

SECTION 26

AREA STRUCTURE PLAN



Section 26-8-21-W4M – Lethbridge County

Bylaw No. 1483

January 18, 2017

Prepared by



**LETHBRIDGE COUNTY
IN THE PROVINCE OF ALBERTA**

BYLAW NO. 1483

**A BYLAW OF LETHBRIDGE COUNTY BEING A BYLAW PURSUANT TO
SECTION 633(1) OF THE MUNICIPAL GOVERNMENT ACT, REVISED
STATUTES OF ALBERTA 2000, CHAPTER M.26**

WHEREAS the Council of Lethbridge County wishes to adopt an Area Structure plan for all those lands contained within Section 26-8-21-W4 of Lethbridge County (see attached "Appendix A" diagram);

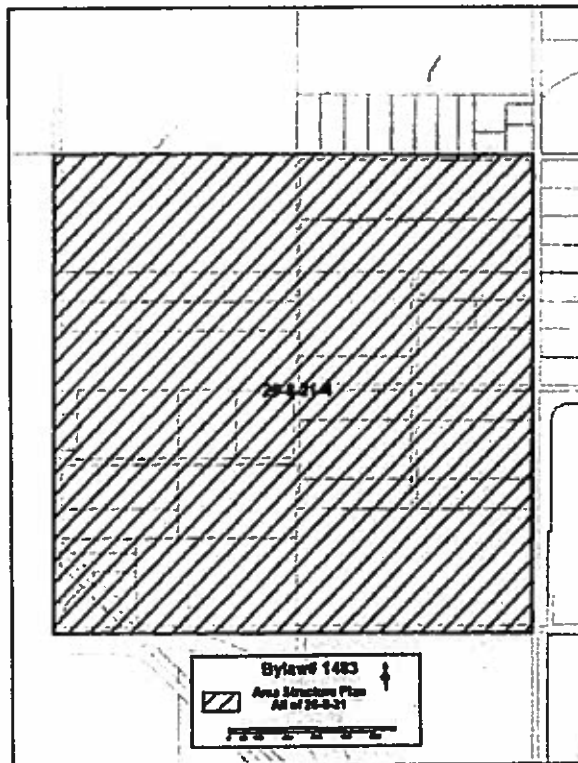
AND WHEREAS County Council directed County Administration to create an Area Structure Plan as per the Lethbridge County Policy 144;

AND WHEREAS the Oldman River Regional Services Commission has prepared on behalf of Lethbridge County the "Section 26 Area Structure Plan" which provides a policy framework and direction to landowners/developers for future re-designation, subdivision, and development within the Plan Area.

AND WHEREAS, in particular, the "Section 26 Area Structure Plan" outlines the responsibilities and additional planning and engineering requirements that landowners/developers will need to provide in order to further subdivide.

NOW THEREFORE BE IT RESOLVED, under the Authority and subject to the provisions of the Municipal Government Act, Revised Statutes of Alberta, 2000, Chapter M-26, as amended, the Council of Lethbridge County in the Province of Alberta duly assembled does hereby enact the following:

1. The "Section 26 Area Structure Plan" Bylaw No.1483, attached as "Appendix A".



GIVEN first reading this 21st day of November, 2016.

Sam Hickey
Reeve
[Signature]
Chief Administrative Officer

GIVEN second reading this 15th day of January, 2017.

Sam Hickey
Reeve
[Signature]
Chief Administrative Officer

GIVEN third reading this 18th day of January, 2017.

Sam Hickey
Reeve
[Signature]
Chief Administrative Officer

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PART 1

INTRODUCTION

PART 1: INTRODUCTION

Section 26 (Section 26-8-21-W4) is located immediately east of the City of Lethbridge boundary, to the north of Highway 4 and adjacent to Brown Road. This is a historically fragmented section of land that contains many residential acreages. This Area Structure Plan (ASP) is to apply to land located within the full section. An ASP may be described as a defined strategy to guide and regulate future land development in a particular area.

The enclosed Plan, details and development requirements are designed to assure an orderly planned subdivision, while stipulating a maximum density of parcels for the subdivision and Plan Area.

The Area Structure Plan as approved by Council must be considered and will apply if a landowner desires to further subdivide an existing title. It must be recognized that a landowner cannot be forced to subdivide or participate if they have no interest. However, if a landowner does decide to further subdivide they must adhere to the plan and are responsible for their portion of any applicable costs that may be attributed to the process and implementation. The area of land the ASP is applicable to for Section 26 is shown on Diagram 1 and is referred to as the “Plan Area” in this document.

1.1 History of Section 26

Section 26 is a fragmented, older historical section which consists of 31 total land titles, with many titles created around 1916. There are presently 28 individual landowners who hold title to land north of the road (Brown Road) and CPR rail-line, as a few landowners hold multiple titles.

By the mid-nineties, it became apparent to the County that there were possible concerns with inadequate drainage, soils and the possibility of a high water table in the area. Correspondence and files from 1996 indicated that Council should not approve further subdivision without:

- adopting an Area Structure Plan (ASP) for a large portion of the section,
- having an engineering study with respect to ground and surface water,
- having an engineering study with respect to sewage handling system,
- designing a road system and linkage for the area.

In 1996 a “**moratorium**” was placed on further subdivision by **Resolution of County Council** (see 96-0-158, October 1996),

“That until a fully engineered plan of the whole area has been provided that Council allows no further subdivision in any part of Section 26-8-21-W4”.

Section 26 is also located within the City of Lethbridge and County Intermunicipal Development Plan (IDP) plan area, which further supports the need for a plan to be prepared for this area. Any resulting plan must be circulated to the City for comment prior to adopting by bylaw.

1.2 Area Structure Plan Legislative Requirements

An Area Structure Plan is a strategy for future development in a particular area. The strategy reflects the interests of both the residents and stakeholders of the Plan Area, as well as the interest of Lethbridge County. The ASP provides long-range, decision-making guidance to Council and the County for land use, subdivision and development applications, while providing landowners and developers with a sense of what logical and desirable future development will look like. An ASP, if adopted by bylaw, is a statutory document under the legislation of the *Municipal Government Act*, which makes it a legal document and also stipulates the process that must be adhered to.

The Area Structure Plan provides direction for future redesignation, subdivision, and development within the Plan Area. The policy statements serve to bring the strategy to life and address specific aspects of future development. They also provide guidance to subsequent decisions that have to be made as development proceeds.

According to the *Municipal Government Act*, an ASP must describe the following:

- the sequence of development proposed for the area,
- the land uses proposed for the area, either generally or with respect to specific parts of the area,
- the density of population proposed for the area either generally or with respect to specific parts of the area,
- the general location of major transportation routes and public utilities.

It may also address any other matters Council deems necessary. An Area Structure Plan must also be consistent with other statutory documents, such as the Municipal Development Plan. The *Municipal Government Act* also authorizes a notification and circulation process pursuant to section 636, which states that while preparing a statutory plan, a municipality must:

- provide a means for any person who may be affected by the plan to make suggestions (i.e. notify the public), this also includes utility companies;
- notify the school authorities and provide opportunities for suggestions and representations; and
- if the land is adjacent to another municipality, notify the municipality and provide opportunities for suggestions.

For land adjacent to, within ½-mile of, or proposing access onto a provincial highway, Alberta Transportation must also be involved in the plan process and give their approval of the plan and any transportation issues that may affect them.

For addressing the surface and storm water drainage issues for an area, Alberta Environment and Parks (AEP) must also be contacted and an authorization or approval in accordance with the *Water Act* may be required.

As Section 26 is subject to the City of Lethbridge and County Intermunicipal Development Plan (IDP) (Bylaw No. 6015 & 1478), the plan and subsequent development must conform to the IDP policies.

PART 2

SECTION 26 & AREA STRUCTURE PLAN BACKGROUND

PART 2: SECTION 26 & AREA STRUCTURE PLAN BACKGROUND

In 2006, Section 26 landowners made requests to County Council to have assistance from the municipality in preparing an Area Structure Plan. As a result, Lethbridge County Council adopted a policy which was intended to give Council and staff direction as to when County Council may consider facilitating or assisting in the preparation of ASP, either financially or with professional planning assistance, which would be applicable to lands that are under private control or ownership.

Among the policies' main stipulations was that there must be a minimum of ten (10) separate title owners affected, which makes it difficult for the individuals to reasonably prepare a comprehensive plan as a group; the land must be considered fragmented land by either existing use or multiple title ownership, which makes the land impractical to farm or cannot logically be used for agricultural purposes, or is difficult to develop for other uses in its present state; and, the land area must consist of a minimum of 80 acres (the aggregate of the titles).

Section 26 met the eligibility of these criteria. As a result, a majority of Section 26 landowners met with Lethbridge County representatives on March 22, 2006, and requested that the County proceed with the process to determine if they would participate in the preparation of a plan. As required under the policy, the County then sent out a written survey of the affected landowners in the identified Plan Area to ascertain if they would be in favour of the plan preparation and/or interested in future subdivision or development.

2.1 Land Owner Questionnaire / Survey Process 2007

In 2007, the Oldman River Regional Services Commission (ORRSC) mailed-out 28 survey questionnaires to 28 title owners to the parcels north of the road (Brown road) and CPR rail-line. Nineteen (19) survey responses were completed and returned, for a response rate of 68%. The survey sent out to the landowners had a completion date of May 31, 2007. The surveys returned to the County were then forwarded to the Oldman River Regional Services Commission for compilation and analysis.

2.2 Survey Results Overview

Of the 19 landowners who responded, 14 or 74% stated they had a desire to subdivide their property within Section 26 (this is 50% of the total title holders). Of this, 11 owners indicated that they would be interested in applying for subdivision in the near future (within a year) and another 3 stated that they would be interested in applying for subdivision within the next 10 years.

In asking the landowners if they had any concerns if their neighbors were to apply for subdivision, 78% of the respondents stated that they did not have concerns. Furthermore, 88% of the respondents were also of the opinion that the County should designate this area for Grouped Country Residential (GCR) development and make further subdivision a possibility.

Questions queried the owners to ascertain opinions about the type of subdivision design that would be acceptable, whether rural or urban standards should apply, etc., and what method of paying for the servicing and ASP costs was agreeable to the owners. Overall, 89% of the respondents indicated that a 'rural' type of country residential development (e.g. fire ponds, no street lights, gravel roads and ditches) was preferred over a higher-quality urban type development (e.g. street lights, fire hydrants, paved roads and concrete gutters), although, many did indicate that paved roads would be welcomed.

Regarding costs associated with the development of land, 84% of the respondents agreed that if an Area Structure Plan was done, the total ASP costs owed to the County by the landowners should be paid to the County at the time of subdivision or development calculated on a per acreage basis, and that this was the best or fairest method to implement and share the costs of the ASP study. The majority of landowners also agreed that the preferred method of paying for the infrastructure required (e.g. roads, storm water infrastructure) was to "charge back an amount at the time of subdivision".

2.3 Survey Conclusions from 2007

Overall, the majority of landowners who replied to the survey were supportive of an Area Structure Plan being prepared for Section 26 and that further subdivision should be made possible. The majority of owners did not have concerns if their neighbors were to subdivide.

2.4 Area Structure Plan 2008 Proposal

The County decided in 2008 to proceed with examining proposals for preparing and Area Structure Plan, and UMA Engineering Ltd. (AECOM) was awarded a contract to begin preliminary work on an ASP.

In October 2008, UMA Engineering presented a plan with four options for water and sewer, along with a Phase 1 Environmental Assessment. It was apparent at that time the consultant's proposed options were expensive, and largely unfeasible. The plan also was based on a large number of lots at a very high density for a rural municipality, with most lots being around the 1.0-acre size. The majority of Section 26 landowners and the County were not supportive of the higher density or the plan.

The initial water and sewer options presented (largely based on attempting to obtain City services) were also just one main component examined; there were also drainage issues which were not addressed in the plan. Overall, it was determined the options would not only make the final lots being created very expensive, but it was probable that many of the land owners would not have the necessary funds to carry through with such action (the development costs), and the County would likely not be able to collect money on the ASP at the time of subdivision if only a few individuals could afford to subdivide. On that basis, the 2008 consultant's proposed plan was not adopted and the moratorium has remained in effect.

2.5 Process to Remove Moratorium

In respect of the aforementioned, and on-going requests by Section 26 landowners to be able to further subdivide, the following are the general “actions” required for Council to consider in deciding to lift the moratorium and allowing further subdivision in Section 26:

1. Council and the County administration must be satisfied with the preliminary MPE Engineering Ltd. storm water analysis study and use it as basis to move forward.
2. An Area Structure Plan for Section 26 must be prepared and adopted by County Council (i.e. purpose of this Plan). The ASP will be used as the mechanism to guide and regulate any further subdivision.
3. If satisfied with the ASP and initial storm water management analysis, Council may “lift” (i.e. remove) the subdivision moratorium on Section 26 by Resolution. Once adopted, the approved Area Structure Plan will be used to guide and regulate all subdivision proposals in Section 26.
4. Part of the process will require further detailed engineering information, to be provided in the preparation of an Engineering Detail Plan to be prepared for each quarter-section, and to the satisfaction of Lethbridge County prior to any redesignation or subdivision applications being accepted.
5. Public consultation will also be required in implementing steps 1 to 4 as described above. Consultation should involve the affected Section 26 land owners, the public, various government and utility agencies, and the City of Lethbridge.

The Area Structure Plan contains policies to ensure the following matters in Part 3 (e.g. land suitability and servicing) are adequately addressed in considering any further subdivision in Section 26.

PART 3

AREA STRUCTURE PLAN 2016

PART 3: AREA STRUCTURE PLAN 2016

3.1 Section 26 Overview

This section provides the outline of the general Area Structure Plan to apply to Section 26 with which all subsequent subdivision proposals must align. This Plan will provide the framework in which land owners must prepare subsequent Engineering Detail Plans for each quarter-section, and what engineering and servicing information will be required. The attached diagrams and maps are provided in support of and forming part of the overall Plan.

A. Location

- Section 26-8-21-W4, immediately east of the City of Lethbridge boundary and to the north side of Brown Road.

B. Existing Subdivision – Title Cadastral Mapping

There are presently 31 separate titles in Section 26, with 28 affected landowners as some landowners own multiple titles.

Titles as of JUNE 2015

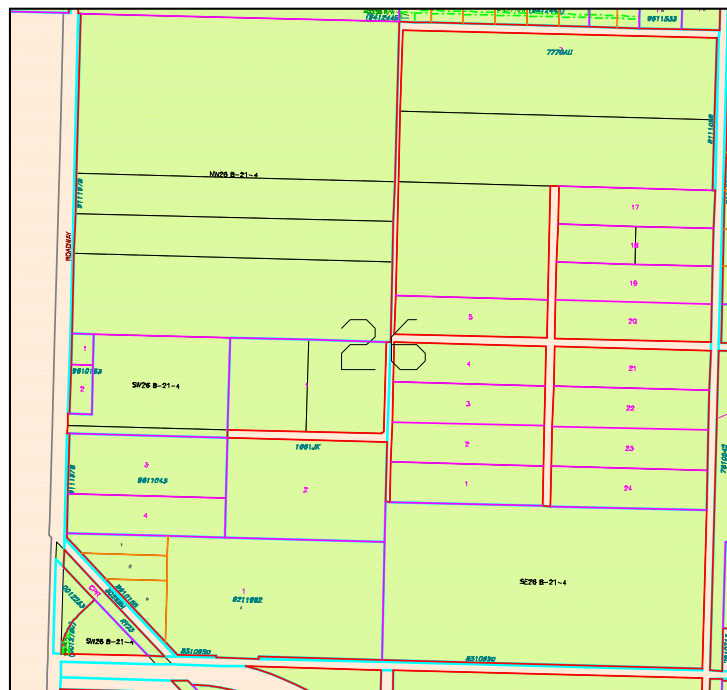


Figure 1

C. Contours and Elevations

The land within the Plan Area generally slopes from the southwest corner of the section to the northeast, with an approximate 8.0 to 9.0 m (26 to 30 ft.) decrease in elevation. The middle of the section is approximately 5.5 m (18 ft.) lower than the southwest boundary situated by the CPR tracks and County road.

D. Other Land Use Considerations

- There are no provincially identified Historical or Cultural Resources classified in Section 26. The section also has no Environmentally Significant Areas identified on the land.
- The Alberta Energy Regulator (AER) abandoned gas well data repository does not identify any abandoned gas wells in Section 26.
- A Phase 1 Environmental Assessment was previously completed in 2008.

3.2 Plan Design

- Refer to attached Diagrams 2-5 (following pages).

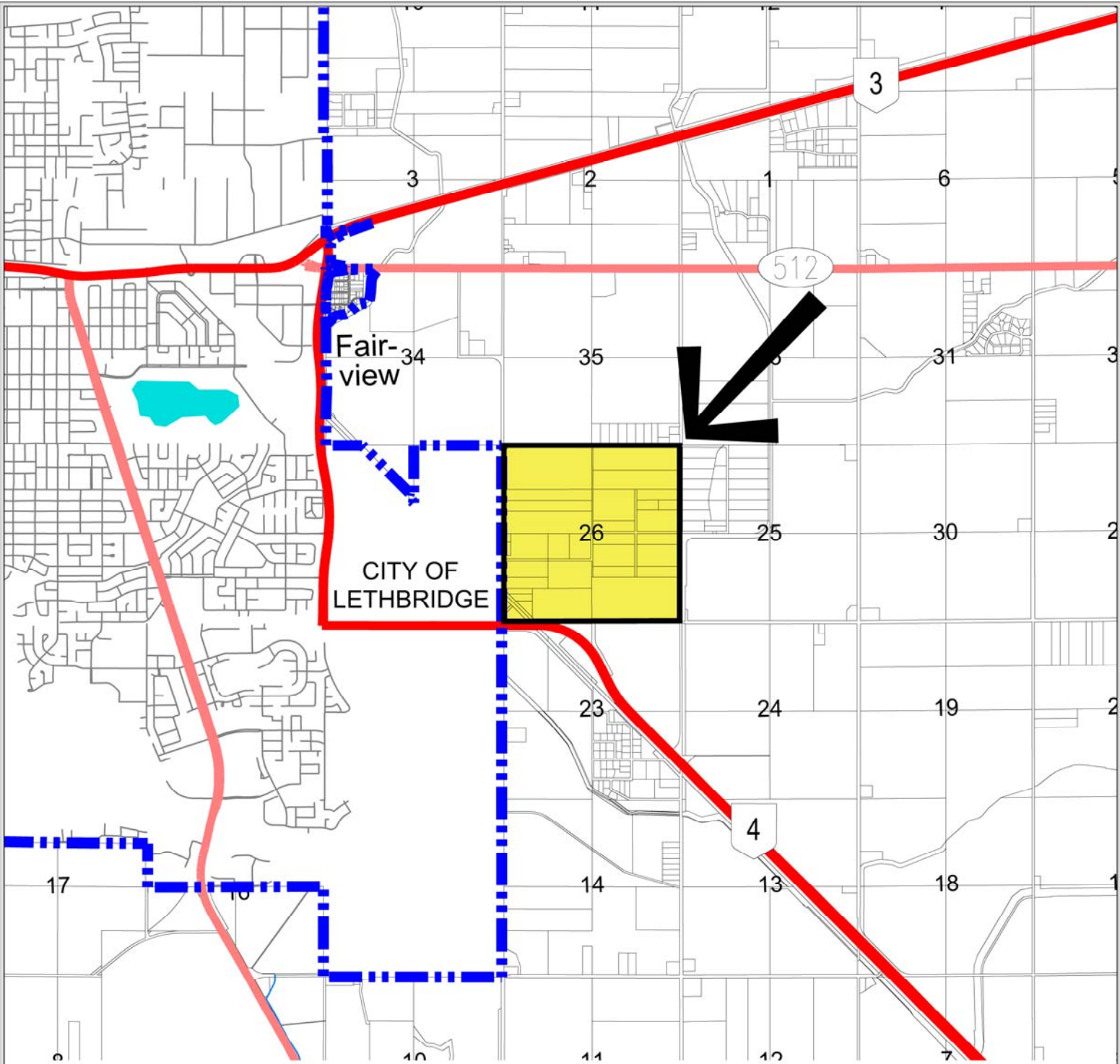
A. Lot Layout and Density

Section 26 is presently a fragmented section based on a historical grid pattern layout. The new conceptual Plan design illustrates the proposed subdivision layout and specifies the overall lot density at potential full build-out of the section if further resubdivision were to occur.

The concept for this Plan is to continue with the historical grid pattern that has been established. This is also the most logical layout to proceed with, based on the existing grid road network. Many of the existing parcels are 9 to 10 acres in size and the Plan will allow to split them, generally front and back, into two (2) titles. There may be a little flexibility afforded in the final lot sizes and boundaries, but the overall layout and density is to be adhered to. The parcels will generally be in the 4 to 5 acre size, and smaller titles will not be allowed to be further subdivided. The larger parcel sizes will help control the overall density. This will assist with helping manage storm water runoff by having less developed impervious areas (i.e., in comparison if 1 or 2 acre lots were allowed), and regulating the overall number of individual septic systems that could be installed on the land.

The following policies shall apply to this Plan and lot layout concept:

1. The maximum build-out density of Section 26 as illustrated, shall be 110 to 120 lots, contingent on the area of land required for storm water management facilities. The actual number of additional lots permitted by the County may be less, if subsequent engineering, soils capabilities and storm water management plans do not support the full build-out of the subdivision area as depicted.



Fair-view

CITY OF LETHBRIDGE

LOCATION MAP

DIAGRAM 1

LETHBRIDGE COUNTY

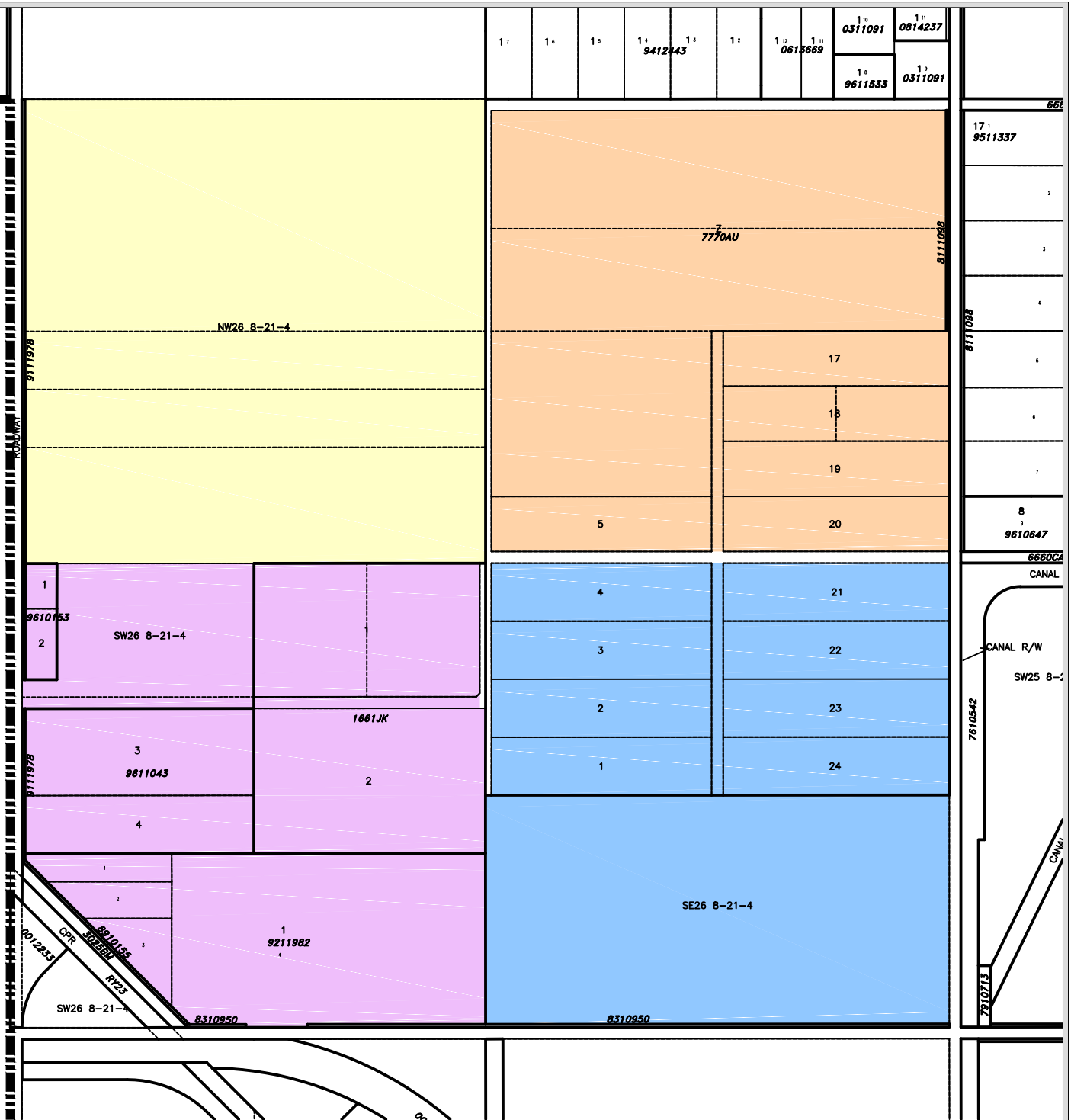
SECTION 26 AREA STRUCTURE PLAN

SEC 26, TWP 8, RGE 21, W4M

LEGEND

- AREA STRUCTURE PLAN BOUNDARY
- MUNICIPAL BOUNDARY

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JANUARY 18, 2017



SUBDIVISION CELLS

DIAGRAM 2

LETHBRIDGE COUNTY

SECTION 26 AREA STRUCTURE PLAN

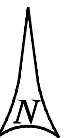
SEC 26, TWP 8, RGE 21, W4M

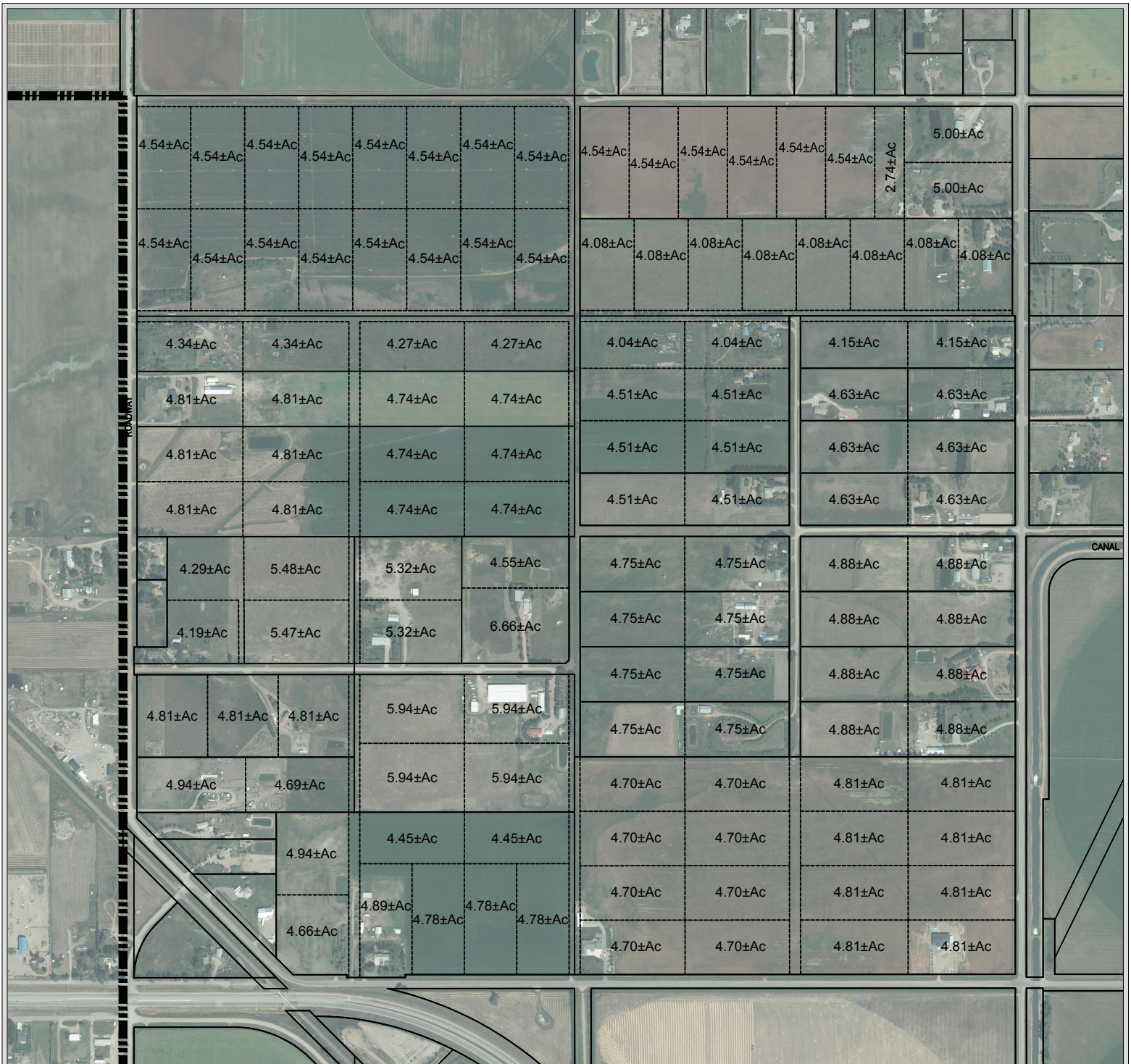
LEGEND

- SUBDIVISION CELL 1
- SUBDIVISION CELL 2
- SUBDIVISION CELL 3
- SUBDIVISION CELL 4

BYLAW NO. 1483
JANUARY 18, 2017

SCALE 1 : 10000





LAYOUT
DIAGRAM 3
LETHBRIDGE COUNTY
SECTION 26 AREA STRUCTURE PLAN
SEC 26, TWP 8, RGE 21, W4M

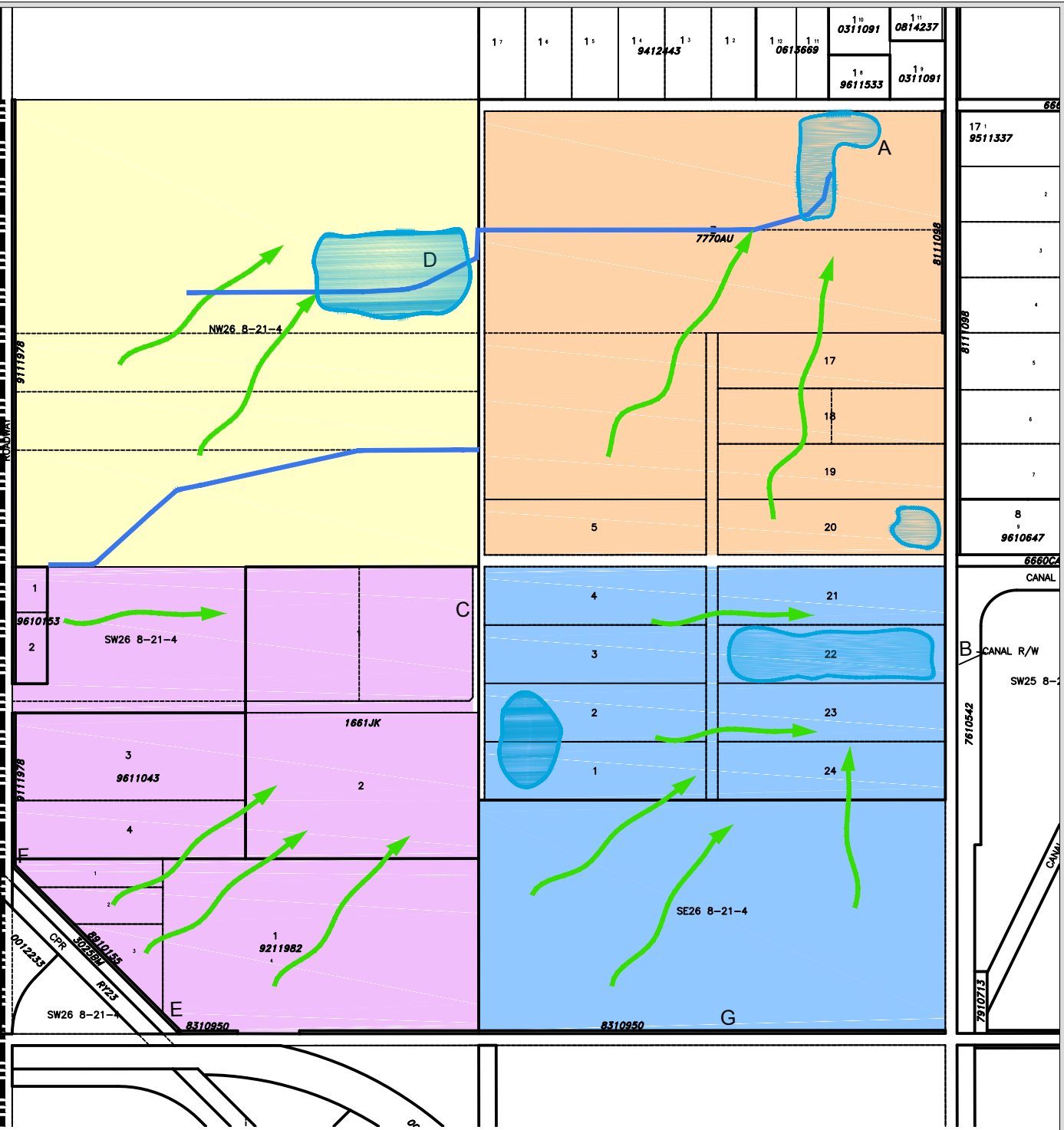
BYLAW NO. 1483
 JANUARY 18, 2017

LEGEND

- ROAD
- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE

AERIAL PHOTO DATE: 2012
 SCALE 1 : 10000





POTENTIAL STORM POND AREAS

(LOWEST ELEVATIONS IN SECTION)
 DIAGRAM 4
 LETHBRIDGE COUNTY
 SECTION 26 AREA STRUCTURE PLAN
 SEC 26, TWP 8, RGE 21, W4M

Elevation at Point:

A	906.17m(2973')
B	907.99m(2979')
C	909.52m(2984')
D	907.99m(2979')
E	915.92m(3005')
F	914.10m(2999')
G	913.19m(2996')

LEGEND

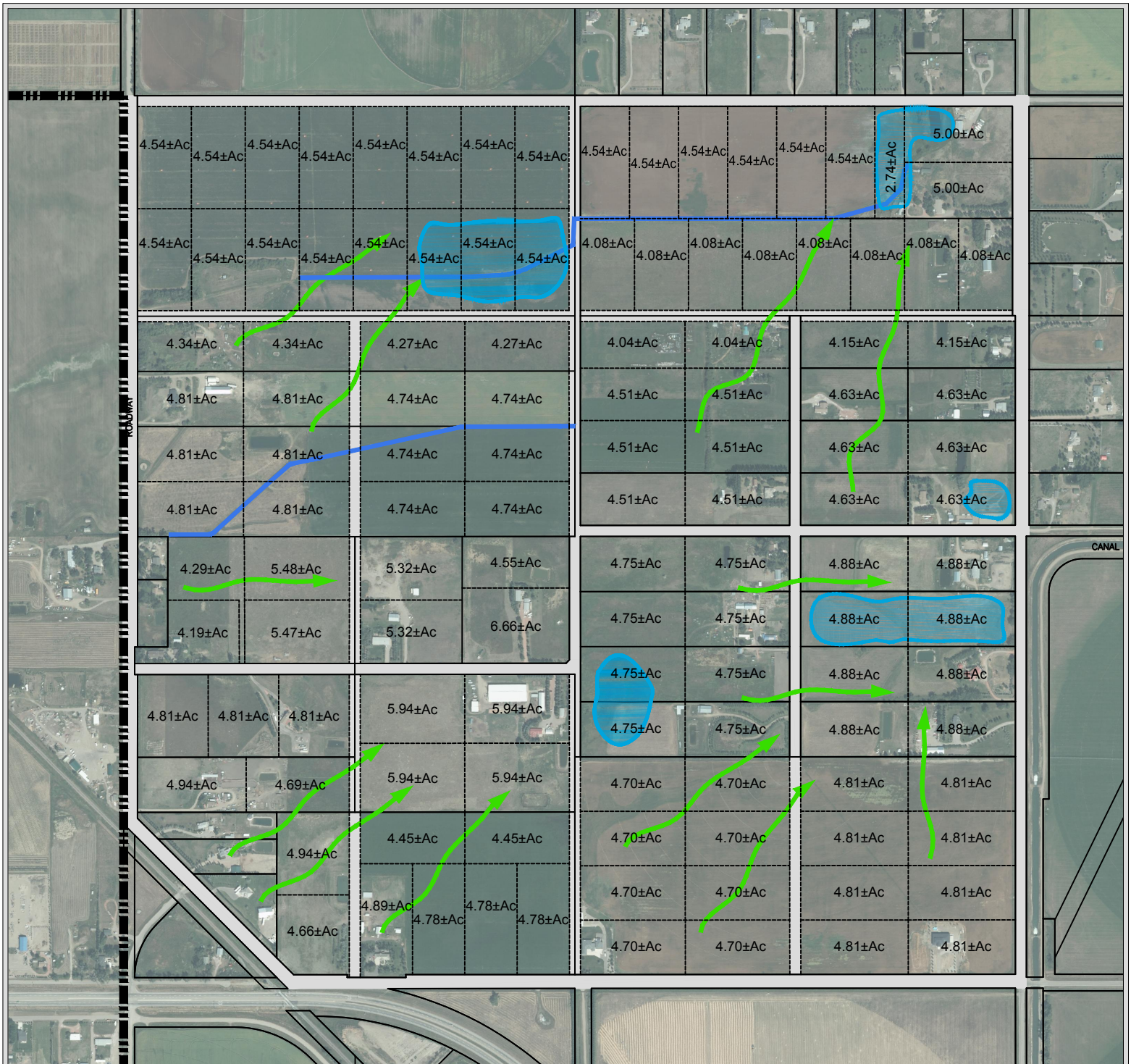
- SUBDIVISION CELL 1
- SUBDIVISION CELL 2
- SUBDIVISION CELL 3
- SUBDIVISION CELL 4
- GENERAL DIRECTION OF ELEVATION DROP
- DITCH (EXISTING)
- POTENTIAL STORM POND AREA
(TO BE VERIFIED BY ENGINEER)

BYLAW NO. 1483
 JANUARY 18, 2017

SCALE 1 : 10000

OLDMAN RIVER REGIONAL SERVICES COMMISSION

0 200 400 600 800
Metres



LAYOUT WITH STORM PONDS







DIAGRAM 5

LETHBRIDGE COUNTY

SECTION 26 AREA STRUCTURE PLAN

SEC 26, TWP 8, RGE 21, W4M

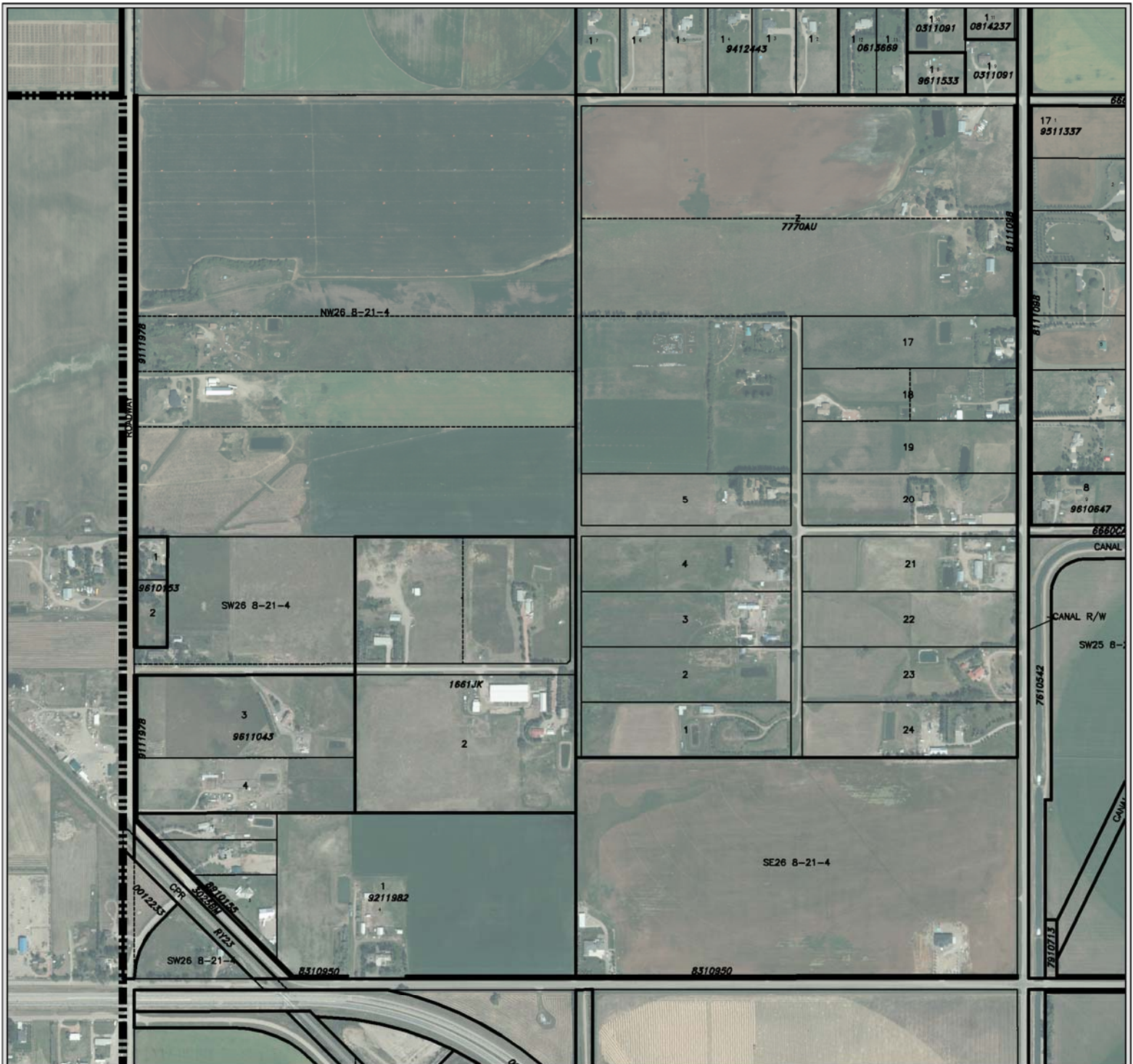
LEGEND

-  ROAD
-  EXISTING PROPERTY LINE
-  PROPOSED PROPERTY LINE
-  GENERAL DIRECTION OF ELEVATION DROP
-  DITCH (EXISTING)
-  POTENTIAL STORM POND AREA
(TO BE VERIFIED BY ENGINEER)

BYLAW NO. 1483
JANUARY 18, 2017

SCALE 1 : 10000





EXISTING LAYOUT
 DIAGRAM 6
 LETHBRIDGE COUNTY
 SECTION 26 AREA STRUCTURE PLAN
 SEC 26, TWP 8, RGE 21, W4M

BYLAW NO. 1483
 JANUARY 18, 2017

AERIAL PHOTO DATE: 2012

SCALE 1 : 10000



0 200 400 600 800
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 February 14, 2017
 N:\Lethbridge-County\Lethbridge-County-Projects\
 SE26-8-21-4 Subdivision Overlay Area Concept Plan.dwg

2. Some existing lots have already been resubdivided or are too small in area to be resplit, and therefore, are ineligible to be further subdivided. Only the lots as illustrated on the attached Plan may be considered eligible for further subdivision.
3. Further or additional subdivision of the lots beyond what is illustrated in the attached Plan shall not be permitted.
4. There is some flexibility allowed in regards to the final lot configuration and lot sizes, due to final road dedications and storm water management areas, etc.; however, in no instance shall a resulting lot be less than 2.0 acres (0.8 ha) in size. Lots 4 to 5 acres in size are the acceptable range.
5. The landowners/developers shall be responsible for all associated expenses with the implementation of this Plan and the subdivision of their land, including any legal survey costs.
6. Wherever feasible, the private access driveways should mirror those on adjacent lots and single joint or shared approaches utilized when possible to reduce the number of access points in close proximity onto the internal municipal road network.

3.3 Servicing

The following section describes both the existing infrastructure and servicing conditions along with the requirements or standards applicable to the Plan Area for either development or subsequent subdivision of the lands. Lethbridge County's *Engineering Guidelines and Minimum Servicing Standards* will typically be applied in the absence of specifically described or stipulated standards.

A. Roads

The existing roads are at a gravelled municipal standard within Section 26. Both existing roads and also new municipal roads are needed to accommodate access for the additional lots that may be subdivided in respect of the Plan. Due to the existence of existing gravel roads, this type of road may be initially developed within subdivided areas. However, the County may require gravel roads to be upgraded to pavement in the future once a more complete subdivision build-out of the areas has been done. Section 26 is adjacent to Highway 4, and although there is no direct access to the highway, residents do access the highway from a short distance at the southwest corner just past the CPR track crossing. Residents may also use Highway 512 as a transportation route to the City of Lethbridge as it is located just over a mile to the north of Section 26. A Traffic Impact Assessment (TIA) may be required to ensure that the existing at grade local intersections with Highways 512 and 4 would be adequate to accommodate the additional traffic that may be generated by the proposed additional group country residential development. The following policies shall apply to this Plan:

1. The landowner/developer, not the County, will be responsible for the costs associated with the construction of any required roads. At the time of subdivision, the developer/landowner will be

required to enter into a development agreement which will establish the road construction requirements and the assignment of costs.

2. Landowners/developers shall dedicate road right-of-way, as stipulated in this Plan, at the time of subdivision. It is recognized that the County will not be responsible for the purchase or acquisition of any road right-of-way in the Plan Area.
3. The provision of any required public roadways is to adhere to the overall Section 26 Plan and is based on aligning with the existing grid road network through the Section.
4. The gravel road grade and base must be prepared and constructed to proper municipal specifications in accordance with Lethbridge County's *Engineering Guidelines and Minimum Servicing Standards*.
5. Required new roads may be provided in stages (phased), if agreed to by the County, if a neighboring landowner who would front or access the same new road is not interested in subdividing at the same time. However, any new road dedication which does not connect through to an adjacent municipal road as illustrated in the Plan, must provide a temporary turnaround area (bulb) which will be registered with the subdivision plan as an access easement until such time the road extension is provided and registered on a plan.
6. Internal or middle lot owners who are dependent on new roads to be provided through an adjacent landowner's title to enable new subdivision access, may not subdivide until such time the neighbor agrees to subdivide and provide their portion of road frontage. This situation is most applicable in the northwest quarter-section.
7. The provision and cost of providing new roads or upgrading existing municipal roads to proper standards to enable subdivision shall be entirely at the expense of the landowners/developers and not Lethbridge County.
8. At a future date when Section 26 is more fully built-out, the County may require the local road network to be upgraded to a pavement standard. At that time, Lethbridge County may use any fees it may have collected for such purposes, or impose a local improvement levy to pay for the local road improvement.
9. The municipality shall not be responsible for construction, management or maintenance of private accesses (personal driveways) as those responsibilities are that of the landowner. The provision of any required approaches and culverts must be of the proper size and material in accordance with Lethbridge County's *Engineering Guidelines and Minimum Servicing Standards*, and shall be provided by landowner.
10. All required engineering, survey work, subdivision or survey plans to facilitate the subdivision of land and provision of roads shall be at the expense of the landowners/developers and not Lethbridge County.

11. A Traffic Impact Assessment (TIA) may be required by Alberta Transportation, which is to be provided by the landowners/developers when requested.
12. A Traffic Impact Assessment (TIA) shall be provided in accordance with the City of Lethbridge and Lethbridge County IDP transportation policies (section 5.1 of IDP) to ascertain any implications of increased traffic as a result of additional subdivision in Section 26.

B. Sewage – Private On-site Septic Treatment

Changes made by the province in 2009 to the private sewage treatment standards now require a soils analysis for ascertaining soil suitability for on-site private septic treatment, and soil percolation tests on their own are not to be used as the defining factor. In respect of this, additional soils analysis will be required and all soils tests/reports by individual lot owners shall be undertaken in consideration of the provincial Safety Codes Council's *Alberta Private Sewage Systems Standard of Practice 2015 (or subsequent update)* to verify suitability for private septic treatment sewage systems.

Additionally, more detailed engineering information pertaining to the capability of the soils and land in respect of the potential plan density needs to be addressed. The location and depth of ground water, potential percolation or seepage issues, depth of water table, etc. are matters that need to be considered in the overall analysis. In consideration of this, *The Model Process for Subdivision Approval and Private Sewage (prepared by the Alberta Association of Municipal Districts & Counties in partnership with Alberta Municipal Affairs)* shall be used to evaluate the suitability and viability of subdivisions relying on private sewage systems.

The following policies shall apply:

1. The initial landowners/developers who prepare the Engineering Detail Plan for a quarter-section shall undertake at their expense a *Level Four Assessment of Site Suitability* analysis as prepared by a qualified engineer to determine overall soil suitability. This must include soil test bore holes taken on each new lot in their proposal, as well as consideration for the potential cumulative impacts of other subdivisions that may occur in all of Section 26 based on the Area Structure Plan, to help ensure any applicable provincial regulations can be met.
2. Each subsequent individual landowner/developer who desires to subdivide their title(s) within the quarter-section where an Engineering Detail Plan has been prepared, shall be required to undertake at their expense a soils analysis on their own parcel(s) proposed for subdivision based on a *Level Four Assessment of Site Suitability* analysis to consider density and cumulative impacts in the quarter-section, prior to a decision being made on the application.
3. A *Level Four Assessment of Site Suitability* soils analysis must be performed by an accredited professional engineer with experience in the field. Typically, along with soil test bore holes performed on each new lot in the subdivision proposal, a number of excavated test pits is required in conjunction with the assessment examining the ground water level, potential for ground water mounding, and consideration for the cumulative impacts of subdivisions in the Plan Area.

4. The use of a holding tank, an open discharge system, or lagoon are not considered sustainable and are also not practical in consideration of the potential density of country residential development. An application that proposes any of these types of systems may result in refusal of a subdivision application, as these methods of private sewage management systems are not acceptable for Section 26.
5. The use of a communal sewage treatment system is unlikely feasible, due to the density of potential residential development and the provincially regulated setback requirements to a wastewater treatment facility. A communal system may be considered, at the discretion of the County, subject to the following:
 - a. such a proposal must be identified and agreed to by the municipality, during the preparation of the Engineering Detail Plan;
 - b. the landowners/developers affected must demonstrate that they have worked together and agree to install at their expense such a system;
 - c. there must be a signed agreement from the landowner of the land where such a system may be physically located, that they agree to the proposal;
 - d. the type of system proposed and how it operates must be acceptable to the municipality, and the viability of operation and on-going maintenance will be considered in determining the suitability;
 - e. the communal sewage treatment system must be able to meet the required 300 metre setback to any residential dwelling or building site of a future subdivided lot, or be able to obtain a setback waiver approval from Alberta Environment and Parks (AEP). The engineering report and costs associated with making an application to AEP shall be borne by the landowner/developer and not Lethbridge County;
 - f. all communal sewage treatment systems must be acceptable to and approved by Alberta Environment and Parks;
 - g. the communal sewage treatment system must be installed, tested and operational prior to the satisfaction of Lethbridge County and Alberta Environment and Parks, prior to any development permits being issued for new dwellings;
 - h. if a communal sewage treatment system is approved by the municipality and Alberta Environment and Parks, Lethbridge County, at its discretion, may agree to take over the facility and land as a Public Utility Lot (PUL).
6. Subdivision or development application approvals may be denied by the municipality where site and soil conditions on the property or proposed parcel are not able to support a self-sustaining on-site private sewage treatment system.

C. Storm Water Management

All storm water runoff within the study area is presently conveyed by overland drainage through a system of swales, ditches, and culverts. Due to historical and past problems associated with drainage and/or a

possible high water table, the provision of a comprehensive engineered storm water management plan is required in order to consider lifting the moratorium on subdivision in Section 26. It is noted that Section 26 is located within the Eight-mile Lake drainage basin.

Lethbridge County has undertaken the preparation of a preliminary storm water management analysis by MPE Engineering Ltd. (March 2015 with updates January 2016) (See Schedule B). If Section 26 is further developed, the additional lots would add to the surface runoff experienced within the subdivision and local area. As noted by the engineers, the post development 1:5 year runoff rate cannot exceed the pre-development 1:5 year runoff rate. Any runoff in excess of this must be stored for later release at a controlled rate. Storage is typically required for runoff from all storms up to the 1:100 year design storm.

The ASP requires those lot owners who want to subdivide further to be responsible for providing a more comprehensive engineered storm water management plan for the entire subdivision cell (quarter-section) they are located in, with consideration for the entire development of the Section and the catchment area. Those plans are to correspond to the MPE analysis and recommended storm water management facilities to be created and their location. All storm water runoff in the study area eventually drains to a St. Mary River Irrigation District (SMRID) canal. In preparing the analysis, the SMRID indicated to MPE Engineering that if the study area is to be developed, the SMRID will require the storm water to be released post storm event once capacity in the system opens. In order to achieve a zero release runoff rate at the four proposed outlets, storm water management facilities (SWMF) will need to be created for the post-development scenarios as identified by MPE Engineering.

The size and location of the storm ponds is conceptual based on the preliminary engineering analysis, and ultimately the landowners who subdivide must provide the detailed engineering plan that would better define the location and size. If a landowner does not want to subdivide and they own a parcel where a preferable/needed pond location is shown, and they will not cooperate with the neighbors who do want to subdivide, the owners who want to subdivide may submit an engineered plan for storm water management that may propose an alternative location but that plan must ultimately be agreed to and approved by the County.

In consideration of these issues, the following storm water management policies are applicable:

1. As part of the Engineering Detail Plan, and prior to any subdivision approval, the landowners/ developers shall provide at their expense a comprehensive engineered storm water management plan for the entire subdivision cell (quarter-section) they are located in, with consideration for the entire development of the Section.
2. The storm water management plan(s) are to consider the MPE analysis and recommended storm water management facilities to be created. The plans must also analyze the storm water catchments upstream and downstream (outside the Section 26 boundary) of the subdivision cells.
3. Landowners/developers of the subdivision, as per any agreement entered into with Lethbridge County, will be required to provide the mechanisms or infrastructure needed for storm water management, at their expense.

4. The landowners/developers are responsible for the necessary facilities pertaining to the subdivision cell (quarter-section) they are located in, with the additional requirement of providing any components that are necessary for the functioning of the system which may be located outside or downstream of the subdivision area itself.
5. If a landowner is dependent on a storm water facility that is required and is proposed to be situated on an adjacent landowner's title, the landowners must cooperate and work together to ensure the land and infrastructure can be put in place to accommodate any subdivision or development proposals. The County may deny a request to redesignate land or subdivide if the necessary agreements and infrastructure are not in place to make the storm water management system function as needed.
6. Any storm water management facilities put in place to accommodate subdivision, may be dedicated as a Public Utility Lot (PUL) to Lethbridge County as part of the subdivision plan registration. The County will not purchase land to accommodate any needed infrastructure, as the landowners who desire to subdivide and develop land will be responsible for providing the land area and facilities required.
7. The County may agree to use an Endeavour to Assist Agreement to compensate the land owner(s) who initially undertake a study, or install required infrastructure needed, if other landowners may later use the information or infrastructure to also subdivide.
8. The storm water management for this area must consider and include the effects on the drainage capacity and management within the Eight-mile Lake drainage basin.
9. Landowners/developers will be responsible for securing all necessary authorizations/approvals from Lethbridge County and Alberta Environment and Parks for the storm water management plan, which may include obtaining AEP approval under the *Water Act*. The SMRID must also be contacted and grant an approval of a more detailed storm water management plan.
10. The landowners/developers must consult with the SMRID regarding drainage and outlets to the canal. The canal cannot be used for drainage in perpetuity, unless the SMRID agrees and grants an approval for any drainage into the canal.
11. A Lot Grading Plan, or portion of the plan if the information is included in the overall storm management plan, must be provided by landowners/developers that should specify design elevations, surface gradients, lot types, swale locations, and other drainage related information required for lot grading as well as establish the drainage relationship between adjacent properties.
12. The final number of lots, and the potential configuration, will be dependent on the final storm water management plan and the detailed sizes needed for the facilities. Thus, the proposed subdivision plan must be designed to accommodate the facilities for storage or ponds required, and the final number of lots may be reduced from what is depicted in this Plan.

13. If any drainage easements are needed in respect of the functioning of the engineered storm water system and conveyance of drainage water, the securing and registering of those documents and plans shall be provided by the landowner/developer, to the satisfaction of Lethbridge County.
14. Any engineered plan for storm water management that may propose an alternative location than what is depicted in the preliminary MPE analysis, must be agreed to and approved by the County.

The landowners, Lethbridge County, and the SMRID should also work collaboratively and implement best practices in regards to flood irrigating in Section 26 in consideration of the possible high water table and drainage concerns. Flood irrigating should be closely monitored and limited wherever possible.

D. Water

The Lethbridge County Rural Water Association provides water delivery to Section 26, and it is anticipated that the rural water co-op will be the preferred method of household water delivery. It is the responsibility of landowners/developers to contact the Lethbridge County Rural Water Association and ensure they secure access to water. The landowners/developers shall be responsible for any costs, shares, and fees associated with providing water. It will be at the discretion of the County whether individual cisterns with hauled water will be permitted or not.

The St. Mary River Irrigation District (SMRID) has indicated that the proposed subdivided lots will be classified as “dry”, and all permanent water rights will need to be transferred or sold off the proposed subdivided lots less than 5.0 acres in size. The landowners/developers must also be aware that the SMRID has stated that they will not allow individual owners to purchase new Household Purposes Agreements. Prior to subdividing, individual landowners are responsible for contacting the SMRID and confirming any of the district’s water requirements.

E. Fire Suppression

There presently is no formal or municipally managed system of fire suppression operating in Section 26. There are a number of existing private dugouts located on various parcels throughout the area. As part of the preparation of the Engineering Detail Plan, it is the responsibility of landowners/developers to adequately identify and address the provision of fire suppression to the County’s satisfaction.

F. Shallow Utilities

Shallow utilities, such as gas, electricity, telephone, etc. service existing developments and such private utility infrastructure is located in the general Plan Area. It is the responsibility of the landowner/developer to contact the various utility agencies regarding the provision of such services and all shallow utilities shall be installed at the expense of the developer. Lethbridge County is not responsible for the provision of any shallow utility services.

G. Development Agreements / Security

The County will address the provision of infrastructure services required to support further subdivision, through the requirement of landowners/developers to enter into Development Agreements with the County. The internal roadway may need to be further developed to accommodate subdivision, and may also be required to be upgraded, which will be addressed through the terms of a Development Agreement. As additional storm water management infrastructure will be required to accommodate drainage over the entire Plan Area, any drainage system works needed shall be provided at the landowner's/developer's expense. The County may also take security to ensure the terms of any agreement are carried out. The following policies are applicable:

1. The landowner or developer or both shall be required to enter into a Development (Service) Agreement with Lethbridge County as the landowner shall be responsible for all development and servicing costs, and any applicable municipal infrastructure associated with servicing the subdivision or development proposal.
2. The County will specify through the terms of the Development Agreement the obligations on the developer for the provision of required infrastructure necessary to serve the subdivision or Plan Area, and the specified standards of such infrastructure.
3. The provision of sufficient security, in a form and amount acceptable to the municipality, may be required in conjunction with a Development Agreement with the County at the time of subdivision and/or development applicable to covering the costs of installation of any required infrastructure to service the development, particularly as it applies to the construction of any required roadways and storm water drainage management system works.
4. Any applicable Section 26 Area Structure Plan costs owed to the County by the landowners for the associated planning and engineering expenditures the municipality up-fronted shall be applied through the terms of the Development Agreement. These are to be paid to the County at the time of subdivision or development and will be calculated on a per acreage basis.

H. Endeavour to Assist / Local Improvement Levies

Endeavor to Assist Agreements may be considered by Lethbridge County to assist developers who install infrastructure as a front-end service that will be a benefit to adjacent landowners/developers in the future. Any cost recovery required through such agreements is over and above any offsite or local improvement levies attached to any specific parcel.

1. The municipality may enter into Endeavor to Assist discussions with the landowner/developer to determine the proportionate recovery of infrastructure monies spent by the landowner/developer to construct infrastructure or oversized infrastructure that will also be for the future benefit of other lands.

2. The County will typically apply or manage Endeavour to Assist agreements though clauses in Development Agreements at the subdivision and development stage.
3. The Endeavour to Assist landowner's calculation (for those who initially supply land or infrastructure for roads or storm water management that others may benefit from), will also include a percentage of the land costs at the time the infrastructure went in (this would be on top of the actual infrastructure costs).
4. If the County requires the local road network to be upgraded to a pavement standard at a future date when Section 26 is more fully built-out, then at that time, the County may use any fees it may have collected for such purposes, or impose a local improvement levy to pay for the local road improvement.
5. If warranted, the County may instigate an Offsite Levies Bylaw to address infrastructure items and associated costs applicable to Section 26.

I. Municipal Reserve

Municipal and/or school reserve will be provided in accordance with Section 666 of the Municipal Government Act at the time of subdivision.

- Unless otherwise specified and agreed to by the County, municipal reserve will be provided as cash in lieu of land.
- The County may consider, at its discretion, the option of taking dedicated land as Municipal Reserve if agreed to, to enable community park space or a bicycle path linkage in Section 26.

3.4 Engineering Detail Plans

To ensure any concerns over the suitability of land for development are satisfied, the provision of a professional engineered investigation/analysis and report to ensure the land is suitable in terms of topography, soil characteristics, ground water, flooding or drainage subsidence, and sanitary sewerage servicing will be required as part of the Engineering Detail Plans to be submitted by landowners/developers for each subdivision cell (quarter-section).

The Area Structure Plan contains policies to ensure the following matters are addressed in considering any further subdivision in Section 26.

1. Landowner(s) would need to provide the required information and additional engineering details pertaining to their quarter-section (subdivision cell), and parcel of land. Additional information to be provided in a professional report with diagrams (to be referred to as the 'Engineering Detail Plan') includes:
 - a. a detailed surveyed subdivision plan (e.g. lots with dimensions, road network, utility layout, easements or rights-of-way, etc.);

- b. engineered soils analysis (Level 4) for private septic sewage treatment systems;
 - c. a detailed engineered storm water management plan for each development cell, in respect of the overall MPE Engineering Ltd. storm water analysis plan;
 - d. other required engineering information, such as lot grade plans, fire suppression plan, a Traffic Impact Assessment (TIA), if not previously provided, in accordance with the City of Lethbridge and Lethbridge County IDP transportation policies (section 5.1 of IDP) and any Alberta Transportation requirements.
2. Lethbridge County must be satisfied with the engineering information provided [in particular, items in 3.4(1) (a through d)] in order to approve the Engineering Detail Plan.
3. The Engineering Detail Plan and its associated engineering information must be approved by the County prior to an individual applying for a redesignation to “Grouped Country Residential” use. At this stage a government and public referral process should occur, including circulating the application to Alberta Environment and Parks, St. Mary River Irrigation District and the City of Lethbridge.
4. Application(s) would need to be approved to redesignate (rezone) any parcel(s) proposed for subdivision to “Grouped Country Residential – GCR” from “Lethbridge Urban Fringe – LUF”, prior to submitting subdivision applications.
5. Once the previous outlined processes are complete and determined to be acceptable and a redesignation approved, subdivision application(s) could then be processed. Conditions of subdivision application approval may include, but are not limited to, the following:
 - a. Alberta Environment and Parks approval under the *Water Act* for the storm water management plan;
 - b. requirements for landowners/developers to enter into Development Agreements to address infrastructure and servicing, and provide security;
 - c. providing any necessary utility easements or rights-of-way;
 - d. providing a copy of a professional soils analysis for on-site septic treatment for the individual lots being subdivided;
 - e. providing a final plan of subdivision that corresponds to the approved lot layout and road network of the Plan Area;
 - f. the provision of Municipal Reserve as per subdivision approval.

PART 4

COUNCIL ADOPTION

PART 4: COUNCIL ADOPTION

Process

The Area Structure Plan is to be used to support the lift (removal) on the moratorium for subdivision and enable the subsequent redesignation to “Grouped Country Residential – GCR”. The landowners shall be responsible to meet the requirements of the ASP and provide the necessary Engineering Detail Plan, to the satisfaction of Lethbridge County, to be able to proceed with submitting subdivision applications.

The Plan shall be adopted by bylaw as prescribed in accordance with the *Municipal Government Act*.

Once Lethbridge County Council adopts the *Section 26 Area Structure Plan 2016* for Section 26-8-21-W4M by bylaw of Council, the Plan shall apply to the aforementioned land. Any proposed major amendments thereto must be approved by County Council through an ASP amendment process in accordance with the *Municipal Government Act*.

(Informative Note: Council adopted this ASP by Bylaw No. 1483 on January 18, 2017 and thereafter passed a Resolution of Council to rescind the moratorium on subdivision in Section 26.)

Schedule A

PROCESS AND POLICIES FOR LANDOWNERS / DEVELOPERS

SCHEDULE A

PROCESS AND POLICIES FOR LANDOWNERS / DEVELOPERS

1.1 Engineering Detail Plans

1.1.1 Process

After the Area Structure Plan has been adopted by Council, landowners/developers will be responsible, at their expense, for preparing additional engineered Engineering Detail Plans prior to applying for redesignation or subdivision.

1.1.2 Policies

1. An Engineering Detail Plan must be prepared and engineered for the entire quarter-section (subdivision cell) as outlined in the Area Structure Plan, and to the satisfaction of Lethbridge County.
2. The Engineering Detail Plan and its associated engineering information must be approved by the County prior to an individual applying for a redesignation to “Grouped Country Residential” use or applying to subdivide.
3. The Engineering Detail Plan will typically include more detailed engineering information pertaining to road networks, drainage and storm water management, utility provisions and rights-of-way, fire suppression, geotechnical and soils analysis, lot dimensions, etc.
4. The Lot Grading Plan, or portion of the plan if combined with the overall storm plan, should specify design elevations, surface gradients, lot types, swale locations, and other drainage related information required for lot grading as well as establish the drainage relationship between adjacent properties.

2.1 Reclassification (Redesignation) of Land

2.1.1 Process

Once the Area Structure Plan has been adopted by Council, the majority of the land eligible to be subdivided within the Plan Area must be redesignated from “Lethbridge Urban Fringe – LUF” to “Grouped Country Residential – GCR”. Landowners who wish to subdivide and reclassify (redesignate) their lots will need to apply to Council on an individual basis or as a coordinated group proposal if the land is within the same development cell.

The process for reclassification, as outlined in the *Municipal Government Act*, provides for advertising of the proposal and holding a public hearing where affected landowners may comment on the proposal. Council will make the final decision to redesignate a parcel and there is no appeal of this decision.

2.1.2 Policies

1. Prior to consideration of any subdivision applications, the Land Use Bylaw must be amended to provide for redesignation of the land to “Grouped Country Residential – GCR”.
2. Council should give consideration to the conformity of the proposal to the overall Plan requirements, prior to making any changes from the “Lethbridge Urban Fringe – LUF” designation.
3. Proposals for reclassification of lands from “Lethbridge Urban Fringe – LUF” shall follow the process outlined in the *Municipal Government Act, Revised Statutes of Alberta 2000, Chapter M-26*.
4. Any subdivision or development proposals as proposed by landowners or developers must adhere to the layout and road network as stipulated in this Plan.
5. There is no obligation on the part of County Council to rezone any parcel of land, and they will review each application on its own merits.

3.1 Subdivision

3.1.1 Process

With the appropriate Engineering Detail Plan and land use designation in place, the developer or landowner may apply for subdivision of the parcel into separate titles. The landowner or developer will have certain costs to consider associated with the subdivision process. These include: subdivision application fees, municipal reserve payments, survey costs and Land Titles Office registration costs. Any required infrastructure to be installed to service the subdivision will be in addition to this.

3.1.2 Policies

1. The Area Structure Plan is to be used as a guideline for subdivision when a landowner/developer decides they want to subdivide any land affected by this Plan. The proposed density and minimum lot size shall be adhered to when subdividing a lot.
2. A landowner/developer is responsible for the costs of subdividing and developing parcels affected by this Plan, and Lethbridge County shall not be responsible for executing the Plan or any associated costs.
3. As a condition of subdivision approval, the landowner or developer will be required to enter into a Development Agreement with Lethbridge County.
4. Costs of infrastructure/utilities shall be borne by the persons owning and developing land in the Plan Area.
5. As a condition of subdivision approval, the developer must provide a plan of survey from a certified Alberta Land Surveyor that certifies the location and dimensions of any existing buildings and the exact dimensions of the lot(s) to be subdivided.

6. Subdivision proposals will be reviewed in terms of conformity to the Area Structure Plan design. Prior to the application or survey of the subdivision proposal, developers are encouraged to consult with Lethbridge County and their planning staff to determine if the proposal is in compliance with the Plan.
7. Any major proposed deviations in the lot layout will require an amendment to this Area Structure Plan by Council, if acceptable. However, the overall road layout, design pattern and density shall be strictly adhered to.
8. At the time of subdivision, Municipal Reserve shall be provided by way of land or cash in lieu of land in an amount not exceeding 10 percent of the acreage of the parcel being subdivided or 10 percent of the per acre value of the parcel being subdivided. It is assumed that Municipal Reserve will be provided as cash in lieu of land in most cases, unless otherwise agreed to by the County.
9. Any utility easement(s) as required by utility companies or Lethbridge County shall be established prior to finalization of the subdivision application.
10. All subdivision applications will be required to include a site plan or surveyors sketch that identifies:
 - a. existing buildings or structures and the location of any utility lines or easements, drainage ditches or swales, dugouts or ponds, etc.;
 - b. any existing private sewage disposal systems so a record and location of the system is available in consideration of property lines and to ensure existing systems remain on the titles they are associated with the dwelling they serve;
 - c. any storm water management facilities, existing and/or proposed, to ensure that the location and interconnecting of the facilities is feasibly developed in accordance with the storm water management plan;
 - d. Any other information required by the Subdivision Authority or under the County's Land Use Bylaw.
11. Individuals may apply Architectural Controls to the subdivision(s) controlled by caveats on the titles if they so choose. Lethbridge County will not be responsible for managing or enforcing any such controls registered.

4.1 Development of Land / Lots

4.1.1 Process

Once the parcel has been subdivided, conditions met and separate titles issued, the individual land owner can apply to Lethbridge County for a development permit to develop, on an individual lot, a permitted or discretionary use as listed in the land use district as contained in the Lethbridge County Land Use Bylaw.

The development approval process will include the following:

1. The land owner will be required to submit an application form, a fee, and a site plan showing the location of the building on the lot. Professional drawn building plans and a grading plan are preferred.
2. Once the application, applicable fee and any required information have been submitted, the designated officer will review and make a decision on the application.
3. If a proposed development conforms to this Plan, engineering requirements and the Land Use Bylaw, the designated officer will issue a development permit with or without conditions for a permitted use. If the application is for a development permit for a discretionary use the designated officer shall notify persons likely to be affected by the issuance of the development permit, prior to rendering a decision.

4.1.2 Policies

1. This Area Structure Plan is to be used as a guideline for development in conjunction with the Land Use Bylaw when considering a development permit application.
2. All residential buildings shall be required to connect to both a potable water system and approved sewage system.
3. The landowner/developer will be required to submit an application form, a fee, a site plan showing the location of the proposed building on the lot, building plans and a grading plan as requested by the County. Legal access and egress from a lot shall be indicated on a site plan and shall be at a location to the satisfaction of the designated officer or the development authority.
4. Any costs associated with survey or engineering work that may be required shall be at the expense of the developer.
5. The development authority may require that as a condition of issuing a development permit, the applicant enter into a development agreement with Lethbridge County.
6. If a development permit is issued by Lethbridge County, the developer/applicant is responsible for applying for and securing the necessary building permits and any other safety code approvals that may be required.
7. Landowners will be required to provide and adhere to the storm water drainage management plan as applicable to their land parcel and proposed development.
8. Builders/developers must give proper consideration to lot grades when choosing a house/building design. The final building grades must reflect the need to ensure that drainage patterns created on the lots will cause water to be channelled on all sides, away from the building and onto adjacent drainage ditches or swales. Lot drainage patterns must relate to the adjoining lots and the remainder of the subdivision, and be in conformance to any storm water management or drainage plans approved. Landscaping may be required to the satisfaction of the designated officer or the development authority in accordance with the Land Use Bylaw.

9. The development authority may require the developer to provide additional standards of development (landscaping, screening of storage/goods, etc.) in conjunction with the Land Use Bylaw.
10. The developer/applicant is responsible for contacting the applicable private utility companies prior to undertaking any excavation or development work.
11. The applicant must have the private sewage system installed by a certified installer/agency or engineer accredited under Alberta Labour (Municipal Affairs) to meet the *Alberta Private Sewage System Guidelines* and be compatible with the results of the soils profile and analysis. The system must be inspected by a certified Safety Codes officer with a copy of an approval or certification filed with the municipal office.

Schedule B

SECTION 26 STORM WATER ANALYSIS (MPE Engineering Ltd.)

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Fax: 403-329-9354



County of Lethbridge
#100, 905 – 4th Avenue South
Lethbridge, Alberta
T1J 4E4

January 18, 2016
File: N:\1755\061-00\L01-3.0

Attention: Mr. Devon Thiele,
Infrastructure Design and Construction Coordinator

Dear Sir:

Re: Section 26 Storm Water Analysis

Background

As requested, we have undertaken a storm water analysis for section 26-8-21-W4M. The study area is confined to the section 26-8-21-W4M boundaries. The analysis of the study area included field observations of the storm water systems and drainage patterns, as well as developing a computer model to determine pre and post development runoff and storm water storage requirements.

The existing land is agricultural with scattered residences throughout. It is understood that future development for the area will be country residential. For the purposes of this report we have assumed the development to include a gravel road network with 2 acre residential lots over the entire study area.

Storm Water System

All storm water runoff within the study area is conveyed by overland drainage. The system relies on surface drainage along swales, ditches, and culverts. The current drainage path and catchment areas are outlined in Figure 1 (Attached).

The study area has been divided into six catchment areas draining to four different outlets. Catchment A is a small area in the southwest corner of the study area. Drainage for this area flows along the south side of Research Centre Road and outlets the study area at the northwest corner of the catchment. Drainage from

this catchment eventually enters the study area again approximately 1 km north through the 400 diameter culvert on the west side of catchment D.

Catchment B encompasses the southeast corner of the study area. Drainage flows north and outlets the study area through a culvert near the northeast corner of the catchment. This culvert crosses range road 211 and ties in directly to the canal.

Catchment C is a small area just north of catchment B. Drainage flows south and outlets the study area through a culvert at the southeast corner of the catchment. This culvert crosses range road 211 where runoff flows east to the north ditch of the adjacent road.

Catchments D and E encompass the majority of the study area. Drainage for these areas flows north into catchment F. The runoff from catchment D enters catchment F at the southwest corner and the runoff from catchment E enters catchment F on the south side of catchment F.

Catchment F has the lowest elevations within the study area and receives runoff from both catchments D and E. Runoff pools on the north side of the catchment and is released by a culvert crossing the north access road.

Storm Water Analysis

Storm water management is an integral part of land development. The general principle for storm water management is that runoff from a developed area cannot exceed the runoff that occurred prior to development. The benchmark is the runoff from a storm that has a 20% probability of occurring each year (1:5 year storm). The post development 1:5 year runoff rate cannot exceed the pre-development 1:5 year runoff rate. Any runoff in excess of this must be stored for later release at a controlled rate. Storage is typically required for runoff from all storms up to the 1:100 year design storm.

All storm water runoff in the study area eventually drains to a St. Mary River Irrigation District (SMRID) canal. The SMRID have indicated to us that if the study area is to be developed they will require the storm water to be released post storm event once capacity in the system opens.

The City of Lethbridge design storms were adopted for the present analysis. The following formula

defines the intensity-duration-frequency (IDF) curves for various storms, with the coefficients varying according to the return period (frequency), the storm intensity, and the storm duration. Rainfall intensity is calculated as:

$$i = \frac{a}{(t + b)^c}$$

Where:

i is the rainfall intensity (mm/hour).

t is time (minutes).

a, *b* and *c* are the constants for the respective design storm return period.

The design storms used in this analysis are the 4-hour 1:5 year storm and the 24-hour 1:100 year storm. The coefficients for the City of Lethbridge design storms which were used in this study are presented in Table 1.

Table 1 – IDF Equation Coefficients			
Return Period	<i>a</i>	<i>b</i>	<i>c</i>
1 in 5 Year	440.69	0	0.696
1 in 100 Year	1019.20	0	0.731

The 4-hour, 1:5 year design storm for the City of Lethbridge produces approximately 39 mm of precipitation. The 24 hour, 1:100 year design storm produces approximately 120 mm of precipitation.

A storm water analysis of the study area was undertaken using the hydrologic modeling program PCSWMM. The model was used to aid in determination of runoff volumes, peak flow rates, and to size storm water management facilities for storage of runoff.

Proposed Drainage Work

In order to achieve a zero release run-off rate at the four outlets, storm water management facilities (SWMF) will need to be created for the post-development scenario as shown in Figure 2 (Attached). The SWMF's range in size depending on the total runoff volumes of the contributing catchments. There is no development planned for catchment G and as a result no SWMF is required. SWMF H would collect 35,000

m³ of storm water runoff from Catchment H and release the water at outlet 2 post storm event. Similarly, SWMF I would collect 4,500 m³ of storm water runoff from Catchment I and release the water at outlet 3.

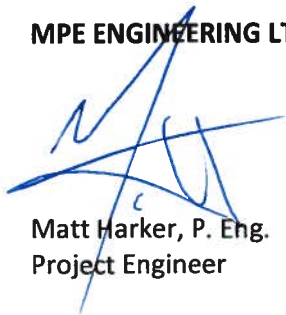
Storm water runoff from catchments J, K, and L all flow to outlet 4. SMWF J would collect 23,000 m³ of storm water runoff and release the water to the future ditch system post storm event. Similarly, SMWF K would collect 45,000 m³ of storm water runoff and release the water to the future ditch system post storm event. SWMF L would collect 30 000 m³ of storm water runoff and release the water at outlet 4 post storm event. SWMF's J and K could not be drained until SWMF L is drained.

Consideration of the potential drainage impacts caused by the development of this section should be assessed prior to the development. This would include a detailed storm water management plan which would analyse the storm water catchments upstream and downstream (outside the section 26 boundary) of the development and would likely require agreements to satisfy the Alberta Environment and Parks Water Act requirements.

If you have any questions, comments or require further clarification of our submission, please contact the undersigned at 403-317-3628.

Yours truly,

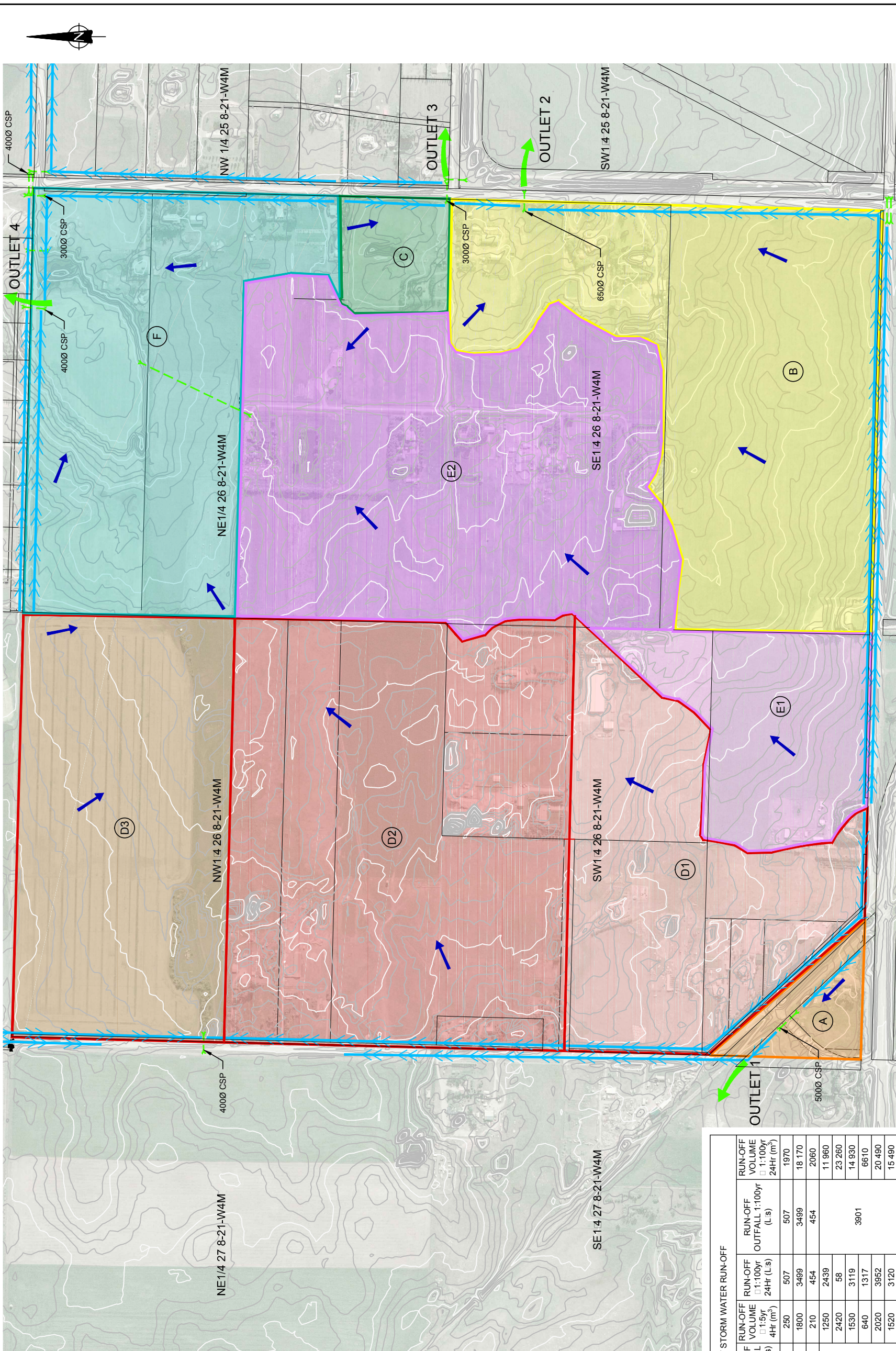
MPE ENGINEERING LTD.



Matt Harker, P. Eng.
Project Engineer

Enclosure

:mh



PRE-DEVELOPMENT STORM WATER RUN-OFF

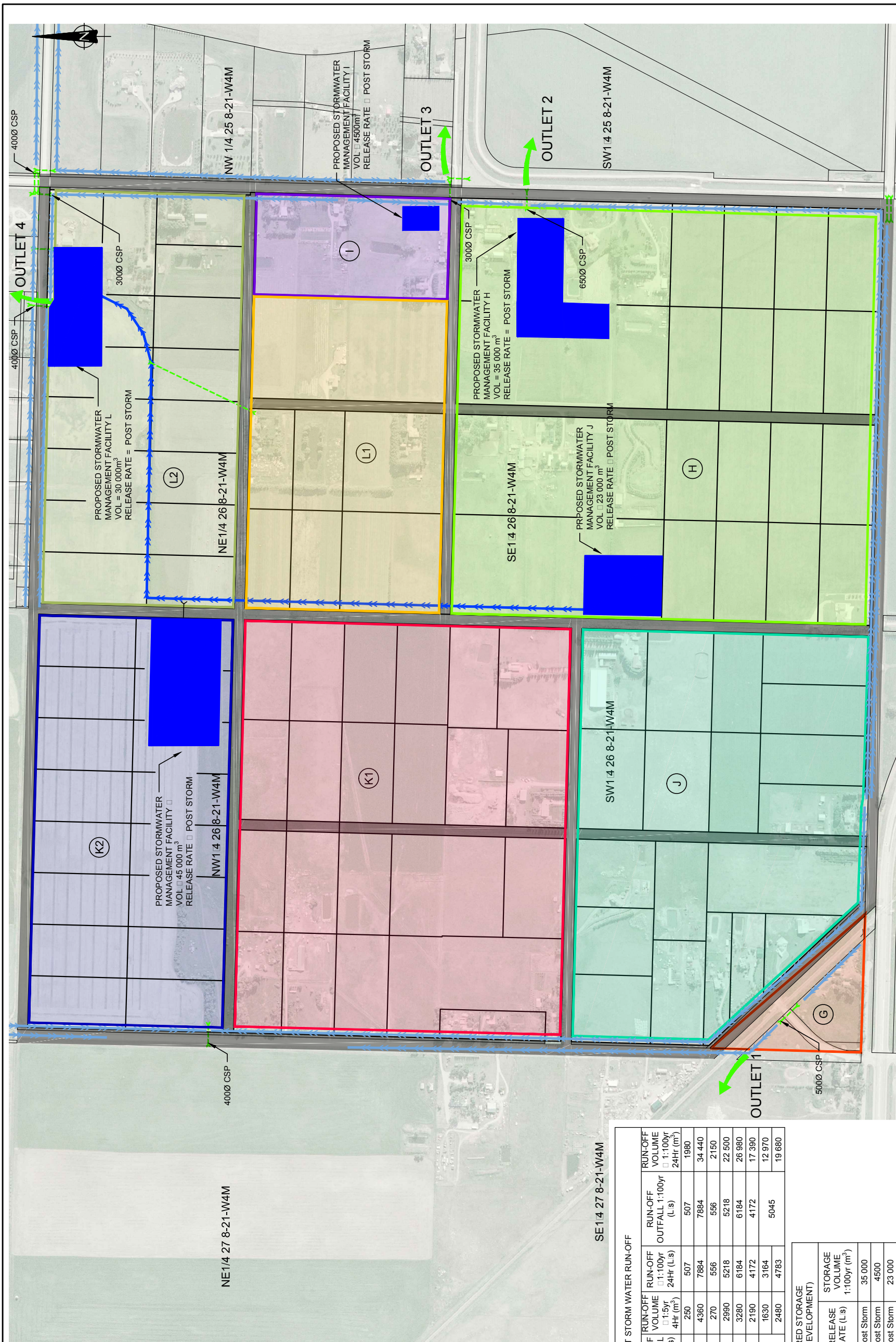
CATCHMENT AREA	AREA (ha)	RUN-OFF VOLUME	RUN-OFF OUTFALL	RUN-OFF VOLUME	RUN-OFF OUTFALL	RUN-OFF VOLUME	RUN-OFF OUTFALL
		1:5yr 4hr (L.s)	1:5yr 1.5hr (L.s)	1:100yr 24hr (m³)	1:100yr 24hr (L.s)	1:100yr 24hr (m³)	1:100yr 24hr (L.s)
A	3.71	178	178	250	507	1970	507
B	42.10	1193	1193	1800	3499	18170	3499
C	4.28	168	168	210	454	2080	454
D1	26.83	833	1189	1250	2439	11960	2439
D2	51.99	1632	1189	2420	58	23260	58
D3	32.58	1103	1189	1530	3119	14930	3119
E1	14.59	474	1189	640	1317	6610	1317
E2	47.36	1350	1189	2020	3952	20490	3952
F	35.31	1115	1189	1520	3120	15490	3120

LEGEND

- (A) CATCHMENT AREA LABEL
- CATCHMENT AREA BOUNDARY
- EXISTING CULVERT
- EXISTING SWALE
- ↻ OUTLET FLOW ARROW
- ↔ DRAINAGE FLOW ARROWS



COUNTY OF LETHBRIDGE
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 STORM WATER MANAGEMENT PLAN
 EXISTING DRAINAGE (PRE-DEVELOPMENT)



POST-DEVELOPMENT STORM WATER RUN-OFF

CATCHMENT AREA	AREA (ha)	RUN-OFF VOLUME		RUN-OFF VOLUME		RUN-OFF VOLUME	
		1:5yr 4hr (L.s)	1:5yr 24hr (L.s)	1:100yr 4hr (L.s)	1:100yr 24hr (L.s)	1:100yr 4hr (L.s)	1:100yr 24hr (L.s)
G	3.71	178	178	250	507	1980	1980
H	65.04	2548	2548	4360	7884	34440	34440
I	3.85	198	198	270	556	2150	2150
J	42.23	1704	1704	2990	5218	22500	22500
L1	50.92	2001	2001	3280	6184	26980	26980
L2	32.14	1402	1402	2190	4172	17390	17390
L1	23.80	1078	1078	1630	3164	12970	12970
L2	36.15	1625	1625	2480	4783	19680	19680

REQUIRED STORAGE (POST-DEVELOPMENT)

CATCHMENT AREA	RELEASE RATE (L/s)	STORAGE VOLUME (m³)
SWMF H	Post Storm	35 000
SWMF I	Post Storm	4500
SWMF J	Post Storm	23 000
SWMF L	Post Storm	45 000
SWMF L	Post Storm	30 000

LEGEND

- (A) CATCHMENT AREA LABEL
- CATCHMENT AREA BOUNDARY
- CATCHMENT AREA
- EXISTING CULVERT
- EXISTING SWALE
- PROPOSED SWALE
- PROPOSED ROAD
- OUTLET FLOW ARROW
- DRAINAGE FLOW ARROWS
- PROPOSED STORM WATER MANAGEMENT FACILITY
- EXISTING SWALE
- PROPOSED SWALE



COUNTY OF LETHBRIDGE
 SECTION 26 STORM WATER ANALYSIS
 STORM WATER MANAGEMENT PLAN
 PROPOSED DRAINAGE (POST-DEVELOPMENT)

SCALE: 1:7500 DATE: JANUARY 2016 JOB: 1755-061-00 FIGURE: 2

Appendix A

OPEN HOUSE PUBLIC COMMENTS SUMMARY

APPENDIX A

SECTION 26 OPEN HOUSE PUBLIC COMMENTS SUMMARY

LETHBRIDGE COUNTY – SECTION 26 AREA STRUCTURE PLAN PUBLIC COMMENTS SUMMARY Open House – May 26, 2016

Attendance: Approximately 30 - 35 people total (22 officially signed-in for the record)

- The total attendance also includes 5 Lethbridge County Councillors

Written comments: 11 (received at the time of writing summary)

- All 11 submissions indicate they are landowners in Section 26

Verbatim summary of written comments:

1. Thanks for the good work. I would like the size of the lots be taken individually, however the overall outlook is great.
2. Well illustrated and explained by Hilary and Steve. Looks great in theory and am heavily in favor of moratorium removal. Am in favor of 4 acre minimum lots.
3. I would definitely support moving forward with an integrated plan that would allow moving forward with subdivision. Even for owners with no immediate interest in subdividing the option to do so would substantially increase property values. I'm in the NE¼ (subdivision Cell 2). So my vote is to proceed with the appropriate next steps. You would have my cooperation, as would offset owners in the area.
4. Thanks for providing this information. Our only concern, as always, is drainage. We are not interested in subdividing ourselves, and thus would "oppose" subdivision which might negatively affect our lifestyle. We'd also be concerned about increased traffic, complaints about agricultural practices, etc.
5. Well thought-out plan. Any estimates for cost of roads and storm ponds would be helpful.
6. I am in favor of subdivision but am concerned with how large the lots need to be and also the plan will be challenging to get neighboring land owners all on the same page. The plan needs more flexibility to allow some owners to subdivide while others don't want to.

7. How will you compensate the people who have the storage ponds on their land?
8. We are not interested in any development that will add to our taxes, traffic counts or lights. We bought in the country so it could feel like the country. We have current drainage concerns that should be addressed as in the past our concerns were not acted on.
9. I am concerned that we will lose the country and open spaces, which is why we bought in Section 26. We do not want to increase traffic in our area. We have major drainage problems that the County has not adequately addressed and I do not have confidence that we will not be further affected and have even more wet pasture and garden space. It appears that certain individuals have purchased large portions of land for the purpose of development without a vested interest in living in our community.
10. Thank you for the information. I would like to have had estimates for the costs of road construction, fees, engineering costs, soil testing, etc. This is important information to have for decisions.
11. Good plan. I am supportive.