Flood Risk Review Report

Davidson Creek K-6 School

By:

Elk Island Public Schools

In:

STRATHCONA COUNTY

December 2016

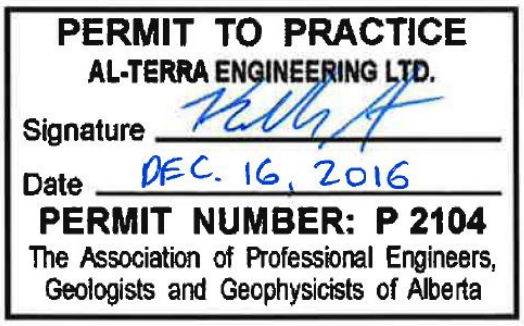
Al-Terra

5307 – 47 Street, Edmonton, Alberta T6B 3T4 Phone: (780) 440-4411 Fax: (780) 440-2585

CORPORATE AUTHORIZATION

This report entitled **Davidson Creek K-6 School – Flood Risk Review Report** was prepared by Al-Terra Engineering Ltd., under authorization and exclusive use of Elk Island Public Schools.

The designs and recommendations put forward reflect Al-Terra's best judgment with the information available. Any use of this information in a manner not intended or with the knowledge that situations have changed shall not be the responsibility of Al-Terra Engineering Ltd.



Corporate Permit

Glen W. Thoman, P.Eng.

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Corporate Authorization

Page No.

APPENDICES

1.0 Purpose and Background

The Province of Alberta has a large investment in owned, funded and leased public service buildings and spaces. In recent years there has been an increase in the frequency and severity of extreme weather conditions indicating a need for closely examining the process and considerations when selecting sites for new buildings or when undertaking additions or upgrades to existing facilities already in flood prone areas.

In June 2016, the Province released a document entitled "Flood Risk Management Guidelines for Location of New Facilities Funded by Alberta Infrastructure". This document outlines that the site selection process for new facilities should consider flood vulnerability. Table A in the document outlines that Schools are considered to be a Class 4 facility that are critical to the ongoing housing of substantial populations. As a result, schools shall be located outside of the 1:500 year flood level, as these facilities may be required to serve as emergency relief centres.

2.0 Flood Hazard Mapping

The proposed Davidson Creek School is not located in close proximity to a major river system. The North Saskatchewan River is located approximately seven kilometers northwest of the site. Stormwater runoff from the school site and surrounding area drains into Davidson Creek, which is located immediately adjacent to the site. Davidson Creek flows into Oldman Creek northwest of the interchange of Highway 16 and Highway 21. Oldman Creek flows northwest approximately five kilometers, where it joins to the North Saskatchewan River.

Alberta Environment & Parks (AEP) makes flood hazard mapping available online for the Province's major river systems, including the North Saskatchewan River. To our knowledge, there is no flood plain mapping available for Davidson Creek or Oldman Creek, as these are local creek systems. Flood Hazard Maps for the North Saskatchewan River, including one that illustrates the school site, has been included in **Appendix A**. The 1:500 year flood level has not been mapped for the river, but at the confluence of the North Saskatchewan River and Oldman Creek, the 1:100 year flood level is approximately 613.70m, which is approximately 90m below the main floor elevation of the school building. As a result, the school site is not at risk from flooding along the North Saskatchewan River corridor.

3.0 Subdivision Storm Drainage & Stormwater Management

3.1 Storm Drainage Design

The proposed Davidson Creek K-6 School is located at the southwest corner of Davenport Drive and Davenport Place. The Davidson Creek neighbourhood is bounded on the north by Lakeland Drive, east and south by a greenbelt and the west by Clover Bar Road. The minor, or piped, storm drainage system has been designed to convey stormwater runoff from the 1:5 year event. The local street or major drainage network has been designed and graded to convey stormwater runoff from storms that exceed the 1:5 year event. The proposed school site is located at the upper end of the Davidson Creek neighbourhood storm drainage basin. As a result, it is expected that there will not be a significant amount of overland flow on Davenport Drive or Davenport Place during the 1:100 year event.

Storm runoff from areas east of Davenport Place drain into the Clarkdale Meadows stormwater management facility (SWMF). The emergency overflow from this SWMF is through a 600mm diameter storm sewer and on the surface of the walkway, across Davenport Place and then west through the Davidson Creek corridor along the south boundary of the school site.

Several supporting documents and figures have been included in **Appendices B and C**.

3.2 Stormwater Management

An excerpt from the Davidson Creek Area Structure Plan (ASP) has been included in **Appendix B**. This text and figures outline the general stormwater management framework for the neighbourhood. The key information included in the report is:

- The Davidson Creek dry pond, located west of the school site, has been designed to control discharge for stormwater runoff from the Davidson Creek neighbourhood and approximately 63 hectares of developed lands outside the neighbourhood, plus accept only overland flow from 5 hectares of the adjacent Clarkdale Meadows.
- The Davidson Creek dry pond accepts a maximum controlled outflow from the Clarkdale Meadows SWMF of roughly 0.21m^3/s.
- The dry pond has sufficient storage volume to retain the storm runoff from the 1:100 year event with an outlet that limits discharge to the downstream basin to the pre-development flow rate from contributory tributary area.
- Runoff from storms that exceed the 1:100 year event will overtop the dry pond and flow into the existing stream channel at the northwest corner of the dry pond and flow north to Oldman Creek.

The elevation of Dawson Drive and Lakeland Drive at the northwest corner of the dry pond are roughly 699.0m, which is 5.0m below the main floor elevation of the school building, thus there is no risk that the water levels in the downstream dry pond would reach the school during an extreme storm greater than the 1:100 year event.

3.3 Davidson Creek

The existing Davidson Creek that resides along the south side of the school site is a constructed channel, as outlined in Section 3.5 of the ASP. It was intended to be a 3m wide channel with a depth of 0.5m. Over the years, the channel has naturalized and been reshaped by stormwater outflows from the Clarkdale Meadows SWMF. Davidson Creek resides within a 6.0m Public Utility Lot (PUL). Immediately adjacent is a 7.5m wide Municipal Reserve (MR) block that contains the asphalt walkway.

The upstream Clarkdale Meadows SWMF is sized to contain and control the storm runoff from the 1:100 year event to pre-development levels, likely the 0.21m^3/s mentioned in the ASP. In the event of a more severe event, water would enter an existing F-51 catchbasin at the east end of the Davenport Place walkway and flow through a 600mm diameter emergency overflow storm sewer and/or overtop the walkway and enter the Davidson Creek channel. The creek will have to flood to a depth of 2.5m or greater to reach the main floor elevation at the southeast corner of the school. The adjacent residential lots are over a metre below the school main floor and will flood prior to the school. As a result, the risk of the school flooding from flows in Davidson Creek is very low.

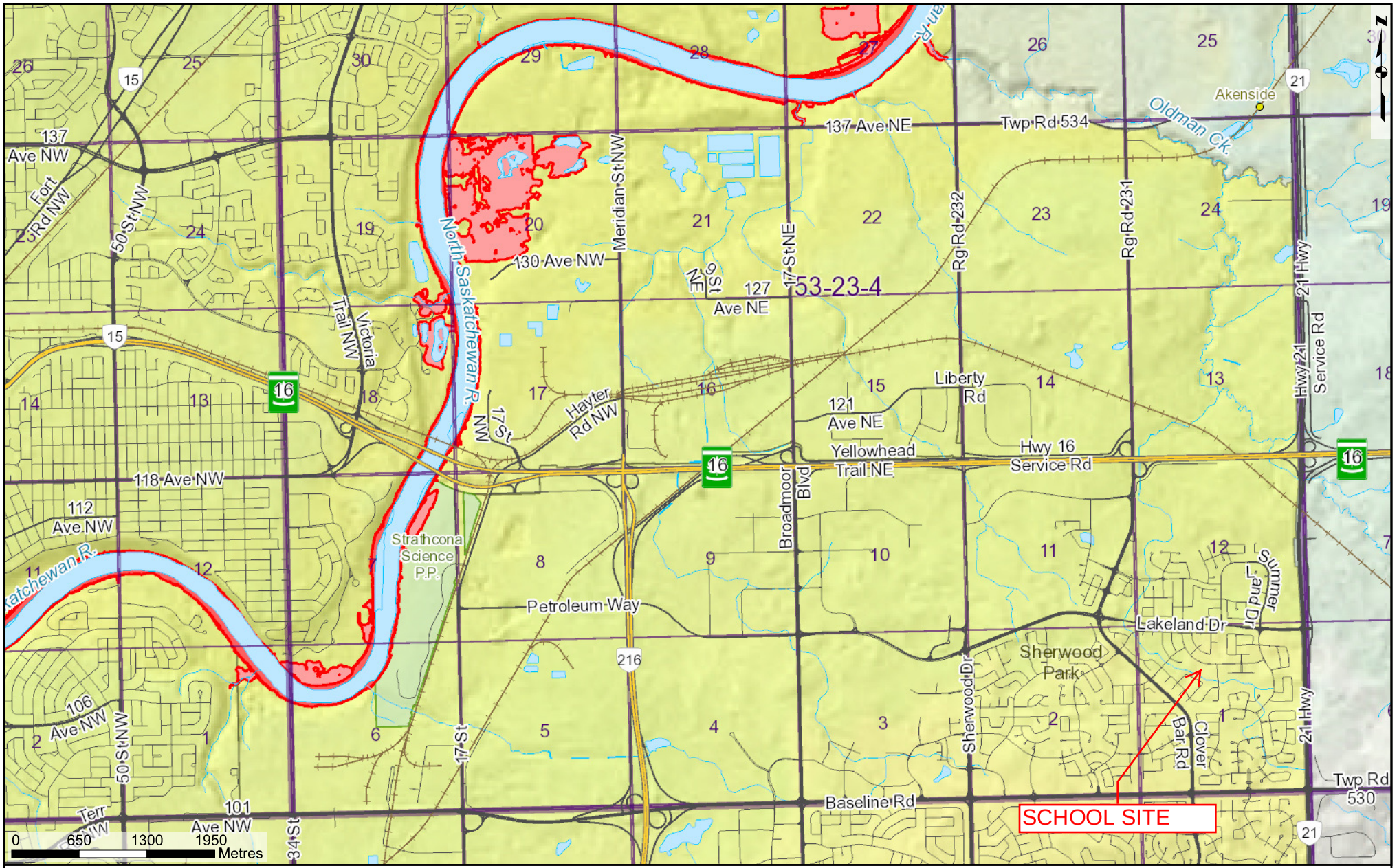
4.0 Summary

The flood risk for the proposed school site has been reviewed both in the context of the North Saskatchewan River and the local storm drainage and stormwater management system. The site is located over 90m above the 1:100 year flood level in the river. Thus, the site is sufficiently far away and high enough to avoid impact from the 1:500 year flood level. The downstream dry pond is designed to store runoff from the 1:100 year event and is sufficiently lower than the school. In addition, there is a very low risk that flood levels in the adjacent Davidson Creek will reach the school, as the upstream Clarkdale Meadows SWMF also provides control for runoff from the 1:100 year event prior to release to the creek.

Appendix A

Flood Hazard Map – North Saskatchewan River

Al-Terra



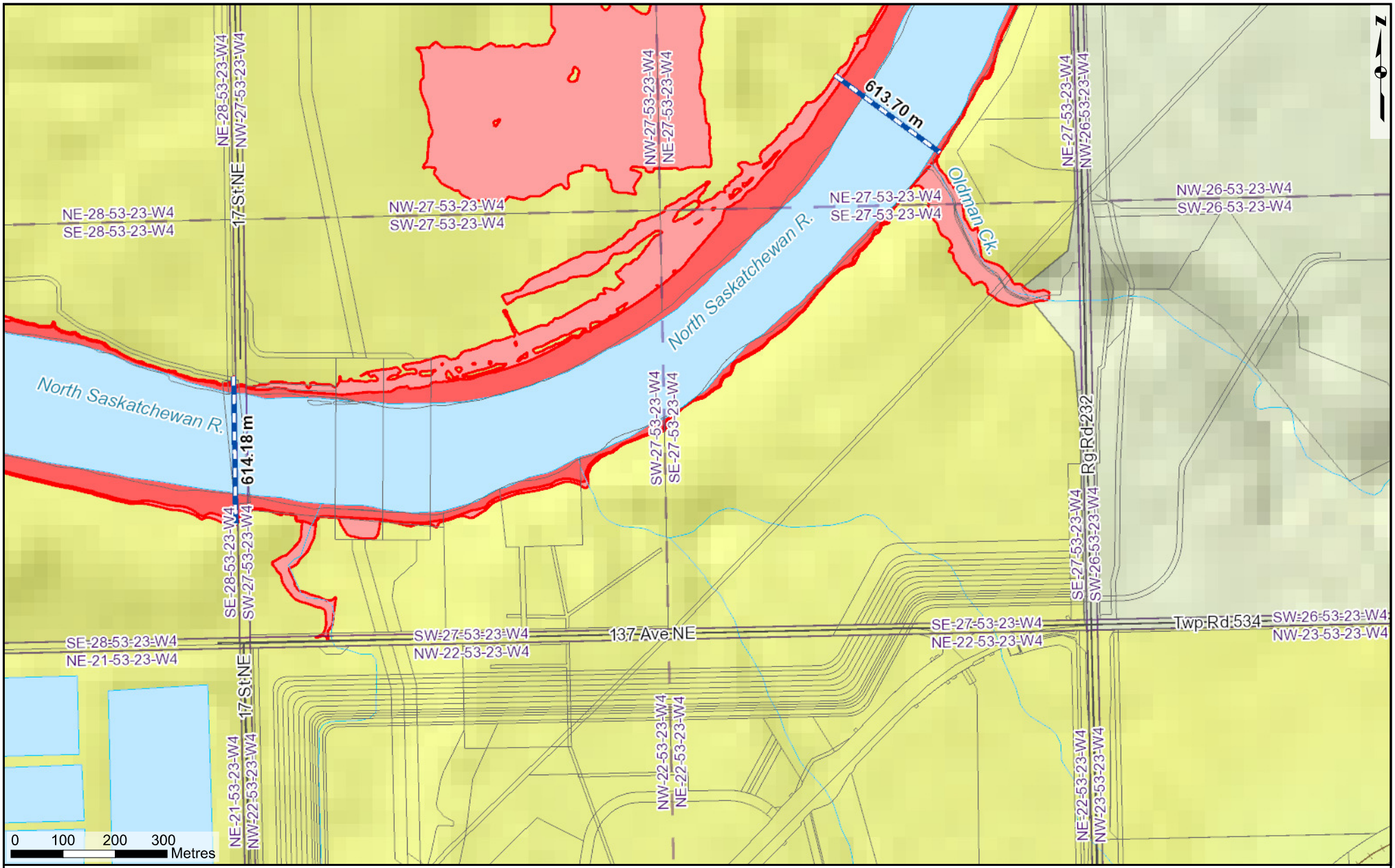
Legend

- Floodway
- Flood Fringe
- Overland Flow (Flood Fringe)
- Under Review
- 855.09 m Cross Section and Design Flood Level
- Water Body
- First Nation Boundary
- Municipal Boundary

Flood Hazard Map

Projection:	Datum:	Date:
ALBERTA 10TM	NAD 83	2016-Oct-05

maps.srd.alberta.ca/floodhazard/



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- Under Review
- 855.09 m Cross Section and Design Flood Level
- Water Body
- First Nation Boundary
- Municipal Boundary

Flood Hazard Map

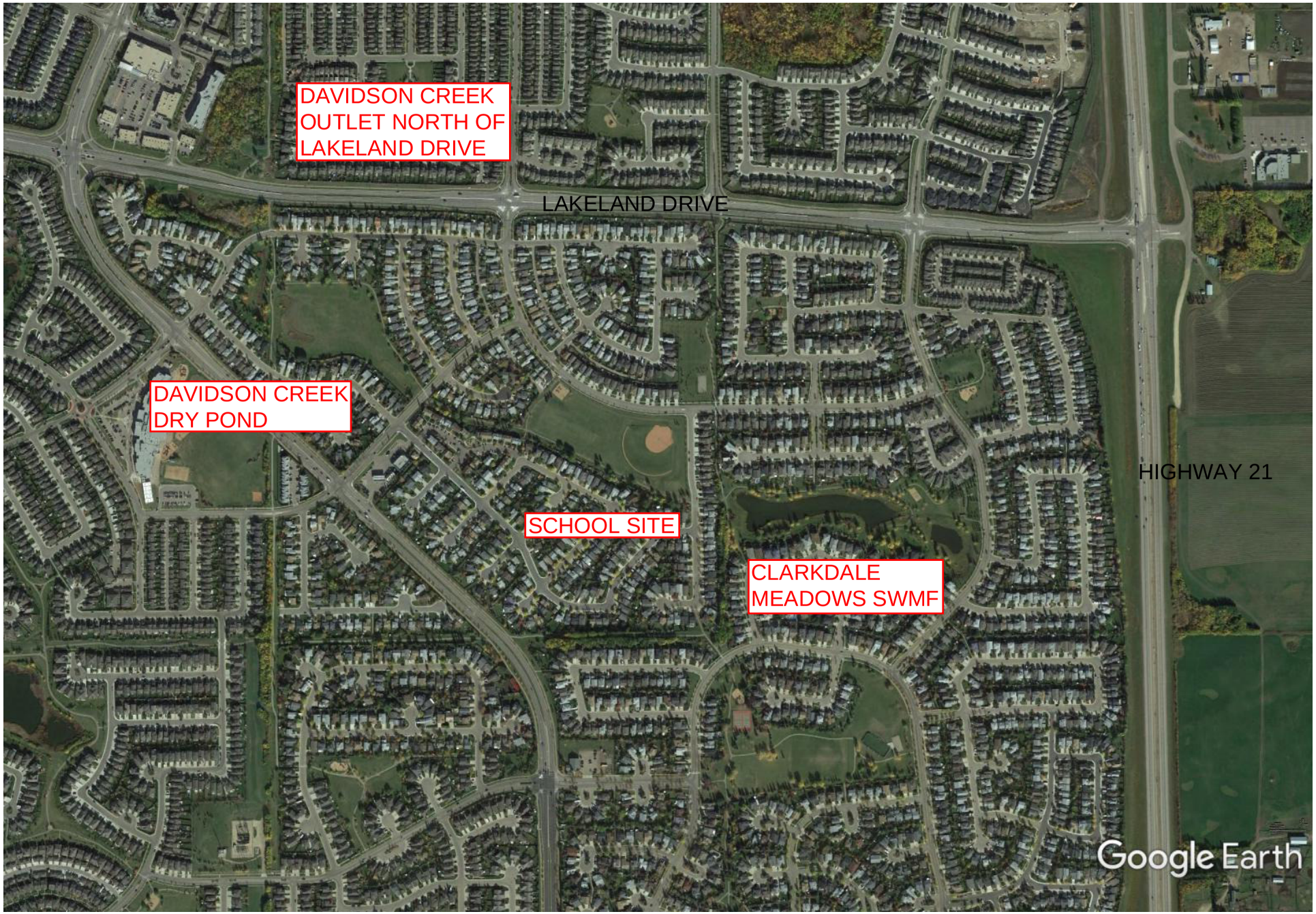
Projection:	Datum:	Date:
ALBERTA 10TM	NAD 83	2016-Dec-15

maps.srd.alberta.ca/FloodHazard/

Appendix B

Local Storm Drainage & Stormwater Management Information

Al-Terra



Google Earth

feet 4000

km 1

3.0 LAND USE

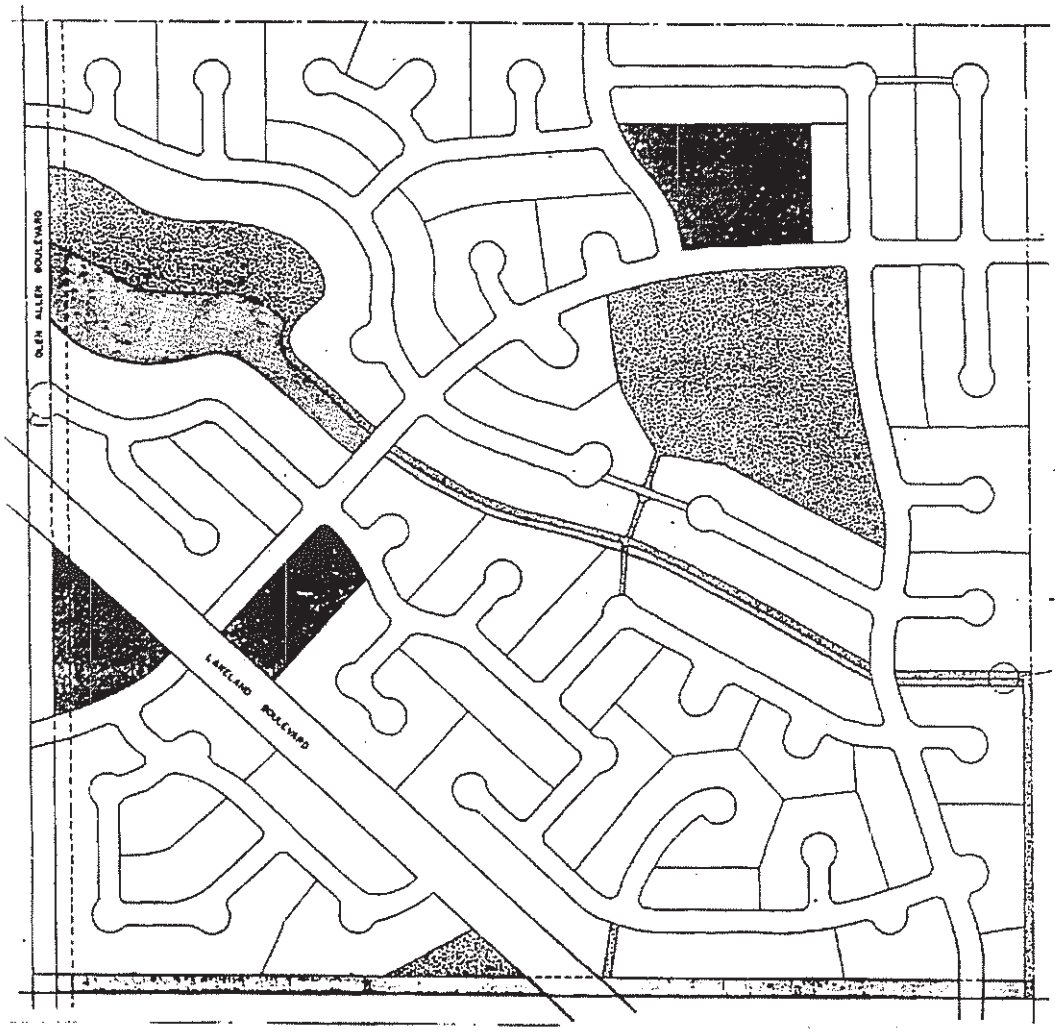
3.1 LAND USE CONCEPT

The quarter section is to be developed primarily for single family development, complemented by a site for an elementary school, a local commercial site, two multiple family housing sites, and walkway system which is integrated with the stormwater management system. The southwest corner is crossed by the Lakeland Boulevard arterial right-of-way which connects to the major collector roadway. The area has been designed to connect to existing and future adjacent development. The land use concept is shown in Figure 3.

3.2 TRANSPORTATION

The area is to be served by the Lakeland Boulevard arterial which connects to the north and south. It cuts diagonally across the south-western portion of the plan. It is to be a four-lane divided arterial, with limited access. As it is not a truck route, no special noise attention, other than the normal screen fencing, is to be provided by the developer. A major collector, on an approximate northeast to southwest alignment, connects to Lakeland at an all-direction intersection. In the eastern portion of the plan, this collector is connected south to Clarkdale Meadows by a north-south minor collector. All collectors, as well as Lakeland, are suitable for use as public transit routes.

Local roads are designed to serve the residential areas off these two collector roadways. A fronting-on format has been avoided on the major collector to reduce conflicts. The local road system has been designed to provide both ease of access and privacy, but also in such a manner to avoid any direct, and undesirable, shortcutting routes. Where cul-de-sacs are longer, emergency access routes are provided.



DAVIDSON CREEK

Area Structure Plan

N.W. ¼ Sec. 1-53-23-4

COUNTY of STRATHCONA
No. 20

BRADSON DEVELOPMENTS LIMITED

LAND USES

LEGEND

- SINGLE FAMILY
- MULTI - FAMILY
- COMMERCIAL
- SCHOOL / PARK
- ENVIRONMENTAL RESERVE (E.R.)
- P.U.L.

SCALE : N.T.S.	DATE : MAY, 1988
IDE	3

As Lakeland Boulevard isolates a triangular development cell in the southwest area with relatively limited access potential, a second connection to Lakeland, albeit a "right in - right out" only, is provided.

All roadways are designed to effectively interconnect to both future and existing roadways in adjacent areas and to future development.

3.3 RESIDENTIAL

The plan area provides for primarily single family detached housing lots.

There are approximately 38 ha. of net residential single family land. At 18 units/ha., this would provide 684 single detached units. The plan envisages that the lots would be developed at varying widths and depths, but in conformance with Land Use Bylaw requirements and market demand. The intent is to ensure the lots provided are "affordable".

Two potential multiple family housing sites are provided. The first is at the intersection of the collector with Lakeland. The site is approximately 0.75 ha., and if developed at row housing densities of 42 units/ha., would provide for a maximum of 32 units. However, it is anticipated this may be developed for a special market segment at lower densities, probably with only a low student generation.

The second multiple site of 1.35 ha., is located near the intersection of the two collectors in the northeast corner. At this location it would be serviced eventually by public transit and would be located across from the school.

Population and land use statistics are included in the Appendix.

3.4 SCHOOLS

A public elementary school site has been provided at the southwest corner of the intersection of the two collector roadways. As such, it is relatively central to the overall catchment area. It is also easily accessible by using the local pedestrian walkway and sidewalk system.

Although this location is slightly east of the site shown in the previous concept developed by the County, this shift is required because of the topographical requirement to locate the stormwater retention area in this lower land in the northwest corner of the quarter section. Because of the desire to locate the public elementary school on a site separate from the junior high schools, a slight shift in the joint public junior and separate elementary/junior to the east is required. Given the scale of the area and the current stage of planning, this is easily accommodated in the future.

The site is approximately 3.45 ha. (8.5 acres) and is in a configuration which can easily accommodate the building site and playing fields. The site will be dedicated through the provision of municipal and school reserve.

3.5 PARKS

The detailed calculation of reserve requirements and provision is included in the Appendix.

The majority of reserve dedication is required for the school site. The remainder of reserve requirements are provided by a partial reserve credit for playing fields provided at the stormwater dry pond and the walkway/bikeway system.

The bikeway/walkway system provides an important link in the overall "heritage trail" system interconnecting Sherwood Park and extending as far as the Strathcona Science Park. It extends north along the quarter section line from the walkway provided through the pipeline corridor through Clarkdale Meadows. It then joins the drainage channel and then crosses the plan diagonally northwest to the stormwater/park area, where it can be extended further toward Clover Bar Ranch and the Strathcona Science Park.

For the first section along the quarter section, it is proposed to run in a wide walkway, of which 7.5 m will be provided as municipal reserve by this subdivision. Lands to the east may provide an additional width when development occurs there.

It is proposed that the drainage channel will be approximately 6 m wide, and be dedicated as a P.U.L. without reserve credit. The channel itself will be about 3 m wide with a depth of 0.5 m. With side slopes of 3:1, the total width will be 6.0 m. Lots on the south side of the channel will directly abut this channel, with no public access. A 7.5 m wide strip for extending the walkway/ bikeway system will be located along the north side of the walkway between the channel and the backs of the private lots. This width will be provided as part of the municipal reserve requirement.

This walkway will then connect by a wider P.U.L. to the dry pond area. From here, it can be easily extended north or west.

The walkway/bikeway system will also be connected to the school site by a local walkway.

3.6 COMMERCIAL

One neighbourhood convenience site has been located on the "going-home" side of the intersection of the collector with Lakeland Boulevard. It is approximately 0.7 ha. (1.7 acres). In general, residential development is either backing on, or in a flanking format, so there will be minimal impact on any adjacent residential properties. This area might be revised at the subdivision design stage.

4.0 SERVICING

The quarter section can be readily serviced with water, sanitary sewerage, storm drainage and shallow utilities, including gas, power telephone and cable TV.

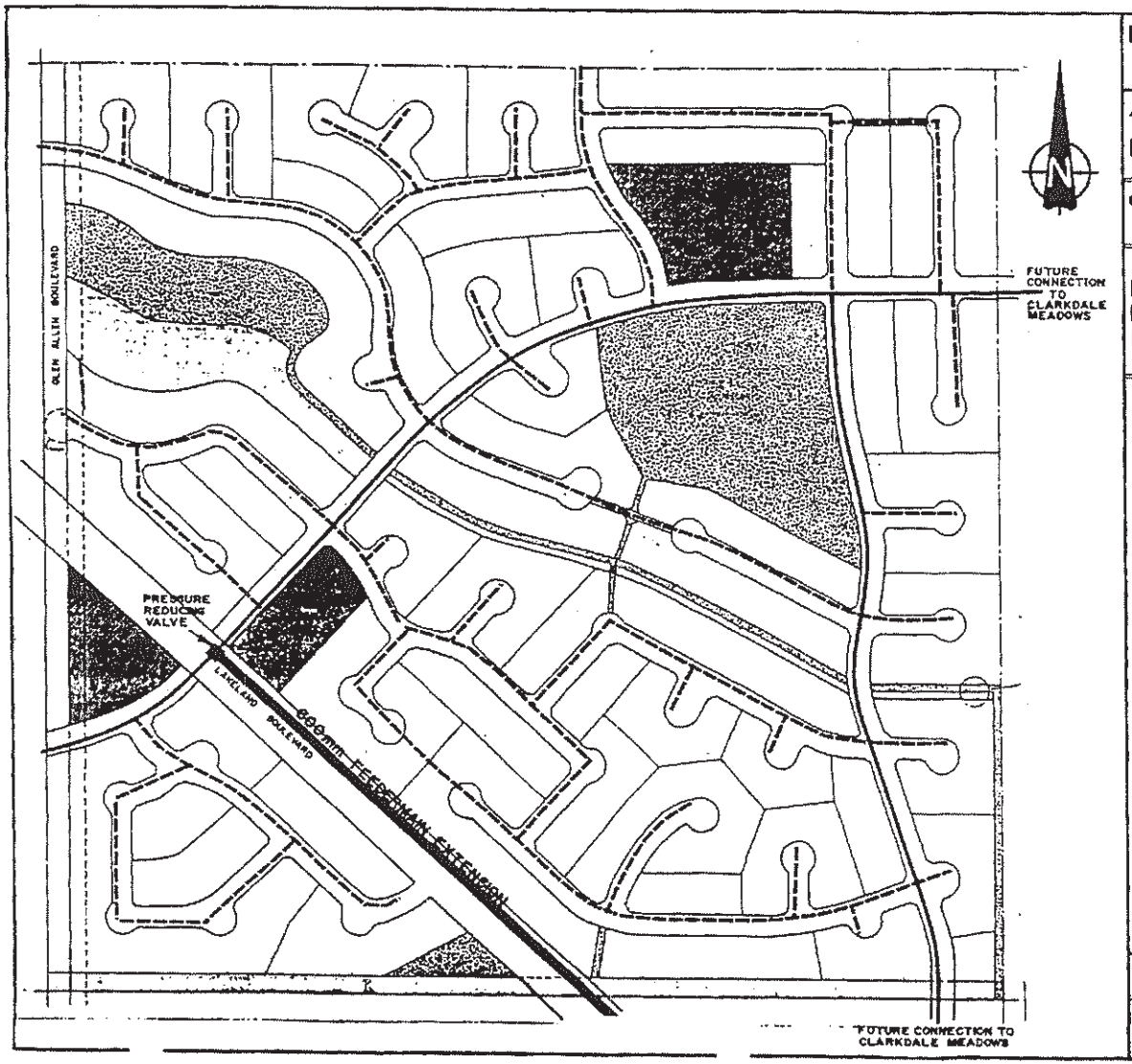
4.1 WATER SUPPLY AND DISTRIBUTION

An excellent water supply for the area is available by extending the 600 mm supply main on Lakeland Boulevard north from Primrose Boulevard to a suitable connection point in the development. A pressure-reducing device is required to decrease pressure to a convenient and safe level, due to the elevation difference between the development area and the serviced area to the south. The certainty of the supply can be strengthened by "looping" back into the Clarkdale Meadows system as development in the two areas progresses with due cognizance of elevations and pressures in the design of the link.

Ultimately the Lakeland Boulevard supply main will be extended north to connect to an existing supply main adjacent to Highway 16, providing a second independent water source for the northeast portion of the urban service area.

All watermains in the development will be sized to provide domestic supply and fire-fighting flows as required to meet the criteria contained in the Strathcona County Engineering Servicing Standards, with adequate provision for the requirements of other development, as such may be dependent on mains in this development.

Figure 4 illustrates the water distribution system. Smaller loops and laterals will be fed from a central, 250 mm primary distribution main installed along the east-west collector and the link to the SW-12, in accordance with the County's most recent network plan (UMA 1987 fig. 3).



DAVIDSON CREEK

Area Structure Plan

N.W. ¼ Sec. 1-53-23-4

COUNTY of STRATHCONA No. 20

BRADSON DEVELOPMENTS LIMITED

WATER SUPPLY AND DISTRIBUTION

LEGEND

- FEEDERMAIN (600mm Ø)
- PRIMARY DISTRIBUTION MAI
- LATERAL DISTRIBUTION MAI (150mm & 200mm Ø)

SCALE :	DATE :
N.T.S.	MAY, 1968
IDE	FIGURE 4

A 200 mm "looping" main will be installed to the quarter line to connect with an extension of the 200 mm main on Meadowview Drive in Clarkdale Meadows, as part of construction in subsequent stages. This will provide looping back to Lakeland Boulevard just north of Baseline Road. A further future 200 mm main will be installed for future looping to the NE-1.

4.2 SANITARY SEWAGE

The east Sherwood Park sanitary sewer outfall traverses the development area, in the Lakeland Boulevard right-of-way, providing trunk disposal from the area.

The land lying southwest of this trunk can be serviced directly to the outfall sewer within the boundaries of the development area, by gravity.

The area between Lakeland Boulevard and the stormwater creek which bisects the land can also be serviced by gravity, to manhole 122 on the outfall trunk. This manhole is located in the NE-2, approximately 70 metres northwest from Glen Allen Boulevard. The gravity sewer required to reach this manhole can be installed within the proposed Lakeland Boulevard right-of-way, avoiding future planning conflicts when the NE-2 is developed.

The area northeast of the creek, approximately half of the development, cannot be connected directly by gravity, within the boundaries of the subject land. This area could eventually be connected by gravity to a point some 600 metres downstream on the outfall trunk, (m.h. 116) through future development in the NE-2 and the SE-11. In the interim, a temporary sewage lift station near the west boundary will provide service for the area, pumping into the gravity system to be installed in the initial stages.

A portion of the Clarkdale Meadows subdivision which cannot be serviced by gravity to the trunk outfall within its boundaries is planned to connect within this development. Provision will be made to permit connection of this load to the gravity sewerage system.

The sanitary sewerage is illustrated in Figure 5.

4.3 STORMWATER MANAGEMENT

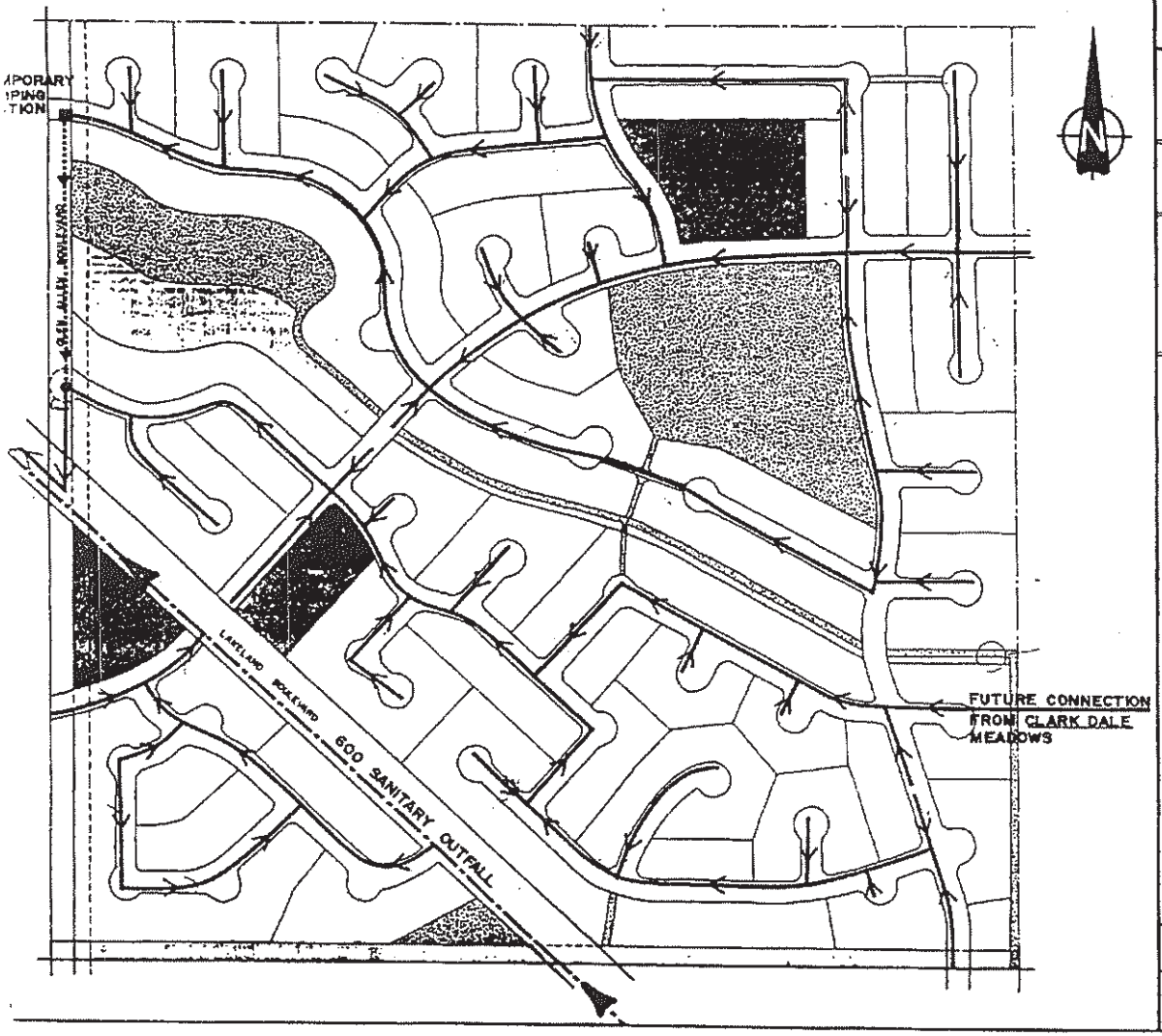
The development area presently drains to the upper reaches of an intermittent watercourse, tributary to the Oldman Creek and thereby to the North Saskatchewan River.

Prior and planned development south of the development area will rely on stormwater management in this development to control discharge to the watercourse from the following areas:

1. Chelsea Heights subdivision, 8.8 ha.
2. Heritage Hills, north portion, 13.0 ha.
3. McCaughey lands, north portion, 7.3 ha. (agric. only)
4. Lakeland Boulevard and Baseline Road, 7.9 ha.
5. Genstar Land, south of Chelsea Hts., 26.1 ha.
6. Clarkdale Meadows, approx. 5 ha. (overland flow only)

In addition, the watercourse will provide an outlet for the planned Genstar stormwater lake in the NE-1. A controlled discharge of 0.21 m^3/second from the planned Genstar lake will pass through this development in the watercourse.

The stormwater management scheme is based on temporary impoundment of drainage in a stormwater "dry pond", formed by shaping the lowlands in the creek channel near the west boundary, together with low dyking. An outlet control will limit discharge to pre-development flows from the areas served, in accordance with County and Alberta Environment policies for protection of the watercourse and its downstream basin. The "dry-pond" will be



DAVIDSON CREEK

Area Structure Plan

N.W. 1/4 Sec. 1-53-23-4

COUNTY of STRATHCONA
No. 20

BRADSON DEVELOPMENTS LIMITED

SANITARY SEWERAGE

LEGEND

- SANITARY TRUNK OUTFALL SEWER
- SANITARY SEWER LATERALS
- SEWAGE FORCEMAIN
- TEMPORARY FORCEMAIN

SCALE:	DATE:
N.T.S.	MAY, 1986

IDE

FIGURE: 5

graded and grassed to permit recreational use of the pond bottom areas adjacent to the stream bed in dry weather. As such it also forms a significant part of the recreation and open space system.

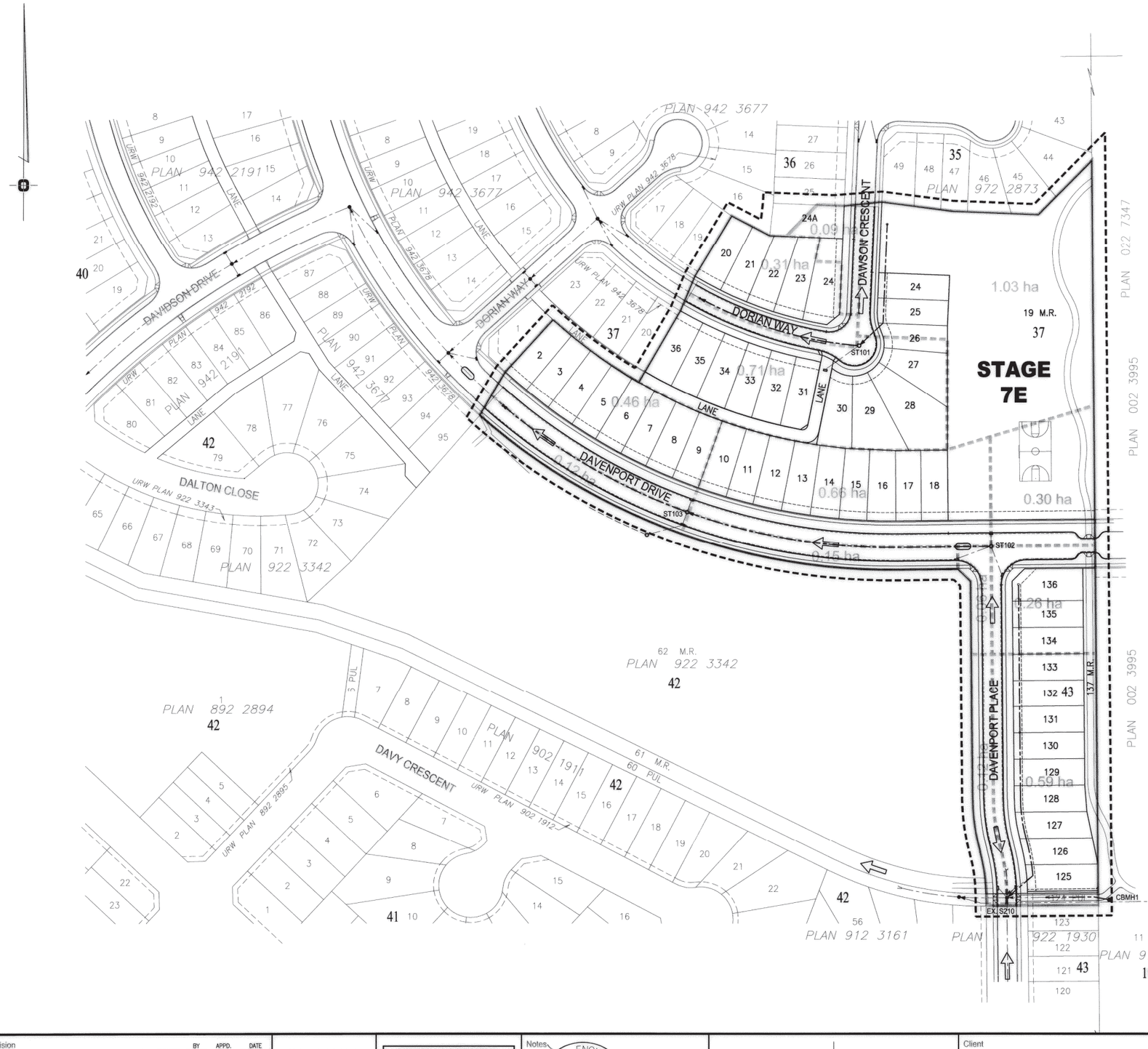
The dry-pond detention system will be sized to accomodate flows from a 100 year return event, including overland flows from major storms. The dry pond at final development will extend west into the NE-2, to accommodate drainage from full development of all of the properties serviced. Runoff from storms exceeding a 100 year return design storm would overflow the dry-pond and follow the stream channel northward toward Oldman Creek.

A storm sewer system will collect drainage flows from minor storms and carry these flows to the dry-pond retention basin. Major storm runoffs will utilize the storm sewer system and overland drainage routes to reach the dry-pond, as illustrated in Figure 6. Drainage from the development area will not be directed along Lakeland Boulevard carriage-ways in overland flow, in keeping with County policy of protecting arterial roads from flooding in major storms.

It will be necessary to alter the current storm sewer design for Lakeland Boulevard to provide for drainage from the properties included in this stormwater management scheme. In addition, provision must be made to accomodate major overland flows off the paved carriageways. This could be provided for by a swale within the Lakeland Boulevard right-of-way, with an off-take to the stormwater dry-pond.

4.4 SHALLOW UTILITIES

Servicing of the area with gas, power, telephone and cable TV can be achieved by routine extensions of services in place for the Chelsea Heights subdivision, and new connections to power and gas presently existing along RR 231. The utilities involved have confirmed this servicability.



LEGEND:

- STAGE BOUNDARY
- PROPOSED STORM BASIN BOUNDARY
- PROPOSED SUB-CATCHMENT BOUNDARY
- 0.62 ha — PROPOSED STORM BASIN AREA
- MAJOR DRAINAGE DIRECTION
- PROPOSED STORM SEWER MAIN
- PROPOSED MANHOLE
- PROPOSED CATCH BASIN
- 627.00 — EXISTING CONTOURS (PRIOR TO STRIPPING)

PROJECT: DAVIDSON CREEK STAGE 7E
PROJECT No.: 100041-21-1
DRAWING No.:

'n' 0.013
Initial Catchment Area 0.00 ha
Initial Catch. Imperviousness 0.40
Inlet Time 15.00 min

DESIGNED BY: DEL
CHECKED BY: BER
DATE: September 14,2004

LOCATION	From M.H.	To M.H.	Area Added Ha	Area Total Ha	C	A.C.	Sum A.C.	Time of Conc. Minutes	I Intensity mm/hr.	Q Design m3/s	Trunk Safety	Q Required m3/s	Q Capacity m3/s	Velocity m/s	Pipe Size mm	Slope %	Length m
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	ST103	Ex Plug	0.81	1.43	0.40	0.32	0.57	15.57	52.3	0.083	1.0	0.083	0.349	2.20	450	1.49	103.14

RECORD DRAWING

Revision	BY	APPD.	DATE
A ISSUED FOR REVIEW	P.D.N.	D.E.L.	23.07.04
B ISSUED FOR FIRST SUBMISSION	P.D.N.	D.E.L.	14.09.04
C ISSUED FOR SECOND SUBMISSION	P.W.M.	D.E.L.	21.03.05
D ISSUED FOR THIRD SUBMISSION	S.F.S.	D.E.L.	27.04.05
E ISSUED FOR APPROVAL	C.H.T.	D.E.L.	08.06.06
F REISSUED FOR APPROVAL	P.D.N.	T.L.W.	07.05.07
G RECORD DRAWING	C.H.T.	T.L.W.	08.01.09

ORIGINALLY SIGNED BY
DAVID E. LAFORCE, R.P.T.
8 JUNE 2006
PERMIT NUMBER P6386
ENGINEERS STAMP

PERMIT TO PRACTICE
THE FOCUS CORPORATION LTD.
Signature
Date
PERMIT NUMBER: P 6386
The Association of Professional Engineers, Geologists and Geophysicists of Alberta
PERMIT

Notes
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1000, 9925 - 109 Street
Edmonton, AB, Canada T5K 2J8
Main: 780.466.6555
Fax: 780.421.1397
www.focus.ca

Client
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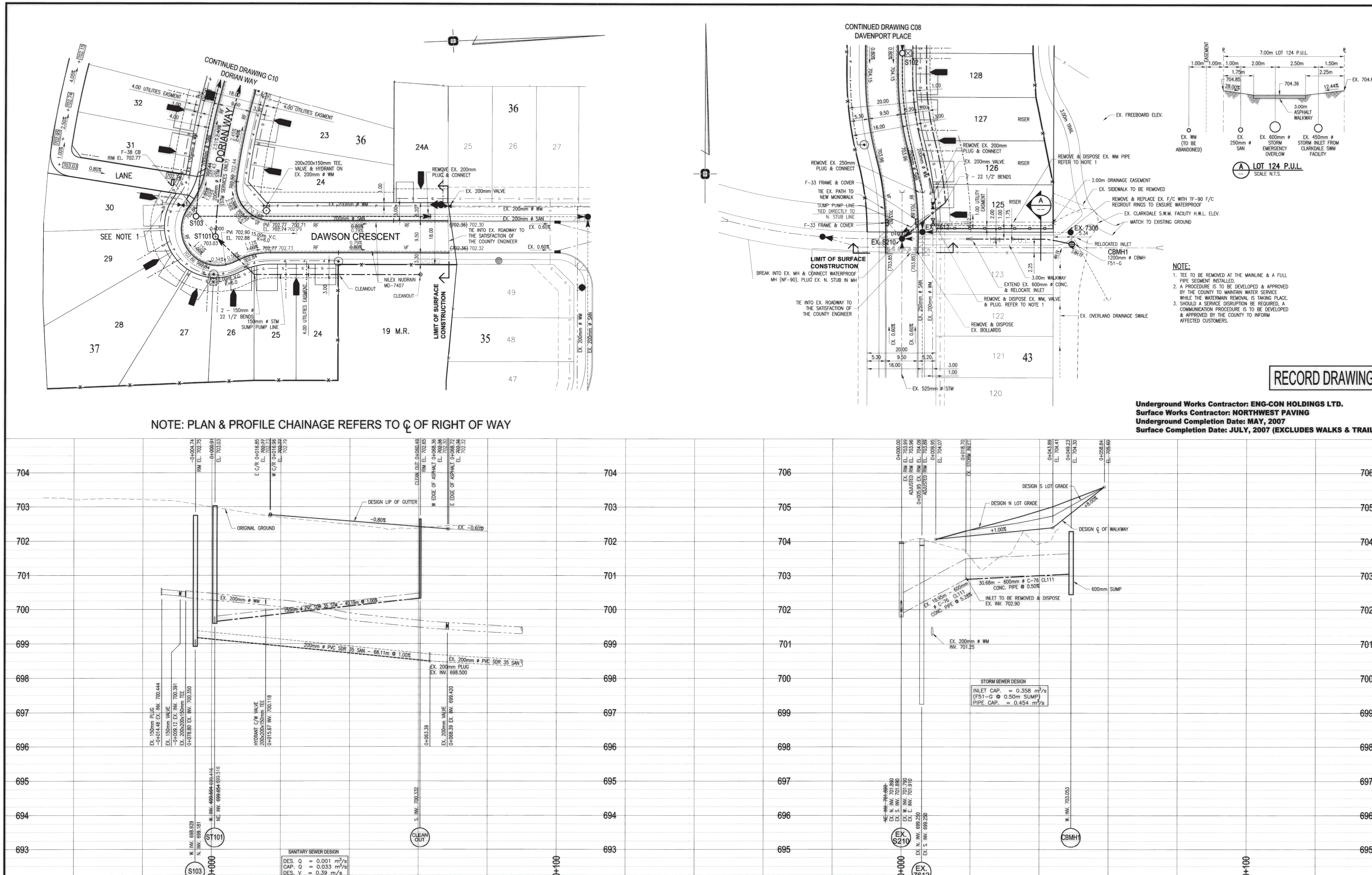
20129-007

Project
DAVIDSON CREEK STAGE 7E
SHERWOOD PARK, ALBERTA
STRATHCONA COUNTY

STORM DRAINAGE BASIN

Designed	Scale	Date
P.D.N.	1:1000	SEPTEMBER, 2004
Drawn: P.D.N.	Project No.: 100041-21	
Checked: D.E.L.	Drawing No.: C06	Rev.: G
Approved		

N:\100041 - Davidson Creek 7E\Engineering\100041-201\Drawing Files\Detail Design\AS-BUILT\C06.dwg 6/17/2008 10:44:18 AM MDT



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C	ISSUED FOR SECOND SUBMISSION	P.W.M.	D.E.L.	21.03.05
D	ISSUED FOR THIRD SUBMISSION	S.F.S.	D.E.L.	27.04.05
E	ISSUED FOR APPROVAL	C.H.T.	D.E.L.	08.06.06
F	REISSUED FOR APPROVAL	P.D.N.	T.L.W.	04.05.07
G	RECORD DRAWING	C.H.T.	T.L.W.	08.01.09

ORIGINALLY SIGNED BY DAVID E. LAFORCE, R.P.T. 8 JUNE 2006 PERMIT NUMBER P6386

ENGINEERS STAMP

PERMIT TO PRACTICE
THE FOCUS CORPORATION LTD.

Signature

Date

PERMIT NUMBER: P 6386

The Association of Professional Engineers, Geologists and Geophysicists of Alberta

PERMIT

Notes

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20129-012

Project
DAVIDSON CREEK STAGE 7E
SHERWOOD PARK, ALBERTA
STRATHCONA COUNTY

PLAN & PROFILE: DAWSON CRESCENT & 124 P.U.L.

Designed	Scale	Date
P.D.N.	H. 1:500 V. 1:50	SEPTEMBER, 2004
Drawn	Project No.	
P.D.N.	100041-21	
Checked	Drawing No.	Rev.
D.E.L.	C11	G
Approved		

Appendix C

Davidson Creek School

Grading & Drainage Plan (60% Review)

Al-Terra

DAVENPORT DRIVE

DAVENPORT PLACE

LOT 62 MR

LOT 61 MR

LOT 60 PUL

SCHOOL MAIN FLOOR = 704.00

HARD SURFACE PLAY AREA

OUTBUILDING PAD FLOOR 703.60 – 703.40

EX DAVIDSON CREEK

EX ASPHALT TRAIL

EX PLANTING BED

EX 1.5m SIDEWALK

EX HYDRANT

EX SAN MH

EX STM MH

EX CB

EX CBMH R=701.67 N INV=699.97 S INV=699.97

EX VALVE

SANITARY INSPECTION MH

STM CB 2 - F38 RIM=701.94

STM MH 1 - F80 RIM=702.06

STM CBMH 3 RIM=702.88

STM CB 4 - F80 RIM=703.80

STM CB 5 - F38 RIM=703.52 d=0.13m

HYD #1 TOF=703.71

STM CB 6 - F38 RIM=703.38 d=0.25m

STM CBMH 7 - F38 RIM=703.38 d=0.25m

AREA DRAIN

EX CB RIM=701.31 EX N INV=700.46 (TO BE REMOVED)

PROPOSED PROPERTY LINE / LIMIT OF GRADING

MATCH TO EX GROUND / LIMIT OF GRADING

2.5m CONCRETE WALK

2.5m CONCRETE MONOWALK

CONSTRUCT 1.5m WIDE MONOWALK

REMOVE EX CURB AND GUTTER AND REPLACE WITH 0.60m WIDE CONCRETE SWALE

BH16-01 BH16-02 BH16-03 BH16-04 BH16-05 BH16-06 BH16-07 BH16-08

PAVEMENT STRUCTURE TABLE

	MATERIAL	DEPTH	COMPACTION
HEAVY DUTY PAVEMENT	Asphalt Concrete Pavement (10mm-HT)	100mm	94% M.T.D.
	Crushed Gravel (20mm)	275mm	100% S.P.D.
	Subgrade (with 10kg/m³ cement)	150mm	100% S.P.D.
LIGHT DUTY PAVEMENT	Asphalt Concrete Pavement (10mm-HT)	90mm	94% M.T.D.
	Crushed Gravel	250mm	100% S.P.D.
	Subgrade (with 10kg/m³ cement)	150mm	100% S.P.D.

CEMENT STABILIZED SUBGRADE TO EXTEND FROM BACK OF CURB OVERBUILD TO BACK OF CURB OVERBUILD AND BE COMPLETED IN ONE CONTINUOUS OPERATION PRIOR TO FORMING AND PLACEMENT OF SITE CONCRETE

SCALE: 1:250 (10 0 10 20)

GRADING REQUIREMENTS

1. ENSURE THAT ALL UNSUITABLE MATERIALS AND TOPSOIL, INCLUDING TURF, HAVE BEEN REMOVED FROM WITHIN THE GRADING LIMITS TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER. ANY SUCH REMAINING MATERIALS SHALL BE DISPOSED OFF-SITE PRIOR TO INITIATING FURTHER EARTHWORKS.
2. THE GEOTECHNICAL ENGINEER SHALL APPROVE THE SUBGRADE PRIOR TO PLACEMENT OF ANY FILL MATERIALS.
3. IMPORTED CLAY AND FILL MATERIALS MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER.
4. GENERAL FILL UNDER PAVED ROADWAYS AND SIDEWALKS SHALL BE COMPACTED IN 150mm LIFTS TO A MINIMUM OF 98% S.P.M.D.D. WITHIN 2% OF OPTIMUM MOISTURE CONTENT.
5. GENERAL FILL UNDER LANDSCAPE AREAS SHALL BE COMPACTED IN 150mm LIFTS TO A MINIMUM OF 95% S.P.M.D.D. WITHIN 2% OF OPTIMUM MOISTURE CONTENT.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE IMPORT OF SUITABLE FILL MATERIALS, IF NECESSARY, AND DISPOSAL OF EXCESS MATERIALS OFF-SITE.
7. INSTALL WICK DRAIN ON TOP OF COMPACTED SUBGRADE ALONG ASPHALT SWALES AND GUTTERS PER C1.2. TOTAL LENGTH ±145m.

SIDEWALK NOTES:

1. REINFORCING REQUIREMENTS FOR CONCRETE SIDEWALKS SHALL CONSIST OF 10M REBAR, 750 O.C. FOR SIDEWALKS UP TO 2.0m WIDE. FOR LARGER SIDEWALK AND ENTRY AREAS REINFORCING SHALL INCREASE TO 10M REBAR, 300 O.C. E/W
2. UNLESS OTHERWISE NOTED, ALL CONCRETE SIDEWALKS ARE TO CROSSFALL 2.0% AWAY FROM THE BUILDING.
3. CONCRETE SIDEWALKS AND LARGE CONCRETE PLAZAS SHALL CONSIST OF 125mm DEPTH OF CONCRETE ON 100mm DEPTH OF 20mm CRUSHED GRAVEL AND 150mm DEPTH OF COMPACTED SUBGRADE.
4. ALL STRUCTURAL STOOPS TO BE GRADED PER CIVIL.
5. SAWCUTS AND CONCRETE FINISHES FOR LARGE CONCRETE PLAZAS TO BE CONSTRUCTED PER LANDSCAPE DRAWINGS L0.1.
6. OUTBUILDING PAD TO BE CONSTRUCTED PER GARBAGE PAD DETAIL.

REMARKS

LEGEND:

PROPOSED		EXISTING
BC or PC	BARRIER CURB/ PIN ON CURB	
SFCG	STRAIGHT FACE CURB & GUTTER	
	PROPERTY LINE	
	EASEMENT	
	FENCE	
	WATER VALVE	
	FIRE HYDRANT	
	MANHOLE	
	CATCH BASIN	
	STREET LIGHT	
	BUILDING ENTRANCE	
2.0%	MINOR DRAINAGE	
+48.27	DESIGN ELEVATION	+ (05.15)
	MAJOR DRAINAGE	712.70
	EXISTING GROUND CONTOURS	
T	PEDESTAL	T
	TRANSFORMER	T
+/-0.30m	PONDING LIMIT	
	BOREHOLE LOCATION	
	TREE	

Al-Terra

DATE	CODE	REVISIONS ITEMS	DRAWN BY	APPROVED BY
16/09/20		ISSUED FOR PRE DP REVIEW	AGS	GWT
16/11/01		ISSUED FOR 40% REVIEW	AGS	GWT
16/11/25		ISSUED FOR DP	AGS	GWT
16/11/25		ISSUED FOR 60% REVIEW	AGS	GWT

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Architecture | Tkalcic Bengert
ARCHITECTURE + INTERIOR DESIGN + URBAN PLANNING

Alberta Infrastructure

Elk Island Public Schools — Your Future in MIND

ASSISTANT DEPUTY MINISTER

PROPERTY DEVELOPMENT

CLIENT APPROVAL

STAMPED BY DATE

PROJECT
DAVIDSON CREEK SCHOOL
ELK ISLAND PUBLIC SCHOOL
SHERWOOD PARK, ALBERTA

DRAWINGS
GRADING & DRAINAGE PLAN

BID NO.	SITE NO.		
SEAL	DATE	PROJECT FILE NO. 16 407	PLAN NO. XXXXXX
	DATE OCT 2016	DRAWN BY AGS	PROJECT ID XXXXXX-XXXX
	DATE	CHECKED BY GWT	SCALE 1:250
	DATE	CERTIFIED RECORD DRAWING	DRAWING NO. C1.1

E:\Small Jobs\8121 – Davidson Creek School – ATB\06 – Detailed Design\06g – To Others\161129 – 60% Submission\161129 – 8121 BASE.dwg PLOTTED BY: Maryvino PLOTTED: 2016/11/29 10:26:44 AM