

June 15, 2021

Our File: 1226

The City of Edmonton  
10th Floor, Edmonton Tower  
10111 - 104 Avenue  
Edmonton, Alberta  
T5J 0J4

Attention: Jennifer Smyth M.PI  
Principal Planner, Land Development  
(jennifer.smyth@edmonton.ca)

**Re: Surplus School Sites Drainage Servicing Assessment (REV01)  
Ogilvie Ridge Neighbourhood**

Dear Ms. Smyth,

We are pleased to submit a finalized copy of our letter-report which provides a summary of the existing storm and sanitary infrastructures in the Ogilvie Ridge neighbourhood, as well as recommended servicing plans to service the proposed First Place development on a surplus school site in the neighbourhood.

Please note that this document represents the conditions and design standards that existed in October 2015, when the work was completed. This document can serve as background information but is not to be considered as a source of current information. If you have any questions on the contents of this report please do not hesitate to contact me at 780-482-2557.

Sincerely,



David Yue, P.Eng  
Project Manager

CC:

Attachment: Cost breakdown tables.

**Disclaimer for REV01 (June 15, 2021): This document represents the site conditions and servicing standards that existed in October 2015 when this report was drafted. The recommendations herein may no longer be valid. This document may be used as background information, but should not be considered a source of current data.**

## **1.0 Project Background**

In 2006, twenty school sites throughout the city were declared surplus by the City of Edmonton. In an August 21, 2015 meeting with Sameng Inc., City representatives expressed their intent to develop First Place and seniors' housing projects on surplus school sites in several communities in South Edmonton.

The site in the community of Ogilvie Ridge (shown in Figure 1) was designated for a First Place housing project. The current approved First Place location is a 0.80 hectare plot of land on the north side of Ogilvie Ridge Park; however, there is also an alternative First Place site that may be approved by City Council depending on feedback from residents. This project is expected to host a community engagement meeting before the end of 2015 for residents to provide feedback on the approved location.

This letter-report provides a sanitary and storm servicing assessment for the Ogilvie Ridge site, including recommended upgrades to the sewer and drainage systems. The main objectives are to:

1. Evaluate the existing storm and sanitary systems near the proposed development.
2. Assess the impact of the proposed development on the storm and sanitary systems in the immediate area.
3. Evaluate the major drainage of the surrounding area to confirm proposed development will not result in new drainage issues.
4. Provide recommendations for improved drainage as needed.



**Figure 1: Location plan showing proposed First Place housing project on Ogilvie Ridge surplus school site**

## 2.0 Sanitary Sewer Servicing

### Existing Sanitary Sewer System Evaluation

Figure 2 illustrates the existing sanitary sewer system in the vicinity of the study site. Ogilvie Ridge is serviced by sanitary sewers that generally flow northwest, most of which are converging to a 600mm main that flows northwest, eventually flowing into a 1200mm sanitary trunk on Terwillegar Drive.

Two potential sanitary sewer connection points were identified for both the approved and alternate sites:

- For the approved First Place site:
  - A 375mm sanitary pipe in the centre of Ogilvie Ridge Park flowing north (north of Sanitary Service Connection 1).
  - A 450mm sanitary pipe on Ogilvie Boulevard flowing west (west of Sanitary Service Connection 2).
- For the alternate First Place site:
  - A 375mm sanitary pipe in the centre of Ogilvie Ridge Park flowing north (north of Sanitary Service Connection 3).
  - A 450mm sanitary pipe on Ogilvie Boulevard flowing west (west of Sanitary Service Connection 4).

The following calculations were made in order to determine the sanitary pipes' available capacity. The results are summarized in Table 1:

1. The tributary sanitary basins of these pipes were delineated.
2. The pipefull capacity of each pipe was determined from Manning's equation.
3. Design peak sanitary flows were calculated following the City of Edmonton Design and Construction Standards (Volume 3 - Drainage) as follows:
  - a. Peak dry weather flows were determined based on the current City of Edmonton land use zoning, and multiplied by a peaking factor.
  - b. Extraneous flows due to rainfall inflow/infiltration were assumed at 0.28 L/s/ha.
  - c. Flow from the southern neighbourhoods via the forcemain was included at a rate of 32 L/min at the south end of Hollingsworth Bend, in the Hodgson community (flowing into 450mm pipes).



**Table 1: Existing Sanitary System Capacity**

Pipe Diameter →	Approved First Place Site		Alternate First Place Site	
	375mm (Sanitary Service Connection 1)	450mm (Sanitary Service Connection 2)	375mm (Sanitary Service Connection 3)	450mm (Sanitary Service Connection 4)
<b>Tributary Area</b>	102.33 ha (SAN1)	88.80 ha (SAN2)	102.33 ha (SAN1)	88.80 ha (SAN2)
<b>Pipefull Capacity</b>	201.6 L/s	131.7L/s	202.0 L/s	133.8 L/s
<b>Design Peak Sanitary Flow</b>	99.3 L/s	84.5 L/s	99.3 L/s	84.5 L/s
<b>Forcemain Flow</b>	0 L/s	0.5 L/s	0 L/s	0.5 L/s
<b>Total Design Peak Sanitary Flow</b>	99.3 L/s	85.0 L/s	99.3 L/s	85.0 L/s
<b>Remaining Capacity</b>	<b>102.3 L/s</b>	<b>46.7 L/s</b>	<b>102.7 L/s</b>	<b>48.8 L/s</b>

The following are the main findings from this assessment:

- The area contributing to the **375mm** sanitary pipes in the centre of Ogilvie Ridge Park (Area SAN1 on Figure 2) is approximately 102.33 hectares. The 375mm pipes have an estimated design flow of 99.3 L/s for the existing developments. The approved site (Sanitary Service Connection 1) has about 102.3 L/s, and the alternate site (Sanitary Service Connection 3) has about 102.7 L/s of capacity available for future development.
- The area contributing to the **450mm** sanitary pipes on Ogilvie Boulevard west of Osland Drive (Area SAN2 on Figure 2) is approximately 88.80 hectares. The 450mm pipes have an estimated design flow of 84.5 L/s, along with 0.5 L/s of forcemain flow for the existing developments. The approved site (Sanitary Service Connection 2) has about 46.7 L/s, and the alternate site (Sanitary Service Connection 4) has about 48.8 L/s of capacity available for future development.
- Preliminary simulation results from the City Wide Phase II (Area C) project indicate that the sanitary sewer system is performing well during both the 1:5 year and 1:100 year design rainfall events. There is no indication of local issues with the sanitary sewer system.

### Future Development Sanitary Flow Generation

Summarized in Table 2 below, the proposed First Place site is estimated to increase the peak sanitary flows into the existing sewer system by:

- For a condominium development of 100 units or less: 1.3 L/s
- For a town home complex of 32 units or less: 0.6 L/s

**Table 2: Proposed Development – Sanitary**

	<b>First Place Condominiums</b>	<b>First Place Town Homes</b>
<b>Area</b>	0.80 ha	0.80 ha
<b>Estimated Population</b>	204 persons (RA7)	96 persons (CS1)
<b>Peak Sanitary Flow Increase</b>	1.3 L/s	0.6 L/s

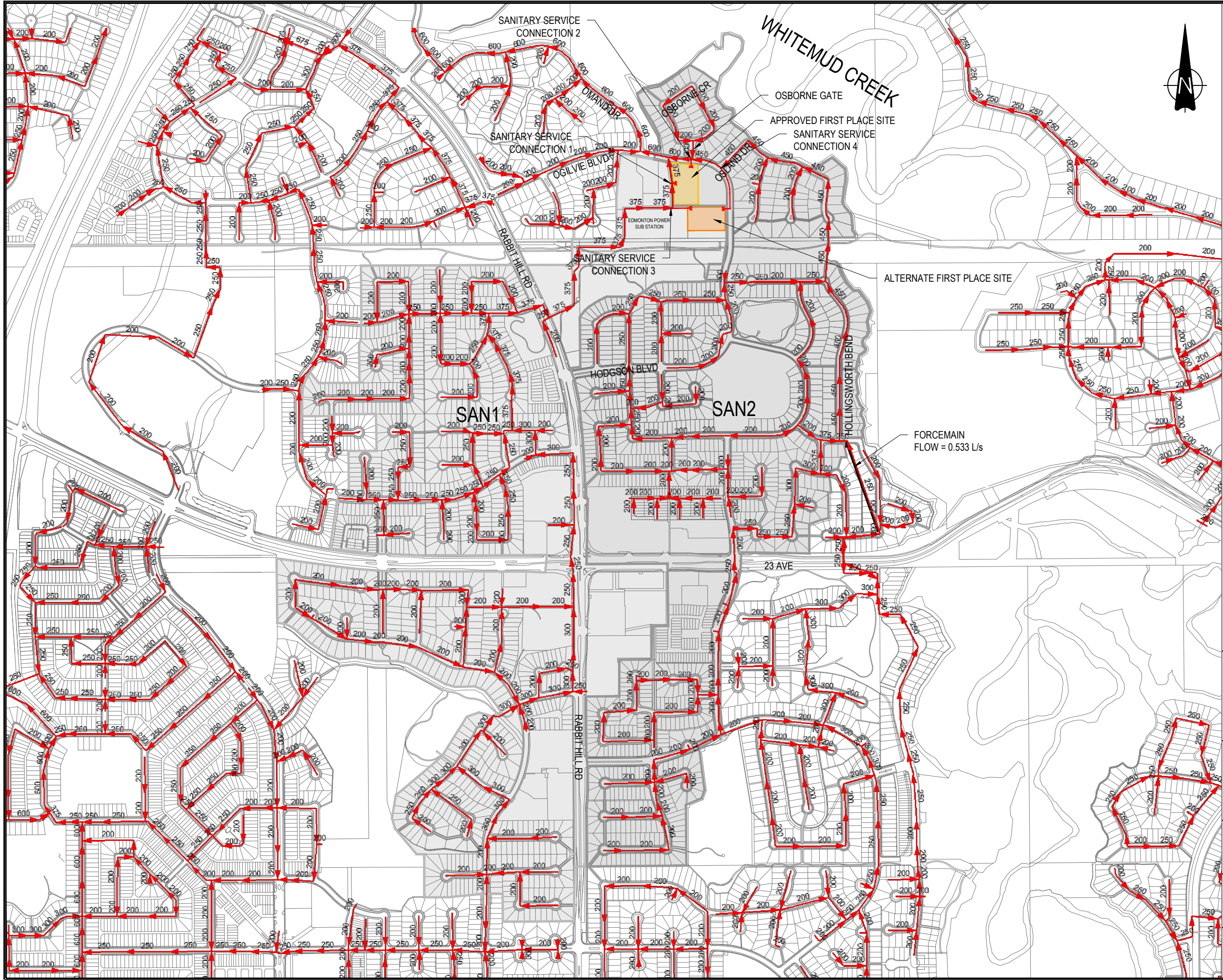
### Sanitary Servicing Recommendations

The following is the recommended sanitary servicing plan, as illustrated in Figure 2.

- It is recommended that both the approved and alternate First Place sites be serviced by the existing **375mm** pipe flowing through the centre of Ogilvie Ridge Park (Sanitary Service Connections 1 and 3 respectively). These mains have approximately twice the remaining capacity of the 450mm pipes, which means the impact of this development is much lower for the 375mm sanitary pipes. The exact alignment and pipe size shall be determined at the design stage.
- The 450mm pipes on Ogilvie Boulevard also have the capacity to carry the added flow such that the service connection could also be made into these pipes if needed.
- The estimated cost of this sanitary servicing plan is as follows:
  - a) Recommended Sanitary service connections to existing manhole (through centre of Ogilvie Ridge Park)
    - i. For Approved Site \$ 43,000
    - ii. For Alternate Site \$ 107,000
  - b) Alternative Sanitary service connection to existing manhole (along Ogilvie Boulevard)
    - i. For Approved Site \$ 64,000
    - ii. For Alternate Site \$ 123,000


Note: Estimates do not include service connection fees charged by the City of Edmonton.  
A more detailed cost breakdown is attached.





**LEGEND**

- APPROVED FIRST PLACE SITE
- ALTERNATE FIRST PLACE SITE
- SANITARY AREA 1 (SAN1)
- SANITARY AREA 2 (SAN2)
- PIPE DIAMETER (mm)  
200
- SANITARY SEWER
- PROPOSED SANITARY SERVICE CONNECTION

Prepared By:	<div> #201, 17205 106A Avenue, Edmonton, Alberta T5S 1M7 Ph: (780)482-2557 Email: services@sameng.com</div>	
Client:		
Project:	Surplus School Site Drainage Servicing Assessment	
Title:	Ogilvie Ridge Sanitary Servicing Plan	
Scale:	1:10,000	Figure: 2



### 3.0 Storm Sewer and Drainage Servicing

#### Existing Storm Sewer System Evaluation

Figure 3 illustrates the existing storm sewer system in the vicinity of the study site. Ogilvie Ridge is serviced by storm sewers that flow to the centre of the community into the 30<sup>th</sup> Avenue storm tunnel on Ogilvie Boulevard. A stormwater management facility also carries flow from the southern communities to the study area and into the 30<sup>th</sup> Avenue storm tunnel.

Two potential storm sewer connection points were identified for each of the proposed sites:

- For the approved First Place site:
  - A 900mm storm pipe in the centre of Ogilvie Ridge Park flowing north directly into the 30<sup>th</sup> Avenue storm tunnel. This pipe services the west half of Ogilvie Ridge Park, as well as the Edmonton Power substation south of the park. This pipe also carries flow from the Leger 1 stormwater management, located south of the park.
  - A 900mm storm pipe at Ogilvie Boulevard and Osborne Gate flowing west into the 30<sup>th</sup> Avenue storm tunnel. This pipe conveys flow from the east half of Ogilvie Ridge Park, as well as the residences immediately northeast of the park.
- For the alternate First Place site:
  - A 900mm storm pipe in the centre of Ogilvie Ridge Park flowing north directly into the 30<sup>th</sup> Avenue storm tunnel. This pipe services the west half of Ogilvie Ridge Park, as well as the Edmonton Power substation south of the park. This pipe also carries flow from the Leger 1 stormwater management, located south of the park.
  - A 250mm storm pipe on Ogilvie Boulevard east of Ogilvie Ridge Park, flowing southwest and eventually connecting into the 30<sup>th</sup> Avenue storm tunnel. This pipe acts solely as an inlet and conveys flow from the road right-of-way along Ogilvie Boulevard.

The following calculations were made in order to determine the storm pipes' available capacity. The results are summarized in Table 3:

1. The tributary storm basins of these pipes were delineated.
2. A composite runoff coefficient was determined for each tributary area based on runoff coefficients listed in the City of Edmonton Design and Construction Standards (Volume 3 - Drainage).
3. Design peak storm flows were estimated using the Rational Method for a 1:5 year design rainfall event. The calculations followed the City of Edmonton Design and Construction Standards (Volume 3 - Drainage).
4. The additional peak flow due to upstream stormwater management facilities were also added to Rational Method peak flow to obtain the total current peak flow demand.
5. The pipefull capacity of each pipe was determined from Manning's equation.



**Table 3: Existing Storm System Capacity**

Pipe Diameter →	Approved First Place Site		Alternate First Place Site	
	900mm (West Storm Service Connection)	900mm (Ogilvie Boulevard near Osborne Crescent)	900mm (West Storm Service Connection)	250mm (Ogilvie Boulevard near Osland Drive)
<b>Tributary Area</b>	7.42 ha (STM1)	14.70 ha (STM2 & STM3)	7.42 ha (STM1)	0.25 ha (STM3)
<b>Pipefull Capacity</b>	1422 L/s	1253 L/s	1433 L/s	145 L/s
<b>Design Peak Storm Flow (1:5 year event)</b>	490 L/s	1154 L/s	490 L/s	57 L/s
<b>Design Peak Storm Flow (Leger Stormwater Management Facility)</b>	467 L/s	0 L/s	467 L/s	0 L/s
<b>Total Design Peak Storm Flow</b>	957 L/s	1154 L/s	957 L/s	57 L/s
<b>Remaining Capacity (1:5 year event)</b>	465 L/s	99 L/s	476 L/s	88 L/s

The following are the main findings from this assessment:

- The area contributing to the **900mm** storm pipes flowing through the centre of Ogilvie Ridge Park (Area STM1 on Figure 3) is approximately 7.42 hectares. With an estimated 1:5 year design rainfall flow of 490 L/s for the existing developments and a design peak flow of 467 L/s from the Leger 1 stormwater management facility, the southern 900mm pipe has about 476 L/s and the northern 900mm pipe has about 465 L/s of capacity available for future development.
- The area contributing to the **900mm** storm pipe on Ogilvie Boulevard, west of Osborne Gate (Areas STM2 & STM3 on Figure 3), is approximately 14.7 hectares. With an estimated 1:5 year design rainfall flow of 1154 L/s for the existing developments, the 900mm pipe has about 99 L/s of capacity available for future development.
- The area contributing to the **250mm** storm pipe on Ogilvie Boulevard, south of Osland Drive (Area STM3 on Figure 3), is approximately 0.25 hectares. With an estimated 1:5 year design rainfall flow of 57 L/s for the existing developments, the 250mm pipe has about 88 L/s of capacity available for future development.
- Preliminary simulation results from the City Wide Phase II (Area C) project indicate that the local sewer pipes near the proposed sites can provide a 1:5 year level of service. At the 1:100 year level, the system running through the centre of Ogilvie Ridge Park (Area STM1) performs well, while the system flowing northeast of Ogilvie Ridge Park (Area STM2) is

generally surcharged, with pipes within Osborne Crescent and Osland Drive surcharged to grade. All other pipes in the area are surcharged but still below grade.

### Existing Major Drainage System Evaluation

The currently grassed undeveloped site generally slopes to the north onto Ogilvie Boulevard. Ogilvie Boulevard slopes to the west from the site towards a street depression east of Omand Drive, where the excess runoff can overflow into the Whitemud Creek ravine to the north along the east bank of Omand Drive prior to flooding home. Catchbasins at that depression are connected to a 1050mm storm main flowing east into the 30<sup>th</sup> Avenue storm tunnel on Ogilvie Boulevard.

Preliminary simulation results from the City Wide Phase II (Area C) project indicate that street ponding at that depression would be quite negligible during the 1:5 year event as the storm sewer system can take the flows. During a 1:100 year event, the depression would fill up with stormwater and, once it reaches a certain depth (about 0.25m), would overflow to the north into the Whitemud Creek ravine. This overflow prevents homes from flooding.

### Future Development Storm Flow Generation

The proposed First Place housing site is estimated to increase the ground imperviousness. This would consequently increase peak storm flows and volumes into the storm sewer system if left uncontrolled. The increase in stormwater flows from these sites is summarized in Table 4.

**Table 4: Summary of Design Storm Flows**

	<b>First Place</b>
<b>Site Area</b>	0.80 ha
<b>1 in 5 Year Event</b>	
<b>Peak Flow</b>	114 L/s
<b>Storage Volume</b>	46 m <sup>3</sup>
<b>1 in 100 Year Event</b>	
<b>Peak Flow</b>	347 L/s
<b>Storage Volume</b>	126 m <sup>3</sup>

Note: 1. Peak Flow based on 60% site imperviousness.

2. Storage volume based on outlet controlled to 35 L/s/ha.

## Storm Servicing Recommendations

The following is the recommended storm servicing plan, as illustrated in Figure 3.

- The local stormwater system has sufficient capacity to service the proposed developments under a 1:5 year event, the targeted level of service according to City Standards. Also, the major drainage system is adequate even during the 1:100 year event.
- The following recommendations apply for both the approved and alternate First Place sites.
  - The service connection for the site should be at an existing manhole located on the **900mm** (Storm Service Connections 1 & 3) storm pipes in the PUL west of the site. Alternatively, it could be serviced by the 900mm and 250mm (Storm Service Connections 2 & 4) pipes on Ogilvie Boulevard, although this will cause the main to run at nearly 100% capacity under 1:5 year rainfall conditions, increasing the risk of a surcharge in the pipes.
  - Stormwater runoff from the site shall be controlled to 35 L/s/ha. Under this criterion, we estimate that, for a 1:100 year rainfall event, approximately 126 m<sup>3</sup> of stormwater will need to be temporarily stored, and the peak outflow from the site will be 28 L/s. The actual storage volume and method used to store this water shall be determined at the design stage.
  - Major drainage overflow from the site should be towards Ogilvie Boulevard and must only happen for events larger than the 1:100 year event. The approved site should drain to the north, while the alternate site should drain to the east.
  - The design elevation of the site must be higher than the major drainage overflow on Ogilvie Boulevard.
- The estimated cost of this storm servicing plan is as follows:
  - a) Approved storm service connection to existing manhole (through centre of Ogilvie Ridge Park)

i.	For Approved Site	\$	95,000
ii.	For Alternate Site	\$	161,000
  - b) Alternative storm service connection to existing manhole (along Ogilvie Boulevard)

i.	For Approved Site	\$	109,000
ii.	For Alternate Site	\$	178,000

Note: Estimates do not include service connection fees charged by the City of Edmonton.

A more detailed cost breakdown is attached






**LEGEND**

- APPROVED FIRST PLACE SITE
- ALTERNATE FIRST PLACE SITE
- STORM AREA 1 (STM1)
- STORM AREA 2 (STM2)
- STORM AREA 3 (STM3)
- PIPE DIAMETER (mm)  
STORM SEWER
- PROPOSED STORM SEWER CONNECTION
- MAJOR DRAINAGE DIRECTION

Prepared By:



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Client:

Project:

**Surplus School Site Drainage Servicing Assessment**

Title:

**Ogilvie Ridge Storm Servicing Plan**

Scale:

**1:4000**

Figure:

**3**

**Ogilvie Ridge Neighbourhood Sanitary Servicing Costs**

Item Number	Description	Unit	Unit Price	Quantity	Total
<b>Approved Site</b>					
<b>1.0</b>	<b>West Connection</b>				
1.1	Mobilization and Demobilization	LS	\$ 2,240.00	1	\$ 2,240.00
1.2	Service Connection to manhole in Ogilvie Ridge Park	l.m.	\$ 20,000.00	1	\$ 20,000.00
1.3	200mm Sanitary Service	l.m.	\$ 600.00	4	\$ 2,400.00
<b>Subtotal</b>					\$ 24,640.00
<b>Contingency (50%)</b>					\$ 12,320.00
<b>Engineering (15%)</b>					\$ 5,544.00
<b>Total</b>					<b>\$ 42,504.00</b>
<b>2.0</b>	<b>North Connection</b>				
2.1	Mobilization and Demobilization	LS	\$ 3,352.00	1	\$ 3,352.00
2.2	Service Connection to manhole on Ogilvie Boulevard	LS	\$ 25,000.00	1	\$ 25,000.00
2.3	200mm Sanitary Service	l.m.	\$ 600.00	14	\$ 8,520.00
<b>Subtotal</b>					\$ 36,872.00
<b>Contingency (50%)</b>					\$ 18,436.00
<b>Engineering (15%)</b>					\$ 8,296.20
<b>Total</b>					<b>\$ 63,604.20</b>
<b>Alternate Site</b>					
<b>3.0</b>	<b>West Connection</b>				
3.1	Mobilization and Demobilization	LS	\$ 5,600.00	1	\$ 5,600.00
3.2	Service Connection to manhole in Ogilvie Ridge Park	LS	\$ 20,000.00	1	\$ 20,000.00
3.3	200mm Sanitary Service	l.m.	\$ 600.00	60	\$ 36,000.00
<b>Subtotal</b>					\$ 61,600.00
<b>Contingency (50%)</b>					\$ 30,800.00
<b>Engineering (15%)</b>					\$ 13,860.00
<b>Total</b>					<b>\$ 106,260.00</b>
<b>4.0</b>	<b>North Connection</b>				
4.1	Mobilization and Demobilization	LS	\$ 6,460.00	1	\$ 6,460.00
4.2	Service Connection to manhole on Ogilvie Boulevard	LS	\$ 25,000.00	1	\$ 25,000.00
4.3	200mm Sanitary Service	l.m.	\$ 600.00	66	\$ 39,600.00
<b>Subtotal</b>					\$ 71,060.00
<b>Contingency (50%)</b>					\$ 35,530.00
<b>Engineering (15%)</b>					\$ 15,988.50
<b>Total</b>					<b>\$ 122,578.50</b>

**Ogilvie Ridge Neighbourhood Storm Servicing Costs**

Item Number	Description	Unit	Unit Price	Quantity	Total
<b>Approved Site</b>					
<b>1.0</b>	<b>West Connection</b>				
1.1	Mobilization and Demobilization	LS	\$ 2,455.00	1	\$ 2,455.00
1.2	Service Connection to manhole in Ogilvie Ridge Park	l.m.	\$ 20,000.00	1	\$ 20,000.00
1.3	200mm Storm Service	l.m.	\$ 650.00	7	\$ 4,550.00
1.4	1200mm Manhole (assuming 5m depth)	ea	\$ 18,000.00	1	\$ 18,000.00
1.5	Orifice	ea	\$ 10,000.00	1	\$ 10,000.00
<b>Subtotal</b>					\$ 55,005.00
<b>Contingency (50%)</b>					\$ 27,502.50
<b>Engineering (15%)</b>					\$ 12,376.13
<b>Total</b>					<b>\$ 94,883.63</b>
<b>2.0</b>	<b>North Connection</b>				
2.1	Mobilization and Demobilization	LS	\$ 3,150.00	1	\$ 3,150.00
2.2	Service Connection to manhole on Ogilvie Boulevard	LS	\$ 25,000.00	1	\$ 25,000.00
2.3	200mm Storm Service	l.m.	\$ 650.00	10	\$ 6,500.00
2.4	1200mm Manhole (assuming 5m depth)	ea	\$ 18,000.00	1	\$ 18,000.00
2.5	Orifice	ea	\$ 10,000.00	1	\$ 10,000.00
<b>Subtotal</b>					\$ 62,650.00
<b>Contingency (50%)</b>					\$ 31,325.00
<b>Engineering (15%)</b>					\$ 14,096.25
<b>Total</b>					<b>\$ 108,071.25</b>
<b>Alternate Site</b>					
<b>3.0</b>	<b>West Connection</b>				
3.1	Mobilization and Demobilization	LS	\$ 5,900.00	1	\$ 5,900.00
3.2	Service Connection to manhole in Ogilvie Ridge Park	LS	\$ 20,000.00	1	\$ 20,000.00
3.3	200mm Storm Service	l.m.	\$ 650.00	60	\$ 39,000.00
3.4	1200mm Manhole (assuming 5m depth)	ea	\$ 18,000.00	1	\$ 18,000.00
3.5	Orifice	ea	\$ 10,000.00	1	\$ 10,000.00
<b>Subtotal</b>					\$ 92,900.00
<b>Contingency (50%)</b>					\$ 46,450.00
<b>Engineering (15%)</b>					\$ 20,902.50
<b>Total</b>					<b>\$ 160,252.50</b>
<b>4.0</b>	<b>North Connection</b>				
4.1	Mobilization and Demobilization	LS	\$ 6,790.00	1	\$ 6,790.00
4.2	Service Connection to manhole on Ogilvie Boulevard	LS	\$ 25,000.00	1	\$ 25,000.00
4.3	200mm Storm Service	l.m.	\$ 650.00	66	\$ 42,900.00
4.4	1200mm Manhole (assuming 5m depth)	ea	\$ 18,000.00	1	\$ 18,000.00
4.5	Orifice	ea	\$ 10,000.00	1	\$ 10,000.00
<b>Subtotal</b>					\$ 102,690.00
<b>Contingency (50%)</b>					\$ 51,345.00
<b>Engineering (15%)</b>					\$ 23,105.25
<b>Total</b>					<b>\$ 177,140.25</b>