REPORT OF
STORMWATER MANAGEMENT

MCDONALD'S RESTAURANT
NSN45201 (013-1263)

7030 NORTHFIELD DRIVE
TOWN OF BROWNSBURG
HENDRICKS COUNTY, INDIANA

PREPARED FOR:

MCDONALD'S USA LLC
110 N. CARPENTER STREET
CHICAGO, IL 60607
CONTACT: AMY SWITZER

PREPARED BY:

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
10300 ALLIANCE ROAD, SUITE 300
CINCINNATI, OHIO 45242
CONTACT: TYLER AMICON, P.E.

CEC PROJECT 355-081

DECEMBER 4, 2025
REVISED FEBRUARY 13, 2026

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1.0 INTRODUCTION

This drainage report was prepared to document the analysis of the pre- and post-developed drainage conditions for the proposed McDonald's drive-through restaurant development to be located in Brownsburg, Hendricks County, Indiana.

Current Owner Information (as of 12/04/2025)
Company: Christian Brothers Automotive Corporation
Address: 17725 Katy Freeway, Suite 200, Houston, TX 77094
Contact: Billy Green Jr, Director of Land Acquisition & Permitting
Email: billy.green@cbac.com
Phone: (281) 675-6192

New Owner Information
Company: McDonald's USA, LLC
Address: 110 N Carpenter Street, Chicago, IL 60607
Contact: Amy Switzer, Area Construction Manager
Email: amy.switzer@us.mcd.com
Phone: (913) 660-2205

The Subject Property consist of a 1.56-acre tract of land that is currently vacant and is part of the West Wynne Farms Planned Development. It is bounded to the north by Northfield Drive and to the west by S. Green Street. To the south exists property zoned commercial, and to the east property that is zoned residential. The Christian Brothers Development to the South of the Subject Property includes a regional detention basin as part of the overall development. This regional basin was designed to treat the storm water quality and quantity for the McDonald's property as outlined in the *Stormwater Narrative For: Christian Brothers Automotive* prepared by Progressive AE dated August 7, 2023, (revised November 2, 2023). See **Figure 3** – Vicinity Map.

The calculations in this report provide an analysis of the pre-developed site conditions, post-developed site conditions, storm sewer drainage areas, and storm sewer calculations for the

McDonald's Restaurant development. The post-development stormwater conveyance design shall be in accordance with the *Town of Brownsburg Stormwater Management Ordinance*. For detention storage volume and release rates, refer to *Stormwater Narrative for Christian Brothers Automotive,* prepared by Progressive AE, dated August 7, 2023, (revised November 2, 2023).

2.0 PRE-DEVELOPED CONDITIONS

The subject property is an unoccupied lot consisting of slabs of both asphalt and concrete pavement, a gravel drive, silt fence, and trees. The subject property has minimal topography with a slope averaging ~1%, which slopes from the southeast corner of the property to the northeast and northwest corners. The property does not have an on-site detention system; however, it does have access to the regional detention system located on the Christian Brothers development directly south of the subject property.

The pre-development drainage area used for the stormwater analysis includes 1.563 acres, made up of 0.251 acres of impervious areas and 1.311 acres of pervious open space. See the Pre-Development Drainage Map provided in **Figure 1** for reference.

3.0 POST-DEVELOPED CONDITIONS

The proposed improvements include the demolition of the existing pavement slabs on site and the construction of a new 4,398-square-foot McDonald's restaurant and drive-through, asphalt parking lot and drives, a dumpster pad and enclosure, landscaping, sidewalks, curbs, and gutters. There is a detention system on the property south of the McDonald's site that was designed to encompass the stormwater detention of the subject site as well as the site on which it is located. Based on the *Stormwater Narrative for Christian Brothers Automotive*, prepared by Progressive AE, dated August 7, 2023 (revised November 2, 2023), the existing detention pond on the Christian Brothers Automotive property was designed to treat the McDonald's outparcel for stormwater quality and quantity. The detention basin accounted for the McDonald's outparcel to be 80% impervious, see the *Proposed Stormwater Management Plan* in the *Stormwater Narrative for Christian Brothers Automotive*, prepared by Progressive AE. The proposed McDonald's development has 69.23% impervious area, which is less than the 80% impervious area allocated for the outparcel. Therefore, the proposed McDonald's development meets the allotted detention pond design parameters and will not require any additional stormwater management elements. See the Post-Development Drainage Map provided in **Figure 2** for reference.

4.0 STORMWATER CONVEYANCE ANALYSIS

The methods used for the design and analysis of the proposed stormwater conveyance and management system follow the Town of Brownsburg Stormwater Management Ordinance. The design for the storm sewer conveyance system was modeled using Hydraflow Storm Sewers Extension for AutoCAD Civil 3D Version 2020 (by Autodesk Inc.). The analysis of the storm sewer is provided below in **Section 4.1.** CEC is not proposing any new stormwater management facilities because the subject site does not exceed the design limits of the existing detention basin. For the stormwater quality and quantity analysis of the detention basin on the site south of the subject property, see the *Stormwater Narrative for Christian Brothers Automotive* prepared by Progressive AE, dated August 7, 2023, (revised November 2, 2023).

4.1 STORMWATER CONVEYANCE DESIGN

The proposed stormwater conveyance system for the subject site was designed to meet the *Town of Brownsburg Stormwater Management Ordinance* and the *Hendricks County Stormwater Technical Standards Manual*. The system was designed to convey the 10-year storm so that the

Hydraulic Grade Line is below the crowns of the pipe system and to contain up to the 100-year storm within the system. The system will be connected to an existing system on the property to the south, upstream of the outlet control structure for the existing detention basin. The time of concentration (Tc) used for the design was 10 minutes, which is based on an industry standard for developed land. The sewer pipes were assigned a Manning's "n" value of 0.012 as per the minimum value stated in the *Town of Brownsburg Stormwater Management Ordinance*. See the Storm Sewer Calculations provided in **Appendices 1 and 2**.

4.2 INLET ANALYSIS

The placement and sizing of the proposed inlets, within the proposed storm system, were determined based off the design requirements of the Brownsburg, Indiana Code of Ordinances, Title XV: Land Usage, Chapter 151.21, D3. According to the Code, inlet grate openings shall be designed to pass the 10-year peak flow with 50% of the inlet area clogged and result in a maximum 6-inch ponding depth. The storm conveyance system meets these requirements. Results were recorded for the 10-year event with the full inlet area open, and for the 10-year event with half the inlet length and width used to simulate the 50% clogged inlet area. See **Appendix 3** for the 10-year 0% clogged inlet calculation results and **Appendix 4** for the 10-year 50% clogged inlet calculation results.

FIGURE 1

PRE-DEVELOPMENT DRAINAGE MAP

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NOTE TO CONTRACTOR: PRIOR TO ANY EXCAVATION FOR UNDERGROUND UTILITIES, CONTRACTOR SHALL EXPOSE AND VERIFY LOCATIONS (HORIZONTAL AND VERTICAL) OF ALL EXISTING UTILITIES INCLUDING BUT NOT LIMITED TO GAS, WATER, BROADBAND, PHONE, SANITARY AND STORM SEWERS. ANY CONFLICT SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER AND APPROPRIATE AUTHORITIES

NOTES

1. SEE SHEET C001 FOR GENERAL NOTES.
2. CONTRACTOR SHALL REFER TO OTHER PLANS WITHIN THIS CONSTRUCTION SET FOR OTHER PERTINENT INFORMATION. IT IS NOT THE ENGINEER'S INTENT THAT ANY SINGLE PLAN SHEET IN THIS SET OF DOCUMENTS FULLY DEPICT ALL WORK ASSOCIATED WITH THE PROJECT.
3. EXISTING SITE INFORMATION/TOPOGRAPHY PREPARED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC., DATED SEPTEMBER 23, 2025.
4. ALL NEW STORM STRUCTURES ARE TO DISPLAY A PRECAST POLLUTION PREVENTION MESSAGE.
5. ALL DOWNSPOUTS WILL BE DIRECTLY CONNECTED TO THE PROPOSED STORM CONVEYANCE SYSTEM. SEE ARCHITECTURAL PLANS BY OTHERS FOR MORE INFORMATION.

LEGEND

(red dashed line)	EXISTING PROPERTY LINE
	EXISTING ADJACENT PROPERTY LINE
	EXISTING EASEMENT
	EXISTING RIGHT-OF-WAY
	EXISTING INDEX (MAJOR) CONTOUR
	EXISTING INTERMEDIATE (MINOR) CONTOUR
	EXISTING SETBACK
ST	EXISTING STORM PIPE
W	EXISTING WATER LINE
SAN	EXISTING SANITARY SEWER LINE
G	EXISTING GAS LINE
OH-E	EXISTING OVERHEAD WIRE
UG-E	EXISTING UNDERGROUND ELECTRIC LINE
FO	EXISTING FIBER OPTIC LINE
C	EXISTING UNDERGROUND CABLE LINE
	EXISTING ELECTRIC UTILITIES
	EXISTING WATER UTILITIES
1.31 ACRES	EXISTING PERVIOUS
0.25 ACRES	EXISTING IMPERVIOUS

TOTAL PRE-DEVELOPMENT AREA
1.56 AC
COMPOSITE CN =
TIME OF CONCENTRATION = 10 MINS

DRAFT

REVISION RECORD

NO	DATE	DESCRIPTION

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BROWNSBURG, IN

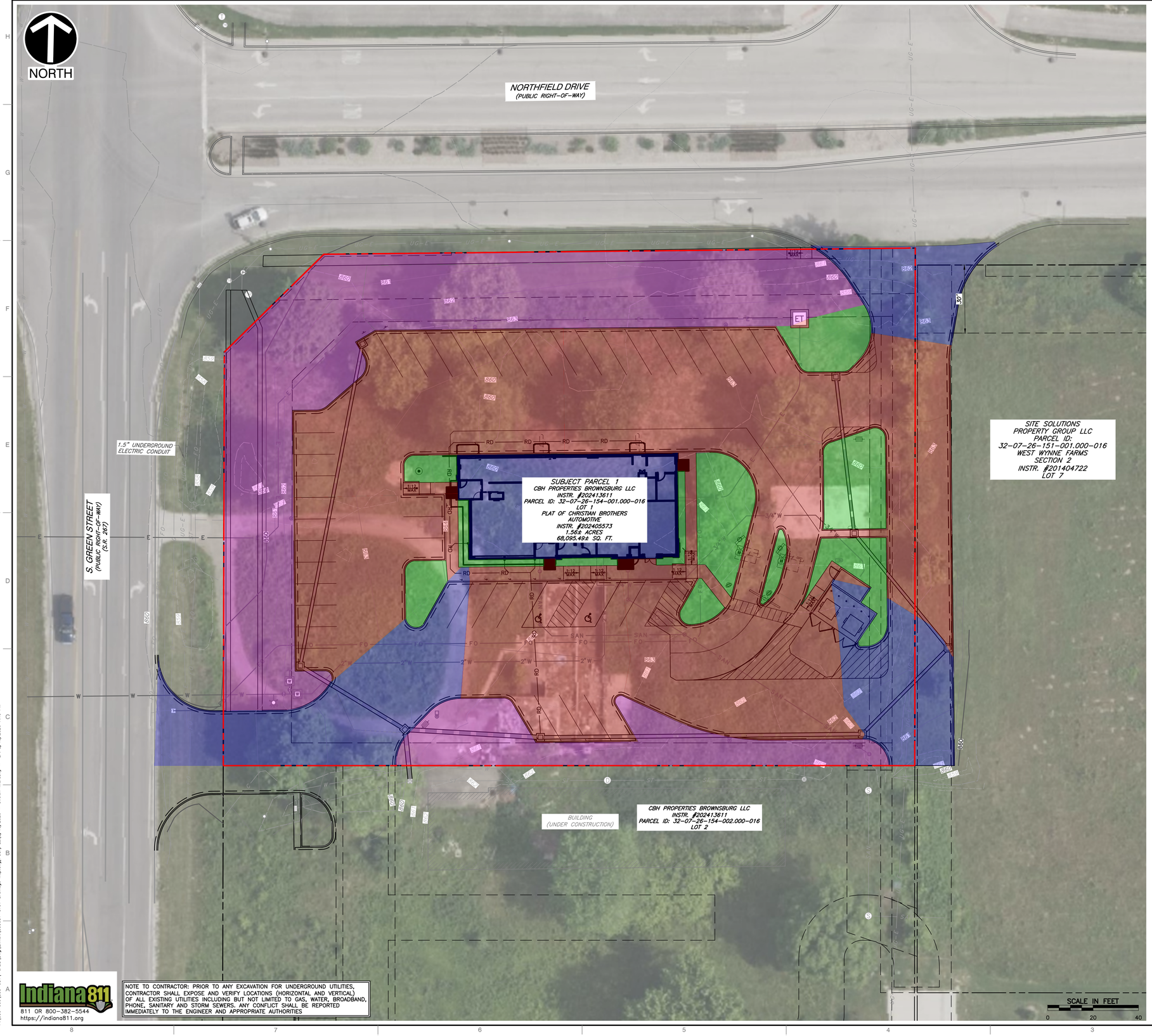
PRE-DEVELOPMENT DRAINAGE MAP

DATE:	FEBRUARY 13, 2026	DRAWN BY:	AWM
DWG SCALE:	1"=20'	CHECKED BY:	THA
PROJECT NO:	355-081	APPROVED BY:	DRAFT

DRAWING NO.:
DM-1
SHEET 1 OF 3

FIGURE 2

POST-DEVELOPMENT DRAINAGE MAP



1. EXISTING SITE INFORMATION/TOPOGRAPHY PREPARED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC., DATED SEPTEMBER 23, 2025.

LEGEND

- EXISTING PROPERTY LINE
- EXISTING ADJACENT PROPERTY LINE
- EXISTING EASEMENT
- EXISTING RIGHT-OF-WAY
- EXISTING INDEX (MAJOR) CONTOUR
- EXISTING INTERMEDIATE (MINOR) CONTOUR
- EXISTING SETBACK
- EXISTING STORM PIPE
- EXISTING WATER LINE
- EXISTING SANITARY SEWER LINE
- EXISTING GAS LINE
- EXISTING OVERHEAD WIRE
- EXISTING UNDERGROUND ELECTRIC LINE
- EXISTING FIBER OPTIC LINE
- EXISTING UNDERGROUND CABLE LINE
- EXISTING ELECTRIC UTILITIES
- EXISTING WATER UTILITIES
- EXISTING TRAFFIC UTILITIES
- EXISTING STORM STRUCTURES
- EXISTING SANITARY STRUCTURES
- PROPOSED STORM PIPE
- PROPOSED ROOF DRAIN
- PROPOSED ¾" WATER LINE
- PROPOSED 2" WATER LINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED UNDERGROUND ELECTRIC LINE
- PROPOSED FIBER OPTIC LINE
- PROPOSED STORM STRUCTURES
- PROPOSED WATER UTILITIES
- PROPOSED SANITARY CLEANOUT
- PROPOSED GREASE TRAP
- PROPOSED LIGHT POLE
- PROPOSED TRANSFORMER
- PROPOSED INDEX (MAJOR) CONTOUR
- PROPOSED INTERMEDIATE (MINOR) CONTOUR
- 0.13 ACRES — DETAINED PERVIOUS
- 0.80 ACRES — DETAINED IMPERVIOUS
- 0.41 ACRES — UNDETAINED PERVIOUS
- 0.33 ACRES — UNDETAINED IMPERVIOUS

DETAINED POST-DEVELOPMENT AREA
0.93 AC
COMPOSITE CN = 0.68
TIME OF CONCENTRATION = 10 MINS

UNDETAINED POST-DEVELOPMENT AREA
0.74 AC
COMPOSITE CN = 0.47
TIME OF CONCENTRATION = 10 MINS

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POST-DEVELOPMENT DRAINAGE MAP

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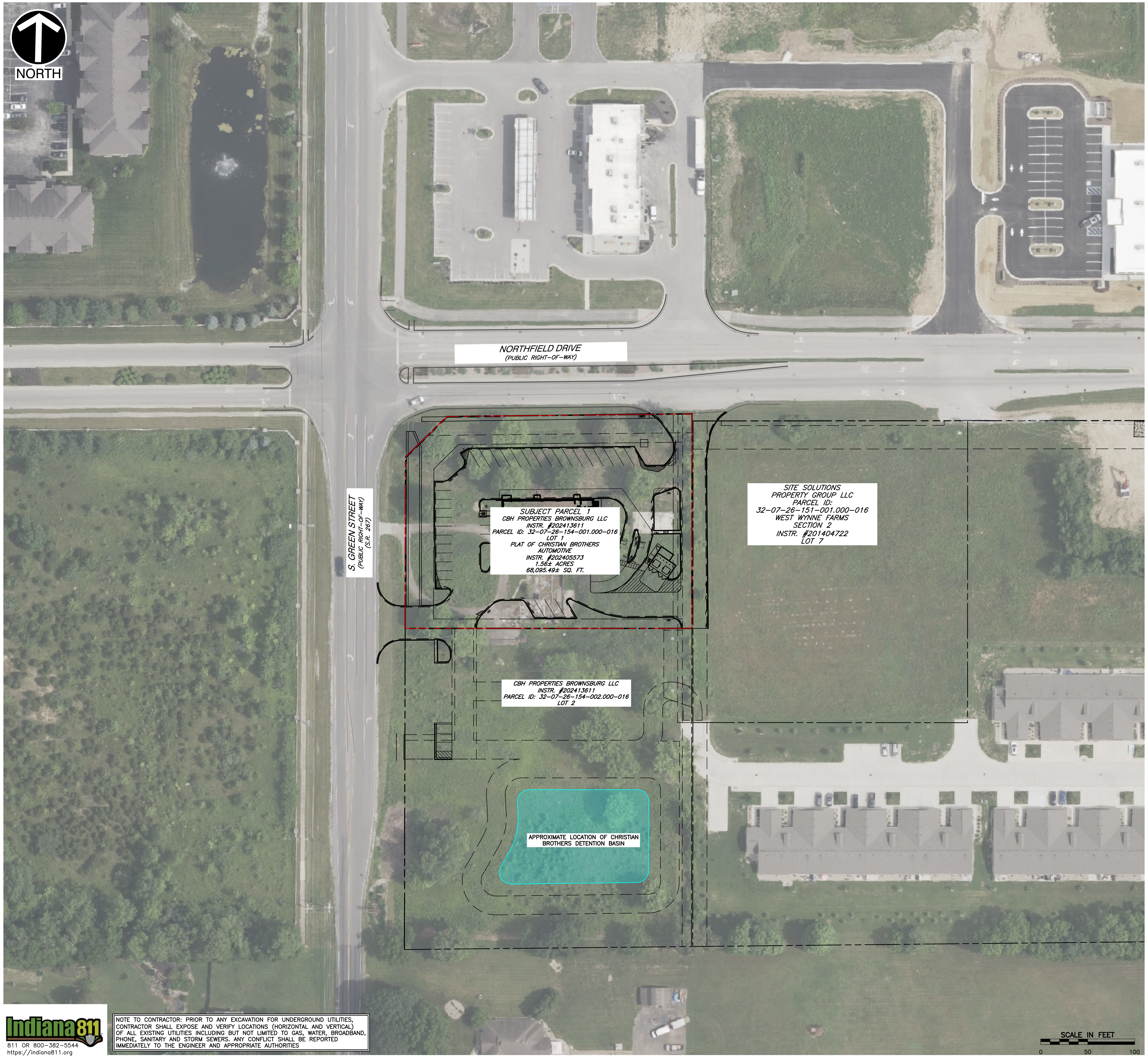
DM-2
SHEET 2 OF 3

FIGURE 3

VICINITY MAP



NOTES

1. EXISTING SITE INFORMATION/TOPOGRAPHY PREPARED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC., DATED SEPTEMBER 23, 2025.

LEGEND

EXISTING PROPERTY LINE

DETENTION BASIN

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VICINITY MAP

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APPROVED BY:			DRAFT

DRAFT

DRAWING NO.:
VM-1

SHEET 1 OF 1

FIGURE 4

STORM INLET DRAINAGE AREAS

NORTH

NORTHFIELD DRIVE
(PUBLIC RIGHT-OF-WAY)

S. GREEN STREET
(PUBLIC RIGHT-OF-WAY)
(S.R. 267)

SUBJECT PARCEL 1
CBH PROPERTIES BROWNSBURG LLC
INSTR. #202413611
PARCEL ID: 32-07-26-154-001.000-016
LOT 1
PLAT OF CHRISTIAN BROTHERS AUTOMOTIVE
INSTR. #202405573
1.56± ACRES
68,095.49± SQ. FT.

SITE SOLUTIONS PROPERTY GROUP LLC
PARCEL ID:
32-07-26-151-001.000-016
WEST WYNNE FARMS
SECTION 2
INSTR. #201404722
LOT 7

CBH PROPERTIES BROWNSBURG LLC
INSTR. #202413611
PARCEL ID: 32-07-26-154-002.000-016
LOT 2

BUILDING
(UNDER CONSTRUCTION)

FLOOD ELEVATION: 862.26

FLOOD ELEVATION: 862.50

FLOOD ELEVATION: 862.50

FLOOD ELEVATION: 862.32

FLOOD ELEVATION: 862.03

1.5" UNDERGROUND ELECTRIC CONDUIT

SCALE IN FEET
0 20 40

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NOTES

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LEGEND

- EXISTING PROPERTY LINE
- EXISTING ADJACENT PROPERTY LINE
- EXISTING EASEMENT
- EXISTING RIGHT-OF-WAY
- EXISTING INDEX (MAJOR) CONTOUR
- EXISTING INTERMEDIATE (MINOR) CONTOUR
- EXISTING SETBACK
- EXISTING STORM PIPE
- EXISTING WATER LINE
- EXISTING SANITARY SEWER LINE
- EXISTING GAS LINE
- EXISTING OVERHEAD WIRE
- EXISTING UNDERGROUND ELECTRIC LINE
- EXISTING FIBER OPTIC LINE
- EXISTING UNDERGROUND CABLE LINE
- EXISTING ELECTRIC UTILITIES
- EXISTING WATER UTILITIES
- EXISTING TRAFFIC UTILITIES
- EXISTING STORM STRUCTURES
- EXISTING SANITARY STRUCTURES
- PROPOSED STORM PIPE
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- PROPOSED STORM STRUCTURES
- PROPOSED WATER UTILITIES
- PROPOSED SANITARY CLEANOUT
- PROPOSED GREASE TRAP
- PROPOSED LIGHT POLE
- PROPOSED TRANSFORMER
- PROPOSED INDEX (MAJOR) CONTOUR
- PROPOSED INTERMEDIATE (MINOR) CONTOUR
- DRAINAGE AREA

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STORM INLET
DRAINAGE MAP

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PROJECT NO:			355-081
APPROVED BY:			DRAFT

DRAFT

DRAWING NO.:
DM-3
SHEET 3 OF 3

P:\350-080\355-081\-CAD\Dwg\Exhibit\355081-CV01-Drainage Map.dwg[INLET] LS:[2/13/2026 - swelch-murcek] - LP: 2/13/2026 1:25 PM

APPENDIX 1

10-YEAR DESIGN STORM CALCULATIONS

10-Year Storm Sewer Summary Table																			
Structure (Upstream)	Structure (Downstream)	Runoff Coefficient, C	Intensity (in/hr)	Drainage Area (AC)	Time of Concentration (min)	Peak Flow, Q (cfs)	Cumulative Peak Flow (cfs)	Pipe Material	Roughness Coefficient, n	Pipe Slope (ft/ft)	Pipe Size (in)	Pipe Velocity, V (ft/s)	Pipe Length (ft)	Invert Elevation Upstream (ft)	Invert Elevation Downstream (ft)	Rim Elevation Upstream (ft)	Hydraulic Grade Eleavtion Upstream (ft)	Rim Elevation Downstream (ft)	Hydraulic Grade Eleavtion Downstream (ft)
200	100	0.78	5.60	0.11	12.40	0.48	1.27	RCP	0.012	0.0025	15	1.00	54	858.75	858.62	862.25	859.91	861.98	859.89
201	200	0.82	6.00	0.16	10.00	0.79	0.79	RCP	0.012	0.0025	12	1.10	145	859.21	858.85	862.17	860.00	862.25	859.93
100	MH	0.82	5.40	0.06	13.90	0.27	3.56	RCP	0.012	0.0033	18	3.67	22	858.52	858.45	861.98	859.49	860.25	859.43
101	100	0.84	5.50	0.22	13.40	1.02	3.29	RCP	0.012	0.0011	18	1.97	60	858.69	858.62	862.39	859.94	861.98	859.89
102	101	0.79	5.70	0.16	12.10	0.72	2.28	RCP	0.012	0.0014	15	1.87	142	858.99	858.79	861.77	860.11	862.39	859.97
103	102	0.84	5.70	0.06	11.60	0.29	1.56	RCP	0.012	0.0025	12	1.93	54	859.22	859.09	862.01	860.22	861.77	860.17
104	103	0.47	5.90	0.12	11.00	0.33	1.27	RCP	0.012	0.0025	12	1.65	65	859.48	859.32	862.45	860.38	862.01	860.31
105	104	0.78	6.00	0.20	10.00	0.94	0.94	RCP	0.012	0.0025	12	1.49	70	859.75	859.58	862.39	860.47	862.45	860.42

APPENDIX 2

100-YEAR DESIGN STORM CALCULATIONS

100-Year Storm Sewer Summary Table																			
Structure (Upstream)	Structure (Downstream)	Runoff Coefficient, C	Intensity (in/hr)	Drainage Area (AC)	Time of Concentration (min)	Peak Flow, Q (cfs)	Cumulative Peak Flow (cfs)	Pipe Material	Roughness Coefficient, n	Pipe Slope (ft/ft)	Pipe Size (in)	Pipe Velocity, V (ft/s)	Pipe Length (ft)	Invert Elevation Upstream (ft)	Invert Elevation Downstream (ft)	Rim Elevation Upstream (ft)	Hydraulic Grade Eleavtion Upstream (ft)	Rim Elevation Downstream (ft)	Hydraulic Grade Eleavtion Downstream (ft)
200	100	0.78	8.00	0.11	11.80	0.69	1.79	RCP	0.012	0.0025	15	1.39	54	858.75	858.62	862.25	860.28	861.98	860.24
201	200	0.82	8.40	0.16	10.00	1.10	1.10	RCP	0.012	0.0025	12	1.39	145	859.21	858.85	862.17	860.46	862.25	860.32
100	MH	0.82	7.70	0.06	12.80	0.38	5.01	RCP	0.012	0.0033	18	4.84	22	858.52	858.45	861.98	859.67	860.25	859.43
101	100	0.84	7.80	0.22	12.40	1.44	4.63	RCP	0.012	0.0011	18	2.53	60	858.69	858.62	862.39	860.35	861.98	860.24
102	101	0.79	8.00	0.16	11.50	1.01	3.19	RCP	0.012	0.0014	15	2.53	142	858.99	858.79	861.77	860.73	862.39	860.40
103	102	0.84	8.10	0.06	11.20	0.41	2.18	RCP	0.012	0.0025	12	2.71	54	859.22	859.09	862.01	861.03	861.77	860.84
104	103	0.47	8.20	0.12	10.70	0.46	1.77	RCP	0.012	0.0025	12	2.23	65	859.48	859.32	862.45	861.36	862.01	861.2
105	104	0.78	8.40	0.20	10.00	1.31	1.31	RCP	0.012	0.0025	12	1.7	70	859.75	859.58	862.39	861.53	862.45	861.43

APPENDIX 3

10-YEAR 0% CLOGGED INLETS CALCULATIONS

10-Year, 0% Clogged Stormwater Results																	
Structure (Upstream)	Structure (Downstream)	Location	Runoff Coefficient, C	Intensity (in/hr)	Drainage Area (AC)	Inlet Time (min)	Peak Flow, Q (cfs)	Flow Bypassed (cfs)	Flow Captured (cfs)	Junction Type	Grate Width (ft)	Grate Length (ft)	Grate Area (sqft)	Gutter Slope	Inlet Depth (ft)	Gutter Depth (ft)	Gutter Spread (ft)
200	100	Sag	0.78	5.60	0.11	10.00	0.48	0.00	0.50	Drop Grate	2.50	3.84	9.60	0.08	0.06	0.06	8.09
201	200	Sag	0.82	6.00	0.16	10.00	0.79	0.00	0.79	Drop Grate	2.50	3.84	9.60	0.08	0.08	0.08	10.05
100	MH	Sag	0.82	5.40	0.06	10.00	0.27	0.00	0.28	Drop Grate	2.50	3.84	9.60	0.08	0.04	0.04	6.26
101	100	Sag	0.84	5.50	0.22	10.00	1.02	0.00	1.27	Drop Grate	2.50	3.84	9.60	0.08	0.10	0.10	12.88
102	101	On Grade	0.79	5.70	0.16	10.00	0.72	0.16	0.62	Drop Grate	2.50	3.84	9.60	0.08	0.10	0.10	11.10
103	102	On Grade	0.84	5.70	0.06	10.00	0.29	0.03	0.27	Drop Grate	2.50	3.84	9.60	0.08	0.07	0.07	8.10
104	103	Sag	0.47	5.90	0.12	10.00	0.33	0.00	0.33	Drop Grate	2.50	3.84	9.60	0.08	0.04	0.04	6.72
105	104	Sag	0.78	6.00	0.20	10.00	0.94	0.00	0.96	Drop Grate	2.50	3.84	9.60	0.08	0.09	0.09	11.12

APPENDIX 4

10-YEAR 50% CLOGGED INLETS CALCULATIONS

10-Year, 50% Clogged Stormwater Results																	
Structure (Upstream)	Structure (Downstream)	Location	Runoff Coefficient, C	Intensity (in/hr)	Drainage Area (AC)	Inlet Time (min)	Peak Flow, Q (cfs)	Flow Bypassed (cfs)	Flow Captured (cfs)	Junction Type	Grate Width (ft)	Grate Length (ft)	Grate Area (sqft)	Gutter Slope	Inlet Depth (ft)	Gutter Depth (ft)	Gutter Spread (ft)
200	100	Sag	0.78	5.60	0.11	10.00	0.48	0.00	0.50	Drop Grate	1.25	1.92	2.40	0.08	0.07	0.09	10.11
201	200	Sag	0.82	6.00	0.16	10.00	0.79	0.00	0.79	Drop Grate	1.25	1.92	2.40	0.08	0.11	0.12	13.23
100	MH	Sag	0.82	5.40	0.06	10.00	0.27	0.00	0.28	Drop Grate	1.25	1.92	2.40	0.08	0.05	0.06	7.22
101	100	Sag	0.84	5.50	0.22	10.00	1.02	0.00	1.65	Drop Grate	1.25	1.92	2.40	0.08	0.18	0.20	20.8
102	101	On Grade	0.79	5.70	0.16	10.00	0.72	0.53	0.35	Drop Grate	1.25	1.92	2.40	0.08	0.09	0.10	11.10
103	102	On Grade	0.84	5.70	0.06	10.00	0.29	0.13	0.17	Drop Grate	1.25	1.92	2.40	0.08	0.05	0.07	8.10
104	103	Sag	0.47	5.90	0.12	10.00	0.33	0.00	0.33	Drop Grate	1.25	1.92	2.40	0.08	0.06	0.07	7.94
105	104	Sag	0.78	6.00	0.20	10.00	0.94	0.00	0.96	Drop Grate	1.25	1.92	2.40	0.08	0.12	0.14	14.93