FEASIBILITY REPORT

HIDDEN OAKS AREA STREET RECONSTRUCTION

CITY OF BLAINE, ANOKA COUNTY, MINNESOTA

DECEMBER 10, 2021

Prepared for:
City of Blaine
10801 Town Square Drive NE
Blaine, MN 55449

CITY PROJECT NO. 22-06
WSB PROJECT NO. 018996-000

wsb

FEASIBILITY REPORT

HIDDEN OAKS AREA STREET RECONSTRUCTION

CITY PROJECT NO. 22-06

FOR THE CITY OF BLAINE, MINNESOTA

DECEMBER 10, 2021

Prepared By:

CERTIFICATION

I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly licensed professional engineer under the laws of the State of Minnesota.

Nicholas E. Hentges, PE

Date: December 10, 2021 License No.: 44620

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EXECUTIVE SUMMARY

The proposed project includes the reconstruction of the Hidden Oaks neighborhood within the City of Blaine. The specific streets to be reconstructed are as follows:

- 97th Avenue from Hamline Avenue to Yalta Street
- 97th Lane from Hamline Avenue to Xebec Street
- 97th Court from West cul-de-sac to Hamline Avenue
- 98th Avenue from Hamline Avenue to Xebec Street
- 98th Lane from Wake Street to Yalta Street
- 99th Avenue from Wake Street to Xebec Street
- 99th Lane from Xebec Street to Austin Street
- Hamline Avenue from Edgewood Road to North cul-de-sac
- Wake Street from 98th Avenue to 99th Avenue
- Wake Court from 99th Avenue to North cul-de-sac
- Xebec Street from Edgewood Road to 99th Lane
- Yalta Street from 97th Avenue to 99th Lane

The above street segments are proposed to be reconstructed with new curb and gutter, aggregate base, and bituminous pavement. The scope of storm sewer improvements is limited to adding inlets at low points where there is currently limited inlet capacity and the replacement of inlet and manhole castings. Water improvements include replacement of select gate valves, select curb stops, and adjustment of other surface features. Sanitary sewer improvements are limited to replacement of manhole castings.

The total estimated cost of improvements is $4,889,565 with $1,272,543 proposed to be assessed over a 15-year period. The remaining project cost is proposed to be funded with $3,440,442 from City Pavement Management Plan funds, and $176,580 from City Public Utility Funds.

The proposed project is necessary, cost-effective, and feasible and will result in a benefit to the properties proposed to be assessed.

1 PROJECT HISTORY

The Blaine City Council initiated this project and ordered the preparation of a feasibility report on September 20, 2021 with Resolution 21-181. Under Motion 21-133 the City Council authorized the Mayor and City Manager to enter into a Contract with WSB for Professional Engineering services to complete the work under Resolution 21-181.

This report is based on field observations, record drawing information, 2020 aerial photography, and 2021 topographic survey.

2 PROJECT AREA CHARACTERISTICS

The project area includes the following streets:

- **97th Avenue** from Hamline Avenue to Yalta Street
- **97th Lane** from Hamline Avenue to Xebec Street
- **97th Court** from West cul-de-sac to Hamline Avenue
- **98th Avenue** from Hamline Avenue to Xebec Street
- **98th Lane** from Wake Street to Yalta Street
- **99th Avenue** from Wake Street to Xebec Street
- **99th Lane** from Xebec Street to Austin Street
- **Hamline Avenue** from Edgewood Road to North cul-de-sac
- **Wake Street** from 98th Avenue to 99th Avenue
- **Wake Court** from 99th Avenue to North cul-de-sac
- **Xebec Street** from Edgewood Road to 99th Lane
- **Yalta Street** from 97th Avenue to 99th Lane

The western half of Hamline Avenue from 97th Lane to Edgewood Road lies within, and is owned by, the City of Lexington. City Staff is working with the City of Lexington to create a Joint Powers Agreement to reconstruct this segment of Lexington's road system with this project. If the Joint Powers Agreement is adopted by both Cities, Blaine will cause the reconstruction of the Lexington segment of Hamline Avenue and Lexington will reimburse Blaine for the construction costs.

All roadways that are a part of the Hidden Oaks Area Street Reconstruction project are urban sections with existing curb and gutter—Hamline Avenue from Edgewood Road to 97th Lane has bituminous curb on the west (City of Lexington) side of the roadway. These streets are located in a residential area. The pavement on all of these roadways has reached the point of failure with significant block, transverse, and longitudinal cracking and has failed to the point where an overlay is not feasible. During the survey of the area, WSB engineers identified 62% of the existing curb and gutter for replacement.

The Anoka County Soil Survey indicates that the predominant soils types in the project area are Hydraulic Soils Group SoA, Iw, and ZmB. This project is not anticipating groundwater to be present in the excavations at the assumed depths of the proposed storm sewer. If groundwater is encountered during water improvement construction, dewatering will be required. Deeper excavations below the groundwater table, in sandy soils, will likely require a sand point dewatering system.

The project area is contained wholly in the Rice Creek Watershed District. No portion of this project will impact wetlands as identified on the City's wetland inventory map.

See Appendix A, Exhibit 1 for Project Location Map.

2.1 Road History

The following streets were constructed in 1984: **Xebec Street** from Edgewood Road to 99th Avenue; **Yalta Street**, **Hamline Avenue** from Edgewood Road to 97th Lane; **97th Avenue**; **97th Lane**; **98th Lane** from Xebec Street to Yalta Street; **99th Lane** from Yalta Street to Austin Street. These streets were constructed with a pavement section consisting of approximately 2-inches of bituminous over 4-inches of aggregate base with surmountable curb. Hamline Avenue was constructed with bituminous curb on the western side of the roadway. The above streets, except for Hamline Avenue, received a 1.5-inch mill and bituminous overlay in 2000.

The following streets were constructed in 1986: **Hamline Avenue** from 97th Lane to the north cul-de-sac; **Wake Street**; **Xebec** Street from 99th Avenue to 99th Lane; **98th Avenue**; **98th Lane** from Wake Street to Xebec Street; **99th Avenue; 99th Lane** from Xebec Street to Yalta Street. These streets were constructed with a pavement section consisting of approximately 2-inches of bituminous over 4" of aggregate base with D312 curb & gutter. The above streets, except for Hamline Avenue, received a 1.5-inch mill and bituminous overlay in 2000.

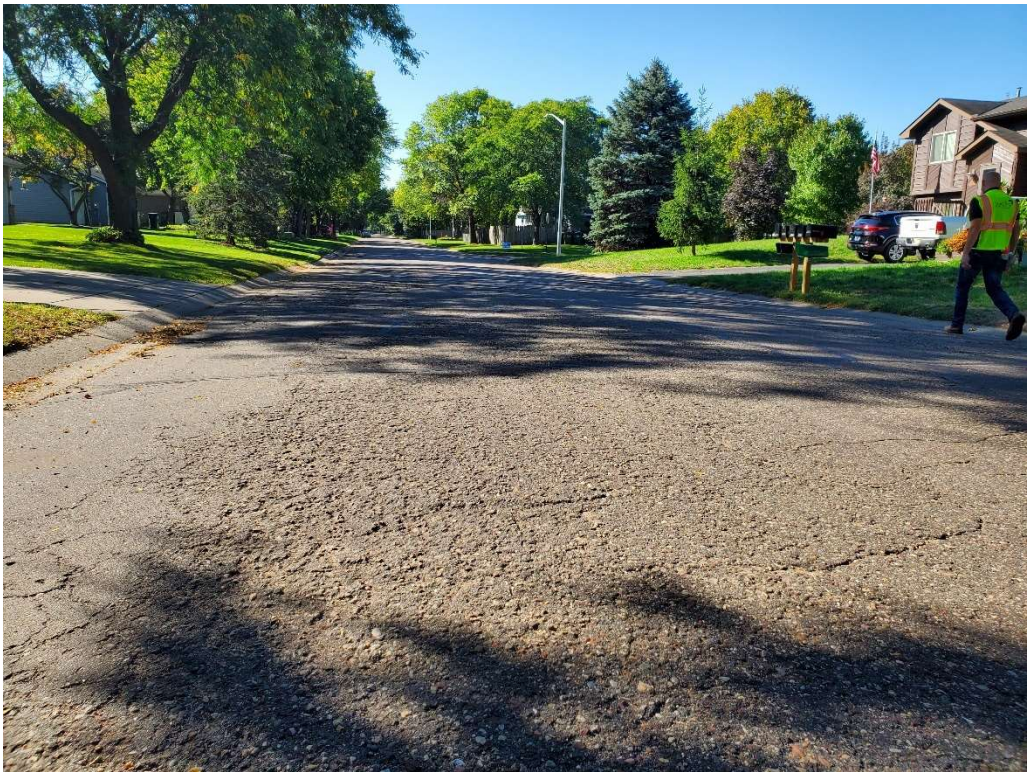
97th Court was constructed in 1992 with a pavement section consisting of approximately 3-inches of bituminous over 4-inches of aggregate base with D312 curb & gutter. No pavement rehabilitation has been performed to date on 97th Court.

2.2 Pavement Investigation

WSB completed a pavement investigation at nineteen (19) coring locations throughout the project area on November 1, 2021. The results of this investigation can be found in the Pavement Design Report in Appendix D. The investigation found that bituminous depths ranged from 2.25-inches to 4.5-inches over 3-inches to 6-inches of aggregate base consisting of sand with some gravel. Laboratory testing was completed on samples of the aggregate base and determined that the aggregate base does not meet the specifications for MnDOT Class 5 material.

2.3 Existing Conditions Photos

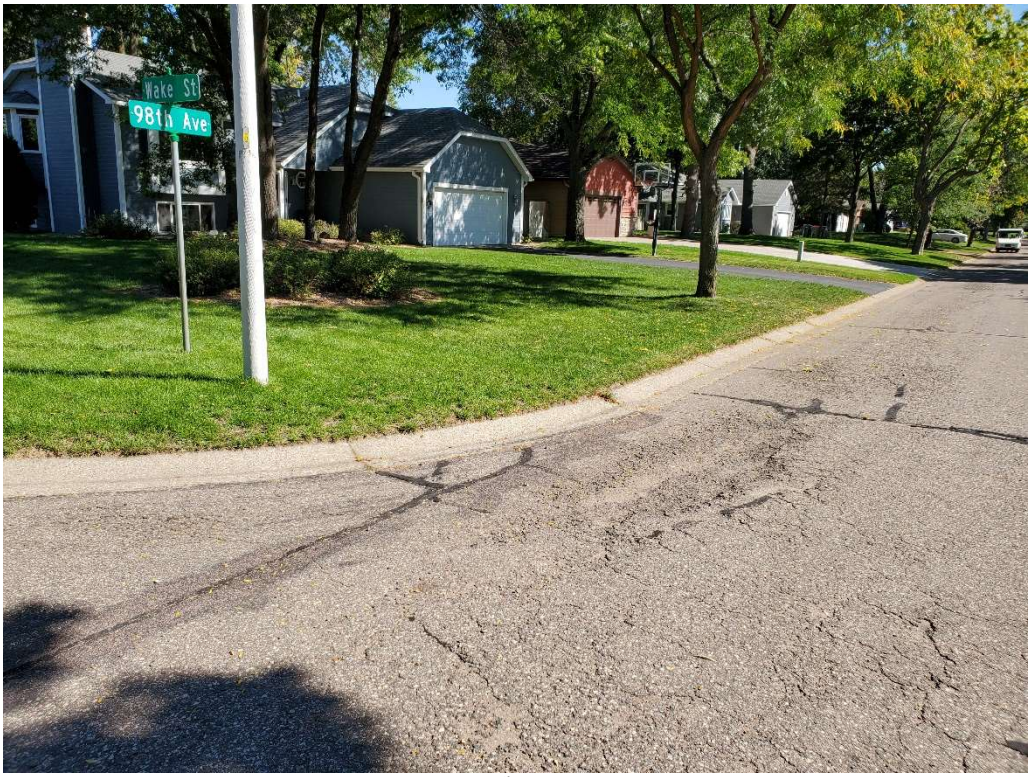
The following photos were taken during a site inspection on September 23, 2021 and are representative of conditions of all streets included with this project.



Existing Conditions on Xebec Street

Existing Conditions on Yalta Street

Existing Conditions at Hamline Avenue and 98th Avenue



Existing Conditions at 98th Avenue and Wake Street

Existing Conditions at 99th Avenue and Wake Street

Existing Conditions at 98th Lane and Xebec Street

3 PROPOSED IMPROVEMENTS

WSB and City Staff met on November 17, 2021 to discuss the results of the pavement investigation and the proposed curb and gutter replacement. At this meeting, it was determined, based on the amount of curb identified for replacement, that this project area is not suitable for a rehabilitation project as originally proposed. Rather, this project will be a full reconstruction replacing the aggregate base, bituminous pavement, and concrete curb and gutter throughout the area. It is the Opinion of WSB and City Staff that this will result in the most favorable project outcome.

The proposed improvements will include roadway reconstruction, curb and gutter replacement, pedestrian ramp improvements to make them ADA compliant, and spot improvements to City utilities.

3.1 Street Construction

The street typical section will be reconstructed to conform with City standards for reconstruction including 3-1/2-inches of bituminous pavement over 4-inches of Aggregate Base on a compacted subgrade. All existing curb and gutter will be replaced with B418 Concrete Curb and Gutter. See Appendix A, Exhibit 2 for the proposed typical section.

It is not anticipated that additional right-of-way will be needed for the project.

3.2 Sanitary Sewer

Public Works and Engineering staff have reviewed the existing sanitary sewer within the project area. This review has determined that the scope of sanitary sewer improvements is limited to the replacement of existing manhole castings and rings.

3.3 Water Main

Public Works and Engineering staff have reviewed the water main installation dates and water main break data in the project area and concur that the existing ductile iron water main pipe installed when the roadways were first constructed have no issues indicating the need for replacement or repair.

All existing gate valve boxes located within the existing street section will be adjusted. Public Works staff have inspected the gate valves in the project area and identified the required replacements and repair. In addition, it is assumed that 50% of all gate valve boxes require replacement.

Public Works Staff have inspected the curb stops for water service into residences and have identified the required replacements and repair.

3.4 Storm Sewer and Stormwater Management

The scope of storm sewer improvements is limited to the replacement of existing catch basin and manhole castings and adding catch basins at some of the low points to reduce the spread in the roadways. The full project area is located within the Rice Creek Watershed District (RCWD). A permit application will be required. Since the project will expose underlying soils RCWD stormwater management and erosion control rules are triggered. Stormwater management requirements include rate control and water quality. The entire project area drains northeast to an existing stormwater pond in Centennial Green Park which will provide the project's required stormwater management.

The Centennial Green Park area was analyzed as part of the City of Blaine Volume Reduction and Water Quality Study completed by WSB in 2021. The area was determined to have a low potential project benefit since there was a low volume reduction potential and since the existing pond already provides water quality benefits. The pond outlets to the main trunk of the Anoka County Ditch 53-62 which drains southeast into Circle Pines.

No storm sewer improvements have been performed to date in the project area.

4 IMPACT OF PROPOSED IMPROVEMENTS

The proposed street improvements will not create any new maintenance issues for the Public Works staff. The City will work with the affected property owners and the Contractor to resolve any situation that may arise during construction.

All streets will remain open to local traffic during construction with short term traffic delays expected. Construction dust, noise, and erosion will occur. Efforts to minimize these impacts include the restriction of work hours and dust and erosion control measures included in the project. Any disruptions that occur to existing yards, sprinkler systems, and driveways will be restored.

5 SUMMARY OF ESTIMATED COSTS AND FUNDING

Project No.: 22-06
Description: Hidden Oaks Area Street Reconstruction Project

Cost Item	Percent	Amount
Construction Costs		
Street Construction		$ 3,364,700
Watermain Construction		$ 80,000
Sanitary Sewer Construction		$ 50,800
Storm Sewer Construction		$ 126,400
Total Construction Costs		**$ 3,621,900**
Administrative Costs		
Engineering	18%	$ 651,942
Assessment	1%	$ 36,219
Legal	2%	$ 72,438
Administration	4%	$ 144,876
Capitalized Interest	8%	$ 289,752
Bonding	2%	$ 72,438
Total Administrative Costs		**$ 1,267,665**
Total Estimated Project Costs:		**$ 4,889,565**

Temporary Funding Source: City Internal Funds

Permanent Funding Source: Assessments, Pavement Management Program (PMP) Funds, and Public Utility Funds

Funding

Total Generation from Assessments:	$	1,272,543
Total Paid from Public Sanitary Sewer Funds:	$	68,580
Total Paid from Public Water Utility Funds:	$	108,000
Total Paid from PMP Funds:	$	3,440,442

6 ASSESSMENT METHODOLOGY

It is proposed that the project be assessed over 15 years in accordance with the City Assessment Policy. It is proposed to assess this project using the unit method for the entire project area. Proposed assessments are based on 35% of the entire project cost for the improved streets and do not include costs for water main or sanitary sewer work.

See Appendix C, Exhibit 1 for the parcels proposed to be assessed and Exhibit 2 for the proposed assessment rolls.

8 FINANCE

The proposed project will temporarily be financed by the City. Permanent funding will be provided by Pavement Management Program Funds, City Water and Sewer Utility Funds, and the costs assessed to the benefiting parcels in accordance with the City Assessment Policy and Minnesota Statures Chapter 429, Special Assessment Laws.

8.1 Finance Director Statement

With reference to this Feasibility Report for Improvement Project 22-06 as prepared by WSB dated December 10, 2021, I find the following:

A. The project will be temporarily funded through existing City internal funds whereupon permanent financing will be obtained through the Pavement Management Program Funds, Public Utility Funds, and Assessments.

B. Sufficient monies are currently available from the City's Internal Fund to temporarily fund the special assessment portion of this project. It is estimated that $1,272,543 will be assessed.

C. Sufficient monies are currently available from the City's Pavement Management Program Fund to pay for the proposed street improvements at an estimated cost of $3,440,442.

D. Sufficient monies are currently available from the City's Public Utility Funds to pay for proposed utility improvements and are estimated cost of $176,580.

_____

Joseph Huss
Finance Director/Assistant City Manager

9 PROJECT SCHEDULE

December 20, 2021	Receive Feasibility Report Order Public Hearing
January 5, 2022	Public Information Meeting
January 18, 2022	Hold Public Hearing Order Improvements and Order Preparation of Plans and Specifications
April 18, 2022	Approve Plans and Specifications Order Advertisement for Bids
May 10, 2022	Open Bids
May 16, 2022	Award Contract
June – October 2022	Construct Improvements
October 2022	Assess Project
May 2023	First assessment payment due with real estate taxes.

10 FEASIBILITY AND RECOMMENDATION

The project as proposed technically and financially feasible, cost effective, and will result in a benefit to the properties proposed to be assessed. It is recommended that the Council accept this report, hold the public hearing, and order the improvements.

APPENDIX A

Exhibit 1: Project Location Map
Exhibit 2: Typical Sections
Exhibit 3: Storm Sewer Design

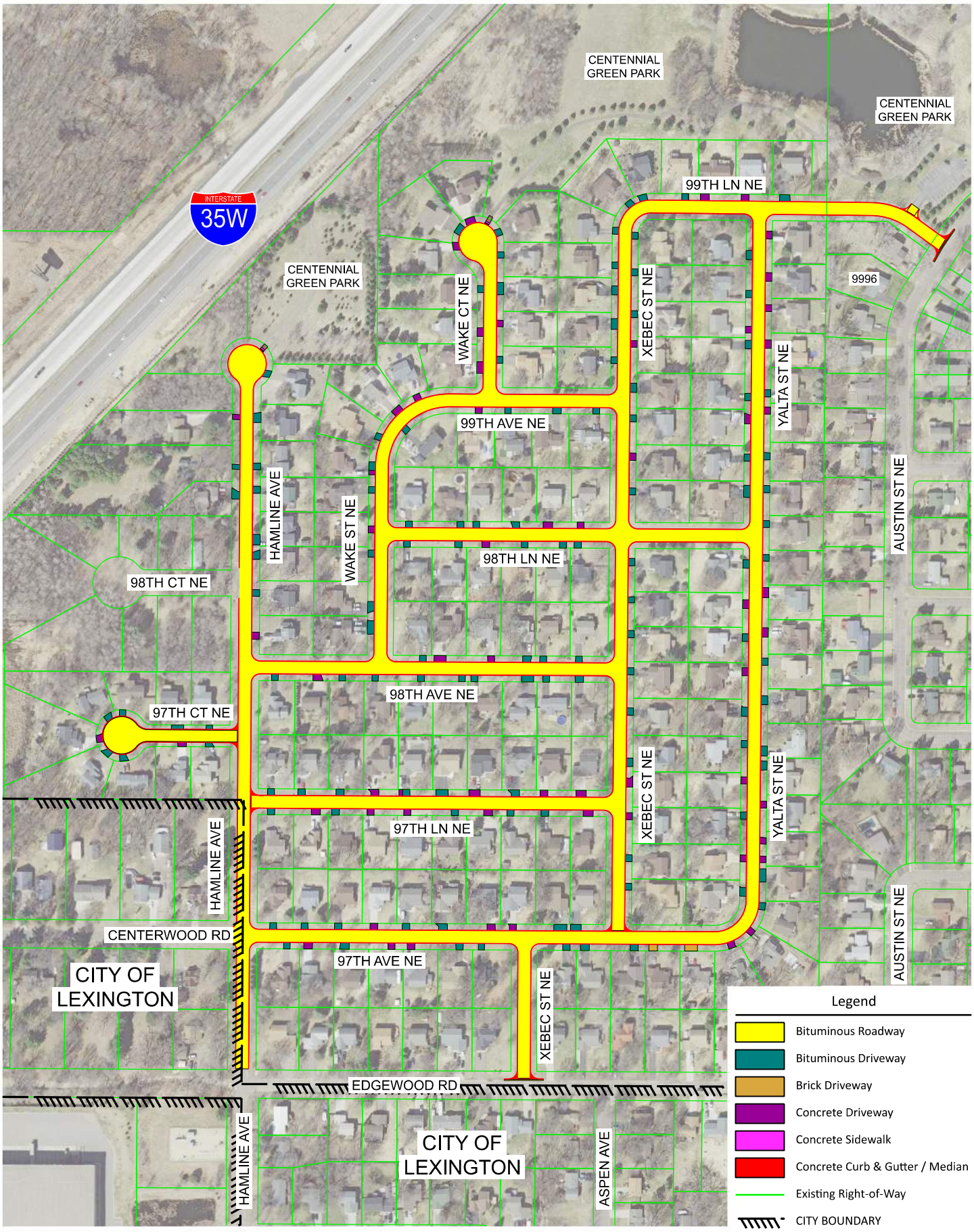


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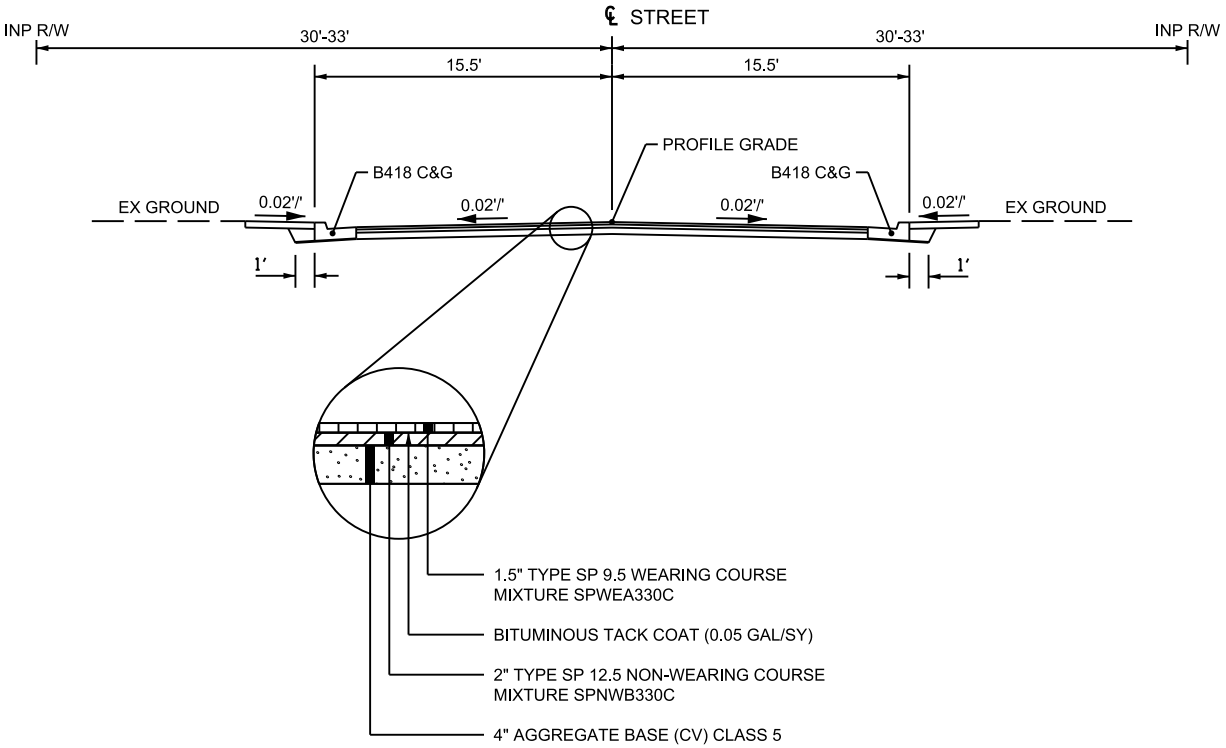
Exhibit 1: Project Area Map

Hidden Oaks Area Street Reconstruction
Feasibility Assessment Report

City of Blaine, Minnesota

N

SCALE IN FEET
0 150 300



BlaineMN.gov

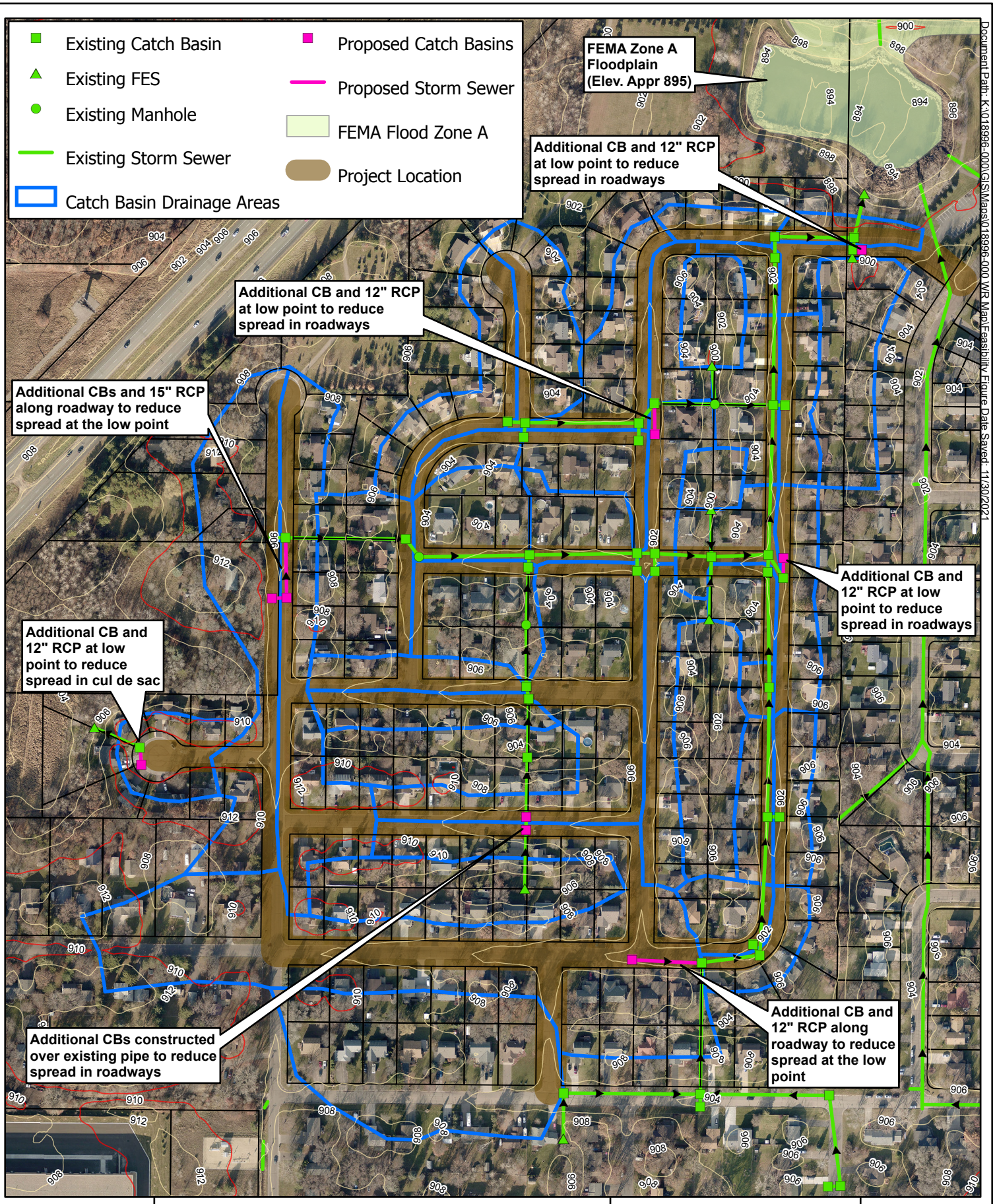
Exhibit 2: Typical Sections

Hidden Oaks Area Street Reconstruction
Feasibility Assessment Report

City of Blaine, Minnesota

SCALE IN FEET
0 5 10

wsb



BlaineMN.gov

Proposed Storm Sewer Improvements

2022 Street Reconstruction Project
City of Blaine

N

0 300 Feet

1 inch = 300 feet

wsb

APPENDIX B

Opinion of Probable Cost

OPINION OF PROBABLE COST - PRELIMINARY

WSB Project: Hidden Oaks Area Reconstruction CP 22-06
Project Location: City of Blaine, Minnesota
WSB Project No: 016996-000

Nicholas Hentges | *Date:* 12/10/2021

Item Number	Extension Number	Description	Unit	Unit Price	Project Total Estimated Quantity	Project Total Estimated Cost	CP 22-06 Estimated Quantity	CP 22-06 Estimated Cost
A. ROADWAY CONSTRUCTION								
2021.501	00010	MOBILIZATION	LUMP SUM	$150,000.00	1	$150,000.00	1	$150,000.00
2101.502	00020	CLEARING	EACH	$450.00	15	$6,750.00	15	$6,750.00
2101.502	00020	GRUBBING	EACH	$400.00	15	$6,000.00	15	$6,000.00
2104.502	01240	REMOVE SIGN TYPE C	EACH	$50.00	27	$1,350.00	27	$1,350.00
2104.502	03590	SALVAGE MAIL BOX SUPPORT	EACH	$52.00	62	$3,224.00	62	$3,224.00
2104.503	00315	REMOVE CURB AND GUTTER	LIN FT	$5.00	23101	$115,505.00	23101	$115,505.00
2104.504	00080	REMOVE CONCRETE DRIVEWAY PAVEMENT	SQ YD	$13.00	1781	$23,153.00	1781	$23,153.00
2104.504	00090	REMOVE CONCRETE PAVEMENT	SQ YD	$11.50	242	$2,783.00	242	$2,783.00
2104.504	00110	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	SQ YD	$8.00	3646	$29,168.00	3646	$29,168.00
2104.504	00120	REMOVE BITUMINOUS PAVEMENT	SQ YD	$5.50	36103	$198,566.50	36103	$198,566.50
2104.518	00100	REMOVE BITUMINOUS WALK	SQ FT	$2.50	232	$580.00	232	$580.00
2104.518	00140	REMOVE CONCRETE WALK	SQ FT	$3.00	152	$456.00	152	$456.00
2104.618	00110	SALVAGE BRICK PAVERS	SQ FT	$4.00	722	$2,888.00	722	$2,888.00
2106.507	00010	EXCAVATION - COMMON (P)	CU YD	$15.00	11917	$178,756.21	11917	$178,756.21
2106.507	00130	COMMON EMBANKMENT (CV) (P)	CU YD	$16.00	5758	$92,130.21	5758	$92,130.21
2112.604	00010	SUBGRADE PREPARATION	SQ YD	$2.00	39516	$79,032.00	39516	$79,032.00
2123.610	00410	STREET SWEEPER (WITH PICKUP BROOM)	HOUR	$150.00	50	$7,500.00	50	$7,500.00
2130.523	00010	WATER	MGAL	$30.00	225	$6,750.00	225	$6,750.00
2211.507	00170	AGGREGATE BASE (CV) CLASS 5 (P)	CU YD	$40.00	6076	$243,040.00	6076	$243,040.00
2231.509	00010	BITUMINOUS PATCHING MIXTURE	TON	$200.00	9	$1,800.00	9	$1,800.00
2357.507	00010	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	$3.50	1976	$6,916.00	1976	$6,916.00
2360.504	23320	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C) 2.0" THICK	SQ YD	$22.00	3755	$82,610.00	3755	$82,610.00
2360.509	13300	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C)	TON	$80.00	3349	$267,920.00	3349	$267,920.00
2360.509	23305	TYPE SP 12.5 NON WEARING COURSE MIXTURE (3,C)	TON	$74.00	4466	$330,484.00	4466	$330,484.00
2521.518	00060	6" CONCRETE WALK	SQ FT	$12.00	136	$1,632.00	136	$1,632.00
2521.518	00130	3" BITUMINOUS WALK	SQ FT	$7.00	272	$1,904.00	272	$1,904.00
2531.503	02080	CONCRETE CURB & GUTTER DESIGN B418	LIN FT	$28.00	22473	$629,244.00	22473	$629,244.00
2531.503	02315	CONCRETE CURB & GUTTER DESIGN B618	LIN FT	$35.00	628	$21,980.00	628	$21,980.00
2531.504	00060	6" CONCRETE DRIVEWAY PAVEMENT	SQ YD	$80.00	1781	$142,480.00	1781	$142,480.00
2531.604	00208	8" CONCRETE VALLEY GUTTER	SQ YD	$100.00	255	$25,500.00	255	$25,500.00
2531.618	00010	TRUNCATED DOMES	SQ FT	$150.00	40	$6,000.00	40	$6,000.00

OPINION OF PROBABLE COST - PRELIMINARY

WSB Project: Hidden Oaks Area Reconstruction CP 22-06
Project Location: City of Blaine, Minnesota
WSB Project No: 016996-000

Nicholas Hentges | *Date:* 12/10/2021

Item Number	Extension Number	Description	Unit	Unit Price	Project Total		CP 22-06	
					Estimated Quantity	Estimated Cost	Estimated Quantity	Estimated Cost
2540.602	00140	INSTALL MAIL BOX SUPPORT	EACH	$80.00	62	$4,960.00	62	$4,960.00
2540.618	00102	INSTALL BRICK PAVERS	SQ FT	$20.00	722	$14,440.00	722	$14,440.00
2563.601	00010	TRAFFIC CONTROL	LUMP SUM	$15,000.00	1	$15,000.00	1	$15,000.00
2564.518	00130	SIGN PANELS TYPE C	SQ FT	$60.00	138	$8,250.00	138	$8,250.00
2573.501	00025	STABILIZED CONSTRUCTION EXIT	LUMP SUM	$5,000.00	1	$5,000.00	1	$5,000.00
2573.502	00110	STORM DRAIN INLET PROTECTION	EACH	$185.00	47	$8,695.00	47	$8,695.00
2573.503	00023	SILT FENCE, TYPE MS	LIN FT	$2.10	275	$577.50	275	$577.50
2573.503	00064	SEDIMENT CONTROL LOG TYPE COMPOST	LIN FT	$3.30	275	$907.50	275	$907.50
2574.505	00020	SOIL BED PREPARATION	ACRE	$175.00	6.4	$1,113.68	6.4	$1,113.68
2574.508	00013	FERTILIZER TYPE 3	POUND	$1.00	1909	$1,909.17	1909	$1,909.17
2575.504	00011	SODDING TYPE LAWN	SQ YD	$10.00	30801	$308,013.33	30801	$308,013.33
2575.523	00020	RAPID STABILIZATION METHOD 3	MGAL	$625.00	38	$23,864.67	38	$23,864.67
ROADWAY CONSTRUCTION SUBTOTAL						$3,058,832.78		$3,058,832.78
CONTINGENCY (10%)						$305,883.28		$305,883.28
INDIRECT COST (35% OF SUBTOTAL + CONTINGENCY)						$1,177,650.62		$1,177,650.62
ROADWAY TOTAL						$4,542,366.68		$4,542,366.68
B. WATERMAIN CONSTRUCTION								
2104.502	00810	REMOVE CURB BOX	EACH	$230.00	8	$1,840.00	8	$1,840.00
2104.502	00850	REMOVE GATE VALVE & BOX	EACH	$395.00	5	$1,975.00	5	$1,975.00
2104.502	00860	REMOVE CURB STOP & BOX	EACH	$290.00	7	$2,030.00	7	$2,030.00
2104.502	00870	REMOVE VALVE BOX	EACH	$280.00	11	$3,080.00	11	$3,080.00
2504.602	00010	CONNECT TO EXISTING WATER MAIN	EACH	$1,600.00	10	$16,000.00	10	$16,000.00
2504.602	00014	CONNECT TO EXISTING WATER SERVICE	EACH	$500.00	14	$7,000.00	14	$7,000.00
2504.602	00030	VALVE BOX	EACH	$910.00	11	$10,010.00	11	$10,010.00
2504.602	00032	ADJUST GATE VALVE & BOX	EACH	$555.00	11	$6,105.00	11	$6,105.00
2504.602	00808	8" GATE VALVE & BOX	EACH	$2,700.00	5	$13,500.00	5	$13,500.00
2504.602	03006	CURB BOX	EACH	$650.00	8	$5,200.00	8	$5,200.00
2504.602	03100	1" CURB STOP & BOX	EACH	$850.00	7	$5,950.00	7	$5,950.00
WATERMAIN CONSTRUCTION SUBTOTAL						$72,690.00		$72,690.00
CONTINGENCY (10%)						$7,269.00		$7,269.00
INDIRECT COST (35% OF SUBTOTAL + CONTINGENCY)						$27,985.65		$27,985.65
WATERMAIN CONSTRUCTION TOTAL						$107,944.65		$107,944.65

OPINION OF PROBABLE COST - PRELIMINARY

WSB Project: Hidden Oaks Area Reconstruction CP 22-06
Project Location: City of Blaine, Minnesota
WSB Project No: 016996-000

Nicholas Hentges | *Date:* 12/10/2021

Item Number	Extension Number	Description	Unit	Unit Price	Project Total Estimated Quantity	Project Total Estimated Cost	CP 22-06 Estimated Quantity	CP 22-06 Estimated Cost
C. SANITARY SEWER CONSTRUCTION								
2104.502	00820	REMOVE CASTING	EACH	$250.00	42	$10,500.00	42	$10,500.00
2506.502	00500	CASTING ASSEMBLY	EACH	$850.00	42	$35,700.00	42	$35,700.00
SANITARY SEWER CONSTRUCTION SUBTOTAL						$46,200.00		$46,200.00
CONTINGENCY (10%)						$4,620.00		$4,620.00
INDIRECT COST (35% OF SUBTOTAL + CONTINGENCY)						$17,787.00		$17,787.00
SANITARY SEWER CONSTRUCTION TOTAL						$68,607.00		$68,607.00
D. STORM SEWER CONSTRUCTION								
2104.502	00820	REMOVE CASTING	EACH	$250.00	47	$11,750.00	47	$11,750.00
2503.503	19125	12" RC PIPE SEWER DES 3006 CL V	LIN FT	$95.00	210	$19,950.00	210	$19,950.00
2503.503	19155	15" RC PIPE SEWER DES 3006 CL V	LIN FT	$68.00	150	$10,200.00	150	$10,200.00
2503.602	00320	CONNECT TO EXISTING STORM SEWER	EACH	$1,115.00	4	$4,460.00	4	$4,460.00
2503.602	00360	CONNECT INTO EXISTING DRAINAGE STRUCTURE	EACH	$1,190.00	6	$7,140.00	6	$7,140.00
2506.502	00300	CONST DRAINAGE STRUCTURE DESIGN SPECIAL	EACH	$2,400.00	6	$14,400.00	6	$14,400.00
2506.502	06000	CASTING ASSEMBLY	EACH	$850.00	47	$39,950.00	47	$39,950.00
2506.503	02420	CONST DRAINAGE STRUCTURE DES 48-4020	LIN FT	$585.00	12	$7,020.00	12	$7,020.00
STORM SEWER CONSTRUCTION SUBTOTAL						$114,870.00		$114,870.00
CONTINGENCY (10%)						$11,487.00		$11,487.00
INDIRECT COST (35% OF SUBTOTAL + CONTINGENCY)						$44,224.95		$44,224.95
STORM SEWER CONSTRUCTION TOTAL						$170,581.95		$170,581.95

PROJECT SUMMARY		
PROJECT SUBTOTAL	**$3,292,592.78**	**$3,292,592.78**
CONTINGENCY SUBTOTAL	**$329,259.28**	**$329,259.28**
ENGINEERING (18%)	**$651,933.37**	**$651,933.37**
ASSESSMENT (1%)	**$36,218.52**	**$36,218.52**
LEGAL (2%)	**$72,437.04**	**$72,437.04**
ADMINISTRATION (4%)	**$144,874.08**	**$144,874.08**
CAPITILIZED INTEREST (8%)	**$289,748.16**	**$289,748.16**
BONDING (2%)	**$72,437.04**	**$72,437.04**
PROJECT TOTAL	**$4,889,500.28**	**$4,889,500.28**

APPENDIX C

Exhibit 1: Assessment Map
Exhibit 2: Proposed Assessment Roll

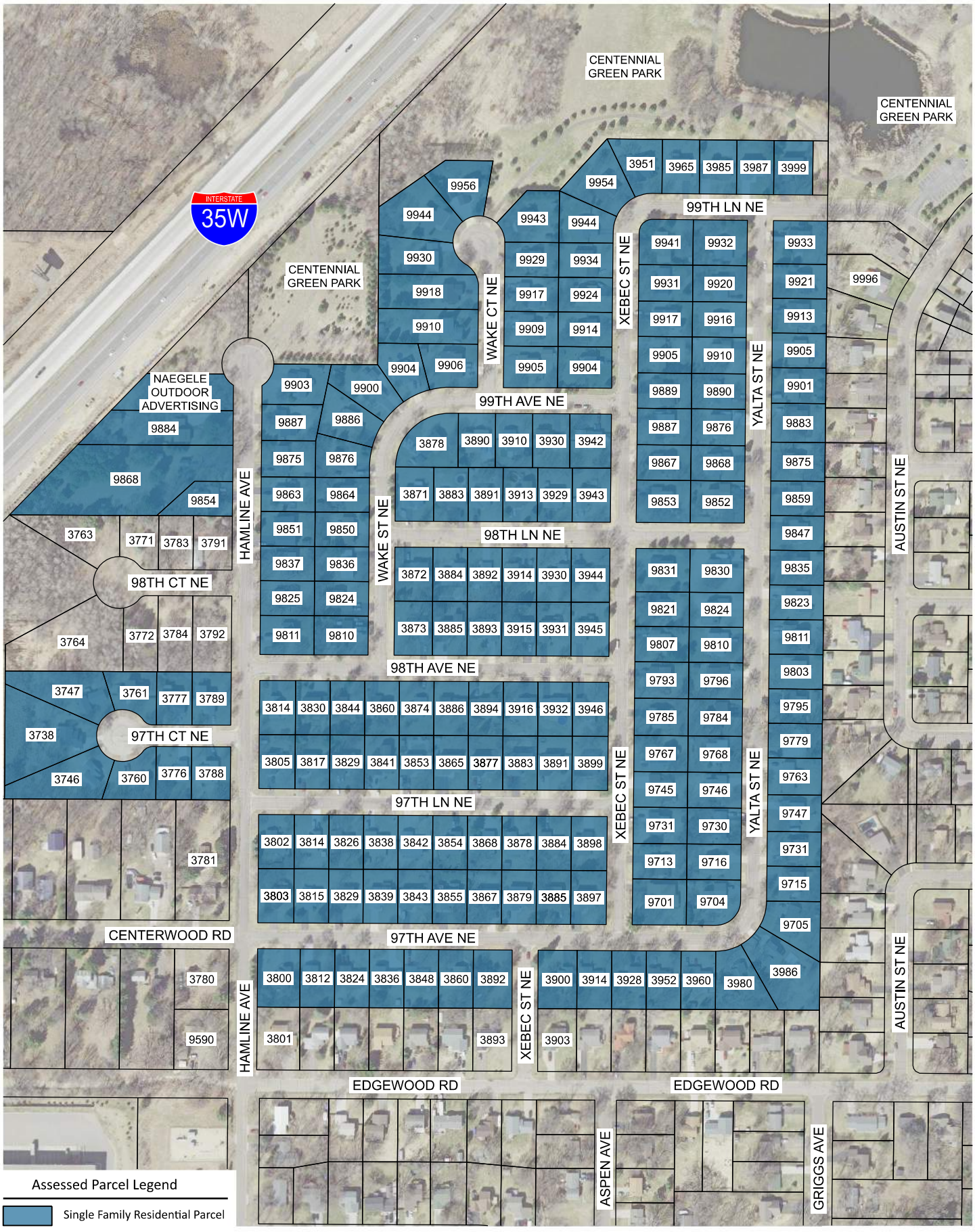


Exhibit 1: Project Assessment Map

Hidden Oaks Area Street Reconstruction Feasibility Assessment Report

City of Blaine, Minnesota

PRINT DATE: 12/10/2021 8:15:51 AM

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HIDDEN OAKS AREA RECONSTRUCTION
CITY OF BLAINE, MINNESOTA
CITY PROJECT NO 22-06

EXHIBIT NO. 2 - PROPOSED ASSESSMENT ROLL
SINGLE FAMILY RESIDENTIAL PROPERTIES

ASSESSMENT RATE BREAKDOWN

CONSTRUCTION COSTS*		$3,491,100.00	*(CONSTRUCTION COST DOES NOT INCLUDE WATER MAIN OR SANITARY SEWER COSTS)			
ADMINISTRATIVE COSTS		$1,221,885.00				
TOTAL COST		$4,712,985.00				ASSESSMENT RATE PER FRONT FOOT
	RESIDENTIAL RATE	x35%		TOTAL FRONT FOOTAGE		
ASSESSABLE COST		**$1,649,544.75**	**/**	**19565.6 LF**	**=**	**$84.31**

RESIDENTIAL PROPERTY

ASSESSMENT RATE		SINGLE FAMILY RESIDENTIAL ASSESSABLE FOOTAGE		AMOUNT ASSESSED		ASSESSABLE RESIDENTIAL LOT UNITS		ASSESSMENT RATE PER RESIDENTIAL LOT UNIT
$84.31	**X**	**15093.6 LF**	**=**	**$1,272,543.10**	**/**	**185**	**=**	**$6,878.61**

PIN	PROPERTY ADDRESS	PROPERTY OWNER	ASSESSABLE RESIDENTIAL LOT UNITS	ASSESSMENT RATE PER RESIDENTIAL LOT UNIT	PROPOSED ASSESSMENT
263123240029	3738 97TH CT NE	LANGMADE, JEFFREY S	1	$6,878.61	$6,878.61
263123240030	3746 97TH CT NE	WATKE, JORDAN M	1	$6,878.61	$6,878.61
263123240028	3747 97TH CT NE	KANDEL, RICHARD	1	$6,878.61	$6,878.61
263123240031	3760 97TH CT NE	LEE NANCY J	1	$6,878.61	$6,878.61
263123240027	3761 97TH CT NE	KYIPA PASSANG	1	$6,878.61	$6,878.61
263123240032	3776 97TH CT NE	MAKI MICHELLE L	1	$6,878.61	$6,878.61
263123240026	3777 97TH CT NE	DAGOSTINO ANTHONY & AMY	1	$6,878.61	$6,878.61
263123240033	3788 97TH CT NE	BEST-SMITH, GINA	1	$6,878.61	$6,878.61
263123240025	3789 97TH CT NE	CARROLL, MICHELLE ANN	1	$6,878.61	$6,878.61
263123130003	3800 97TH AVE NE	SAVER, CYNTHIA M	1	$6,878.61	$6,878.61
263123130017	3802 97TH LN NE	KONGSOUNG ZER	1	$6,878.61	$6,878.61
263123130036	3803 97TH AVE NE	CONDIFF JULIANNE F & GREG T	1	$6,878.61	$6,878.61
263123130046	3805 97TH LN NE	SORENSON, AMY JO	1	$6,878.61	$6,878.61
263123130004	3812 97TH AVE NE	KRUSE, ESTHER E	1	$6,878.61	$6,878.61
263123130018	3814 97TH LN NE	BROWN, ROWAN	1	$6,878.61	$6,878.61
263123130093	3814 98TH AVE NE	WILLIAMS MARY LOUISE	1	$6,878.61	$6,878.61
263123130035	3815 97TH AVE NE	BOHMER, NANCY L	1	$6,878.61	$6,878.61
263123130045	3817 97TH LN NE	GREEN JAMES M & RANDALL JODI M	1	$6,878.61	$6,878.61
263123130005	3824 97TH AVE NE	DEGREE DAVID C & TERESA L	1	$6,878.61	$6,878.61
263123130019	3826 97TH LN NE	HILGER PATRICK M & SUSAN J	1	$6,878.61	$6,878.61
263123130034	3829 97TH AVE NE	BEAUBIEN, MARK	1	$6,878.61	$6,878.61
263123130044	3829 97TH LN NE	JOHNSON BARBARA J	1	$6,878.61	$6,878.61
263123130094	3830 98TH AVE NE	EHRNREITER RONALD & JANET	1	$6,878.61	$6,878.61
263123130006	3836 97TH AVE NE	CARVER SARAH R	1	$6,878.61	$6,878.61
263123130020	3838 97TH LN NE	KRISTOFITZ, HELEN MARIE	1	$6,878.61	$6,878.61
263123130033	3839 97TH AVE NE	HOBBS JEFFERSON T	1	$6,878.61	$6,878.61
263123130043	3841 97TH LN NE	EBSEN MICHAEL P	1	$6,878.61	$6,878.61
263123130021	3842 97TH LN NE	SAUCIER LYNNE M	1	$6,878.61	$6,878.61
263123130032	3843 97TH AVE NE	IMSLAND SHANE	1	$6,878.61	$6,878.61
263123130095	3844 98TH AVE NE	BALYNAS STEVEN M & STEPHANIE A	1	$6,878.61	$6,878.61
263123130007	3848 97TH AVE NE	KNISELY, THOMAS	1	$6,878.61	$6,878.61
263123130042	3853 97TH LN NE	MOHLER PATRICK A & CARMEN A	1	$6,878.61	$6,878.61

EXHIBIT NO. 2 - PROPOSED ASSESSMENT ROLL
SINGLE FAMILY RESIDENTIAL PROPERTIES

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ADMINISTRATIVE COSTS		$1,221,885.00				
TOTAL COST		$4,712,985.00				ASSESSMENT RATE PER FRONT FOOT
	RESIDENTIAL RATE	x35%		TOTAL FRONT FOOTAGE		
ASSESSABLE COST		**$1,649,544.75**	**/**	**19565.6 LF**	**=**	**$84.31**

RESIDENTIAL PROPERTY

ASSESSMENT RATE		SINGLE FAMILY RESIDENTIAL ASSESSABLE FOOTAGE		AMOUNT ASSESSED		ASSESSABLE RESIDENTIAL LOT UNITS		ASSESSMENT RATE PER RESIDENTIAL LOT UNIT
$84.31	**X**	**15093.6 LF**	**=**	**$1,272,543.10**	**/**	**185**	**=**	**$6,878.61**

PIN	PROPERTY ADDRESS	PROPERTY OWNER	ASSESSABLE RESIDENTIAL LOT UNITS	ASSESSMENT RATE PER RESIDENTIAL LOT UNIT	PROPOSED ASSESSMENT
263123130022	3854 97TH LN NE	FREED DEBRA	1	$6,878.61	$6,878.61
263123130031	3855 97TH AVE NE	SIENKO, SHANE E	1	$6,878.61	$6,878.61
263123130008	3860 97TH AVE NE	SHOWALTER, BRIAN RAY	1	$6,878.61	$6,878.61
263123130096	3860 98TH AVE NE	FIEDLER DAVID E & TAMMY L	1	$6,878.61	$6,878.61
263123130041	3865 97TH LN NE	CUNNINGHAM, PATRICK G	1	$6,878.61	$6,878.61
263123130030	3867 97TH AVE NE	STAPLETON JOLINDA S & PATRICK	1	$6,878.61	$6,878.61
263123130023	3868 97TH LN NE	ERICKSON, LYNNE IRVING	1	$6,878.61	$6,878.61
263123120075	3871 98TH LN NE	XA SAM K & NGUYEN TRANG T	1	$6,878.61	$6,878.61
263123130111	3872 98TH LN NE	SCHEVING, BEN J	1	$6,878.61	$6,878.61
263123130122	3873 98TH AVE NE	MUELLER, JOSEPH R	1	$6,878.61	$6,878.61
263123130097	3874 98TH AVE NE	NIHART, MICHAEL PAUL	1	$6,878.61	$6,878.61
263123130040	3877 97TH LN NE	JENSEN, CODY	1	$6,878.61	$6,878.61
263123130024	3878 97TH LN NE	MOLKENTHIN, AARON ROSS	1	$6,878.61	$6,878.61
263123120065	3878 99TH AVE NE	SANDERSON JERI L	1	$6,878.61	$6,878.61
263123130029	3879 97TH AVE NE	SELLEN, KORBEY	1	$6,878.61	$6,878.61
263123130039	3883 97TH LN NE	TOWNSEND JERRY M	1	$6,878.61	$6,878.61
263123120074	3883 98TH LN NE	HURST JOHN J & LINDA A	1	$6,878.61	$6,878.61
263123130025	3884 97TH LN NE	WHITNEY BRANDON C	1	$6,878.61	$6,878.61
263123130112	3884 98TH LN NE	BORDER, KELLY	1	$6,878.61	$6,878.61
263123130028	3885 97TH AVE NE	ANDERSEN, KATHRYN D	1	$6,878.61	$6,878.61
263123130121	3885 98TH AVE NE	JOHNSON KEVIN T & TERRI L	1	$6,878.61	$6,878.61
263123130098	3886 98TH AVE NE	BROWN NEIL R	1	$6,878.61	$6,878.61
263123120066	3890 99TH AVE NE	PATTOCK, BRIAN M	1	$6,878.61	$6,878.61
263123130038	3891 97TH LN NE	HILTNER RITA A	1	$6,878.61	$6,878.61
263123120073	3891 98TH LN NE	LECHNER, DEBORAH A	1	$6,878.61	$6,878.61
263123130009	3892 97TH AVE NE	MULES BRIAN E	1	$6,878.61	$6,878.61
263123130113	3892 98TH LN NE	NYGAARD JAMES B & BARBARA A	1	$6,878.61	$6,878.61
263123130120	3893 98TH AVE NE	HALVORSON ORLO H & HOLLY M	1	$6,878.61	$6,878.61
263123130099	3894 98TH AVE NE	KJORLIEN CRAIG D & KATHRYN E	1	$6,878.61	$6,878.61
263123130027	3897 97TH AVE NE	FARRINGTON JEFFREY & KRISTI	1	$6,878.61	$6,878.61
263123130026	3898 97TH LN NE	BHATTARAI, SAMBIT	1	$6,878.61	$6,878.61
263123130037	3899 97TH LN NE	JOHNSON LAWRENCE & KATHLEEN	1	$6,878.61	$6,878.61
263123130084	3900 97TH AVE NE	PARENT TRUSTEE, RONALD L	1	$6,878.61	$6,878.61

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TOTAL COST	$4,712,985.00	

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ASSESSABLE COST		**$1,649,544.75**	**/**	**19565.6 LF**	**=**	**$84.31**

RESIDENTIAL PROPERTY

ASSESSMENT RATE		SINGLE FAMILY RESIDENTIAL ASSESSABLE FOOTAGE		AMOUNT ASSESSED		ASSESSABLE RESIDENTIAL LOT UNITS		ASSESSMENT RATE PER RESIDENTIAL LOT UNIT
$84.31	**X**	**15093.6 LF**	**=**	**$1,272,543.10**	**/**	**185**	**=**	**$6,878.61**

PIN	PROPERTY ADDRESS	PROPERTY OWNER	ASSESSABLE RESIDENTIAL LOT UNITS	ASSESSMENT RATE PER RESIDENTIAL LOT UNIT	PROPOSED ASSESSMENT
263123120067	3910 99TH AVE NE	BUGOS, DIANA	1	$6,878.61	$6,878.61
263123120072	3913 98TH LN NE	PARSHALL DANA R & RACHELLE	1	$6,878.61	$6,878.61
263123130083	3914 97TH AVE NE	O'CONNOR MAURICE JOHN-PATRICK	1	$6,878.61	$6,878.61
263123130114	3914 98TH LN NE	FREEMAN DWEH M	1	$6,878.61	$6,878.61
263123130119	3915 98TH AVE NE	HYNES, SARA C	1	$6,878.61	$6,878.61
263123130100	3916 98TH AVE NE	KIMMAN, ALLEN V	1	$6,878.61	$6,878.61
263123130082	3928 97TH AVE NE	HOVE, JOSHUA E	1	$6,878.61	$6,878.61
263123120071	3929 98TH LN NE	RICHTER TIMOTHY C	1	$6,878.61	$6,878.61
263123130115	3930 98TH LN NE	SCHOLL, CAREY	1	$6,878.61	$6,878.61
263123120068	3930 99TH AVE NE	ERGETTE, AGEGNEHUSH A	1	$6,878.61	$6,878.61
263123130118	3931 98TH AVE NE	QUAST, NICOLE	1	$6,878.61	$6,878.61
263123130101	3932 98TH AVE NE	REID, CHERYL ENGSTROM	1	$6,878.61	$6,878.61
263123120069	3942 99TH AVE NE	ABERNATHY SHANE K	1	$6,878.61	$6,878.61
263123120070	3943 98TH LN NE	YOUNG, CYNTHIA L	1	$6,878.61	$6,878.61
263123130116	3944 98TH LN NE	MERRITT CHRISTINA	1	$6,878.61	$6,878.61
263123130117	3945 98TH AVE NE	ZINK, KRISTIN	1	$6,878.61	$6,878.61
263123130102	3946 98TH AVE NE	VERDICK JEFFREY T & CYNTHIA M	1	$6,878.61	$6,878.61
263123120049	3951 99TH LN NE	TORREY, TIFFANY JANE	1	$6,878.61	$6,878.61
263123130081	3952 97TH AVE NE	WAKAYO, GEMECHU	1	$6,878.61	$6,878.61
263123130080	3960 97TH AVE NE	LINGLE, ALLEN J	1	$6,878.61	$6,878.61
263123120048	3965 99TH LN NE	SCHALL, JAMES P	1	$6,878.61	$6,878.61
263123130079	3980 97TH AVE NE	MONTOUR MICHAEL J & JULIE A	1	$6,878.61	$6,878.61
263123120047	3985 99TH LN NE	FUECHTMANN VERNON & DOROTHY	1	$6,878.61	$6,878.61
263123130078	3986 97TH AVE NE	MILLER, JODIE L	1	$6,878.61	$6,878.61
263123120028	3987 99TH LN NE	KLEIBER, BONNIE M	1	$6,878.61	$6,878.61
263123120027	3999 99TH LN NE	HALLAND TRUSTEE, RONALD A	1	$6,878.61	$6,878.61
263123130057	9701 XEBEC ST NE	DAY DAWN A	1	$6,878.61	$6,878.61
263123130056	9704 YALTA ST NE	BECKER, DANIEL	1	$6,878.61	$6,878.61
263123130077	9705 YALTA ST NE	JOHNSON, MICHAEL ALLEN	1	$6,878.61	$6,878.61
263123130058	9713 XEBEC ST NE	GRAMS VAL J & LASH JUDITH	1	$6,878.61	$6,878.61
263123130076	9715 YALTA ST NE	CRABBE, LEOLA P	1	$6,878.61	$6,878.61
263123130055	9716 YALTA ST NE	SNELL DAVID W & HELGA TRUSTEES	1	$6,878.61	$6,878.61
263123130054	9730 YALTA ST NE	DICKINSON, MICHAEL C	1	$6,878.61	$6,878.61
263123130059	9731 XEBEC ST NE	HA, HEIDI TRAN	1	$6,878.61	$6,878.61

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SINGLE FAMILY RESIDENTIAL PROPERTIES

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RESIDENTIAL PROPERTY

ASSESSMENT RATE		SINGLE FAMILY RESIDENTIAL ASSESSABLE FOOTAGE		AMOUNT ASSESSED		ASSESSABLE RESIDENTIAL LOT UNITS		ASSESSMENT RATE PER RESIDENTIAL LOT UNIT
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PIN	PROPERTY ADDRESS	PROPERTY OWNER	ASSESSABLE RESIDENTIAL LOT UNITS	ASSESSMENT RATE PER RESIDENTIAL LOT UNIT	PROPOSED ASSESSMENT
263123130075	9731 YALTA ST NE	HENNEN, ANDREW R	1	$6,878.61	$6,878.61
263123130060	9745 XEBEC ST NE	SCHMALZER, MARK E	1	$6,878.61	$6,878.61
263123130053	9746 YALTA ST NE	TAUER, JOHNATHAN JACOB	1	$6,878.61	$6,878.61
263123130074	9747 YALTA ST NE	SCHNEIDER STEPHEN	1	$6,878.61	$6,878.61
263123130073	9763 YALTA ST NE	HOWITZ, STEVEN R	1	$6,878.61	$6,878.61
263123130061	9767 XEBEC ST NE	STERLING SCOTT L & SONYA L	1	$6,878.61	$6,878.61
263123130052	9768 YALTA ST NE	CAO, KHANH MAI THI	1	$6,878.61	$6,878.61
263123130072	9779 YALTA ST NE	MARTIN JEFFREY ALAN	1	$6,878.61	$6,878.61
263123130051	9784 YALTA ST NE	EDWARDS JON L & BRENDA L	1	$6,878.61	$6,878.61
263123130062	9785 XEBEC ST NE	ESCHENLAUER ARTHUR C & JULIE B	1	$6,878.61	$6,878.61
263123130063	9793 XEBEC ST NE	STANGLER MARK H & VICTORIA	1	$6,878.61	$6,878.61
263123130071	9795 YALTA ST NE	PECHAN PAUL J & DEBORAH L	1	$6,878.61	$6,878.61
263123130050	9796 YALTA ST NE	HETRICK TERRI LEE	1	$6,878.61	$6,878.61
263123130070	9803 YALTA ST NE	HOWARD BRIAN M	1	$6,878.61	$6,878.61
263123130064	9807 XEBEC ST NE	CODY, ARJA E	1	$6,878.61	$6,878.61
263123130107	9810 WAKE ST NE	BAILEY DUANE S & MARILEE A	1	$6,878.61	$6,878.61
263123130049	9810 YALTA ST NE	PHAN, TIN	1	$6,878.61	$6,878.61
263123130106	9811 HAMLINE AVE NE	ANGLE, CHRISTINE	1	$6,878.61	$6,878.61
263123130069	9811 YALTA ST NE	ZAREMBO JOHN	1	$6,878.61	$6,878.61
263123130065	9821 XEBEC ST NE	ZACCARDI THOMAS & LYNNAE	1	$6,878.61	$6,878.61
263123130068	9823 YALTA ST NE	WERLINGER TRUSTEE, MARVIN R	1	$6,878.61	$6,878.61
263123130108	9824 WAKE ST NE	SCOTT, MARY B	1	$6,878.61	$6,878.61
263123130048	9824 YALTA ST NE	FUECHTMANN TODD B	1	$6,878.61	$6,878.61
263123130105	9825 HAMLINE AVE NE	SCHWIESOW LESLIE & CYNTHIA	1	$6,878.61	$6,878.61
263123130047	9830 YALTA ST NE	LEWIS CHRISTOPHER S & KAREN	1	$6,878.61	$6,878.61
263123130066	9831 XEBEC ST NE	RATAJCZYK TERRY L & LORETTA M	1	$6,878.61	$6,878.61
263123130067	9835 YALTA ST NE	KROGH MARK A & NANCY R	1	$6,878.61	$6,878.61
263123130109	9836 WAKE ST NE	OTTO TRUSTEE, JAMES ARTHUR	1	$6,878.61	$6,878.61
263123130104	9837 HAMLINE AVE NE	ZBIKOWSKI DAVID A & CLARE M	1	$6,878.61	$6,878.61
263123120014	9847 YALTA ST NE	VANDER LAAN, ELIZABETH J	1	$6,878.61	$6,878.61
263123130110	9850 WAKE ST NE	FRANKMAN, FRANCIS G	1	$6,878.61	$6,878.61
263123130103	9851 HAMLINE AVE NE	KLEIN LAWRENCE W & SUSAN M	1	$6,878.61	$6,878.61
263123120022	9852 YALTA ST NE	PARENT ROBERT L & VICKI L	1	$6,878.61	$6,878.61
263123120023	9853 XEBEC ST NE	TIDRICK JAMES M	1	$6,878.61	$6,878.61

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TOTAL COST		$4,712,985.00				ASSESSMENT RATE PER FRONT FOOT
	RESIDENTIAL RATE	x35%		TOTAL FRONT FOOTAGE		
ASSESSABLE COST		**$1,649,544.75**	**/**	**19565.6 LF**	**=**	**$84.31**

RESIDENTIAL PROPERTY

ASSESSMENT RATE		SINGLE FAMILY RESIDENTIAL ASSESSABLE FOOTAGE		AMOUNT ASSESSED		ASSESSABLE RESIDENTIAL LOT UNITS		ASSESSMENT RATE PER RESIDENTIAL LOT UNIT
$84.31	**X**	**15093.6 LF**	**=**	**$1,272,543.10**	**/**	**185**	**=**	**$6,878.61**

PIN	PROPERTY ADDRESS	PROPERTY OWNER	ASSESSABLE RESIDENTIAL LOT UNITS	ASSESSMENT RATE PER RESIDENTIAL LOT UNIT	PROPOSED ASSESSMENT
263123210011	9854 HAMLINE AVE NE	JACK, DANIEL R	1	$6,878.61	$6,878.61
263123120013	9859 YALTA ST NE	VOSS KEVIN J & CONNIE J	1	$6,878.61	$6,878.61
263123120035	9863 HAMLINE AVE NE	MAUSS AARON	1	$6,878.61	$6,878.61
263123120036	9864 WAKE ST NE	SNYDER, CARA M	1	$6,878.61	$6,878.61
263123120024	9867 XEBEC ST NE	YOKOM, DENISE A	1	$6,878.61	$6,878.61
263123210010	9868 HAMLINE AVE NE	STSTENGER, MARY P	1	$6,878.61	$6,878.61
263123120021	9868 YALTA ST NE	BERTHIAUME KATHLEEN J	1	$6,878.61	$6,878.61
263123120034	9875 HAMLINE AVE NE	BALK KEVIN DONALD	1	$6,878.61	$6,878.61
263123120012	9875 YALTA ST NE	BLANCHARD DENNIS	1	$6,878.61	$6,878.61
263123120037	9876 WAKE ST NE	SCHMID ROBERT A & COLEEN M	1	$6,878.61	$6,878.61
263123120020	9876 YALTA ST NE	REBER, KATIE M	1	$6,878.61	$6,878.61
263123120011	9883 YALTA ST NE	OLSON KENNETH W & LEISA M	1	$6,878.61	$6,878.61
263123210008	9884 HAMLINE AVE NE	LOR SHER	1	$6,878.61	$6,878.61
263123120038	9886 WAKE ST NE	SHERMAN, DARCY E	1	$6,878.61	$6,878.61
263123120033	9887 HAMLINE AVE NE	MCCLELLAN BRETT S & JANET L	1	$6,878.61	$6,878.61
263123120025	9887 XEBEC ST NE	BEHRENS, DARLA JEAN	1	$6,878.61	$6,878.61
263123120026	9889 XEBEC ST NE	BETTENDORF, JAMES	1	$6,878.61	$6,878.61
263123120019	9890 YALTA ST NE	CAPOUCH PATRICK L & PAMELA	1	$6,878.61	$6,878.61
263123120039	9900 WAKE ST NE	MOONEY, DENNIS J	1	$6,878.61	$6,878.61
263123120010	9901 YALTA ST NE	KOWALSKI GARY T	1	$6,878.61	$6,878.61
263123120032	9903 HAMLINE AVE NE	OLSEN, PATRICIAL J	1	$6,878.61	$6,878.61
263123120040	9904 WAKE ST NE	BAUMAN, ANDREW J	1	$6,878.61	$6,878.61
263123120055	9904 XEBEC ST NE	OGDEN, ROBERT	1	$6,878.61	$6,878.61
263123120056	9905 WAKE CT NE	PETERSON DAVID A & KATHERINE P	1	$6,878.61	$6,878.61
263123120064	9905 XEBEC ST NE	KRISTOFITZ REBECCA R & DALE E	1	$6,878.61	$6,878.61
263123120009	9905 YALTA ST NE	CHRISTENSEN PATRICIA ANN	1	$6,878.61	$6,878.61
263123120041	9906 WAKE CT NE	BRADAC J F & MCCOLLUM L M	1	$6,878.61	$6,878.61
263123120057	9909 WAKE CT NE	RAUSCH, MARGARET H	1	$6,878.61	$6,878.61
263123120042	9910 WAKE CT NE	GRANDEL TIMOTHY J	1	$6,878.61	$6,878.61
263123120018	9910 YALTA ST NE	NEHRING GLENDA I	1	$6,878.61	$6,878.61
263123120008	9913 YALTA ST NE	MILLER, CODEY	1	$6,878.61	$6,878.61
263123120054	9914 XEBEC ST NE	PARKER, JENA	1	$6,878.61	$6,878.61
263123120017	9916 YALTA ST NE	LUDWIG, DEBORAH SUSAN	1	$6,878.61	$6,878.61
263123120058	9917 WAKE CT NE	SCHAFHAUSER JOHN R & KRISTI J	1	$6,878.61	$6,878.61

EXHIBIT NO. 2 - PROPOSED ASSESSMENT ROLL
SINGLE FAMILY RESIDENTIAL PROPERTIES

ASSESSMENT RATE BREAKDOWN

CONSTRUCTION COSTS*		$3,491,100.00	*(CONSTRUCTION COST DOES NOT INCLUDE WATER MAIN OR SANITARY SEWER COSTS)			
ADMINISTRATIVE COSTS		$1,221,885.00				
TOTAL COST		$4,712,985.00				ASSESSMENT RATE PER FRONT FOOT
	RESIDENTIAL RATE	x35%		TOTAL FRONT FOOTAGE		
ASSESSABLE COST		**$1,649,544.75**	**/**	**19565.6 LF**	**=**	**$84.31**

RESIDENTIAL PROPERTY

ASSESSMENT RATE		SINGLE FAMILY RESIDENTIAL ASSESSABLE FOOTAGE		AMOUNT ASSESSED		ASSESSABLE RESIDENTIAL LOT UNITS		ASSESSMENT RATE PER RESIDENTIAL LOT UNIT
$84.31	**X**	**15093.6 LF**	**=**	**$1,272,543.10**	**/**	**185**	**=**	**$6,878.61**

PIN	PROPERTY ADDRESS	PROPERTY OWNER	ASSESSABLE RESIDENTIAL LOT UNITS	ASSESSMENT RATE PER RESIDENTIAL LOT UNIT	PROPOSED ASSESSMENT
263123120063	9917 XEBEC ST NE	EBANE ABEL LUBBERTYN AMVEMBE	1	$6,878.61	$6,878.61
263123120043	9918 WAKE CT NE	BRULEY JR, TIM	1	$6,878.61	$6,878.61
263123120016	9920 YALTA ST NE	HANG, AMY T	1	$6,878.61	$6,878.61
263123120007	9921 YALTA ST NE	LASKI, NATALIE	1	$6,878.61	$6,878.61
263123120053	9924 XEBEC ST NE	ANDERSEN, MARLENE R	1	$6,878.61	$6,878.61
263123120059	9929 WAKE CT NE	ZYVOLOSKI STEPHEN E & JILEEN A	1	$6,878.61	$6,878.61
263123120044	9930 WAKE CT NE	THOMPSON RYAN D	1	$6,878.61	$6,878.61
263123120062	9931 XEBEC ST NE	PAQUETTE TIMOTHY J & MARINA	1	$6,878.61	$6,878.61
263123120015	9932 YALTA ST NE	WATHEN, CRYSTAL	1	$6,878.61	$6,878.61
263123120006	9933 YALTA ST NE	COUNTRYMAN, DEBRA	1	$6,878.61	$6,878.61
263123120052	9934 XEBEC ST NE	KUBAL, MICHAEL W	1	$6,878.61	$6,878.61
263123120061	9941 XEBEC ST NE	CARROLL LAWRENCE & SUSAN R	1	$6,878.61	$6,878.61
263123120060	9943 WAKE CT NE	CURWICK, ERIC T	1	$6,878.61	$6,878.61
263123120045	9944 WAKE CT NE	LEMA, ESEGENET M	1	$6,878.61	$6,878.61
263123120051	9944 XEBEC ST NE	RANUA, TAMI D	1	$6,878.61	$6,878.61
263123120050	9954 XEBEC ST NE	HOLUB JOSEPH W & KARNA S	1	$6,878.61	$6,878.61
263123120046	9956 WAKE CT NE	GLAD, ANDREW J	1	$6,878.61	$6,878.61
263123210006	UNASSIGNED	NAEGELE OUTDOOR ADVERTISING	1	$6,878.61	$6,878.61
		TOTAL:	185		$1,272,542.85

APPENDIX D

Pavement Design Report
with
Pavement Investigation Report

PAVEMENT DESIGN REPORT

HIDDEN OAKS AREA STREET RECONSTRUCTION

CITY OF BLAINE, ANOKA COUNTY, MINNESOTA

DECEMBER 10, 2021

Prepared for:
City of Blaine
10801 Town Square Drive NE
Blaine, MN 55449

wsb

CERTIFICATION

I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly licensed professional engineer under the laws of the State of Minnesota.

Nicholas E. Hentges, PE

Date: December 10, 2021 License No.: 44620

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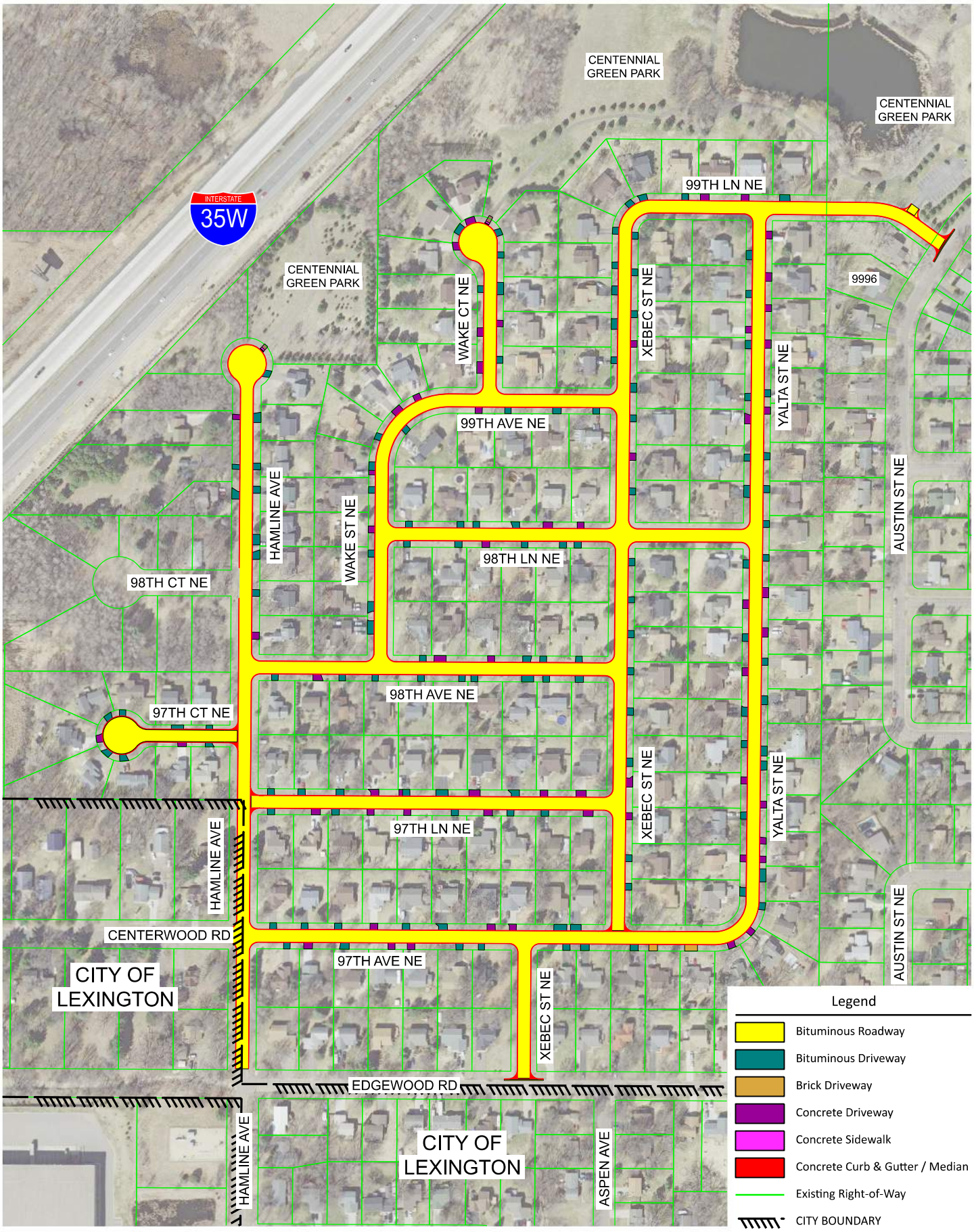
5 PAVEMENT DESIGN
- 5.1 DESIGN SUMMARY
- 5.2 ESAL TRAFFIC FORECAST CALCULATOR
- 5.3 FLEXIBLE PAVEMENT DESIGN, R-VALUE METHOD

APPENDIX A
- DESIGN CRITERIA 2360 MIXTURE DESIGN CODES
- MnDOT PG BINDER GUIDELINES - MSCR

APPENDIX B
- PAVEMENT INVESTIGATION REPORT

PROJECT MAP



PRINT DATE: 12/10/2021 8:11:32 AM

WSB File Path: K:\018898-000\Cad\Exhibits\Feasibility Report\CP22-06_App-A_Exhibit-1_ProjectAreaMap.dgn

Exhibit 1: Project Area Map

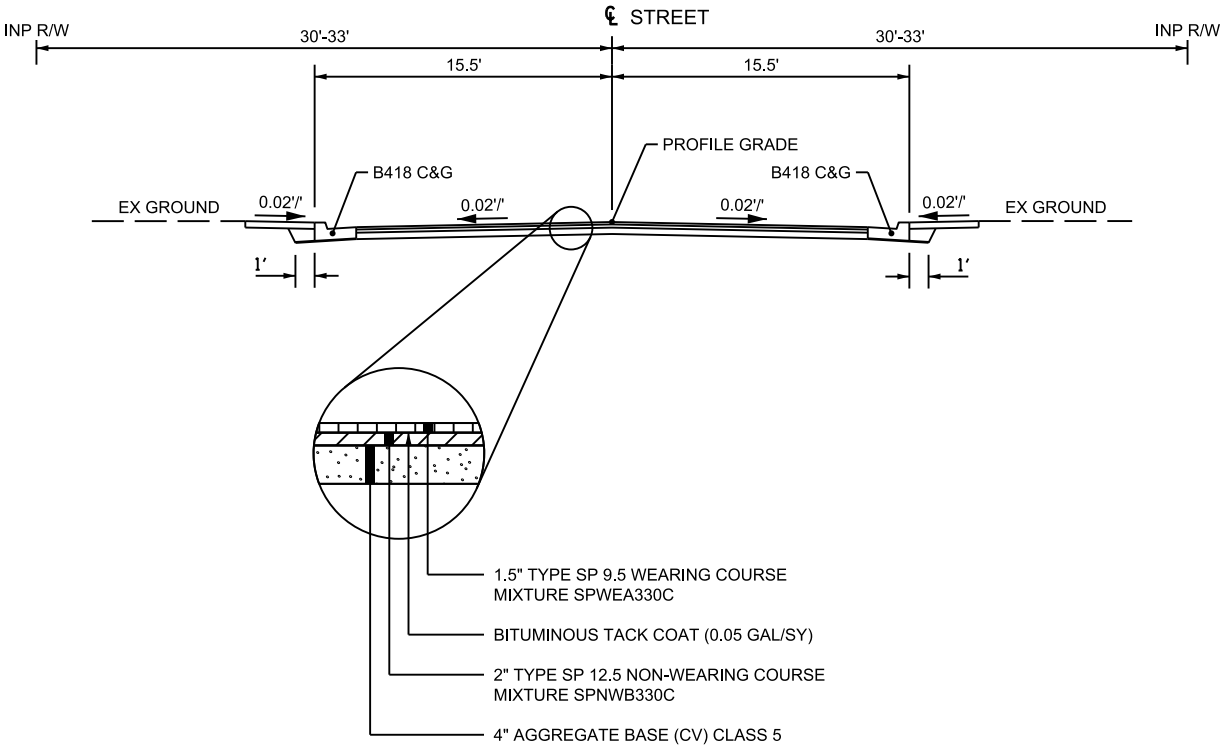
Hidden Oaks Area Street Reconstruction
Feasibility Assessment Report

City of Blaine, Minnesota

N

SCALE IN FEET
0 150 300

TYPICAL SECTIONS



BlaineMN.gov

Exhibit 2: Typical Sections

Hidden Oaks Area Street Reconstruction
Feasibility Assessment Report

City of Blaine, Minnesota

SCALE IN FEET
0 5 10

wsb

PAVEMENT DESIGN

DESIGN SUMMARY
ESAL TRAFFIC FORECAST CALCULATOR
BITUMINOUS PAVEMENT DESIGN

Existing Road Characteristics

The following streets were constructed in 1984: **Xebec Street** from Edgewood Road to 99th Avenue; **Yalta Street**, **Hamline Avenue** from Edgewood Road to 97th Lane; **97th Avenue**; **97th Lane**; **98th Lane** from Xebec Street to Yalta Street; **99th Lane** from Yalta Street to Austin Street. These streets were constructed with a pavement section consisting of approximately 2-inches of bituminous over 4-inches of aggregate base with surmountable curb. Hamline Avenue was constructed with bituminous curb on the western side of the roadway.

The following streets were constructed in 1986: **Hamline Avenue** from 97th Lane to the north cul-de-sac; **Wake Street**; **Xebec** Street from 99th Avenue to 99th Lane; **98th Avenue**; **98th Lane** from Wake Street to Xebec Street; **99th Avenue; 99th Lane** from Xebec Street to Yalta Street. These streets were constructed with a pavement section consisting of approximately 2-inches of bituminous over 4" of aggregate base with D312 curb & gutter.

97th Court was constructed in 1992 with a pavement section consisting of approximately 3-inches of bituminous over 4-inches of aggregate base with D312 curb & gutter.

City Standard Reconstruction Pavement Section

Material		Thickness (in)	Designation
Bituminous	Wear Course	1.5	SPWEA330C
	Non-Wear Course	2.0	SPNWB330C
Aggregate Base		6.0	Class 5

Proposed Pavement Section

Material		Thickness (in)	Designation
Bituminous	Wear Course	1.5	SPWEA330C
	Non-Wear Course	2.0	SPNWB330C
Aggregate Base		4.0	Class 5

State Aid 10 Ton ESAL Traffic Forecast Calculator

This ESAL calculator is for use with default Heavy Commerical Traffic values; click "User Defined Traffic Values" sheet below if you wish to enter your own Heavy Commercial Traffic values.

Instructions: All yellow boxes require an input value.
Dropdown choices are provided for Base Year (C18), Number of Lanes (C19), and Urban or Rural (C21).
You must click on cells C18, C19, and C21 to access the dropdown choices.

General Information

Date	2021/10/03	
Forecast Performed by	WSB	
Name of County or City	CITY OF BLAINE	
Project Number	CP 22-06	
Project Description	HIDDEN OAKS AREA STREET RECONSTRUCTION	
Route Number		
Base Year (i.e. opening to traffic)	2022	
Number of Lanes (total both directions)	2 = typical 2 lane	
Current AADT		
Urban or Rural	Urban	
Historical AADT (enter a minimum of two years)	**Year**	**AADT**
Enter oldest traffic data here	2022	500
Enter second oldest traffic data here	2042	550
Enter third oldest traffic data here		
Enter fourth oldest traffic data here		
Base Year AADT	2022	500
20-Year AADT	2042	550
35-Year AADT	2057	588
Growth Rate	0.50%	

Vehicle Type	Vehicle Class %	ESAL Factors Flexible	Rigid
2AX-6TIRE SU	1.37%	0.25	0.24
3AX+SU	0.06%	0.58	0.85
3AX TST	0.09%	0.39	0.37
4AX TST	0.18%	0.51	0.53
5AX+TST	1.45%	1.13	1.89
TR TR, BUSES	0.67%	0.57	0.74
TWIN TRAILERS	0.00%	2.40	2.33
Total	**3.83%**	**NA**	**NA**

20-Year Flexible Forecast (10 Ton) = 57,000
20-Year Rigid Forecast (10 Ton) = 85,000
35-Year Flexible Forecast (10 Ton) = 101,000
35-Year Rigid Forecast (10 Ton) = 150,000

Note: This ESAL Calculator provides reasonable estimation of ESAL's based on accurate AADT values. It is limited to an AADT value of 20,000. For roadways exceeding an AADT of 20,000, it is recommended to use the MnDOT ESAL Forecasting Tool found on MnDOT's Pavement Design web page at:
http://www.dot.state.mn.us/materials/pvmtdesign/software.html

Revised: 5/6/2020

Flexible Pavement Design, R-Value Method

Ver. 1.2 **For Bituminous Pavement With Aggregate Base**

Inputs

20 Yr Design Lane BESALs =	57,000
Design R-value =	30.0

GE Values from R-Value Chart

Minimum Bit (GE) =	7.00
Min. Agg. Base (GE) =	3.00
Total Required GE =	10.00

Project Number

CP 22-06

Designer

WSB

Date

12/9/2021

DEPARTMENT OF TRANSPORTATION

Calculated Pavement Thickness to Meet GE Requirement

		Thickness (in)	GE	Layer GE
(2360) Wearing Course		3.50	2.25	7.88
(2360) Non-wearing Course		0.00	2.25	0.00
Bituminous Total		3.50	2.25	7.88
		Thickness (in)	GE	Layer GE
Aggregate Base	Class 5, 5Q or 6	3.00	1.00	3.00
Sub Base	Class 3 or 4	0.00	0.75	0.00
Select Granular		0.00	0.50	0.00
	Total	6.50	Total	10.88
	Required*	12.50	Required	10.00

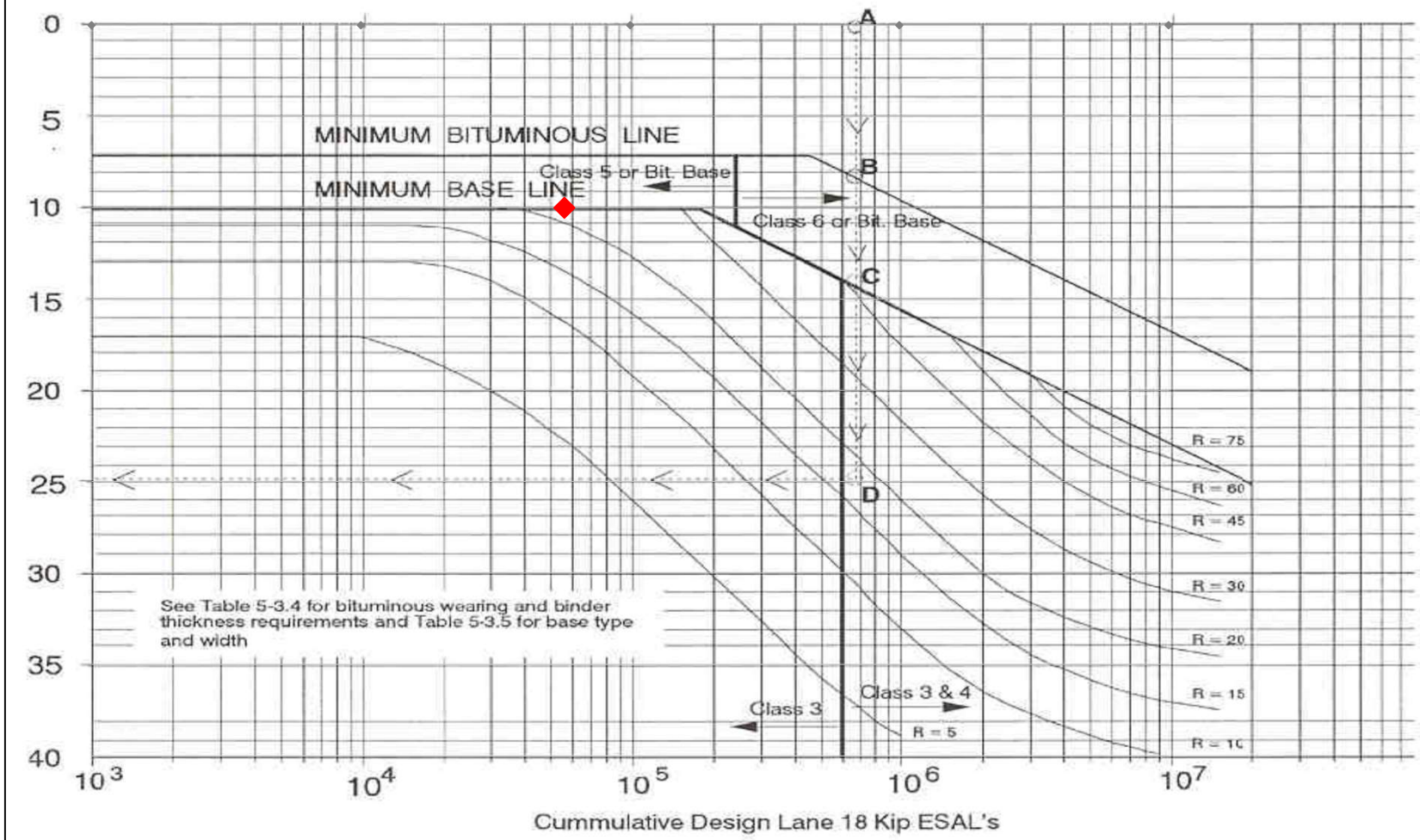
Proposed Pavement Thickness

New Bituminous		Thickness (in)	GE	Layer GE
Wearing Course	Superpave HMA [2360]	1.5	2.25	3.38
Non-wearing Course	Plant Mix HMA [2331]	2.0	2.00	4.00
New Bituminous Total		3.5		7.38
Left In-place Bituminous *1		Thickness (in)	GE	Layer GE
In-Place Bituminous	Plant Mix HMA [2350(HV & MV)]		2.00	0.00
Condition *2	Good			
	Class	Thickness (in)	GE	Layer GE
Aggregate Layer 1	Aggregate Base (Cl. 5,5Q & 6)	4.0	1.00	4.00
Aggregate Layer 2			0.00	0.00
Aggregate Layer 3			0.00	0.00
Select Granular			0.50	0.00
Aggregate Total		4.0		4.00
	Total	7.50	Total	11.38
			Required	10.00

Messages

Total GE: GOOD
Bituminous Thickness: GOOD
Total Aggregate Base Thickness: GOOD

Last Edited 6/5/19



BITUMINOUS PAVEMENT DESIGN CHART (AGGREGATE BASE)

APPENDIX A

DESIGN CRITERIA 2360 MIXTURE DESIGN CODES
MnDOT PG BINDER GUIDELINES - MSCR

Design Criteria 2360

Rev. 03/06/2018

Mixture Designation Code	
Mixture Course	**Code Format**
Non Wear (4" below pavement surface)**	SPNW **(1)* (2)*** 30 **(3)***
Wear (Top 4" of pavement)**	SPWE **(1)* (2)*** 40 **(3)***
Shoulder Wear & Non-Trunk Highway Low Volume Wear	SPWE **(1)* (2)*** 30 **(3)***
Stone Matrix Asphalt (SMA) – Spec 2365	SMWEE640H

***** Select (1) Aggregate Size; (2) Traffic Level; and (3) Asphalt Binder Grade as shown below. See Mixture Designation Example. WE=wear; NW=non-wear

**May replace 4" with 3" for non-trunk highway with traffic levels < 3 million ESAL's.

(1) Aggregate size. Recommended minimum lift thickness is also shown:

Size A (**-1/2") SP 9.5** – 1 ½" minimum
Size B (**-3/4") SP 12.5** – 2" minimum
Size C (**-1") SP 19.0** – 3" minimum
Size D (**-3/8") SP 4.75** – 3/4" minimum

a. The **A** gradation provides a "finer" pavement surface. Select this aggregate size if you are concerned about coarseness of the driving surface or segregation of material during placement. It is only necessary to specify **A** for the final wear lift, aggregate size **B** can be used for all underlying lifts. Except for SMA and unless otherwise designated in the Special Provisions, the Contractor has the option to supply recycled mixture. With the approval of the Engineer, the Contactor may supply a gradation with a smaller maximum aggregate size than that specified, i.e. size A in lieu of size B.

(2) Traffic Level: Select Levels 2-6 based on ESAL's as shown in example below.

a. For slow traffic consider selecting a higher mix type (Traffic Level) and/or higher high temperature binder grade. For shoulders where traffic is allowed consider selecting a higher mixture type (Traffic Level).
b. Use the same Traffic Level for Wear and Non-Wear mixture.

(3) Asphalt Binder Grade:

a. For mainline paving select the asphalt binder grade from the most current PG Guidelines. See Design Section on Bituminous Office Webpage.
b. For shoulders where traffic is allowed, generally, use the same binder grade as the mainline.
c. For shoulders where traffic is prohibited select either PG 52S - 34 or PG 58S - 28 by matching the mainline low PG number. **I.E. Mainline PG 58H - 28=> Shoulder PG 58S - 28**
d. For new construction including cold inplace recycle (CIR), reclaiming, and reconstruction, specify, PG 58_-34 in the wear (top 4") of the pavement structure.

Notes: 1) Typical Sections should delineate individual lifts/courses and thicknesses.
2) Include mixture designation codes and ride equation in contract special provisions.
3) Use SMA on final wearing surface only (1.5"-2" lift). Specify minimum PG 58V-28 (H) for SMA mixtures.

Mixture Designation Example: **SPWEB440E**

Type	Lift	Max Agg. Size	Traffic Level (ESAL's X 10^6)		Air Voids	Standard Binder Grades	
SP	***WE***	A (SP 9.5)	2	(<1.0 & Shld)	30 (3.0)	A = PG 52S -34	H = PG 58V - 28
SM	NW	***B (SP 12.5)***	3	(1 - 3)	***40*** (4.0)	B = PG 58S - 28	L = PG 64S - 22
		C (SP 19.0)	***4***	(3 - 10)		C = PG 58H - 34	M = PG 49S - 34
		D (SP 4.75)	5	(10 - 30)		***E = PG 58H - 28***	
		E (SMA)	6	(SMA)		F = PG 58V - 34	

The format for 2360 Pay Items are as follows:

2360.501 Type SP __._ _____Course Mixture (_, _)……English ton

An example of the pay item for the above mixture designation is:

2360.501 Type SP**12.5 Wearing** Course Mixture (**4**, **E**)……English ton

Note: Number in parenthesis denotes the traffic level and the letter denotes the PG grade.

November 12, 2015

MnDOT PG Binder Guidelines-MSCR

The new PG designations are different from the previous asphalt binder specification. Following AASHTO M332 (MSCR) the New PG grading designations for Minnesota will all be PG58, followed by traffic loading designation and minimum pavement design temperature. For example: PG58S-XX, PG58H-XX, PG58V-XX, and PG58E-XX.

S, H, V or E grade designations must be specified for standard, high, very high or extremely high traffic loading, respectively.

Type of Construction	Recommended Asphalt Binder for < 3 Million ESALs (20 yr)	Recommended Asphalt Binder for 3 - 10 Million ESALs (20 yr)	Recommended Asphalt Binder for > 10 Million ESALs (20 yr)
Overlay Wearing Mixture (Top 4")[3]	PG 58S-28	PG 58S-28[1]	PG 58H-28[1]
New Construction[2] Wearing Mixture (Top 4")[3]	PG 58H-34	PG 58H-34[1]	PG 58V-34[1]
All Non-Wear Mixture (Below 4" from Surface)	PG 58S-28		

Recommended Binder Grade for Shoulders:		
With Traffic	**With No Traffic**	**Next to Concrete Mainline and Concrete Curb and Gutter**
Generally, use the same binder grade as the mainline, but, not to exceed PG 58H-xx.	PG 58**S**-28 or PG 52S-34 (match the mainline low PG number)	PG 58S-28 or PG 58H-28

NOTES: When varying from these guidelines or for further clarification, consult the MnDOT Bituminous Office.

1. Selecting a higher PG grade and/or mixture type (traffic level), for higher ESALs within the category, will provide better resistance to rutting. Contact the Bituminous Engineer for guidance.
2. New construction includes: reconstruction, rubblization, CIR, reclaiming (FDR)
3. For Non-Trunk Highway with traffic levels <3 million ESAL, consider modifying the "top 4" criteria to top 3".
4. With concurrence of the Bituminous Office the designer may allow, by Special Provision, the Contractor's option to use PG 64S-22 on overlay construction when both of the following conditions are met:
    a. Overlay thickness 3" or less and,
    b. Average inplace crack/joint spacing 30ft. or less

The Special Provision shall limit the allowable RAP usage to 15% for mixtures specifying PG 64S-22.

Rules of Thumb

- Minimize the number of PG grades on any one project.
- The top 4" should be the same PG grade. Typically, specify PG xxx-34 for new construction. Typically, specify PG xxx-28 for overlay construction.
- Below 4" from the surface should be the same PG grade, typically, specify PG 58**S**-28.

Considerations

- For non-trunk highway with traffic levels < 3 million ESAL, consider modifying the top 4" criteria described under "Rules of Thumb" to top 3" criteria.
- For temporary construction (2 years or less) consider using PG 64S-22 when PG 58**H**-28 or PG 58**V**-34 is otherwise recommended.
- For special or unique design considerations contact the Bituminous Office.

Asphalt Binder Grade Designation

The PG Binder Grade letters should be used in all bituminous mixture designations, regardless of the specification number. These letters and PG Grade are listed below:

Binder Grades and Allowable Subtitutions

A = PG 52S-34
B = PG 58**S**-28 allowed as substitute for PG 58-28
C = PG 58H-34 allowed as substitute for PG 58-34 & PG 58-34(PMB)
E = PG 58H-28 allowed as substitute for PG 64-28 & PG 64-28(PMB)
F = PG 58V-34 allowed as substitute for PG 64-34 & PG 64-34(PMB)
H = PG 58V-28 allowed as substitute for PG 70-28 & PG 70-28(PMB)
I = PG 58E-34 allowed as substitute for PG 70-34
L = PG 64S-22
M = PG 49S-34

APPENDIX B

PAVEMENT INVESTIGATION REPORT

Pavement Investigation Report

To: Mr. Cody Sylvester
Project Engineer
City of Blaine

From: Joe Carlson, PE
WSB – Materials Division

Date: December 7, 2021

Re: Pavement Investigation
R-018996-000
Hidden Oaks Area, Blaine, Minnesota

WSB is pleased to submit this report detailing the results of the field pavement investigation, which was completed on November 1st, 2021. Our field investigation included documenting existing conditions and obtaining pavement cores and samples of the underlying existing aggregate base material and identifying the subgrade below. Based on the field data obtained and presented in this report, we are providing recommendations for the type of rehabilitation or reconstruction for the existing roadways.

A total of nineteen (19) pavement cores were obtained within the streets being investigated. The locations of the pavement cores are presented in the core location maps**.** Our data gathered during the field investigation is presented in table format. Lab testing was conducted on the assumed aggregate base material recovered directly below the bituminous pavements. Lab test results are included in the report. Pictures of existing roadway conditions and the pavement cores obtained are presented in the **Appendix**.

WSB appreciates the opportunity to provide our professional services as part of your project and we look forward to working with you again.

If you have any questions about this report or the recommendations it contains, please don't hesitate to contact me.

Sincerely,

Joe Carlson, PE
Materials Division
joecarlson@wsbeng.com
612.499.8416

701 XENIA AVENUE S | SUITE 300 | MINNEAPOLIS, MN | 55416 | 763.541.4800 | WSBENG.COM

Summary of Findings:

The field measured data should be considered approximate and only valid for the location investigated.

The nineteen cores obtained had bituminous depths ranging from 2.25 inches to 4.5 inches, with a wear or top lift ranging from 1.25 inch to 2.5 inches. Core taken at location 1 appeared to be paved in one lift and did not appear to have a wear and base layer of bituminous present. The condition of the cores obtained were classified for each apparent lift of asphalt, which ranged from good to fair. The existing aggregate base ranged from 3” to 6” inches and was generally identified as sand with some gravel, brown in color. A few locations did note recycled bituminous in the aggregate base. Samples taken of the aggregate base were combined in the lab according to location and two sieve analysis tests were run on the samples. Test results showed the existing aggregate base was on the fine side of the gradation band for MnDOT Class 5 with minimal gravel in the samples. Hand augers were performed to a depth of 24” at each location. The subgrade was generally identified as being fine grained sand that was brown in color, with some locations showing color changes which are noted in the tables below. The majority of the pavement core samples exhibited some amount of raveling in the base layer, and cores that were taken over cracks showed the cracks extending through the entire depth of the pavement. The streets exhibited varying levels amount of surface distress with areas of alligator cracking, stripping of the surface, and transverse cracking throughout all the roadways tested. Patching was also noted at some locations.

Recommendations

Our recommendations are based on the data obtained through our limited field investigations and our experience with similar reconstructive work for the locale. We considered local contractor experience and industry costs associated with the various street rehabilitation techniques available. We also considered the Cities preferred methods of rehabilitation.

Based on this information, WSB recommends performing a full reconstruction process. This process would entail removing all the curb and gutter, removing all the bituminous and aggregate base. The subgrade should be scarified and recompacted to 100% of Standard Proctor Density. A proofroll should be conducted on the subgrade with a fully loaded tandem axle dump truck. Any soft spots identified shall be corrected before placement of the new aggregate base, MnDOT 3138 - Class 5.

Based on the subgrade soils encountered, we would recommend using an R-value of 30 for design of the new pavement section.

Date Printed: 8/24/2021
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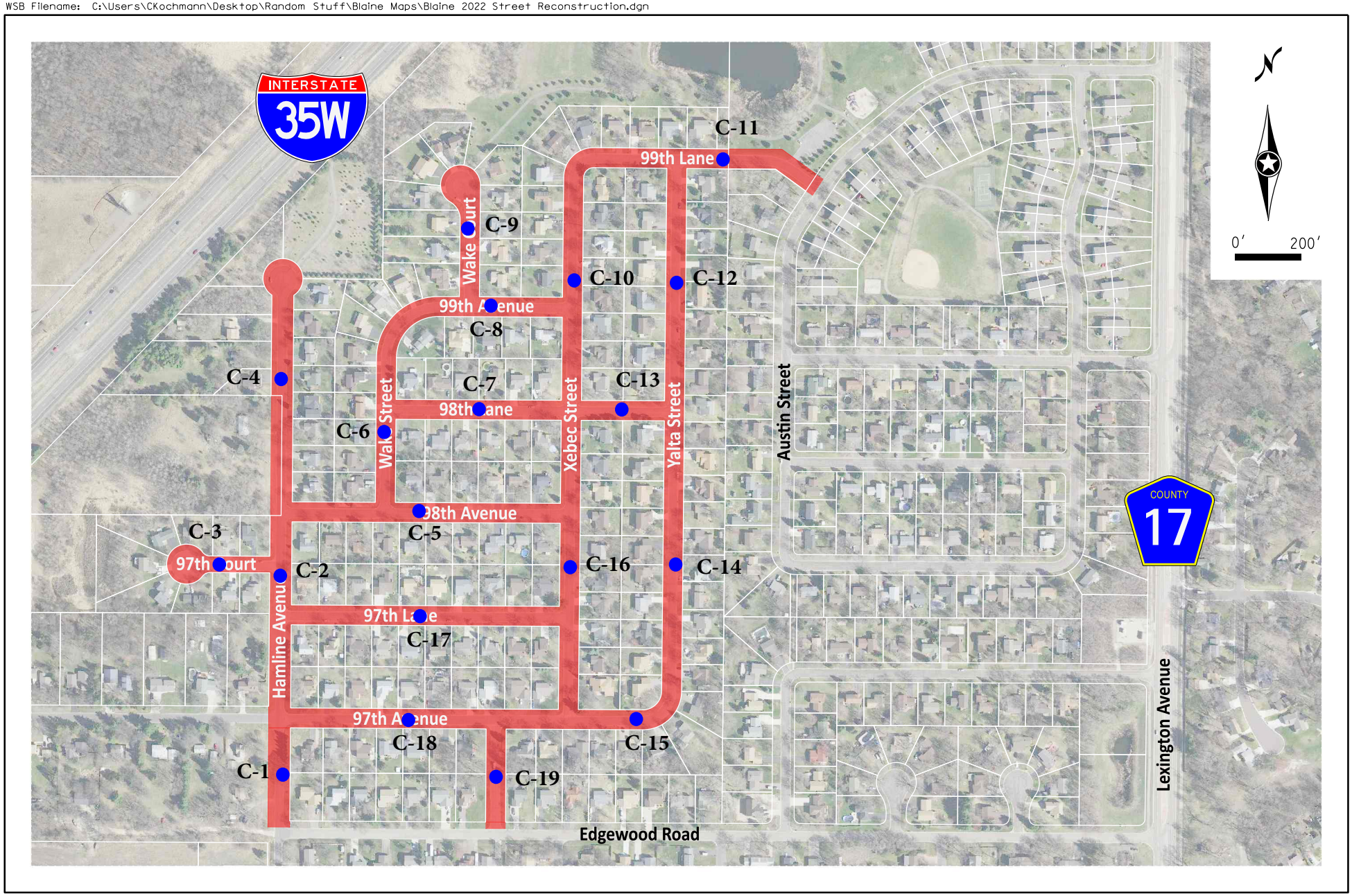

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Hidden Oaks Area Rehabilitation

City of Blaine, Minnesota

Figure 1

Core ID	Location	Number of Lanes	Lane Width (ft)	Functional Classification	Curb and Gutter Present?	Surface Distresses (Rutting, raveling, alligator cracking, cupped transverse cracking, potholing, patching, etc.)	Drainage Condition
1	Hamline Ave	2	12'	Residential	Yes East Side Only	Transverse Cracking, Stripping	Good
2	Hamline Ave	2	12'	Residential	Yes	Transverse Cracking, Delamination, Patching	Good
3	97th Court	2	13.5'	Residential	Yes	Transverse and Alligator Cracking, Stripping	Good
4	Hamline Ave	2	14'	Residential	Yes	Transverse and Alligator Cracking, Patching	Good
5	98th Ave	2	13.5'	Residential	Yes	Transverse, Alligator, and Longitudinal Cracking, Stripping	Good
6	Wake St	2	13.5'	Residential	Yes	Transverse and Alligator Cracking, Stripping, Patching	Good
7	98th Lane	2	13.5'	Residential	Yes	Transverse, Alligator, and Longitudinal Cracking, Stripping	Good
8	99th Ave	2	13.5'	Residential	Yes	Transverse and Alligator Cracking, Stripping	Good
9	Wake Court	2	13.5'	Residential	Yes	Transverse and Alligator Cracking, Stripping	Good
10	Xebec Street	2	14'	Residential	Yes	Transverse and Alligator Cracking, Stripping	Good

Core ID	Location	Number of Lanes	Lane Width (ft)	Functional Classification	Curb and Gutter Present?	Surface Distresses (Rutting, raveling, alligator cracking, cupped transverse cracking, potholing, patching, etc.)	Drainage Condition
11	99th Lane	2	13.5'	Residential	Yes	Transverse and Alligator Cracking, Stripping	Good
12	Yalta Street	2	14'	Residential	Yes	Transverse and Alligator Cracking, Stripping	Good
13	98th Lane	2	14'	Residential	Yes	Transverse and Alligator Cracking, Stripping	Good
14	Yalta Street	2	13'	Residential	Yes	Transverse and Alligator Cracking, Stripping	Good
15	97th Ave	2	13'	Residential	Yes	Transverse and Alligator Cracking, Stripping	Good
16	Xebec Street	2	13'	Residential	Yes	Transverse and Alligator Cracking, Stripping	Good
17	97th Lane	2	13'	Residential	Yes	Transverse and Alligator Cracking, Stripping	Good
18	97th Ave	2	13'	Residential	Yes	Transverse and Longitudinal Cracking, Stripping	Good
19	Xebec Street	2	13'	Residential	Yes	Transverse and Alligator Cracking, Stripping	Good

Core ID	Location	Bituminous Depth (in)	Lift Thickness (in) and Condition	Aggregate Depth (in) and Material	Subgrade Material	Recommended Maintenance Activity
1	Hamline Ave	2.25"	Fair Some Raveling	0" - 4" Sand with Some Gravel, Recycled Bituminous, Dark Brown	4" - 11" Sand with Gravel, Brown 11" - 24" Sand, Fine Grain, Brown	Full Reconstruction
2	Hamline Ave	3.5"	Wear - 1.25" Fair Some Raveling	0" - 5" Sand with Some Gravel, Brown	5" - 24" Sand, Fine Grain, Brown	Full Reconstruction
3	97th Court	4"	Wear - 2" Good	0" - 4.5" Sand with Gravel, Recycled Bituminous, Dark Brown	4.5" - 24" Sand, Fine Grain, Brown	Full Reconstruction
4	Hamline Ave	4.25"	Patch - .75" Wear - 1.5" Fair Some Raveling	0" - 5" Sand with Some Gravel, Brown	5" - 19" Sand, Fine Grain, Brown 19" - 24" Sand, Fine Grain, Grayish Brown with Iron Staining.	Full Reconstruction
5	98th Ave	3.5"	Wear - 1.5" Fair Raveling Throughout	0" - 4" Sand with Some Gravel, Brown	4" - 24" Sand, Fine Grain, Brown	Full Reconstruction
6	Wake St	3.75"	Wear - 1.75" Fair Raveling Throughout	0" - 4" Sand with Some Gravel, Brown	4" - 8" Sand, Fine Grain, Brown 8" - 11" Sand, Fine Grain, Grayish Brown 11" - 15" Sand, Fine Grain, Dark Brown 15" - 24" Sand, Fine Grain, Brown	Full Reconstruction
7	98th Lane	4"	Wear - 2.5" Fair Some Raveling	0" - 3" Sand with Some Gravel, Brown	3" - 8" Sand, Fine Grain, Grayish Brown 8" - 24" Sand, Fine Grain, Brown	Full Reconstruction
8	99th Ave	4.25"	Wear - 1.75" Fair Some Raveling	0" - 4" Sand with Some Gravel, Brown	4" - 24" Sand, Fine Grain, Grayish Brown	Full Reconstruction
9	Wake Court	4"	Wear - 1.25" Fair Some Raveling	0" - 4" Sand with Some Gravel, Brown	4" - 8" Sand, Fine Grain, Brown 8" - 24" Sand, Fine Grain, Grayish Brown	Full Reconstruction
10	Xebec Street	4.5"	Wear - 1.5" Fair Some Raveling	0" - 6" Sand with Some Gravel, Brown	6" - 24" Sand, Fine Grain, Brown	Full Reconstruction

Core ID	Location	Bituminous Depth (in)	Lift Thickness (in) and Condition	Aggregate Depth (in) and Material	Subgrade Material	Recommended Maintenance Activity
11	99th Lane	3.5"	Wear - 1.25" Fair Some Raveling	0" - 6" Sand with Some Gravel, Brown	6" - 24" Sand, Fine Grain, Grayish Brown	Full Reconstruction
12	Yalta Street	3"	Wear - 1.5" Fair Some Raveling	0" - 5" Sand with Some Gravel, Brown	5" - 24" Sand, Fine Grain, Grayish Brown	Full Reconstruction
13	98th Lane	3.25"	Wear - 1.5" Fair Some Raveling	0" - 6" Sand with Some Gravel, Brown	6" - 24" Sand, Fine Grain, Grayish Brown	Full Reconstruction
14	Yalta Street	3.5"	Wear - 1.5" Fair Some Raveling	0" - 5.5" Sand with Some Gravel, Brown	5.5" - 24" Sand, Fine Grain, Grayish Brown	Full Reconstruction
15	97th Ave	3.5"	Wear - 1.5" Fair Raveling Throughout	0" - 4" Sand with Some Gravel, Brown	4" - 24" Sand, Fine Grain, Grayish Brown	Full Reconstruction
16	Xebec Street	3"	Wear - 1.5" Fair Some Raveling	0" - 5" Sand with Some Gravel, Brown	5" - 15" Sand, Fine Grain, Grayish Brown 15" - 24" Sand, Fine Grain, Light Brown	Full Reconstruction
17	97th Lane	3.5"	Wear - 1.75" Fair Some Raveling	0" - 5" Sand with Some Gravel, Brown	5" - 24" Sand, Fine Grain, Brown	Full Reconstruction
18	97th Ave	3.5"	Wear - 1.75" Fair Some Raveling	0" - 5" Sand with Some Gravel, Brown	5" - 24" Sand, Fine Grain, Light Brown	Full Reconstruction
19	Xebec Street	3"	Wear - 1.25" Fair Some Raveling	0" - 3" Sand with Some Gravel, Brown 3" - 6" Sand with Some Gravel, Recycled Bituminous	6" - 24" Sand, Fine Grain, Light Brown	Full Reconstruction

wsb Forge ahead.

540 Gateway Boulevard | Suite 100 | Burnsville, MN 55337 | (952) 737-4660

Material Test Report

Report No: MAT:21-5267-S01
Issue No: 1

Client: City Of Blaine **CC:**

Project: Hidden Oaks Area
Pavement Investigation

Job No: R-018996-000

Date of Issue: 11/4/2021
Reviewed By: Sam Lundquist
Title: Project Manager

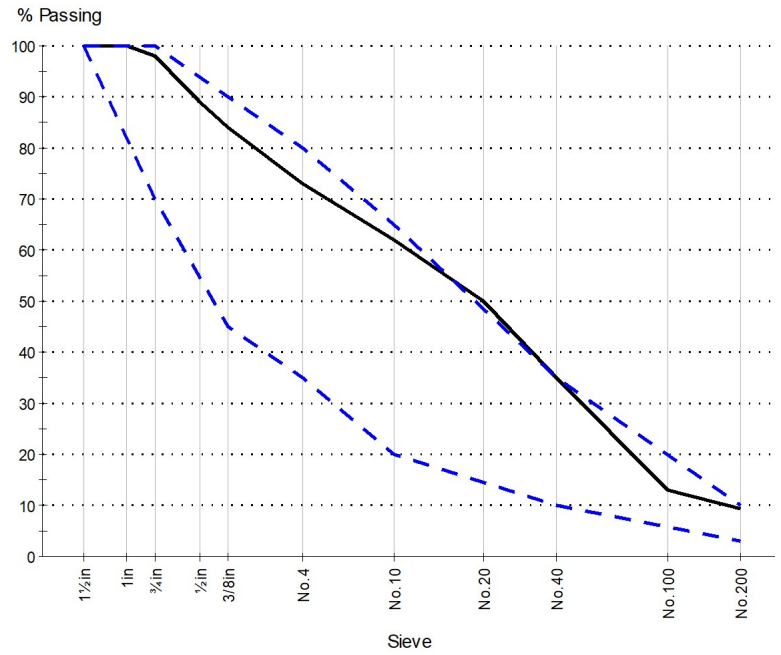
Sample Details

Date Sampled	11/4/2021
Sampled By	Sam Lundquist
Specification	3138-3 Class 5 (<25% Recycled)
Location	Coring Locations: 10, 11, 12, 13, 14, 15, 16, 19

Other Test Results

Description	Method	Result	Limits
200/1 Granular Ratio	MnDOT 1202, MnDOT 1203		
40/10 Granular Ratio			
200/10 Granular Ratio			

Particle Size Distribution



Method: MnDOT 1202, MnDOT 1203

Date Tested: 11/4/2021
Tested By: Shane Rasmussen

Sieve Size	% Passing	Limits
1½in	100	100
1in	100	
¾in	98	70 to 100
½in	89	
3/8in	84	45 to 90
No.4	73	35 to 80
No.10	62	20 to 65
No.20	50	
No.40	35	10 to 35
No.100	13	
No.200	9.3	3.0 to 10.0

Comments

Test results meet the above referenced specifications.

wsb Forge ahead.

540 Gateway Boulevard | Suite 100 | Burnsville, MN 55337 | (952) 737-4660

Material Test Report

Report No: MAT:21-5267-S02
Issue No: 1

Client: City of Blaine **CC:**

Project: Hidden Oaks Area
Pavement Investigation

Job No: R-018996-000

Date of Issue: 11/4/2021
Reviewed By: Sam Lundquist
Title: Project Manager

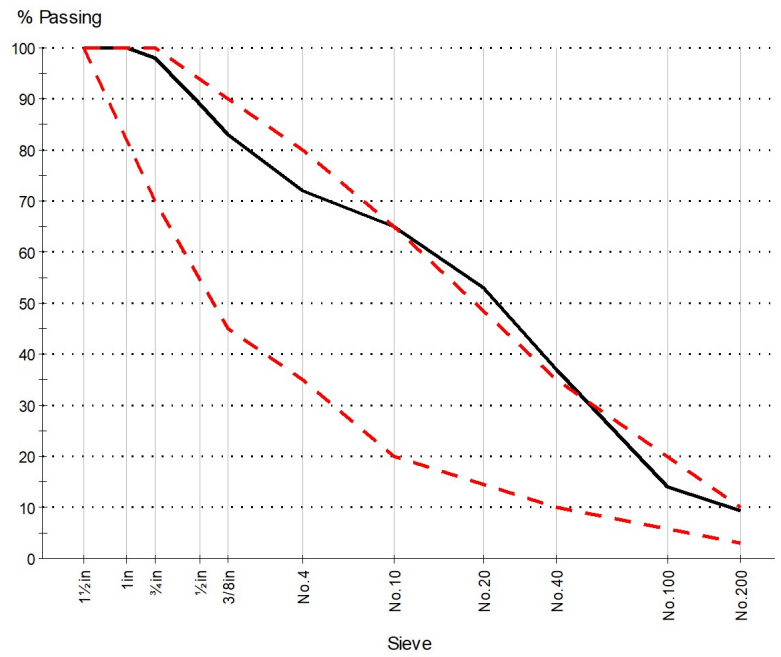
Sample Details

Date Sampled	11/4/2021
Sampled By	Sam Lundquist
Specification	3138-3 Class 5 (<25% Recycled)
Location	Coring Locations: 1, 2, 4, 5, 6 7, 8, 9, 17, 18

Other Test Results

Description	Method	Result	Limits
200/1 Granular Ratio	MnDOT 1202, MnDOT 1203		
40/10 Granular Ratio			
200/10 Granular Ratio			

Particle Size Distribution



Method: MnDOT 1202, MnDOT 1203

Date Tested: 11/4/2021
Tested By: Shane Rasmussen

Sieve Size	% Passing	Limits
1½in	100	100
1in	100	
¾in	98	70 to 100
½in	89	
3/8in	83	45 to 90
No.4	72	35 to 80
No.10	65	20 to 65
No.20	53	
No.40	37	10 to 35
No.100	14	
No.200	9.4	3.0 to 10.0

Comments

Test results do not meet the above referenced specifications.

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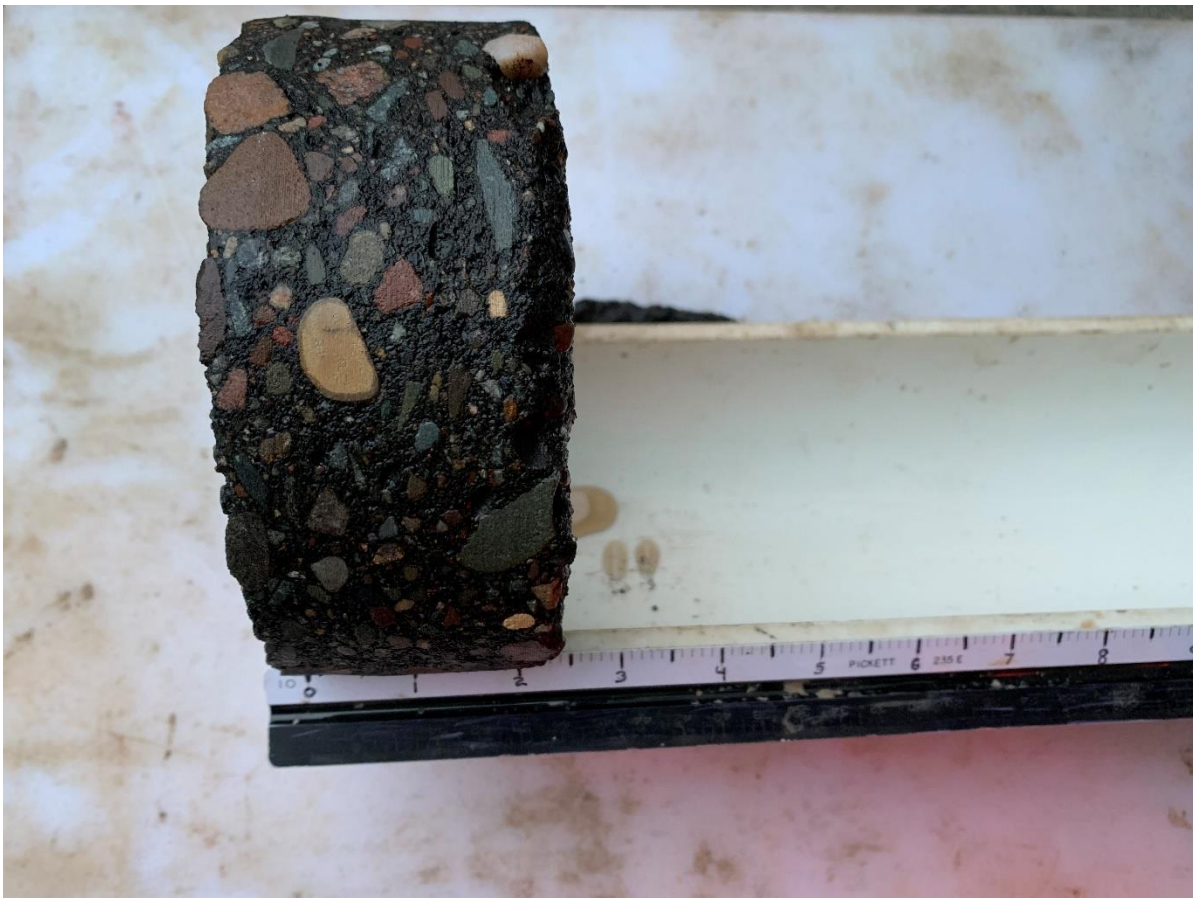
Core 1



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Core 3

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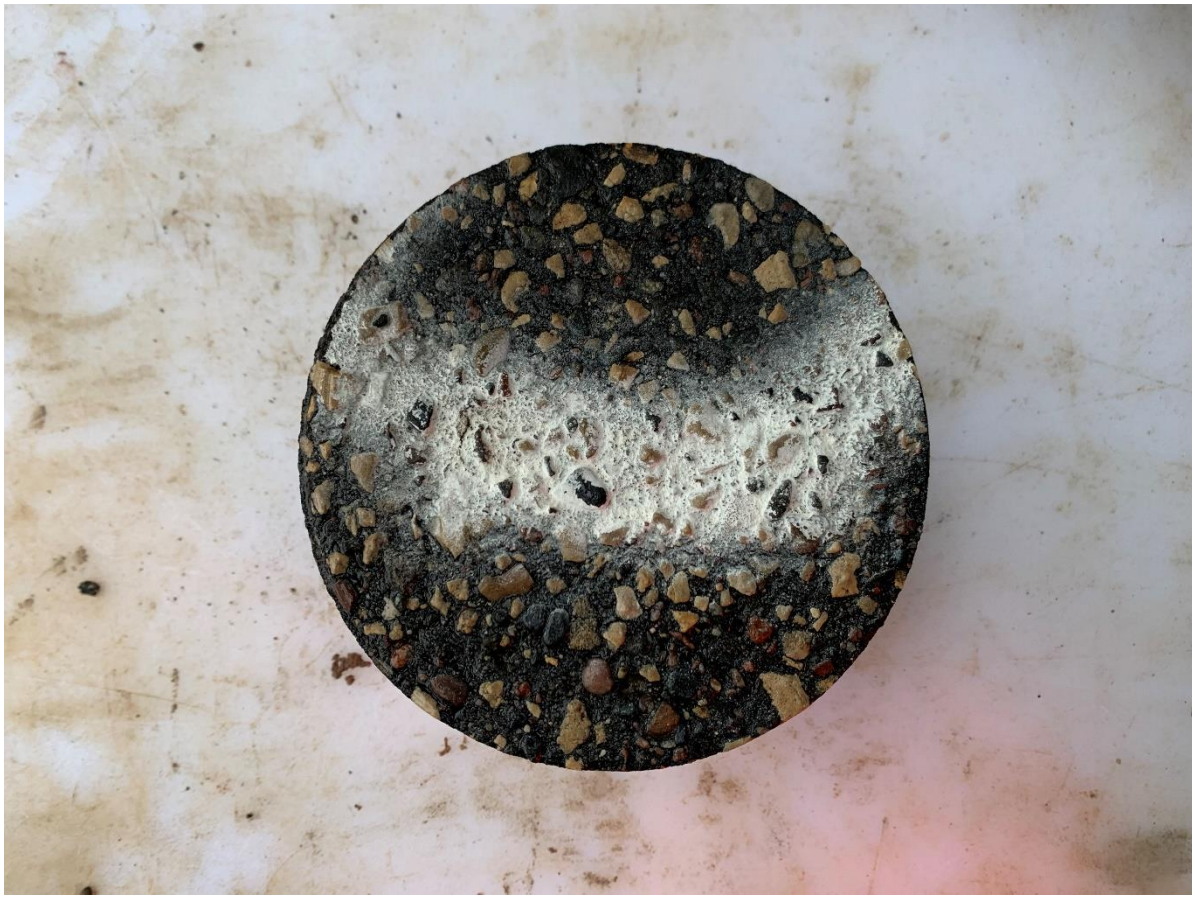

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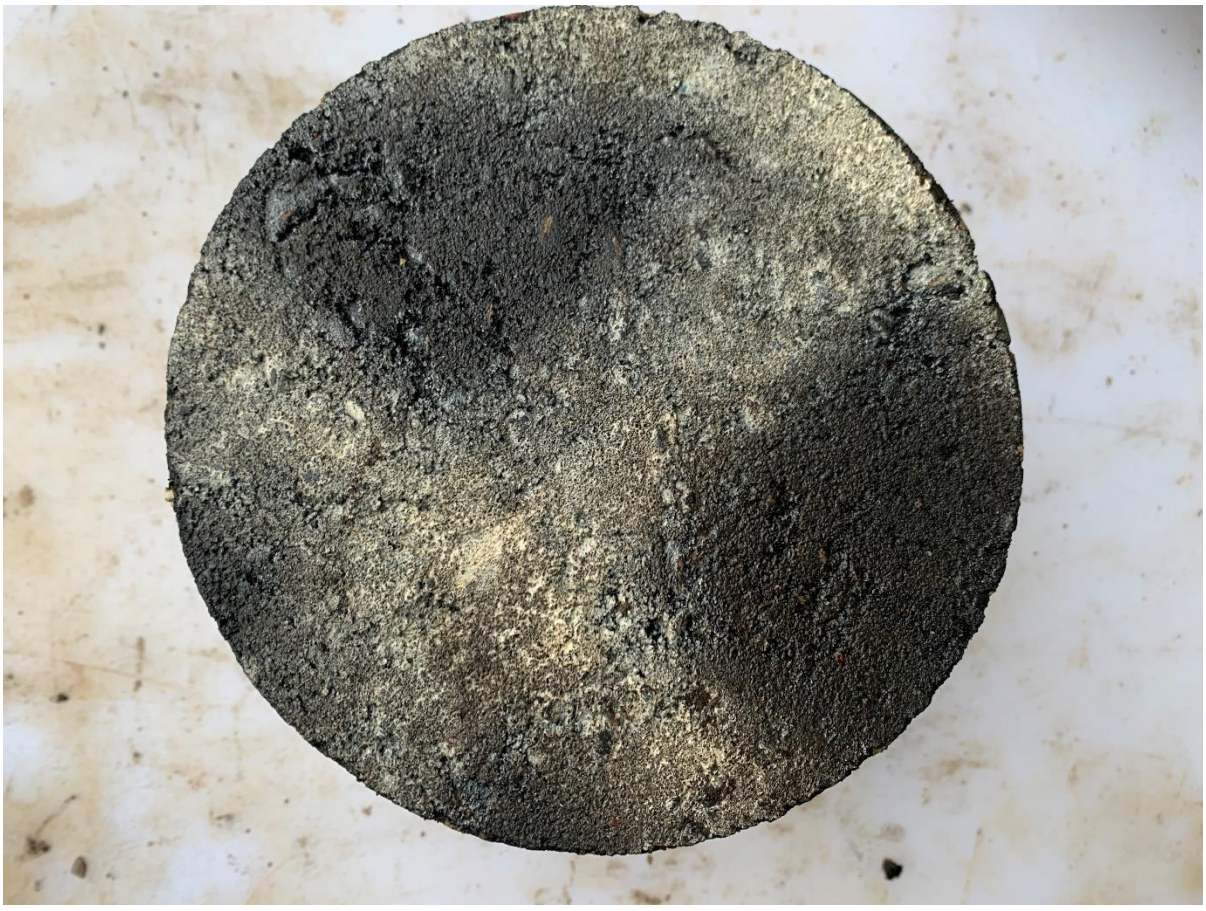

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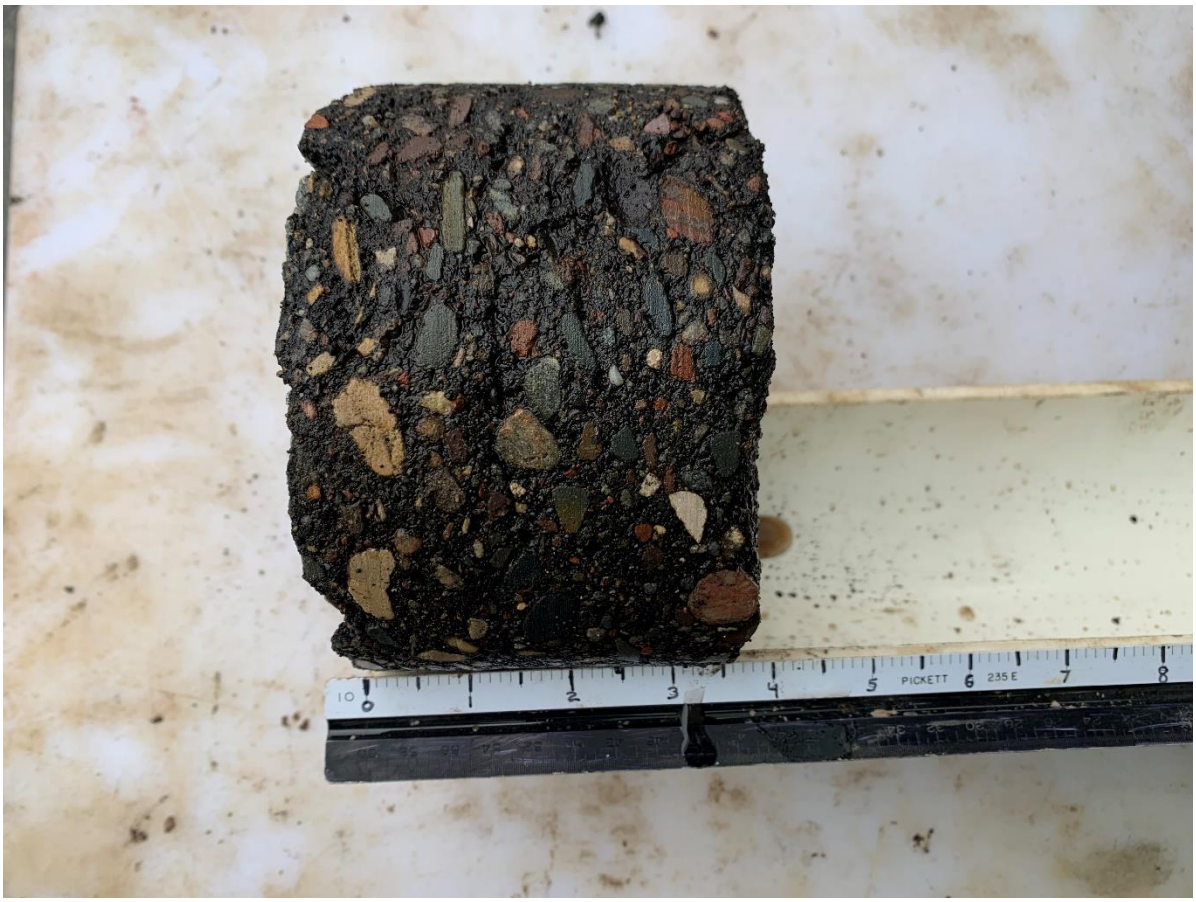

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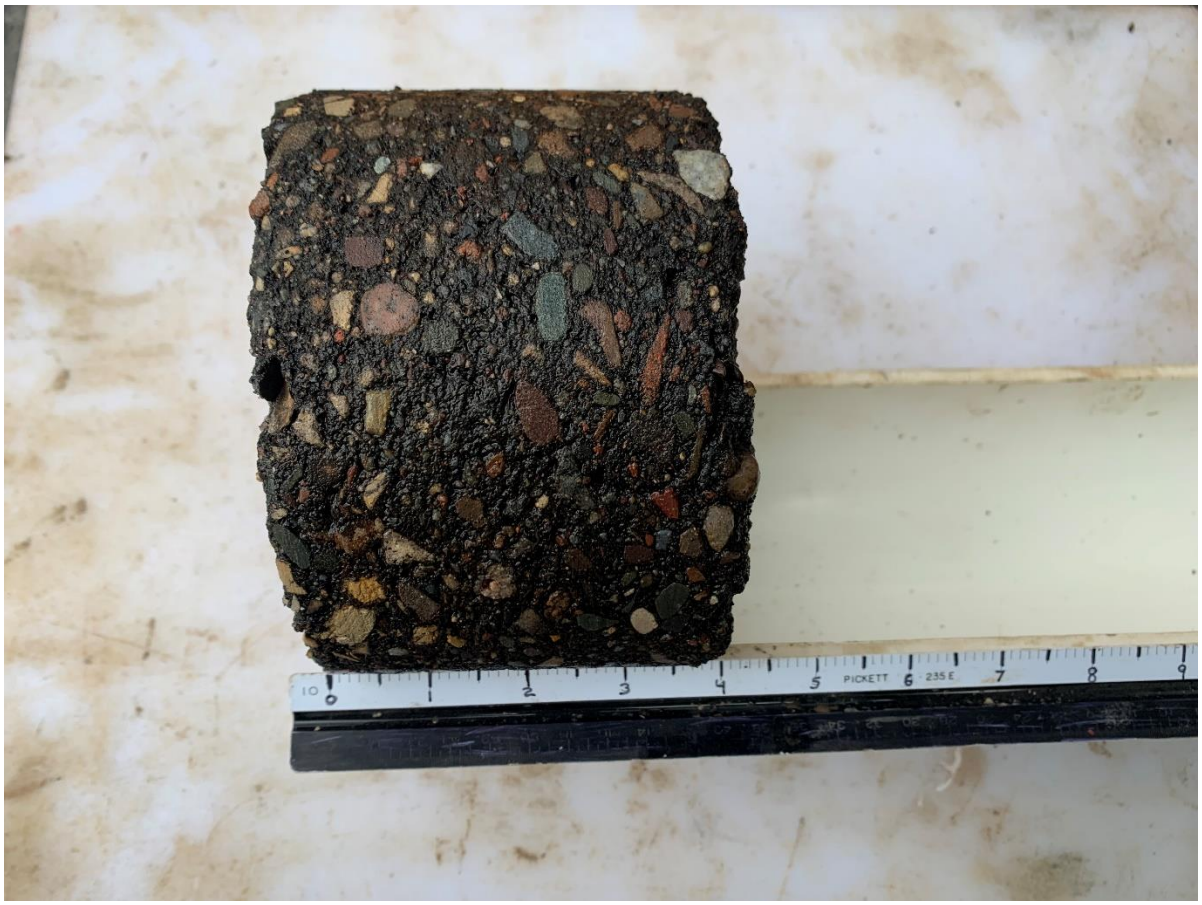

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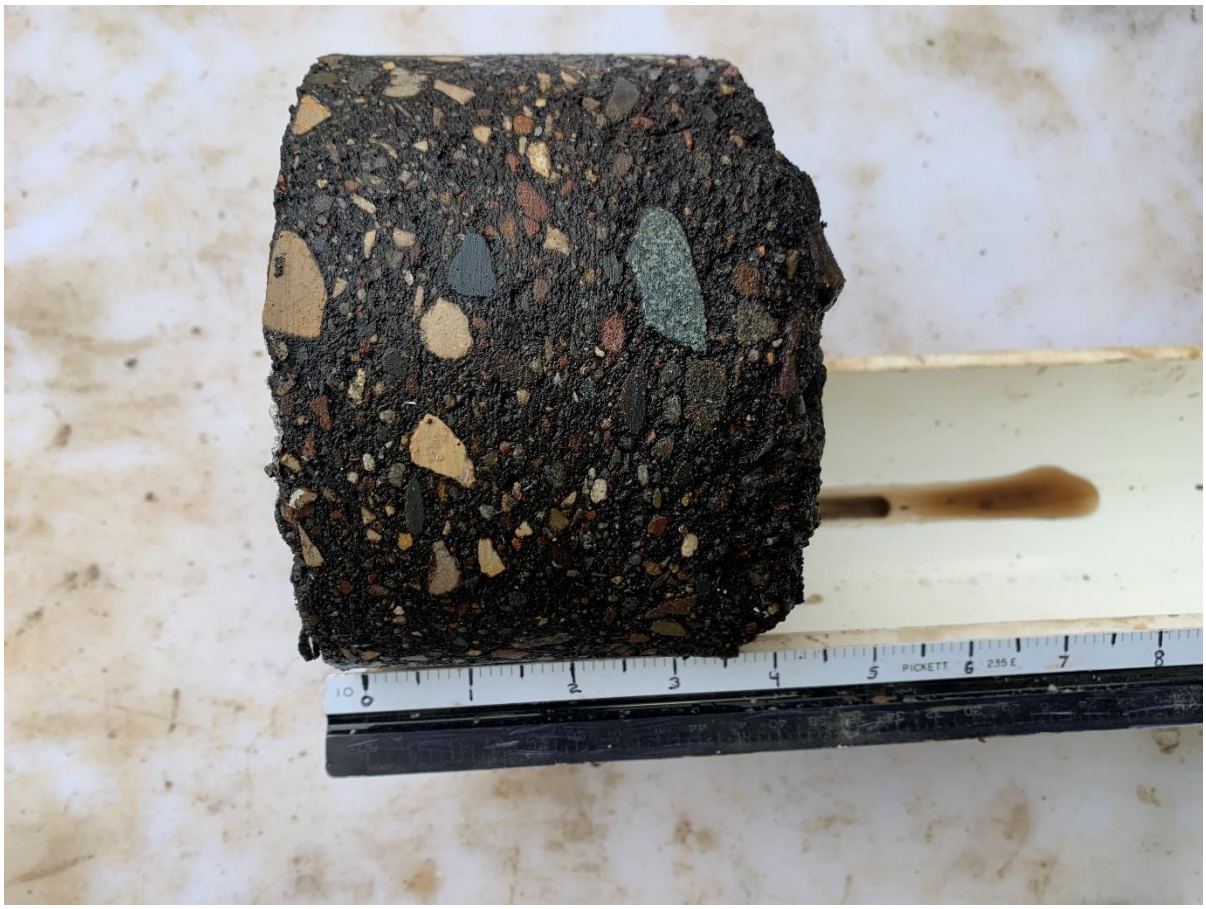

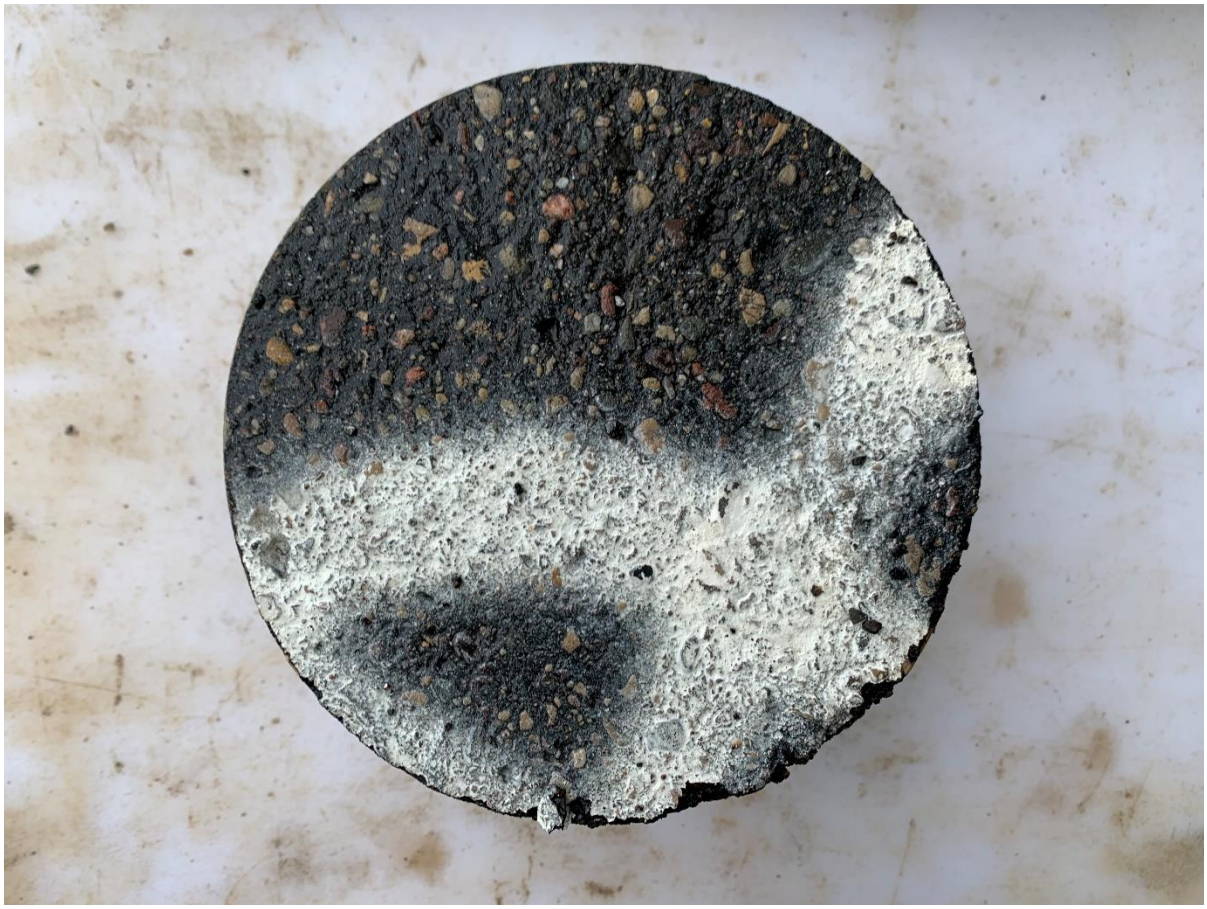

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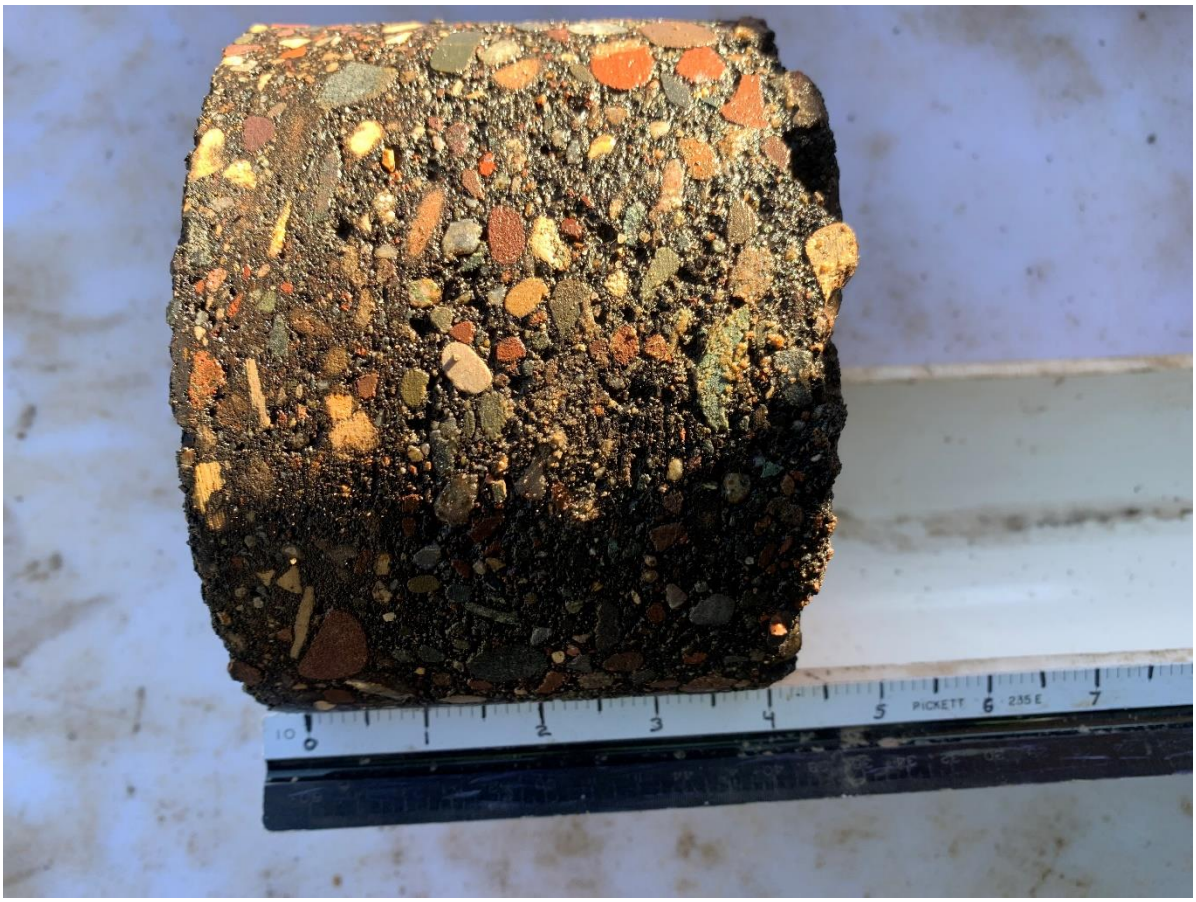

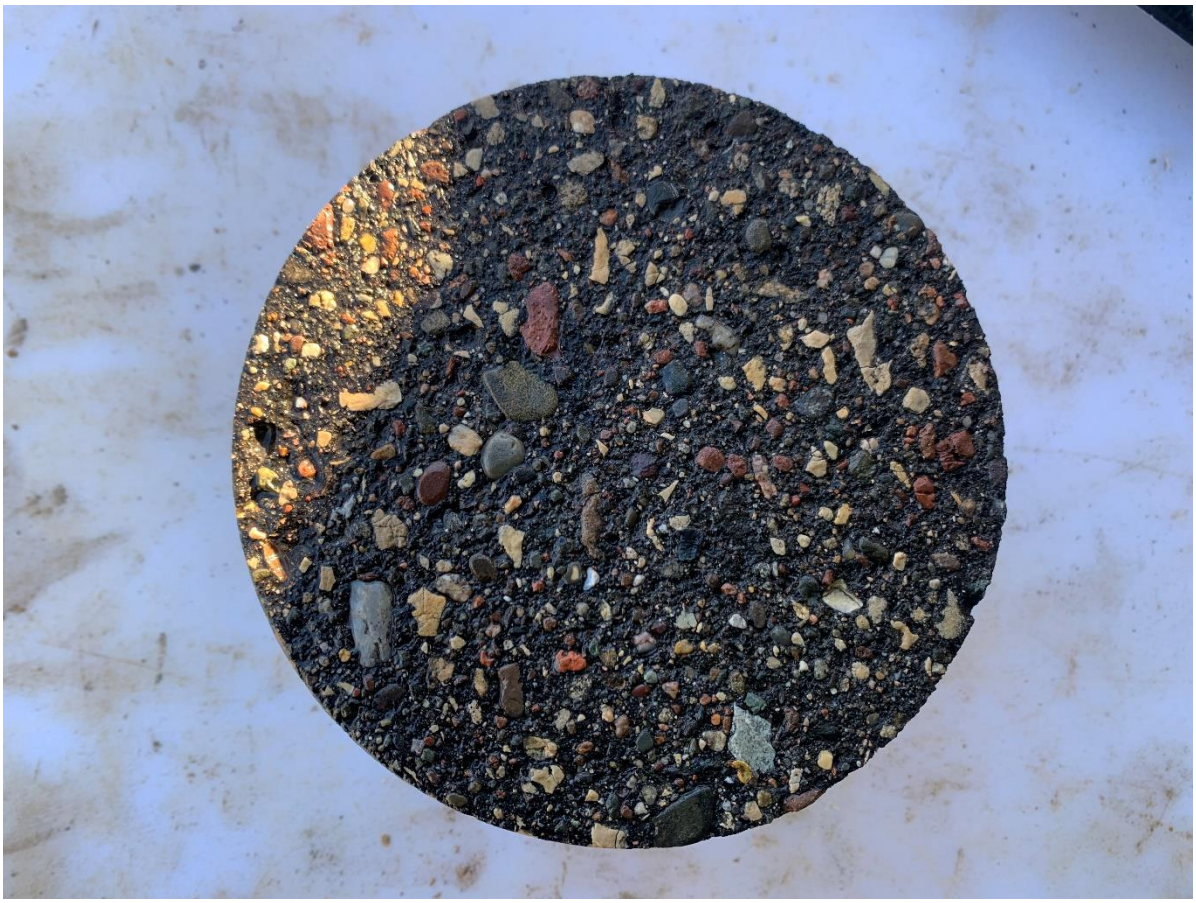

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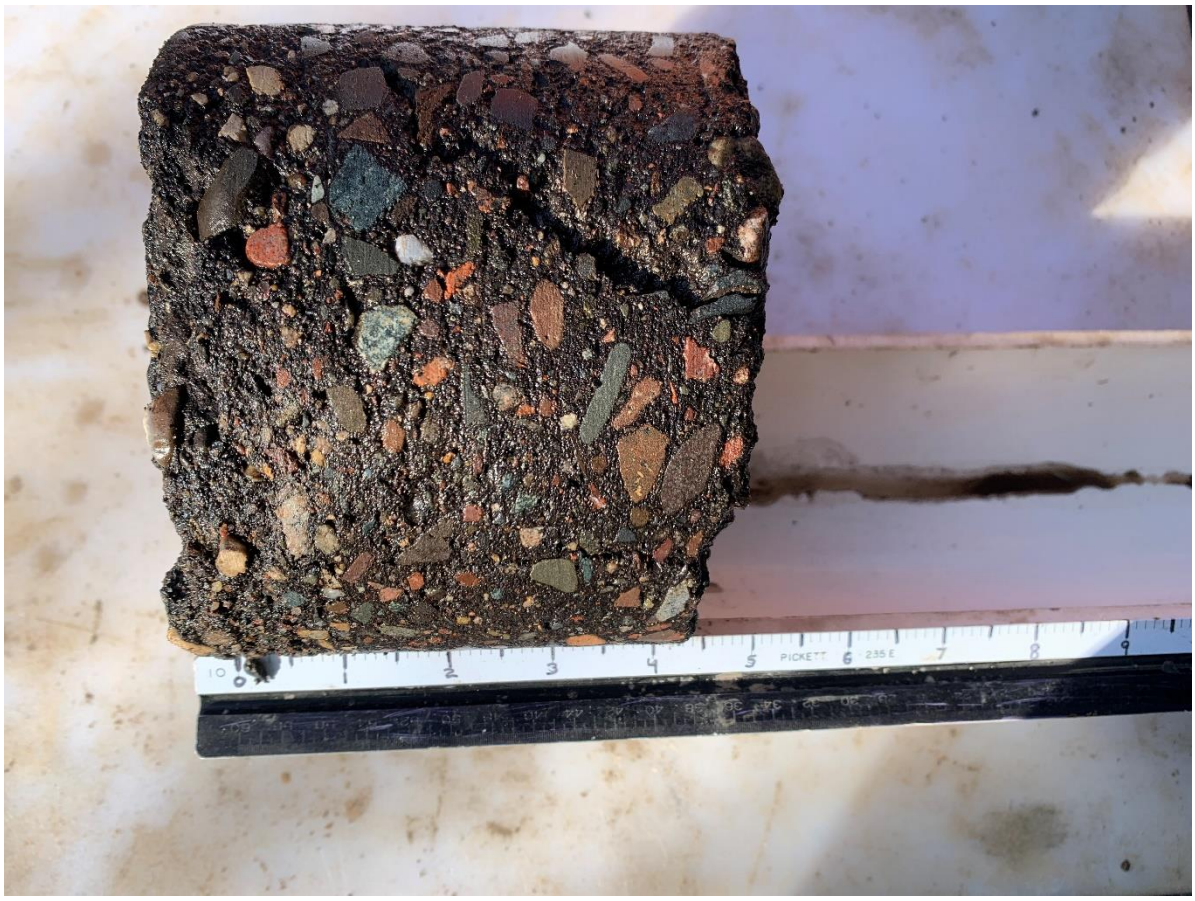

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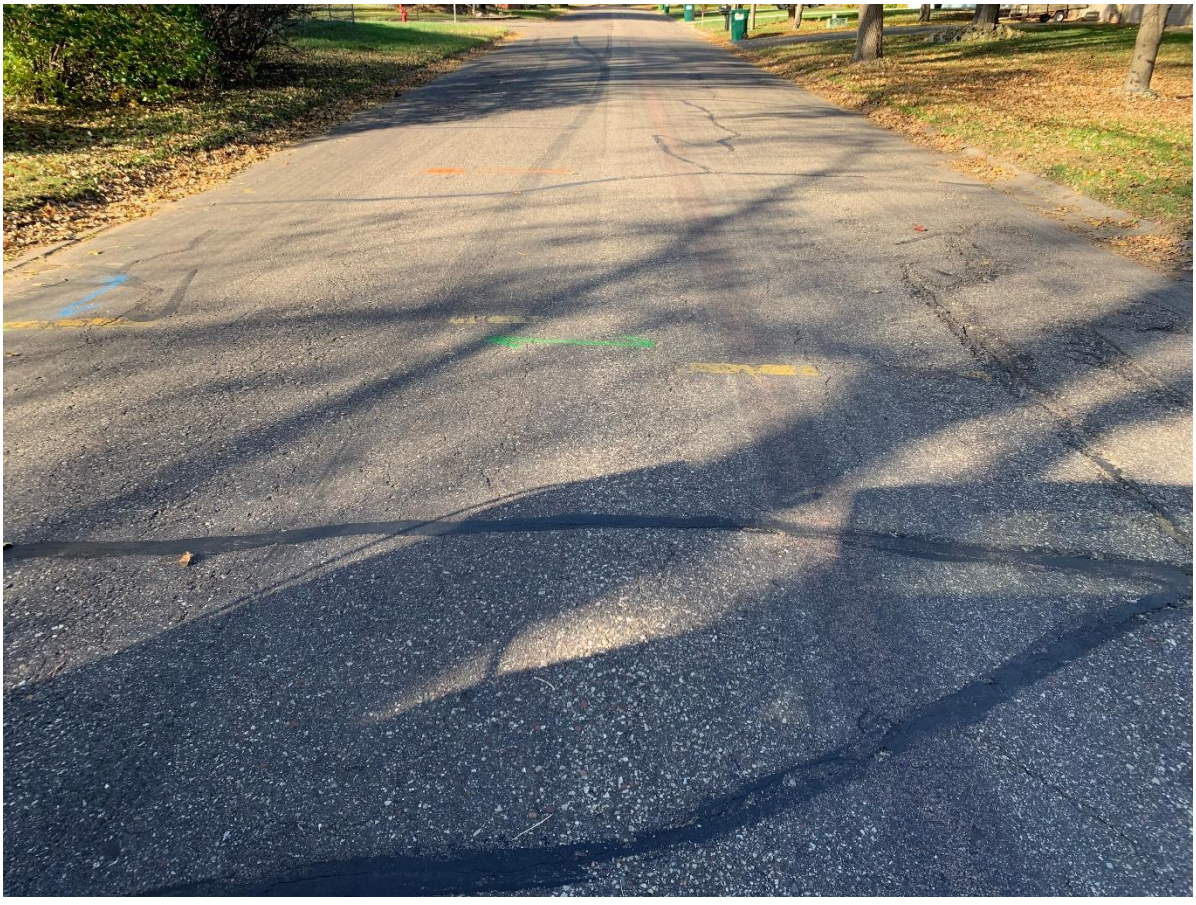

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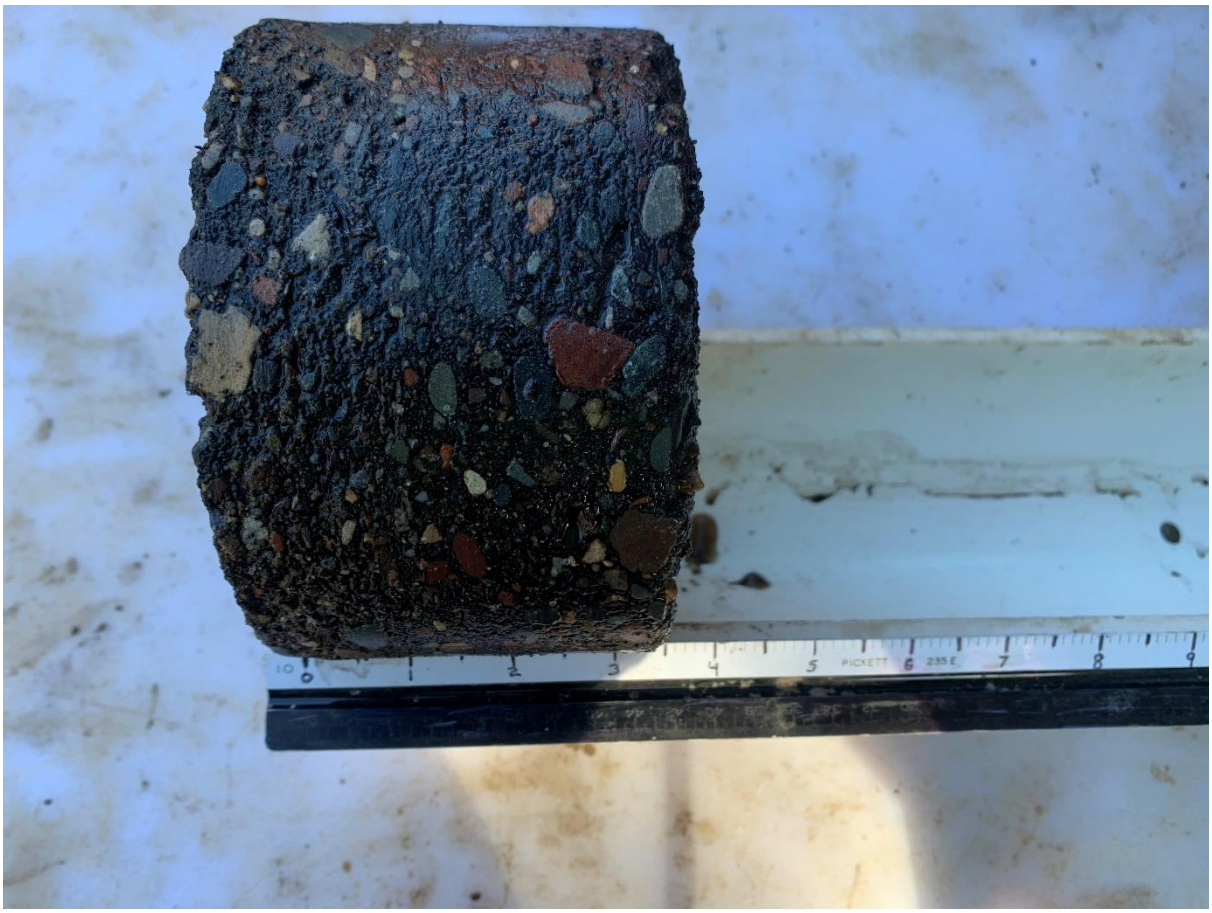

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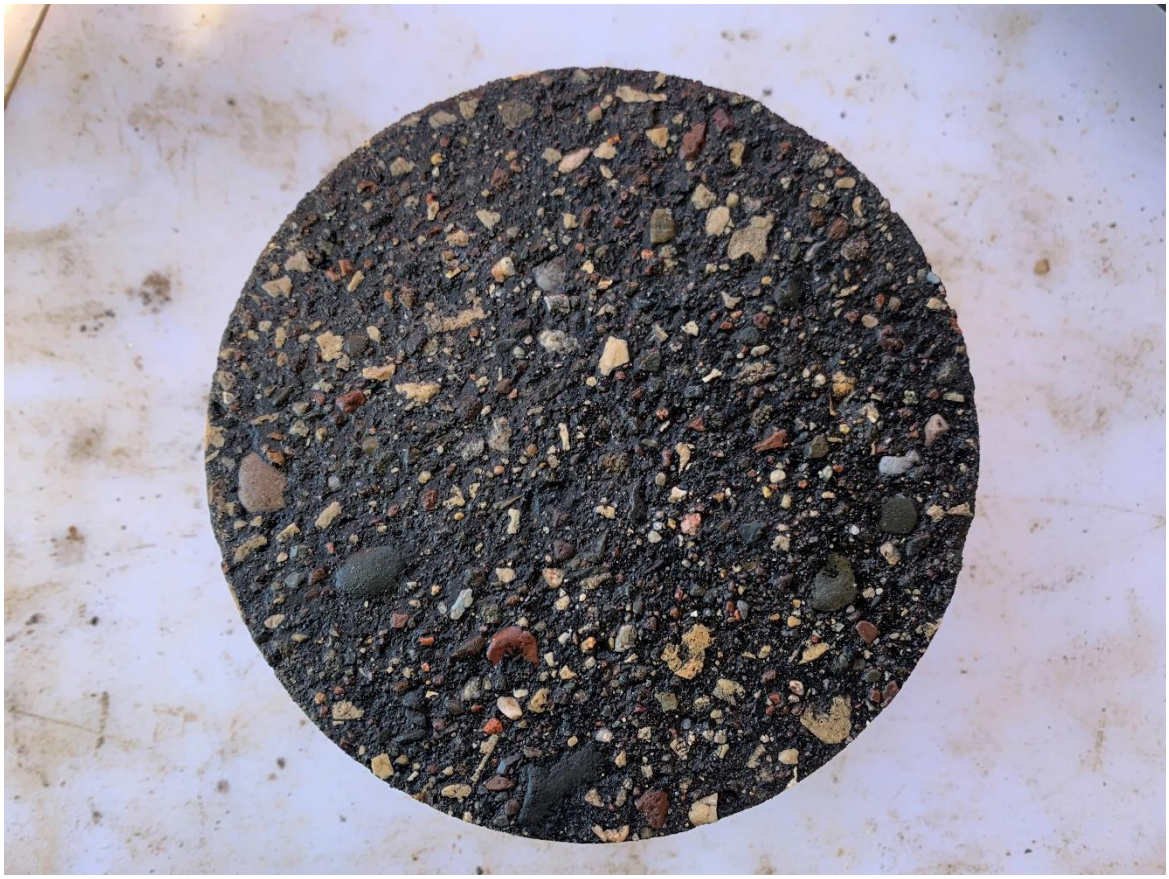

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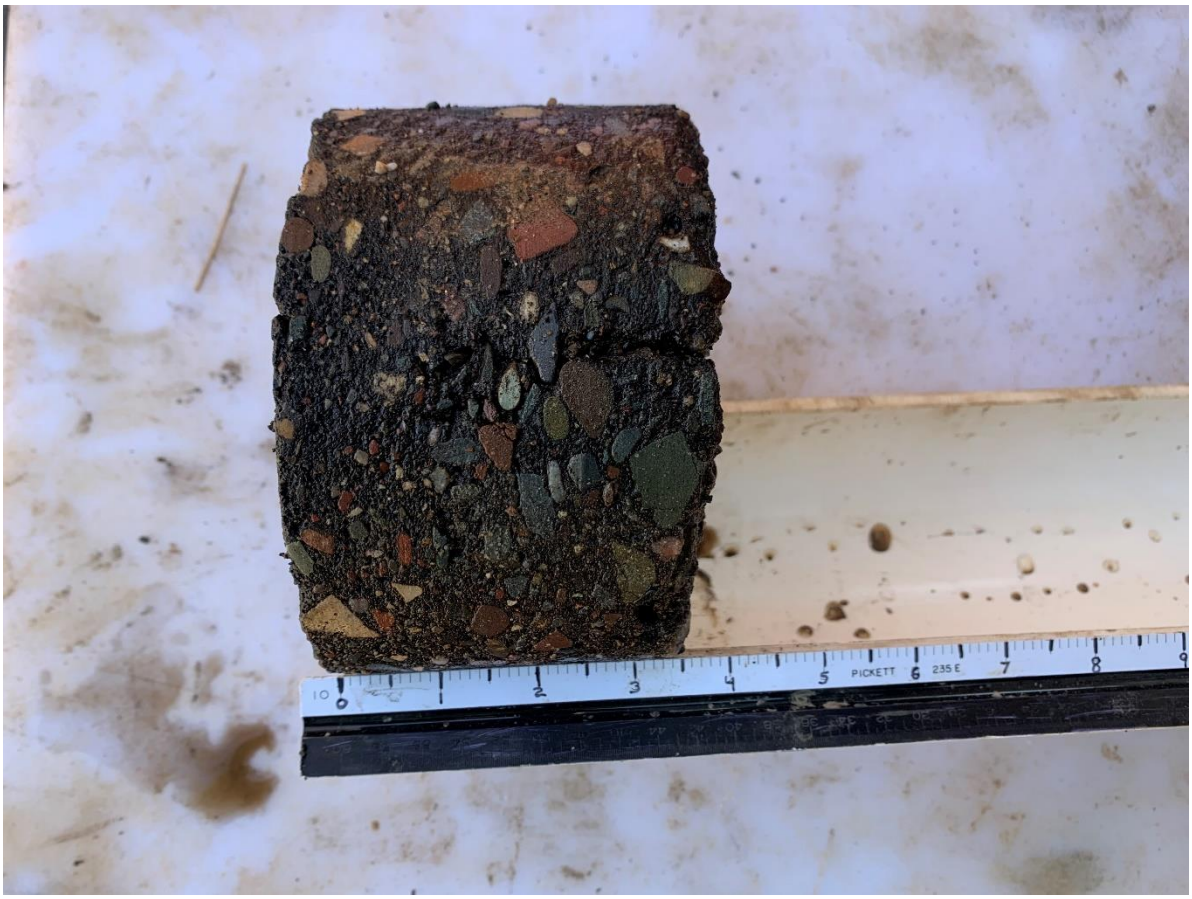

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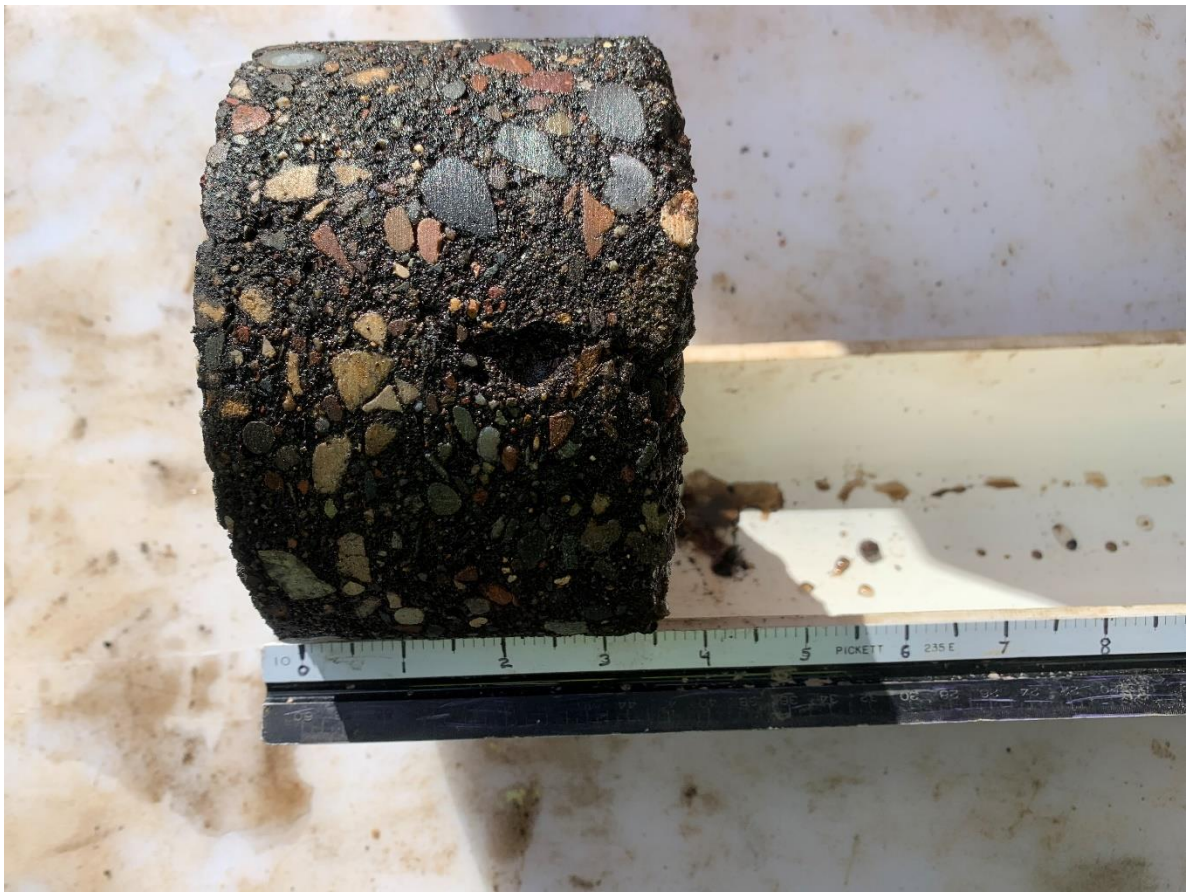

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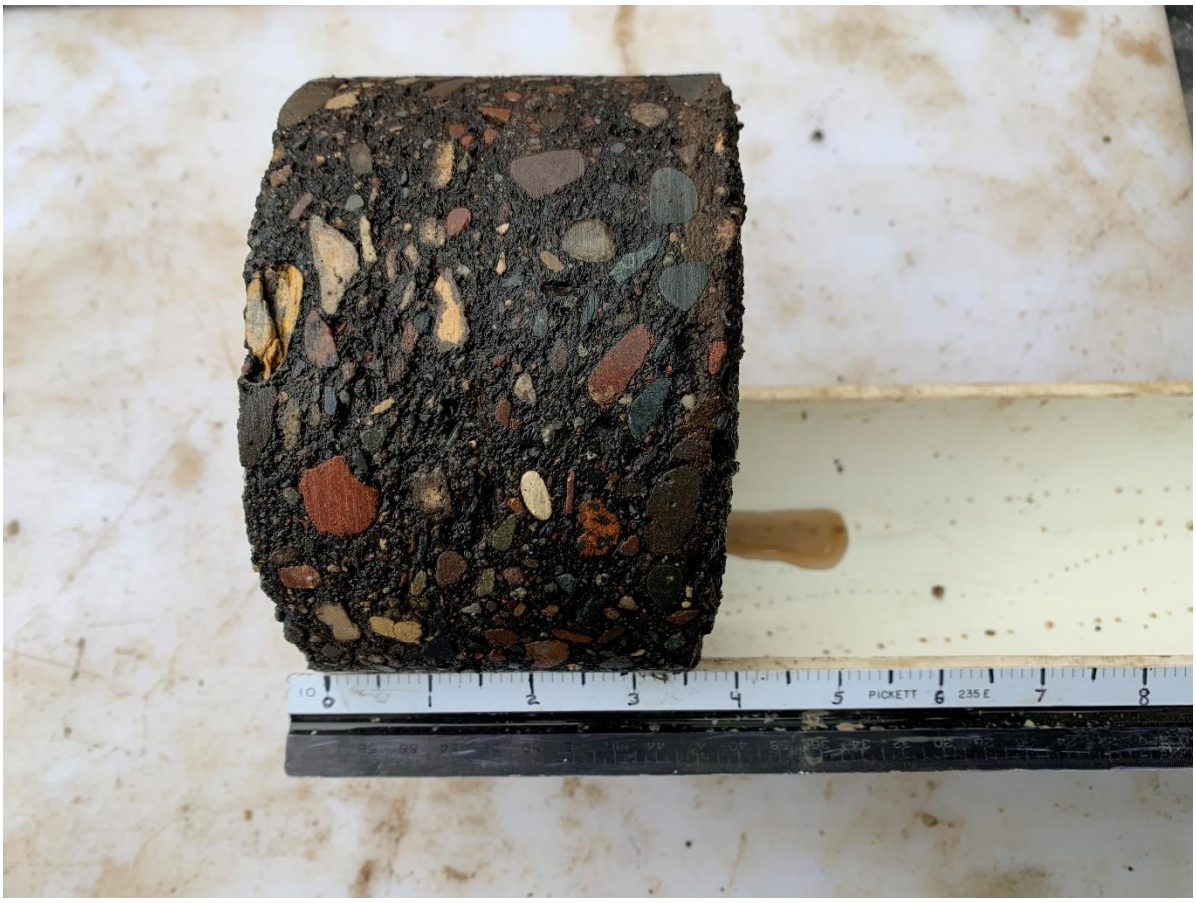

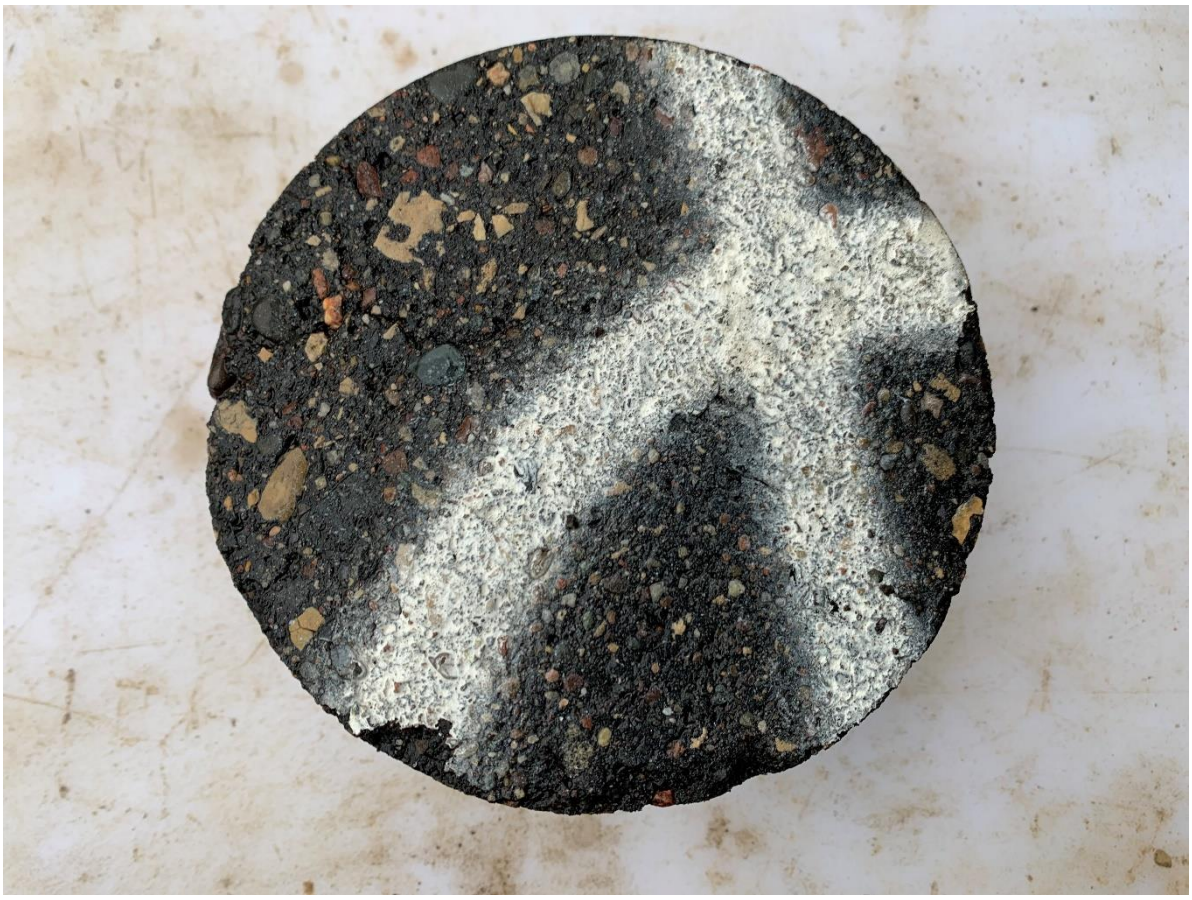

Core 18

Core 18

Core 19

Core 19