

LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

Approved by MPC June 6, 2006

LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

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LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

1.0 INTRODUCTION

The Legacy Ridge Stage 2 Outline Plan has been prepared to conform to the Hardieville / Legacy Ridge / Uplands Area Structure Plan as well it provides for a compatible transition with the existing residential developments in Hardieville and Legacy Ridge Stage 1.

A mixture of housing alternatives have been provided, comprising mainly of smaller single family lots and semi-detached lots. One site is provided for a Public Elementary School.

The roadway network conforms to the Area Structure Plan and has compatible links to Legacy Ridge Stage I, Hardieville and early development plans for Legacy Ridge Stage 3.

LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

2.0 LOCATION

The lands are located in north Lethbridge and are bounded to the south by Legacy Ridge Stage 1 currently being developed by Melcor Developments Ltd.; to the north by Hardieville and a portion of Legacy Ridge Phase 3; to the east by 13th Street, and to the west by coulee lands and part of Legacy Ridge Phase 3.

The lands basically slope from east to west with over a 10.0 metre drop from the west boundary to 13th Street.

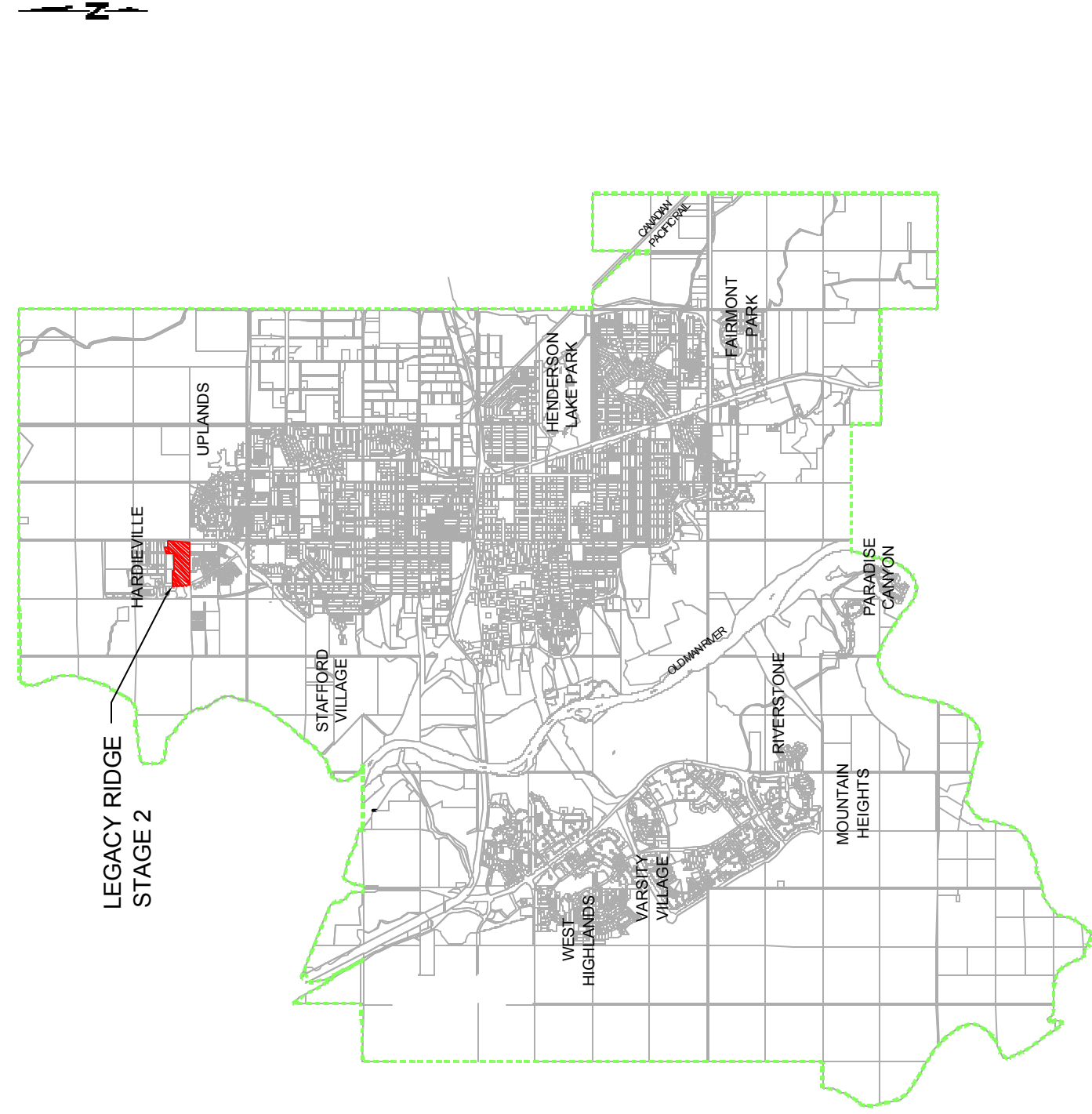
The lands are currently used for agricultural purposes and are zoned UR – Urban Reserve. The subject property encompasses 16.39 ha (40.5 acres).

Figure 1 Location Plan

Figure 2 Air Photo

Figure 3 Contours

Figure 4 Existing Land Use



LEGACY RIDGE STAGE 2

LEGEND

-  Legacy Ridge Stage 2 Boundary
-  City of Lethbridge Limits

Location Plan

Scale NTS Figure No: 1

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LEGACY RIDGE STAGE 2

LEGEND

-  Legacy Ridge Stage 2 Boundary
-  City of Lethbridge Limits

Air Photo

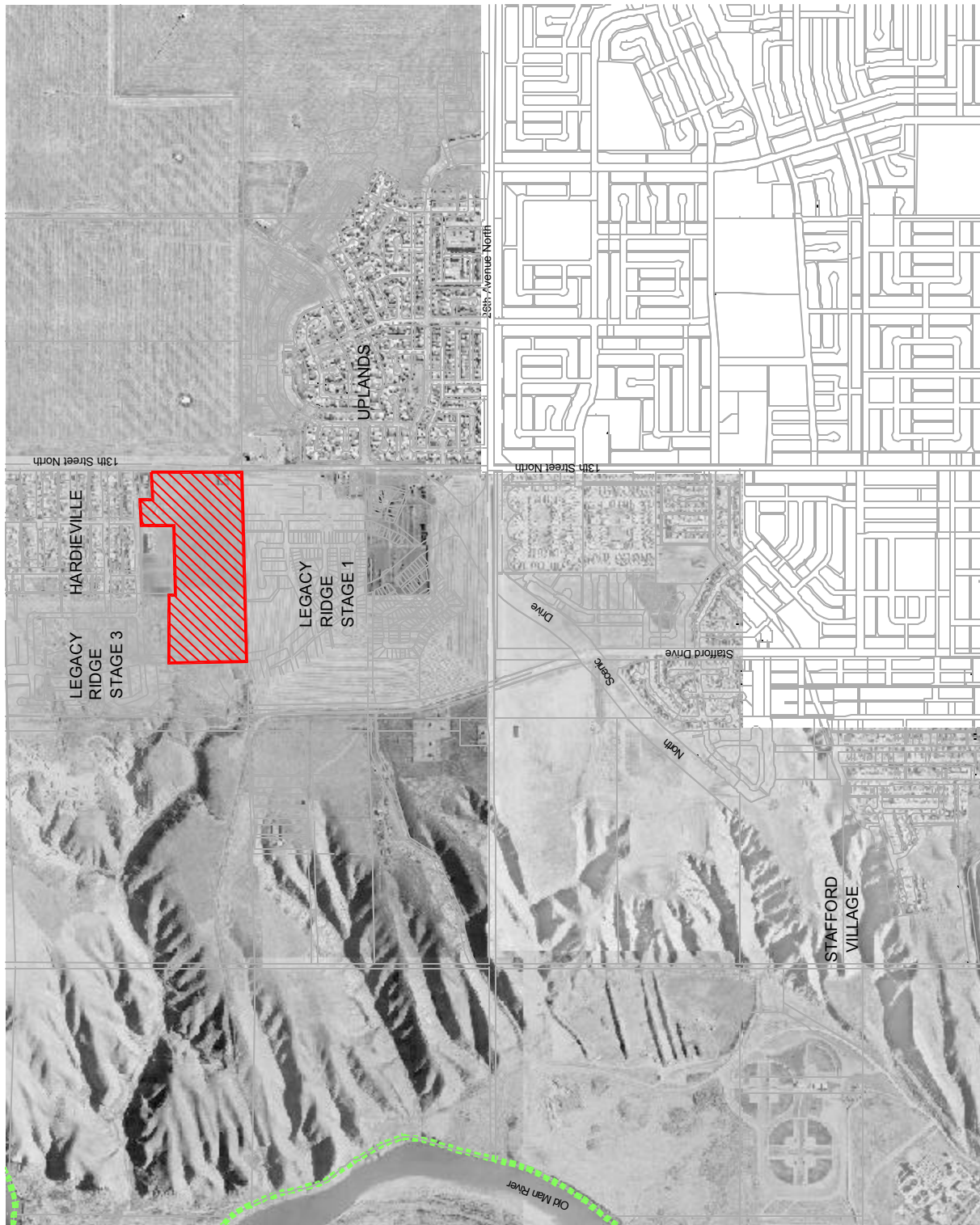
Scale NTS Figure No: 2

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LEGACY RIDGE STAGE 2

LEGEND

- - - LEGACY RIDGE STAGE 2 BOUNDARY
- SETBACK - CITY
- TOP OF BANK - CITY
- TOP OF BANK - FIELD SURVEY FEBRUARY 2006

CONTOURS

Scale NTS Figure No: 3

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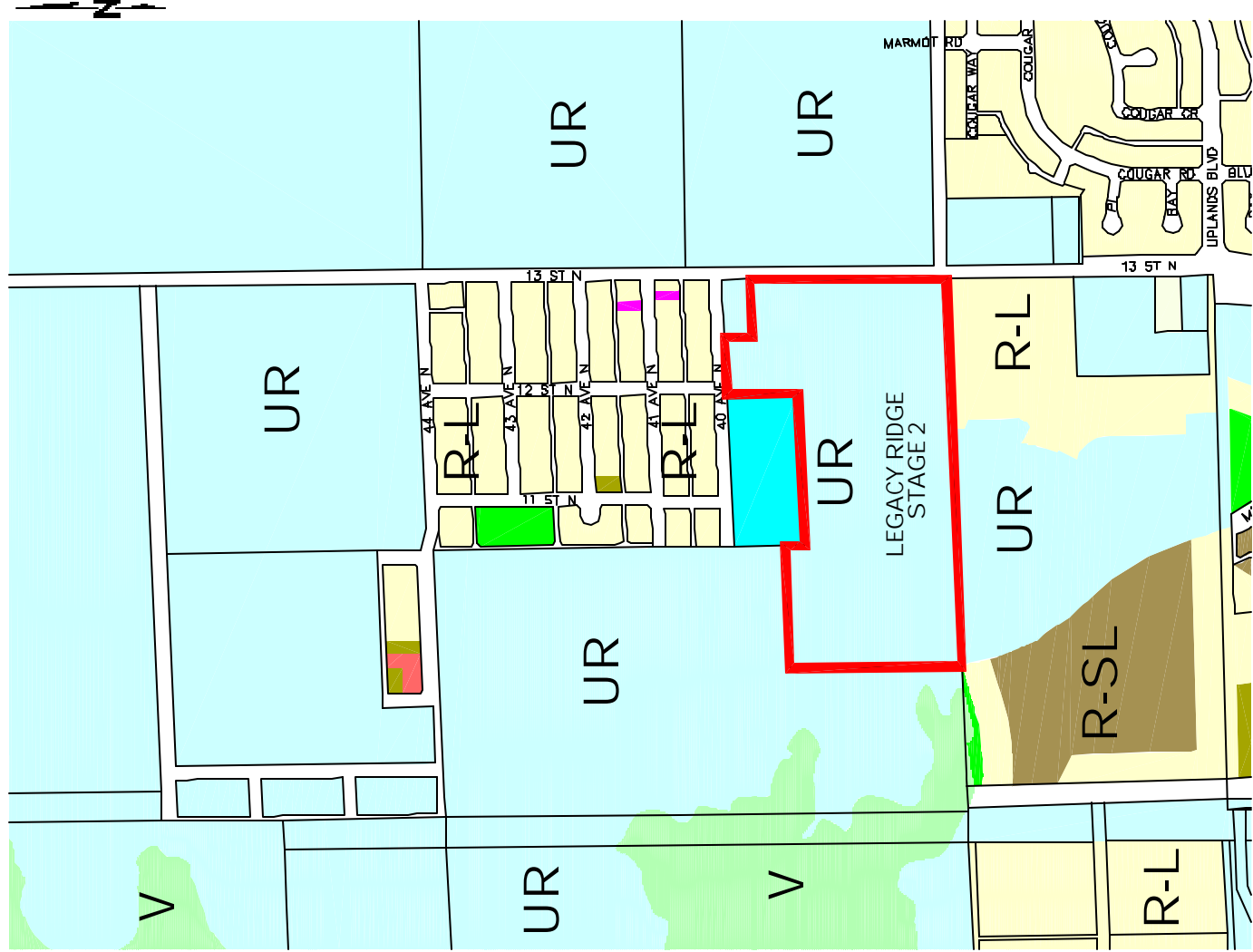
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CITY OF
Lethbridge
LAND USE DISTRICTS MAP
AMENDMENTS TO APRIL 18, 2005

- C-D Downtown Commercial
- C-G General Commercial
- C-H Highway Commercial
- C-HH* Highway Commercial
- C-L Local Commercial
- C-N Neighbourhood Commercial
- C-N* Neighbourhood Commercial
- C-S Shopping Mall Commercial
- DC Direct Central
- I-B Industrial Business
- I-B* Industrial Business
- I-Q General Industrial
- I-H Heavy Industrial
- P-B Public Building
- P-B* Public Building
- P-R Parks and Recreation
- P-SD Specialist Office
- P-T Public Transportation
- R-L Low Density Residential
- R-Lb Low Density Residential
- R-Lz Low Density Residential
- R-RL Comprehensive Planned Low Density Residential
- R-DM Comprehensive Planned Medium Density Residential
- R-MH Comprehensive Planned Medium Density Residential
- R-VH* Mobile Home
- R-VH* Mobile Home
- R-RL* Restricted Low Density Residential
- R-RL* Restricted Low Density Residential
- R-SL Small Parcel Low Density Residential District
- R-37L Medium Density Residential
- R-50L London Road Neighbourhood Higher Density
- R-50* Medium Density Residential
- R-60 Medium Density Residential
- R-75 Medium Density Residential
- R-100 High Density Residential
- R-150 High Density Residential
- R-200 High Density Residential
- UR Urban Reserve
- UR* Urban Reserve
- V Valley

UNOFFICIAL MAP - CONSOLIDATED FOR CONVENIENCE ONLY. FOR ZONING OF INDIVIDUAL PROPERTIES CONTACT DEVELOPMENT SERVICES DEPARTMENT.



LEGACY RIDGE STAGE 2
LEGEND
Legacy Ridge Stage 2 Boundary

Existing Land Use
Scale NTS Figure No: 4

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LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

3.0 LAND OWNERSHIP

The land is currently owned in it's entirety by Avonlea Land Corp. Ltd. A copy of the title is attached as Appendix A. The adjacent landowners are indicated on Figure No. 5 Land Ownership.

Figure 5 Land Ownership

*APPENDIX A Land Title Certificate
(included with report)*

LEGACY RIDGE STAGE 2

LEGEND

-  LEGACY RIDGE STAGE 2 BOUNDARY
-  AVONLEA
-  CITY OF LETHBRIDGE
-  MELCOR DEVELOPMENTS LTD.
-  OTHERS

Land Ownership

Scale 1:10000 Figure No: 5

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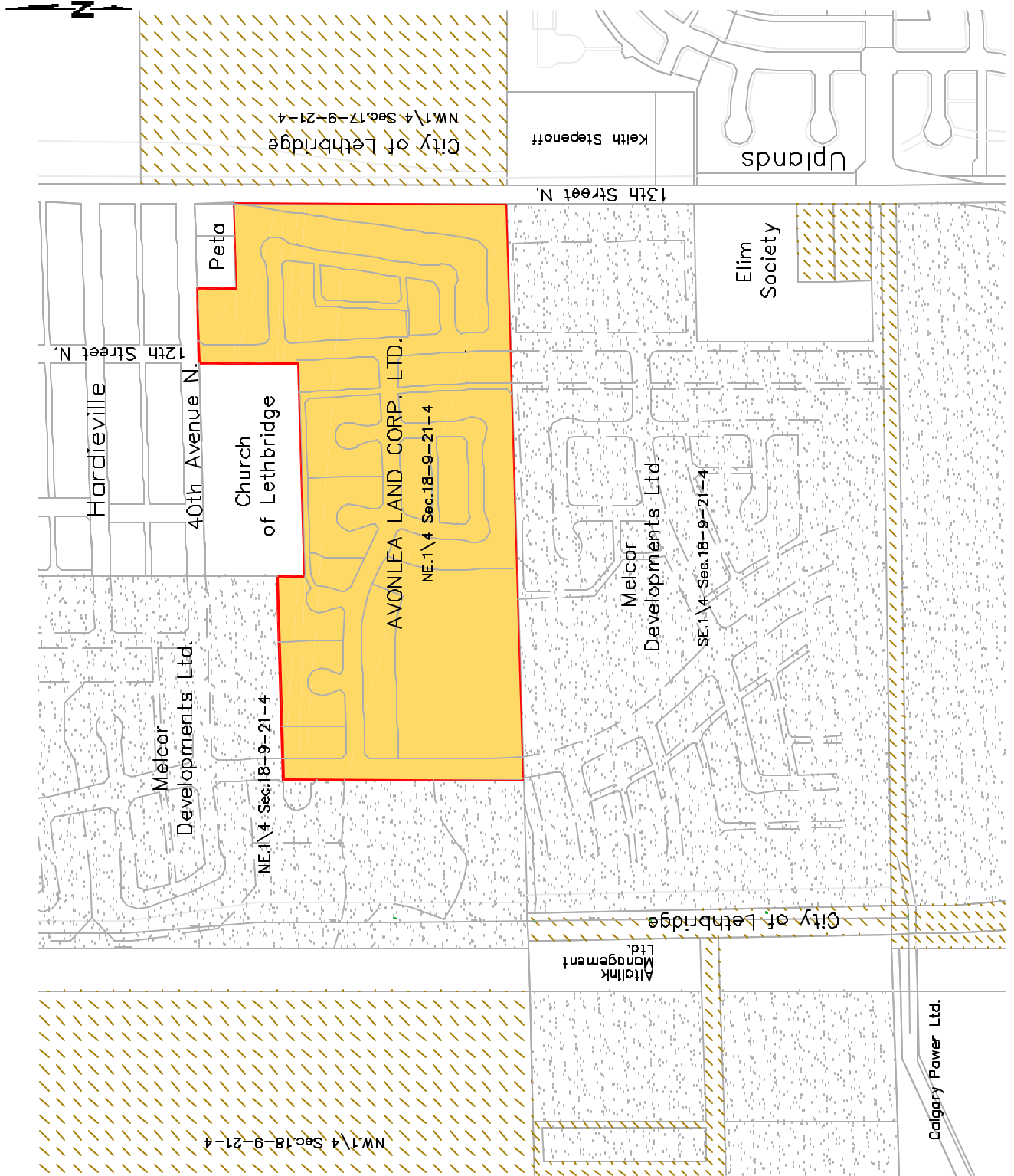
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LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

4.0 PLANNING CONTEXT

The Hardieville / Legacy Ridge / Uplands Area Structure Plan provides the planning context for Legacy Ridge Stage 2. In addition, the Legacy Ridge Stage 1 Outline Plan has provided a basis for continuity of the transportation network, servicing, open space and land uses.

The Legacy Ridge Stage 2 Outline Plan meets the following objectives of the Area Structure Plan.

- Primarily low density residential development for the Outline Plan area;
- Strategically located multi-family residential development in the general location identified in the Area Structure Plan;
- An enlarged Public Elementary School site in the general location identified in the Area Structure Plan;
- A transportation network consistent with the collector roadway network identified in the Area Structure Plan to facilitate efficient internal traffic movements;
- Neighbourhood parks providing a combination of playground opportunities and informal play areas as well as passive recreational opportunities.

The land uses proposed comply with the Area Structure Plan requirement that *the Legacy Ridge Village will be predominantly single-family sites*. The school site provided complements and completes the area required for the adjacent school site proposed for Legacy Ridge Stage 1.

LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

5.0 PROPOSED LAND USES

5.1 Residential

The Legacy Ridge Stage 2 Outline Plan proposes a variety of residential land uses with a variety of lot sizes including lane and laneless options. Provisions have been made for numerous semi-detached lots.

The anticipated density per gross acre is 35.7 person/ha or 12.75 units/ha. Excluding the park area the density is 43.0 person/ha or 15.4 unit/ha.

5.2 Public Open Space

A Public Elementary School site has been provided adjacent to the proposed Public Elementary School site planned in Legacy Ridge Stage 1 Outline Plan.

The location and size have to be provided in conformance with the Hardieville / Legacy Ridge / Uplands Area Structure Plan.

*APPENDIX I Land Use Allocation Statistics and Student Generation
(included with report)*

LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

6.0 LANDSCAPING

6.1 Landscaping

Landscaping will be provided on the north side of Grace Dainty Road at the intersection with 13th Street North.

Trees will be planted in the boulevards along Grace Dainty Road and Mildred Dobbs Boulevard where there are separate sidewalks and curbs and gutters.

The Elementary School site will be graded, topsoiled and seeded with dry-land grass in accordance with City of Lethbridge Design Standards.

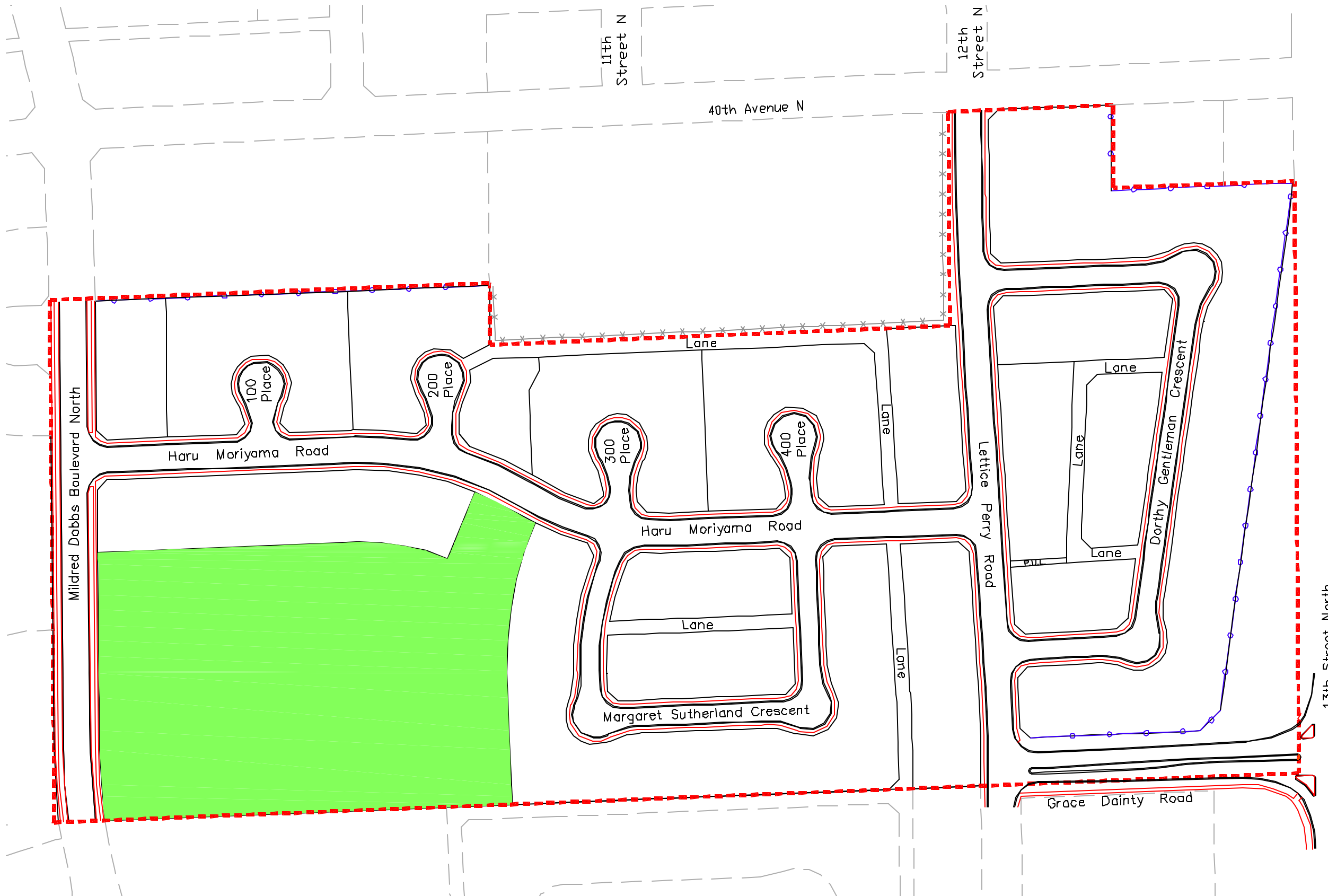
In conjunction with the City of Lethbridge, consideration will be given to providing irrigated turf, trees and shrubs for the portion of the School site that abuts Haru Moriyama Road. This will be determined at the time of subdivision for that particular phase.

6.2 Fencing

Concrete block fences will be provided along 13th Street North, along the south and west boundary of the existing Peta residential property in the northeast corner of the site and along the north boundary at the westerly end of the property.




Figure 6 Fencing and Landscaping

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LEGACY RIDGE STAGE 2

LEGEND

-  LEGACY RIDGE STAGE 2 BOUNDARY
-  EXISTING CHAIN LINK FENCE
-  PROPOSED FENCE

FENCING AND LANDSCAPING

Scale 1:2000 Figure No: 6

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LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

7.0 ARCHITECTURAL CONTROLS

Architectural Control Guidelines will be developed and administered by Avonlea Land Corp. Ltd. and will encompass items such as:

- Building Footprints,
- Requirements for attached/detached garages and/or parking pads,
- Roofing materials,
- Diversity of building design,
- Exterior finishes,
- Landscaping requirements.

LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

8.0 PROPOSED ZONING

8.1 Residential Land Use

Two residential land use districts are proposed within Legacy Ridge Stage 2.

8.1.1. R-CL Comprehensively Planned Low Density Resident

The outline Plan identifies approximately 150 lots zone as R-CL. This allows for smaller lots on a comprehensively planned basis. At the time of application for tentative subdivision approval the Developer will supply to the City Planning Department a Comprehensive Site Plan for that phase of development. This site plan will specify lot dimensions, mandatory minimum setbacks, maximum parcel coverage, and mandatory garage requirements.

8.1.2. R-37

The areas designated as R-37 are all planned for semi-detached units only. The area thus zoned will provide for a total of 50 semi-detached units.





8.2 Reserve Dedication

The provision of public parks and open space with the Legacy Ridge State 2 Outline Plan is accommodated by the provision of the Public Elementary School site which represents 17.03% of the net developable land. This site comprises 2.79 ha (6.9 acres) and will be zoned as P-B, Public Building district.

Figure 7 Land Use and Zoning Concept
Figure 8 Public School Site

LEGACY RIDGE
STAGE 2

LEGEND

-  LEGACY RIDGE STAGE 2 BOUNDARY
-  FROM U-R TO R37
-  FROM U-R TO R-CL
-  FROM U-R TO P-B



LAND USE AND
PROPOSED
ZONING

Scale 1:2000 Figure No:7

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LEGACY RIDGE STAGE 2

LEGEND

- - - LEGACY RIDGE STAGE 2 BOUNDARY
- AREA OF OPEN SPACE = 2.79 ha

Public School Site

Scale 1:2000 Figure No: 8

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LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

9.0 GEOTECHNICAL EVALUATION

The "top of bank" as defined under the City of Lethbridge River Valley Area Redevelopment Plan appears to encroach into Mildred Dobbs Boulevard on the southwest corner of the development. Subsequently EBA Engineering Consultants Ltd. was commissioned to review this issue.

Their report indicates a revised top of bank line and subsequent development setback line which is approximately 138.0 metres west of the edge of the roadway. Their report further concludes that roadway construction in Mildred Dobbs Boulevard at this location is permissible from a geotechnical perspective.

APPENDIX B Top of Bank Geotechnical Review

Prepared by EBA Engineering Consultants Ltd., February 22, 2006

(included with report)

LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

10.0 HISTORICAL RESOURCES

A Historical Resources Overview was undertaken by Arrow Archaeology Limited and concluded that a Historical Resource Impact Assessment was not required as there is a low potential for the project to intersect or impact historical resources.

*APPENDIX C Historical Resources Overview
Legacy Ridge Stage 2 Subdivision
Arrow Archaeology Limited, February 2006
(under separate cover)*

*APPENDIX L Historical Resources Act Requirements and Clearance
Legacy Ridge Stage 2 Subdivision
Alberta Community Development Heritage Resources Management,
March 2006
(included with report)*

LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

11.0 TRANSPORTATION

Primary all turns access to Legacy Ridge Stage 2 will be provided via a modified super collector road from a T intersection at the intersection of Grace Dainty Road with 13th Street North. Details will be determined during final design.

A 23 m major collector (Mildred Dobbs Boulevard) runs north/south on the west boundary of the property connecting Mildred Dobbs Boulevard to the south and a proposed major collector in Stage 3.

A minor collector (Lettice Perry Road) connects 12th Street North in Hardieville and the future Lettice Perry Road from Legacy Ridge Stage 1.

A minor collector (Haru Moriyama Road) running east/west connects to the collector at the west of the property and Lettice Perry Road.

The connection at 13th Street North will be to the existing 13th Street roadway. When North Scenic Drive is extended a new chanalized intersection will be required.

Figure 9 Road Network

APPENDIX D Peta Lands

Traffic Impact Assessment

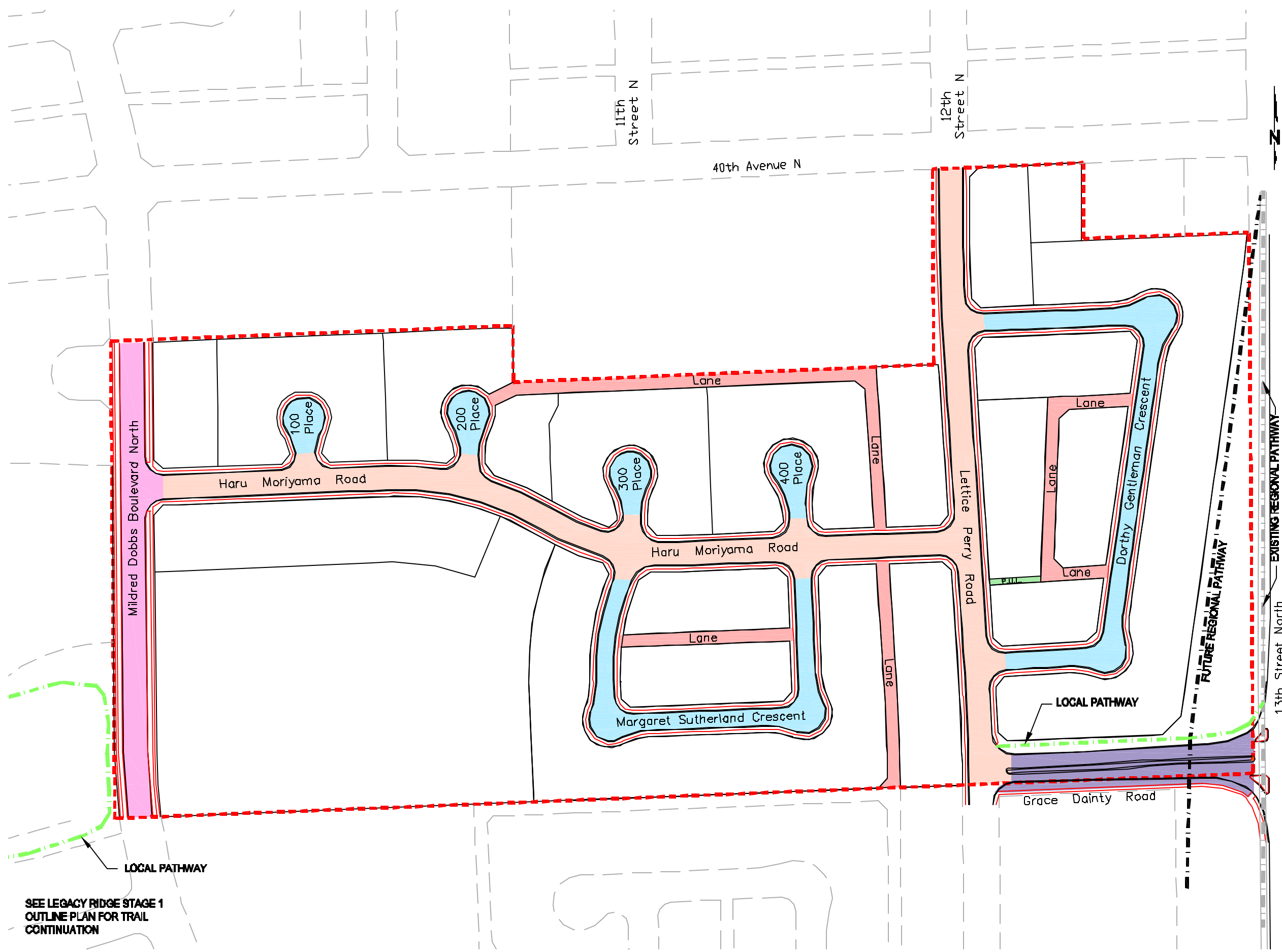
EarthTech (Canada) Inc., February 2006

(under separate cover)

LEGACY RIDGE STAGE 2

LEGEND

- - - LEGACY RIDGE STAGE 2 BOUNDARY
- 30.0m R.O.W. SUPER COLLECTOR ROAD
- 23.0m R.O.W. MAJOR COLLECTOR ROAD
- 20.0m R.O.W. MINOR COLLECTOR ROAD
- 16.5m R.O.W. LOCAL ROAD
- 7.0m PAVED LANE
- 7.0m P.U.L. LOT
- - - EXISTING REGIONAL PATHWAY
- - - FUTURE REGIONAL PATHWAY
- - - PROPOSED LOCAL PATHWAY



Road Network

Scale NTS Figure No: 9

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SEE LEGACY RIDGE STAGE 1
OUTLINE PLAN FOR TRAIL
CONTINUATION

LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

12.0 SOUND ATTENUATION

As noted previously, a concrete block fence will be constructed at the rear of all lots adjacent to 13th Street North. Additionally, the proposed arterial right of way width is 75.0 metres, which is wide enough to accommodate future sound attenuation berming.

LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

13.0 TRANSIT ROUTES AND MAILBOXES

The proposed collector roadway systems will meet Transit requirements for pavement design and roadway geometrics. The actual route location through Legacy Ridge Stage 2 will be developed in conjunction with the Transit Department based on the phasing of Legacy Ridge Stage 1.

Canada Post has provided the mailbox locations as shown in Figure No. 10.

Figure 10 Mail Box Locations

LEGACY RIDGE STAGE 2

LEGEND

LEGACY RIDGE
STAGE 2 BOUNDARY

PROPOSED MAIL BOX
LOCATIONS

Mail Box Locations

Scale 1:3000 Figure No: 10

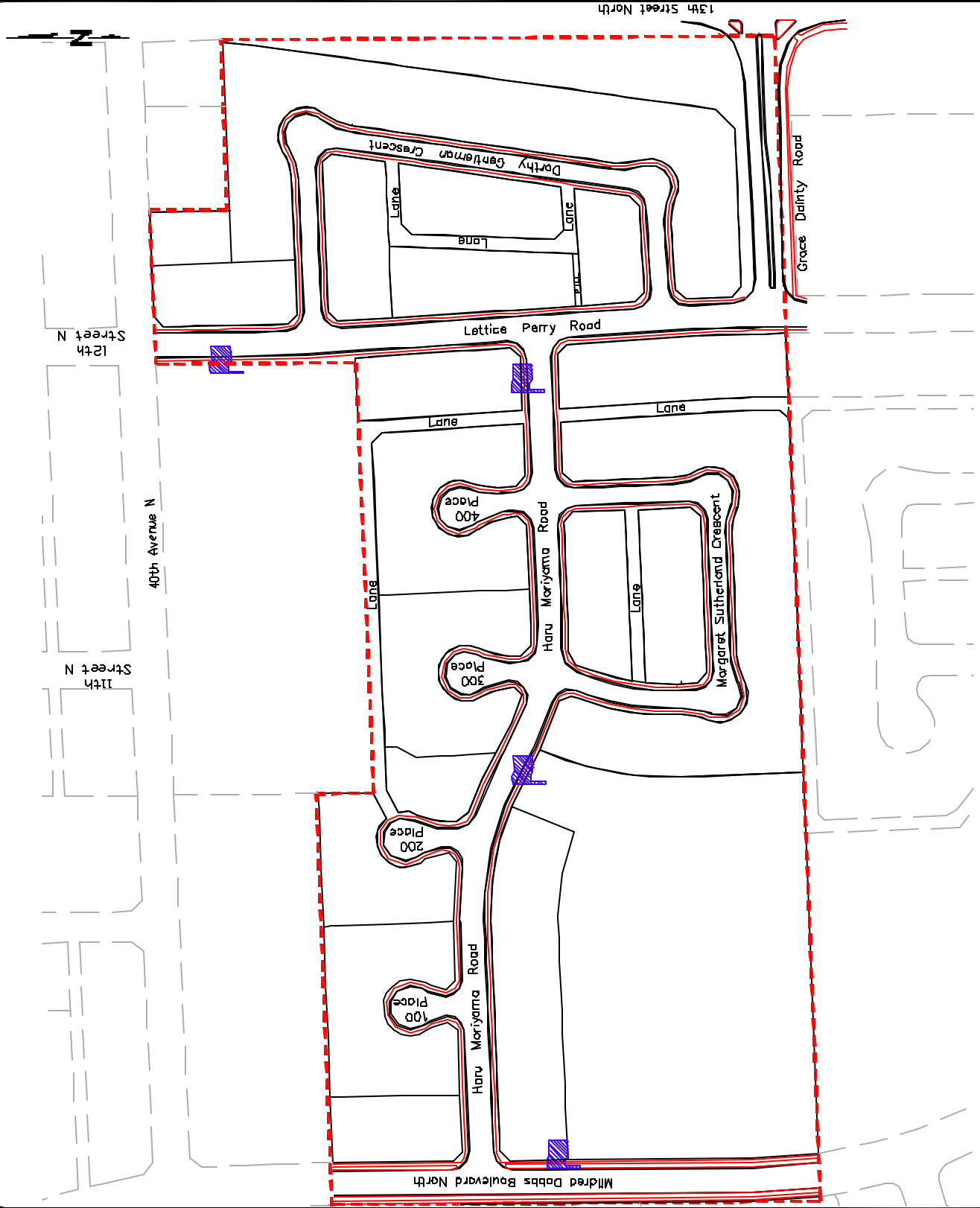
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LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

14.0 MASTER SERVICING

Utilities in Legacy Ridge Stage 2 development will be designed to facilitate ultimate tie-in to those of other phases of Legacy Ridge as they are constructed. However, as this development is proceeding ahead of adjacent phases, MGCL has prepared designs for interim servicing. These were prepared in such a way as to minimize the amount of work required once connections were available in adjacent phases. All utility designs satisfy the requirements of the City of Lethbridge and pertinent provincial standards and have been reviewed and approved by Melcor Developments.

14.1 Drainage and Stormwater Management

The City of Lethbridge requires designers of drainage systems to consider both the *minor* (piped) drainage system and the *major* (overland) drainage system in their analyses.

The minor system consists of underground pipes, manholes, inlets and other related structures. Generally, the minor system is designed to drain runoff resulting from a design storm even with a return period of five (5) years.

The major system consists of the drainage conduits which convey runoff overland such as street gutters, swales, pathways, etc. In Lethbridge, the major system is designed to discharge runoff resulting from a design storm event with a return period of 100 years without exceeding Alberta Environment (1997) depth-velocity guidelines.

As prescribed, design events were Chicago storms with time-to-peak ratios, r , equal to 0.3.

The rainfall hyetographs are derived using the following intensity-duration-frequency relationship:

$$i = a / (t + b)^c$$

where: i is the predicted intensity of the storm event in mm/hr

t is the duration of the storm in minutes

a, b, c are coefficients derived from analysis of historical rainfall data

For the City of Lethbridge, the following values of the IDF coefficients are prescribed:

Event Return Period	a	b	c
5 years	789.60	5.41	0.80
100 years	2,067.45	7.07	0.84

All designs of drainage and stormwater management features within the proposed development are consistent with relevant sections of the documents below. Where specific variances from standards are required, these are specifically noted and reasons are given why such variances are necessary.

LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

1. *Design Standards* (City of Lethbridge, March 2004),
2. *Municipal Policies and Procedures Manual* (Alberta Environment, April 2001),
3. *Stormwater Management Guidelines for Alberta* (Alberta Environment),
4. *Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems* (Alberta Environment, December 1997).

For a more detailed discussion of stormwater managements, please refer to MGCL's detailed stormwater management plan for this site.

14.2 Interim Drainage and Stormwater Management

The minor system is designed based on a maximum unit-area release rate of 75L/s per hectare of catchment. This rate was quote in *Legacy Ridge Stage 1 Stormwater Master Drainage Plan* (Stantec, June 15, 2004). It is assumed that future downstream trunk sewers to which the system will eventually tie will be sized to accommodate this rate of discharge. All pipes will be smooth-wall concrete or PVC; therefore, the roughness coefficient was assumed to be 0.013, as per City standards. Pipes will be designed so that full-flow velocities are greater than 0.9m/s but do not exceed 3.1m/s. Notwithstanding the effects of backwater due to detention ponds, pipes will be designed not to surcharge in either the 5-year or 100-year event. In no case will pipes surcharge to grade.

Major flows will be directed from private lots to public rights-of-way (streets, lanes or other public lands) via properly graded lots and (where necessary) concrete rear-lot swales. Street ponding will be controlled as per City standards. Use of inlet control devices and the size of trapped lows was reduced as much as practical. In no case do street or lane flows exceed Alberta Environment depth velocity guidelines.

Major and minor flows from Legacy Ridge Stage 2 will be directed to the north along Mildred Dobbs Boulevard. New stormwater facilities serving Legacy Ridge Stage 2, as well as Melcor's lands west of Hardieville (Legacy Ridge Stage 3) and Hardieville itself are to be located in the former Lafarge shale pit area west of Hardieville. Outfall from this facility will be into the Oldman River at a point near the Alexander Wilderness Park. Design and approval of this facility and its appurtenances is proceeding and construction of the ponds, outfall and trunk sewer are intended to begin in 2006.

Should delays occur in the construction of the above-noted facilities, major and minor flows from Legacy Ridge Stage 2 will be directed to a temporary stormwater detention facility in the future school site at the southwest corner of the site. Outfall from this facility will be into an existing coulee at the southwest corner of the site. This facility will be

LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

sized according to the following criteria, as directed by Alberta Environment and the City of Lethbridge:

- At the 100-year maximum predicted water level, outlet flows will not exceed those predicted in the coulee downstream in the 5-year return period design event. This rate was predicted to be 0.100 m³/s. To provide the required attenuation, design calculations indicated a required volume of approximately 8,000 m³.
- 0.3 m of freeboard allowed above the predicted high-water level,
- Grades of pond side slopes will not exceed 20% (5H:1V)
- Pond inlet and outlet velocities will not compromise public safety or cause excessive scour.
- Natural channels downstream will be protected by an appropriately-designed structure which will control flow velocities and prevent scour at the outfall.
- A wet forebay will be provided to enhance settling of sediment as per Alberta Environment guidelines.
- As per the present guidelines stipulated in the *Municipal Policies and Procedures Manual*, the stormwater management facility will be designed to remove by settling at least 85% of sediment with a particle size greater than 75 µm.

As flows from the proposed interim detention pond land will cross private property to the west (as is presently the case), approval for construction has been sought from Alberta Environment under relevant sections of the *Water Act* and *Regulations*. Application was made under the *Act* on 24 August 2005. This application has been reviewed and was approved by Alberta Environment in January 2006.

Figure 11 Overland Flow and Storm Catchment Areas

Figure 12 Deep Utilities Storm

*APPENDIX E Master Drainage Plan for Hardieville and Legacy Ridge Stages 2 and 3
Martin Geomatic Consultants Ltd., April 2006*

(under separate cover)

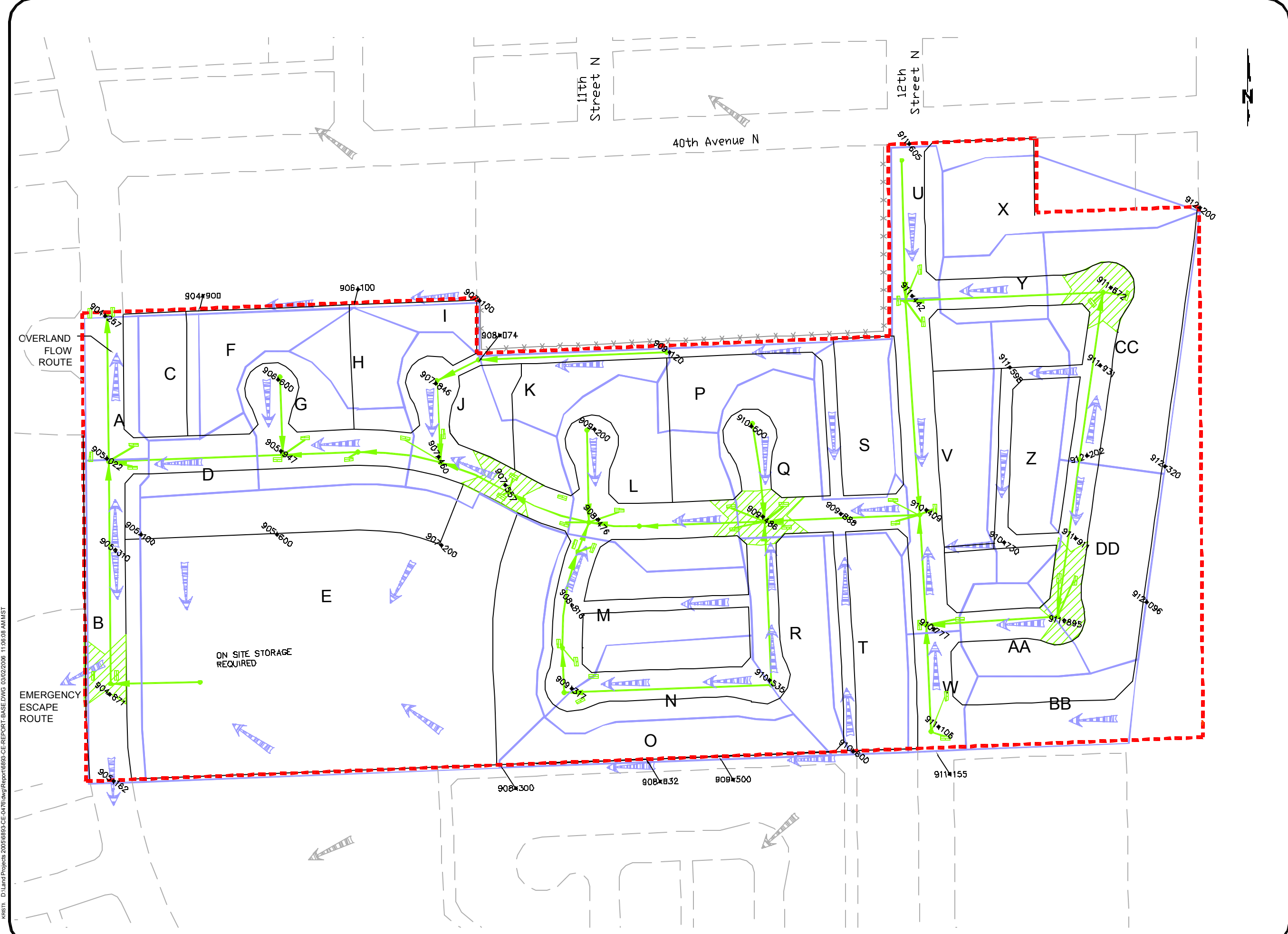
*APPENDIX F Interim Master Drainage Plan Legacy Ridge Stage 2
Martin Geomatic Consultants, April 2006*

(under separate cover)

*APPENDIX G Interim Pond Approval from Alberta Environment under Water Act
(included with report)*

*APPENDIX K Geotechnical Evaluation and Preliminary Environmental Review, Legacy
Ridge Stormwater Retention Pond, Hardieville, Alberta
EBA Engineering Consultants Ltd., March 2006*

(under separate cover)



LEGACY RIDGE STAGE 2

- LEGEND**
- - - LEGACY RIDGE STAGE 2 BOUNDARY
 - STORM CATCHMENT BOUNDARY
 - OVERLAND FLOW DIRECTION
 - DRAINAGE DIRECTION AS PROVIDED IN LEGACY RIDGE STAGE 1 OUTLINE PLAN
 - PROPOSED STORM, MANHOLE, CATCHBASIN AND DIRECTION OF FLOW

CATCHMENT AREA LABEL	AREA (ha)
A	0.55
B	0.24
C	0.23
D	0.21
E	3.46
F	0.25
G	0.52
H	0.24
I	0.09
J	0.62
K	0.27
L	0.78
M	0.61
N	0.47
O	0.37
P	0.26
Q	0.57
R	0.44
S	0.36
T	0.50
U	0.24
V	0.89
W	0.22
X	0.47
Y	0.25
Z	0.54
AA	0.28
BB	0.37
CC	0.93
DD	0.60

Overland Flow & Storm Catchment Areas
 Scale NTS Figure No: 11

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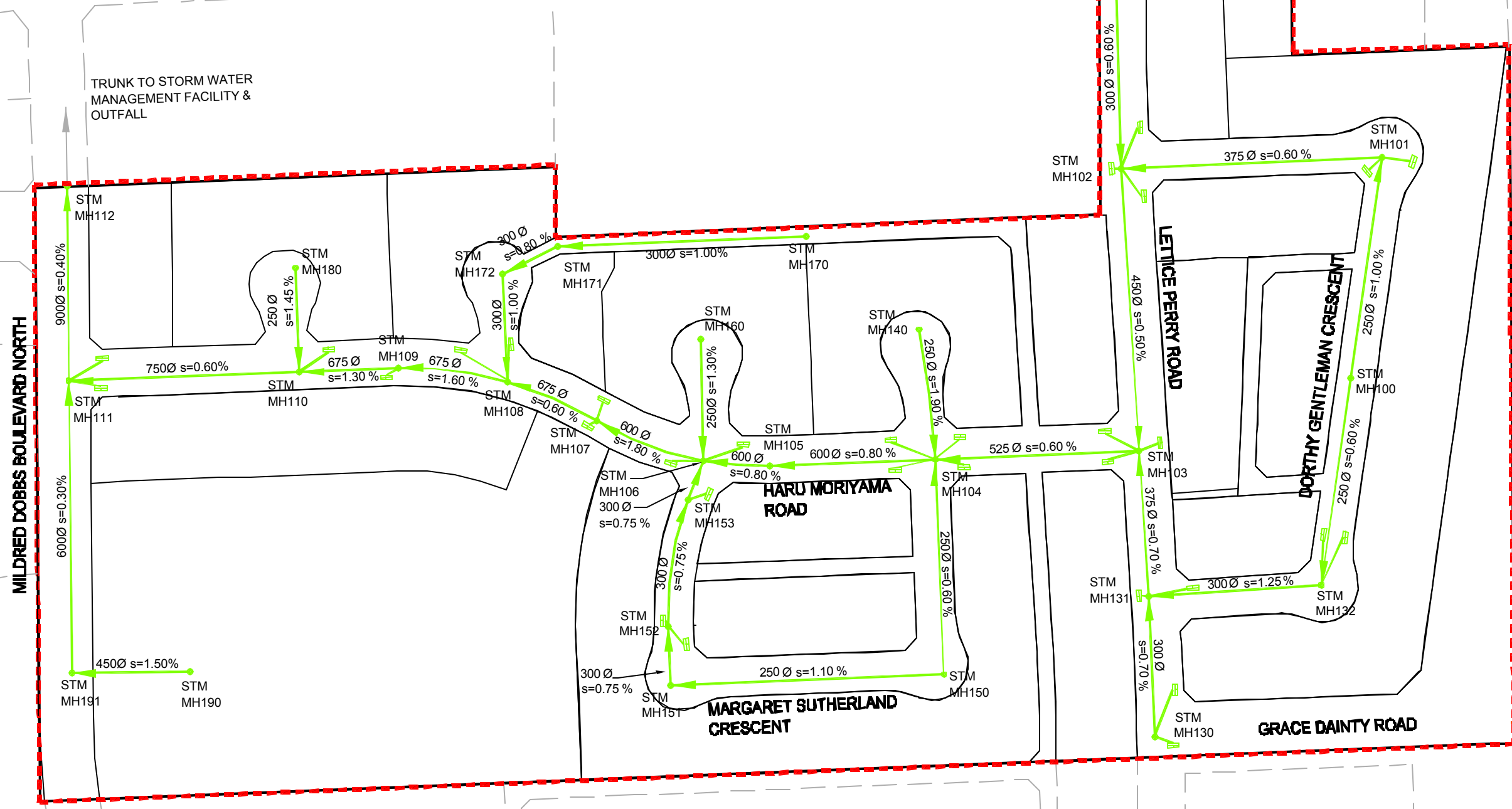
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STORM SEWER					
REFERENCE	RIM	INVERT	REFERENCE	RIM	INVERT
STM-MH100	912.152	910.101	STM-MH130	911.056	908.958
STM-MH101	911.622	909.048	STM-MH131	910.727	908.482
STM-MH102	911.392	908.526	STM-MH132	911.845	909.524
STM-MH103	910.359	907.328	STM-MH140	910.400	908.149
STM-MH104	909.699	906.741	STM-MH150	910.485	908.434
STM-MH105	909.000	906.122	STM-MH151	909.267	907.122
STM-MH106	908.426	905.837	STM-MH152	909.000	906.875
STM-MH107	907.507	904.885	STM-MH153	908.600	906.405
STM-MH108	907.410	904.576	STM-MH160	909.180	906.929
STM-MH109	906.536	903.774	STM-MH170	909.102	907.004
STM-MH110	905.960	903.154	STM-MH171	908.074	905.898
STM-MH111	905.025	903.214	STM-MH172	907.796	905.632
STM-MH112	904.345	901.887	STM-MH190	904.870	903.800
STM-MH180	906.550	904.300	STM-MH191	904.868	902.901

LEGACY RIDGE STAGE 2

LEGEND

- LEGACY RIDGE STAGE 2 BOUNDARY
- PROPOSED STORM, MANHOLE, CATCHBASIN, AND DIRECTION OF FLOW



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Deep Utilities Storm
Scale 1:2000 Figure No: 12

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LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

14.3 Sanitary Servicing

Similar to the storm sewers, construction phasing of this development relative to adjacent developments requires interim and ultimate servicing designs. A 750-mm diameter trunk sewer exists approximately 400 m west of the development. Construction of a main will require crossing private property. Tie-in to the trunk sewer will be by gravity sewer along a proposed road alignment through Legacy Ridge Stage 1.

As stated, the collection system will be drained by gravity. All mains will be 200-mm or 250-mm diameter PVC SDR 35 constructed as per City standards. Grades will meet or exceed minimum slopes necessary to ensure a velocity of 0.9 m/s in the pipes. For dead-end and curved mains, this slope will be exceeded by a minimum of 50%. The sanitary sewer system is designed to the following parameters:

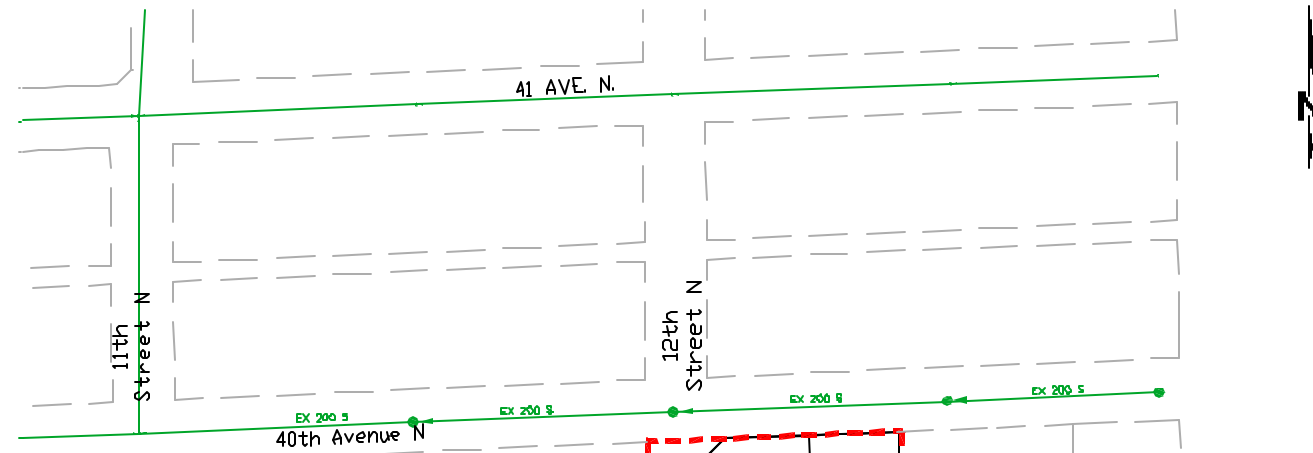
- 209 homes - average occupancy 3 people/home = 627 people
- Total population = 627 people
- PF = 4.0
- Dry weather = 400 L/day/person
- Dry weather daily volume = 250,800 L = 2.9 L/s
- Applying PF = 11.6 L/s
- Add wet weather = 500 L/day/person = 3.63 L/s
- Add infiltration = 150 L/day/person = 1.1 L/s

The total peak flow predicted for the new residential subdivision will be 16.33 L/s. As per City of Lethbridge standards, no foundation weeping tile or roof drain hook ups are allowed to the sanitary sewer.

Figure 13 Deep Utilities Sanitary

*APPENDIX H Sanitary Sewer Calculations
(included with report)*

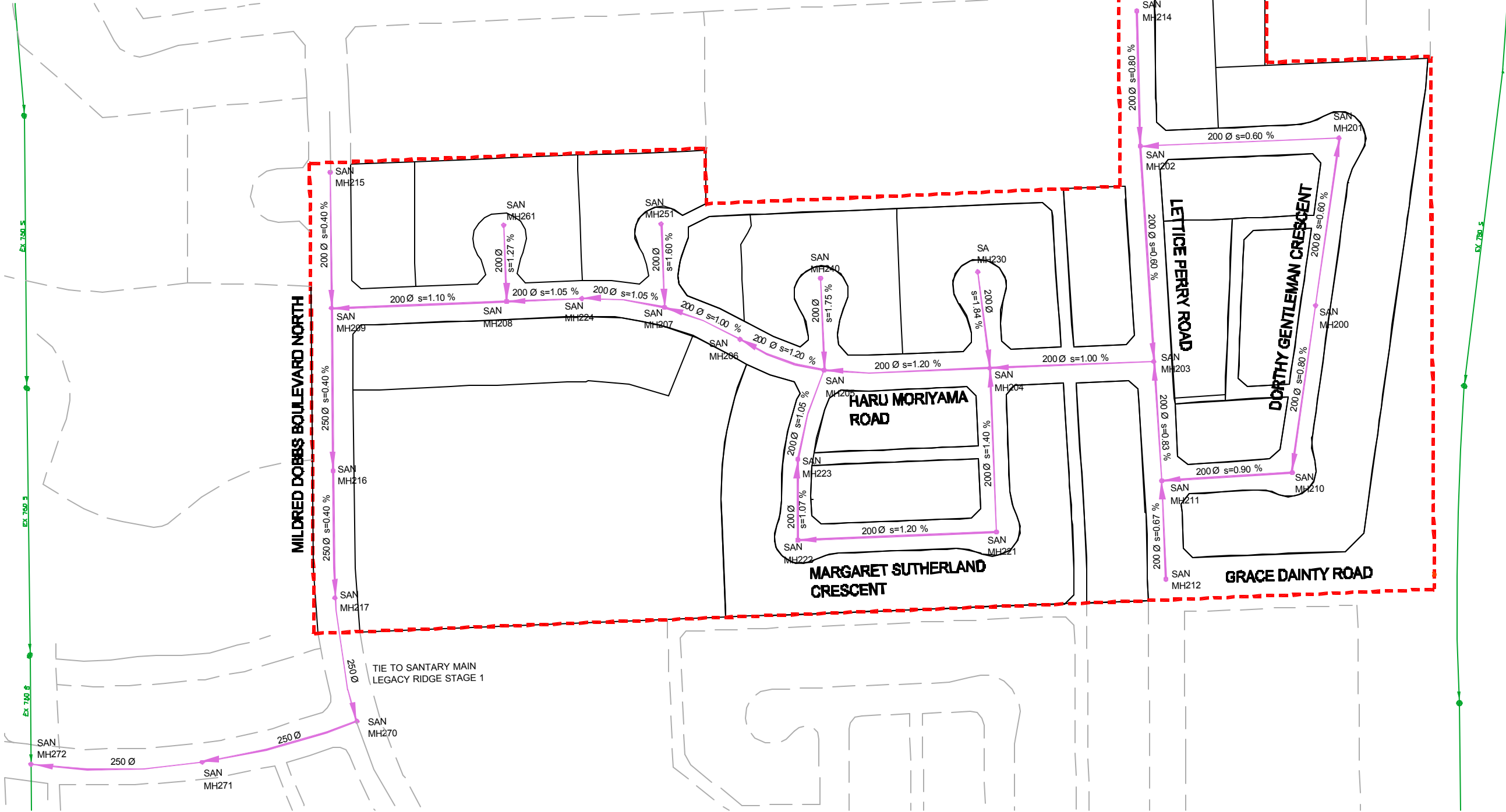
SANITARY SEWER					
REFERENCE	RIM	INVERT	REFERENCE	RIM	INVERT
SAN-MH200	912.187	909.287	SAN-MH215	904.450	901.750
SAN-MH201	911.657	908.659	SAN-MH216	905.095	901.008
SAN-MH202	911.427	907.937	SAN-MH217	905.040	900.726
SAN-MH203	910.394	907.156	SAN-MH221	910.520	907.520
SAN-MH204	909.471	906.185	SAN-MH222	909.302	906.140
SAN-MH205	908.461	905.023	SAN-MH223	908.801	905.631
SAN-MH206	907.541	904.361	SAN-MH224	906.532	903.331
SAN-MH207	907.445	903.846	SAN-MH230	910.435	907.235
SAN-MH208	906.000	902.831	SAN-MH240	909.180	905.980
SAN-MH209	905.022	901.399	SAN-MH251	907.746	904.646
SAN-MH210	911.880	908.479	SAN-MH261	906.552	903.432
SAN-MH211	910.762	907.766	SAN-MH270		
SAN-MH212	911.091	908.191	SAN-MH271		
SAN-MH214	911.650	908.650	SAN-MH272		



LEGACY RIDGE STAGE 2

LEGEND

- - - LEGACY RIDGE STAGE 2 BOUNDARY
- PROPOSED SANITARY, MANHOLE, AND DIRECTION OF FLOW



NOTE:
DETAILS OF SANITARY
MAIN FROM MANHOLE
217 TO MANHOLE 272 TO
BE CO-ORDINATED WITH
MELCOR PRIOR TO
CONSTRUCTION

Deep Utilities
Sanitary
Scale NTS Figure No: 13

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LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

14.4 Water Supply

Presently, the following mains exist adjacent to the proposed development:

- A 300-mm diameter main runs north-south in 13 Street North. This main serves Hardieville and customers in Lethbridge County north of the city limits.
- A 200-mm diameter main extends west along 40 Avenue from the line in 13 Street North, this line serves Hardieville.

A new 300-mm diameter main is proposed to be located in Mildred Dobbs Boulevard North. This main will be connected to a future 300 mm main in Mildred Dobbs Boulevard from the south and will extend north into Legacy Ridge Stage 3 where existing water mains from Hardieville will be connected.

The water distribution system within this proposed development will be served with 200 mm diameter water lines (City of Lethbridge minimum standards). All hydrant leads will be 150 mm diameter.

The distribution system will tie directly into the 300 mm diameter water main that is existing within 13th Street (approximately 200 meters south of 40th Avenue), a tie-in will be made at the west end to a proposed 300 mm diameter PVC water main and an additional tie-in will be made on 40 Avenue and 12 Street to the existing 200 mm water line running east/west.

All proposed potable water lines will be constructed with PVC DR18 conforming to AWWA C900. Material supply, installation and commissioning of all pipe, fittings and appurtenances will be as per the current City of Lethbridge Standards.

The following parameters were used in the design of the water distribution network:

- 209 homes - average occupancy 3 people/ home = 627 people
- Total population = 627 people
- Average water usage per person per day 500 L or 3.63 L/s
- Maximum daily usage per person per day 1000 L or 7.30 L/s
- Maximum hourly usage per person per day 2500 L or 18.1 L/s (239.5 igpm)
- Fire demand = 75 L/s (990 igpm) for one hydrant flow at maximum daily demand while maintaining a minimum 150 kPa (21 psi).

We have modeled the subdivision using the City's minimum pipe size requirement of 200 mm diameter for residential subdivision potable water mains and 150 mm diameter leads for fire Hydrants. The computer modeling was based on the attached hydrant layout with a 1.13 L/s (17.7 igpm) maximum hourly demand at each hydrant node

LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF



(18.1 L/s total) and an additional 75 L/s at one hydrant for fire flow requirements. Assuming that the 300 mm supply main could provide the 93.1 L/s (1230 igpm) at 379 kPa (55 psi); at a residual pressure of 150 kPa (21.5 psi) all individual fire hydrants exceed the 75 l/s plus maximum daily flow requirements (See attached). During maximum daily usage and maximum hourly usage the residual pressures are predicted to be greater than 350 kPa (50 psi) and 310 kPa (45 psi) respectively (See attached).

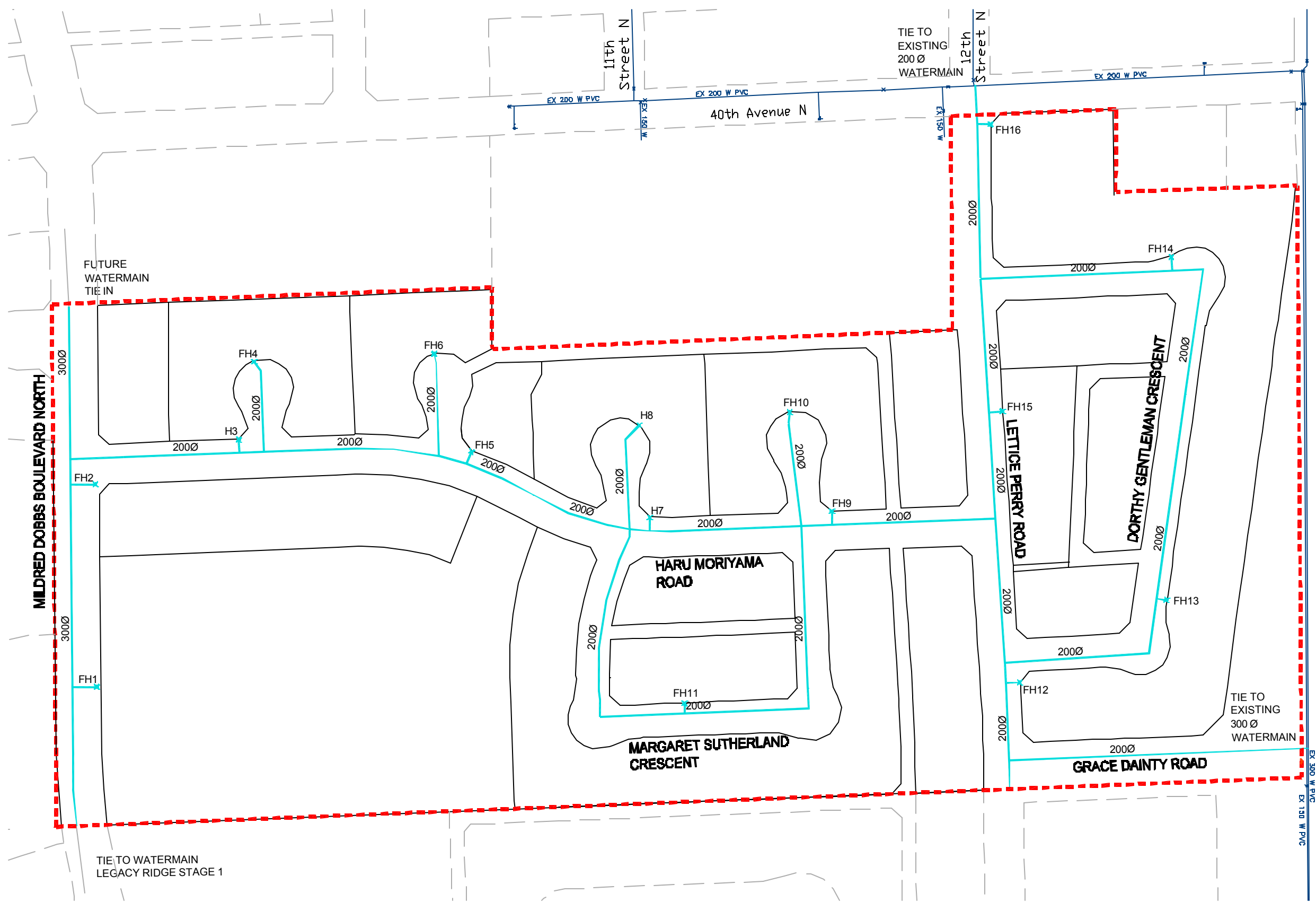
Figure 14 Deep Utilities Water

*APPENDIX J Water Distribution Analysis
(included with report)*

**LEGACY RIDGE
STAGE 2**

LEGEND

-  LEGACY RIDGE STAGE 2 BOUNDARY
-  PROPOSED WATERMAIN AND HYDRANT



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Deep Utilities
Water

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LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

14.5 Shallow Utilities

Legacy Ridge Stage 2 will be serviced with extensions of shallow utility infrastructure from existing facilities located adjacent to 13th Street North.

Horizontal and vertical alignments of all shallow utilities will be in accordance with City of Lethbridge standards.

Shallow utility servicing drawings will be submitted on a phase-by-phase basis to the City of Lethbridge Electrical Department.

LEGACY RIDGE STAGE 2 OUTLINE PLAN BRIEF

15.0 STAGING POTENTIAL

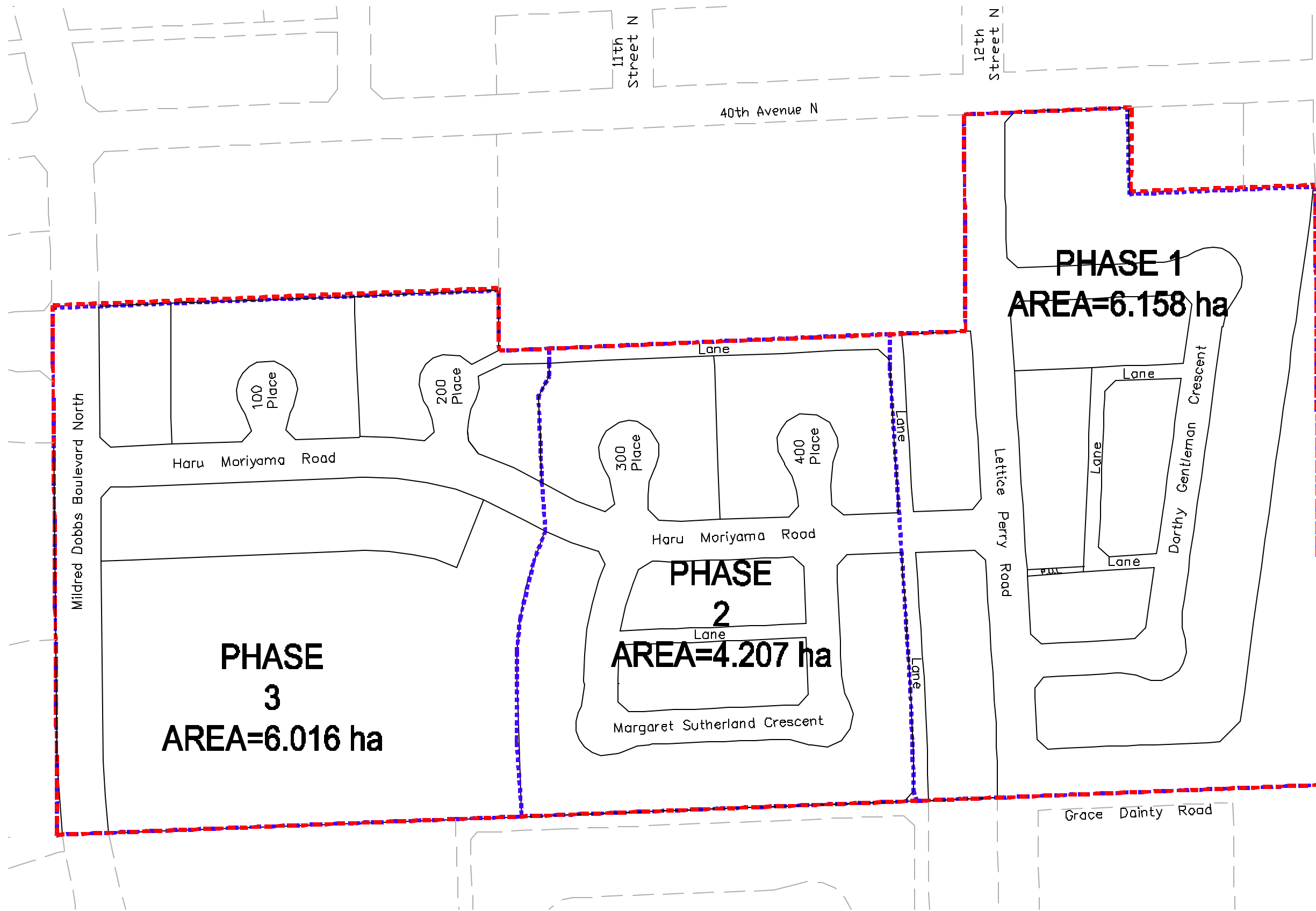
Legacy Ridge Stage 2 will proceed in three phases as indicated on Figure 15.

In order to service Phase 1, which is adjacent to 13th Street North, it is required that the sanitary sewer be installed in Haru Moriyama Road then south along Mildred Dobbs Boulevard and then westerly through Legacy Ridge Stage 1 to tie into the existing sanitary trunk. Agreement has been reached with Melcor Developments for access through their property.

Additionally Phase 1 development necessitates the construction of the storm sewer in Haru Moriyama Road. This storm trunk will terminate in the ultimate storm pond to the northwest.

Figure 15 Site Phasing

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LEGACY RIDGE STAGE 2

LEGEND

- - - LEGACY RIDGE STAGE 2 BOUNDARY
- - - SITE PHASING BOUNDARY

SITE PHASING

Scale 1:2000 Figure No: 15

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