

**2024 LOCAL STREETS RENEWALS  
PACKAGE NO. 751-2023.4  
FILE 24-R-04**

**Prepared for**

Ronald Bruce, P. Eng.  
Morrison Hershfield Ltd.  
Suite 1, 59 Scurfield Boulevard,  
Winnipeg, MB R3Y 1V2

February 23, 2024

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## Introduction

On January 30, 2024, H. Manalo Consulting Ltd. (HMCL) received authorization from Ronald Bruce, P. Eng, representing Morrison Hershfield Ltd., to proceed with the scope of work as described in the subcontract agreement dated January 31, 2023. The purpose of the work is to gather information by obtaining pavement cores to help assess the existing road condition.

## Field Work Program

The investigation program was performed following the guidelines listed in the City of Winnipeg document titled Site Investigation Requirements for Public Works Street Projects, dated May 2023. Plans for core location reference were provided by Morrison Hershfield. Pavement core samples were obtained between February 5, 2024 until February 19, 2024. The pavement samples were cored with 150-mm diameter coring bit using a coring equipment. The pavement section was backfilled with aggregates and asphalt cold mix. All pavement samples were returned to HMCL laboratory for data gathering and further review.

## Sample Review and Data Reporting

The asphalt pavement thickness ranges from 40mm to 365mm and the concrete pavement thickness ranges from 100mm to 220mm. Thickness measurements are documented for each core samples including pictures for reference.

We appreciate the opportunity to assist you in this project. Please call the undersigned if you require further information.

Prepared by:



Jaehang Jeong, EIT  
Materials Technologist

Reviewed by:



Paul Bevel  
Manager, Field and Laboratory Services

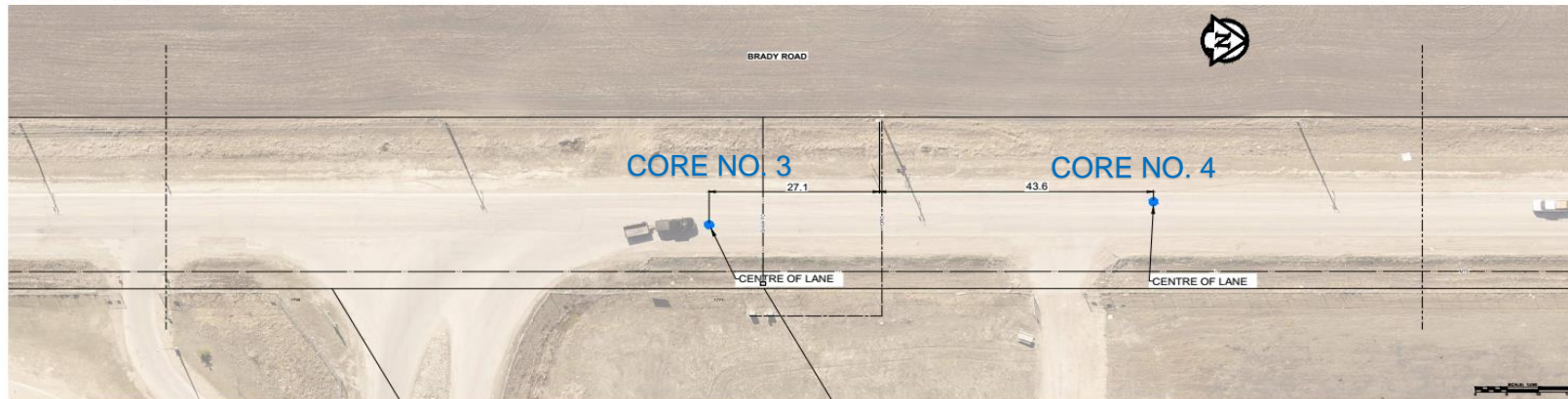
## Appendix A

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Core Location

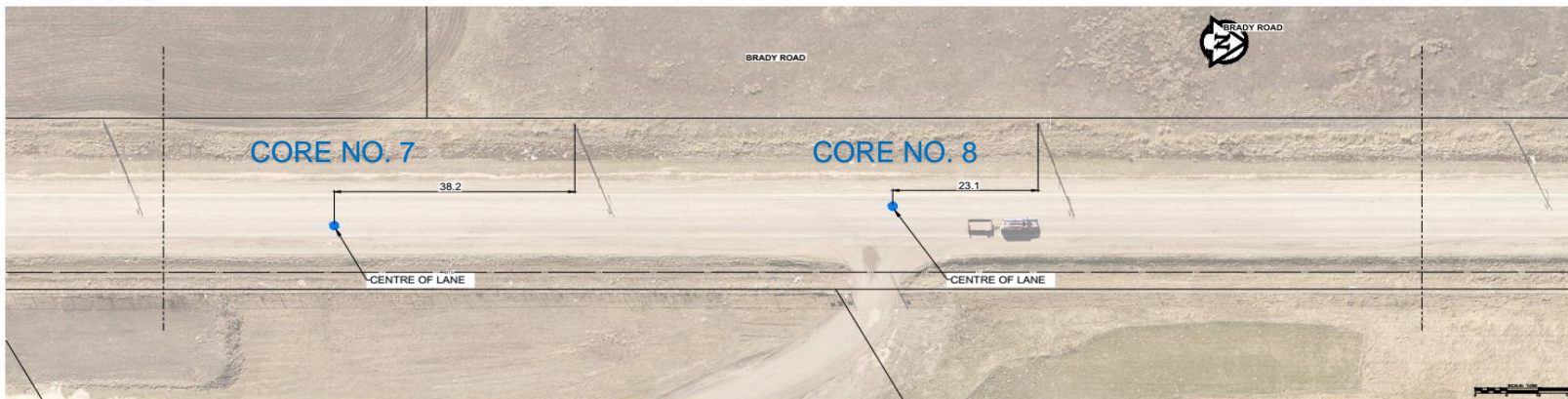
## Brady Road

### Core Location



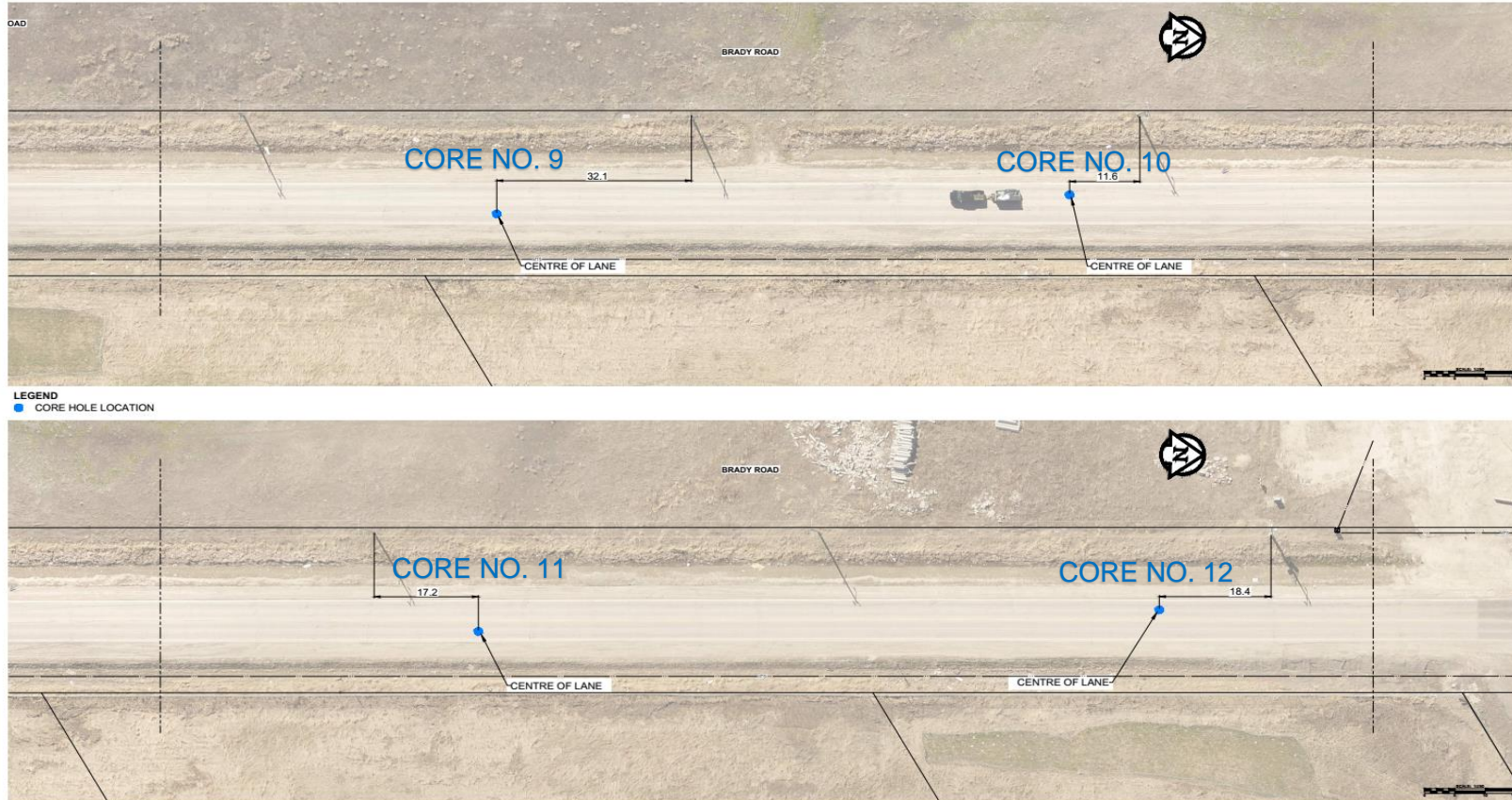
## Brady Road

### Core Location



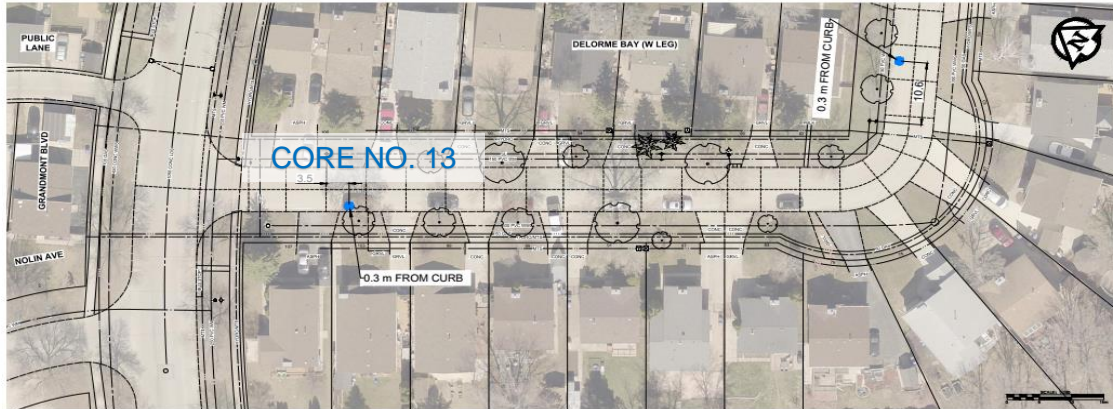
## Brady Road

### Core Location

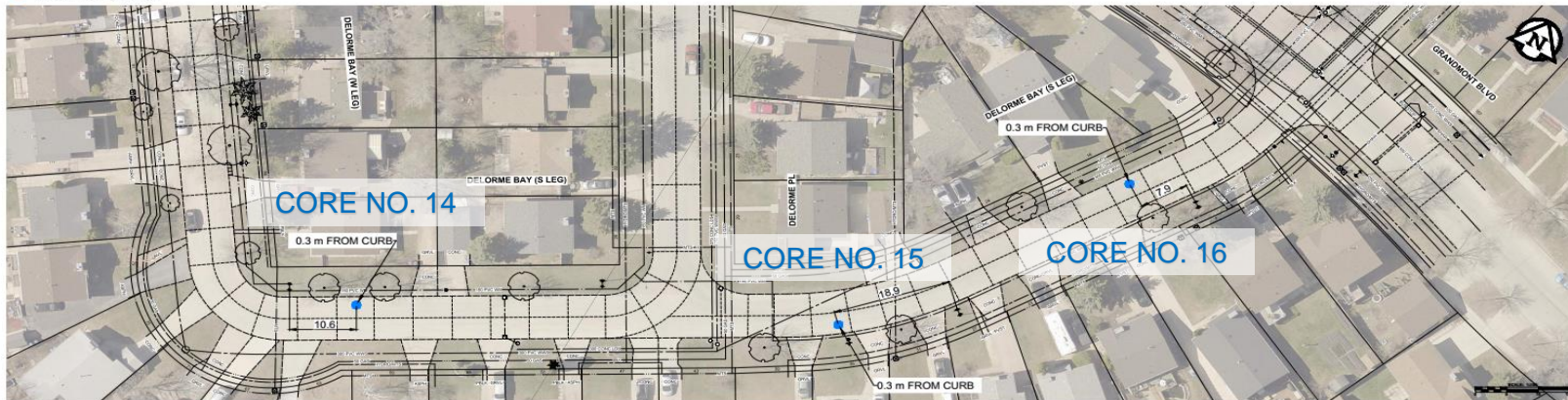


## Delorme Bay

### Core Location



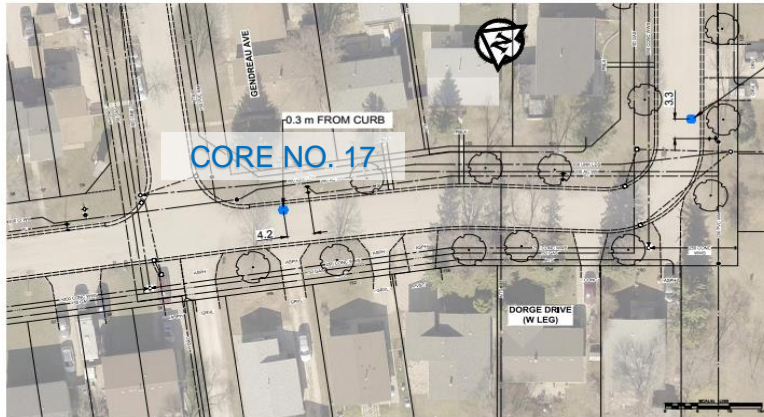
LEGEND  
● CORE HOLE LOCATION



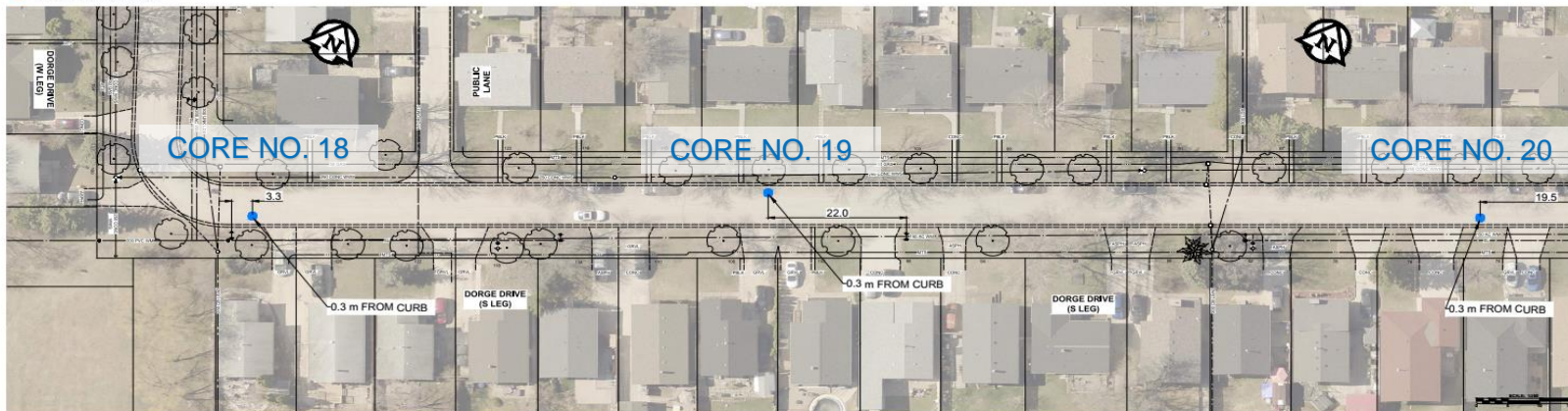


## Dorge Drive

### Core Location

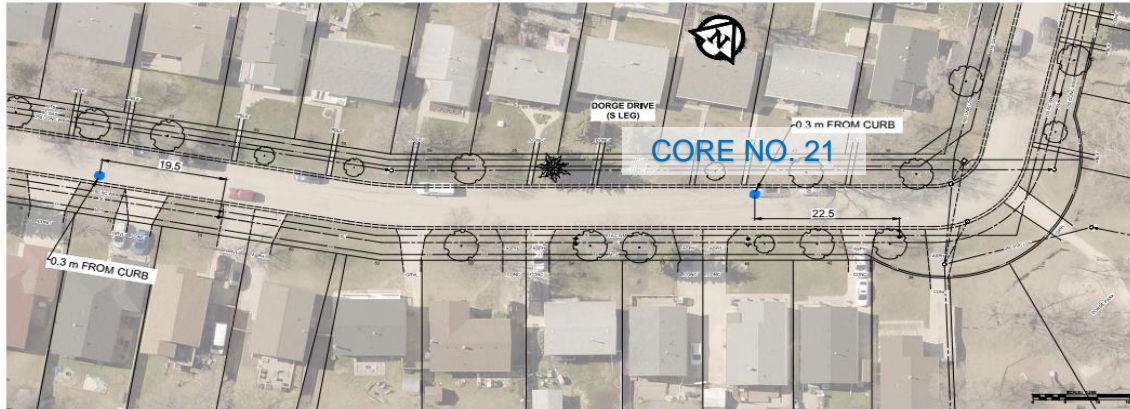


LEGEND  
● CORE HOLE LOCATION

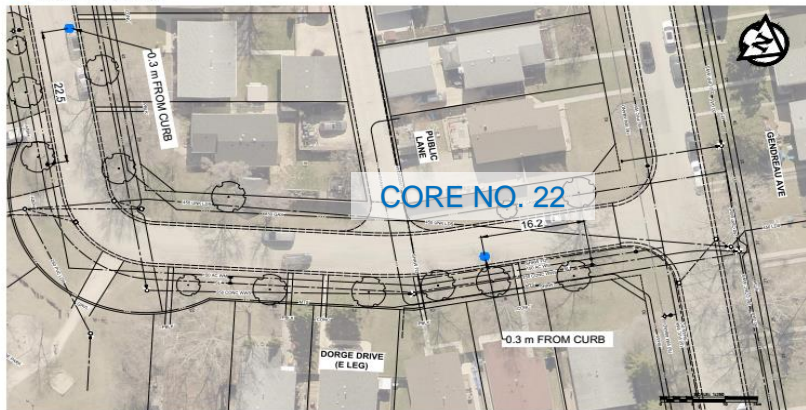


## Dorge Drive

### Core Location

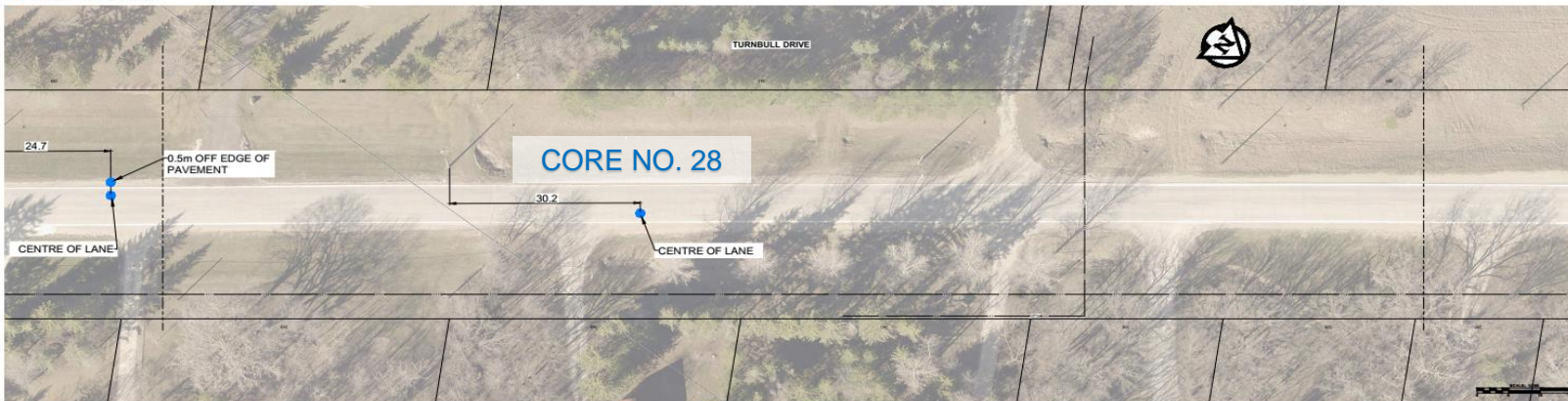
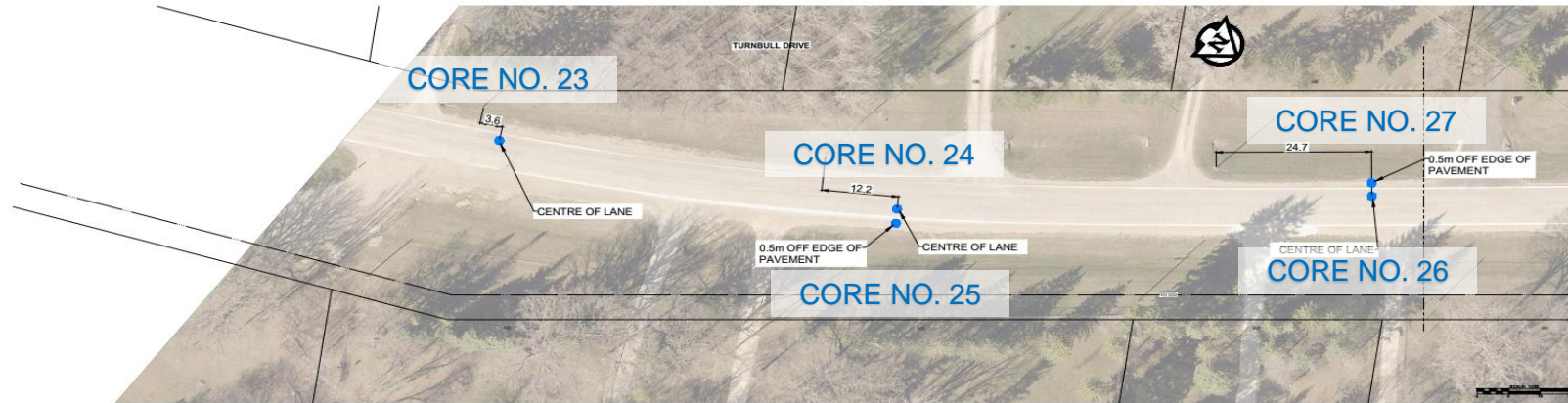


LEGEND  
● CORE HOLE LOCATION



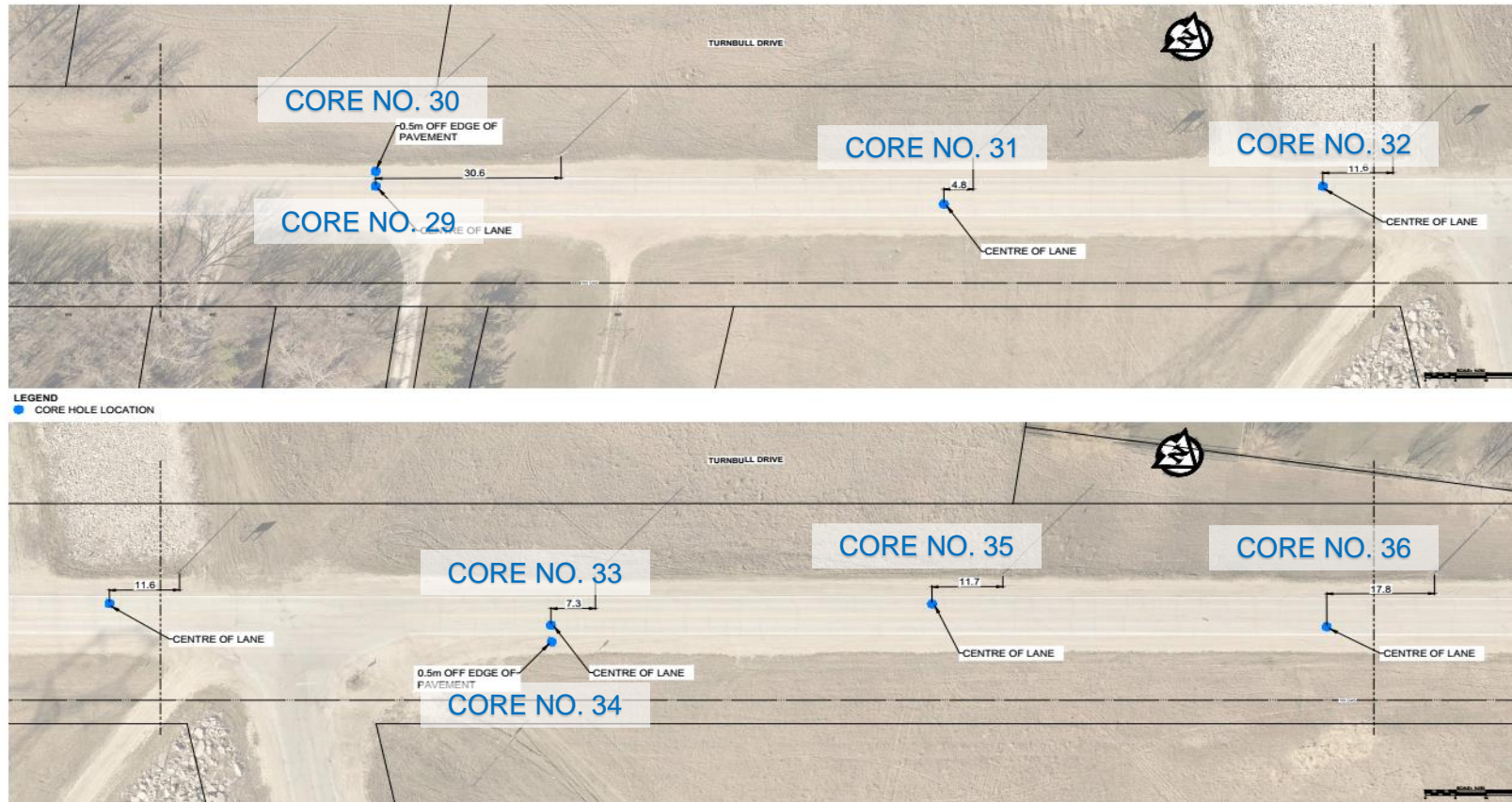
## Turnbull Drive

### Core Location



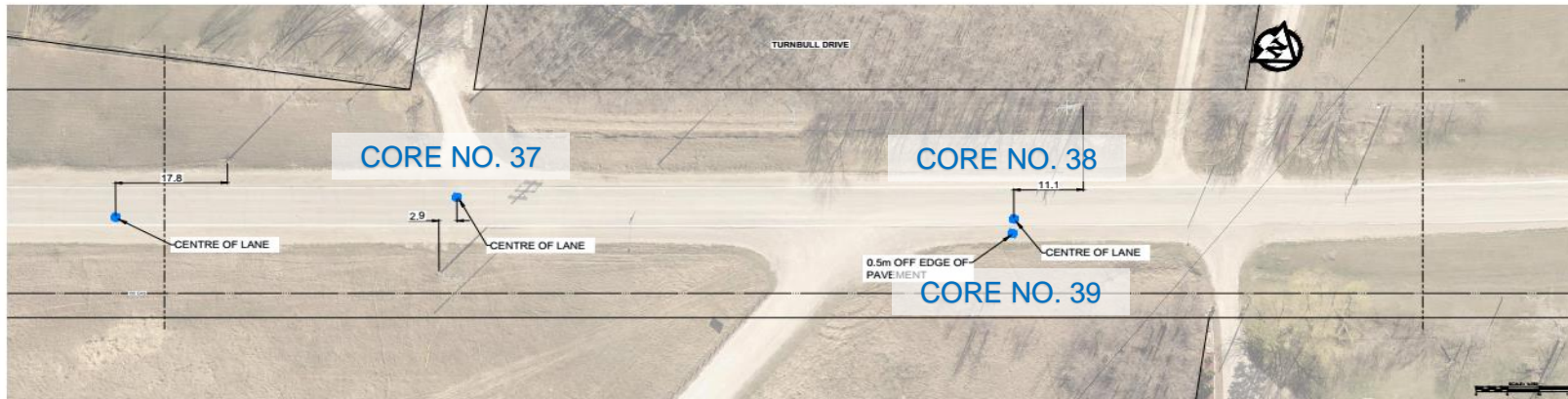
## Turnbull Drive

### Core Location



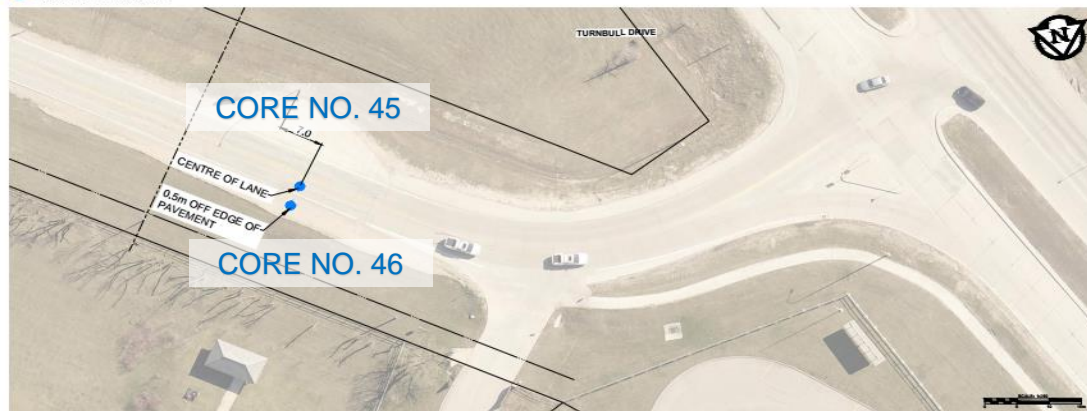
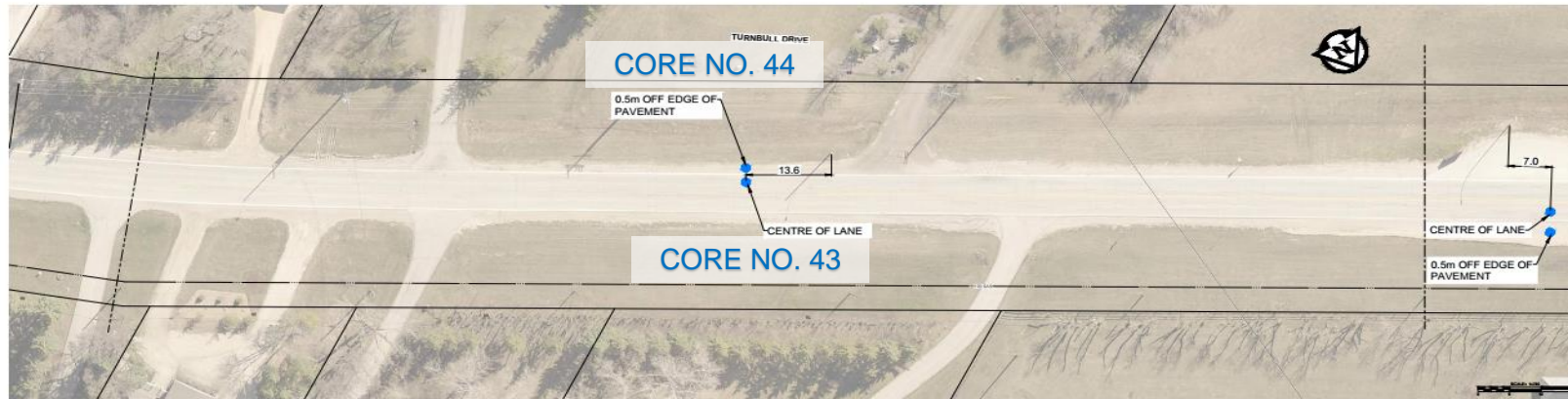
## Turnbull Drive

### Core Location



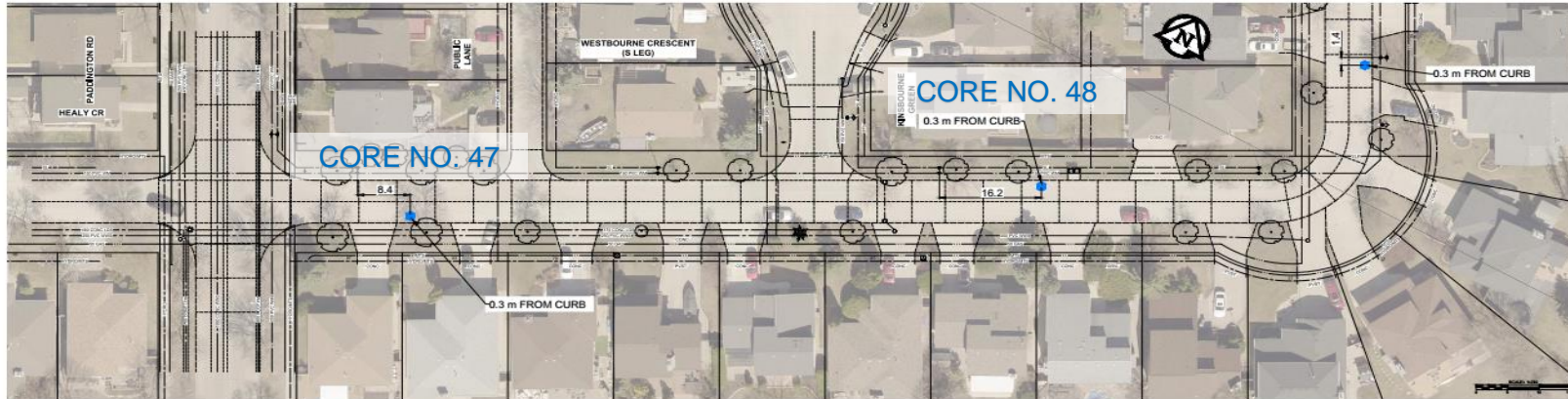
## Turnbull Drive

### Core Location

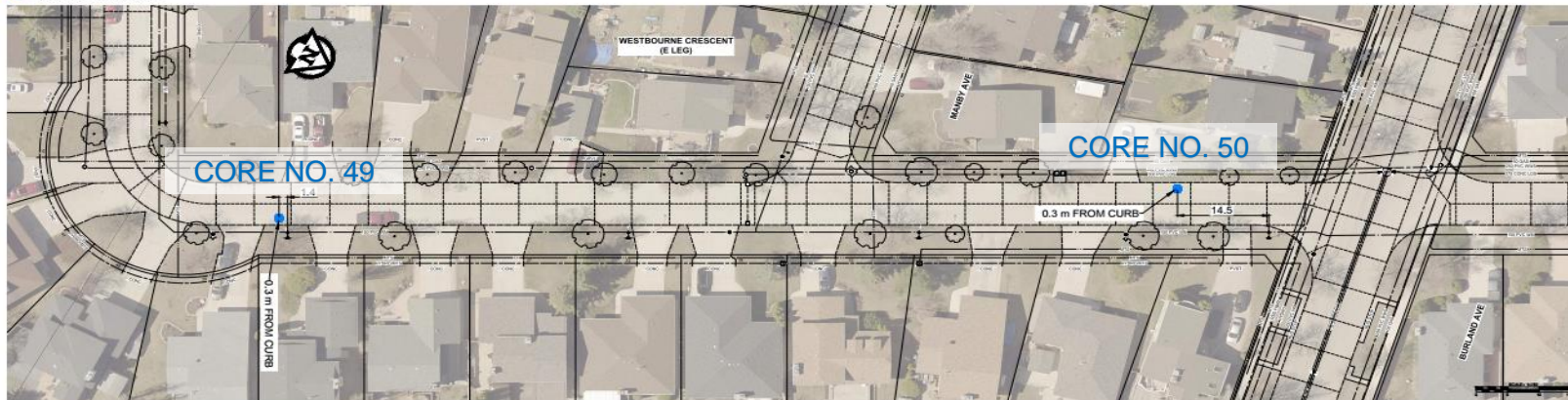


## Westbourne Crescent

### Core Location

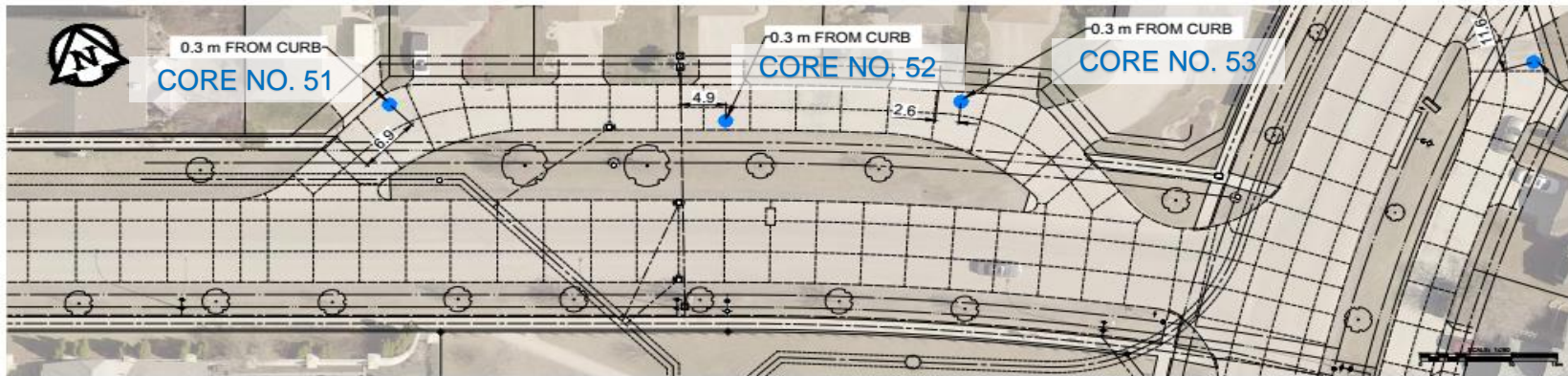


LEGEND  
● CORE HOLE LOCATION



## Fleetwood Road

### Core Location



LEGEND  
● CORE HOLE LOCATION

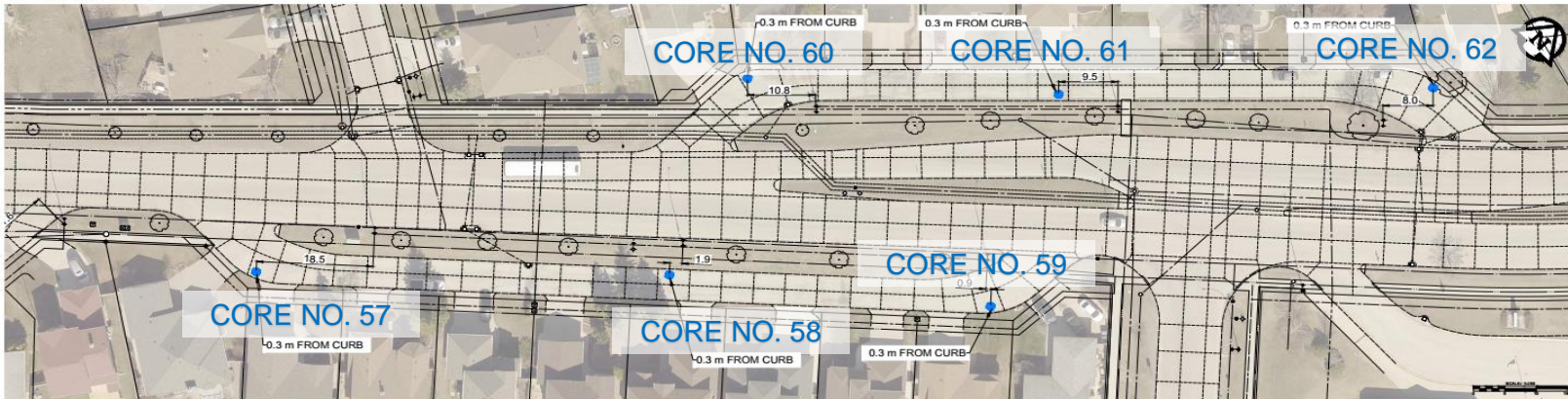


## Scurfield Boulevard

### Core Location



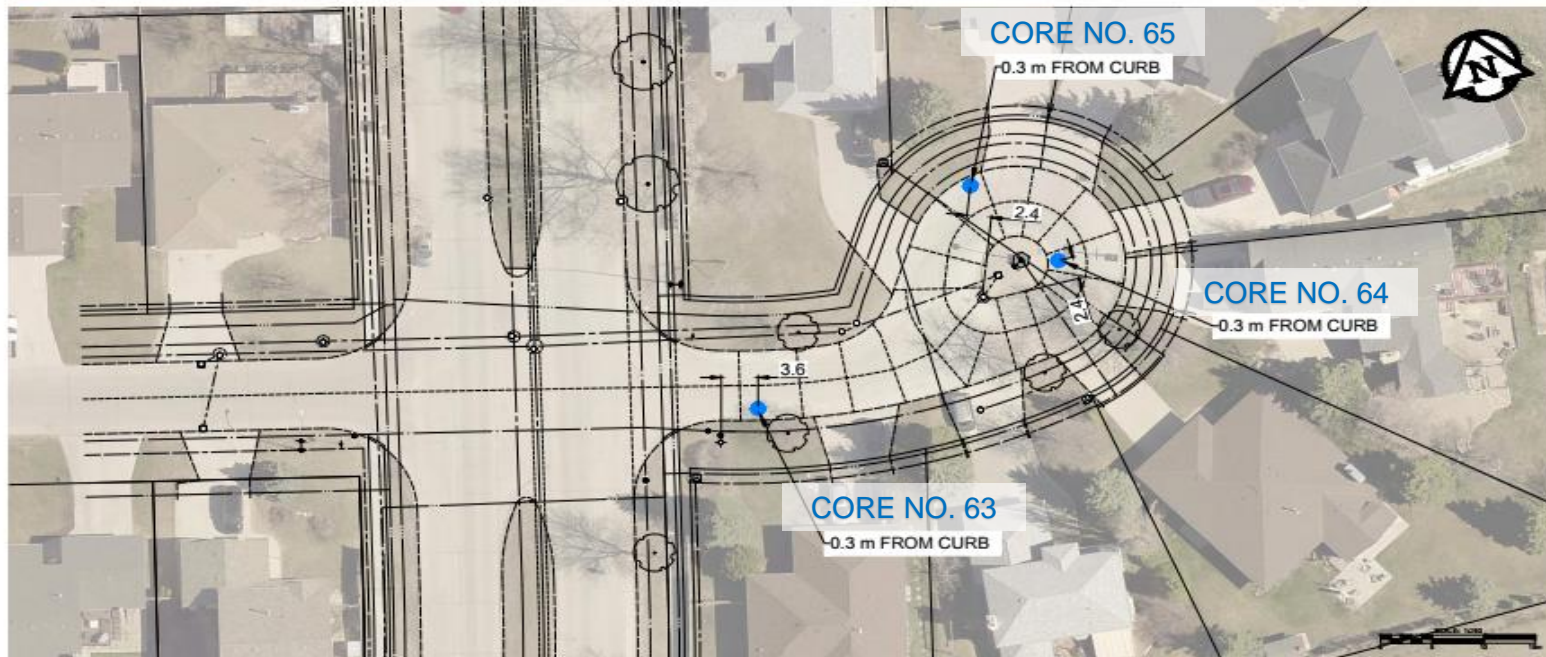
LEGEND  
● CORE HOLE LOCATION



## Sandstone Place

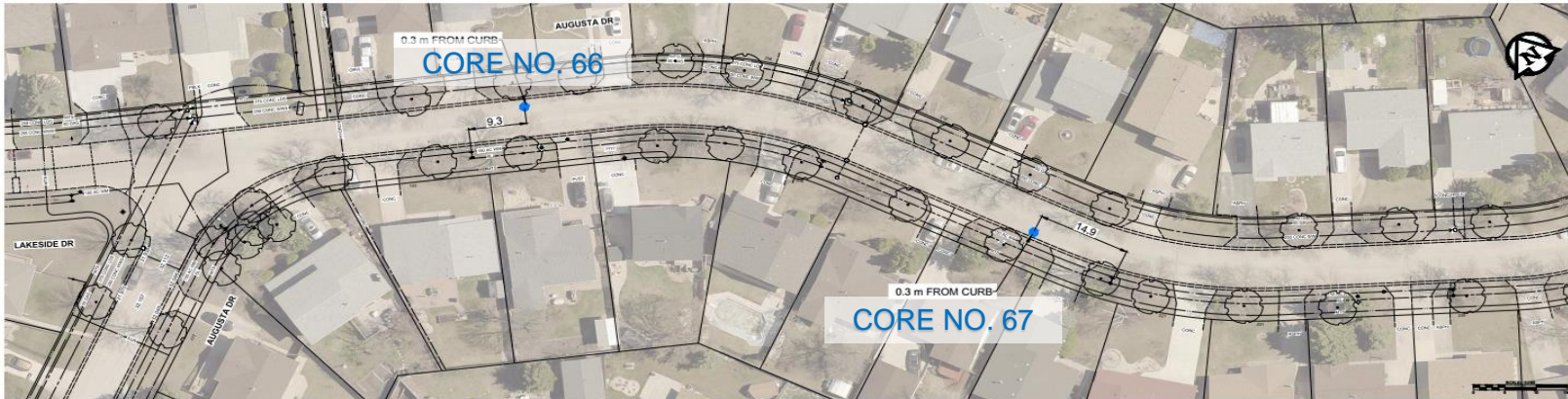
### Core Location

LEGEND  
● CORE HOLE LOCATION

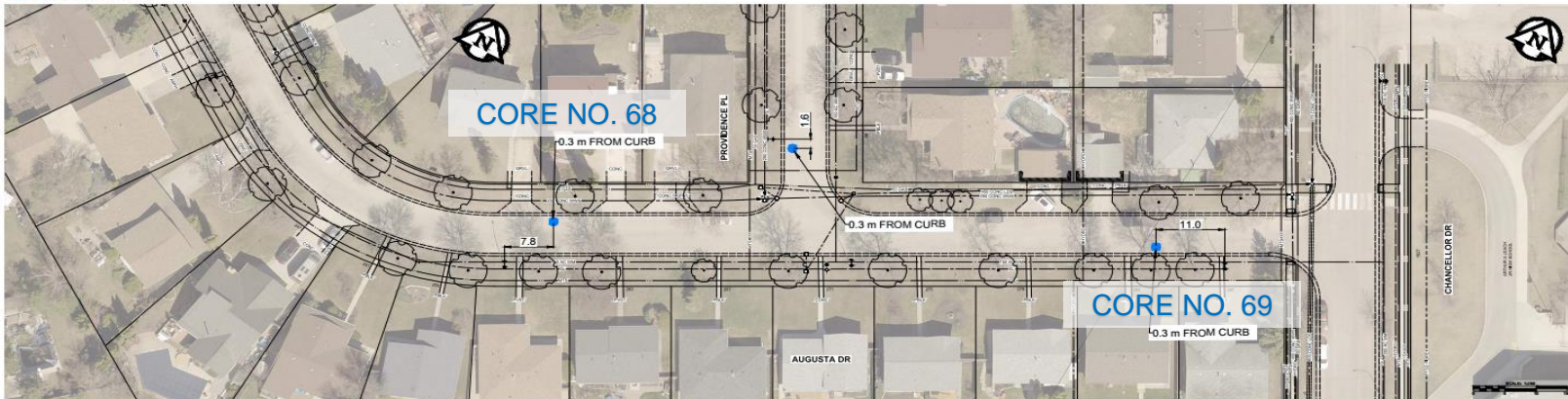


## Augusta Drive

### Core Location



LEGEND  
● CORE HOLE LOCATION

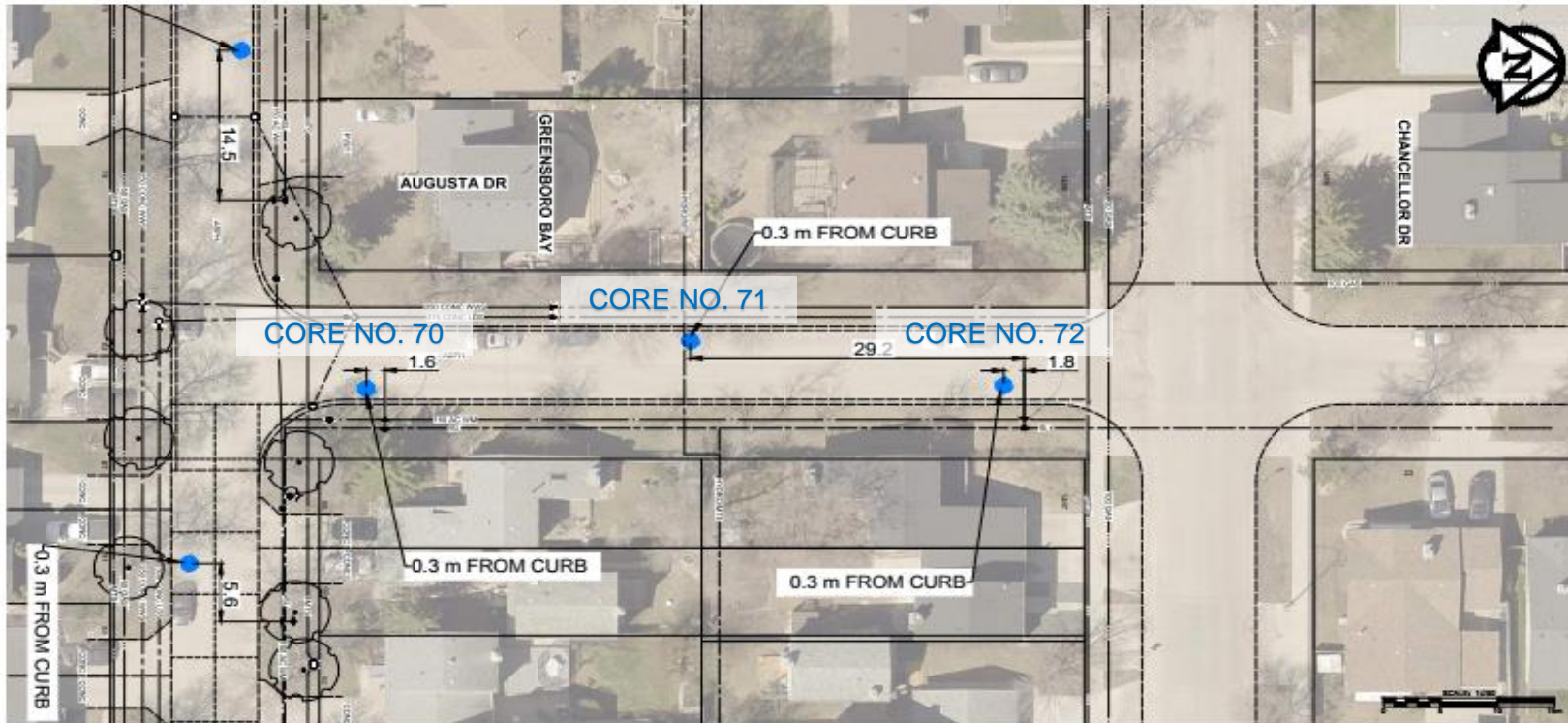


## Augusta Drive

### Core Location

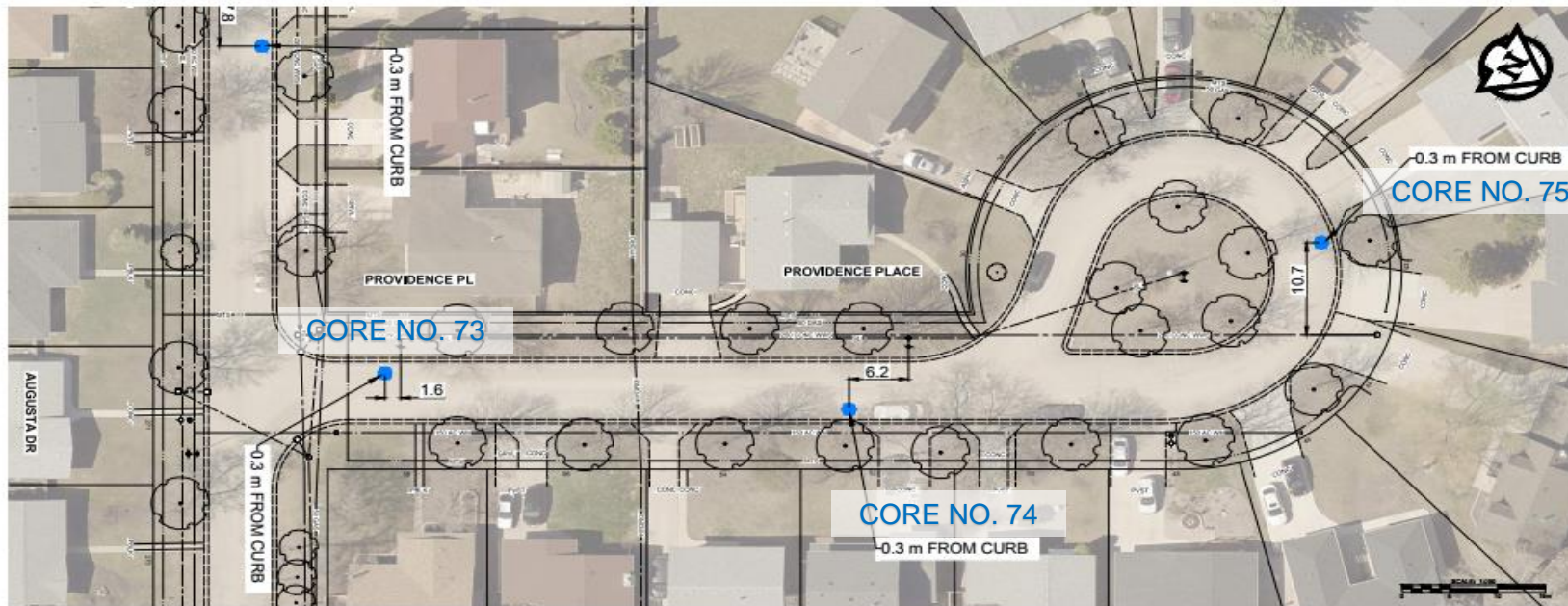
**LEGEND**

● CORE HOLE LOCATION



## Providence Place

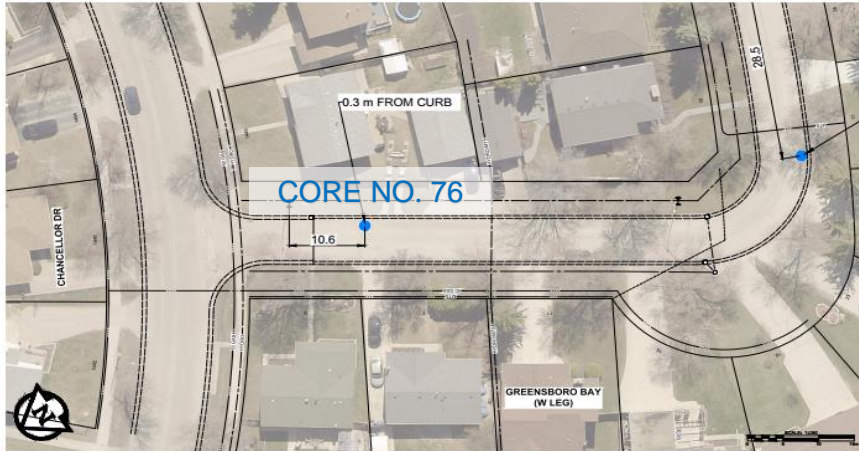
### Core Location



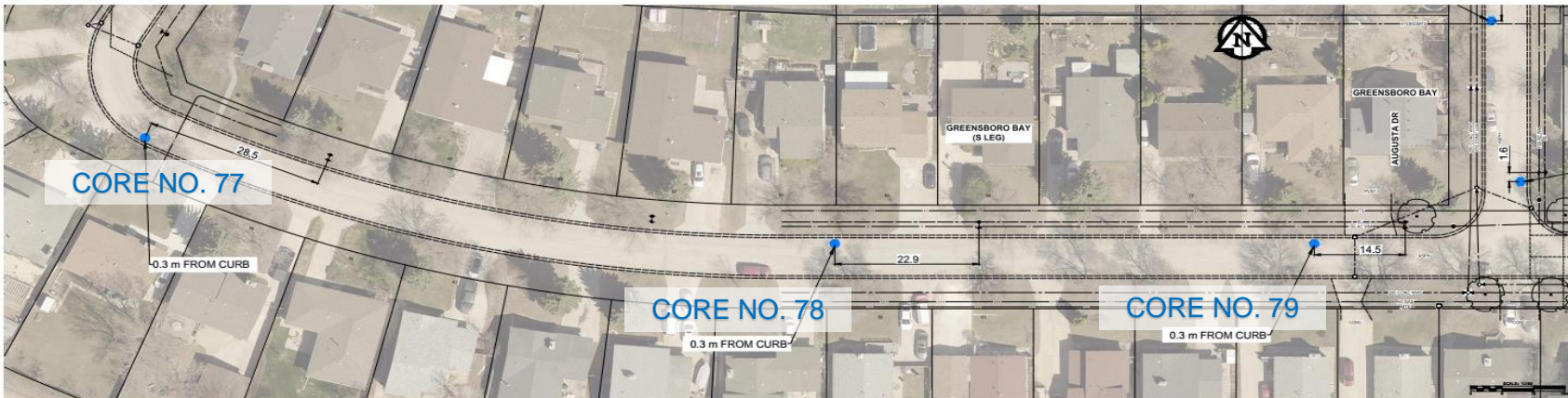
**LEGEND**  
● CORE HOLE LOCATION

## Greensboro Bay and Greensboro Square

### Core Location

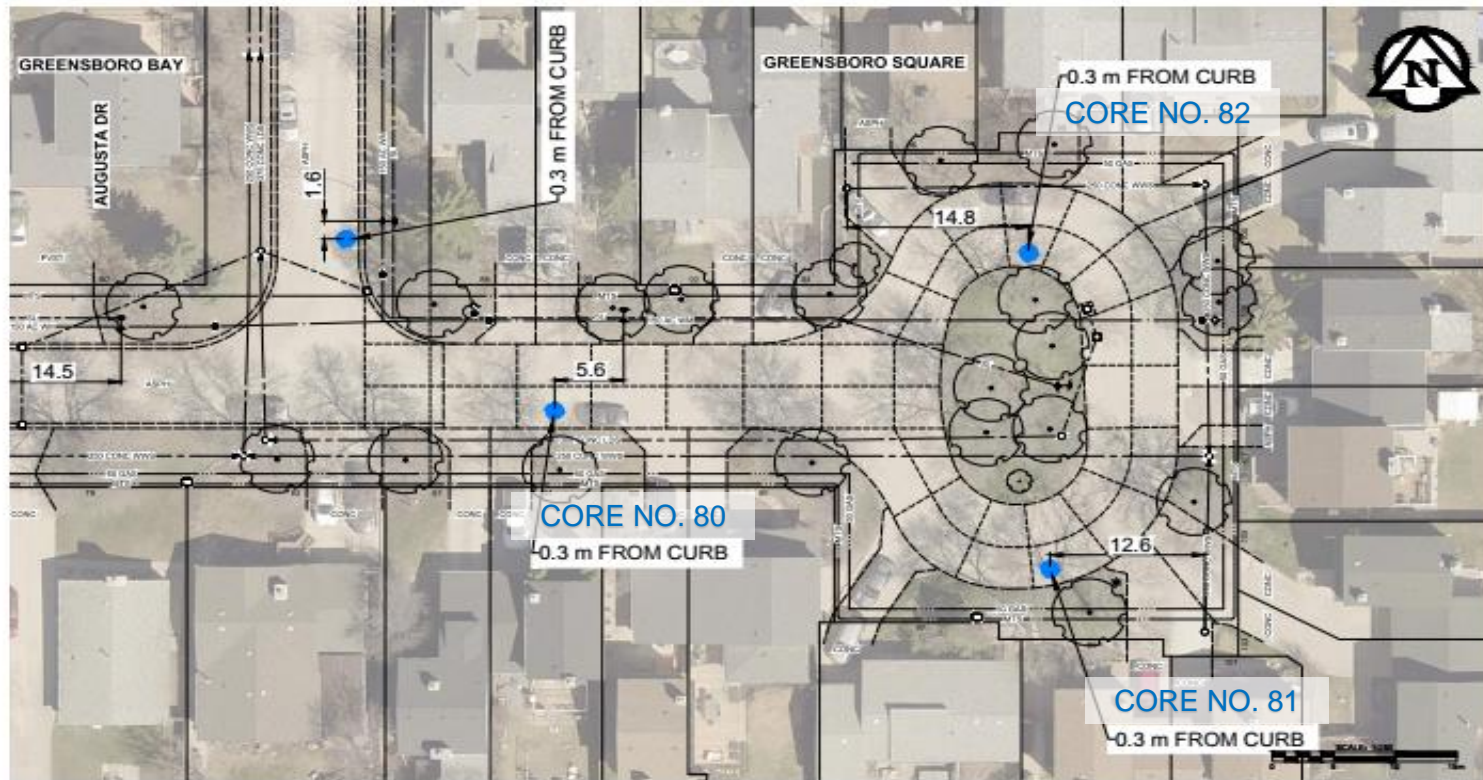


LEGEND  
● CORE HOLE LOCATION



## Greensboro Bay and Greensboro Square

### Core Location

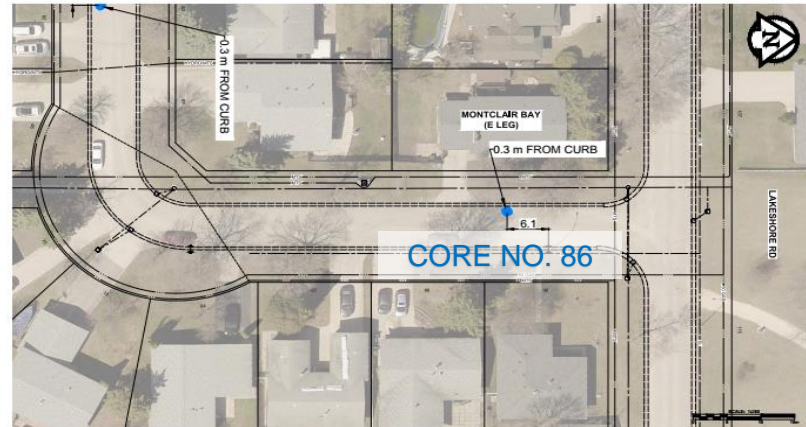
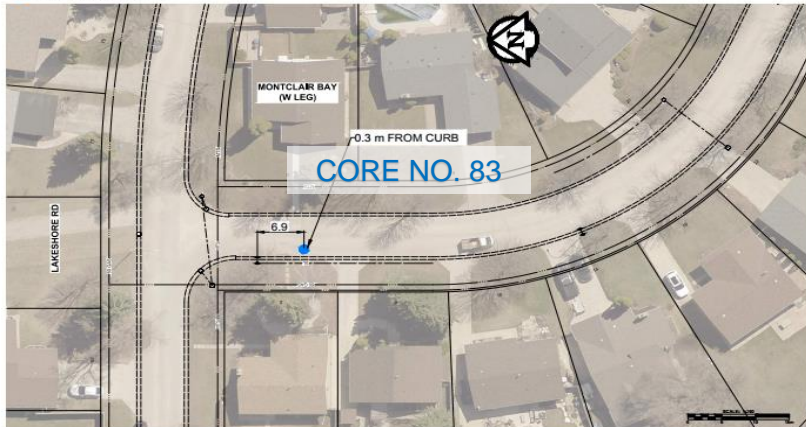


## Montclair Bay

### Core Location



LEGEND  
● CORE HOLE LOCATION





## **Appendix B**

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### Pavement Structure Measurements

## **Brady Road**

### *Pavement Structure Measurements*

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<b>Core No.</b>	<b>Lane</b>	<b>Asphalt Thickness (mm)</b>	<b>Concrete Thickness (mm)</b>
1	NBL Center	140	-
2	SBL Center	252	-
3	NBL Center	140	-
4	SBL Center	217	-
5	NBL Center	150	-
6	SBL Center	235	-
7	NBL Center	145	-
8	SBL Center	235	-
9	NBL Center	157	-
10	SBL Center	220	-
11	NBL Center	160	-
12	SBL Center	240	-

## **Delorme Bay**

### *Pavement Structure Measurements*

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<b>Core No.</b>	<b>Lane</b>	<b>Asphalt Thickness (mm)</b>	<b>Concrete Thickness (mm)</b>
13	SBL (0.3m from Curb)	-	143
14	WBL (0.3m from Curb)	-	142
15	NBL (0.3m from Curb)	-	160
16	SBL (0.3m from Curb)	-	150

## **Dorge Drive**

### *Pavement Structure Measurements*

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<b>Core No.</b>	<b>Lane</b>	<b>Asphalt Thickness (mm)</b>	<b>Concrete Thickness (mm)</b>
17	NBL (0.3m from Curb)	72	-
18	EBL (0.3m from Curb)	72	-
19	WBL (0.3m from Curb)	70	-
20	EBL (0.3m from Curb)	50	-
21	WBL (0.3m from Curb)	70	-
22	NBL (0.3m from Curb)	75	-

## Turnbull Drive

### *Pavement Structure Measurements*

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Core No.	Lane	Asphalt Thickness (mm)	Concrete Thickness (mm)
23	SBL Center	210	-
24	NBL Center	170	-
25	NBL (0.5m Off Edge of Pavement)	140	-
26	SBL Center	265	-
27	SBL (0.5m Off Edge of Pavement)	270	-
28	NBL Center	100	-
29	SBL Center	155	-
30	SBL (0.5m Off Edge of Pavement)	170	-
31	NBL Center	170	-
32	SBL Center	195	-
33	NBL Center	230	-
34	NBL (0.5m Off Edge of Pavement)	220	-
35	SBL Center	160	-
36	NBL Center	150	-
37	SBL Center	245	-
38	NBL Center	160	-

## Turnbull Drive

### *Pavement Structure Measurements*

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Core No.	Lane	Asphalt Thickness	Concrete Thickness
39	NBL (0.5m Off Edge of Pavement)	205	-
40	SBL Center	365	-
41	SBL (0.5m Off Edge of Pavement)	145	-
42	NBL Center	170	-
43	SBL Center	240	-
44	SBL (0.5m Off Edge of Pavement)	275	-
45	NBL Center	325	-
46	NBL (0.5m Off Edge of Pavement)	125	-

## **Westbourne Crescent**

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### *Pavement Structure Measurements*

<b>Core No.</b>	<b>Lane</b>	<b>Asphalt Thickness (mm)</b>	<b>Concrete Thickness (mm)</b>
47	EBL (0.3m from Curb)	-	150
48	WBL (0.3m from Curb)	-	150
49	NBL (0.3m from Curb)	-	150
50	SBL (0.3m from Curb)	-	155

## **Fleetwood Road**

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### *Pavement Structure Measurements*

<b>Core No.</b>	<b>Lane</b>	<b>Asphalt Thickness (mm)</b>	<b>Concrete Thickness (mm)</b>
51	WBL (0.3m from Curb)	80	100
52	EBL (0.3m from Curb)	-	160
53	WBL (0.3m from Curb)	-	160



## **Scurfield Boulevard**

### *Pavement Structure Measurements*

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<b>Core No.</b>	<b>Lane</b>	<b>Asphalt Thickness (mm)</b>	<b>Concrete Thickness (mm)</b>
54	NBL (0.3m from Curb)	40	215
55	Inner Lane (0.3m from Curb)	-	150
56	NBL (0.3m from Curb)	50	190
57	NBL (0.3m from Curb)	50	220
58	Inner Lane (0.3m from Curb)	-	140
59	NBL (0.3m from Curb)	-	220
60	SBL (0.3m from Curb)	-	145
61	SBL (Inner Lane 0.3m from Curb)	-	140
62	SBL (0.3m from Curb)	40	205

## **Sandstone Place**

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### *Pavement Structure Measurements*

<b>Core No.</b>	<b>Lane</b>	<b>Asphalt Thickness (mm)</b>	<b>Concrete Thickness (mm)</b>
63	EBL (0.3m from Curb)	-	165
64	Inner Lane (0.3m from Curb)	-	135
65	Outer Lane (0.3m from Curb)	-	140

## Augusta Drive

### *Pavement Structure Measurements*

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<b>Core No.</b>	<b>Lane</b>	<b>Asphalt Thickness (mm)</b>	<b>Concrete Thickness (mm)</b>
66	WBL (0.3m from Curb)	80	-
67	SBL (0.3m from Curb)	100	-
68	WBL (0.3m from Curb)	50	-
69	EBL (0.3m from Curb)	210*	210*
70	NBL (0.3m from Curb)	120	-
71	SBL (0.3m from Curb)	120	-
72	NBL (0.3m from Curb)	80	-

Note: Core No. 69 shows half part concrete and asphalt

## **Providence Place**

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### *Pavement Structure Measurements*

<b>Core No.</b>	<b>Lane</b>	<b>Asphalt Thickness (mm)</b>	<b>Concrete Thickness (mm)</b>
73	SBL (0.3m from Curb)	80	-
74	NBL (0.3m from Curb)	50	-
75	Outer Lane (0.3m from Curb)	60	-

## **Greensboro Bay and Greensboro Square**

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### *Pavement Structure Measurements*

<b>Core No.</b>	<b>Lane</b>	<b>Coordinates</b>	<b>Asphalt Thickness (mm)</b>	<b>Concrete Thickness (mm)</b>
76	NBL (0.3m from Curb)		140	-
77	EBL (0.3m from Curb)		100	-
78	WBL (0.3m from Curb)		115	-
79	WBL (0.3m from Curb)		125	-
80	EBL (0.3m from Curb)		-	155
81	Outer lane (0.3m from Curb)		-	160
82	Inner lane (0.3m from Curb)		-	120

## Montclair Bay

### *Pavement Structure Measurements*

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Core No.	Lane	Coordinates	Asphalt Thickness (mm)	Concrete Thickness (mm)
83		WBL (0.3m from Curb)	120	-
84		WBL (0.3m from Curb)	80	-
85		EBL (0.3m from Curb)	110	-
86		SBL (0.3m from Curb)	90	-

## Appendix C

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Picture of Cores



Brady Road, NBL<sup>+</sup>, Core 1  
(Asphalt Thk 140mm)



Brady Road, SBL<sup>+</sup>, Core 2  
(Asphalt Thk 252mm)



Brady Road, NBL<sup>+</sup>, Core 3  
(Asphalt Thk 140mm)



Brady Road, SBL<sup>+</sup>, Core 4  
(Asphalt Thk 217mm)

Legend:

- + - Center
- ++ - 0.3m from Curb
- +++ - 0.5m off Edge of Pavement





Brady Road, NBL<sup>+</sup>, Core 5  
(Asphalt Thk 150mm)



Brady Road, SBL<sup>+</sup>, Core 6  
(Asphalt Thk 235mm)



Brady Road, NBL<sup>+</sup>, Core 7  
(Asphalt Thk 145mm)



Brady Road, SBL<sup>+</sup>, Core 8  
(Asphalt Thk 235mm)

Legend:  
 + - Center  
 ++ - 0.3m from Curb  
 +++ - 0.5m off Edge of Pavement



Brady Road, NBL<sup>+</sup>, Core 9  
(Asphalt Thk 157mm)



Brady Road, SBL<sup>+</sup>, Core 10  
(Asphalt Thk 220mm)



Brady Road, NBL<sup>+</sup>, Core 11  
(Asphalt Thk 160mm)



Brady Road, SBL<sup>+</sup>, Core 12  
(Asphalt Thk 240mm)

**Legend:**

- +** - Center
- ++** - 0.3m from Curb
- +++** - 0.5m off Edge of Pavement



Delorme Bay, SBL<sup>++</sup>, Core 13  
(Concrete Thk 143mm)



Delorme Bay, WBL<sup>++</sup>, Core 14  
(Concrete Thk 142mm)



Delorme Bay, NBL<sup>++</sup>, Core 15  
(Concrete Thk 160mm)



Delorme Bay, SBL<sup>++</sup>, Core 16  
(Concrete Thk 150mm)

Legend:  
+ - Center  
++ - 0.3m from Curb  
+++ - 0.5m off Edge of Pavement



Dorge Drive, NBL<sup>++</sup>, Core 17  
(Asphalt Thk 72mm)



Dorge Drive, EBL<sup>++</sup>, Core 18  
(Asphalt Thk 72mm)



Dorge Drive, WBL<sup>++</sup>, Core 19  
(Asphalt Thk 70mm)



Dorge Drive, EBL<sup>++</sup>, Core 20  
(Asphalt Thk 50mm)

**Legend:**

- +** - Center
- ++** - 0.3m from Curb
- +++** - 0.5m off Edge of Pavement



Dorge Drive, WBL<sup>++</sup>, Core 21  
(Asphalt Thk 70mm)



Dorge Drive, NBL<sup>++</sup>, Core 22  
(Asphalt Thk 75mm)

Legend:

+ - Center

++ - 0.3m from Curb

+++ - 0.5m off Edge of Pavement



Turnbull Drive, SBL<sup>+</sup>, Core 23  
(Asphalt Thk 210mm)



Turnbull Drive, NBL<sup>+</sup>, Core 24  
(Asphalt Thk 170mm)



Turnbull Drive, NBL<sup>+++</sup>, Core 25  
(Asphalt Thk 140mm)



Turnbull Drive, SBL<sup>+</sup>, Core 26  
(Asphalt Thk 265mm)

**Legend:**

- +** - Center
- ++** - 0.3m from Curb
- +++** - 0.5m off Edge of Pavement



Turnbull Drive, SBL<sup>+++</sup>, Core 27  
(Asphalt Thk 270mm)



Turnbull Drive, NBL<sup>+</sup>, Core 28  
(Asphalt Thk 100mm)



Turnbull Drive, SBL<sup>+</sup>, Core 29  
(Asphalt Thk 155mm)



Turnbull Drive, SBL<sup>+++</sup>, Core 30  
(Asphalt Thk 170mm)

Legend:  
<sup>+</sup> - Center  
<sup>++</sup> - 0.3m from Curb  
<sup>+++</sup> - 0.5m off Edge of Pavement



Turnbull Drive, NBL<sup>+</sup>, Core 31  
(Asphalt Thk 170mm)



Turnbull Drive, SBL<sup>+</sup>, Core 32  
(Asphalt Thk 195mm)



Turnbull Drive, NBL<sup>+</sup>, Core 33  
(Asphalt Thk 230mm)



Turnbull Drive, NBL<sup>+++</sup>, Core 34  
(Asphalt Thk 220mm)

**Legend:**

- +** - Center
- ++** - 0.3m from Curb
- +++** - 0.5m off Edge of Pavement





Turnbull Drive, SBL<sup>+</sup>, Core 35  
(Asphalt Thk 160mm)



Turnbull Drive, NBL<sup>+</sup>, Core 36  
(Asphalt Thk 150mm)



Turnbull Drive, SBL<sup>+</sup>, Core 37  
(Asphalt Thk 245mm)



Turnbull Drive, NBL<sup>+</sup>, Core 38  
(Asphalt Thk 160mm)

**Legend:**

- +** - Center
- ++** - 0.3m from Curb
- +++** - 0.5m off Edge of Pavement



Turnbull Drive, NBL<sup>+++</sup>, Core 39  
(Asphalt Thk 205mm)



Turnbull Drive, SBL<sup>+</sup>, Core 40  
(Asphalt Thk 365mm)



Turnbull Drive, SBL<sup>+++</sup>, Core 41  
(Asphalt Thk 145mm)



Turnbull Drive, NBL<sup>+</sup>, Core 42  
(Asphalt Thk 170mm)

**Legend:**

- +** - Center
- ++** - 0.3m from Curb
- +++** - 0.5m off Edge of Pavement



Turnbull Drive, SBL<sup>+</sup>, Core 43  
(Asphalt Thk 240mm)



Turnbull Drive, SBL<sup>+++</sup>, Core 44  
(Asphalt Thk 275mm)



Turnbull Drive, NBL<sup>+</sup>, Core 45  
(Asphalt Thk 325mm)



Turnbull Drive, NBL<sup>+++</sup>, Core 46  
(Asphalt Thk 125mm)

Legend:  
+ - Center  
++ - 0.3m from Curb  
+++ - 0.5m off Edge of Pavement



Westbourne Cr, EBL<sup>++</sup>, Core 47  
(Concrete Thk 150mm)



Westbourne Cr, WBL<sup>++</sup>, Core 48  
(Concrete Thk 150mm)



Westbourne Cr, NBL<sup>++</sup>, Core 49  
(Concrete Thk 150mm)



Westbourne Cr, SBL<sup>++</sup>, Core 50  
(Concrete Thk 155mm)

**Legend:**

- +** - Center
- ++** - 0.3m from Curb
- +++** - 0.5m off Edge of Pavement



Fleetwood Rd, WBL<sup>++</sup>, Core 51  
(Asphalt Thk 80mm, Concrete Thk 100mm)



Fleetwood Rd, EBL<sup>++</sup>, Core 52  
(Concrete Thk 160mm)



Fleetwood Rd, WBL<sup>++</sup>, Core 53  
(Concrete Thk 160mm)

Legend:

- <sup>+</sup> - Center
- <sup>++</sup> - 0.3m from Curb
- <sup>+++</sup> - 0.5m off Edge of Pavement



Scurfield Blvd, NBL<sup>++</sup>, Core 54  
(Asphalt Thk 40mm, Concrete Thk 215mm)



Scurfield Blvd, Inner Lane<sup>++</sup>, Core 55  
(Concrete Thk 150mm)



Scurfield Blvd, NBL<sup>++</sup>, Core 56  
(Asphalt Thk 50mm, Concrete Thk 190mm)



Scurfield Blvd, NBL<sup>++</sup>, Core 57  
(Asphalt Thk 50mm, Concrete Thk 220mm)

**Legend:**

- +** - Center
- ++** - 0.3m from Curb
- +++** - 0.5m off Edge of Pavement



Scurfield Blvd, Inner Lane<sup>++</sup>, Core 58  
(Concrete Thk 140mm)



Scurfield Blvd, NBL<sup>++</sup>, Core 59  
(Concrete Thk 220mm)



Scurfield Blvd, SBL<sup>++</sup>, Core 60  
(Concrete Thk 145mm)



Scurfield Blvd, SBL<sup>++</sup>, Core 61  
(Concrete Thk 140mm)

**Legend:**

- +** - Center
- ++** - 0.3m from Curb
- +++** - 0.5m off Edge of Pavement



Scurfield Blvd, SBL<sup>++</sup>, Core 62  
(Asphalt Thk 40mm, Concrete Thk 205mm)

*Legend:*

<sup>+</sup> - Center

<sup>++</sup> - 0.3m from Curb

<sup>+++</sup> - 0.5m off Edge of Pavement





Sandstone PI, EBL<sup>++</sup>, Core 63  
(Concrete Thk 165mm)



Sandstone PI, Inner Lane<sup>++</sup>, Core 64  
(Concrete Thk 135mm)



Sandstone PI, Outer Lane<sup>++</sup>, Core 65  
(Concrete Thk 140mm)

Legend:

- <sup>+</sup> - Center
- <sup>++</sup> - 0.3m from Curb
- <sup>+++</sup> - 0.5m off Edge of Pavement



Augusta Dr, WBL<sup>++</sup>, Core 66  
(Asphalt Thk 80mm)



Augusta Dr, SBL<sup>++</sup>, Core 67  
(Asphalt Thk 100mm)



Augusta Dr, WBL<sup>++</sup>, Core 68  
(Asphalt Thk 50mm)

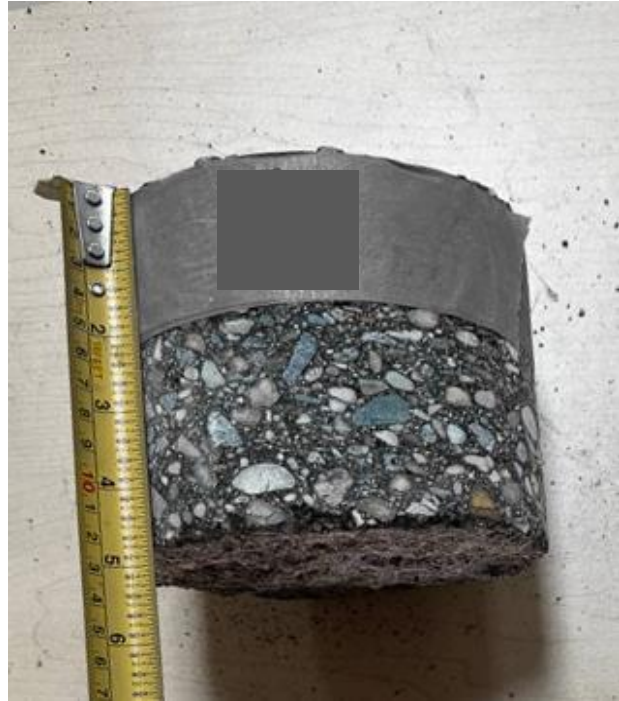


Augusta Dr, EBL<sup>++</sup>, Core 69  
(Asphalt Thk 210mm, Concrete 210mm)

Legend:  
 + - Center  
 ++ - 0.3m from Curb  
 +++ - 0.5m off Edge of Pavement



Augusta Dr, NBL<sup>++</sup>, Core 70  
(Asphalt Thk 120mm)



Augusta Dr, SBL<sup>++</sup>, Core 71  
(Asphalt Thk 120mm)



Augusta Dr, NBL<sup>++</sup>, Core 72  
(Asphalt Thk 80mm)

**Legend:**

- +** - Center
- ++** - 0.3m from Curb
- +++** - 0.5m off Edge of Pavement



Providence PI, SBL<sup>++</sup>, Core 73  
(Asphalt Thk 80mm)



Providence PI, NBL<sup>++</sup>, Core 74  
(Asphalt Thk 50mm)



Providence PI, Outer Lane<sup>++</sup>, Core 75  
(Asphalt Thk 60mm)

**Legend:**

- +** - Center
- ++** - 0.3m from Curb
- +++** - 0.5m off Edge of Pavement



Greensboro Bay, NBL<sup>++</sup>, Core 76  
(Asphalt Thk 140mm)



Greensboro Bay, EBL<sup>++</sup>, Core 77  
(Asphalt Thk 100mm)



Greensboro Bay, WBL<sup>++</sup>, Core 78  
(Asphalt Thk 115mm)



Greensboro Bay, WBL<sup>++</sup>, Core 79  
(Asphalt Thk 125mm)

Legend:

- +** - Center
- ++** - 0.3m from Curb
- +++** - 0.5m off Edge of Pavement



Greensboro Bay, NBL<sup>++</sup>, Core 80  
(Concrete Thk 155mm)



Greensboro Sq, EBL<sup>++</sup>, Core 81  
(Concrete Thk 160mm)



Greensboro Sq, Outer Lane<sup>++</sup>, Core 82  
(Concrete Thk 120mm)

Legend:

- <sup>+</sup> - Center
- <sup>++</sup> - 0.3m from Curb
- <sup>+++</sup> - 0.5m off Edge of Pavement



Montclair Bay, WBL<sup>++</sup>, Core 83  
(Asphalt Thk 120mm)



Montclair Bay, WBL<sup>++</sup>, Core 84  
(Asphalt Thk 80mm)



Montclair Bay, EBL<sup>++</sup>, Core 85  
(Asphalt Thk 110mm)



Montclair Bay, SBL<sup>++</sup>, Core 86  
(Asphalt Thk 90mm)

Legend:  
+ - Center  
++ - 0.3m from Curb  
+++ - 0.5m off Edge of Pavement