

BYLAW 5-2011

A BYLAW OF STRATHCONA COUNTY IN THE PROVINCE OF ALBERTA, FOR THE PURPOSE OF ADOPTING THE GRANGE COUNTRY ESTATES AREA STRUCTURE PLAN.

WHEREAS Council previously adopted the Grange Country Estates Area Structure Plan Bylaw 25-2010; and

WHEREAS it is deemed advisable to replace the Grange Country Estates ASP;

NOW THEREFORE, the Council of Strathcona County, duly assembled, pursuant to the authority conferred upon it by the *Municipal Government Act, R.S.A. 2000, c. M-26*, and amendments thereto, enacts as follows:

1. That Bylaw 5-2011 is to be cited as "The Grange Country Estates Area Structure Plan".
2. That Schedule "A" attached hereto is hereby adopted as part of this Bylaw.
3. That Bylaw 25-2010 is hereby repealed.
4. This Bylaw comes into effect after third reading and upon being signed.

Read a first time this 8th day of February, 2011.

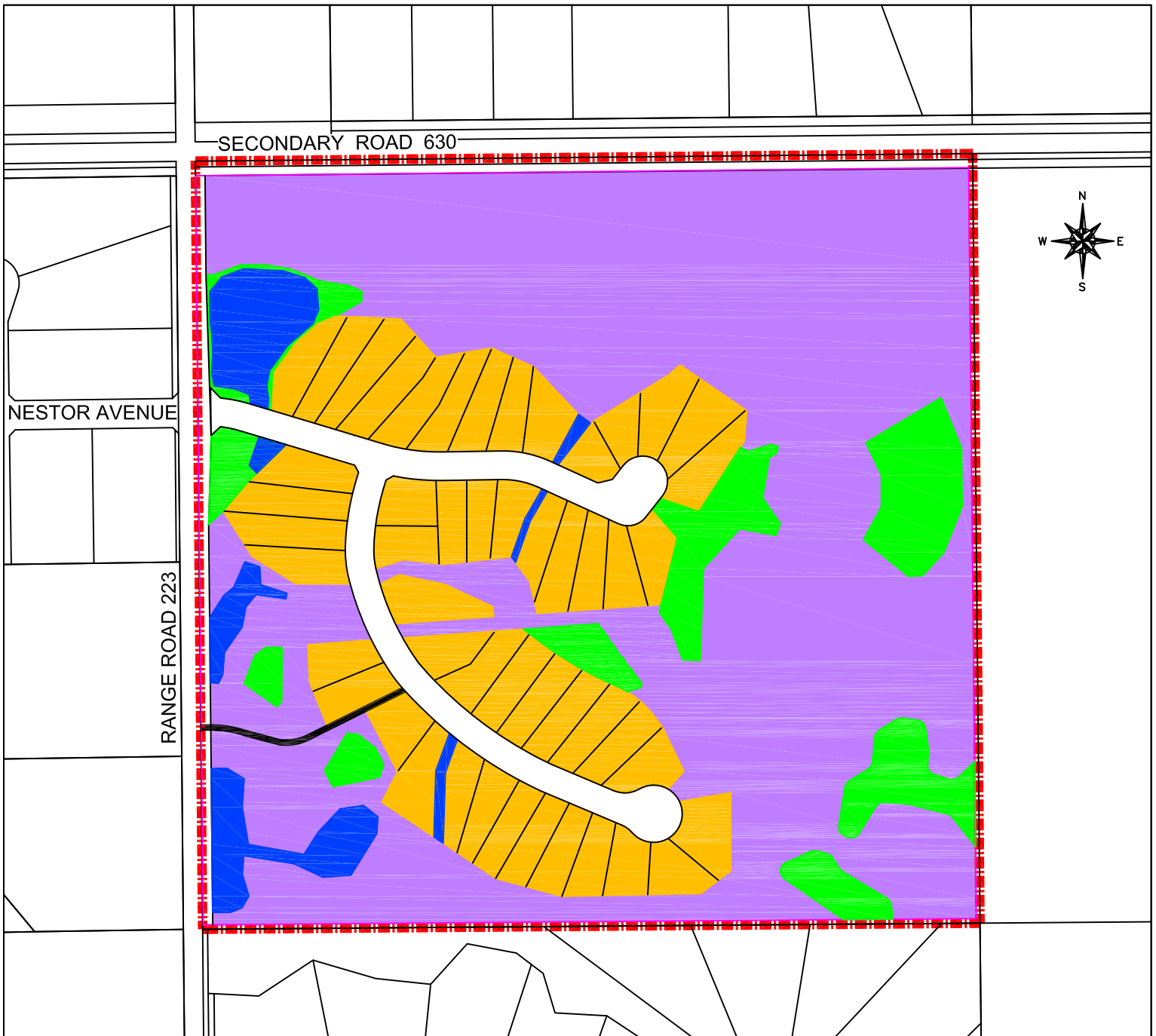
Read a second time this 8th day of February, 2011.

Read a third time and finally passed this 22 day of February, 2011.

Frederick David
Mayor

Pauline Regenstein
Manager,
Legislative and Legal Services

Date Signed: Feb. 25, 2011



The Grange Country Estates Area Structure Plan Bylaw 5-2011 (Amendment 1)

Date of Adoption: Feb 25th, 2011

EXISTING LAND USE

Residential



Municipal Reserve



PUL



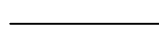
Environmental Reserve



Emergency Access



Road Plan



ASP Boundary



The GRANGE Country Estates



Area Structure Plan

*April 2010
Amended February 2011*

**The Grange Country Estates
Area Structure Plan
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The Grange Country Estates
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1. INTRODUCTION

1.1 Purpose

The purpose of The Grange Country Estates Area Structure Plan is to provide a framework for the rezoning and subdivision of the NW ¼ of Section 22-52-22-W4M to allow for the development of a compact country residential subdivision that embraces conservation design principles and the twelve themes of sustainability. The Plan area comprises 63.47 hectares (156.95 acres) and is owned by The Grange Country Estates Ltd.

1.2 Location

The Plan area is located on the south side of Highway 630 (Wye Road) and the east side of Range Road 223, some 4.8 kilometres (3.0 miles) east of Sherwood Park and Highway 21 (see Figure 1). The area is bounded by country residential subdivisions to the south, west and north, with pastureland to the east. The proposed country residential development will be compatible with surrounding uses. Section 2.1 provides a more detailed description of the surrounding land use pattern.

1.3 Policy Context

1.3.1 Municipal Government Act

The Grange Country Estates Area Structure Plan meets the requirements of Section 633 of the Municipal Government Act. As such, it describes the sequence of development, land uses, general future population levels and infrastructure requirements.

1.3.2 Municipal Development Plan

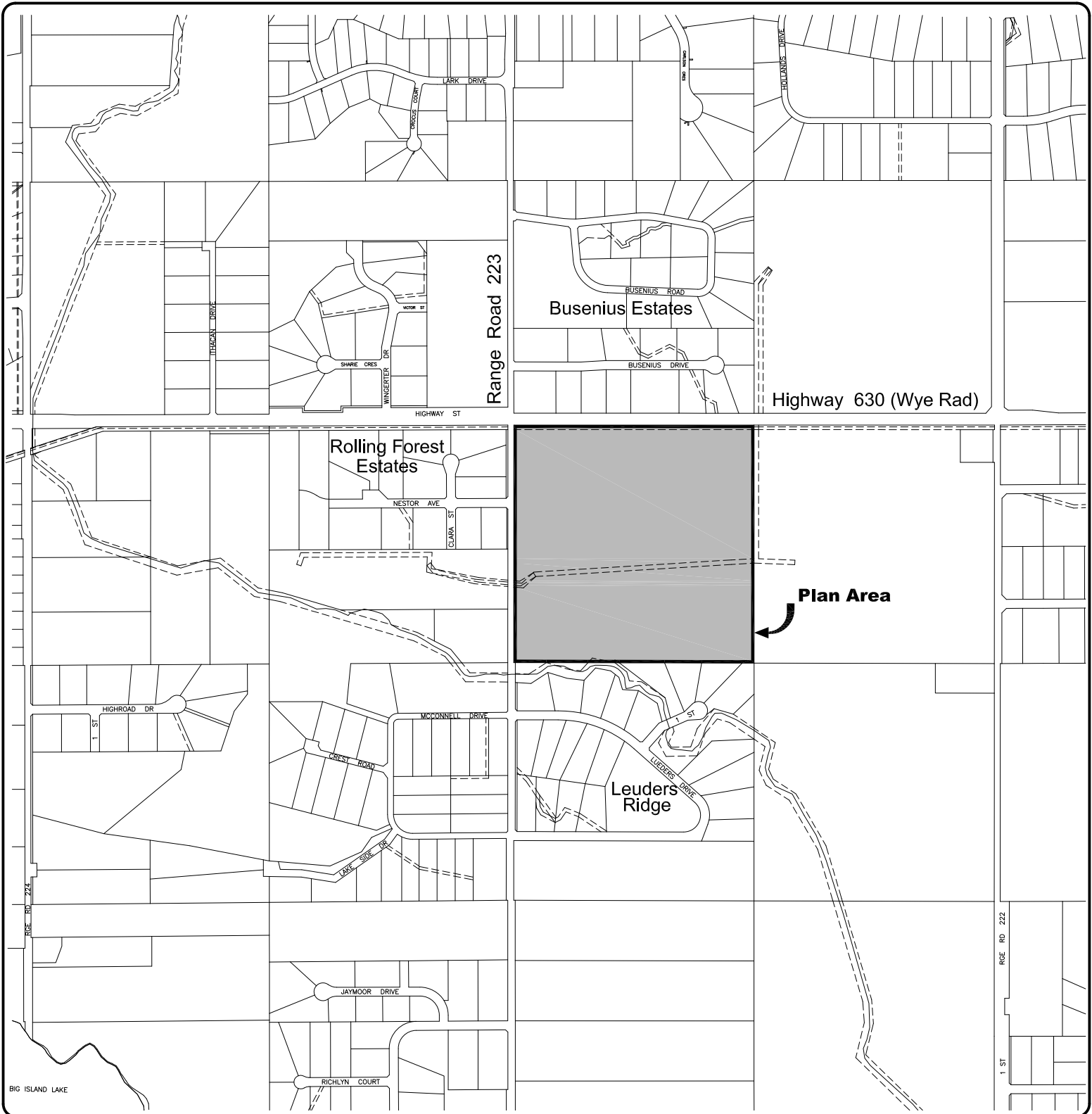
The Grange Country Estates area is located in the Country Residential Policy Area as per Map 13 of Strathcona County Municipal Development Plan Bylaw 1-2007. The following sections of the Municipal Development Plan are relevant to this Area Structure Plan:

Section 4 Sustainability and Growth Management - Strathcona County has adopted a sustainable approach to new development. This means that development will occur in a manner such that the needs of the present do not compromise the ability of future generations to meet their own needs while striking a balance between economic prosperity, social responsibility and environmental stewardship. To remain sustainable and to be environmentally responsible, emphasis will be placed on conservation design principles in developing new country residential neighbourhoods. Conservation design principles have been applied to The Grange subdivision.

Section 5 Country Residential Policy Area – The conservation design principles to be applied to new development require that the ecology of a site be considered as a means of ensuring environmental stewardship. In particular, the principles require that lands identified as a High Priority Environment Management Area be left undisturbed wherever possible but incorporated into the overall development that allows for a maximum of 50 lots per quarter section. Wildlife corridors also are to be maintained wherever possible. Environmental and municipal reserve lands will be used to protect High Priority Environment Management Areas. A significant portion of The Grange quarter section has been designated a High Priority Environment Management Area. By applying conservation design principles, much of this area as well as wildlife corridors are protected as reserve land.

Section 8 Environmental Management – This section also requires that conservation design principles be applied to new developments to minimize the impact of human activity and development on the natural environment, particularly on High Priority Environment Management Areas.

New country residential developments are required to connect to municipal water and sewer systems. The Grange complies with these requirements.



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The Grange Country Estates

Area Structure Plan

Figure 1

Location

Section 9 Parks and Recreation – The provision of extensive areas of open space will provide fitness opportunities for residents of both The Grange and the surrounding community.

Section 10 Safety – A secure environment is achieved through the physical layout of The Grange that supports Crime Prevention Through Environmental Design by clustering homes and by providing an emergency access.

Section 12 Social Development – The Grange represents development that supports traditional elements of neighbourhood planning, including environmental design that considers safety and security. The proposed connection to municipal water and sewer systems will meet the infrastructure needs of the residents.

Section 15 Transportation – By minimizing the fragmentation of lands and providing compatible land uses, the integrity of the transportation system remains intact.

Section 16 Utility Systems – By providing piped water and sewer as a quality service, the environmental integrity of the Grange can be maintained.

As is noted above, The Grange Country Estates Area Structure Plan recognizes and complies with the foregoing sections of the Municipal Development Plan.

1.3.3 Land Use Bylaw

The Plan area is districted Agriculture: Future Development by the County's Land Use Bylaw 8-2001. The purpose of this district is: *To provide transitional agriculture uses that will not prejudice the future use of land for urban development within the Urban Service Area, hamlets, **the country residential policy area**, and other designated development areas.*

2. EXISTING CONDITIONS AFFECTING DEVELOPMENT

2.1 Land Use

2.1.1 Surrounding Land Uses

Existing uses surrounding the Plan area are shown on Figure 1 and are described as follows:

1. **To the south**, Leuders Ridge, a mature country residential community with five lots backing directly onto the Plan area while four lots back onto a well treed Environmental Reserve Lot that extends along the south boundary of The Grange. The Environmental Reserve contains a drainage course which is a tributary of Oldman Creek. Much of the natural tree cover on the five lots backing directly onto the Plan area has been removed to accommodate yards and building sites that are located near the rear lot lines. However, the Plan area contains a dense natural forest that if retained provides an effective buffer from any future development within The Grange Country Estates. All country residential lots in Leuders Ridge are well in excess of 0.8 hectares (2.0 acres) in size.
2. **To the west**, Range Road 223 and Rolling Forest Estates, also a mature residential community with an internal subdivision road and large lots that are well treed and screened from both the Range Road and The Grange. This subdivision is located in the north half of the adjacent westerly quarter section. Two larger lots that are districted Agriculture Future Development and Rural Residential are located in the south half of the quarter and are accessed directly off Range Road 223. Extensive tree cover exists on these lots so that the residences are also well buffered from the road. The Agriculture Future Development parcel includes a riding arena/stable located adjacent to and visible from both the Range Road and The Grange Country Estates Plan area.
3. **To the north**, Highway 630 and the mature Busenius Estates country residential community which contains seven larger lots backing onto the Highway. Development of the Plan area will not significantly impact this community which is well removed from the area and is separated from The Grange Country Estates by Highway 630, a four lane divided arterial.
4. **To the east**, an unsubdivided agricultural quarter section that is mostly cleared and is being used as pasture land. The quarter is districted Agricultural: General, and is located just outside the Country Residential Policy Area in the Agriculture Small Holdings Policy Area of the Municipal Development Plan. This means that it may be subdivided to create up to eight small holding lots.

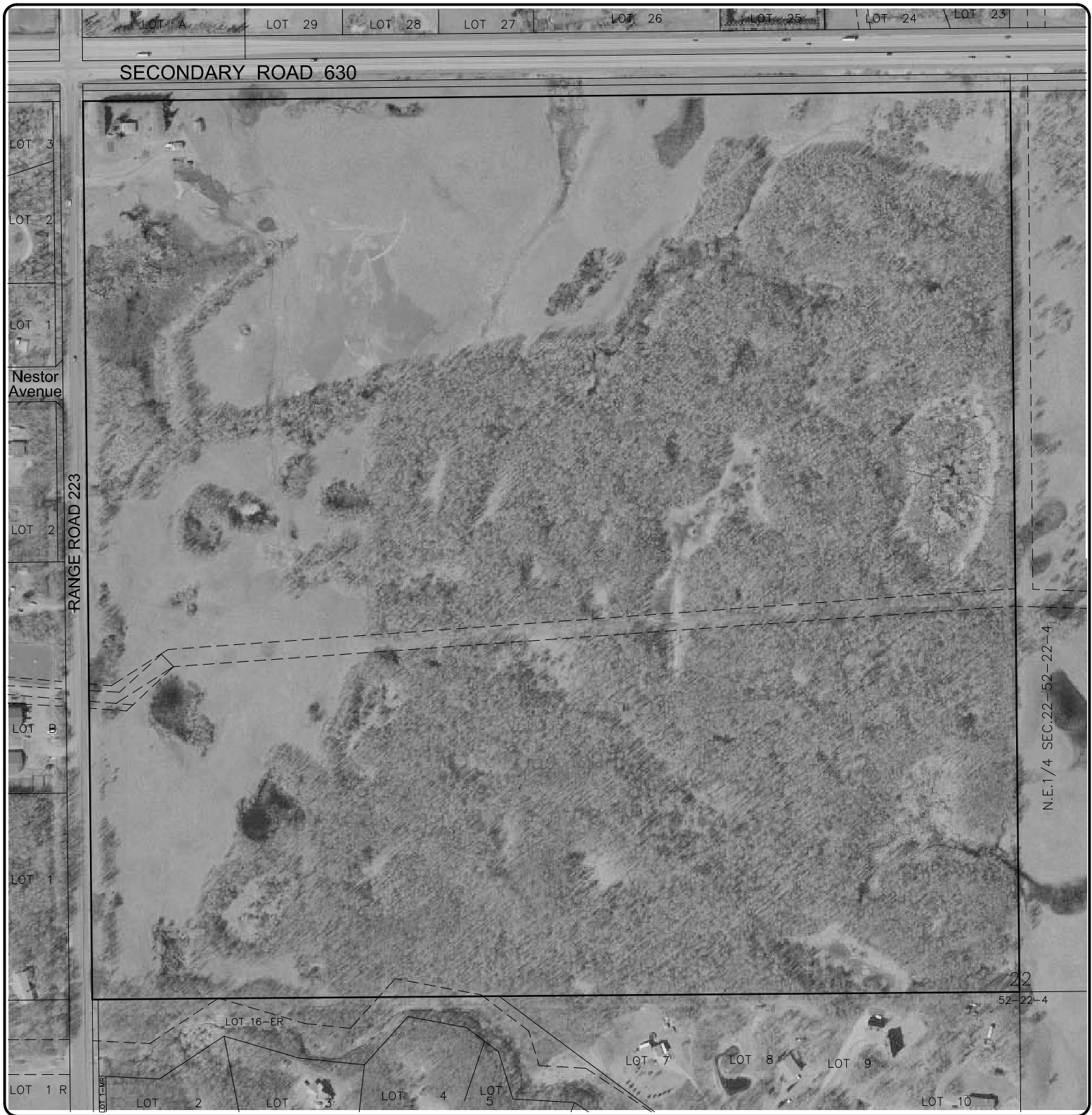
It is important to reiterate that existing onsite and offsite tree cover provides a very effective visual buffer between the Plan area and existing country residences. By applying sustainable conservation design principles that are supported by the Municipal Development Plan in designing The Grange Country Estates, a significant portion of the tree cover on the Plan area will remain undisturbed.

2.1.2 On-Site Land Use

The Plan area is a farm that is being leased for pasture land. An existing farmstead contains a 40 year old dwelling and ancillary buildings. The dwelling is also being leased and has no known historical value. It will be removed or demolished along with the ancillary structures at the time of development. However, the mature trees that surround the dwelling on three sides will be retained. An approach to the farmstead exists off Range Road 223. This approach is located less than 100 metres south of the Highway 630/Range Road 223 interchange and will be closed once the farm buildings are removed (see Figure 2).

About two thirds of The Grange Country Estates site has not been cleared for pasture land and remains covered by a dense mature forest although some grazing on the periphery of the forest has occurred. The peripheral areas may regenerate once grazing activities cease.

A pipeline easement extends from west to east through the centre of the Plan area. However, no right-of-



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The Grange Country Estates

Area Structure Plan

Figure 2

**Existing
Conditions**

way easement is registered on the Certificate of Title. Husky Oil has indicated that three abandoned and purged pipelines exist in the unregistered easement right-of-way. The Phase 1 Environmental Site Assessment described below in Section 2.3.2 concludes that the pipeline links to an abandoned oil or gas well located in the adjacent quarter section to the east.

2.2 Land Form

The topography of the Plan area reflects a complex hummocky type of terrain with variable high and low points throughout the site except for the north and northeast segments where the terrain is flatter. Some of the low points contain standing water on a seasonal basis. Small permanent wetlands existed near the Range Road but had dried up in 2009. Snow melt may fill these areas in the spring of 2010. Overall, the subject site slopes from east to west and north to south and contains a few fairly well defined drainage channels.

As is previously noted, a mature forest covers about two thirds of the Plan area. The forest is concentrated in the south, southeast and east portion of the area and is described in greater detail in Section 2.3.1. Some sparse tree cover surrounds wetlands and low areas located near the Range Road along the west side of the site.

Sabatini Earth Technologies Inc. has completed Shallow Water Table testing within the Plan area. The results of the testing are contained in the Engineering Design Brief that has been submitted in support of this Area Structure Plan. The testing concluded that some 80 percent of the Plan area contains high and dry areas and is suitable for development.

The shaded areas in shown in Figure 3 illustrate the geotechnical engineers' interpretation of where the water table may be less than 2.0 metres below the surface. This data has been superimposed directly onto the *actual* topographic information and proposed lotting for The Grange. The geotechnical engineers' interpretation of low areas *roughly* coincides with localized low areas as defined by the topography. However, because at the time of the geotechnical analysis no detailed topography was available, it is clear that to the extent possible, the shaded areas have been interpreted from air photo images and changes in vegetation, and considering that should be considered a guideline only.

An assessment of the Test Hole records (Table 1 in the Geotechnical Report) illustrates that within the proposed lot and road developed area, the water table is nowhere less than 2 metres below the surface. Minor localized depressed areas within lots will be engineer filled during the course of the earthworks to ensure that run-off from the roads will not enter the lots, but will be channelled to natural draws throughout the site.

2.3 Land Review

2.3.1 Biophysical Assessment

Stantec Consulting Ltd. completed a comprehensive Biophysical Assessment of the Plan area in 2007. The objective of the assessment was to determine the importance and conservation value of the various natural areas located within the Plan area with respect to future country residential development. The assessment consisted of a biophysical survey to assess wetlands and forest present in the Plan area to determine the significance of any identified wetlands and wood lots, and how they can be incorporated into the development. The Biophysical Assessment included a general vegetation and wildlife survey, a review of existing reports and a review of historic and current aerial photography.



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Test Hole location where
groundwater is identified as
being less than 2m below Surface



Areas from the SETI report where
the water table may be less than
2.0 m below the surface
(Based on airphoto interpretation)



0.5 m Surveyed
Contour Interval

Groundwater testing undertaken
in November of 2006.

The Grange Country Estates

Area Structure Plan

Figure 3

Potential Near Surface Groundwater Areas & Development Concept

The Plan area was determined to be primarily comprised of a structurally diverse and complex deciduous forest, intermixed with seasonal freshwater marshes, drainage courses, cleared pasture, and permanent water bodies located on a topographically diverse landscape. As a consequence of the area's topography, geomorphology and hydrology, a high species richness of vegetation species is present resulting in unique vegetation communities. The variable physical and microclimate conditions on the landscape support numerous vegetation species that in turn create an environment that is rich in habitat for a variety of wildlife species. Animal and nesting sites observed in the Plan area suggest the area is heavily used by wildlife.

The key recommendations of the Biophysical Assessment are reflected on Figure 4 and are listed below:

- The south and east portions of the Plan area contain a mosaic of upland, lowland and riparian areas. Some of these wetland features are interconnected with probable drainage courses. The development of the Plan area should retain as much of the drainage patterns as possible.
- Three semi-permanent wetlands should be retained with suitable buffer zones. Two of the three wetlands are located in the southwest portion of the Plan area and the third is located along the east property line.
- The Plan area contains a large tract of contiguous mature-old growth aspen forest. The development of the Plan area should retain as much of this aspen forest as possible in the form of large habitat patches to promote species such as moose. However, continued usage by large ungulates will be dependant on maintaining habitat on a regional scale.

Figure 4 shows the High, Medium and Low Priority Environment Management Areas as identified by Stantec. Anecdotal information provided by area residents indicates that the aspen forest appears to support species such as moose, white-tailed deer, coyotes, red fox, skunks, snowshoe hares and white-tailed jackrabbits. The compact design being proposed for The Grange Country Estates maintains as much of the High Priority Area as possible and protects the three wetland features as well as the recommended wetland buffers. A significant portion of the Low Priority Management Area cannot be used for development because of near surface ground water conditions.

The Stantec Biophysical Assessment Report has been submitted under separate cover in support of this Area Structure Plan

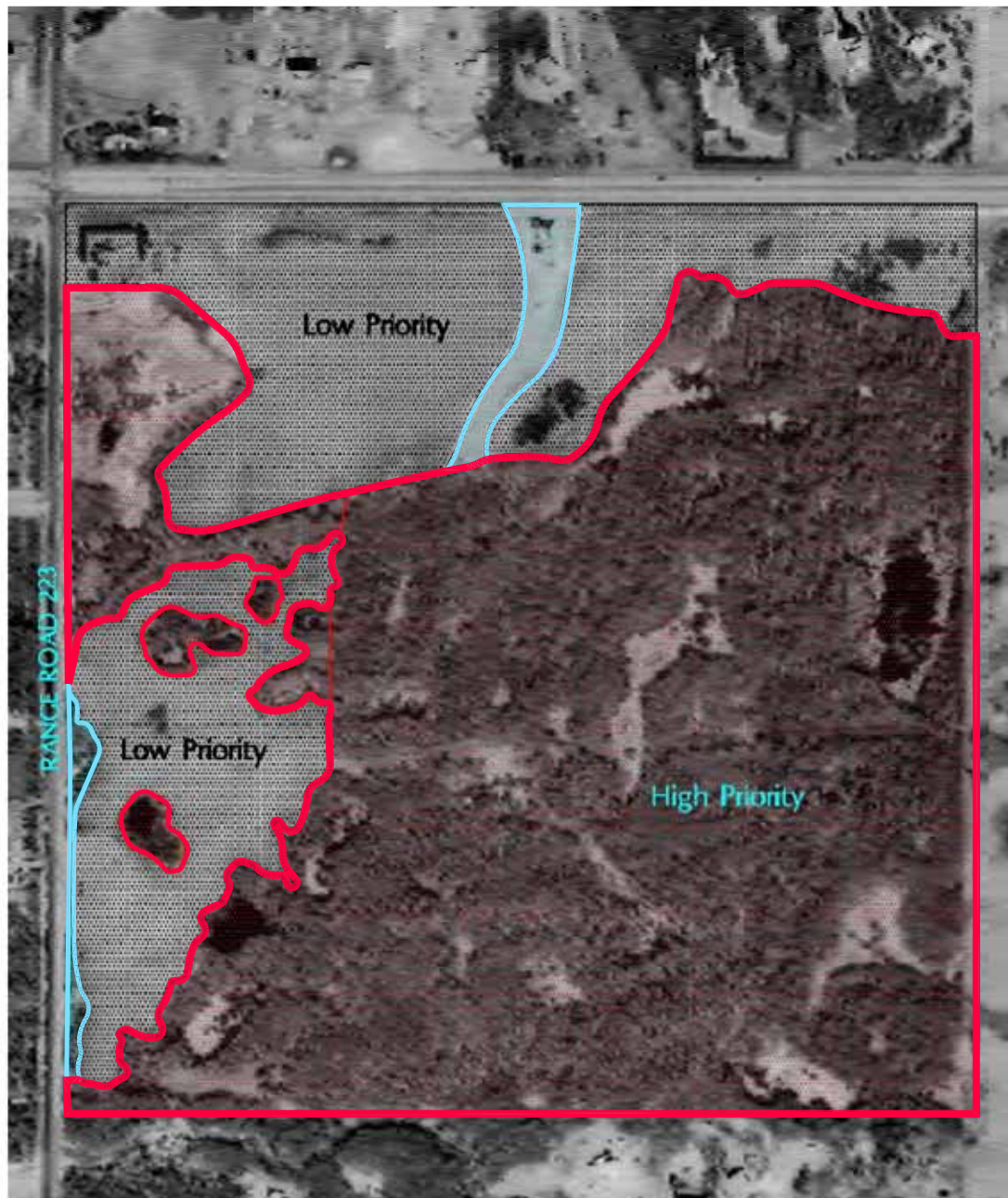
2.3.2 Environmental Site Assessment

Based on historic records and aerial photos, site inspection, extensive research and interviews with relevant agencies, the Phase 1 Environmental Site Assessment prepared by Sabatini Earth Technologies in April 2007 found no evidence of the following risk material on the subject site:

- Asbestos
- Petroleum products/solvents
- Chlorobiphenyls (PCBs)
- Lead, mercury, ozone depleting substances
- Urea formaldehyde foam insulation (UFFI)
- Herbicides/Pesticides
- Unidentified or Suspect Substances

Two water wells may need to be abandoned and if a septic field and a burn pit associated with the farmstead exist and are redeveloped, decommissioning may need to occur.

Based on the findings of the Phase 1 Environmental Site Assessment, Sabatini concludes that a Phase II



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Legend



Scale



Client/Project

THE GRANGE COUNTRY ESTATES

BIOPHYSICAL ASSESSMENT

Figure No.

4.1

Title

**Natural Area
Prioritization**



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The Grange Country Estates **Area Structure Plan**

Figure 4

Biophysical Assessment Priority Environmental Areas



assessment is not required. The Phase 1 Environmental Assessment Report has been submitted under separate cover in support of this Area Structure Plan.

2.3.3 Historical Resources

A Historical Resources Overview as per the Requirements of Alberta Culture and Community Spirit (Historic Resources Management Branch) has been completed by The Archaeology Group for the Plan area. The Overview concludes that no significant historic sites exist within The Grange Country Estates and recommends that no further Historical Resources Impact Assessment work is required.

The Overview has been submitted to Alberta Culture. Staff in the Historic Resources Management Branch agree with the recommendation.

2.3.4 Municipal Services

A low trickle piped water distribution system can be provided to the Plan area by tying into an existing 150mm water main that extends along the south side of Highway 630. A low pressure piped gravity sanitary sewer system is proposed by constructing a sewer line to link with an existing line located in Boag Lake Estates. Boag Lake Estates is located 1.6 kilometres west of The Grange. The proposed municipal servicing systems are described in more detail in Section 4.

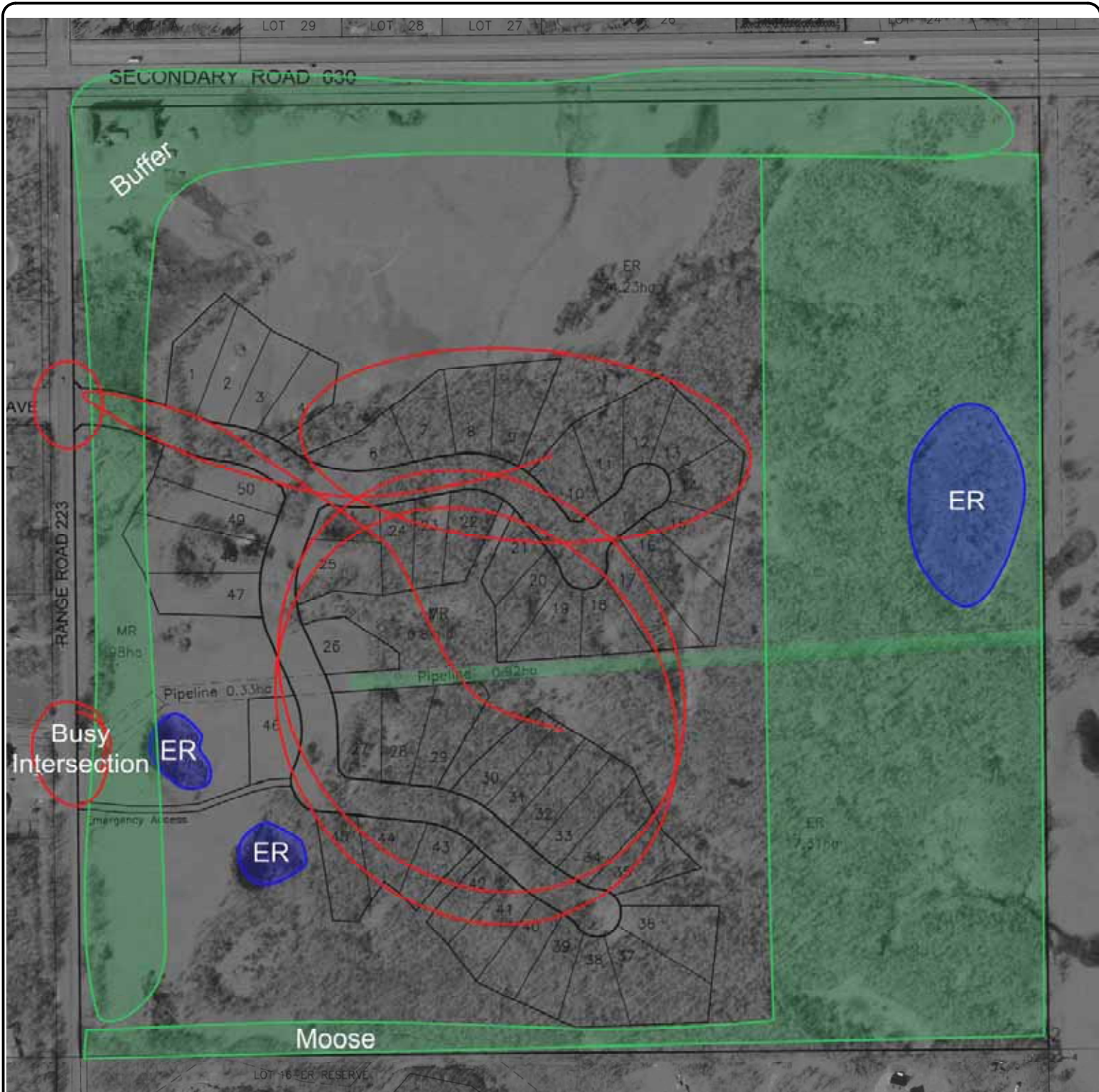
2.3.5 Adjacent Landowner Input

Landowners located adjacent to The Grange Country Estates were invited to participate in a Neighbourhood Design Workshop held on October 26th 2009 at the Ardrossan Memorial Hall. The primary purpose of the workshop was to obtain landowner input into designing The Grange Country Estates in a manner which applies the conservation policies of the County's Municipal Development Plan while respecting the rural character of the surrounding developed areas. The Workshop involved a design charrette and provided opportunity for dialogue with landowners to determine issues and concerns and to identify site features that landowners value.

Figure 5 shows a graphic representation of the landowners' input and clearly defines what areas adjacent landowners feel should be developed and what areas should be retained in their natural state.

Significant comments expressed by lands owners are listed below:

- The forest is habitat for moose, deer, fox and other wildlife species. Maintaining perimeter buffer corridors to allow for wildlife movement is important, particularly along the east and south sides of the site. The existing corridors are well utilized and add to the quality of life of adjacent landowners.
- Maintaining wetlands is important, particularly to control drainage in the southwest corner of the site such that adjacent lands are not adversely affected by flooding.
- Preserving as much of the tree cover as possible either as Municipal Reserve or by some other means is very important. Smaller lots are acceptable if a buffer and a portion of treed area can be retained.
- An emergency access near the south boundary of the site across from the existing stable is preferred to a subdivision road. The stable access onto the Range Road is already a busy intersection. Keeping the subdivision access at the north end of The Grange Country Estates across from Nestor Avenue is desirable for safety purposes.



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Access Location and Potential
Developable Areas as identified
by Landowners at Workshop
held in October 2009.

The Grange Country Estates

Area Structure Plan

Figure 5

**Adjacent
Landowner Input**

- If trails are built they should be for foot traffic only. No motorized recreation vehicles should be permitted. An acceptable option for restricting motorized vehicles is to not build trails.
- Architectural controls on building size, colours and other features is a good idea. An attractive entry feature at the north end of the subdivision is also desirable to promote a high quality of development and to enhance the overall aesthetic appeal of the community.
- Dark skies are important.

The input provided by adjacent landowners is recognized in the concept described in Section 3 and shown on Figure 6. The input provided was thoughtful and added considerable value to the design process. The collaborative approach recognized the needs of adjacent landowners as well as those of the developer.

2.4 Implications for Development

The comprehensive investigation and analysis of the Plan area described in this section result in the following implications for future development:

1. The proposed country residential use is compatible with the existing surrounding land use pattern. Existing country residential subdivisions surround the area on three sides and an agricultural quarter section borders it to the east. However, the existing subdivisions contain relatively large lots most of which are well in excess of 0.8 hectares (2.0 acres), the minimum lot size permitted under the Country Residential District of the Land Use Bylaw. If smaller lots are contemplated for The Grange Country Estates as a means of protecting some portion of the mature forest, a transitional buffering in the form of open space and setbacks should be considered along the perimeters of the Plan area. Such buffering will assist in retaining the existing rural character of the community.
2. The farmstead buildings will be removed and the existing access will be closed so that a new access into The Grange Country Estates is required. The approach should align with Nestor Avenue to provide for a safe all directional intersection on Range Road 223.
3. The mature trees surrounding the farmstead will be retained and will continue to contribute to the amenity value of The Grange site. Any decommissioning of a sewage system or burn pit will be required to be undertaken at the time of site development. The existence of a burn pit needs to be confirmed.
4. The abandoned purged pipelines do not adversely affect residential development. The mostly cleared easement right-of-way provides an opportunity for a trail extending from east to west along the entire width of the Plan area or may be incorporated into adjacent lots.
5. The variable hummocky terrain requires particular attention to detailed design to ensure that the roads follow the contours to the extent possible and that each proposed lot contains a suitable building site. The Municipal Development Plan requires that natural landscapes and topography be recognized in designing country residential subdivisions.
6. Identifying and protecting drainage channels also requires particular attention in designing the Plan area as is noted by the Biophysical Assessment. A topographic survey has been conducted resulting in 0.5 metre contour interval mapping undertaken for the westerly portion of the area and this will assist in this regard. Development of the site focuses on the westerly portion. Further refinement of the proposed design may be required at the subdivision stage.
7. From the results of the Sabatini Shallow Water Table Testing report, Table 1, areas of high near surface groundwater that may constrain development are predominantly evident along the north and west peripheries of the site.
8. The Biophysical Assessment of The Grange Country Estates determined that the large tract of contiguous mature-old growth aspen forest that covers much of the central/east portion of the site is a

High Priority Environment Management Area. The County's Municipal Development Plan requires that lands identified as High Priority Environment Management Areas be left undisturbed wherever possible. The Municipal Development Plan also requires that wildlife corridors or connections between Priority Environment Management Areas be maintained wherever possible. This means that the development of the Plan area should retain as much of this aspen forest as possible by concentrating development in the west half of the site and should be set back from the south boundary of the area to allow for wildlife corridor connectivity between the old growth forest along the east side of the site and patches of forested lands to the south and southwest.

9. The Phase 1 Environmental Site Assessment found no evidence of risk material on the subject site and concludes that a Phase II Assessment is not required. This means that the Plan area can be developed for country residential purposes.

10. No further historical archaeological investigation is required based on the Historic Resources Overview and the response of the Historic Resources Management Branch of Alberta Culture. No historical structures have been identified.

11. The plan area can be serviced with piped water and sewer systems. The development concept reflects this opportunity by providing a design that is efficient and compact.

12. Adjacent landowners are most concerned that as much of the tree cover as possible be preserved either as Municipal Reserve or by some other means. Smaller lots are acceptable if a buffer and a portion of the treed area can be retained. Maintaining perimeter buffer corridors to allow for wildlife movement is important to landowners, particularly along the east and south sides of the site. Preserving existing wetlands is also important.

13. No significant physical or manmade constraints to development have been identified on the site other than the low lying areas and areas of high ground water table that should be avoided.

The foregoing implications strongly support a design for The Grange Country Estates that applies the conservation design principles contained in Strathcona County's Municipal Development Plan. Conservation design directs development away from significant natural features and promotes a compact form of development. Municipal services can be extended more efficiently to a compact subdivision and a significant portion of the mature growth forest can be conserved in an undisturbed state. This means that the integrity of the forest to provide habitat for wildlife can be retained which is very important to adjacent landowners, the developer and the County.

3. THE DEVELOPMENT CONCEPT

3.1 Development Objective

The primary objective of The Grange Country Estates Area Structure Plan is allow for the development of a compact country residential community that retains as much of the mature growth forest as possible by applying conservation design principles. The Plan area is ideally suited to this design approach and for meeting the County's objective of building sustainable communities. The County's Municipal Development Plan requires that emphasis be placed on conservation design principles to develop the remaining Country Residential Policy Area. This will focus on conserving habitat, wetlands, treed areas, eco-systems and open space, as well as encouraging sustainable servicing options.

The compact form of development proposed for The Grange that is shown on Figures 6 is achieved by reducing lot sizes, limiting the length of roadway and concentrating development in the west portion of the Plan area. This means that a significant portion of the forest will remain undisturbed thereby protecting an important wildlife habitat for the enjoyment of existing residents and for future generations. Natural corridors are maintained to further support connectivity and a diverse wildlife habitat. The design incorporates and recognizes the topography of the Plan area so that disturbance of the landscape will be minimized to the extent possible.

Compact country residential development is also supported by the Capital Region Land Use Plan. Specifically, the Capital Region plan promotes cluster country residential development and defines cluster development as: *Rural lands that have been subdivided to create multiple residential lots that are connected to municipal or communal services, designed to group or "cluster" the residential uses together on smaller lots by applying conservation design principles to maximize the retention of open space.*

The Grange Country Estates site has been designed in a manner that achieves the vision of both the County's Municipal Development Plan and the Capital Region Land Use Plan by reducing the development footprint and conserving natural areas. Some 68 percent of The Grange Country Estates will be conserved as natural open space and that will be designated Environmental Reserve, Municipal Reserve and Public Utility Lots which will be developed as naturalized stormwater ponds.

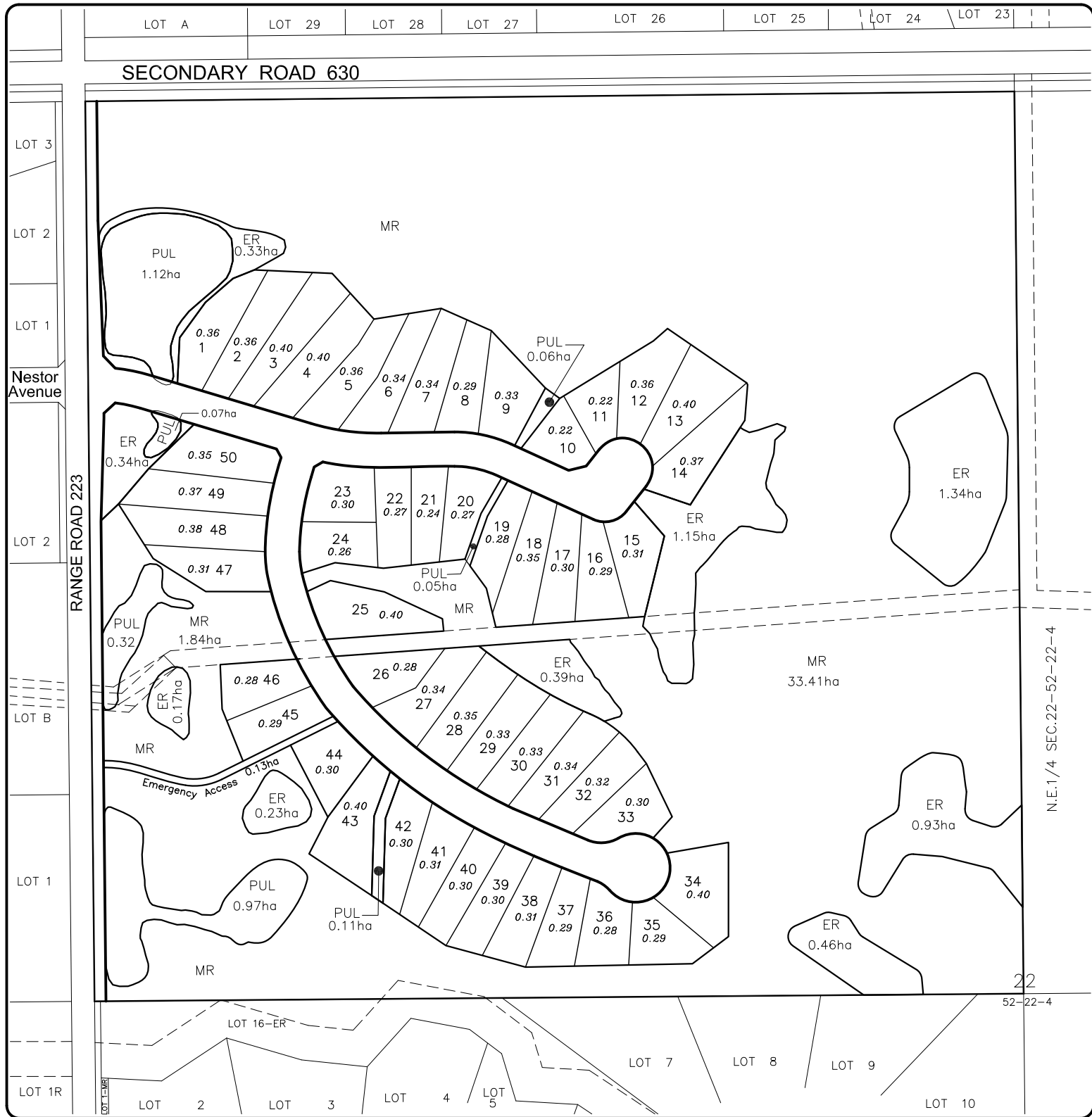
3.2 Design Elements

The significant design elements of The Grange Country Estates are described below:

1. As is noted above, about two thirds of the Plan area will remain undeveloped and will be dedicated to the County as a combination of Environmental Reserve and Municipal Reserve (see Figure 6A). The Environmental Reserve is applied to significant seasonal wetlands as confirmed by Strathcona County. The large land dedication will contribute substantially to the use and enjoyment of the natural area by all County residents. Care is required in managing the mature forest to protect the diversity of vegetation and wildlife it sustains.



Existing Wildlife Trail



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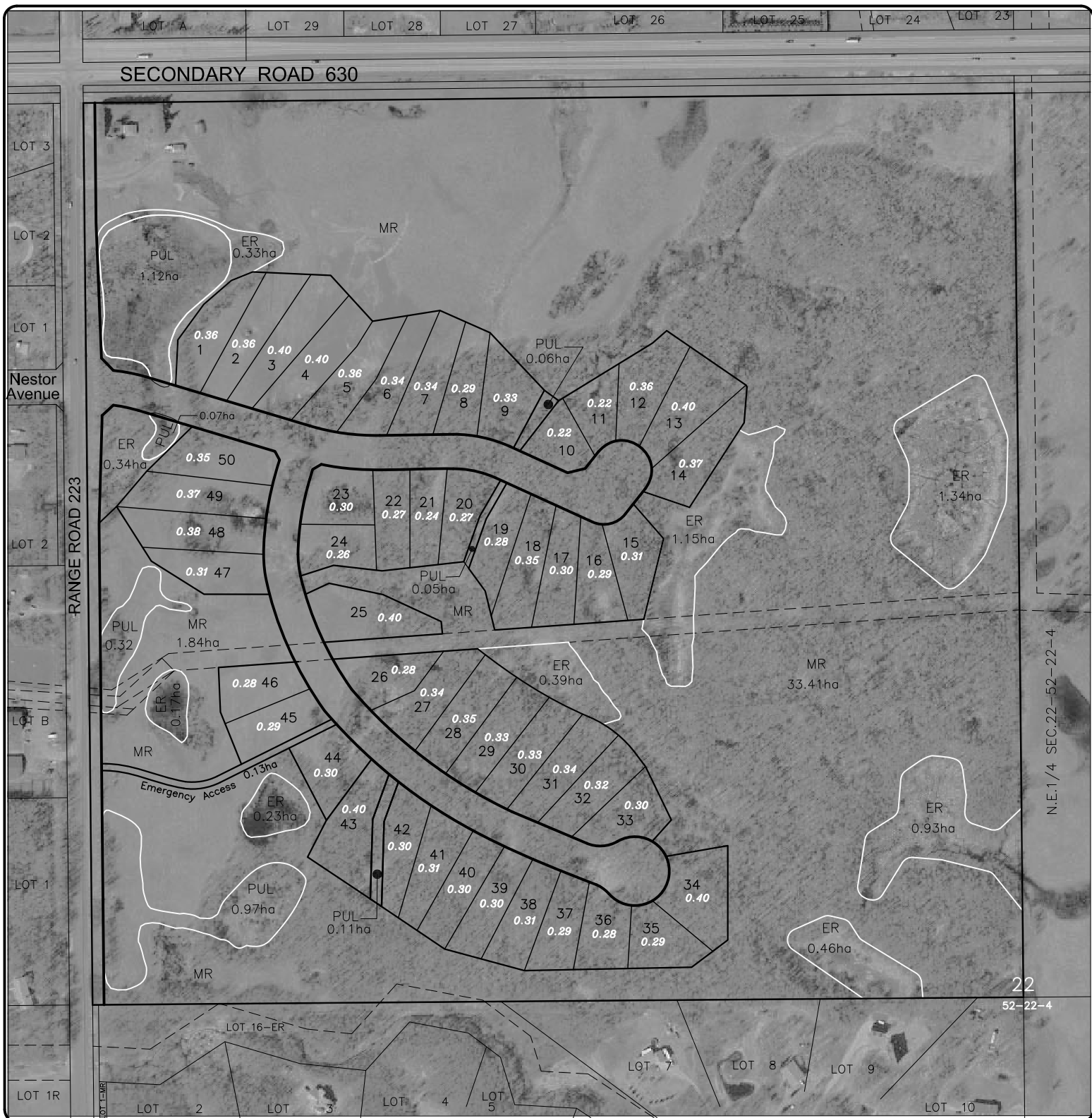


The Grange Country Estates

Area Structure Plan

Figure 6

**Design
Concept**



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The Grange Country Estates

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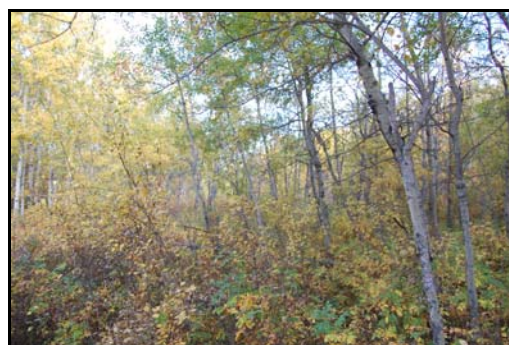
Figure 6A

**Design Concept
with Air Photo**

2. Trail development may not be necessary. Rather the focus should be on the identification of potential ATV access points, and physically blocking those.
3. The existing cleared pipeline right-of-way easement that extends through the entire Plan area may provide an opportunity for a naturalized trail.
4. The design concept results in the creation of 50 lots as per Municipal Development Plan policy 5.36(c). Lot sizes vary from just over 0.5 acres to 1.0 acre. Although significantly smaller than lots in the surrounding community, the lot sizes result in the compact form that allows for the conservation of about two thirds of the site as a natural area. Lot configurations closely follow the existing topography to the extent possible to ensure each lot contains a building envelope and that sensitive natural areas are not impacted. Figure 6B shows the development concept in the context of the site's topography as depicted by contour intervals. Figure 7 identifies building pockets based on required setbacks. Development pockets will be identified on each proposed lot at the detailed design stage.
5. An existing tree buffer is proposed to be retained along the entire length of the south side of the Plan area to allow for a transition between the future smaller lots and the larger traditional country residential lots located in Leuders Ridge. At its narrowest, the buffer is about 25 metres wide for a distance of about 90 metres. This buffer also functions as a wildlife corridor to allow for continued connectivity with other natural areas to the east and southwest.



Looking East at South Fence Line



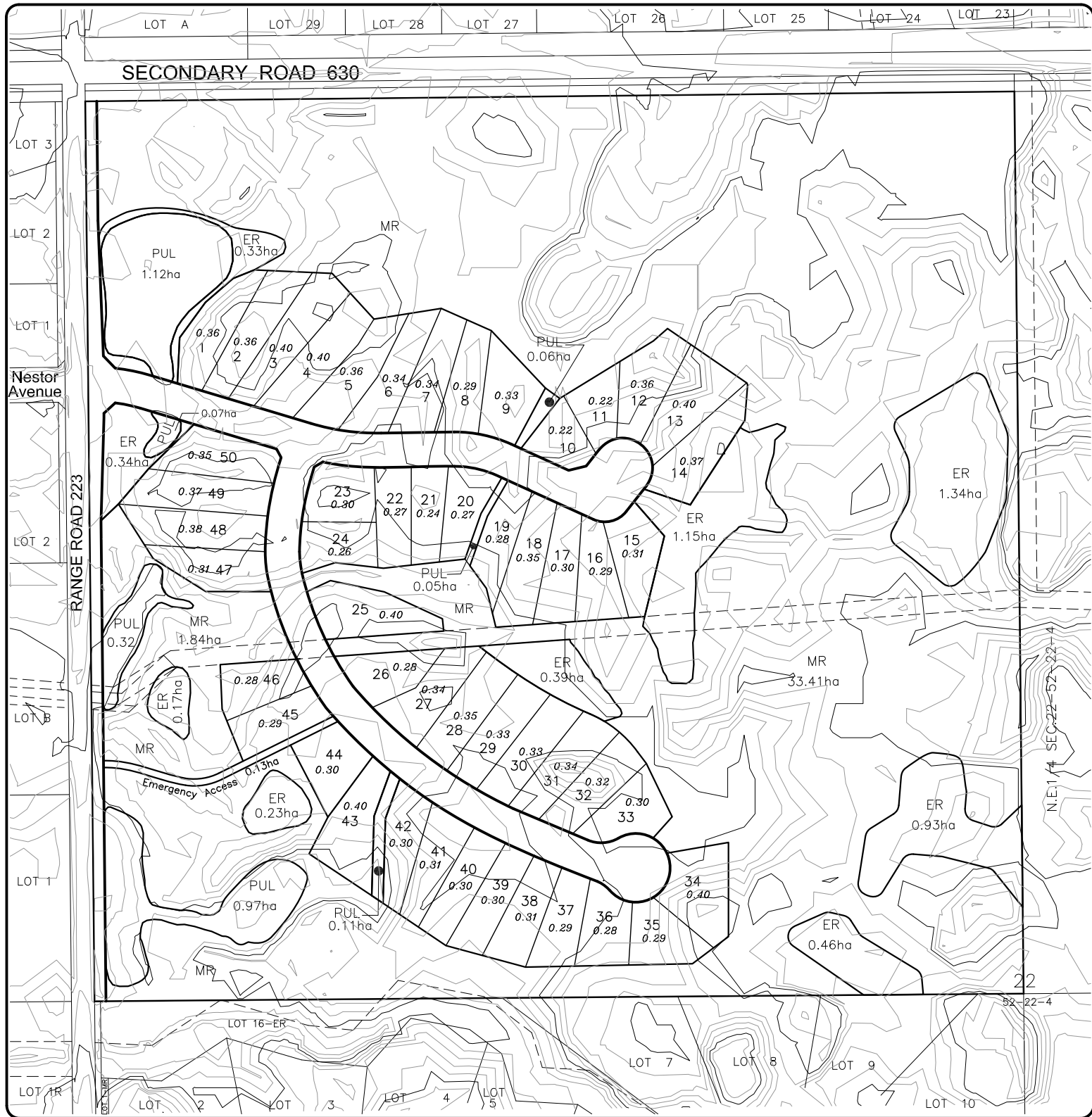
Looking South at Fence Line - Centre of Site

6. A single access off Range Road 223 directly opposite Nestor Avenue is proposed resulting in an all directional intersection. In recognition of the concerns of adjacent landowners regarding the amount of existing traffic generated by the existing stable, an emergency access is proposed near the south site boundary opposite the stable approach onto the Range Road. The emergency access will be constructed to County standards.

7. The internal subdivision access road extending off the Range Road splits into two roads ending in cul de sacs thereby reducing the length of roadway. The road pattern respects the topography of the site and avoids existing wetlands to the extent possible.



Range Road 223 and Nestor Avenue



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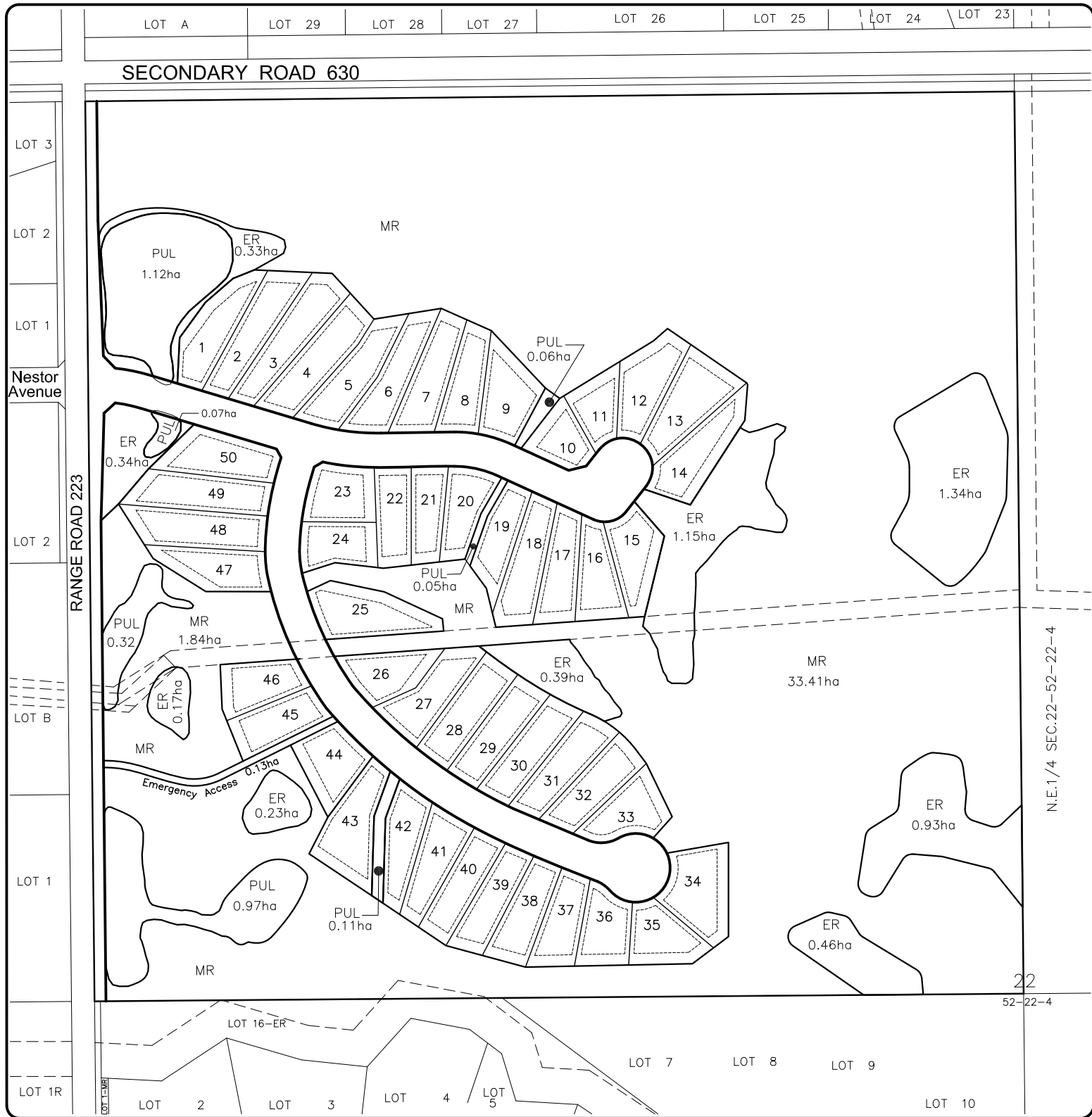
Area Structure Plan

Figure 6B

**Design Concept
with Contours**



1.0m Contour Interval



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The Grange Country Estates **Area Structure Plan**

Figure 7

**Building
Pockets**

8. An attractive entry feature will identify the Grange Country Estates subdivision. The entry feature will be constructed of high quality natural products in keeping with the predominantly natural character of the subdivision.

9. Existing wetlands located along the west and southwest boundary of the Plan area will be enhanced as naturalized stormwater retention features and are designated as Public Utility Lots.

10. The size of the lots combined with yard setbacks will assist in achieving fire smart objectives for safety purposes. In house sprinklers are also an option for future home owners. The site will be serviced by the Ardrossan Fire Station located about 7.5 kilometres to the north. Two evacuation routes onto the Range Road will be available in the event of a wild fire. The deciduous forest contained within the site is less prone to wild fires than a coniferous forest. Most of the surrounding area is also covered by deciduous tree cover or is cleared (see Figure 8).

Other design elements include additional fire smart principles as recommended by the County and the use of architectural controls to be applied as a restrictive covenant. Consistent lot address markers will be provided to ensure a high standard of development. The markers will provide low level lighting and address identification. No street lighting is proposed.

Examples of the types of fire smart principles and architectural controls to be applied include:

- Roofing and siding materials that may include fire resistant roofing material
- Colour of exterior walls
- Type of fencing
- Minimum house size
- Removal of highly flammable trees and shrubs, particularly conifers within 10 metres of the house
- Landscaping using selected species to compliment indigenous species and avoiding planting of coniferous species

The water level in the storm water management facilities proposed to be located along the west side of the Plan area will fluctuate but will be altered as a site amenity feature.

3.3 Land Use

Table 1 provides a summary of the land use breakdown proposed by The Grange Country Estates Development Concept.



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Figure 8

Fire Smart Factors

Table 1 – Land Use Area Breakdown

<u>Area</u>	<u>Hectares</u>	
Gross Area	63.76	
Environmental Reserve	5.17	
Range Road 223 Widening	0.84	
Gross Developable Area	57.75	100
Municipal Reserve	35.25	61.0
Public Utility Lots	2.87	4.9
Roads	3.57	6.3
Residential	16.06	27.8

Note: All areas shown on Table 1 are approximate and will be verified at the time of subdivision and detailed survey.

The land use area breakdown shown on Table 1 demonstrates the efficiency that can be achieved by applying conservation design principles to The Grange Country Estates. Of the total Gross Developable Area of 57.75 hectares, just 6.3 percent is dedicated for roadways, and 27.8 percent will be residential.

The remaining 65.9 percent or 38.12 hectares will be open space that includes Municipal Reserve lands and naturalized stormwater ponds (Public Utility Lots). An additional 5.17 hectares will be designated Environmental Reserve so that the total open space is increased to 43.29 hectares or 68 percent of the Gross Area of 63.76. Where appropriate, marker posts will be used to delineate between privately owned lands and reserve lands

The retention of 68 percent of the Plan area as open space means that much of the High Priority Environment Management Area will remain undisturbed, existing wildlife corridors will be maintained and a significant natural buffer around the perimeter of the Plan area will be provided. Combined with the efficient roadway pattern, the design meets the County's fiscal and environmental sustainability principles as per Strathcona County's Municipal Development Plan. The Grange is the first country residential subdivision to which these principles have been applied since the current Municipal Development Plan was approved in 2008. As was previously noted, it also complies with the Capital Region Board Land Use Plan policies.

3.4 Population and School Generation

The projected population for The Grange is 150 persons, assuming 3.0 persons per unit. The school generation projection is 33 students, as per Table 2 below. The school population will be accommodated within the Elk Island School Board system. School generation factors are assumed to be 0.49 students per housing unit for Kindergarten to Grade 9 and 0.15 students per housing unit for Grades 10 to 12. The source for the school generation factors is the 2009 Salisbury (South Wye) Area Structure Plan.

Table 2 – Student Generation

	Junior High	Senior High	Total
# of Students	25	8	33

4. MUNICIPAL SERVICES

4.1 Access and Internal Roadways

Access to The Grange Country Estates will be from Range Road 223 directly opposite the existing access to Rolling Forest Estates (Nestor Avenue), approximately 275 metres south of Wye Road (see Figure 9). The subdivision access will incorporate an acceleration/deceleration lane. Internal roads will consist of a modified urban cross section that will transition to a 30 metre rural cross section before intersecting with Range Road 223. The final cross section requirements will need prior approval from Strathcona County.

As the development will have only one primary access, an Emergency Access will be provided approximately 325 metres south of the main access, aligning with an existing driveway accessing a riding arena/stable. The primary access will include acceleration and deceleration tapers in accordance with County requirements. The Emergency Access will consist of 6.0 metre wide paved surface, completed with T-bollards, in a 13.0 metre right-of-way.

In accordance with the County requirements, the Plan dedicates an additional 10 metres of road widening along the east side of Range Road 223.

Alberta Transportation (AT) has sole jurisdiction on Highway 630 (Wye Road), and a Roadside Development Permit Application must be submitted to AT for this proposal as it lies within 300 metres of the Highway right-of-way. A 30 metre wide easement for the purposes of a future service road adjacent to Highway 630 as shown in Figure 9 is required by Alberta Transportation for a future service road to access the NE ¼ of 22-52-22-W4 located directly east of the Plan area. In the event that further road widening is required for Highway 630 additional land to the south may be required and Municipal Reserve lands will be impacted.

In the event that the development is Staged - see Section 5 – a temporary turnaround will be required until such time as Stage 2 construction is completed. Access locations to individual lots will be determined at the time of detailed design.

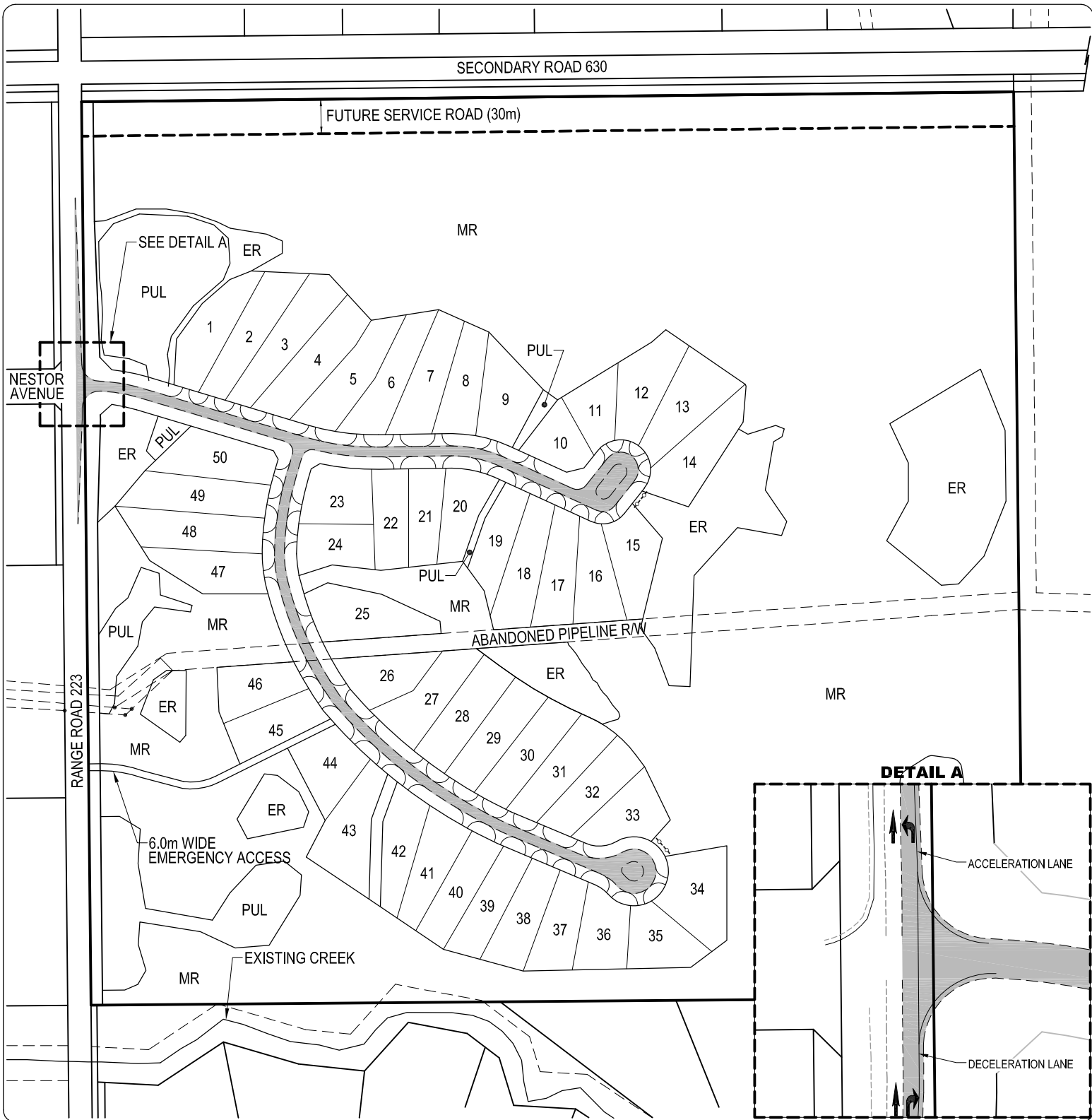
Trail development may not be necessary. Rather, the focus should be on the identification of potential ATV access points, and physically blocking those. Generally, ATV usage within Reserve lands will be prohibited.

4.2 Traffic Impact Assessment

A Traffic Impact Assessment (TIA) has been prepared, and addresses the impact of the traffic generated from the proposed development on both Wye Road (Secondary Highway 630) and Range Road 223. The TIA identifies that, other than the County requirement for acceleration/deceleration lanes at Range Road 223 and the proposed access, no improvements are required to either Wye Road or the Range Road. The TIA identifies the need for intersection illumination at Wye Road and Range Road 223 and will be addressed prior to the development of The Grange Estates.

4.3 Noise Attenuation

As specified by the Strathcona County Municipal Policy Handbook, noise levels were predicted for a volume of 27,000 cars/day and 7,500 vehicles per day on Highway 630 and Range Road 223 respectively and the 2030 traffic volume. At the proposed setbacks of the development noise levels were determined to be less than the 55 dBA threshold and no noise attenuation is required. At the time of future Highway 630 improvements to a four lane divided highway per Alberta Transportation policy additional noise attenuation will be addressed by Strathcona County.



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Figure 9

(Amended January 2011)

**Access and Internal
Roadways**

4.4 Water Distribution

Potable water will be brought to the site by the construction of a 50mm diameter watermain from an existing service located north of Wye Road on Range Road 223. The 50mm watermain will be directionally drilled south along Range Road 223 to the entrance of The Grange Country Estates opposite Nestor Avenue (see Figure 10).

Within the proposed development, lots will be serviced by a 50mm trickle flow watermain. It should be noted that, consistent with the provision of domestic water with small diameter mains to Country residential developments, traditional fire protection through hydrants cannot be provided. Accordingly, residents may consider introducing fire protection within the dwelling, in the form of a dedicated fire tank and sprinkler systems, in accordance with the Alberta Building Code.

It is anticipated that all small diameter water mains will be directionally drilled throughout the development.

4.5 Sanitary Drainage

4.5.1 Off-site Improvements

The Grange Country Estates will be serviced by an extension of the Boag Lake Estates STEP (Septic Tank Effluent Pump) low pressure sanitary system, complimented by upgrades to the existing STEP system in the Wyeclyff neighbourhood west of Boag Lake. By implementing improvements to the existing system, another 125 lots can be accommodated. The Grange Country Estates will capture 50 of those lots and another six will be dedicated to lands between Boag Lake and the Plan area. Such lands have provided the easement necessary to bring the sanitary to the Plan area.

Improvements to Wyeclyff will include twinning approximately 1,200meters of 100mm diameter main. The existing sewer will remain operational and no new service connections will be made to the new sewer.

To extend the existing STEP from Boag Lake to The Grange Country Estates, a 75mm diameter main will be extended from Boag Lake Drive, south along Range Road 224, beneath Wye Road, then directly east in a dedicated sewer easement to Nestor Avenue in Rolling Forest Estates, finally connecting to The Grange Country Estates at Range Road 223.

4.5.2 On-site Improvements

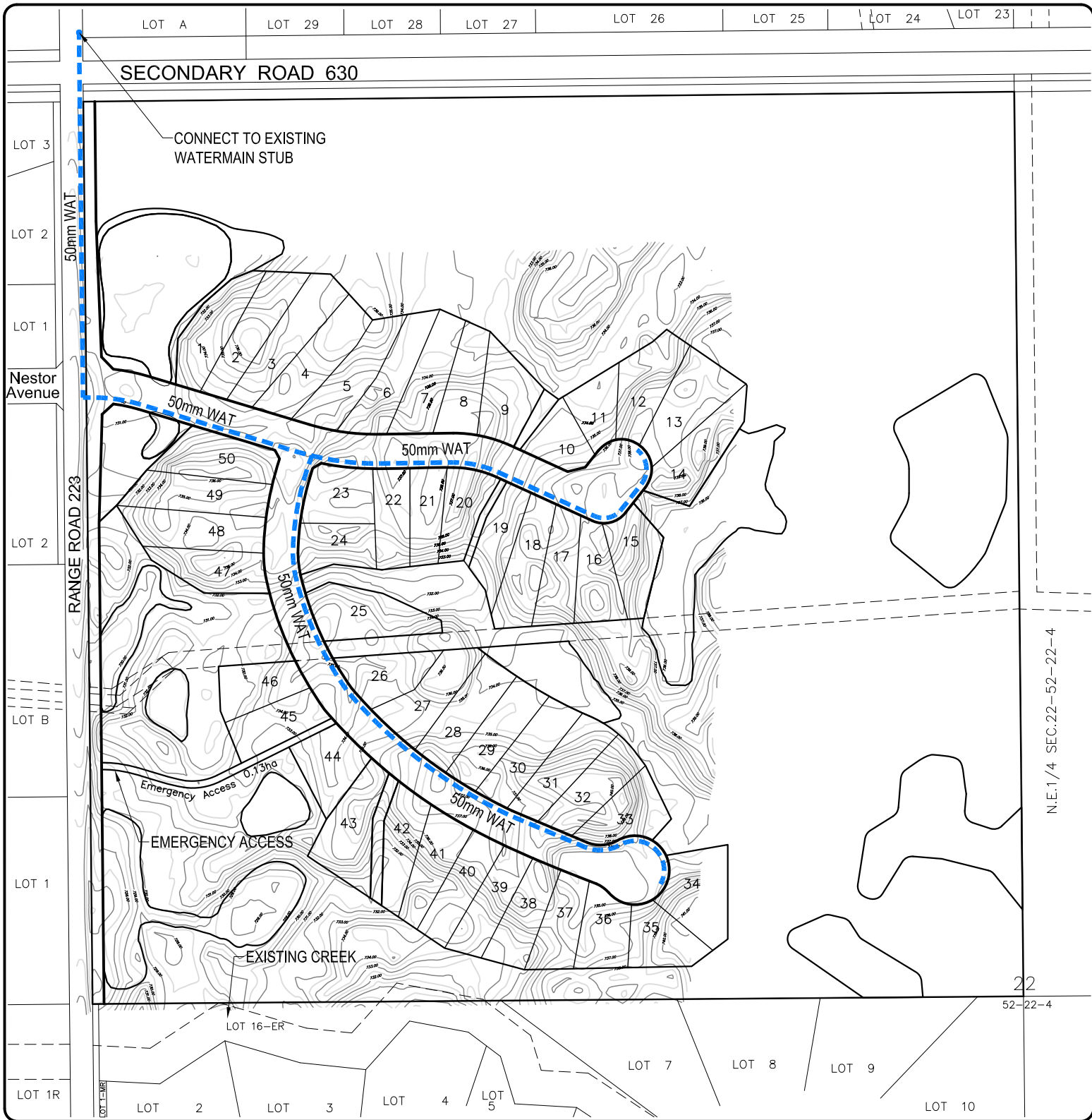
The 75mm main from Nestor Avenue will be extended into the Plan area up to the first intersection, and then be downsized to a 50mm main throughout the balance of the development (see Figure 11). Each lot purchaser will be responsible for the supply and installation of the required low pressure pump and STEP holding tank.

All low pressure sewers will be directionally drilled thus minimizing disturbance to the surface, important especially where the sewer passes through developed properties.

4.6 Storm Water Drainage

Generally, topography in the Plan area slopes from east to west, north to south, and contains some fairly well-defined, perhaps seasonally wet drainage channels (see Figure12). As such, the area can be generally broken into three main catchments:

1. The northerly catchment directs existing run-off to Wye Road, where it ponds before crossing the Highway through a culvert, discharging to the north into an ill-defined channel through Buzenus Estates.



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The Grange Country Estates Area Structure Plan

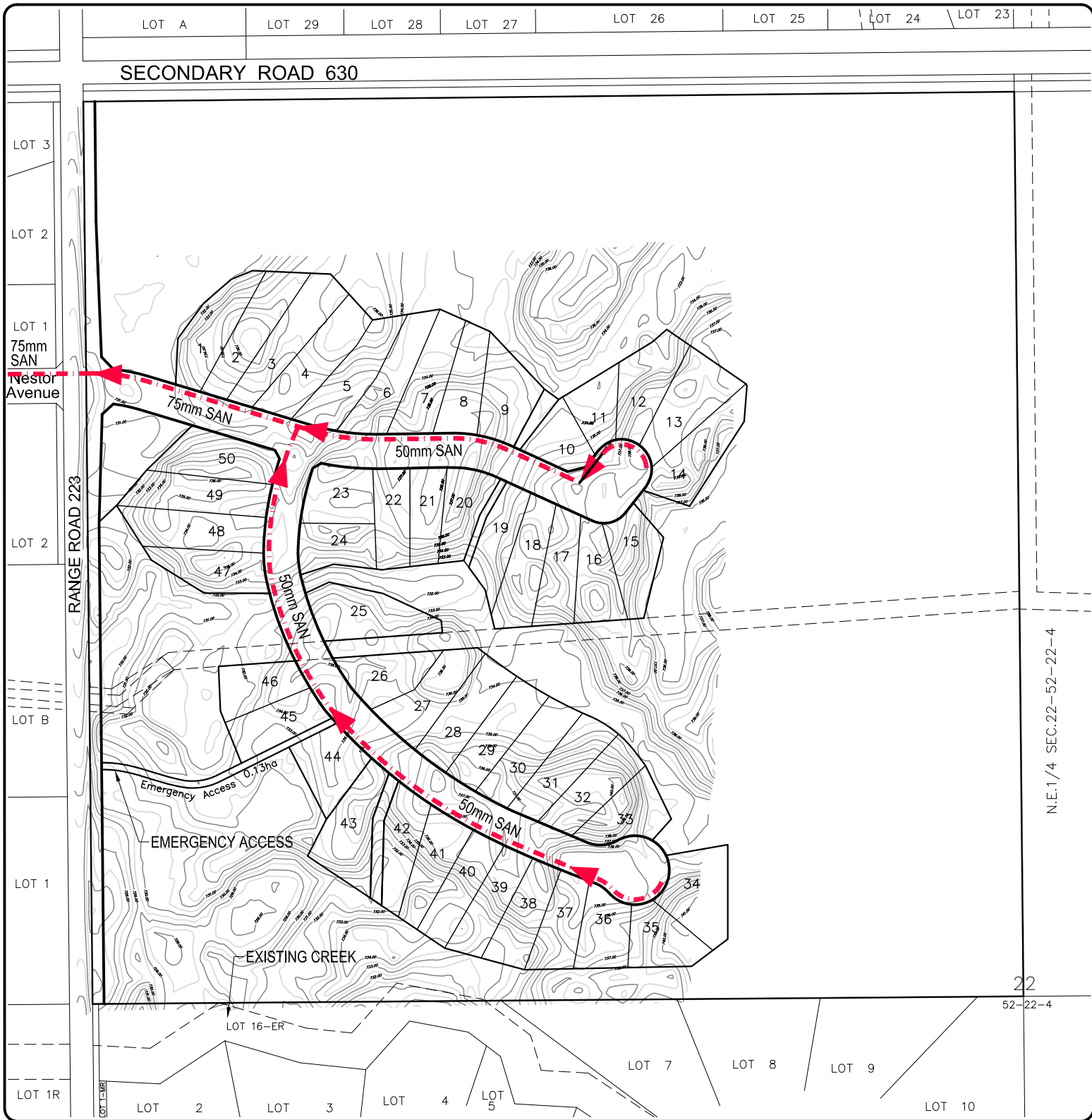
Figure 10

Water Distribution Concept



LEGEND

--- WATERMAIN



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The Grange Country Estates

Area Structure Plan

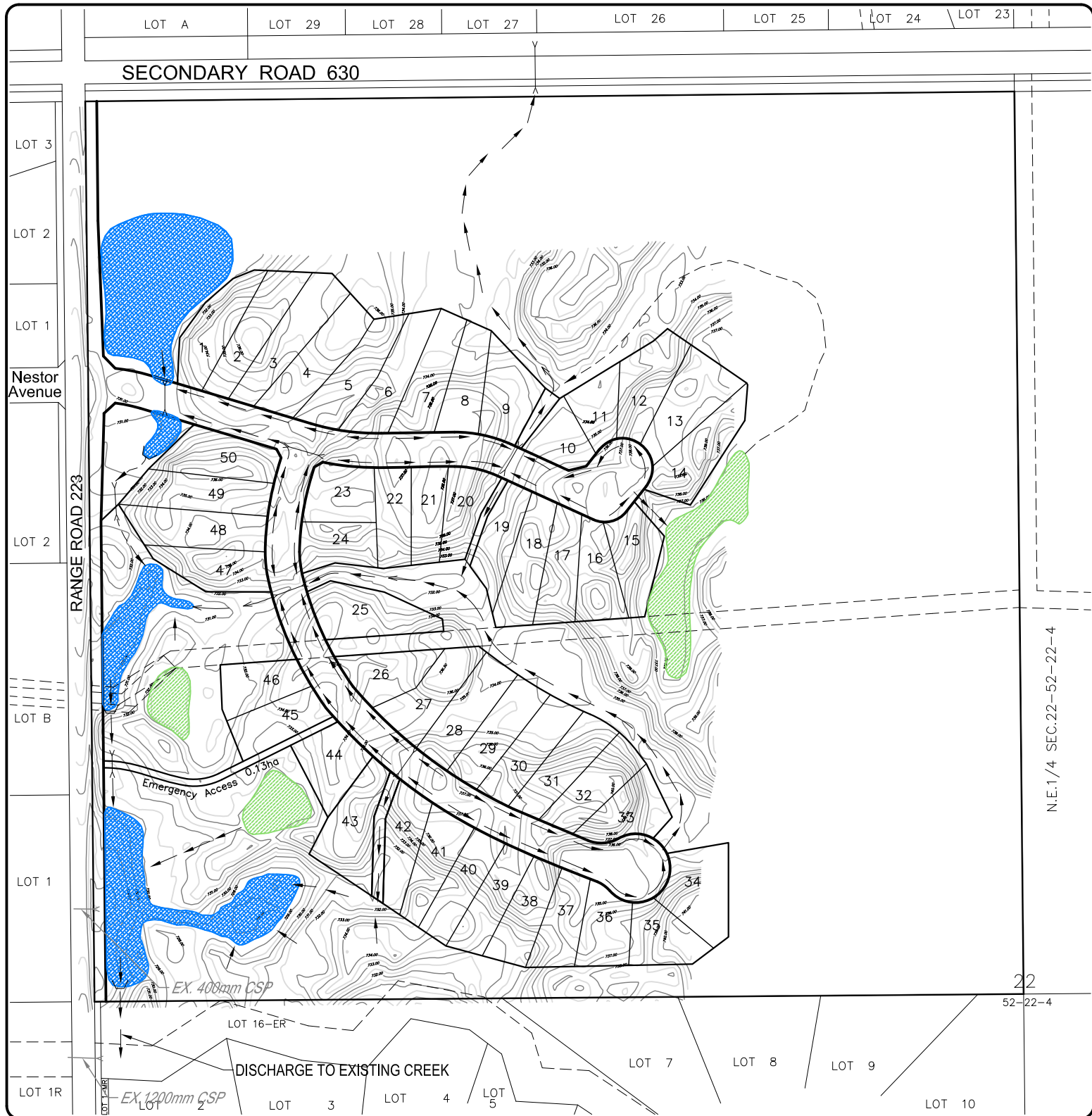
Figure 11

On-Site Sanitary Drainage Concept



LEGEND

--- L.P. SANITARY PIPE



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The Grange Country Estates Area Structure Plan

Figure 12

Stormwater Management Concept

2. A central catchment directs flows from the east portion of the Plan area through a well defined gully, day-lighting at Range Road 223 south of Nestor Avenue, where it ponds adjacent to the road. Should inundation of the ponding area occur, a natural overflow channel exists parallel to and east of the Range Road, allowing the flows to continue south, ultimately discharging into an existing watercourse immediately south of the Plan area. The watercourse is a tributary of Oldman Creek, which eventually discharges into the North Saskatchewan River.

3. A southerly catchment area sees surface run-off discharging either directly to the creek to the south, or being captured by existing low areas in the south west corner of the site. During inundation, these low areas would overflow into the creek.

The proposed stormwater management scheme for The Grange Country Estates will retain the intent of Catchment 1, whilst ensuring the post development discharge into Buzenus Estates does not exceed existing. Catchments 2 and 3 will be amalgamated into a series of three stormwater features – altered wetlands – along the east side of Range Road 223. In the event of major storms, the northerly pond, if inundated, will cascade into the central pond, which in turn, will cascade into the proposed pond in the southwest corner of the Plan area, before discharging, under controlled conditions to the creek. The proposed pond locations generally coincide with existing wetlands, and nominal modifications to those wetlands may be necessary to ensure adequate storage is provided during the major storm events.

The stormwater management concept will, where possible, take advantage of natural topography and disturbance will be kept to a minimum. In the event that existing wetlands are disturbed during the implementation of the plan, “hot” soils from those wetlands will be separated out to the extent possible and reused to accelerate naturalization in the new stormwater features.

It is anticipated that the development will see the removal of a total of 0.36 ha from 2 separate locations of wetland. However, this will be replaced by in the order of 2.5ha of naturalized wetland areas, providing in the order of a 7:1 increase in wetland habitat.

Stormwater management design and construction will be subject to licensing under the Water Act, and the Environmental Protection and Enhancement Act. Further, approval has to be secured from Alberta Sustainable Resources for discharge into the creek to the south.

4.7 Geotechnical Investigation

In March 2007, Sabatini Earth Technologies (SETI) completed Shallow Groundwater Testing within the Plan area. As is noted in Section 2.2, the results of the testing are contained within the Engineering Design Brief, but generally, the testing concluded that 80% of the Plan area contains high and dry land and is suitable for development. Concentrations of low areas where the near surface groundwater tables is within 2.0 metres of the surface are generally found along the north, east and west perimeters of the Plan area. Some of these areas correspond to the wetlands identified by the Biophysical Assessment, and will be used to create the proposed stormwater management plan.

To the extent possible, the proposed layout of the Grange Country Estates follows the higher ground in the west/central portion of the site, providing good building pockets away from the areas of identified high groundwater. Table 1 in the above noted SETI report illustrates that nowhere within the proposed developed portion of the site will groundwater be within 2 metres of the surface.

The soils stratigraphy generally consists of topsoil (or pockets of peat) overlying clay, followed by clay till, and is generally considered good for development purposes.

At the time of detailed design, a plan will be prepared that illustrates the preferred building pocket for each lot.

As the development will be serviced by low pressure sanitary sewer, no percolation tests were taken to

determine the suitability of the site for septic fields.

The minimum road structure will be as per the County's Rural Engineering Servicing Standards.

4.8 Shallow Utilities

Power, telephone, and gas utilities exist along Range Road 223 adjacent to the site, and accordingly, these services will be extended to service individual lots. All internal shallow utilities will be buried.

4.9 Site Development

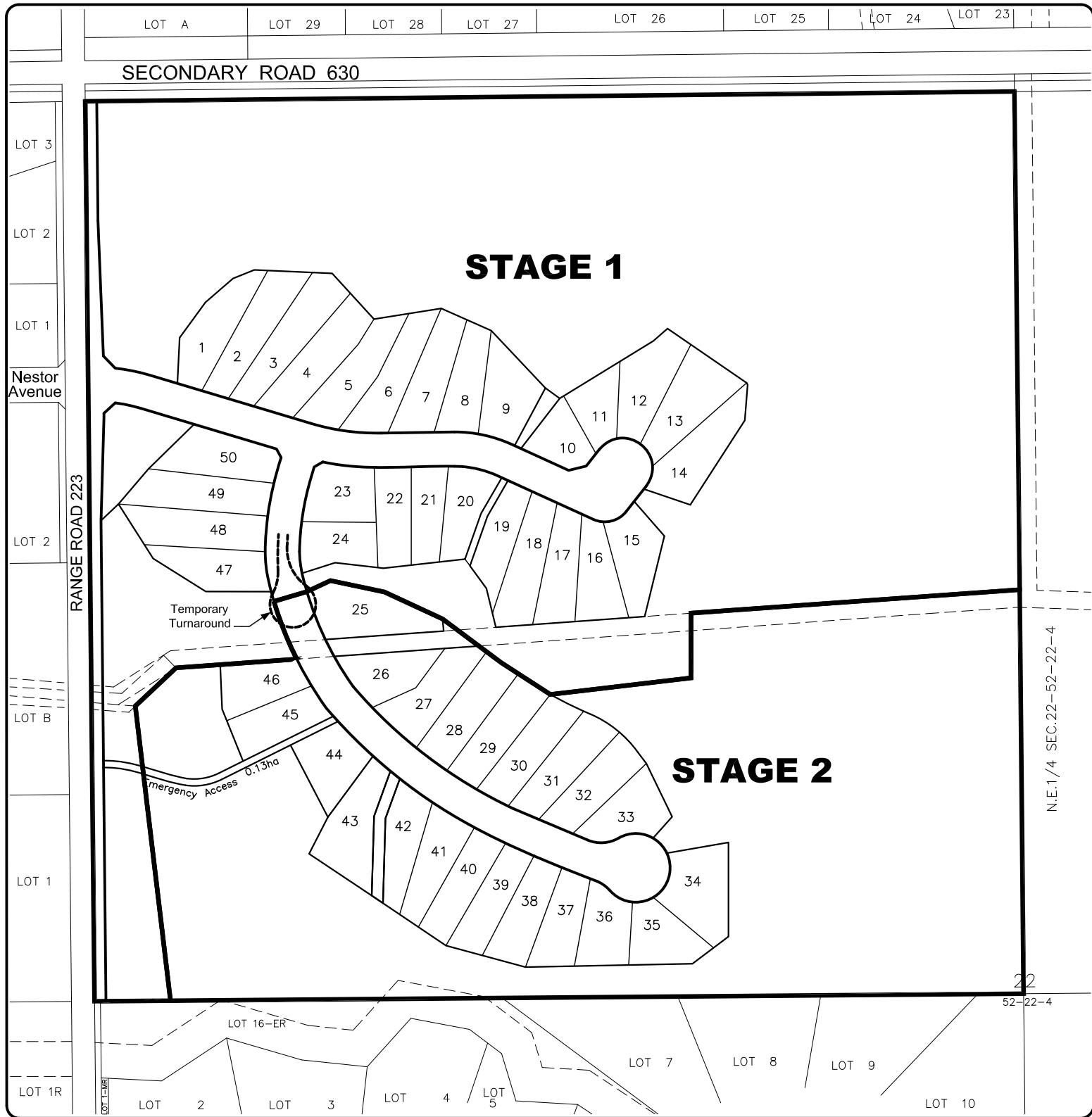
Due to the undulating nature of the topography within the central portion of the Plan area, some cuts and fills will be required along the rights of way to ensure surface run-off from roadside ditches is directed away from proposed residential lots. Complimenting this, some filling within individual lots will be necessary to ensure run-off from roadside ditches will not enter the lots.

Disturbance to the trees and grading within the lots will be minimized to the extent possible. For individual lots, an optimum building pocket will be identified and generally, tree clearing and any necessary re-grading will take place only within the building pocket. In most cases, the balance of the lot will remain in its natural condition, and in many cases, where the natural building pocket lies close to the road, large areas of forest should remain towards the backs of the lots.

5. STAGING AND IMPLEMENTATION

Proposed staging is shown on Figure 12. The Grange Country Estates will be developed in two stages commencing in the north, and then extending in a southerly direction.

The Land Use Bylaw will need to be amended to allow for the construction of The Grange Country Estates community. A Direct Control District will be required that recognizes the unique characteristics of the design.



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The Grange Country Estates **Area Structure Plan**

Figure 13

**Possible
Staging**