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STORM WATER

MANAGEMENT REPORT

WVILLE TALBOT

3S140 TALBOT AVENUE

WARRENVILLE, ILLINOIS

PROJECT: 20-04-036

DATED: AUGUST 20, 2021
REVISED: NOVEMBER 24, 2021

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This report presents the storm water management results for the development of the proposed Elite Ambulance facility at 3S140 Talbot Avenue, Warrenville.

EXISTING CONDITIONS:

The proposed Elite Ambulance facility at 3S140 Talbot Avenue is located at the northeast corner of Calumet Street and Talbot Avenue in Warrenville, Illinois. The 2.53 acre site is currently vacant with no existing impervious area.

Calumet Street borders the south side of the site, Talbot Avenue on the west side, an office building to the east of the site, and a park area to the north of the site. The south portion of the site runoff drains to an existing storm sewer structure located along the west property line, and the north portion of the runoff drains overland to the adjacent property east of the subject site.

The National Wetland Inventory map show no wetland areas on the subject site. The FEMA FIRM shows the entire site within a Zone X.

PROPOSED CONDITIONS:

The development consists of the construction of a single industrial building. Site improvements include roadway reconstruction, driveways, parking, water services, sanitary sewer services, storm sewers, and a storm water detention area. Total proposed impervious area is 0.86 acres and permeable pavers is 0.40 acres. The storm water runoff will be collected by a storm sewer system and routed to the detention ponds. The runoff will be restricted and released to an existing storm sewer east of the subject site and over land to the west of the subject site. There are no offsite tributary areas to the subject site.

Dupage County Best Management Practices proposed for the subject site include the use of permeable pavers for the parking area, stone voids under the paved areas, and natural planting in the bottom of the proposed detention areas. Post Construction Best Management Practices (PCBMP's) include the use of native vegetated plantings in the detention basin bottoms to provide volume control and pollutant control. Stone voids below permeable pavers will provide additional detention volume, and volume control shall be provided below the normal water level in the stone voids beneath the permeable pavers.

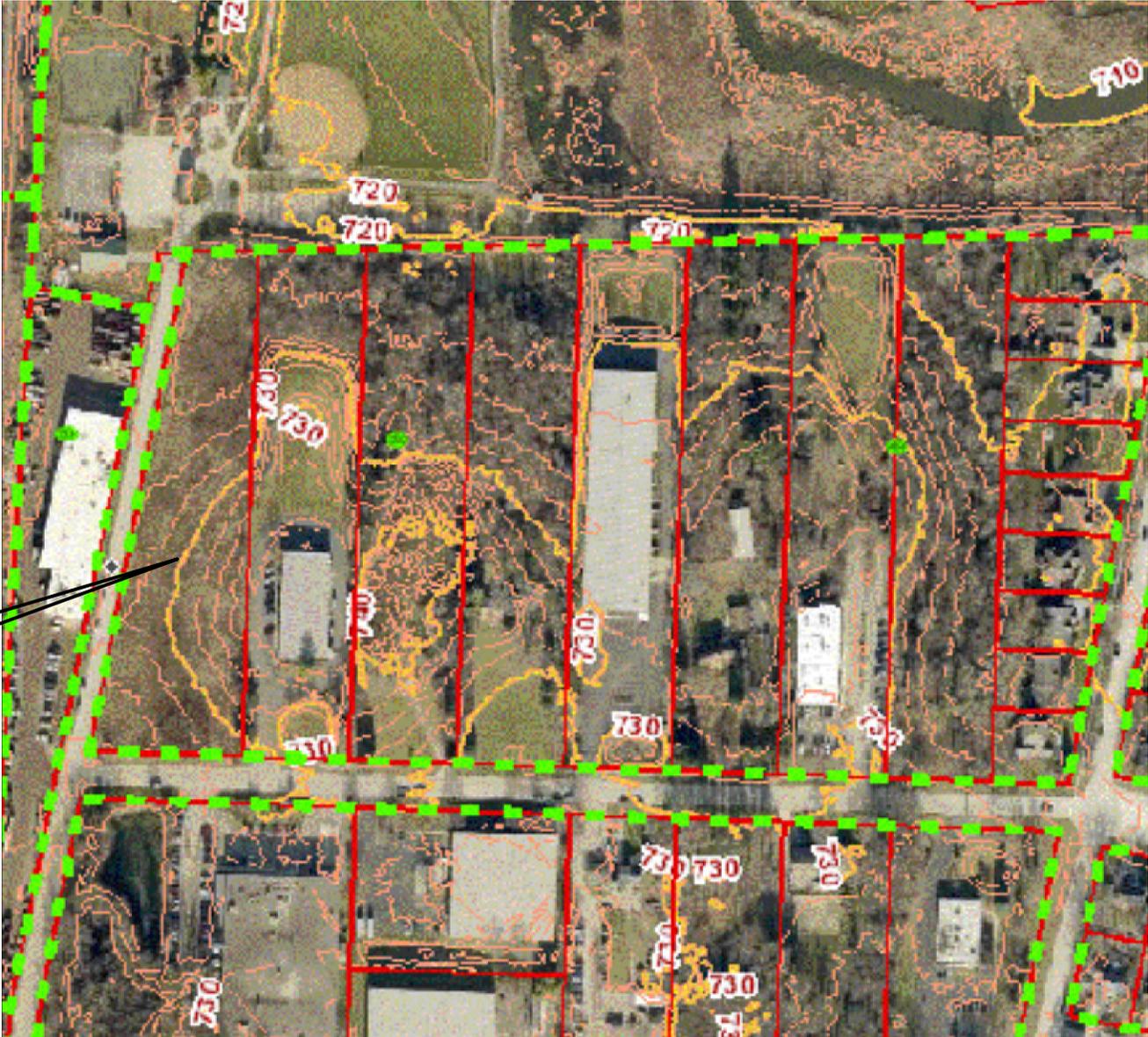
The storage volume required in the detention ponds was calculated using the Soil Conservation Service's Hydrologic Model TR-20. The detention pond was sized to detain the 24 hour 100 year storm event of on site runoff with a restricted release. The 100 year High Water Level of the basin was calculated using TR-20 methodology with the SCS Type II Rainfall Distribution. The 100 year restrictors have been sized to convey 0.10 cfs/acre from the subject site. The high water level is set from the storage required to release the subject site at 0.10 cfs/acre. Excess runoff will be routed through an over flow weir in the earthen berm. As shown by the summary, the total flow for the estimated 100 year event from the development of the subject site will overflow the weir below the 0.3 of free board provided.

The north 1.64 acre tributary will release at a high water level of 728.10 at a rate of 0.16 cfs with a storage of 0.73 ac-ft. The aggregate base under the permeable storage in the north parking lot provides 0.22 ac-ft at 35% voids and 2.45 feet deep.

The south 0.89 acre tributary will release at a high water level of 728.46 at a rate of 0.09 cfs with a storage of 0.40 ac-ft. The aggregate base under the permeable storage in the south parking lot provides 0.13 ac-ft at 35% voids and 2.45 feet deep.

WVILLE TALBOT

ADDRESS #3S140 TALBOT AVENUE



LOCATION MAP

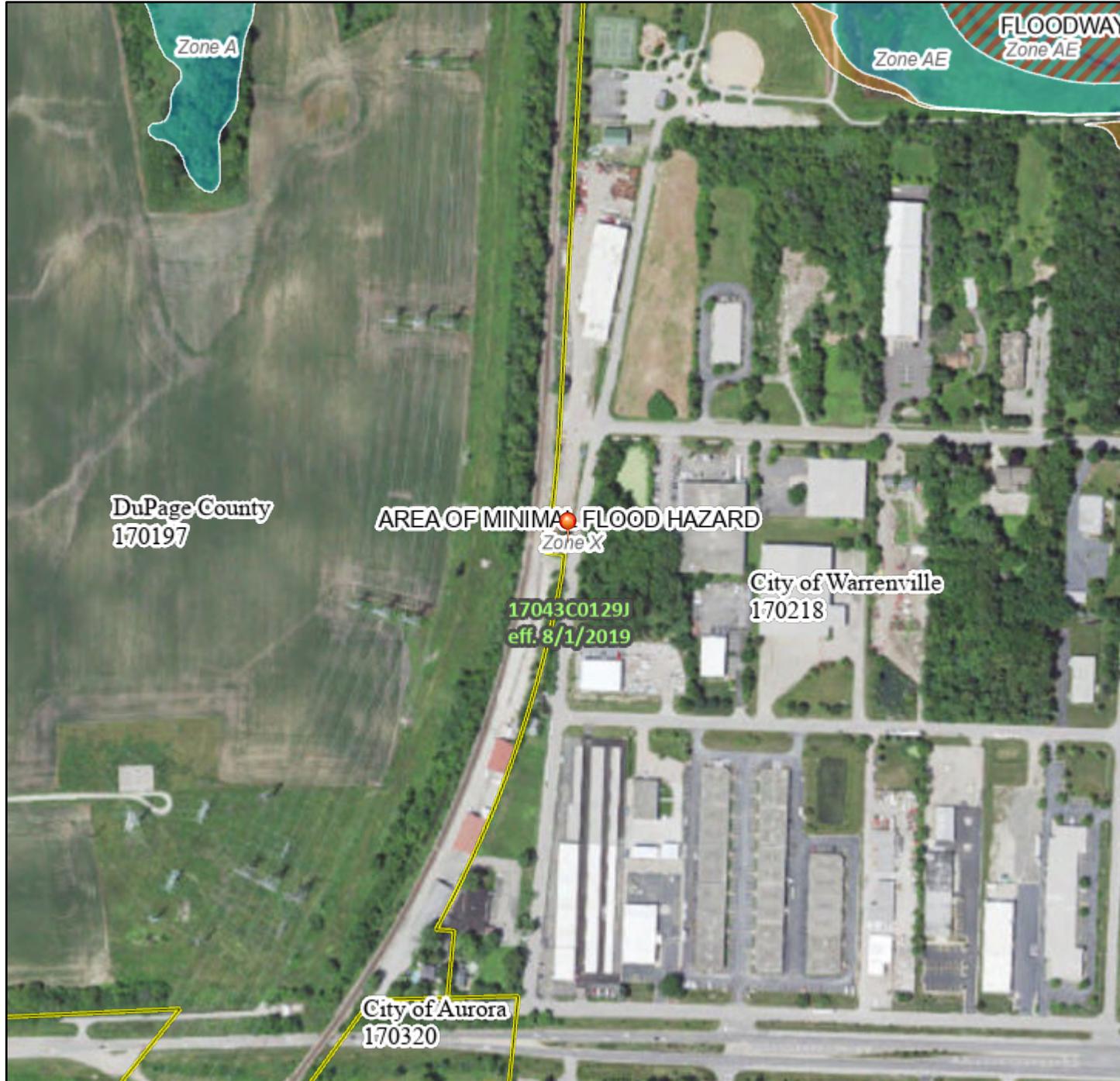
E1/2 SECTION 33 & W1/2 SECTION 34-39N-9E



National Flood Hazard Layer FIRMMette



88°13'6"W 41°49'40"N



0 250 500 1,000 1,500 2,000 Feet 1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

88°12'29"W 41°49'14"N

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
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 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

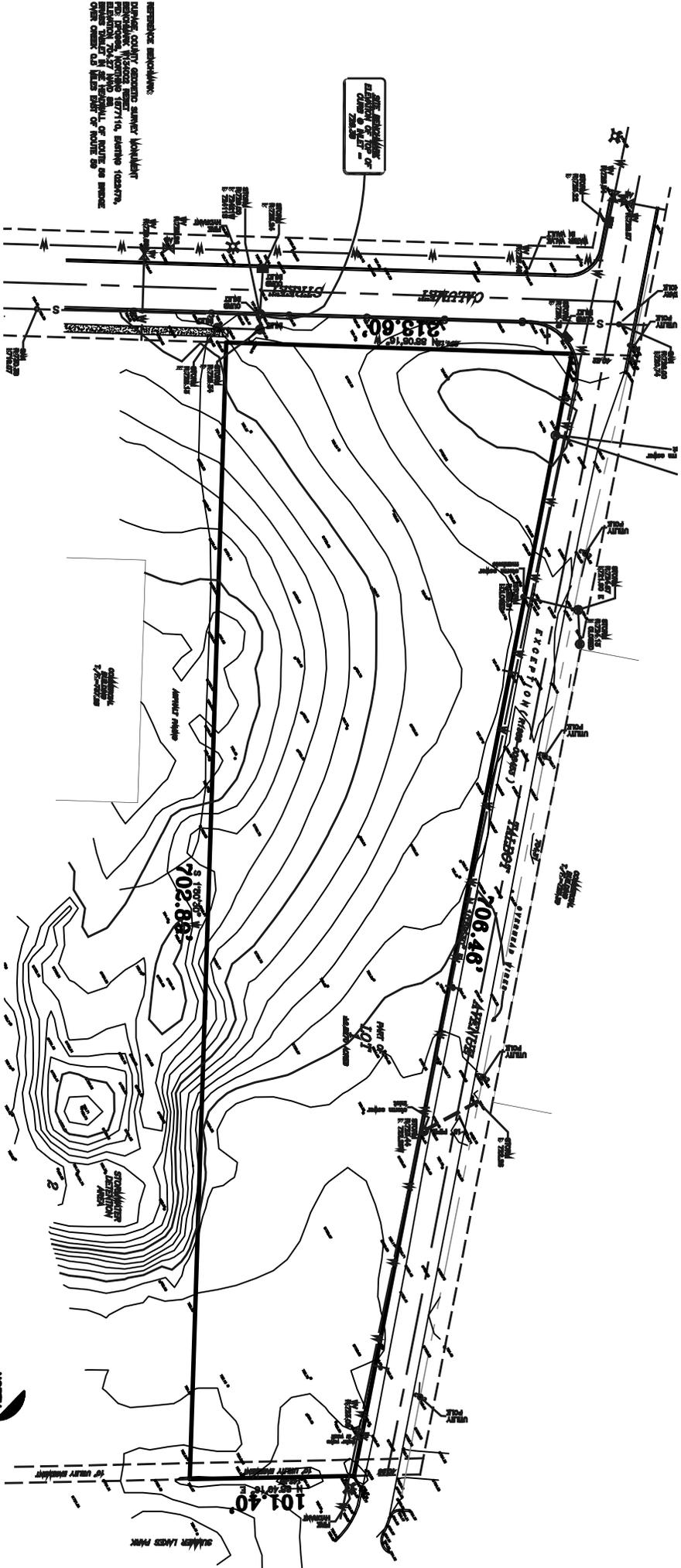


The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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 **8/24/2021 at 10:00 AM** 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.



REMARKS: SEE SHEET 101.40' FOR
 THE REMAINING PORTION OF THE
 PROPOSED ROAD TO THE INTERSECTION
 WITH SULLY LANE PARK. SEE SHEET
 101.40' FOR THE REMAINING PORTION
 OF THE PROPOSED ROAD TO THE
 INTERSECTION WITH SULLY LANE PARK.

SEE SHEET 101.40' FOR
 THE REMAINING PORTION OF
 THE PROPOSED ROAD TO THE
 INTERSECTION WITH SULLY LANE PARK.

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PROJECT: Wville Talbot
 LOCATION: Warrenville

DATED: 3/6/21
 PROJECT: 20-04-036
 REVISED: 6/8/21
 REVISED: 6/25/21
 REVISED: 11/24/21

STORM WATER DETENTION CALCULATIONS (TR20)

1. AREAS:

NAME	AREA		Tc	CN	Release	
	acres	sq. mi.	hrs		cfs	
SOUTH	0.89	0.0014	0.100	83	0.09	(0.10 cfs/ac)
IMP.	0.34	0.0005		98	.	
PERV.	0.55	0.0009		74		
NORTH	1.64	0.0026	0.210	82	0.16	(0.10 cfs/ac)
IMP.	0.52	0.0008		98		
PERV.	1.12	0.0017		74		

2. DETENTION POND RESTRICTOR WITH FREE OUTFALL AT OUTLET PIPE. (STRUCTURE)

	INVERT:		RESTRICT	inches	feet
2A. SOUTH	722.18		0.37		0.03
	HWL: 728.46		use Cd =	0.62	

HWL:	DIAMETER		AREA	HEAD	Q
	in	ft	sf	ft	cfs
722.18					0.000
723.00	0.4	0.03	0.001	0.80	0.004
724.00	0.4	0.03	0.001	1.80	0.015
725.00	0.4	0.03	0.001	2.80	0.028
726.00	0.4	0.03	0.001	3.80	0.044
727.00	0.4	0.03	0.001	4.80	0.063
727.50	0.4	0.03	0.001	5.30	0.073
728.00	0.4	0.03	0.001	5.80	0.084
728.46	0.4	0.03	0.001	6.26	0.094
729.00	0.4	0.03	0.001	6.80	0.106

	INVERT:		RESTRICT	inches	feet
2B. NORTH	722.34		0.52		0.04
	HWL: 728.10		use Cd =	0.62	

HWL:	DIAMETER		AREA	HEAD	Q
	in	ft	sf	ft	cfs
722.34					0.000
723.00	0.5	0.04	0.001	0.64	0.006
724.00	0.5	0.04	0.001	1.64	0.025
725.00	0.5	0.04	0.001	2.64	0.051
726.00	0.5	0.04	0.001	3.64	0.082
727.00	0.5	0.04	0.001	4.64	0.118
727.50	0.5	0.04	0.001	5.14	0.138
728.00	0.5	0.04	0.001	5.64	0.158
728.10	0.5	0.04	0.001	5.74	0.163
729.00	0.5	0.04	0.001	6.64	0.202
730.00	0.5	0.04	0.001	7.64	0.250

3. DETENTION STORAGE WEIR RELEASE RATE:

3A. SOUTH

CRESTED WEIR $Q=3.09*b*y^{3/2} =$ 100 YEAR POND INFLOW = 8.8
(max flow) cfs

ELEV	WALL	b =	10.0	OVERFLOW	
728.5	728.5	y =	0.0	0.0	cfs
728.6	728.5	y =	0.1	1.0	cfs
728.7	728.5	y =	0.2	2.8	cfs
728.8	728.5	y =	0.3	5.1	cfs
728.9	728.5	y =	0.4	7.8	cfs
729.0	728.5	y =	0.5	10.9	cfs
729.5	728.5	y =	1.0	30.9	cfs

WEIR HAS CAPACITY TO OVER FLOW 100 YEAR RUNOFF.

3B. NORTH

CRESTED WEIR $Q=3.09*b*y^{3/2} =$ 100 YEAR POND INFLOW = 16.1
(max flow) cfs

ELEV	WALL	b =	15.0	OVERFLOW	
728.2	728.2	y =	0.0	0.0	cfs
728.3	728.2	y =	0.1	1.5	cfs
728.4	728.2	y =	0.2	4.1	cfs
728.5	728.2	y =	0.3	7.6	cfs
728.6	728.2	y =	0.4	11.7	cfs
728.7	728.2	y =	0.5	16.4	cfs
729.0	728.2	y =	0.8	33.2	cfs
730.0	728.2	y =	1.8	111.9	cfs

WEIR HAS CAPACITY TO OVER FLOW 100 YEAR RUNOFF.

4. POTENTIAL DETENTION STORAGE: (STRUCTURE)

4A. SOUTH

	AREA SF	CREDIT %	PER FOOT AC	TOP	BOTTOM
STONE VOIDS	6,805	35%	0.055		

ELEV	AREA SF	AC	STONE VOIDS	TOTAL	AC-FT	CUM AC-FT
722.18	10	0.000		0.000		0
723.0	25	0.001		0.001	0.000	0.000
724.0	50	0.001		0.001	0.001	0.001
725.0	75	0.002		0.002	0.001	0.003
726.0	100	0.002	0.055	0.057	0.023	0.025
727.0	3,351	0.077	0.027	0.104	0.079	0.105
727.5	6,529	0.150	0.027	0.177	0.070	0.174
728.0	9,706	0.223	0.025	0.248	0.106	0.280
728.46	12,747	0.293		0.293	0.124	0.404
729.0	16,316	0.375		0.375	0.180	0.584
730.0	20,000	0.459		0.459	0.416	1.000

4B. NORTH

		AREA SF	CREDIT %	PER FOOT AC	TOP	BOTTOM		
STONE VOIDS		12,696	35%	0.102				
ELEV	AREA SF	AC		STONE VOIDS	TOTAL		AC-FT	CUM AC-FT
722.34	100	0.002			0.002			0
723.0	1,472	0.034			0.034		0.010	0.010
724.0	2,005	0.046			0.046		0.040	0.050
725.0	2,702	0.062			0.062		0.054	0.103
726.0	4,476	0.103		0.102	0.205		0.126	0.230
727.0	8,340	0.191		0.051	0.242		0.223	0.453
727.5	9,327	0.214		0.051	0.265		0.127	0.580
728.0	10,314	0.237		0.010	0.247		0.128	0.708
728.10	10,696	0.246			0.246		0.025	0.733
729.0	14,137	0.325			0.325		0.256	0.989
730.0	30,000	0.689			0.689		0.495	1.484

5. TR20 INPUT TABLE:

5A. SOUTH INPUT SUMMARY:

ELEV	FLOW cfs	OVERFLOW cfs weir	TOTAL FLOW cfs	CUM AC-FT
722.18	0.000		0.000	0.000
723.00	0.004		0.004	0.000
724.00	0.015		0.015	0.001
725.00	0.028		0.028	0.003
726.00	0.044		0.044	0.025
727.00	0.063		0.063	0.105
727.50	0.073	0.000	0.073	0.174
728.00	0.084	0.000	0.084	0.280
HWL 728.46	0.094	0.000	0.094	0.404
729.00	0.106	10.925	11.031	0.584

SUMMARY:

ELEV	FLOW cfs	OVERFLOW cfs weir	TOTAL FLOW cfs	CUM AC-FT
722.34	0.000		0.000	0.000
723.00	0.006		0.006	0.010
724.00	0.025		0.025	0.050
725.00	0.051		0.051	0.103
726.00	0.082		0.082	0.230
727.00	0.118		0.118	0.453
727.50	0.138		0.138	0.580
728.00	0.158	0.000	0.158	0.708
HWL 728.10	0.163	0.000	0.163	0.733
729.00	0.202	33.165	33.368	0.989
730.00	0.000	111.933	111.933	1.484

6. FLOW ANALYSIS:

	SOUTH			NORTH		
	HWL	PEAK Q cfs	VOLUME ac-ft	HWL	PEAK Q cfs	VOLUME ac-ft
2 yr	726.55			725.30		
10 yr	727.20			726.21		
100 yr	728.18			727.62		
100 yr TB 75	728.46	0.09	0.40	728.10	0.16	0.73
Allowable		0.09		Allowable	0.16	

WinTR-20: Version 3.20
 Wville Talbot - Warrenville North 0 0 0.01 0
 BULL. 70 - HUFF 3rd QUARTILE 20-04-036
 11/24/21

SUB-AREA:
 Area 1 Reach 1 0.0026 82. 0.21 Y Y

STREAM REACH:
 Reach 1 OUTLET Struct 20 Y Y Y

STORM ANALYSIS:
 2 Year 3.04 TYPE II 2 3.04
 10 Year 4.47 TYPE II 2 3.04
 100 Year 7.58 TYPE II 2
 100 yrTB75 8.57 TYPE II 2 3.04

STRUCTURE RATING:
 Struct 20 722.34
 722.34 0. 0.0001
 723.0 0.006 0.010
 724. .025 0.05
 725. 0.051 0.103
 726. 0.082 0.23
 727. 0.118 .453
 727.5 .138 .58
 728. 0.158 .706
 728.10 .16 .714
 729. 33.368 0.986
 730. 111.933 1.481

RAINFALL DISTRIBUTION:
 Rain 8 1.20000
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 0.15000 0.19000 0.23000 0.27000 0.32000
 0.38000 0.45000 0.57000 0.70000 0.79000
 0.85000 0.89000 0.92000 0.95000 0.97000
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Global Output:
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WinTR-20: Version 3.20 0 0 0.01 0
 Wville Talbot - Warrenville North 20-04-036
 BULL. 70 - HUFF 3rd QUARTILE 11/24/21

SUB-AREA:
 Area 1 Reach 1 0.0026 82. 0.21 Y Y

STREAM REACH:
 Reach 1 OUTLET Struct 20 Y Y Y

STORM ANALYSIS:
 2 Year 3.04 TYPE II 2 3.04
 10 Year 4.47 TYPE II 2 3.04
 100 Year 7.58 TYPE II 2
 100 yrTB75 8.57 TYPE II 2 3.04

STRUCTURE RATING:
 Struct 20 722.34
 722.34 0. 0.0001
 723.0 0.006 0.010
 724. .025 0.05
 725. 0.051 0.103
 726. 0.082 0.23
 727. 0.118 .453
 727.5 .138 .58
 728. 0.158 .706
 728.10 .16 .714
 729. 33.368 0.986
 730. 111.933 1.481

RAINFALL DISTRIBUTION:
 Rain 8 1.20000
 0.0 0.03000 0.06000 0.09000 0.12000
 0.15000 0.19000 0.23000 0.27000 0.32000
 0.38000 0.45000 0.57000 0.70000 0.79000
 0.85000 0.89000 0.92000 0.95000 0.97000
 1.00000

Global Output:
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WinTR-20 Printed Page File End of Input Data List

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 BULL. 70 - HUFF 3rd QUARTILE 11/24/21

Name of printed page file:
 C:\Data\Project Data\Warrenville\Elite\TR20\WvilleWarrenvilleNorth2004036R3.out

STORM 2 Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Elevation (ft)	Peak Flow Time (hr)	Rate (cfs)	Rate (csm)
Area 1	0.003		1.408		12.02	3.1	1184.35
Reach 1	0.003	Upstream	1.408		12.02	3.1	1184.35
Reach 1	0.003	Downstream	1.274	725.30	19.26	0.602E-01	23.14

OUTLET 0.003 1.274 19.26 0.602E-01 23.14

STORM 10 Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow			
				Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Area 1	0.003		2.607		12.01	5.7	2186.71
Reach 1	0.003	Upstream	2.607		12.01	5.7	2186.71
Reach 1	0.003	Downstream	2.469	726.21	19.85	0.894E-01	34.38
OUTLET	0.003		2.469		19.85	0.894E-01	34.38

STORM 100 Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow			
				Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Area 1	0.003		5.460		12.01	11.6	4466.66
Reach 1	0.003	Upstream	5.460		12.01	11.6	4466.66
Reach 1	0.003	Downstream	5.320	727.62	22.30	0.1	54.99
OUTLET	0.003		5.320		22.30	0.1	54.99

STORM 100 yrTB75

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow			
				Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Area 1	0.003		6.401		12.01	13.5	5197.24
Reach 1	0.003	Upstream	6.401		12.01	13.5	5197.24
Reach 1	0.003	Downstream	6.261	728.10	18.78	0.2	86.56
OUTLET	0.003		6.261		18.78	0.2	86.56

Area or Reach Identifier	Drainage Area (sq mi)	----- Peak Flow by Storm -----				
		2 Year (cfs)	10 Year (cfs)	100 Year (cfs)	100 yr (cfs)	TB75 (cfs)
Area 1	0.003	3.1	5.7	11.6	13.5	
Reach 1	0.003	3.1	5.7	11.6	13.5	
DOWNSTREAM		0.602E-01	0.894E-01	0.1	0.2	
OUTLET	0.003	0.602E-01	0.894E-01	0.1	0.2	

WinTR-20: version 3.20
 Wville Talbot - Warrenville South 0 0 0.01 0
 BULL. 70 - HUFF 3rd QUARTILE 20-04-036
 11/24/21

SUB-AREA:
 Area 1 Reach 1 0.0014 83. 0.10 Y Y

STREAM REACH:
 Reach 1 OUTLET Struct 20 Y Y Y

STORM ANALYSIS:
 2 Year 3.04 TYPE II 2 3.04
 10 Year 4.47 TYPE II 2 3.04
 100 Year 7.58 TYPE II 2
 100 yrTB75 8.57 TYPE II 2 3.04

STRUCTURE RATING:
 Struct 20 722.18
 722.18 0. 0.
 723.0 0.004 0.0001
 726. 0.044 0.025
 727. 0.063 0.105
 728. .084 .28
 728.50 0.093 .391
 729. 11.03 .583
 730. 50. 1.

RAINFALL DISTRIBUTION:
 Rain 8 1.20000
 0.0 0.03000 0.06000 0.09000 0.12000
 0.15000 0.19000 0.23000 0.27000 0.32000
 0.38000 0.45000 0.57000 0.70000 0.79000
 0.85000 0.89000 0.92000 0.95000 0.97000
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Global Output:
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 BULL. 70 - HUFF 3rd QUARTILE 11/24/21

SUB-AREA:
 Area 1 Reach 1 0.0014 83. 0.10 Y Y

STREAM REACH:
 Reach 1 OUTLET Struct 20 Y Y Y

STORM ANALYSIS:
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 10 Year 4.47 TYPE II 2 3.04
 100 Year 7.58 TYPE II 2
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STRUCTURE RATING:
 Struct 20 722.18
 722.18 0. 0.
 723.0 0.004 0.0001
 726. 0.044 0.025
 727. 0.063 0.105
 728. .084 .28
 728.50 0.093 .391
 729. 11.03 .583
 730. 50. 1.

RAINFALL DISTRIBUTION:
 Rain 8 1.20000
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Global Output:
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WinTR-20 Printed Page File End of Input Data List
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 BULL. 70 - HUFF 3rd QUARTILE 11/24/21

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STORM 2 Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Elevation (ft)	Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
Area 1	0.001		1.473		11.94	2.0	1457.56
Reach 1	0.001	Upstream	1.473		11.94	2.0	1457.56
Reach 1	0.001	Downstream	1.411	726.55	15.70	0.544E-01	38.84
OUTLET	0.001		1.411		15.70	0.544E-01	38.84

STORM 10 Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow			
				Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Area 1	0.001		2.691		11.93	3.7	2652.60
Reach 1	0.001	Upstream	2.691		11.93	3.7	2652.60
Reach 1	0.001	Downstream	2.626	727.20	17.63	0.672E-01	48.00
OUTLET	0.001		2.626		17.63	0.672E-01	48.00

STORM 100 Year

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow			
				Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Area 1	0.001		5.572		11.93	7.5	5343.13
Reach 1	0.001	Upstream	5.572		11.93	7.5	5343.13
Reach 1	0.001	Downstream	5.506	728.18	19.88	0.873E-01	62.36
OUTLET	0.001		5.506		19.88	0.873E-01	62.36

STORM 100 yrTB75

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow			
				Elevation (ft)	Time (hr)	Rate (cfs)	Rate (csm)
Area 1	0.001		6.519		11.93	8.7	6200.43
Reach 1	0.001	Upstream	6.519		11.93	8.7	6200.43
Reach 1	0.001	Downstream	6.453	728.46	21.16	0.923E-01	65.93
OUTLET	0.001		6.453		21.16	0.923E-01	65.93

Area or Reach Identifier	Drainage Area (sq mi)	----- Peak Flow by Storm -----				
		2 Year (cfs)	10 Year (cfs)	100 Year (cfs)	100 yr (cfs)	TB75 (cfs)
Area 1	0.001	2.0	3.7	7.5	8.7	
Reach 1	0.001	2.0	3.7	7.5	8.7	
DOWNSTREAM		0.544E-01	0.672E-01	0.873E-01	0.923E-01	
OUTLET	0.001	0.544E-01	0.672E-01	0.873E-01	0.923E-01	

KDC CONSULTANTS INC.

16144 S. BELL ROAD

HOMER GLEN, ILLINOIS 60491

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PROJECT: Wville Talbot
LOCATION: Warrenville

DATED: 8/20/21
PROJECT: 20-04-036

SANITARY SEWER DESIGN

0.40 min.

MANHOLE	TO	INVERT	DISTANCE (FT)	SLOPE (%)	SIZE (IN)	MATERIAL	RIM	COVER (FT)
EX. SEWER		719.96					727.70	
CONNECT	SMH 1	720.20	102	3.00	6	PVC	727.70	7.0
SMH 1	BLDG	723.26	15	1.00	6	PVC	728.75	5.0
BLDG		723.41					729.00	5.6

TOTALS:	6" SEWER	117	FEET
	48" MANHOLES	1	EACH
	MINIMUM SLOPE	1.00	%
	MINIMUM COVER	5.0	FEET

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STORM SEWER CALCULATIONS

FROM	TO	DRAINAGE AREA		IMP AREA	CUM CUM	C	TOTAL CA	TR-55 FLOW TIME	TIME IN PIPE	TB-70 100 YR CRITICAL	TOTAL RUNOFF Q = CiA	PIPE DIA	SLOPE OF SEWER (%)	LENGTH (ft)	Q FULL	VEL. FULL (fps)	VEL. (fps)	INVERT ELEV DOWN	UP	RIM ELEV	COVER (ft)	FROM	TO
		(acres)	(acres)	(acres)	(acres)			(min.)	(min.)	(in/hr)	(cfs)	(in)											
SOUTH TRIBUTARY																							
ROOF MH 2	MH 2	0.14	0.14	0.14	0.14	0.95	0.13	11.0	0.1	10.40	1.38	12	3.50	40	6.67	8.49	10.0	725.11 722.51	723.71	729.00 726.50	2.6 1.5	ROOF MH 2	MH 2
ROOF CB 4	CB 4	0.14	0.14	0.14	0.14	0.95	0.13	11.0	0.0	10.40	1.38	12	4.50	20	7.56	9.63	11.4	725.23 723.03	724.33	729.00 727.50	2.5 1.9	ROOF CB 4	CB 4
DRAIN CB 4	CB 4	0.02	0.02	0.01	0.01	0.72	0.01	11.0	0.5	10.40	0.15	6	0.50	65	0.40	2.02	2.4	723.55 723.03	723.23	724.90 727.50	0.6 3.5	DRAIN CB 4	CB 4
ROOF INL 2	INL 2	0.14	0.14	0.14	0.14	0.95	0.13	11.0	0.3	10.40	1.38	12	1.20	85	3.90	4.97	5.5	724.79		729.00	3.0	ROOF INL 2	INL 2
INL 2	CB 4	0.10	0.24	0.05	0.19	0.86	0.21	11.3	0.2	10.32	2.12	12	0.70	35	2.98	3.80	4.5	723.47	723.77	726.50	1.5	INL 2	CB 4
CB 4	MH 2	0.01	0.41	0.00	0.19	0.71	0.29	11.4	0.7	10.27	3.00	15	0.40	130	4.09	3.33	3.9	723.03	723.23	727.50	2.8	CB 4	MH 2
MH 2	CB 2	0.09	0.64	0.04	0.24	0.67	0.43	12.1	0.3	10.07	4.31	15	0.50	65	4.57	3.72	4.4	722.51 722.18	722.51 722.18	726.50 726.50	2.5 2.8	MH 2	CB 2
ROOF INL 1	INL 1	0.14	0.14	0.14	0.14	0.95	0.13	11.0	0.4	10.40	1.38	12	0.50	75	2.52	3.21	3.8	724.74		729.00	3.0	ROOF INL 1	INL 1
INL 1	CB 3	0.08	0.22	0.04	0.18	0.87	0.19	11.4	0.1	10.28	1.96	12	0.50	25	2.52	3.21	3.5	725.11	725.11	728.20	1.8	INL 1	CB 3
CB 3	MH 1	0.05	0.27	0.02	0.20	0.84	0.23	11.5	0.7	10.25	2.33	12	0.50	135	2.52	3.21	3.8	724.09	724.99	728.20	2.0	CB 3	MH 1
MH 1	CB 2	0.31	0.58	0.15	0.36	0.78	0.45	12.2	0.1	10.03	4.53	12	1.80	35	4.78	6.09	7.2	722.81	723.41	726.50	1.8	MH 1	CB 2
CB 2	EX. MH	0.01	1.23	0.00	0.36	0.63	0.78	12.3	0.1	10.00	** 7.78	18	0.60	30	8.14	4.61	5.4	722.18 722.00	722.18 722.00	726.50 724.3	2.6	CB 2	EX. MH
EX. MH																		722.00	722.00	724.3		EX. MH	
																		** RESTRICTED FLOW (ALLOWABLE RELEASE RATE = 0.09 cfs)		721.66		724.3	

NORTH TRIBUTARY

FES 2	CB 1	0.50	0.50	0.29	0.29	0.76	0.38	11.0	0.0	10.40	3.95	12	2.00	15	5.04	6.42	7.6	722.98			FES 2	CB 1	
CB 1	FES 1	0.01	0.51	0.01	0.29	0.76	0.39	11.0	0.0	10.39	** 4.03	12	4.00	15	7.13	9.08	10.7	722.34	722.56	728.80	5.0	CB 1	FES 1
FES 1																		721.50				FES 1	

** RESTRICTED FLOW (ALLOWABLE RELEASE RATE = 0.16 cfs)

TALBOT AVENUE

INL 5	INL 6	0.04	0.04	0.04	0.04	0.95	0.04	11.0	0.9	10.40	0.40	6	0.45	105	0.38	1.92	2.3	722.77		723.50	0.2	INL 5	INL 6
INL 6												PVC						722.30	722.30	723.50	0.7	INL 6	
X SEWER																		722.30				EX SEWER	
INL 3	EX MH	0.04	0.04	0.04	0.04	0.95	0.04	11.0	0.0	10.40	0.40	12	4.00	5	7.13	9.08	10.7	721.93		725.00	2.0	INL 3	EX MH
EX MH																		721.73	721.73	724.30	1.5	EX MH	
X SEWER																		721.43		724.3		EX SEWER	

FOR C FACTOR:

PERVIOUS = 0.50
 IMPERVIOUS = 0.95

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PROJECT Wville Talbot
LOCATION Warrenville

DATED: 6/8/21
PROJECT 20-04-036

PE ESTIMATE - OFFICES

Lot	Bldg Area	People per bldg	gpd per Person	PE per gpd	PE	Say PE =
3S140	24,750	26	15	0.01	3.9	4

Estimated say maximum load when class 26
Office say 1 person per 100 sf

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PROJECT: Elite
LOCATION: Warrenville

DATED: 8/14/20
PROJECT: 20-04-036

PARKING REQUIREMENTS

REQUIRED PARKING:	SF	SPACES/ 1000 SF	REQUIRED
OFFICE SPACE	3,000	4	12
WAREHOUSE SPACE	20,500	1	21
BUILDING TOTAL	23,500		33

PROPOSED PARKING:

PROPOSED SPACES	63
PROPOSED HANDICAP	4
TOTAL SPACES	67

SUMMARY:

REQUIRED SPACES	33
PROPOSED SPACES	67

KDC CONSULTANTS INC

16144 S. BELL ROAD
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PROJECT: WVILLE TALBOT
LOCATION: WARRENVILLE

DATED: 09/09/21
PROJECT: 20-04-036
REVISED: 11/24/21

ENGINEERS OPINION OF IMPROVEMENT COSTS

	Unit	Quantity	Unit Cost	Amount
WATERMAIN:				
FIRE HYDRANT	EA	1	\$3,650.00	\$3,650.00
			SUBTOTAL:	\$3,650.00
SANITARY SEWER:				
SERVICE ONLY	EA	0	\$0.00	\$0.00
			SUBTOTAL:	\$0.00
STORM SEWER:				
INLET	EA	6	\$750.00	\$4,500.00
CATCH BASIN	EA	4	\$1,950.00	\$7,800.00
MANHOLE	EA	2	\$1,550.00	\$3,100.00
12" FES	EA	2	\$1,550.00	\$3,100.00
6" PVC	LF	170	\$12.00	\$2,040.00
12" RCP	LF	525	\$24.00	\$12,600.00
15" RCP	LF	195	\$36.00	\$7,020.00
18" RCP	LF	30	\$42.00	\$1,260.00
EROSION CONTROL	EA	14	\$200.00	\$2,800.00
SILT FENCE	LF	825	\$2.00	\$1,650.00
TRENCH BACKFILL	LF	750	\$50.00	\$37,500.00
			SUBTOTAL:	\$83,370.00
ROADWAY:				
B6.12 C & G	LF	700	\$20.00	\$14,000.00
2" MILLING	SY	1,578	\$1.75	\$2,762.08
1-1/2" SURFACE COURSE	SY	1,578	\$6.10	\$9,627.83
3/4" BINDER COURSE	SY	1,578	\$2.30	\$3,630.17
PERMEABLE PAVERS	SF	17,593	\$10.00	\$175,930.00
			SUBTOTAL:	\$205,950.08

	Unit	Quantity	Unit Cost	Amount
MISC:				
LANDSCAPING	EA	1	\$12,500.00	\$12,500.00
TOPSOIL STRIP	CY	2,449	\$2.00	\$4,898.08
EXCAVATION	CY	1,726	\$4.00	\$6,905.07
WALKS	SF	1,045	\$6.00	\$6,270.00
CONSTRUCTION ENTRANCE	EA	1	\$2,000.00	\$2,000.00
3 YR DETENTION MAINTANCE	YR	3	\$3,000.00	\$9,000.00
SIGNS	EA	2	850.00	1,700.00
			SUBTOTAL:	\$43,273.15

SUMMARY:

WATERMAIN	\$3,650.00
SANITARY SEWER	\$0.00
STORM SEWER	\$83,370.00
ROADWAYS	\$205,950.08
MISC	\$43,273.15

TOTAL \$336,243.23

110% SAFETY \$369,867.55

NOTES:

1. LANDSCAPING ESTIMATED
2. EARTHWORK ESTIMATED.
3. SUBJECT TO CONTRACTOR BIDS.
4. SUBJECT TO FINAL APPROVALS.