reserve "E"                         | CITY      | HOA           |
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| Reserve "G"                         | CITY      | City/HOA*     |
| Reserve "H"                         | CITY      | HOA           |

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# DUBLIN GATEWAY

CITY OF DUBLIN, UNION COUNTY, OHIO  
PRELIMINARY PLAT

SCHOTTENSTEIN REAL ESTATE GROUP  
2 Easton Oval, Suite 150  
Columbus, OH 43219

PREPARED BY:

**EMHT**  
Evans, Mechwart, Hambleton & Tilton, Inc.  
Engineers • Surveyors • Planners • Scientists  
5500 New Albany Road, Columbus, OH 43054  
Phone: 614.775.4900 • Toll Free: 800.775.3648  
emht.com

## PRELIMINARY PLAT

