DRAINAGE MEMORANDUM

CITYGATE II

NW Corner Westings Avenue & Comfort Drive

Naperville, IL 60563

Prepared by:
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Prepared on: March 6, 2026

Kimley»Horn

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1. PROJECT DESCRIPTION

CityGate Centre Ventures II, LLC plans to construct a multi-family residential building with surface parking, a covered parking garage, and associated utilities on a 4.966-acre lot. The proposed parcels are a part of a previously permitted drainage design. The site is bound to the north by Ferry Road; Comfort Drive to the east; to the south by Westings Avenue, and to the west by CityGate Lane.

This Stormwater Memorandum is to supplement the existing approved drainage design for the subject parcels. The existing Master Stormwater Plan prepared by Holabird & Root, and later revised by Spaceco in 1999, planned for alternative development of the site for the subject parcel. This memorandum summarizes the calculations demonstrating compliance with the previous design for the site hydrology in conjunction with the final engineering requirements for the site. Additionally, the intent of this memorandum is to demonstrate that the site will accommodate volume control best management practices (VCBMPs) as required by DuPage County via Post Construction Best Management Practices (PCBMPs).

1.1. Pre-Development Conditions

The existing site is partially covered by a surface parking lot and an open field with an existing pickle ball court and bioretention BMP. There is one access point on CityGate Lane currently in use for the surface parking lot and surrounding buildings. In existing conditions the onsite drainage for the surface parking is partially tributary to the existing private storm sewer network in CityGate Lane and to the existing bioretention area that ultimately releases south to the existing storm sewer network in Westings Avenue. It is then conveyed by the private storm sewer system to the regional detention system located on the south side of the overall development adjacent to the Calamos Office Building and Nicor Office Buildings, just north of Interstate-88. In a large storm event emergency condition, The site overland flows into Westings Avenue and ultimately to the same regional detention ponds.

Consistent with the previous approval of the adjacent Domain residential development, it is understood that a master drainage plan has been previously approved by the City. This master drainage plan incorporated the subject property and it is understood that detention has been provided for this property meeting the DuPage County Stormwater Management Ordinance. The provided detention was based on an impervious coverage of 80% after development of the subject property as approved by the City of Naperville. The provided detention was designed using Bulletin 70 rainfall data.

The site is located in the Naperville Quadrangle, and a USGS Topographic Map has been provided as **Exhibit 1** in this report. The FEMA FIRM Maps and Flood Insurance Panel Number 17043C0137J shown in **Exhibit 2** show the site within Zone X which indicates an area outside of the 100-year flood plain.

Per the NRCS soil map shown in **Exhibit 3**, most of the site consists of Orthents, loamy, C rating. A NRCS soil map is included in the attachments of this report.

1.2. Post-Development Conditions

The proposed development will consist of a multi-family residential building. The proposed development is consistent with the impervious area requirements and does not exceed the allowable impervious area that has been master planned for the development (see attached **Exhibit 4**). We show the following coverage:

Proposed Impervious Area	Allowable Impervious Area
70%	80%

Stormwater runoff from the site will be routed through storm inlets to a naturalized bioretention area. This stormwater bioretention BMP will be constructed utilizing a 4" perforated pipe wrapped in fabric and surrounded by stone as indicated on the civil plans and details.

2. DRAINAGE DESIGN SUMMARY

DuPage County BMP Requirements

Per DuPage County Stormwater Ordinance Article VIII 15-63, the development is required to treat stormwater runoff for pollutants of concern and reduce runoff volume for the site via post construction best management practices design criteria (i.e. PCBMPs).

A natively vegetated, wetland bottom bioretention facility has been designed to treat the runoff prior to discharge. Refer to The Grading Plan and Utility Plan included in the civil engineering plan set included as a part of this submittal for the stormwater routings of these facilities.

The off-site regional stormwater basin that currently provides detention for this parcel was designed using Bulletin 70 rainfall data. This rainfall data was used to run the HydroCAD model which calculates the total site runoff based on Bulletin 70 rainfall data and an 80% impervious coverage. As shown in **Exhibit 5**, the allowable release rate for the site as it was master-planned is 4.07 cfs for the 100-yr, 24-hour storm.

The City of Naperville has since updated their stormwater requirements to Bulletin 75 rainfall data. A HydroCAD model was developed that determined the Bulletin 75 rainfall data over the proposed development (70% impervious coverage) resulted in a flow rate greater than the allowable 4.07 cfs. A 6" orifice is used to restrict the flow from the bioretention BMP. See **Exhibit 6** for a HydroCAD model showing the proposed development including the 6" orifice restrictor from the bioretention BMP. As shown in **Exhibit 6**, the proposed release rate of the development is 3.57 cfs.

Proposed Release Rate	Allowable Release Rate
3.57 cfs	4.07 cfs

Storm Sewer Design

The majority of the storm sewer conveyance system was designed to meet the capacity of a 10-yr storm event using Hydraflow Storm Sewer Extensions, Version 10. In areas where an overland flow route is not possible, such as the courtyard area, storm sewer was designed to meet the capacity

of a 100-yr storm event. A runoff coefficient of 0.9 was used for impervious areas, and a runoff coefficient of 0.4 was used for pervious areas. A weighted runoff coefficient for each drainage area was estimated and a minimum time of concentration of 10 minutes was assumed for each drainage area.

A Storm Sewer Drainage Area Map has been provided in **Exhibit 7,** the 10-year Hydraflow analysis is provided in **Exhibit 8**, and the 100-yr Hydraflow analysis is provided in **Exhibit 9**.

3. BEST MANAGEMENT PRACTICES

The following erosion control measures for the site include, but are not limited to:

1. Silt Fence – Silt fence is a synthetic permeable mesh fabric typically incorporating wooden support stakes at intervals sufficient to support the fence and water and sediment retained by the fence. Silt fence is also available with a wire mesh backing. The fence is designed to retain sediment-laden water to allow settlement of suspended soils before filtering through the mesh fabric for discharge downstream. Silt fence shall be located to capture overland, low-velocity sheet flow. It shall be installed at the downstream location of all site runoff. Silt fence has the capacity to handle 0.25 acre per 100 feet of silt fence length.
2. Construction Entrance/Exit – All access points from the public street into the construction site shall include a construction entrance/exit composed of coarse stone to the dimensions shown on the Construction Drawings. The rough texture of the stone helps to remove clumps of soil adhering to construction vehicle tires through the action of vibration and jarring over the rough surface and the friction of the stone matrix against soils attached to vehicle tires.
3. Storm Sewer Inlet Protection – Grated inlets are protected from the intrusion of silt and sediment through a variety of measures as shown on the Construction Drawings. The primary mechanism is to place controls in the path of flow sufficient to slow sediment-laden water to allow settlement of suspended soils before discharging into the storm sewer system. Controls typically provide a secondary benefit by means of filtration. Grated inlets typically include a sturdy frame wrapped in silt fence, a prefabricated inlet basket or crushed stone-lined perimeter to slow the flow of water.
4. Concrete Washout Area – A concrete washout area shall be designated to control all concrete materials generated, including the wash water. This area shall be cleaned per local standards when it is 75% full.
5. Stormwater Infiltration Trench – A permanent stormwater infiltration trench will be constructed utilizing a 4” perforated pipe wrapped in fabric and surrounded by stone as indicated in the civil plans and details. The building roof drains will be tributary to this system such that the “first flush” from a rain event will be promoted to infiltrate into the ground providing groundwater recharge and Total Suspended Solids removal.

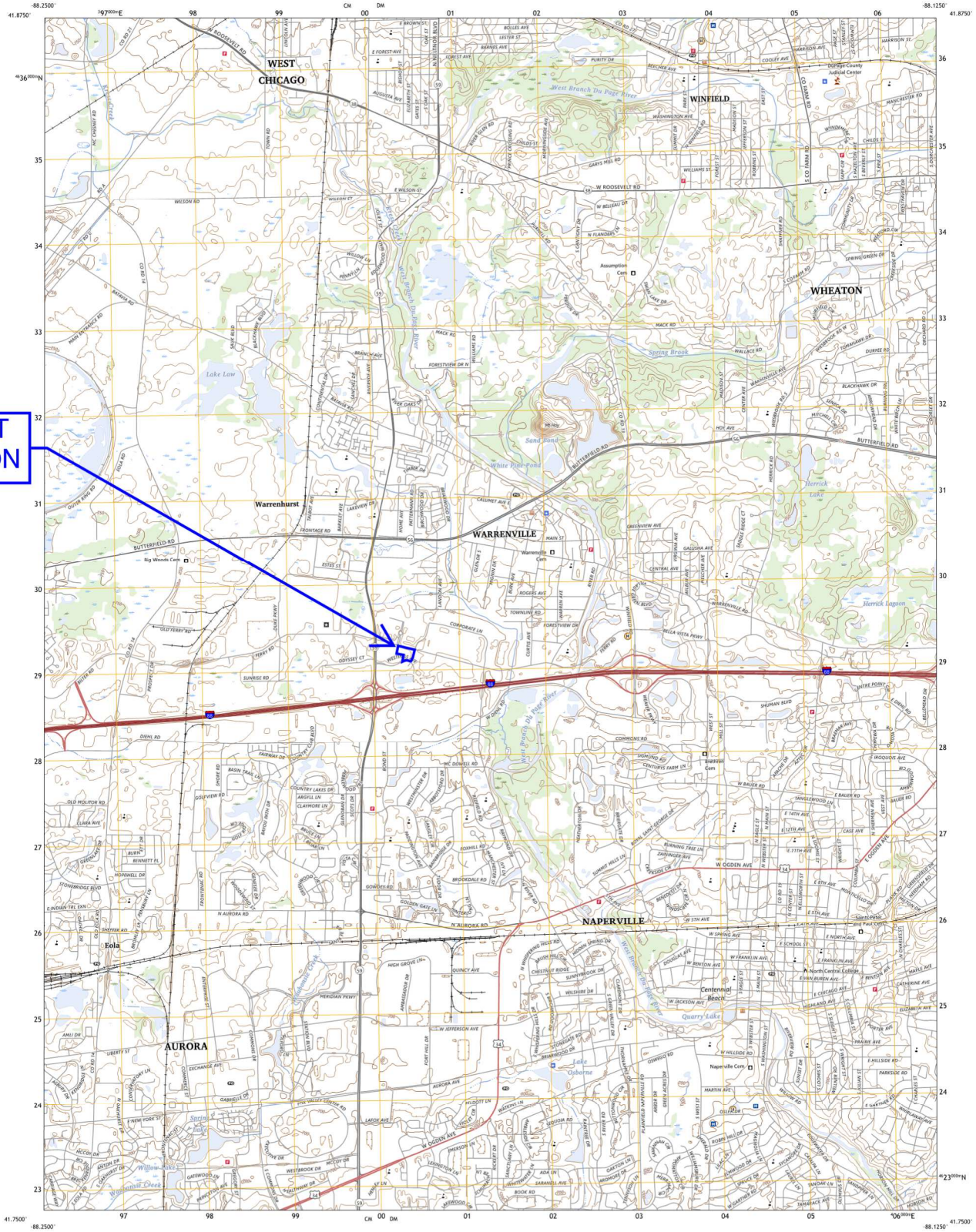
Exhibit 1
USGS Topographic Map

USGS science for a changing world

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

NAPERVILLE QUADRANGLE
ILLINOIS - DUPAGE COUNTY
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 16T
This map is not a legal document. Boundaries may be
generalized for this map scale, Private lands within government
reservations may not be shown. Obtain permission before
entering private lands.

Imagery.....NAIP, September 2019 - September 2019
Roads.....U.S. Census Bureau, 2017
Names.....GNIS, 1980 - 2023
Hydrography.....National Hydrography Dataset, 2002 - 2022
Contours.....National Elevation Dataset, 2024
Boundaries.....Multiple sources; see metadata file 2021 - 2022
Public Land Survey System.....BLM, 2020
Wetlands.....FWS National Wetlands Inventory Not Available

UTM GRID AND 2023 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
VQ
CM | DM
Grid Zone Designation
16T

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
0.5
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the
National Geospatial Program US Topo Product Standard.

ILLINOIS
QUADRANGLE LOCATION

ROAD CLASSIFICATION
Expressway — Local Connector
Secondary Hwy — Local Road
Ramp — 4WD
Interstate Route | US Route | State Route

1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES
1 Geneva
2 West Chicago
3 Lombard
4 Aurora North
5 Wheaton
6 Aurora South
7 Normantown
8 Romeoville

NAPERVILLE, IL
2024

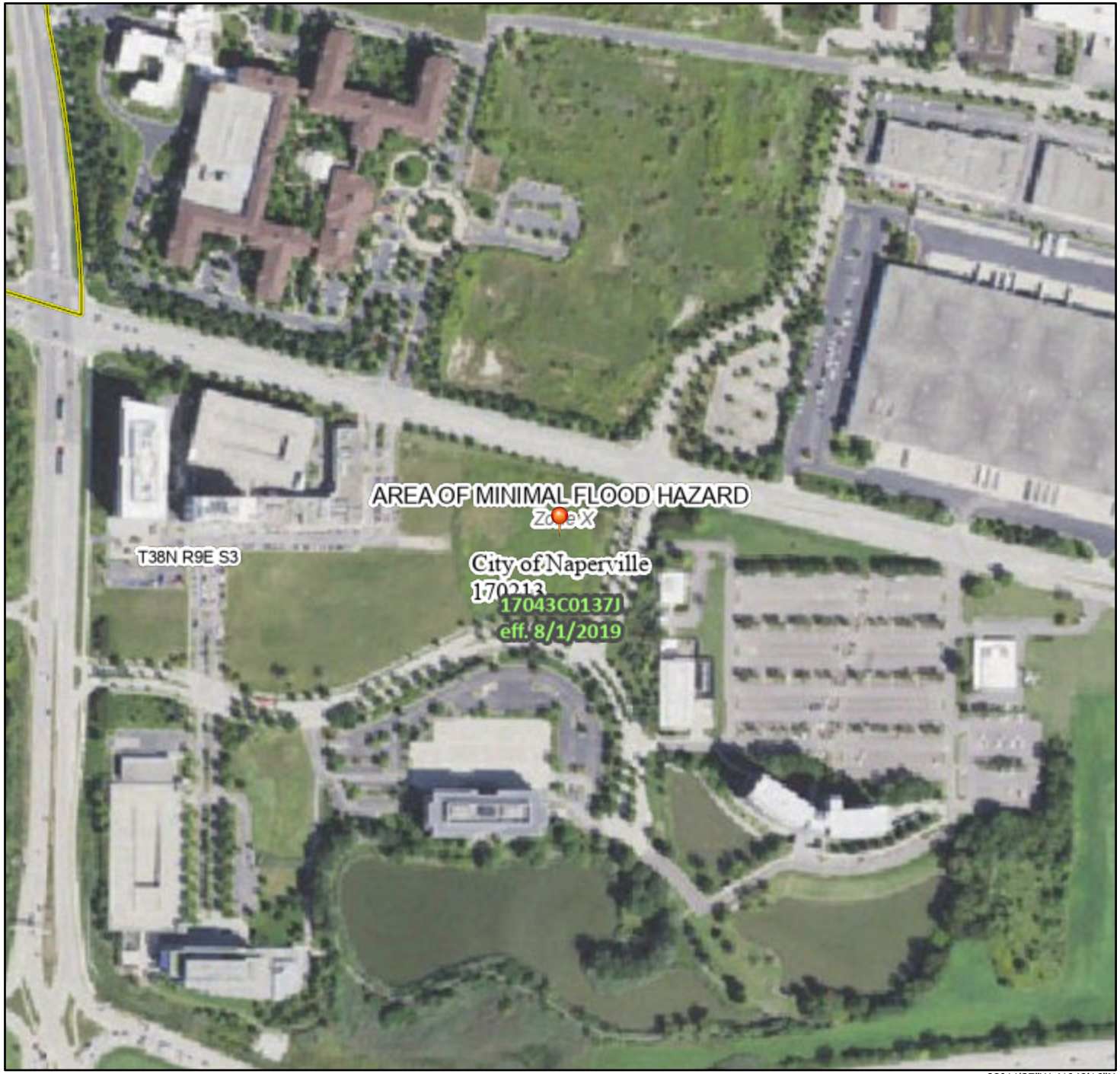
NSN
NGA REF NO. USGS24K1515

Exhibit 2
FEMA FIRM Panel

National Flood Hazard Layer FIRMette

FEMA

88°12'15"W 41°48'43"N



88°11'37"W 41°48'16"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

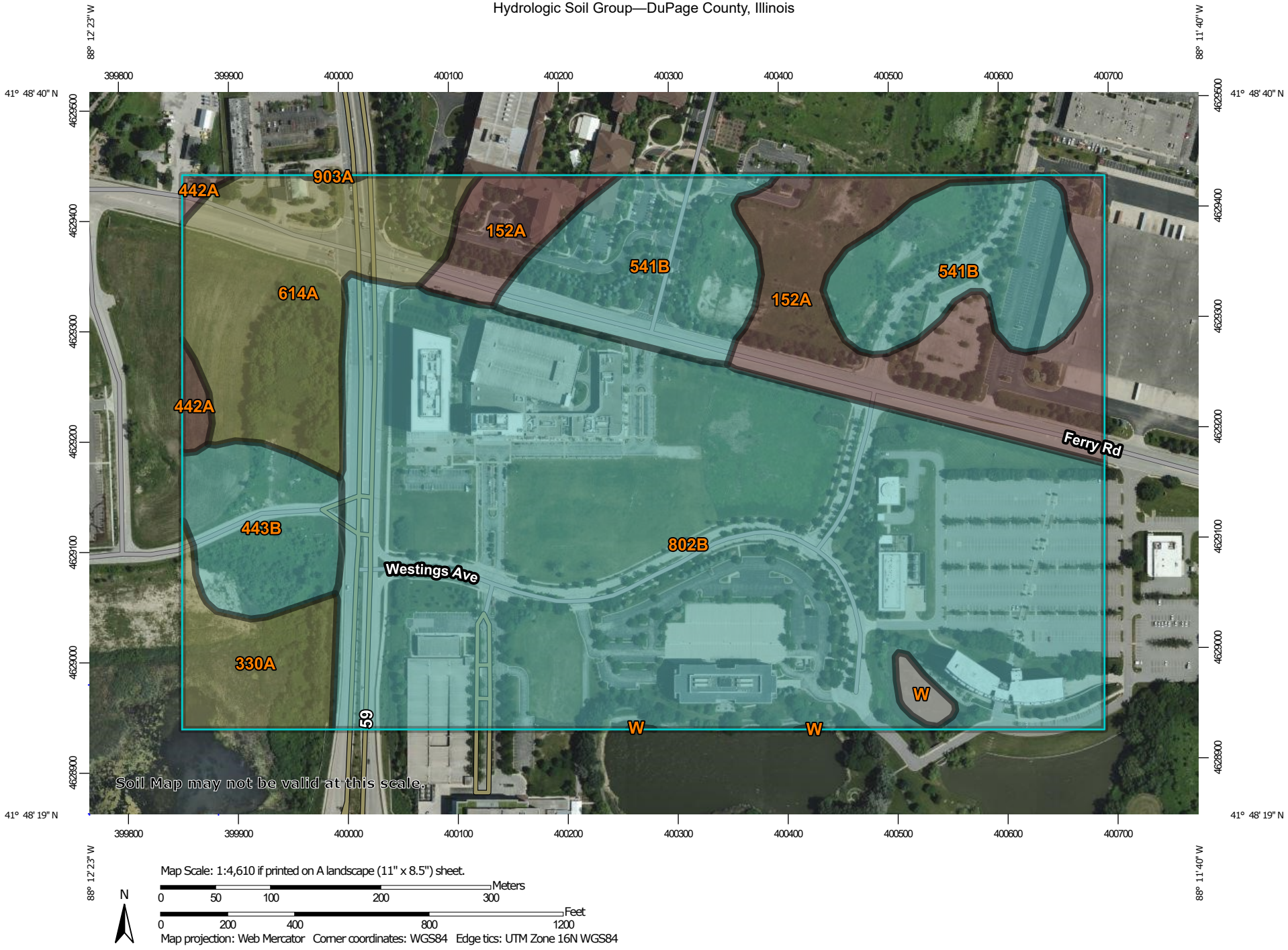
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/16/2025 at 7:03 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Exhibit 3
NRCS Soils Map



Map Scale: 1:4,610 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

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 1:12,000.

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

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

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

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

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

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

Soil Survey Area: DuPage County, Illinois
Survey Area Data: Version 21, Aug 31, 2025

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

Date(s) aerial images were photographed: Jun 13, 2020—Jul 6, 2020

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
152A	Drummer silty clay loam, 0 to 2 percent slopes	B/D	13.5	12.9%
330A	Peotone silty clay loam, 0 to 2 percent slopes	C/D	4.0	3.8%
442A	Mundelein silt loam, 0 to 2 percent slopes	B/D	0.7	0.7%
443B	Barrington silt loam, 2 to 4 percent slopes	C	4.8	4.6%
541B	Graymont silt loam, 2 to 5 percent slopes	C	13.9	13.3%
614A	Chenoa silty clay loam, 0 to 2 percent slopes	C/D	10.8	10.3%
802B	Orthents, loamy, 1 to 6 percent slopes	C	56.3	53.8%
903A	Muskego and Houghton mucks, 0 to 2 percent slopes	C/D	0.0	0.0%
W	Water		0.5	0.5%
Totals for Area of Interest			**104.6**	**100.0%**

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.

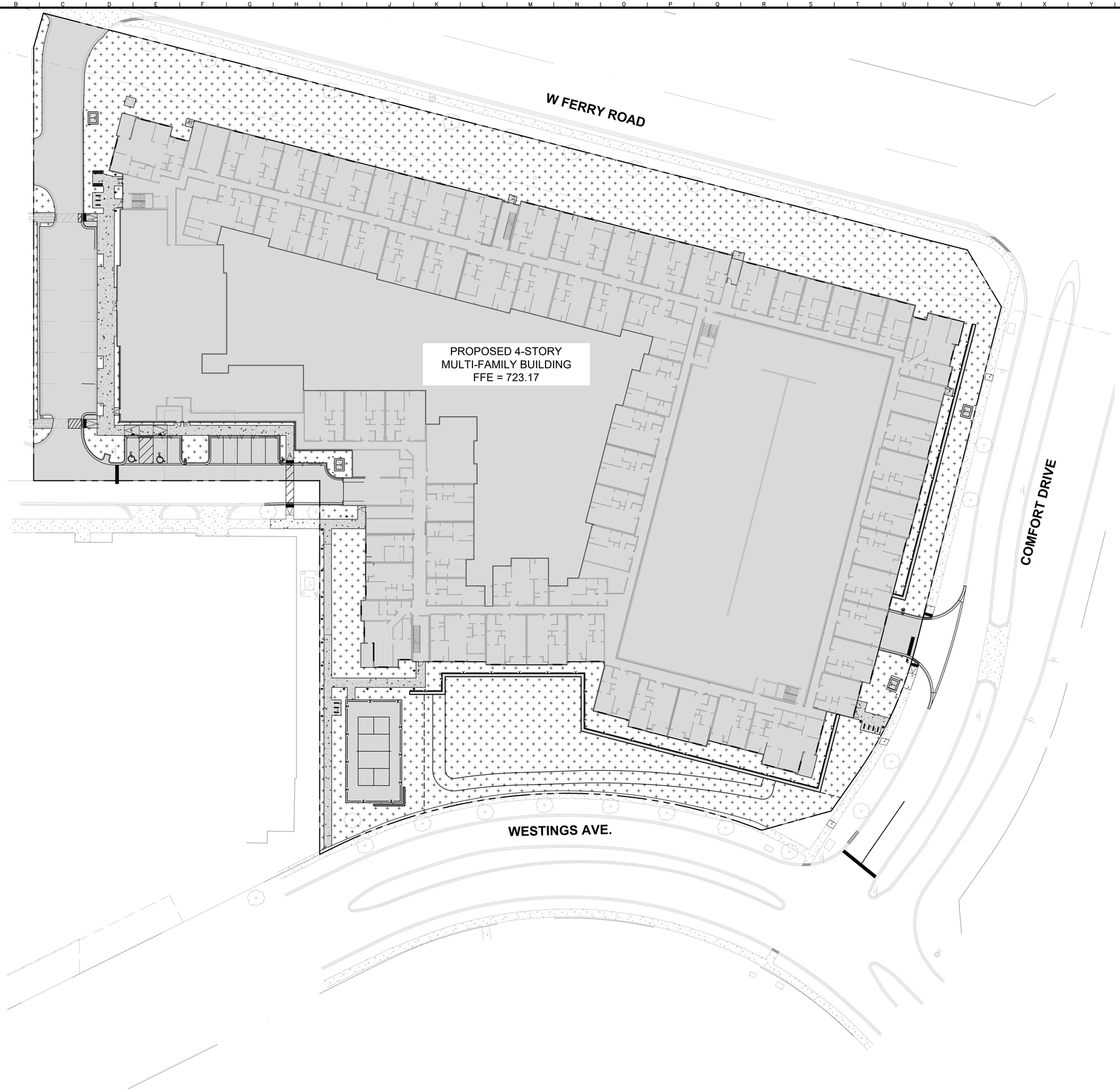
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Exhibit 4
Impervious Area Exhibit



Call Before You Dig
JULIE
1-800-892-0123

NORTH

GRAPHIC SCALE IN FEET
0 15 30 60

LEGEND

- PERVIOUS AREA
- PROPERTY LINE
- IMPERVIOUS AREA

SUMMARY

TOTAL SITE AREA	=	4.96 AC
PERVIOUS AREA	=	1.49 AC
IMPERVIOUS AREA	=	3.47 AC

No.	REVISIONS	DATE	BY
1	CITY COMMENTS	03/09/26	TRE

Kimley»Horn

4201 WINFIELD ROAD, SUITE 600
WARRENVILLE, IL 60555
PHONE: 630-487-9650
WWW.KIMLEY-HORN.COM

SCALE: AS NOTED
DESIGNED BY: OTL
DRAWN BY: ARG
CHECKED BY: TRE

Willow Bridge

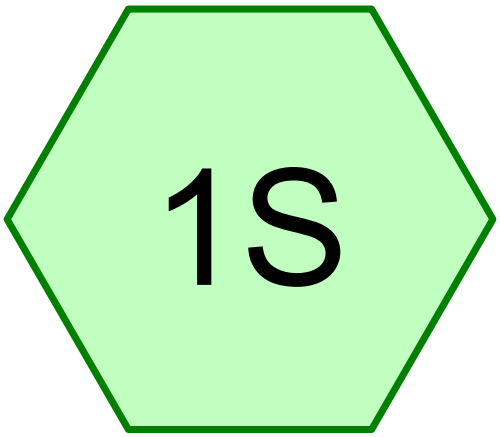
IMPERVIOUS AREA EXHIBIT

CITYGATE II
2160 CITYGATE LANE
NAPERVILLE, IL 60563

ORIGINAL ISSUE: 12/19/2025
KHA PROJECT NO. 268930001
SHEET NUMBER
EX.

Exhibit 5

Historic Stormwater Report
HydroCAD



Historic SWM Report

Subcat Reach Pond Link

Routing Diagram for 2026-0226 Pre Condition Bulletin 70
Prepared by Kimley-Horn & Associates, Printed 3/4/2026

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2 YR-24.00HR	Huff 0-10sm	3Q	Scale	24.00	1	3.04	2
2	10YR-024.00HR	Huff 0-10sm	3Q	Scale	24.00	1	4.47	2
3	50YR-024.00HR	Huff 0-10sm	3Q	Scale	24.00	1	6.46	2
4	100YR-001.00HR	Huff 0-10sm	1Q	Scale	1.00	1	3.56	2
5	100YR-002.00HR	Huff 0-10sm	1Q	Scale	2.00	1	4.47	2
6	100YR-003.00HR	Huff 0-10sm	1Q	Scale	3.00	1	4.85	2
7	100YR-006.00HR	Huff 0-10sm	1Q	Scale	6.00	1	5.68	2
8	100YR-012.00HR	Huff 0-10sm	2Q	Scale	12.00	1	6.59	2
9	100YR-024.00HR	Huff 0-10sm	3Q	Scale	24.00	1	7.58	2

Summary for Subcatchment 1S: Historic SWM Report

Runoff = 4.07 cfs @ 15.68 hrs, Volume= 2.788 af, Depth= 6.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-200.00 hrs, dt= 0.10 hrs
Huff 0-10sm 3Q scaled to 24.00 hrs 100YR-024.00HR Rainfall=7.58"

Area (ac)	CN	Description
3.968	98	Water Surface, HSG C
0.992	74	>75% Grass cover, Good, HSG C
4.960	93	Weighted Average
0.992		20.00% Pervious Area
3.968		80.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 1S: Historic SWM Report

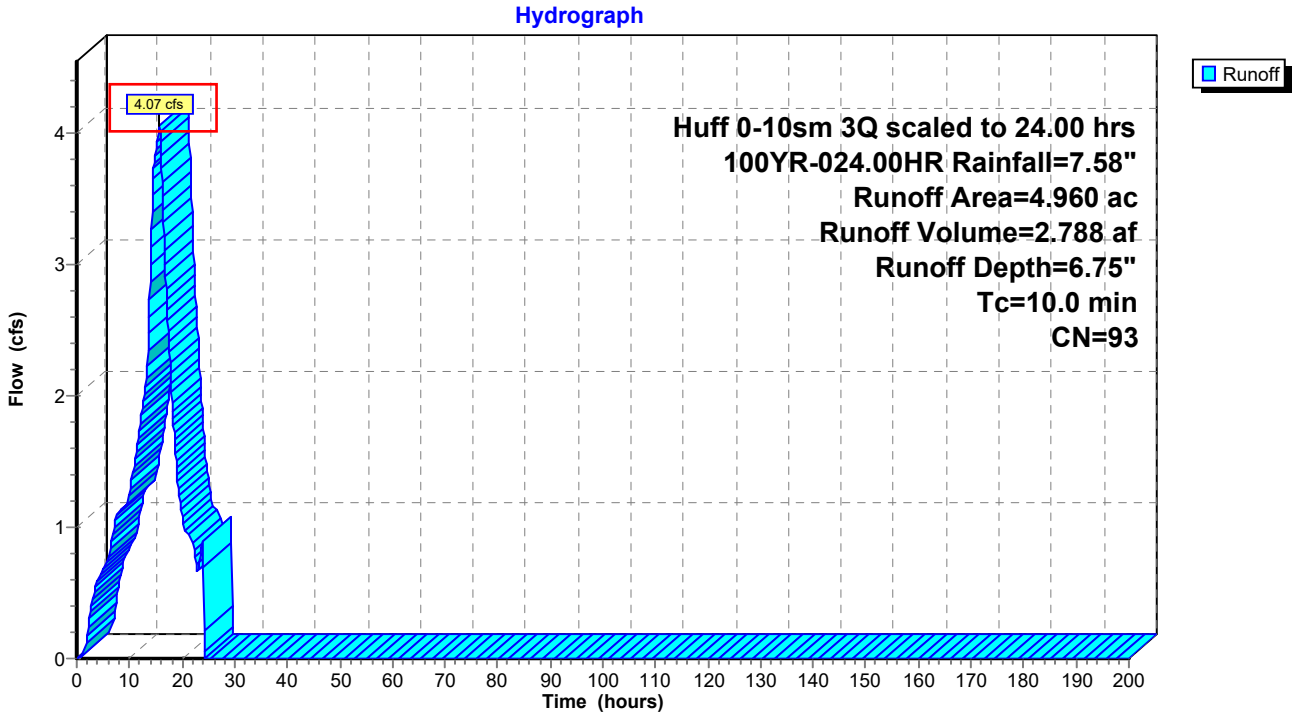
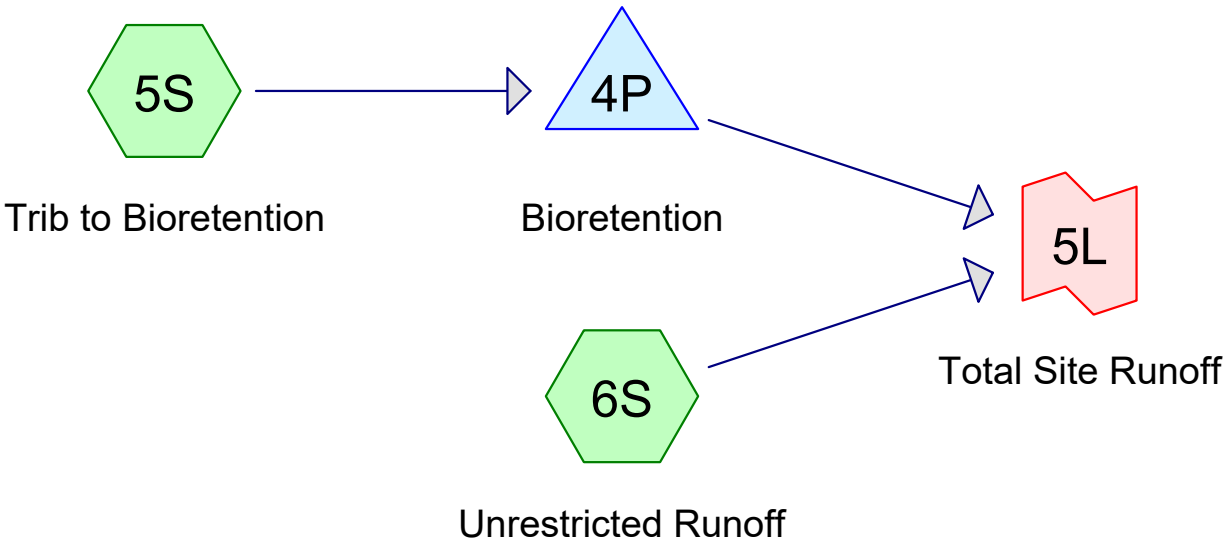


Exhibit 6
Proposed Development
HydroCAD



Subcat Reach Pond Link

Routing Diagram for 2026-0226 Post Condition Bulletin 75
Prepared by Kimley-Horn & Associates, Printed 3/6/2026

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2 YR - 024 HR	Huff 0-10sm	3Q	Scale	24.00	1	3.34	2
2	10 YR - 024 HR	Huff 0-10sm	3Q	Scale	24.00	1	5.15	2
3	25 YR - 024 HR	Huff 0-10sm	3Q	Scale	24.00	1	6.45	2
4	100 YR - 001 HR	Huff 0-10sm	1Q	Scale	1.00	1	4.03	2
5	100 YR - 002 HR	Huff 0-10sm	1Q	Scale	2.00	1	4.97	2
6	100 YR - 003 HR	Huff 0-10sm	1Q	Scale	3.00	1	5.49	2
7	100 YR - 006 HR	Huff 0-10sm	1Q	Scale	6.00	1	6.43	2
8	100 YR - 012 HR	Huff 0-10sm	2Q	Scale	12.00	1	7.46	2
9	100 YR - 018 HR	Huff 0-10sm	3Q	Scale	18.00	1	8.06	2
10	100 YR - 024 HR	Huff 0-10sm	3Q	Scale	24.00	1	8.57	2
11	100 YR - 048 HR	Huff 0-10sm	4Q	Scale	48.00	1	9.28	2
12	100 YR - 072 HR	Huff 0-10sm	4Q	Scale	72.00	1	9.85	2
13	100 YR - 120 HR	Huff 0-10sm	4Q	Scale	120.00	1	10.66	2
14	100 YR - 240 HR	Huff 0-10sm	4Q	Scale	240.00	1	12.65	2

Summary for Subcatchment 5S: Trib to Bioretention

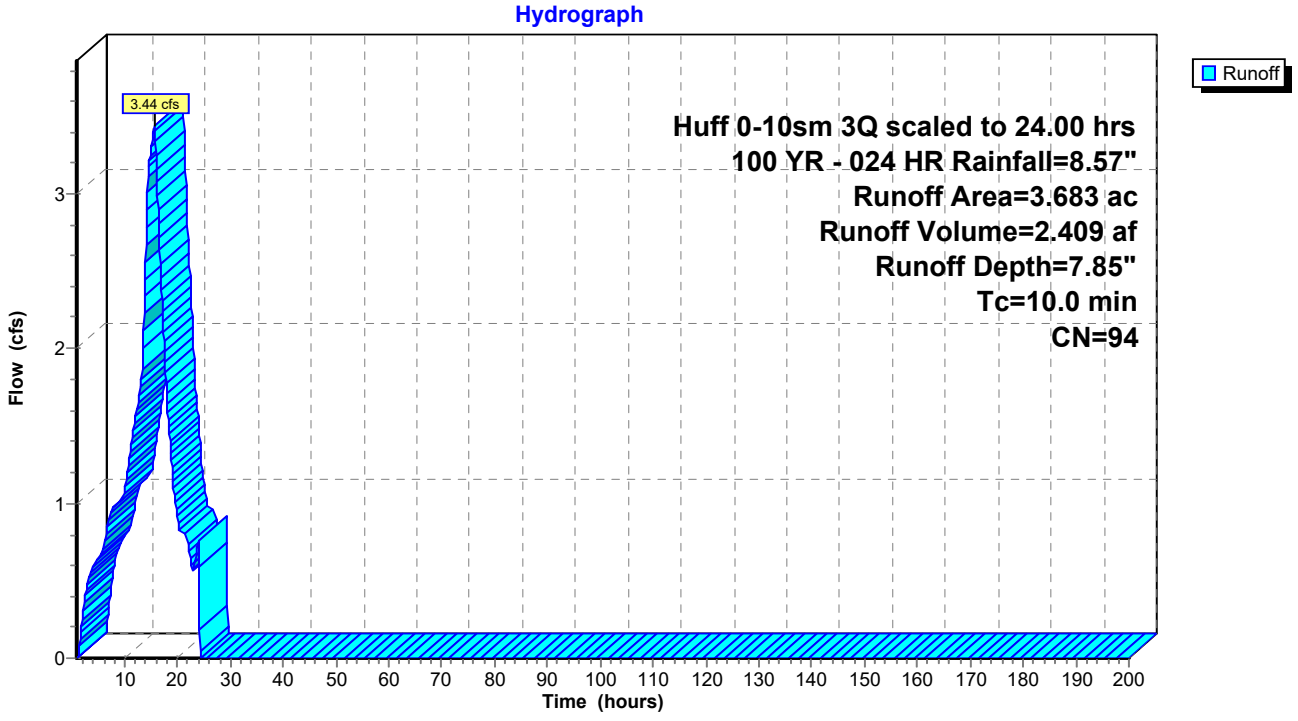
Runoff = 3.44 cfs @ 15.68 hrs, Volume= 2.409 af, Depth= 7.85"
Routed to Pond 4P : Bioretention

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-200.00 hrs, dt= 0.10 hrs
Huff 0-10sm 3Q scaled to 24.00 hrs 100 YR - 024 HR Rainfall=8.57"

Area (ac)	CN	Description
3.067	98	Water Surface, HSG C
0.616	74	>75% Grass cover, Good, HSG C
3.683	94	Weighted Average
0.616		16.73% Pervious Area
3.067		83.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 5S: Trib to Bioretention



Summary for Subcatchment 6S: Unrestricted Runoff

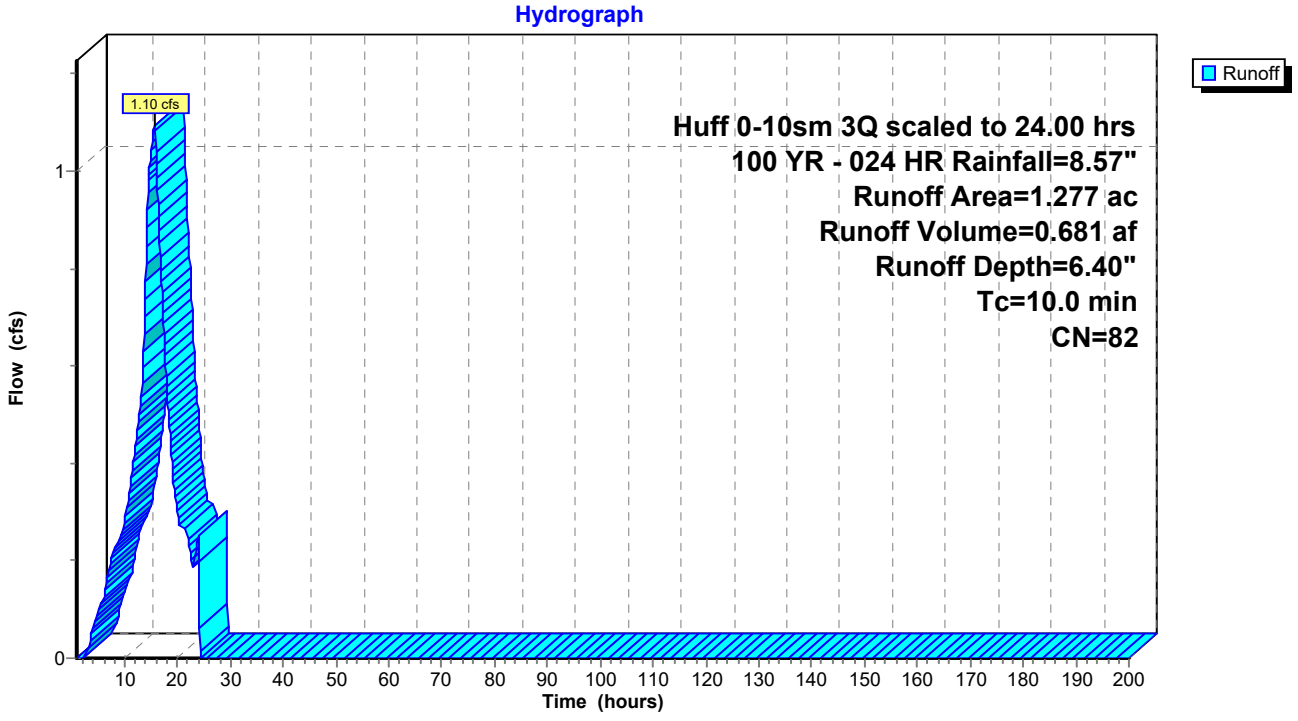
Runoff = 1.10 cfs @ 15.69 hrs, Volume= 0.681 af, Depth= 6.40"
Routed to Link 5L : Total Site Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-200.00 hrs, dt= 0.10 hrs
Huff 0-10sm 3Q scaled to 24.00 hrs 100 YR - 024 HR Rainfall=8.57"

Area (ac)	CN	Description
0.873	74	>75% Grass cover, Good, HSG C
0.404	98	Water Surface, HSG C
1.277	82	Weighted Average
0.873		68.36% Pervious Area
0.404		31.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 6S: Unrestricted Runoff



Summary for Pond 4P: Bioretention

Inflow Area = 3.683 ac, 83.27% Impervious, Inflow Depth = 7.85" for 100 YR - 024 HR event
Inflow = 3.44 cfs @ 15.68 hrs, Volume= 2.409 af
Outflow = 2.51 cfs @ 16.83 hrs, Volume= 2.234 af, Atten= 27%, Lag= 69.3 min
Primary = 2.51 cfs @ 16.83 hrs, Volume= 2.234 af
Routed to Link 5L : Total Site Runoff

Routing by Stor-Ind method, Time Span= 1.00-200.00 hrs, dt= 0.10 hrs
Peak Elev= 716.75' @ 16.83 hrs Surf.Area= 0.215 ac Storage= 0.377 af

Plug-Flow detention time= 119.3 min calculated for 2.234 af (93% of inflow)
Center-of-Mass det. time= 77.4 min (920.2 - 842.7)

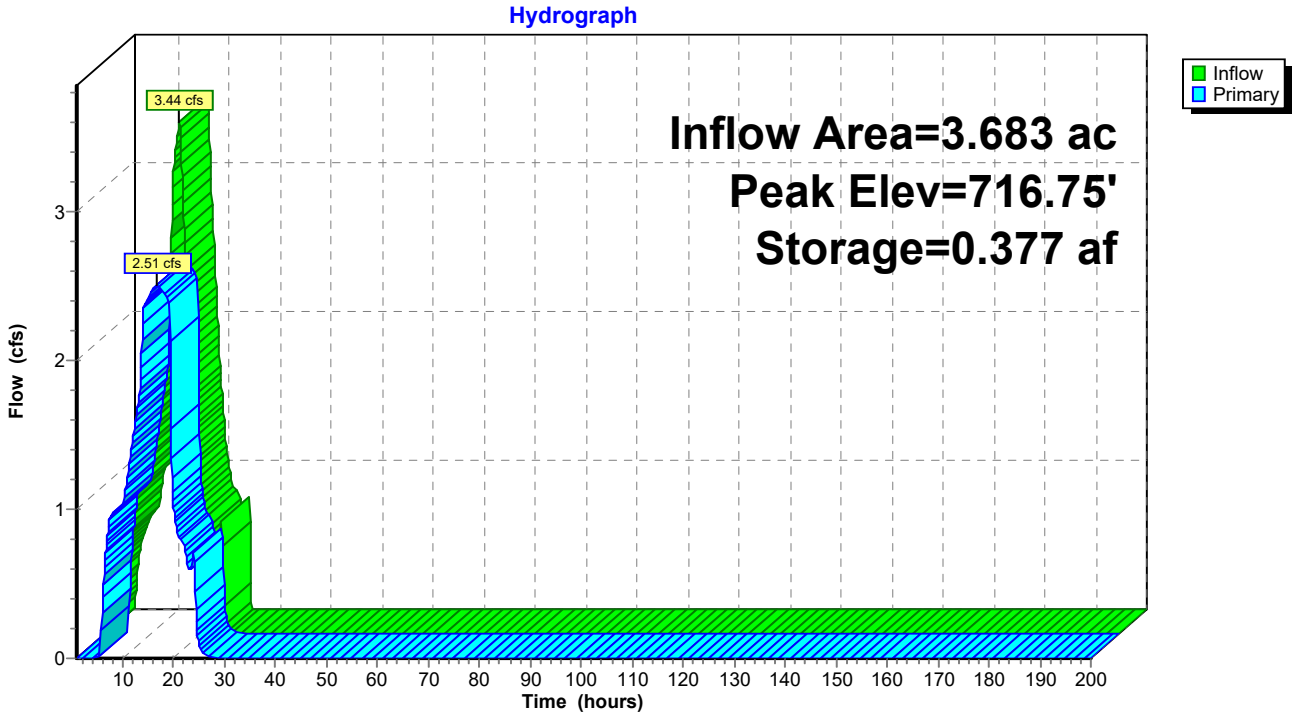
Volume	Invert	Avail.Storage	Storage Description
#1	714.75'	0.605 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
714.75	0.162	0.000	0.000
715.75	0.188	0.175	0.175
716.75	0.215	0.201	0.376
717.75	0.242	0.228	0.605

Device	Routing	Invert	Outlet Devices
#1	Device 2	715.75'	**21.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	709.45'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.51 cfs @ 16.83 hrs HW=716.75' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 2.51 cfs @ 12.79 fps)
↑—**1=Orifice/Grate** (Passes 2.51 cfs of 11.61 cfs potential flow)

Pond 4P: Bioretention



Summary for Link 5L: Total Site Runoff

Inflow Area = 4.960 ac, 69.98% Impervious, Inflow Depth = 7.05" for 100 YR - 024 HR event
Inflow = 3.57 cfs @ 15.74 hrs, Volume= 2.915 af
Primary = 3.57 cfs @ 15.74 hrs, Volume= 2.915 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-200.00 hrs, dt= 0.10 hrs

Link 5L: Total Site Runoff

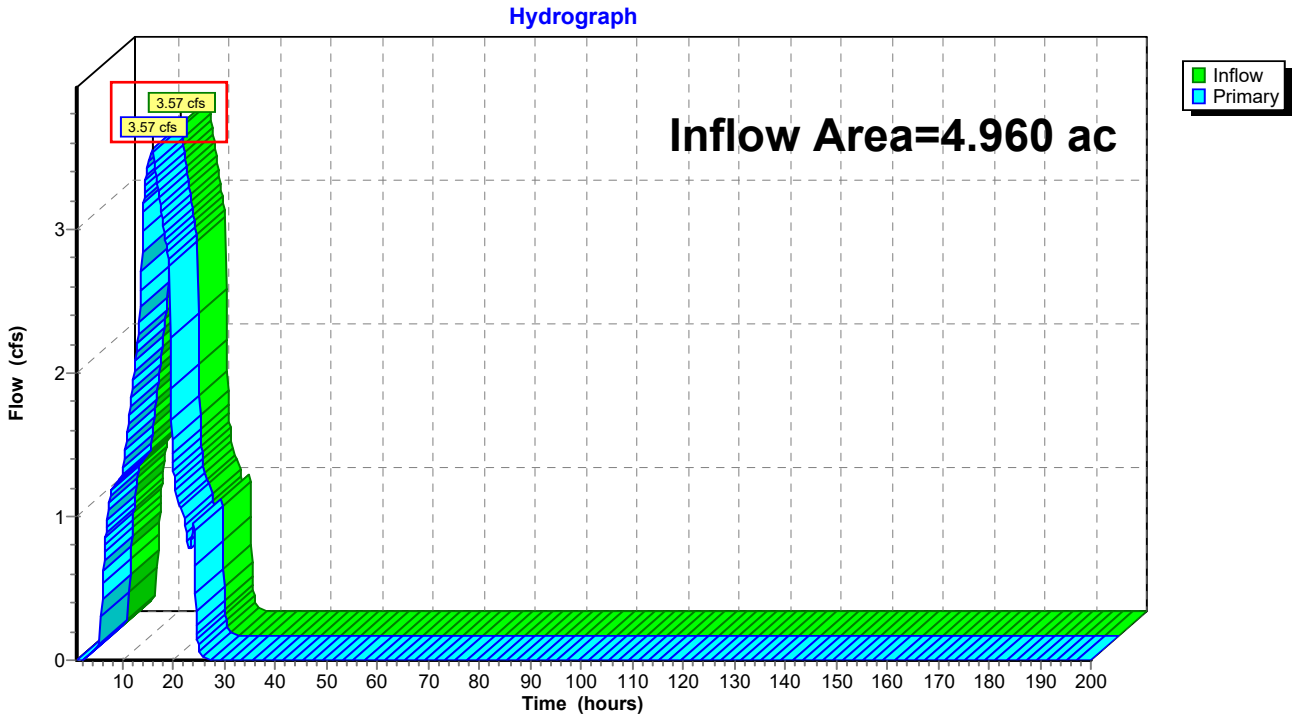
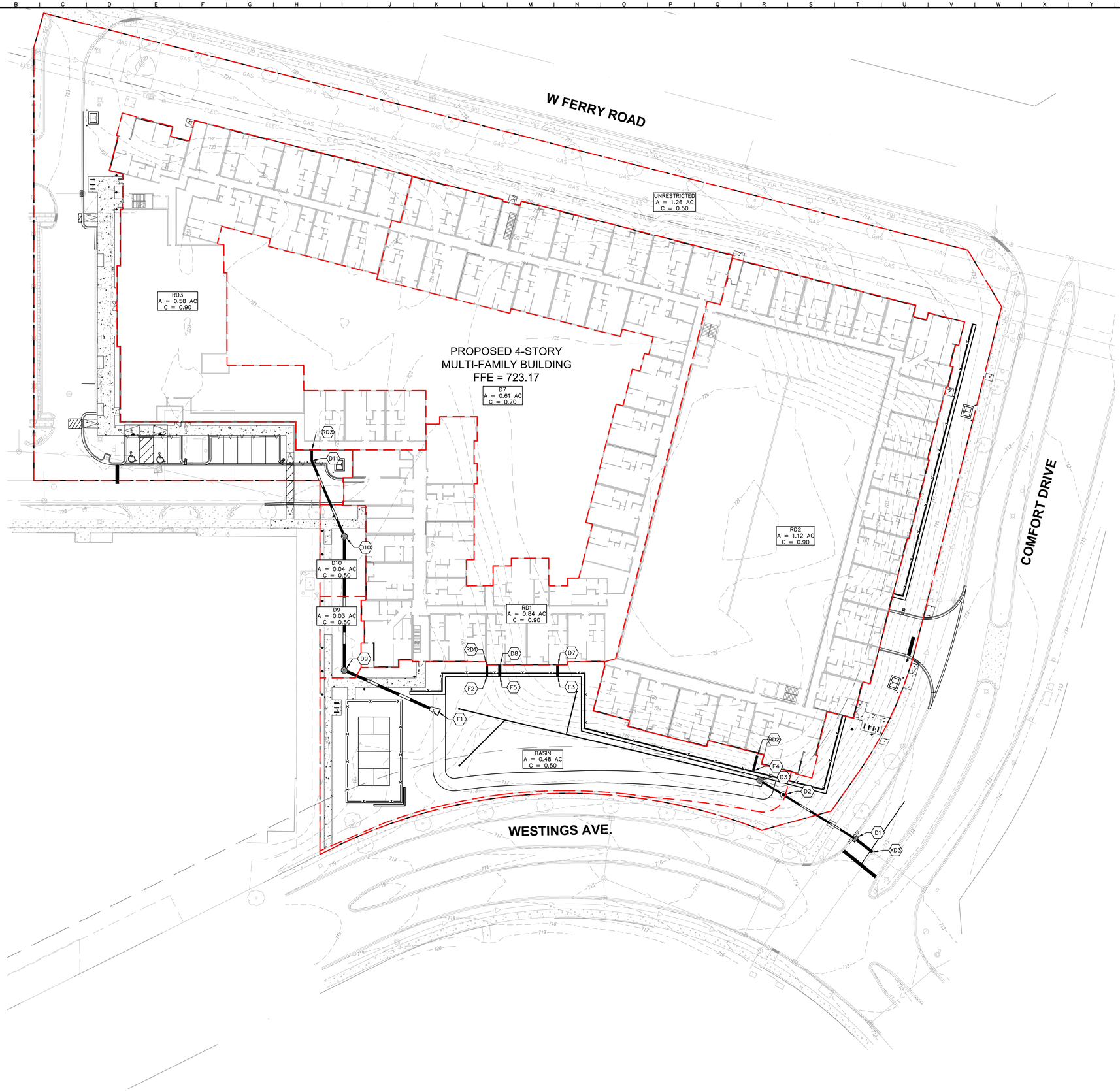


Exhibit 7
Drainage Area Map



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NORTH

GRAPHIC SCALE IN FEET
0 15 30 60

LEGEND

- DRAINAGE BOUNDARY
- XXX — EXISTING CONTOURS
- XXX — PROPOSED CONTOURS

NO.	REVISIONS	DATE	BY
1	CITY COMMENTS	03/06/26	TRE

Kimley»Horn

4201 WINFIELD ROAD, SUITE 600
WARRENVILLE, IL 60555
PHONE: (630) 487-9900
WWW.KIMLEY-HORN.COM

SCALE: AS NOTED
DESIGNED BY: OTL
DRAWN BY: ARG
CHECKED BY: TRE

Willow Bridge

DRAINAGE AREA EXHIBIT

CITYGATE II
2160 CITYGATE LANE
NAPERVILLE, IL 60563

ORIGINAL ISSUE:
12/19/2025

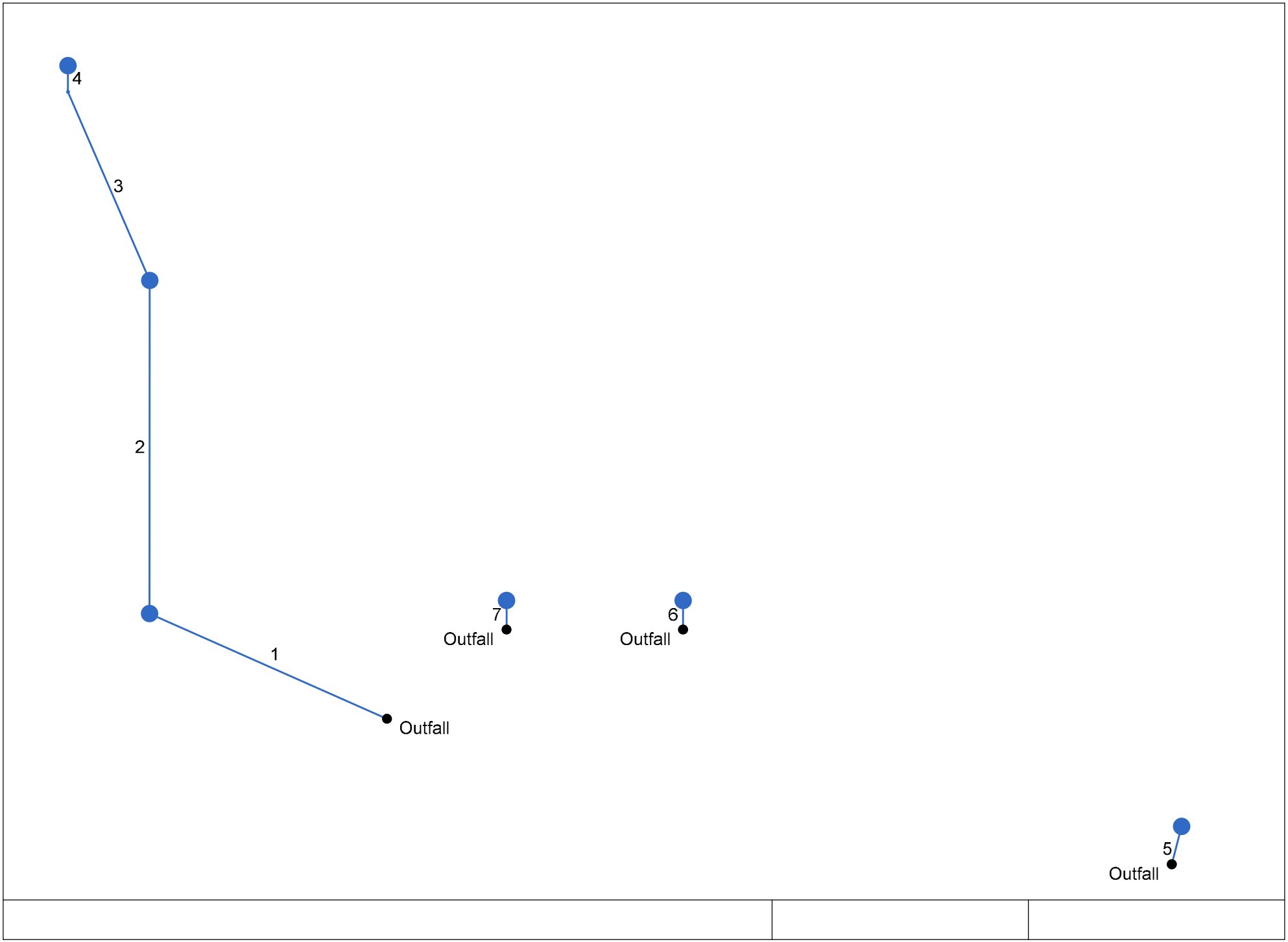
KHA PROJECT NO.
268930001

SHEET NUMBER

EX.

Exhibit 8
10-yr Hydraflow Storm Sewer Sizing

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Storm Sewer Tabulation

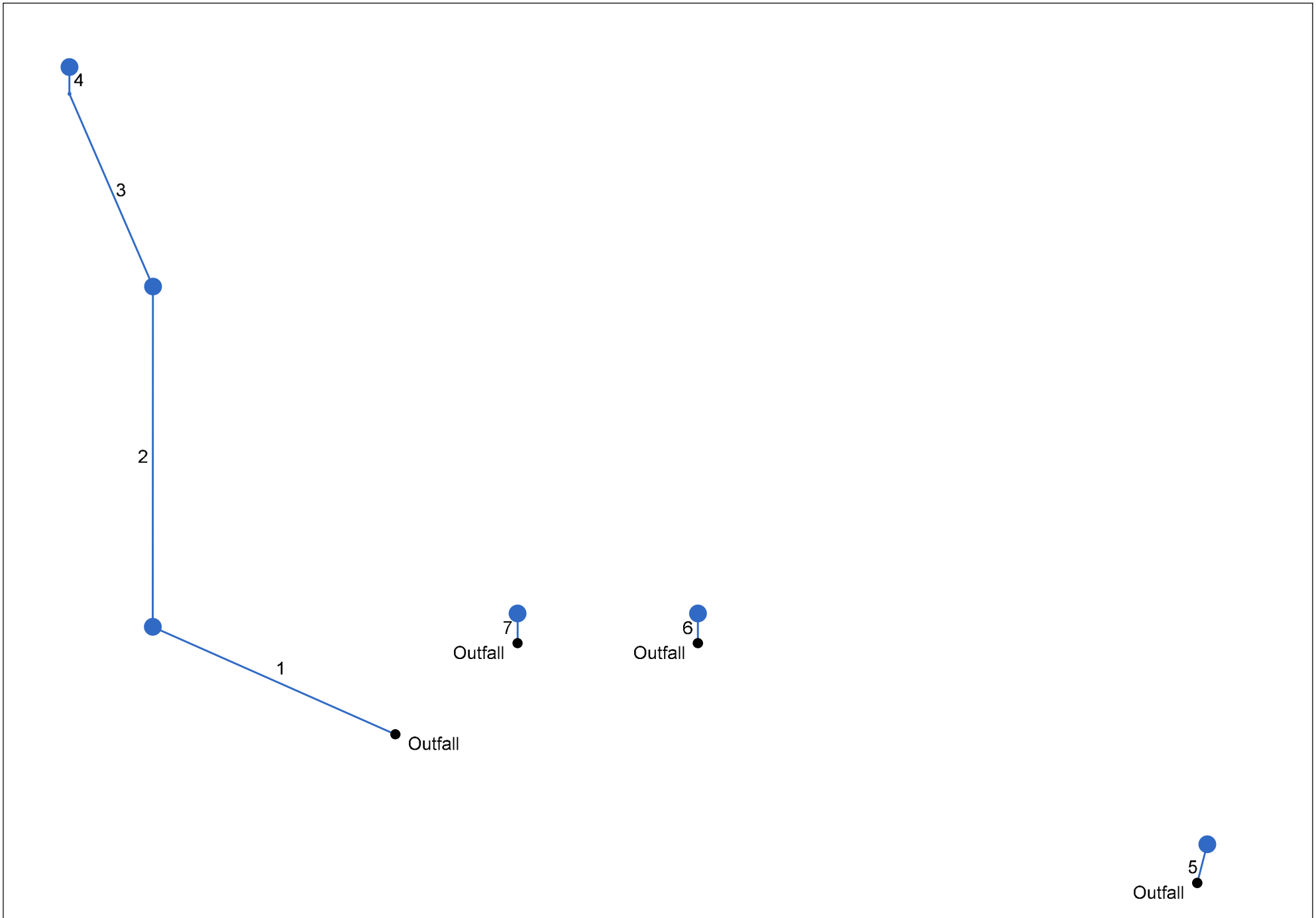
Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	66.660	0.03	0.65	0.50	0.02	0.56	10.0	10.9	6.3	3.51	4.59	4.12	15	0.51	715.73	716.07	716.55	716.89	717.26	721.50	D9 TO F1
2	1	85.907	0.04	0.62	0.50	0.02	0.54	10.0	10.4	6.4	3.47	4.57	3.50	15	0.50	716.07	716.50	717.13	717.35	721.50	721.50	D10 TO D9
3	2	52.981	0.00	0.58	0.00	0.00	0.52	0.0	10.1	6.5	3.38	4.95	3.73	15	0.50	716.50	716.76	717.46	717.55	721.50	722.26	D11 TO D10
4	3	6.767	0.58	0.58	0.90	0.52	0.52	10.0	10.0	6.5	3.39	4.95	3.58	15	0.50	716.76	716.80	717.67	717.68	722.26	718.91	RD3 TO D11
5	End	10.000	1.12	1.12	0.90	1.01	1.01	10.0	10.0	6.5	6.51	6.99	6.25	15	1.00	715.75	715.85	716.70	716.88	716.86	722.49	RD2 TO F4
6	End	7.500	0.61	0.61	0.70	0.42	0.42	10.0	10.0	6.5	2.75	6.46	4.59	15	1.00	715.75	715.83	716.32	716.49	717.54	722.50	D7 TO F3
7	End	7.500	0.84	0.84	0.90	0.75	0.75	10.0	10.0	6.5	4.87	5.46	7.17	12	2.00	715.75	715.90	716.49	716.81	716.86	722.50	RD1 TO F2

Project File: New.stm | Number of lines: 7 | Run Date: 3/6/2026

NOTES:Intensity = 111.09 / (Inlet time + 14.60) ^ 0.89; Return period =Yrs. 10 ; c = cir e = ellip b = box

Exhibit 9
100-yr Hydraflow Storm Sewer Sizing

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: New.stm	Number of lines: 7	Date: 3/6/2026

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
~~1~~	~~End~~	~~66.660~~	~~0.03~~	~~0.85~~	~~0.50~~	~~0.02~~	~~0.50~~	~~10.0~~	~~10.5~~	~~10.6~~	~~5.92~~	~~4.59~~	~~4.82~~	~~15~~	~~0.51~~	~~715.73~~	~~716.07~~	~~716.98~~	~~717.54~~	~~717.26~~	~~721.50~~	~~D9 TO F1~~
~~2~~	~~1~~	~~65.907~~	~~0.04~~	~~0.82~~	~~0.50~~	~~0.02~~	~~0.54~~	~~10.0~~	~~10.2~~	~~10.7~~	~~5.81~~	~~4.57~~	~~4.74~~	~~15~~	~~0.50~~	~~716.07~~	~~716.50~~	~~717.88~~	~~718.57~~	~~721.50~~	~~721.50~~	~~D10 TO D9~~
~~3~~	~~2~~	~~52.981~~	~~0.00~~	~~0.50~~	~~0.00~~	~~0.00~~	~~0.52~~	~~0.0~~	~~10.0~~	~~10.8~~	~~5.64~~	~~4.95~~	~~4.60~~	~~15~~	~~0.50~~	~~716.50~~	~~716.76~~	~~718.73~~	~~719.08~~	~~721.50~~	~~722.26~~	~~D11 TO D10~~
~~4~~	~~3~~	~~6.767~~	~~0.58~~	~~0.58~~	~~0.90~~	~~0.52~~	~~0.52~~	~~10.0~~	~~10.0~~	~~10.8~~	~~5.65~~	~~4.95~~	~~4.60~~	~~15~~	~~0.50~~	~~716.76~~	~~716.80~~	~~719.22~~	~~719.27~~	~~722.26~~	~~718.91~~	~~RD3 TO D11~~
~~5~~	~~End~~	~~10.000~~	~~1.12~~	~~1.12~~	~~0.90~~	~~1.01~~	~~1.01~~	~~10.0~~	~~10.0~~	~~10.8~~	~~10.85~~	~~6.99~~	~~8.85~~	~~15~~	~~1.00~~	~~715.75~~	~~715.85~~	~~717.00~~	~~717.24~~	~~716.86~~	~~722.49~~	~~RD2 TO F4~~
6	End	7.500	0.61	0.61	0.70	0.42	0.42	10.0	10.0	10.8	4.58	6.46	5.38	15	1.00	715.75	715.83	716.53	716.69	717.54	722.50	D7 TO F3
~~7~~	~~End~~	~~7.500~~	~~0.84~~	~~0.84~~	~~0.90~~	~~0.75~~	~~0.75~~	~~10.0~~	~~10.0~~	~~10.8~~	~~8.12~~	~~5.46~~	~~10.34~~	~~12~~	~~2.00~~	~~715.75~~	~~715.90~~	~~716.75~~	~~717.08~~	~~716.86~~	~~722.50~~	~~RD1 TO F2~~

Project File: New.stm | Number of lines: 7 | Run Date: 3/6/2026

NOTES:Intensity = 163.72 / (Inlet time + 13.40) ^ 0.86; Return period =Yrs. 100 ; c = cir e = ellip b = box